

Tasmanian Year Book



1970

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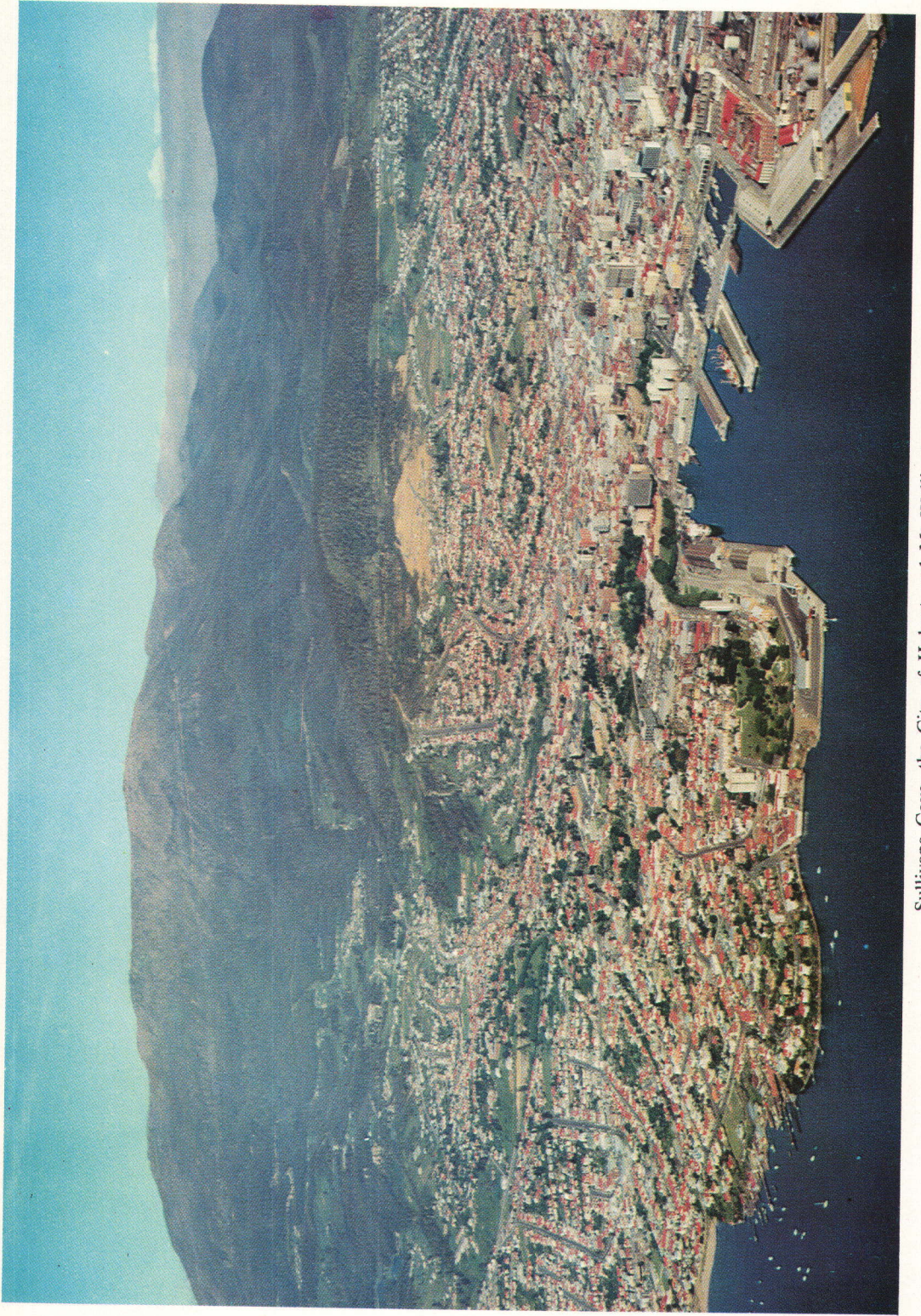
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TASMANIAN YEAR BOOK

No. 4-1970



Sullivans Cove, the City of Hobart and Mt Wellington

(Dept of Film Production)

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No. 4 — 1970

R. LAKIN

Deputy Commonwealth Statistician

and

Government Statistician of Tasmania

Commonwealth Bureau of Census and Statistics

Tasmanian Office, Hobart

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PREFACE

This is the fourth issue of the *Tasmanian Year Book*, the first appearing in 1967.

The Year Book is designed to present a comprehensive statistical and descriptive account of the physical environment and of the social, demographic, economic, etc. structure of the State with particular emphasis on change and development in more recent years. The first two Year Books featured a great deal of historical material, but in subsequent issues this has been reduced and greater emphasis placed on expanding the contemporary record. Special historical articles dealing with the early administration of Tasmania and on other matters of general interest will, however, continue to appear. In this issue articles have been included on the administration of Sir John Eardley-Wilmot (1843-1846) and on Thomas Gregson, the second Premier of Tasmania.

As far as possible the latest available statistics at the time of printing and significant developments which have occurred in 1969 have been embodied in each chapter. However, where this has not been practicable, brief details have been included in Appendix C 'Later Information'.

More detailed statistics relating to matter treated generally in the Year Book are available in the various Bulletins and other publications issued by the Bureau. Information about these publications is provided in Appendix A.

I gratefully acknowledge the valuable assistance given by officers of the various Commonwealth and State Departments and by others who have contributed information, often at considerable trouble, and by those who have provided photographs. Especially I should express my appreciation to the Government Printer and his staff for their enthusiasm and co-operation in printing this volume.

The Year Book has been compiled under the direction of Mr J. M. Holliday, B.COM.; Mr D. G. Rayner, B.A. DIP.ED. was responsible for the greater part of the editing of this issue.

R. LAKIN

Deputy Commonwealth Statistician

and

Government Statistician of Tasmania

Commonwealth Bureau of Census and Statistics,
HOBART, January 1970

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SYMBOLS AND USAGE

The following symbols where used mean:

- n.a. Not available.
- n.e.i. Not elsewhere included.
- n.p. Not available for separate publication; included in totals where applicable.
- p Preliminary—figure or series subject to revision.
- r Figure or series revised since previous issue.
- .. Nil or less than half the final digit shown, or not applicable.
- Break in continuity of the series. (Where drawn across a column between two consecutive figures.)

A blank space indicates the figure is not yet available.

Values are shown in Australian dollars (\$) and/or cents (c).

Any discrepancies between totals and sums of components in tables are due to rounding.

LOCAL NAMES OF CERTAIN REGIONS

Tasmanians describe certain regions in a manner confusing to strangers; nevertheless this book employs local usage in most contexts. The chief peculiarities are:

North-West Coast: The *north* coast from approximately Port Sorell west to Cape Grim is called the *north-west* coast.

North-East Coast: The *north* coast from approximately Low Head east to Cape Portland is called the *north-east* coast. With most of the north coast referred to as either 'north-west' or 'north-east', the term 'north' is rarely applied to this coastal region.

West Coast: The Tasmanian west coast may refer only to the mining settlements of Queenstown, Rosebery, etc. In other contexts, the user may be thinking of inland mountains and rainforests, rather than of a coastline.

Midlands: The true midlands are probably the Central Plateau but the Tasmanian term means the rural area east of the Plateau, and lying along the axis of the Hobart-Launceston road.

Chapter 1

HISTORY AND CHRONOLOGY

DISCOVERY

The Period of Dutch Exploration

In the authors of antiquity, references are found to a land called 'Terra Australis' but it is the Dutch who are credited with the discovery of both Australia and Tasmania. The Dutch, with their trading posts in Java, represented the closest extension of European sea power near the north of the unknown continent and its discovery, either by accident or design, became inevitable.

In 1606, Captain William Jansz in the *Duyfken* was sent from Java to explore the islands of New Guinea and, crossing Torres Straits unawares, coasted along the west of Cape York Peninsula; this was the first of a series of voyages by Dutch captains who, in the next thirty years, acquired some knowledge of the western shores of the unknown land. Not all voyages were undertaken with the aim of exploration—Dirk Hartog's long journey along the western shore of Australia in 1616 resulted from his sailing too far east on the route from the Cape of Good Hope to Java. Some later captains on the same route even regarded the western Australian coast as a suitable landfall before turning north for Java—a commentary on the difficulty of navigation when longitude had to be established by dead reckoning.

In 1642, the Dutch East India Company despatched from Java an expedition of two vessels, the *Heemskirk* and *Zeehan*, under Captain Abel Tasman, with instructions to investigate the extent of the unknown land thought to exist between New Guinea and the coast of western Australia. One immediate aim of the Governor General, Anthony Van Diemen, was to find a southern route from Java to Chile so that ships of the company could either trade or plunder along the Pacific coast of South America; a question to be resolved was whether any land mass extending far south blocked such a route.

The original plan was to sail west to Mauritius, to run down to 52° or 54° South latitude and then to proceed east; assuming no land was discovered, it was then intended to turn north in either the longitude of eastern New Guinea or possibly of the Solomons. If Tasman had followed this plan in every detail, he might have discovered the east coast of Australia, anticipating Cook's work by more than a century. As it turned out, the extreme southern latitudes were too hostile and accordingly Tasman was sailing east in latitude 42° South when he sighted the mountainous west coast of Tasmania on 24 November 1642.

The Dutch navigator skirted the south coast and made a landing on the east coast for water in Blackman Bay (from an anchorage south of Marion Bay). He then sailed north to St Patricks Head, crossed the Tasman sea and discovered New Zealand, returning to Java by a route to the north of New Guinea. Tasman had thus performed the feat of circumnavigating Australia in a single voyage without once sighting the Australian continent.

In honour of the Governor General of the Indies, he named the first discovery Van Diemen's Land, imagining it to be the most southern extension of the Australian continent, an illusion that was only completely dispelled by Bass and Flinders when they circumnavigated the island in 1798. The Dutch did not follow up the discoveries of Tasman or their other explorers because they were interested in establishing trading posts only among peoples with a higher degree of civilisation than the natives of Tasmania or Australia appeared to possess. (Tasman's crew saw no natives in Tasmania but inferred their existence from sounds, cuts in trees and the smoke of fires.)

The Period of British and French Exploration

One hundred and thirty years passed before Tasmania was visited again, this time by the French navigator Marion du Fresne in 1772; he virtually repeated Tasman's original landfall, skirted the south coast and came to anchor in the bay that bears his name (Marion). His visit is memorable for the first contact between Europeans and Tasmanians and for the slaying of the first native by gunfire. Du Fresne himself was killed by Maoris in New Zealand on the same voyage.

A year later, Captain Tobias Furneaux in the *Adventure* became separated from Captain Cook in the *Resolution* on the route to New Zealand, and made for Tasmania to obtain water. He eventually anchored off Bruny Island in Adventure Bay but mistakenly believed himself to be in the area of Tasman's original landing which was at least forty five miles to the north-east. From this original error sprang a confusion in nomenclature which persists to this day (e.g. Frederick Henry Bay, first named in Tasman's record, appears on maps in an area that Tasman did not even see). Furneaux then sought to investigate the possibility of a strait separating Tasmania from the continent recently explored by Cook but shoals in the islands bearing his name (Furneaux Group) caused him to desist and make for New Zealand.

In 1777, Cook, on his third voyage, used the Adventure Bay anchorage without detecting Furneaux's navigational errors.

The settlement at Port Jackson in N.S.W. in 1788 put Tasmania on a major sailing route, the first fleet passing south of the island on its way. To have sailed north of the island would have invited shipwreck on the Australian 'mainland' of which Tasmania was then believed to be part. In the same year, Captain William Bligh put in to Adventure Bay with the *Bounty* on his way to Tahiti and to the famous mutiny; he had been on Bruny Island before as Cook's sailing master.

Captain Cox of the *Mercury* anchored in the bay known as Cox Bight in 1789, charted some of the south coast and explored the strait between Maria Island and the east coast.

The next visitor (1792) was Admiral Bruny D'Entrecasteaux commanding *Recherche* and *Esperance* and searching for La Perouse who had not been heard of since 1788 when he sailed from Botany Bay. The Admiral made up from the south, hoping to anchor in Adventure Bay, but a navigational error put his ships too far west with the happy result that he discovered the magnificent channel separating Bruny Island from the Tasmanian mainland, and was the first to sail up the Derwent River. Leaving Tasmania, the expedition sailed as far west as Cape Leeuwin in western Australia when it became imperative to take on water. It is an indication of the lack of knowledge then available that D'Entrecasteaux had to return to Adventure Bay to fill his casks. In the same year, Bligh put in to Adventure Bay on his way to obtain breadfruit trees in the Pacific for transplanting in the West Indies.

The year 1794 was notable for the visit of Commodore John Hayes who had sailed from India with the *Duke of Clarence* and *Duchess*; he explored the Derwent as far as Mt Direction and named Risdon, later to be the site of the first settlement.

Tasmania an Island

Two voyages now followed which established that Tasmania was an island. Surgeon George Bass in a whaleboat left Port Jackson in 1797, rounded Wilsons Promontory and discovered Western Port. The nature of tides and swells encountered told Bass that here was no bay but rather a strait of considerable magnitude. Lieutenant Flinders held a contrary opinion, however, thinking that a land-bridge was necessary to explain the presence of natives in Tasmania. In 1798, Bass and Flinders were given the sloop *Norfolk* to decide the question for all time and they circumnavigated the island, commencing on a westerly course along the north coast where they discovered the Tamar estuary.

Fear of the French

In the original annexation of Australian territory by Cook in 1770, Tasmania was excluded since the southern limit was proclaimed as 38° South latitude. Formal possession of Tasmania had been taken by Governor Phillip on 26 January 1788, when he read his commission to the people of the First Fleet at Sydney Cove. Now that it was established that Tasmania was an island, the authorities both in London and Sydney felt that some steps should be taken to block the French from making any claims to possession. The urgency of doing this was underlined by the arrival in D'Entrecasteaux channel of Admiral Baudin with the *Geographe* and *Naturaliste* in 1802. The expedition's navigator, Freycinet, charted Tasman and Forestier peninsulas and correctly identified the Frederick Henry Bay of the Dutch era. The expedition then called at Port Jackson before sailing south into Bass Strait where it was intercepted at King Island by Lieutenant Robbins in the *Cumberland*. Announcing his intention boldly to the French Admiral, the Lieutenant then disembarked his small company and formally annexed the island in the name of King George III. Governor King at Port Jackson who gave Robbins his instructions was not satisfied that merely formal acts of annexation would block the French indefinitely and decided that permanent settlements were required if British sovereignty were to be retained. To this decision can be attributed the settlement at Risdon (1803) and the Hobart and Port Dalrymple settlements of 1804.

Geography of the Original Landing

The State map published by the Tasmanian Lands and Surveys Department (1:250,000) makes easy the recognition of Tasman's landings on the east coast. His anchorage was near Visscher Island while the first landing was made by longboats which passed through the narrows into Blackman Bay. The second landing occurred in the south-east of North Bay where a lagoon proved to be too brackish for filling water casks.

The last landing was made near Tasman Bay where the navigator had hoped to plant the flag of his Prince and take formal possession of the new land. The surf being too rough to get the longboat ashore, the carpenter swam through the waves, planted the flag and then fought his way back to the longboat.

SETTLEMENT

The First Settlement at Risdon (1803)

It will be observed that the original explorers of the island (including the French) had very largely concentrated their attention on the south-east and, in particular, on the sea approaches to the Derwent. Faced with the necessity for establishing a settlement to assert British sovereignty, Governor King had a number of possible sites to consider, including King Island, Port Phillip and Port Dalrymple (the Tamar Estuary). His eventual choice was the area of the Derwent and he reported his intention to the Admiralty as follows:

'My reasons for making this settlement are the necessity there appears of preventing the French gaining a footing on the east side of these islands; to divide the convicts; to secure another place for obtaining timber with any other natural productions that may be discovered and found useful; the advantages that may be expected by raising grain; and to promote the seal fishery.'

Commissioned to make the Derwent settlement, Lieutenant John Bowen sailed from Sydney with the *Albion* and *Lady Nelson*; the two vessels became separated in a gale but both were at anchor at Risdon by 11 September 1803 when Bowen went ashore. The slenderness of Governor King's resources is apparent from the fact that the settlers—free, convict and military—only numbered 49 and that the *Albion* was a British whaler under temporary charter (she caught three sperm whales on the voyage while becalmed).

The responsibility for the choice of the Risdon site attaches ultimately to Bass who had made detailed investigations of the Derwent in 1798 from the *Norfolk*. He had reported as follows: 'The land at the head of Risdon Creek, on the east side, seems preferable to any other on the banks of the Derwent'. It was not surprising, therefore, that Bowen's commission from Governor King directed him to locate the new settlement in the Risdon area. In actual fact, the site ultimately proved unsuitable due to the inadequate stream and the poor landing place; these handicaps were aggravated by the wretchedness of the human material at Bowen's disposal, a characteristic not altered when the camp was increased to nearly 100 persons.

If the settlement has any claim to fame, it derives from an encounter with natives who descended on the camp on a hunting expedition and who were fired on by the soldiers in a state of panic. Whether the future barbarities of inter-racial war could have been avoided is an open question but this encounter was the first phase of a struggle that ended in the extinction of a race.

The final act of the Risdon settlement was played on 9 August 1804, when the *Ocean* sailed for Port Jackson with Lieutenant Bowen and most of his people; Lieutenant-Governor Collins at the new settlement at Hobart had decided to close down the Risdon camp and held such a low opinion of these early colonists that he retained only thirteen convicts and one free settler.

The Settlement At Hobart (1804)

If Lieutenant-Colonel Collins had carried out his original instructions, then Hobart today might have been the name of the capital of Victoria situated on Port Phillip Bay. The British Cabinet, impressed by Governor King's warnings on possible French penetration, decided to carry out the occupation of Port Phillip direct from Britain and, to this end, commissioned Lieutenant-Colonel Collins (Royal Marines) to command an expedition in the *Calcutta* with the *Ocean* as tender. The settlers eventually arrived, via Rio De Janeiro and the Cape of Good Hope, and formed a temporary camp

near the site of the modern Sorrento township. For a variety of reasons, Collins was unhappy about the locality; he considered navigation hazardous, the soil poor and water scanty. Promising land at the head of the bay he was unwilling to develop due to the show of strength by large bands of natives. Accordingly he wrote for advice to Governor King in Sydney and was left free to decide between the River Derwent and the River Tamar (Port Dalrymple) as possible sites for transfer of his command. He was probably swayed in his eventual choice of the River Derwent by its reputation as a safe harbour and the fact that Risdon had already been settled.

On 15 February 1804, Lieutenant-Governor Collins, with the first detachment from Port Phillip in the *Lady Nelson* and *Ocean*, anchored off the new settlement at Risdon. A quick inspection satisfied Collins that the site was quite unsuitable and he made his own reconnaissance, eventually selecting the area on the western bank known as Sullivan's Cove and ordering that the expedition should be disembarked with all its stores in the vicinity of Hunter's Island. In the same month, Collins reported to King that his two ships were 'lying within half a cable-length of the shore in nine fathoms of water'; the Lieutenant Governor had selected gentle slopes for his settlement, located a fine stream running from Mt Wellington and found near the mouth of the stream depths of water which would accept the draught of any vessel of his day (or of the modern era).

The following table shows the early composition of the settlement at Sullivan's Cove (but excludes details of the Risdon camp):

Number Victualled at Sullivan's Cove, 26 February 1804

Quality	Men	Women	Children
Military Establishment	26	1	..
Civil Establishment	6	..	..
Settlers	13	5	13
Convicts	178	9	8
Supernumeraries	(a) 3	..	..
Total	226	15	21

(a) Including one aboriginal from Port Jackson.

The strength of the colony was increased to 433 persons in June 1804 when the *Ocean* returned from Port Phillip, where it had taken aboard the balance of the original expedition. From the camp on Sullivan's Cove has sprung the present city and port of Hobart.

David Collins was no amateur in the field of colonisation—he had sailed with Governor Phillip as Judge Advocate in the first fleet in 1788 and had acted as Secretary to the Governor till 1796 when he returned to Britain with excellent recommendations. His memory is honoured in Hobart's Collins St, in the Anglican Cathedral (St David's) and by the memorial above his grave in St David's Park.

The Settlement on the Tamar (1804)

While the Lieutenant Governor was still in Port Phillip Bay, wondering where best to settle, he sent his namesake, William Collins, on a voyage of exploration to the Tamar estuary. William Collins followed the river up as far as the Cataract Gorge and returned to Port Phillip with a good account of the

possibilities of the Tamar for settlement; in his absence, however, the Lieutenant Governor had made up his mind and was already preparing for the expedition to the Derwent.

Later Governor King received a despatch from Lord Hobart (Secretary of State for the Colonies) who, by a grotesque error, recommended the establishment of a settlement at Port Dalrymple 'upon the southern coast of Van Diemen's Land and near the eastern entrance of Bass' Straits'. If Lord Hobart really meant 'south', then Collins' move to the Derwent had anticipated his wishes. However, since Collins had, in fact, left Port Phillip, was not it necessary to re-occupy Port Phillip or possibly to watch the Strait from Port Dalrymple? King knew that Hobart's despatch was written in ignorance of Collins' move and accordingly decided to use his own initiative without raising questions of geography with the Secretary for Colonies.

In Hobart's despatch, Lieutenant-Colonel William Paterson (New South Wales Corps) was nominated as Lieutenant Governor of the new colony. Paterson set sail with 57 soldiers and convicts in the *Integrity* and the *Contest*, but after a month of adverse winds both ships were forced back to Port Jackson. A second attempt was made using *Buffalo*, *Lady Nelson*, *Francis* and *Integrity* and increasing the party to 181. This time the Tamar was successfully entered but *H.M.S. Buffalo* went aground and was, with some difficulty, brought to anchor in Outer Cove (George Town) on 4 November 1804. Lieutenant-Colonel Paterson decided that *Buffalo* must be immediately unloaded and accepted the Outer Cove site as a suitable camp while he undertook a more detailed reconnaissance of the Tamar.

Although he penetrated as far as the fertile site of Launceston, Paterson made the extraordinary decision to set up his headquarters at the head of West Arm and founded York Town, while still maintaining small establishments at Outer Cove, Low Head and Green Island. In commenting on York Town, one can only imagine that Paterson was guided purely by the strategic necessity of being near the entrance to the Tamar and that he gave little thought to the problem of soil fertility and cultivation.

In March 1806, Paterson was willing to admit that York Town was a most unsuitable site and he accordingly moved his headquarters to the present site of Launceston. Today York Town and Risdon have one thing in common—the almost complete absence of any indication that settlements had ever existed. The Lieutenant Governor's name is commemorated today in Launceston's Paterson Street and Paterson Barracks.

Paterson, before setting out on this expedition, had been involved in an argument as to his status but Governor King had resolved the matter by dividing Tasmania at the 42° parallel and making Collins and Paterson sovereign in their respective halves, but subordinate to him as Governor. In naming the Tamar and Launceston, Paterson was honouring King who came from Launceston in Cornwall.

THE LAND EXPLORATION OF TASMANIA

Scope

The following account is limited to 'first' expeditions for which sufficient information exists to enable a reliable reconstruction of the route to be made; the exploration included is mainly that undertaken by men in an official or semi-official capacity, an approach which overlooks the fact that bushrangers, hunters and settlers may have penetrated some of the country later claimed to have been explored for the first time.

Consideration was given to illustrating this article with sketch maps but the topography of the State is so rich in streams, valleys and mountains that the idea was given up; to follow any one route, and to appreciate the magnitude of the explorer's task, the reader is referred to either the 1:250,000 or 1:500,000 maps produced by the Lands and Surveys Department; these give the required degree of topographical detail and no sketch map would be an adequate substitute. To facilitate use of these maps, modern place names and nomenclature have been used, wherever possible.

Introduction

When the exploits of the Tasmanian explorers are compared with those of their continental contemporaries, the distances covered in the island shrink into insignificance. But a single mile through dense, tangled rainforest, or along a razor-back mountain ridge, was the equivalent of many miles on horseback across open country. Again, whereas the Australian explorers were often searching desperately for water, the Tasmanian explorers were sometimes just as desperately looking for crossings over swift-flowing streams which barred their progress. While the horse and camel played a role in Australian exploration, Tasmanian exploration depended very heavily on a pair of sturdy human legs and a strong back; much of the island's terrain was quite unsuitable for use of a pack train and a horse would have been more hindrance than help.

There were many areas where a man could move only with the greatest difficulty, as explained by Sprent in *Recent Explorations on the West Coast*: 'Horizontal is a tough slim shrub, which, when it happens to grow up, is about 30 feet high . . . for it tumbles over and grows in a horizontal position, succeeding shoots running up straight, to be in their turn bent over by other falling growth; the result being a confused thicket of crossing and recrossing branches. Progress through this scrub with a knapsack on one's back is out of the question until some sort of a track has been cleared; failing that, the only mode of progress is to crawl and wriggle through with the help of arms and knees . . .' The efforts of the Tasmanian explorers, taking into account the differences in terrain, climate and flora, are just as worthy of record as those of their counterparts on the Australian mainland.

The First Phase

The first north-south crossing, Launceston to Hobart, was made in 1807 by Lieutenant Laycock who received his orders from Captain Anthony Fenn Kemp. He followed the Lake River, travelled south to the Clyde River and followed the latter to its confluence with the Derwent; he was picked up by boat at the junction of the Derwent and Jordan, the whole journey taking eight days. His route was to the west of the modern road link where motorists now make the same journey in two to three hours.

In 1819, Henry Rice was sent to explore the south-east and east coasts. He travelled from the Coal River (Richmond valley) to the Prosser Plains and then along the coast to St Patricks Head; he then turned inland and discovered the Fingal Valley. A year later, Lieutenant-Governor Sorell imported improved merino lambs from the MacArthur stud in N.S.W. and distributed them among the leading settlers. The 1820s was the period in which the wool-growing industry became established and in which much of the midlands and east coast became alienated by free grants to settlers.

No further official exploration was required in these regions because the settlers were happy to search for good pastoral land themselves.

Further exploration of the rest of the island can be related to three factors: (i) the decision of the Van Diemen's Land Company to operate in the colony; (ii) the search for pastoral land after the early period of rapid alienation; (iii) the energy and drive of Frankland as an official surveyor. The final phase, concentrated on the West Coast, occurred somewhat later and was associated with the search for gold and other minerals.

The North-West

Prelude

In 1822, Captain Rolland moved west from Westbury, entered the Mole Creek area, pushed north to the Dasher River near Mt Roland (4,047 feet) and followed this stream to its junction with the Mersey; from there he returned to Westbury. He was the first to explore the inland of what Tasmanians loosely call the 'north-west' but its possibilities for settlement did not impress him favourably.

Two years later, the Van Diemen's Land Company (the V.D.L.) was incorporated in London and the Secretary of State for Colonies, Lord Bathurst, recommended the area between Port Sorell and Circular Head (Stanley) as a site for the company's venture. Edward Curr, a former settler, was appointed as the V.D.L.'s agent in the colony which he reached early in 1826, his immediate task being the selection of suitable land since the first consignment of livestock was expected in October. Leaving Hobart he travelled north and made a brief visit to the area below the Great Western Tiers; he then commissioned four men to explore the region from Port Sorell to Cape Grim, a task that had to be undertaken in winter. These men were Joseph Fossey, Henry Hellyer, Clement Lorymer and Alexander Goldie.

Goldie and Fossey

On 19 July 1826, Goldie and Fossey left the Mersey in a whaleboat and made for Circular Head peninsula which they explored and reported as suitable for the grazing of livestock. Taking one of the boat crew with them, they pushed their way west across dense tea-tree swamps and wet heathy plains till they reached Cape Grim and an area which they thought might be suitable for sheep-grazing. They made a base camp on the Welcome River, visited Mt Cameron on the west coast and then prepared for a southern march to the Pieman River. On 20 August, accompanied by two boatmen, they trudged south only to find their way barred by the Arthur River which they followed inland; the northern bank did not impress them favourably so they made a crossing but found further progress almost impossible because of the impenetrable scrub. On their return trip to the Mersey by whaleboat, they landed in the area of the Detention River and made a short inland excursion; they reached the Mersey on 15 September.

Henry Hellyer

Of the V.D.L.'s surveyors, Hellyer is the best known and remembered. As Curr reported to the company he was '... a most intelligent, useful and indefatigable person (who has) encountered greater difficulties, dangers and privations than any individual in the service'.

This was not Curr's original estimate of the man. In 1826, Hellyer, with Lorymer, had been sent to a site near Kimberley on the Mersey with instructions to explore south and west from this point but movement was hampered by adverse weather and severe floods. In fact, Hellyer earned Curr's censure, the company agent at that time having little conception of the checks imposed by dense forests and raging torrents.

Hellyer on this expedition made the first recorded ascent of Mt Roland (4,047 feet), named other features Mt Van Dyke and Mt Claude, and reported to the south '... plains as far as the eye could reach, rather woody at the north end, but open and undulating beyond.'

Curr had to make a decision on where to establish the company's headquarters and he chose Circular Head; one thing he regarded as urgent: the establishment of an overland route to the settlements on the upper Derwent. Hellyer was selected for this task and he set out in February 1827 with two good bushmen, Richard Frederick and Isaac Cutts, and two convicts. Moving first along the coast to the Detention River, they struck inland to the Dip Range where Hellyer was able to view the discouraging prospect of dense forests across all possible routes. Shortly afterwards, the convicts became exhausted and were left behind with the horses at Dipwood Marsh. Hellyer decided to press on with the two bushmen, their supplies being adequate for another 14 days, but they encountered dense forest, interspersed with numerous rivers and creeks ('... scarcely half an hour, during any day, without crossing one or the other'). Hellyer described the terrain: 'Dead logs and branches impeded us at every step; and we were continually meeting with large tracts of dense thickets, from thirty to forty feet high, so closely woven and matted together as to be impenetrable below'. On 14 February, they came to St Valentines Peak (3,637 feet) which Hellyer climbed and named the next day. From its summit, he named the country to the north Hampshire Hills and to the south Surrey Hills.

Hellyer now descended St Valentines Peak to the south, turned west and crossed two rivers, the Wey and the Hellyer, but provisions were almost depleted, making a return to Dipwood Marsh imperative. The party's progress was blocked by a large river which Hellyer called the Arthur and which he was forced to cross twice; after further exhausting struggles in the dense rainforest, he sighted Table Cape as a landmark and then made west for Dipwood Marsh where he found the convicts and the horses about to leave. The party retraced their steps to Circular Head, reaching it on 4 March 1827.

Later in the same year, Fossey, from a vantage point on the Black Bluff Range, also saw the Surrey and Hampshire Hills area discovered by Hellyer and he described it thus: '... so admirably laid out by nature, that it assumes very much the appearance of a nobleman's domain, both as to extent and good quality'. Acting on these reports of Hellyer and Fossey, Curr had the Surrey Hills area included as one of the land parcels in the company's grant. When he later made an inspection, he was not very favourably impressed, considering the soils inferior and the climate harsh.

As to the route from Circular Head to the upper Derwent settlements, it is sufficient to note that no short road connection has been established even today, the Western Ranges and the lofty northern end of the Central Plateau lying across the direct line linking the two areas.

In November 1828, Hellyer, in company with Cutts, McKay and Fossey, set out from the Surrey Hills area to explore further south. The party after climbing Mt Charter, reached Mt Block and hoped to continue their trek along the highland ridge; the rough terrain forced Hellyer to lower ground

where he eventually crossed the Mackintosh and Sophia rivers and came close to Mt Murchison (4,183 feet). Bad weather now threatened to cut off the party's retreat by raising the river levels but they successfully negotiated a new approach to Surrey Hills by moving north-east close to the Barn Bluff-Cradle Mt area and then returning north-west to their start-point.

The Westbury-Circular Head Track

By 1828, Curr was willing to settle for a scheme less ambitious than that of connecting Circular Head to the Derwent settlement; he considered, nevertheless, that a track from Circular Head to the northern settlements was an urgent necessity and he commissioned Hellyer and Fossey to peg one and to supervise clearing operations. Their route from Westbury crossed the Meander River near the present Deloraine bridge, passed through the Mole Creek area and came to a ford on the Mersey near modern Liena. The track then entered dense myrtle and sassafras forest, emerged onto Emu Plains, crossed the Forth ravine, passed through Surrey Hills and led east of St Valentines Peak to the Green Forest, of which Fossey complained: 'There were also pepper-trees and fern-trees with much musk and dogwood, through which last it required great perseverance to penetrate, in so much I was reduced to crawl through it on my hands and knees'. From the Green Forest, the track turned north to Emu Bay and then followed the coast to Circular Head.

Wedge's Official Survey, 1828

Governor Arthur was not content to rely upon Curr's reports on the north-west and decided to send John Wedge to carry out an official survey; he was thus engaged from February to May 1828. Wedge first moved into the Rocky Cape area and concluded that, despite poor soil, it was suitable for the V.D.L. He next set out from Circular Head, explored to the south and finally turned west for Mt Cameron on the west coast; from here he made a close inspection of the country bounded by the Montagu and Welcome rivers, reached Cape Grim and returned by the coast to Mt Cameron.

From Mt Cameron's summit, he saw a peak far to the south (Mt Balfour) and decided to make for it, crossing the Arthur River on the way. After reaching Mt Balfour, he turned inland and moved eastward for a few days' march; finally he turned north to make back to Circular Head but the Arthur had to be crossed again and great difficulty was experienced. His party first tried to fell a tree from one bank to the other but lost the axehead in the river; an improvised raft capsized; the one remaining hope was to burn the base of a tree and fortunately the log fell true. Wedge returned to Circular Head in late May of 1828.

Discovery of Kentish Plains

In 1842, N. L. Kentish was appointed to plan a proposed highway from Kimberley, on the Mersey River, to Emu Bay (the Burnie area). Clearing a track through the dense rainforest restricted the survey party to moving only a mile or so each day but one member eventually emerged ahead of the others to find open plain country lying north of Mt Roland; this was given the name Kentish Plains. Further progress west was barred by the Forth Valley so Kentish turned north, crossed the Forth about nine miles from the sea, turned west again only to encounter the Leven River and followed this stream out to the coast.

The Central Plateau and Lake Country

First Phase

The first recorded visit to the Great Lake was made by a kangaroo hunter, Toombs, in 1815. Two years later, John Beamont visited the lake and penetrated a short way into the mountainous country further to the west. In 1823, Thomas Scott, the Assistant Surveyor, was one of a party which discovered Lake Echo. John Wedge two years later was sent to trace the Lake River to its source which he found to be Arthurs Lakes; he moved to the west side of the Great Lake, turned south and found the Little Pine River just above Lake Fergus; at the Nive River, he decided to retrace his steps.

Jorgen Jorgenson

During the Napoleonic Wars, the Danish-born Jorgenson managed to instal himself temporarily as ruler of Iceland but, on returning to Britain, he was involved in a number of undertakings of doubtful legality; he was eventually sentenced to transportation for pawning the linen taken from his lodgings.

In 1826, when Curr was hoping to find a land link from the Derwent settlements to Circular Head, Jorgenson was recommended to him as a bushman fit to lead an expedition for this purpose. Curr instructed him to approach the task from the south by following the Shannon River to the Great Lake and then making for the west coast. Jorgenson reached the south-west corner of the Great Lake where his further progress was barred by the Ouse River; he eventually returned to the Shannon for more provisions and, on his second attempt, managed to cross the Ouse.

What happened after this is veiled in obscurity. Jorgenson himself claimed to have come close to St Valentines Peak but the historian, A. L. Meston, has no doubt that the feature in question was the east wall of the Walls of Jerusalem. There are two good reasons for rejecting Jorgenson's route as presented on contemporary V.D.L. maps: (i) he described the Peak as part of a mountain range; in actual fact, it is an isolated feature and the high intervening mountains would prevent it being seen from the Central Plateau; (ii) he described a lake in the vicinity of the Peak; none exists but Meston expresses the view that this was probably Lake Ball, south of the east wall of the Walls of Jerusalem. If Meston's view is accepted, then Jorgenson was 45 miles south-east and short of the Peak. Other historians placed his route much further to the west and credited him with discovering Lake St Clair but this view is not held today. Whatever the truth of the matter, Curr believed that Jorgenson had found a southern route to St Valentines Peak and sent him on a second expedition, with his starting point at Kenneth Bay on the west coast and his aim being again to move to the Peak. This time Lorymer was his companion but they made no significant progress inland and gave up after encountering extremely dense scrub.

The Huon-Derwent Area

First Phase

The first major expedition into this area was led by John Wedge in 1827 when he discovered Russell Falls Creek which he followed to its junction with the Tyenna River; he then moved along the Tyenna to the site of Glenora, followed the Styx River out to Mt Styx, struck east to the Plenty River and followed it north to its junction with the Derwent.

The next year, Surveyor Frankland applied to Governor Arthur for a party of ten to cut a track through to Mt Davey but he then conceived a new plan when he heard of Goodwin's successful escape from Macquarie Harbour (Goodwin had made his way cross-country to the Derwent settlements); Frankland went west from the Ouse-Derwent junction searching for rivers and features described by Goodwin but he had to turn back in the Florentine Valley area, due to heavy snowfalls.

In January 1829, Frankland sent George Woodward to look for land suitable for settlement in the area of the Huon River; Woodward set out from the Huon Estuary, followed the river upstream for some distance, crossed the Wellington range and eventually appeared at New Norfolk. He reported that the Huon area was too thickly timbered for settlement. In 1831, Calder was instructed to follow the right bank of the Huon and it is thought he may have reached its junction with the Picton but the journey is poorly recorded.

Frenchmans Cap

In 1832, William Sharland was instructed to travel from Bothwell to Frenchmans Cap (4,739 feet), the only known landmark between the settlements on the Ouse and Dee rivers and the west coast. His party left in February, pushed north to Lake Echo, encountered Serpentine Creek and followed this stream to its junction with the Nive River (which Sharland imagined to be the Derwent). This junction was later to adjoin the new settlement of Marlborough, now known as Bronte.

On 5 March, Sharland crossed the Nive and pushed west; he passed north of Wentworth Hills and came upon the Derwent not many miles south of Lake St Clair; he imagined this river to be the Gordon. His attempt to follow north along the river was checked by dense scrub so he climbed Mt Charles to get a good view. From this vantage point, he was 'gratified with a view of a very extensive lake bearing 30° W, from which there is no doubt that the main branch of the Gordon proceeds'. A bearing of 330° from Mt Charles leads to Lake St Clair and Sharland, its discoverer, was looking at the source of the Derwent without recognising it as such.

On 9 March, a party of six crossed the Derwent with six days' supplies and again headed west, Frenchmans Cap emerging again as a guide shortly afterwards. Two crossings of the Franklin River were made and the party eventually emerged from thick scrub to find the peak apparently only about five miles away. They spent two days in reaching the summit, only to discover that the true Frenchmans Cap, a higher peak, had been false-crested by the feature they stood on (it is now called Sharlands Peak). Sharland knew that his objective had been largely achieved and decided to return, reaching Bothwell on 24 March, via Bronte, Bradys Marsh and the Dee River.

The Expeditions of Darke

John Darke, Wedge's nephew, was sent by Frankland in 1833 to investigate the river reported by Sharland (the Nive); he was to find whether it was the Derwent, as imagined by Sharland, or simply a tributary. On 19 March, Darke, accompanied by Goodwin (the convict who earlier had made the celebrated escape), left Hamilton and followed the new track to Bronte; they turned south along the axis of the Nive and passed the site of Tungatinah, eventually coming to a very large river which Darke thought to be the Derwent. He was right. They crossed the Derwent and by 29 March were camped a short distance from Wylds Craig (4,399 feet); an ascent was made the next day but

bad weather forced them to seek lower ground and they came down the south-west slopes of the mountain, discovering another large river (the Gordon). Darke was not prepared to guess which river it was but Frankland later incorrectly assumed it to be the Huon. Shortage of supplies then forced a retreat to Bronte.

On 19 May, Darke, accompanied by Goodwin and two others, left from a point near Ouse and pushed west, first crossing the Broad and Repulse rivers. He followed the Derwent for a short distance upstream, and then swung south-west, crossing first the Florentine River and then the Gordon; the marshy land and persistent rain drove the party back and Darke had his feet badly burnt in a campfire on the return trip to Hamilton, his companions having to carry him most of the way for three days.

The Mystery of the Rivers

In 1835, Frankland planned a large-scale expedition based on a deployment of 10 individual survey parties, but Montagu, the Colonial Secretary, objected to the expense and the dislocation of routine survey work that would have been involved. A more modest plan, using only twenty men and including the surveyors Frankland, Calder, Wedge and Dawson, was finally approved by Governor Arthur. The expedition, organised in three survey parties, left Bronte on 9 February 1835 and made for Lake St Clair which was reached on 11 February. A party of 14 then climbed Mt Olympus (4,746 feet) and also visited Lake Petrarch. Frankland correctly concluded that the river running from Lake St Clair was the Derwent.

Frankland now divided the expedition; Calder and Dawson were to follow the left bank of the Derwent whilst Frankland himself led the remainder further west where he discovered a vast area of open country 'bounded by an amphitheatre of Great Mountains'. Frankland returned to the Derwent, forded it north of Butlers Gorge and met up with Calder and Dawson. The source and upper reaches of the Derwent had been identified with certainty.

On 28 February 1835, the party left Bronte a second time, reaching the pinnacle of Wylds Craig by 4 March. South-east lay the Florentine Valley, to the west and south was another deep valley which Frankland called the Rasselas, and which he commissioned Wedge to explore. Wedge followed the river in the valley north for a day but found no lakes so he followed it southward for four days to the point where it veered west; he correctly concluded it was the Gordon. Leaving the river, he pressed south and, on 11 March, discovered Lake Pedder. The next day he came upon the headwaters of the Huon River and, supplies being nearly exhausted, hurried along it towards the coast where he was picked up by boat.

In 1837, Calder followed the Gordon upstream and apparently came at last to its source, Lake Richmond, but this journey is not well documented. The mystery of the rivers had been solved but some of the earlier confusion can be understood when it is considered that Lake Richmond lies only six or seven miles from the course of the Derwent near Butlers Gorge.

The West Coast

Goodwin

While a penal establishment was kept at Macquarie Harbour, Governor Arthur preferred that no attempt should be made to find a trail back to the Derwent settlements; a handful of escaped convicts managed to make the

arduous journey from west to east but the only important crossing was that of James Goodwin, since he later became a member of official exploration parties.

It was in 1828 that Goodwin and Connelly paddled up the Gordon in a crude hollowed-out log canoe and came to the junction with the Franklin; they moved up the Franklin till stopped by falls and then, on foot, passed Goodwins Peak, the Norway Range and the headwaters of the Maxwell River. They continued pushing east across barren plain country to the northern extremity of the Denison Range and then made for Wylds Craig (4,399 feet), from which eminence they recognised the high plains of the Ouse and the Derwent to the north-east. Across their path lay the Florentine and this they followed to its junction with the Derwent; here they parted company. Goodwin succeeded in reaching civilisation, only to be recaptured but his bushmanship was recognised and put to good use when he was attached to the official survey parties.

Track to Macquarie Harbour

In 1840, Calder was instructed to explore the country between Lake St Clair and Macquarie Harbour and to find the best line for a road; he was also required to make temporary huts along the route since Governor Franklin intended to make the crossing.

Calder supervised track-making from Bronte to Lake St Clair and sent Alexander McKay with two men to explore a track to Frenchmans Cap, following the general line of Sharland's route. On 26 December 1840, Calder climbed Mt Arrowsmith but found the prospect before him anything but encouraging: '... having command of a view of 1,000 square miles but a wilder scene can scarcely be imagined... The Hills (which have a most forbidding expression) occupy more than three quarters of the whole at a moderate estimate'. Despite these difficulties, the track was taken south of Frenchmans Cap through to Lightning Plains; in February 1841, Calder was recalled for other duties but William Reeves, a convict overseer, took over and continued the route through to the Gordon River, a few miles upstream from its entry into Macquarie Harbour. Although Sir John and Lady Franklin used the track for their memorable crossing of Tasmania, Calder emphasised the impossibility of constructing a road through this terrain and his advice was accepted. (Calder was not a pessimist—it was only in the 1930s that Queens-town was linked to Hobart by road.)

Gould's First Expedition

Charles Gould, an Englishman, was appointed as a geologist by the government at a time when Tasmanians were flocking to the Victorian gold diggings. The bankers, merchants and politicians were all raising the same cry: Victoria was growing rich with gold; surely the government could show some energy and initiate a gold search within the island; without such action, the State would be ruined. In 1859, two expeditions were mounted to go into the western ranges, one under Gould to approach from the east and the other, under Ronald Gunn, to come in from the north; most of Gunn's men deserted and he gave up.

Gould left Hobart with a party of 20 bushmen in December 1859 and established a depot at Lake St Clair. He then moved west along a route which included Pyramid Hill (4,100 feet) and Last Hill (3,700 feet); leaving the main party, he then pushed north and climbed the Eldon Range near Dome Hill (3,850 feet) where he was detained by bad weather, including dense mist.

On rejoining Burgess and the bushmen, he found the track had now been advanced almost to the Eldon River. Some time was then spent exploring the Collingwood Valley and the Eldon Valley but no gold was found.

Gould's next move was to turn east, cross the Eldon Range again and to establish a base camp on a small lake below Eldon Bluff (4,450 feet); from there he pushed north-west in the general direction of Mt Murchison (4,183 feet) and climbed a spur of White Cliff Hills, only to find a very deep ravine on the far side. He still kept moving north-west but found the valley of Anthony Creek very heavy going, the obstacles being honey-suckle, cutting grass and tea-tree 'which so retarded us that we were unable to travel more than 3 miles in the course of a day'. He overcame these obstacles and reached the foothills of Mt Murchison before heading back to his base camp at Eldon Bluff. Gould then split his party, sending Burgess on a route from the Murchison River to the Mackintosh and himself leading a group north to Cradle Mountain (5,069 feet); he not only reached Cradle but penetrated north to Middlesex Plains before turning back for a rendezvous on the Murchison River. Here he met Burgess who had reached a point about four miles short of the Mackintosh before returning to the Murchison. The two parties then returned to the Eldon Bluff camp and headed east from there to the Derwent settlements, via Mt Charles. Gould had not found gold but he had certainly added to the fund of geographical knowledge.

Gould's Second Expedition

In 1862, Gould was again sent to the west country, the aim being to explore the terrain between the Eldon Range and Macquarie Harbour. Two depots were established, one from the sea at the mouth of the King River, the other near the western extremity of the Eldon Range.

By February 1862, Gould was ready to leave the inland depot to move overland to Macquarie Harbour. He walked south along the King River and attempted to penetrate the Comstock Gap but dense scrub forced him south into the Linda Valley. Hoping to find an easier route to the west, he climbed Mt Owen (3,750 feet) twice and on the second occasion saw a suitable gap in the ranges. He then camped with his men in a gully, halfway between Linda and Gormanston; according to Geoffrey Blainey, they were 'less than half a mile from the tumbled iron boulders that lay across a great sepulchre of copper, gold and silver. They stayed in the valley for twelve days, the richest valley in Tasmania. They found nothing'. In fact, Gould was within shouting distance of the famous Iron Blow which started Mt Lyell's fabulous mineral boom. After 12 days of fruitless prospecting, the party ascended the ridge between Mt Lyell and Mt Owen from which vantage point Macquarie Harbour could be seen in the far distance. A hard battle then developed, the men moving south-west through thick undergrowth and often covering less than a mile a day, eventually to arrive more than three weeks later on Macquarie Harbour near Strahan; in fact they had taken 25 days to cover a distance of 15 miles.

Gould made for the King River depot, the *Swansea Packet* having sailed for Hobart before the party could attract its attention; Gould then did some prospecting along the Gordon and Franklin rivers where he found traces of copper, lead and gold. On a third expedition, mounted in December 1862, Gould approached Macquarie Harbour from the sea and prospected round the shores of the harbour, near Frenchmans Cap, and along the banks of the Gordon and the King rivers but his report was the same as before: some gold but not in payable quantities.

The North-East

The hinterland of the north-east is bounded in the north, south and west by mountain ranges, a fact which accounted for its avoidance by the pastoralists of the 1820s and 1830s. In 1840, the Government sent James Scott to explore the area with a view to its future settlement. Scott with six men followed the North Esk River to Roses Tier, where he left his pack horses behind to strike north through heavy timber to the Ringarooma River, near the site of Branhholm; from here he moved to Mt Horror and made the coast near Waterhouse. He followed the coast to Bridport, turned south and passed the western slopes of Mt Scott to reach Diddleum Plains on the St Patricks River. Scott gave a favourable report on the country and made a second trip, accompanied by his nephew; near Ringarooma, he selected 4,000 acres and called the property Legerwood.

George Augustus Robinson

In the early 1830s, Robinson, with his native companions, roamed over much of the island but his contribution to geographical knowledge was small. There are a number of reasons: (i) on some expeditions he had no maps whilst on others, his maps were out-dated; (ii) he was not particularly interested in fixing his map position; (iii) he was primarily engaged in searching for aborigines and had little interest in exploration, as such; (iv) most settlers regarded him as an eccentric and did not bother to question him about the country which he visited; (v) Robinson gave scanty geographical accounts of his routes, and only brief details of landmarks he encountered.

On his first journey, Robinson visited the Port Davey area, made an excursion to the Arthur Range and then travelled north to Macquarie Harbour. This was the first overland expedition to this area, all previous knowledge having been obtained from vessels passing the coast. Probably his journey from Macquarie Harbour to the Pieman River and some of his travels in the north-east were also 'firsts' but accounts of these travels remained locked in his journals and they have only recently been made available for the scrutiny of scholars, historians and geographers.

There is no doubt that Robinson gained a great deal of practical knowledge of Tasmanian topography but, because he failed to communicate it to others, his travels had virtually no impact upon the exploration of the island; in fact, areas he had discovered had to be rediscovered by explorers who kept records which could be translated into maps.

(References: *Land Exploration in Tasmania, 1824-1842*, Master's thesis by S.M. Franks M.A. in State Archives; Bethell, L. *S. Story of Port Dalrymple*; Blainey, G. *Peaks of Lyell*; *Plimly Papers*, No. 4/1860; *Friendly Mission*, Tasm. Hist. Research Assoc.)

THE ADMINISTRATION OF SIR JOHN EARDLEY-WILMOT

Introduction

In August 1843, Sir John Franklin was brought word that the new lieutenant governor had arrived in the colony and he made hurried plans to move from Government House and make room for his successor, Sir John Eardley Eardley-Wilmot, Bart. Whatever bitter feelings he may have nursed against the Colonial Office, Franklin had at least been allowed to govern for the full six years of his appointment. Wilmot was not so fortunate—after three

years, he was replaced by Superintendent La Trobe from Port Phillip (October 1846) and died in Van Diemen's Land a few months later (February 1847); in the short time between dismissal and death, he had been busy in the island gathering evidence to rebut vague allegations about his private life conveyed to him by no less a figure than William Ewart Gladstone, then Secretary for Colonies.

Gladstone's attack on Wilmot was two-edged: publicly the lieutenant governor was dismissed for incompetence in the discharge of his official duties but, in private correspondence, Britain's future Prime Minister intimated that no further appointment would be offered because 'certain rumours have reached me from a variety of quarters relating to your private life'. The exact nature of these rumours was never specified by Gladstone but one speaker in the House of Commons (*Hansard* 25 March 1847) was not so reticent: 'living in terms of scarcely concealed concubinage with some of the females who were received as guests at Government House', he claimed, was said to be the nature of the rumour.

Once the unfortunate baronet's character had been destroyed, and his body buried half a world away from his home, a debate was forced in the House of Commons where Sir Robert Peel, speaking for the government, had this to say: 'I am enabled to give the most complete and explicit admission on his part [Gladstone's—*Ed.*] that the charges he received affecting the private character of Sir Eardley Wilmot are without foundation, and totally and entirely erroneous'. (*Hansard* 7 June 1847.)

Some of Franklin's troubles were due to his having brought Lady Franklin with him to the colony, the allegation of his enemies being that she, and not Sir John, had been the source of power and decision within Government House. It is ironic therefore that Wilmot should have exposed himself to these attacks on his private character by leaving Lady Wilmot at home in England. Clearly a dilemma emerged for Wilmot's successor: a governor accompanied by his lady was denounced as a puppet; an unaccompanied governor exposed himself to the charge of being a rake.

Selection of Wilmot

Before the appointment of Wilmot, the island's commandants and lieutenant governors had all been officers of the navy, marines or army; he was the first civilian chosen for the post. Born in 1783, he had been called to the Bar in 1806, had become a baronet in 1821 and was appointed Chairman of the Warwickshire Quarter Sessions in 1830; from 1832 to 1843, he held a seat in the House of Commons as member for North Warwickshire. Sir John however, was not just a country gentleman with long experience on the bench. In 1827, for example, he had published 'A Letter to the Magistrates of England', advocating reform of the criminal law, especially as it affected juniors; in the House of Commons, he was known for his support of measures favourable to civil and religious freedom, and he had been a leading abolitionist in the question of negro slavery. As West (*History of Tasmania*) puts it: '... he appeared not unqualified to preside in a colony where penal institutions constituted the main business of the government, and where many religious opinions divide the population'. When the disestablishment of the church in Ireland was before the Commons, he followed Lord Stanley's political leadership and deserted the Whigs, and later it was from Stanley, Secretary of State for Colonies, that he received his appointment to Van Diemen's Land.

Transportation

As related in the 1968 *Year Book*, Franklin had been obliged to introduce the probation system in place of the assignment system, and Wilmot found he was expected to make the innovation work.

First outlined by Lord John Russell and later elaborated by his successor, Stanley, the probation system required that newly arrived convicts be herded together in large gangs for the first part of their sentence. One stated aim was to preserve the community from the corrupting influence of criminals; another was to isolate criminals so they would not be corrupted by the community, an objective not without merit when the ranks of free society included so many ex-convicts. Hard labour in the gangs was a sort of apprenticeship and those who performed satisfactorily might hope to graduate to a higher level, becoming probation pass-holders. Pass-holders were allowed to work for the settlers but received only a portion of their wages ($\frac{1}{2}$ or $\frac{2}{3}$ according to stage); nevertheless the employer was expected to pay the full wage, the Crown holding the balance in a trust account for the benefit of the pass-holder (whose equity in this compulsory saving scheme could be lost by misconduct). Eventually the pass-holders acquired ticket-of-leave status, freedom to receive full wages and the right to possess property. The final gift of the Crown was a conditional pardon which made the recipient a free man within colonial society, but still denied him any right of return to the United Kingdom.

The earlier system, assignment, had certain merits in the eyes of the colonists: it supplied them with cheap labour and also allowed public works to be carried out at minimum cost. The probation system, by way of contrast, courted unpopularity on two counts: pass-holders had to be paid for at prevailing rates for labour (part of the wage to the convict and the balance to the Crown) and the Colonial Treasury had to pay for public works executed by probation gangs. Whilst assignment was in force, the free settlers' repugnance to transportation was overcome in some degree by self-interest; no such check operated when probation was introduced (apart from the attraction of profitable contracts to supply necessities to the Imperial Convict Establishment).

One delusion seemed to animate the originators of the new scheme, namely that in Van Diemen's Land there was an insatiable demand for labour. Indeed if there had been, then the plan might even have won grudging approbation. But the depression that marked the last years of Franklin's rule did not vanish with Wilmot's arrival and little work could be found for the pass-holders who were not free to starve like other unemployed labour; the Imperial Convict Establishment was compelled to keep them congregated in hiring-depots and pay for their maintenance. The ticket-of-leave men and those with conditional pardons found their liberty to be more of a curse than a blessing. Wilmot himself, in describing the condition of such men in May 1844, wrote: '... being thrown on the world, with nothing but their labour to support them, and no labour being in demand, they either starve or steal.'

Governor Arthur had been in the happy position of being able to satisfy some settlers with grants of land and with the assignment of cheap convict labour. Under Franklin, land grants came to an end and assignment was replaced by probation. Wilmot had the misfortune to come to the colony at a time when the settlers realised that their governor no longer had the power to put them under even a trifling obligation.

The Probation Gangs

The probation gangs where new arrivals served their apprenticeship were conceived as being reformatory in character; under close supervision and scrutiny, the convict was to toil at hard labour, isolated from the community

at large, and to receive spiritual and moral instruction from prison chaplains. Satisfactory improvement in this stern environment would qualify him for work as a pass-holder.

Obviously these gangs needed close supervision from above. Franklin appreciated this and removed Matthew Forster, the Comptroller General, from his post. On Stanley's instructions, Wilmot re-instated him and thus had to depend on an officer '... about as much fitted for the post as a hard-swearing man like he was fitted for the Primacy of England' (the authority is Calder, the Surveyor General). West (*History of Tasmania*) sums up Forster's attitude: 'Captain Forster was too well acquainted with discipline to entertain the smallest expectation of ultimate success. Among his friends he expressed his distrust without reserve; but believing the home government irrevocably pledged, he concluded that penal philosophy was not his affair; and, not without reason, that he was better qualified than a stranger to mitigate the natural tendencies of the system. He had not been consulted in its structure; he did not hold himself responsible for its errors or results.'

Just as the economic depression made difficult the hiring out of pass-holders, there was also a parallel difficulty in putting the probation gangs to work; the governor was expressly instructed that if the gangs were employed on colonial public works, then the cost had to be re-imbursed from colonial revenue, and this at a time when the traditional sources of revenue were at a very low ebb. This problem plagued Wilmot throughout his short administration and placed him in a position where he could never do right: if the gangs were not put to work, their full cost fell on the Imperial Government through the convict department and earned the governor the censure of his masters in London; if the gangs were put to work for the good of the colony, then new or harsher forms of taxation had to be imposed so that the colonists could pay for the labour.

Once it was appreciated that there was insufficient work for the probation gangs, the London planners directed that they undertake farming to raise food for their own sustenance, and thus lighten the strain on Imperial funds. This agricultural undertaking was a complete failure according to West (*History of Tasmania*): 'The convict department attempted agriculture, and they selected for the experiment cold, damp and barren soils. Gardens of a few acres occupied a thousand men: the cleared land was utterly worthless. Garden seeds were bought in the colonial markets and potatoes sold at £2 which cost the government £20 per ton. Several hundred men idled their time in cultivating land which did not equal in the aggregate a single farm. The estimated value of the articles produced in two stations, Deloraine and Westbury, in 1846, by four hundred men, was less than £4 per man; while the salaries of their officers were nearly double that sum.'

Of much more immediate concern to the colonists were the economies made in supervision of the gangs. Lord Stanley considered the convict department too great a burden on Imperial funds and laid down a new scale under which only seven overseers were attached to each gang of 300 men. (The inadequacy of this provision can be appreciated when it is contrasted with Tasmania's present use of over 100 prison officers to supervise a prison population not much in excess of 300 persons.) Some comment on the lack of security inherent in these arrangements was made by Wilmot himself, for in Despatch No. 50 he informed Stanley that over 2,000 convicts had escaped from custody in the two years, 1842 and 1843. 'Escape' should not conjure up a dramatic picture of desperate men filing through bars, climbing walls or clubbing guards; it mainly meant that prisoners had walked away from their

under-supervised stations and not bothered to return. What was worse, probationers were sometimes free to prey on the settlers. The *Courier* of September 1846 carried the story of a probationer at the Oyster Cove station standing trial for robbery; in evidence, it was revealed that only an open four-rail fence confined the prisoners. Judge Montagu even felt sympathy for the accused: 'In passing sentence . . . (the lightest which the law permits in cases of robbery), his honour protested that, considering the position of the prisoner, placed in a probation station but having no restraint laid upon him to prevent him going in quest of luxuries and comforts, he would be fain to pass a lighter sentence. He felt the inefficiency of the sentence he was about to pronounce, but he had no alternative. Accordingly he passed the mitigated sentence of fifteen years transportation'. Thus the gangs, claimed and intended to be reformatory in character, often had an opposite effect and appeared to foster the growth of crime.

The Cost of Law and Order

The cost of the convict establishment was borne by the Imperial Government; however the upkeep of gaols, police and the courts was a charge on colonial revenue. At first glance, this may appear a fair distribution but, in a penal colony, these two aspects of law and order were not in watertight compartments, and the gaols and the police were not maintained exclusively for settlers' offences. In fact, the whole charge for the apprehension of escaped convicts was laid on colonial revenue; so was the cost of the courts dealing with their cases, and of the gaols in which they were lodged. Even the stipends of the clergymen assigned for the moral reformation of the convicts were charged to colonial revenue. It stood to reason that the cost of law and order in a penal colony was out of all proportion to the corresponding cost in a free settlement. Yet the same inflexible Imperial rule held for all the Australian colonies without distinction: gaols, courts and police were to be paid for from colonial revenue.

Franklin had protested to London about the inherent unfairness of these arrangements and had suggested that the home government bear some of the cost; in Wilmot's administration, the indignation of the settlers could no longer be suppressed and the governor faced the constitutional crisis of 'The Patriotic Six', when his Legislative Council was paralysed for want of a quorum by members insisting that the home government must meet the expenditure which its transportation policy made inevitable.

Extent of the Problem

In 1840 the decision was taken to end transportation to N.S.W. and concentrate the convict population in Van Diemen's Land. The peak of convict arrivals was reached in 1842 with an intake of 5,329. The accompanying table shows the growth in convict numbers up to their peak in 1847 and illustrates the point that in one year of Wilmot's administration (1845), the convicts nearly outnumbered the free—and the 'free' at this point of time included an unknown proportion of ex-convicts holding conditional pardons. The total population figures also included children so it is correct to assume that free adults were easily outnumbered by the convict population in 1845.

The administrative problems posed by the 1845 convict population can be summarised as follows: (i) supervision and reform of men in the probation gangs spread throughout the colony; (ii) maintenance of hiring-depots and their inmates, the pass-holders; (iii) keeping records of ticket-of-leave men who would eventually qualify for the grant of conditional pardons. With

nearly 30,000 persons subject to some form of control or supervision, even a capable and dedicated Comptroller General would have been faced with a gigantic task; the suggestion is that Matthew Forster was neither capable nor dedicated and Wilmot was very unfortunate in having to rely on this subordinate. Shaw writes in the *Dictionary of Biography*: '... Under Arthur's strong rule he had shown himself a capable subordinate; given greater responsibility under laxer supervision, his inability to regard the convict system as more than a mere job became more obvious and whatever the defects of the system he made little effort to correct them or even to make them known to his superiors'.

Convicts on Strength (a) and Total Population in Selected Years

Year	Total Population (including Convicts)	Convicts on Strength	Convicts as a Proportion of Total Population per cent
1830	24,279	10,195	42.0
1835	40,172	16,968	42.2
1840	45,999	17,763	38.6
1845	64,291	29,949	46.6
1847	67,918	(b) 30,476	44.9
1851	69,187	20,069	29.0

(a) Convicts in all stages of servitude up to and including ticket-of-leave.

(b) Peak year.

Norfolk Island

During Wilmot's administration, Norfolk Island was removed from the jurisdiction of N.S.W. and brought under Tasmanian control, the plan being to make it a station for those sentenced for life, or not less than 15 years. This decision affected the Tasmanian prison population in two ways: (i) in the preliminary stages, some Norfolk Island convicts were removed to Tasmania; (ii) Norfolk Island convicts were later regularly transferred to Tasmania after serving part of their term. The penal settlement at Norfolk Island had an unenviable record of maladministration, violence and cruelty. West (*History of Tasmania*) deplored the results of this inflow as follows: 'Thus the traditions of Norfolk Island—a complicated theory of evasion, artifice, pollution, and fraud—were preserved on the spot, and propagated through all the gangs located in Van Diemen's Land'. It was also during Wilmot's administration that the notorious John Price, ex-police magistrate of Hobart Town, was appointed civil commandant of Norfolk Island where he instituted a reign of terror of such dimensions that Downing Street eventually ordered the breaking-up of the establishment (the instruction was later cancelled).

In the matter of Norfolk Island, Wilmot was virtually helpless—he could not exercise effective supervision from Hobart Town and the Imperial Government failed to supply any means of transport so inspections could be made; he was also fully aware of the danger inherent in bringing Norfolk Island convicts to Tasmania and pointed it out to Lord Stanley in his despatches, thus sharing a common sentiment with the settlers.

The Depression

When Wilmot arrived, the depression which marked the last years of Franklin's regime was showing no signs of breaking and the governor was brought face to face with an empty treasury; the principal sources of revenue, customs and land sales, were at their lowest ebb. He did what he could to economise by a policy of retrenchment and by ordering that most public works should be halted, but these measures still failed to bring solvency. His only resource was to borrow from the Military Chest and from the banks (he raised £71,000 this way up to February 1845). But the colonial administration could not be carried on indefinitely by loans which Wilmot's London masters regarded as sure proof of his 'laxity of system and profuse expenditure'. Both the stinging admonitions of Stanley and the hard facts of the situation drove Wilmot to consider new and unpopular ways of raising revenue.

He consulted with the Legislative Council and set up a five-member finance committee to consider the problem. The results of their enquiry were not encouraging; as Wilmot communicated to Stanley in January 1845, some suggestions were downright frivolous, especially the idea of a tax on billiard-tables of which there were only ten in the whole colony. In the same class was a proposal for a dog-tax. With the financial position worsening daily, Wilmot could delay no longer and he introduced a bill to raise *ad valorem* duties on foreign imports from 5 per cent to 15 per cent. The Legislative Council consisted of six paid officials, eight settlers and the governor himself exercising both a deliberative and casting vote; the bill was carried but some of the settler members voted against it and there was much public criticism, based on the theme that the Imperial Government should meet the financial burdens generated by its convict policy.

Public Opposition

The governor next considered ways of increasing licences, or imposing new licences, for various categories of tradesmen. A protest meeting in August 1845 was advertised as follows:

NO TAXATION

A meeting will be held at the Theatre

Auctioneers, rise at our bidding.

Pawnbrokers, pledge the public your interest.

Butchers, show your pluck.

Publicans, prove your spirit.

Stage-coachmen, drive on.

Cabmen, make a stand.

Carters, put your shoulder to the wheel.

Eating-housekeepers, support the constitution.

Boatmen, a long pull, a strong pull and a pull together.

God Save the Queen!

A procession of cabs and waggons, with signs reading 'No taxation without representation' appeared on the day of the meeting and the proposals were dropped. As the *Courier* put it: 'Rulers will henceforth recoil from the virtuous indignation of the people, as the reptile recoiled from the touch of Ithuriel's spear'; the governor disliked this simile so much that he cancelled his subscription.

Opposition in the Council

In August 1845, Wilmot had prepared two bills, one for toll-gates on the main road to Launceston and the other to make Hobart citizens bear the cost of lighting and paving their town. The settler members banded together and were successful in defeating both measures.

The principles on which the governor would be opposed were very clearly stated by Gregson, the leader of the settlers' opposition in the Council: '... the calm and deliberate determination to resist the contribution of one shilling more by the people of this colony, so long as the inhabitants were taxed for British purposes, and that until the Home Government acted with justice to the colony in paying for the Police and Gaols, no Bill should pass by which any tax was levied on the people'.

'The Patriotic Six'

In October 1845, Wilmot called the Legislative Council into session to consider an Appropriation Bill. The absence of a settler member and the casting vote of the governor gave the numbers to beat down all opposition in the bitter debates leading up to the third reading; among the delaying tactics was Mr Dry's defeated motion that the Bill should be read in six month's time. The governor was now at the point where he could move the third reading with every assurance of its safe passage but he paused for an attack on Mr Gregson: 'I recommended to the Secretary of State that your appointment should be confirmed, not because I agree with you on many points, but because I thought you would come here as an honest man and record your vote'. He further expressed loyalty to Downing Street and contempt for the settlers' opposition: 'I shall continue to carry out the instructions of Her Majesty's Secretary of State, and no power on earth shall induce me to take any other course'. This was too much—Messrs Swanston, Kermode, Dry, Kerr, Fenton and Gregson immediately left the Council hall; the governor counted heads and found that the withdrawal of 'The Patriotic Six' had deprived the Council of a quorum and put an effective stop to the passage of the Bill.

The next day Messrs Gregson and Kerr attended the Council, the former attempting to apologise for the absence of the other settler members who were preparing a petition of protest for the Council's consideration. Wilmot was in no mood for conciliatory tactics and denounced the opposition as disloyal and unconstitutional; the *Gazette* of 4 November announced that the six had resigned their seats.

Excitement ran high in the colony. The *Launceston Examiner* described Mr Dry's arrival in the north: 'There seemed no prospect of exhausting the lungs of the multitude; for the last cheer was more vigorous than any'. The crowd took the horses from his carriage and substituted 50 willing men, the procession being enlivened by a band. As for Mr Gregson, the gratitude of the settlers took a more tangible form, a public subscription being so successful that he was presented with a splendid silver salver and 2,000 guineas 'for his able, zealous and disinterested efforts to promote the interests of and obtain the redress for their adopted country...'. What had happened in Tasmania was observed in the other colonies, the N.S.W. press in particular noting and praising 'this noble struggle against tyranny and oppression' (*Sydney Morning Herald*).

The New Members

Wilmot then set to work to find replacements for the six settlers who had resigned and experienced considerable difficulty, such was the popular support deployed in their favour. November passed and it was not until late December 1845 that the governor could proclaim the names of the new members, Messrs von Steiglitz, Bisdee, Reed, Driscoll, Leake and Hopkins; some journals made the announcement by framing their names in a black mourning border.

In the circular sent to prospective members, Wilmot set out his conception of their duties: 'I have always, and shall object, to converting the Legislative Council into a Legislative Assembly; and instead of its being as by law constituted, a Council of Advice, to become a Council of Dictation. I never can consider the dictating to Her Majesty whether she shall contribute any, or what sums, out of the British Treasury, to the colonial expenditure, and stopping her government until these demands are complied with, otherwise than as disrespectful and unconstitutional and subversive of her authority, and destructive to my performing my duty.'

The distinction Wilmot made between the powers of elected representatives and those appointed representatives was not upheld by the Colonial Office and a later governor, Sir William Denison, was instructed that the conduct of both 'sets of six' had received the royal approbation; shortly after his arrival, the original 'Patriotic Six' were reinstated.

The Sequel

In attempting to persuade the colonists to bear burdens that rightly should have been shouldered by the Imperial Government, Wilmot was simply showing loyalty to Lord Stanley and the policies he framed; a despatch from Stanley to Wilmot in 1844 set out the noble lord's point of view very clearly: 'It must ever be borne in mind, that Van Diemen's Land was a Convict Settlement before it was a Colony. The access of free settlers to the island has been, in many ways, of great value, and has much facilitated the execution of the system of transportation. But still, the primary and great object in occupying Van Diemen's Land has been the establishment of a penal settlement there; it is not to be admitted that the free colonists are entitled to regard the convicts as intruders, or to claim any indemnity for the inconveniences with which their presence may be attended.'

It was this attitude of the Imperial Government which drove Wilmot into collision with 'The Patriotic Six' and which caused the constitutional crisis in the last months of 1845. Although ignorant of the fact when appointing new members of the Legislative Council in December 1845, Wilmot could no longer look to Stanley for support in this quarrel with the settlers; in that month, William Gladstone had been appointed Secretary of State for Colonies. Wilmot's despatches describing the October constitutional crisis did not reach England before April 1846 and it was Gladstone who had to find a solution to the problems created by Stanley's policies.

The Colonial Under-Secretary in London, Stephens, considered Wilmot's report on the crisis and came to the conclusion that the Imperial authorities were to blame; that the Colonial Office should have pressed the issue with the Treasury and insisted that it meet costs generated by the presence of convicts in the colony; and there was much justification for the stand taken by the settler members. He then proposed certain measures to rectify the situation, the unfairest being a recommendation that Wilmot should be relieved of his post; this proposal entirely overlooked the fact that the governor himself had urged Britain to bear more of the disputed costs, and had faithfully served as the

instrument of Stanley's policies. More to the point, Stephens advocated that Britain should immediately bear $\frac{2}{3}$ of the police and judicial costs of the colony, largely conceding the point made by 'The Patriotic Six'. Gladstone agreed with Stephens in broad principle: (i) that Wilmot should be recalled, though he found reasons for doing this quite unconnected with the constitutional crisis; (ii) that Britain should bear a proportion of the disputed costs. Gladstone's actual recall of Wilmot will be discussed in a later section.

The Irrigation Project

Tasmanians lately have been very conscious of the waters of the Central Plateau and their role in producing hydro-electric power. Wilmot thought of the same waters as the basis for a large-scale irrigation scheme and Major Cotton, an engineer, was employed to plan 'the detention of the waters of the vast lakes which overflow from the heights of the western mountains'. The governor was attracted to the scheme for a number of reasons: (i) he had a large labour force, the probation gangs, for which it was almost impossible to find useful employment; (ii) the probation gangs, if so employed, would be far from the public eye and removed from public criticism; (iii) the scheme would ultimately benefit the settlers.

If the assignment system had been operating, the proposal might have been carried into effect; the gangs could have been employed at no cost to the colony but Wilmot was obliged, under the probation system, to charge work of this nature against colonial funds. In any case, he recommended the scheme to the home government and then awaited a decision from Stanley. The Secretary for Colonies failed to appreciate the virtue of the plan and Wilmot eventually had to let the proposal drop. In this matter, Wilmot was very farsighted considering that modern Tasmania still has no large-scale irrigation scheme based on the waters of the Central Plateau (they are used for power generation).

Education and Science

In the 1968 *Year Book*, details are given of the new government system of education introduced by Franklin, and one of its chief features was that it was undenominational, an essential requirement in a colony where there was no one State church and where there were considerable non-Anglican congregations. Wilmot saw no good reason for changing this state of affairs and came into head-on collision with the Bishop of Tasmania, Dr Nixon, who adapted very badly to life in Van Diemen's Land. For a good Anglican, the ecclesiastical arrangements in the colony were hard to stomach, the Church of Scotland and the Church of Rome having parity with the Church of England, and ministers of all three being paid from colonial revenue. Nixon managed to quarrel not only with the governor but with his own archdeacon and senior chaplain, and with the Roman Catholic bishop; the last gave him a lesson in Christian virtue with these words: 'Thousands of our respective flocks are festering in misery and crying from our prison house for spiritual aid and consolation—contend with whom you will my Lord, you shall not contend with me.'

The fiery Nixon decided to improve Franklin's educational arrangements and demanded government funds for a denominational school system. In this matter, he was firmly and resolutely opposed by the governor who thereby acquired an enemy. (The *Australian Dictionary of Biography* names Nixon as writing often to Edward Coleridge, a mutual friend of Gladstone and Nixon; it suggests that this was the principal channel by which Gladstone became aware of rumours concerning Wilmot's private life.)

It will be recalled that Franklin had brought to the colony John Philip Gell, M.A. of Cambridge to propagate the views of the famous Dr Arnold on that most British institution, the public school (meaning a private school). The seed sown by Franklin and Gell bore fruit and, in the last year of Wilmot's governorship (1846), Tasmania's two oldest public schools were established; these were the Hutchins School, Hobart and the Church Grammar School, Launceston, both very much alive and flourishing today.

When Wilmot arrived in the colony, he found that Franklin had left behind an active Tasmanian Natural History Society. During his governorship, this nucleus grew in stature and, as the Royal Society of Tasmania, became the first branch of the Royal Society outside the British Isles.

Official Dismissal

In September 1846, Wilmot received instructions from Mr Gladstone to hand over the administration to Superintendent La Trobe who was to come from Port Phillip. Gladstone gave these grounds for dismissal: 'It is only with extreme rarity that you advert in your Despatches to the moral condition of these men (the convicts—*Ed.*). You have discussed the economical questions connected with their maintenance or their coercion, and have even entered, though in a manner too little penetrating into their offences against the laws. But into the inner world of their mental, moral and spiritual state, either you have not made it part of your duty to examine, or else, which for the present issue, is, I apprehend, conclusive, you have not placed Her Majesty's government in possession of the results.' In trying to grasp what Gladstone was charging in such vague terms, Wilmot replied to the despatch as follows: 'I collect generally that my removal has been occasioned by my insensibility to the vast importance of the moral and religious state of the convicts sent to this island.'

Some of the vagueness derives from the fact that these gentlemen of the Victorian era were discussing a state of affairs which their vocabulary was inadequate to describe. West (*History of Tasmania*) specified a crime *inter christianos non nominandum*; Wilmot himself, in a despatch of 1845, denounced Norfolk Island as notorious for a 'nameless crime' and gave this as a reason why prisoners from that island should not be introduced into Van Diemen's Land. Superintendent La Trobe, a month after he had assumed control of the administration, reported: '... the most painful evidence of the existence of unnatural crime among the prisoner population is to be met with on every hand.' In today's language, the subject of these gentlemen's concern was homosexuality in the convict population.

Wilmot had in fact been aware that this moral problem existed and he made it the subject of communications to the home government. In a despatch of July 1846, he wrote: 'Of my despatch of 2nd November, 1843 ... and to the allusion of this subject, repeated in subsequent ones, I never have received to this day the slightest notice.' That no notice was taken by Gladstone's predecessor is hardly surprising for Stanley had been quite uncompromising in his view of the objectives to be pursued and he had informed Wilmot in July 1844: 'Her Majesty's Government hold it indispensable within the Australian colonies receptacles should be found for all the convicts and exiles who may be sent from this country in execution of judicial sentences. This is so momentous an object of national policy that we can acknowledge no conflicting motive as of sufficient importance to supersede it.'

In general, Gladstone's rebuke of Wilmot for making inadequate reports on the probation system was well founded. In the field of convict discipline, the governor was largely dependent on his Comptroller-General, Matthew Forster, and this gentleman seemed to have done his best to conceal the true

state of affairs and to have written curiously optimistic reports which Wilmot accepted as accurate. Even Stanley had been forced to complain that in '... five reports from Captain Forster and seventeen despatches from Wilmot, he had either received no intelligence or that their remarks were casual, slight and few.'

Gladstone, as the new Secretary for Colonies, took an attitude entirely different from that of his predecessor and, ignoring the very obvious advantages of Van Diemen's Land as a convenient dump for Britain's unwanted, probed deeply to find the true state of affairs, especially with regard to the effects of the probation system. He was appalled by what he found, and nothing shocked him more than the revelation that the probation gangs, claimed to be reformatory, were in many cases sinks of moral pollution. But Gladstone was wrong in holding Wilmot primarily responsible for the evils of the probation system—the Imperial Government itself was guilty of initiating the scheme and of then practising such stringent economy that the resources for its successful operation were denied. West (*History of Tasmania*) felt that Wilmot may have deserved his fate because another course was open to him: 'Had Wilmot at once declared the impracticability of Lord Stanley's schemes, he might have been recalled but the responsibility of an utter failure would have rested with his chief. The interested reports of his subordinate officers unfortunately enabled him to hold out hopes of success which were never realised and to furnish an excuse for his condemnation.'

La Trobe's Investigation

Gladstone did not do Wilmot the courtesy of sending another lieutenant governor to replace him and Superintendent La Trobe from the Port Phillip District, an officer inferior in status, became Administrator in October 1846. Such had been Gladstone's haste to take action that he wrote his orders directly to La Trobe at Port Phillip and not to Sir Charles Fitzroy, La Trobe's official superior as Governor of N.S.W.

La Trobe was specifically commissioned by Gladstone to enquire into the probation system and this he did with great thoroughness and courage. The most significant words in his report were these, when he condemned the system as 'a fatal experiment as far as it has proceeded, and the sooner it is put an end to the better for the credit of the nation and of humanity.'

Eardley-Wilmot, in replying to Gladstone's notice of dismissal in September 1846, argued that he had done the best with the means 'such as have been furnished by Her Majesty's Government... if they have proved insufficient, as I have repeatedly represented to be the case, no fault can in justice be imputed to me in this respect.' La Trobe's later report substantially supported Wilmot's view of the situation; in describing Wilmot's administration, he said: 'A government incited on the one hand by the earnest principle of doing what was right to the best of its ability and on the other hand by the absolute necessity of practising economy was never in a position to work a system with credit to itself, which demanded both in appearance and in reality a prodigal expenditure of the public funds, for by nothing short of what must be termed "waste" could the practical difficulties in the way be overcome...'

Attack on Governor's Private Life

Some time in 1846, the *Naval and Military Gazette* of 11 October 1845 had reached the colony and the settlers were dismayed, or delighted (according to their feelings about the governor) to read: 'Sir Eardley Wilmot sets a bad example himself. No people of any standing will now enter Government

House, except on business. No ladies can.' The editor of the *Gazette* promptly received a letter of refutation signed by the Chief Justice and leading officials and this stated the story was: '... totally (and here most notoriously) false. Ever since Sir Eardley Wilmot assumed the Government, down to the present day, we, and the families of such of us as are married men, and the families of the other Government officers, and of the principal inhabitants of the colony, have had the honour (for so we account it) of being frequent visitors at Government House.'

The episode is quoted to show that rumours were circulating in London in 1845 and that leading citizens in Van Diemen's Land were able to say quite positively that they were notoriously false.

Gladstone's Letter

In October 1846, before La Trobe had taken over, Wilmot received a private letter from Gladstone; it was dated 30 April 1846 and the Secretary for Colonies made it plain that Wilmot might expect no further appointment. He admitted that Wilmot's failure in an official capacity could be overlooked, since it occurred in a penal colony with extraordinary problems and he pointed out there were other colonies where Sir John's talents could probably be put to good use for the remaining three years of his original six-year appointment.

Gladstone then went on to state his real objection to Wilmot's further employment: certain rumours had reached him touching on the governor's private life. Then follows an extremely cruel passage: 'Had these rumours been slight, and without permission of credibility, I might warrantably and gladly have passed them by. Had they, on the otherhand, taken the form of charges or of information supported by the names of the parties tendering it, it would have been my absolute duty, independently of any other reason for interference with your tenure of office, to refer the matter to you, and at once to call upon you for exculpation. But they occupy an intermediate position.' Wilmot was then invited, by implication, to clear himself of these 'charges' if he could.

Wilmot was obviously placed in an impossible position. The vagueness of the letter robbed the governor of any opportunity to know what specific allegations had been made; worse still, it denied him access to the names of his accusers; worst of all, Gladstone implied that he himself did not know the names. No man could ever have been set a more impossible task and asked to defend his reputation against unstated charges made by anonymous persons of whose identity even the Secretary for Colonies claimed to be in ignorance.

In his last address to the Legislative Council in October 1846, Wilmot made no attempt to conceal the fact that Gladstone had written a letter reflecting on his private character; he even went further and invited a full enquiry. The letter was a private communication and Wilmot was under no necessity to reveal its contents to anyone. The only inference to be drawn from his disclosure to the Council is that he had a clear conscience in the matter and felt himself the victim of slander. If he had really merited the 'common notoriety' said by Gladstone to attach to his reputation, it is most unlikely that he would have dared to bring the matter out in the open.

Wilmot's further actions were completely predictable for a man placed in his position. He wrote to Gladstone asking for a specification of the exact time, place and circumstances related to any alleged impropriety and demanded to know the names of his accusers. This request had to go by ship and so the

unfortunate baronet had died (3 February 1847) before any answer was received; if he had lived, the reply would have given him little comfort because it still failed to make any specific allegation or to name the persons making the charges.

Last Days

The fate of their ex-governor became common knowledge in the colony and a group of 300 free colonists prepared an unsolicited testimonial to his character: 'We, the undersigned inhabitants of Van Diemen's Land, having heard that your recall has been influenced by reports injurious to your moral character during your administration of the government of this colony, deem it to be a duty which we owe to truth and justice to express our unqualified contradiction of those reports; and we feel the more imperatively called upon to do so from the fact of many of us having differed in opinion upon various measures of your government.' This was but one of many testimonials to the governor's character, and of a series of refutations of the slanders to which his reputation had been exposed.

When he died unexpectedly in February 1847, an attempt was made to arrange the funeral without giving pride of place to any one church. As West described it: '... the clergy of all denominations should walk in their several classes, but in one body, and the archdeacons, the moderator, and the vicar-general, as representatives of the three endowed churches, abreast. The Anglican clergy evaded this plan by stepping up before the coffin. When, however, the bearers were in motion, the catholic priests, by a rapid evolution, shot ahead of the procession.' His tomb in St David's Park is still standing today and the inscription concludes: 'This monument is erected as a mark of respect to his memory, by public subscription in the year of our Lord 1850'.

Restoring a Reputation

The family of Eardley-Wilmot back in Britain was not content to allow the baronet's reputation be destroyed on the basis of mere rumour and scandal, and soon the Commons became the scene of debates in which the government was called upon to defend its action; in particular, Gladstone was under fire because it was he who had apparently given credence to unsupported rumours and had used vague allegations as the grounds for official action.

Morley, Gladstone's biographer, states that Gladstone's anonymous informant was Bishop Nixon who had quarrelled with Wilmot on ecclesiastical matters. If this is so, then the Bishop beat a very hasty retreat once the matter was out in the open for he later stated: '... rumours of the kind had fallen under his observation which he had proved to be groundless; charges had been whispered, but none had been substantiated'. Gladstone's only possible defence was truth but he was either unwilling or unable to advance the name of any reliable informant to the Commons. In the end, he had to extricate himself as best he could with the following statement: 'I find no difficulty in stating my conviction that in my opinion the refutation which the address from the inhabitants of Van Diemen's Land supplies to the charges against the late Sir Eardley Wilmot is more than sufficient to remove whatever prejudice they were calculated to raise against him.' Sir Robert Peel, on behalf of the government, dismissed the charges in a much more positive manner. So the baronet's reputation was restored but unfortunately his body had already been buried for four months.

During the course of the debate, one speaker attacked Gladstone for '... dismissing Sir Eardley Wilmot on a pretence that he was unequal to the performance of his own office; whereas it was his own prudish feelings, his

own notion of what was acceptable to what he called the moral feelings of the people of England, that led to his dismissal.' Gladstone always claimed that he replaced Wilmot for incompetence in official matters and was not influenced by the rumours of scandal, but this is at least open to doubt.

Perhaps La Trobe can be taken as the best authority on the matter because he was in the colony within days of Gladstone's letter arriving and must have formed a good estimate of Wilmot's reputation among the settlers. Kathleen Fitzpatrick refers to a later time when La Trobe was old, poor and blind and in need of a pension; his friends suggested he should remind the government of his services in Van Diemen's Land but the old official replied: 'Mr Gladstone made some mistakes in connexion with that business which he may not wish to be reminded of.'

Conclusion

The Wilmot administration, though only of short duration, was notable for one development—the birth of an effective resistance to transportation and its associated evils. The action of 'The Patriotic Six' had dramatised the polarisation of interests, and the colonists would not now rest until the Imperial Government ceased using Van Diemen's Land as a place of exile for its undesirables. The inefficiency and iniquity of the probation system sickened many settlers and recruited more converts to carry the banner of anti-transportation.

Wilmot has not been forgotten in Tasmanian topography and his name has been given to a town, a river and the State's largest electoral division. Gladstone has not fared so well, his name appearing at a single town in the far north-east—but his treatment of Wilmot hardly made him a Tasmanian favourite.

(References, West, J. *History of Tasmania*; Fitzpatrick, K. *Mr Gladstone and the Governor*; Townsley, W. A. *Struggle for Self-Government in Tasmania*; Pike, D. (editor) *Australian Dictionary of Biography*; *Australian Encyclopaedia*.)

PROFILE OF A PREMIER: THOMAS GREGSON

Introduction

Tasmania's second premier was Thomas George Gregson whose administration had a life of only two months in 1857. This settler was the same Gregson who had defeated Governor Arthur's attempt to muzzle the press; had horse-whipped Governor Arthur's nephew; had shot another opponent through both thighs in a duel at Bellerive; had led 'The Patriotic Six' when they walked out from the Legislative Council and denied Wilmot a quorum; and had been, at times, the most popular figure in the struggle of the colonists for self-government and for an end to transportation.

Migration to Van Diemen's Land

Thomas Gregson was born in 1798 son of a squire in Northumberland. Educated in Edinburgh, he soon acquired a reputation for riotous behaviour; drinking bouts, poaching and duelling were some of the alleged activities which caused him to become estranged from his family and seek adventure abroad. He arrived at Hobart on the *Emerald* in 1821; Lord Bathurst's letter to the lieutenant governor recommended that the new settler be given land commensurate with his means and status and Colonel Sorell granted him 2,500 acres in the Jericho district where he built his first home, 'Northumbria'.

Jericho was then somewhat remote from Hobart so Gregson later acquired a further 1,000 acres at East Risdon where he built a second house, 'Restdown'. He eventually disposed of 'Northumbria' and his Risdon home became a centre of social and political activity.

Gregson brought to Van Diemen's Land an English squire's typical love of sport. He was an organiser of the island's first horse-races, imported a pack of first-rate hunting hounds, patronised the bare-knuckle ring and acquired a reputation as a bowler. Physically he was robust and active; much later, at the age of 46, he laid a wager that he could run the 40 miles from Spring Hill to Hobart in nine hours, a feat which he then performed with 45 minutes to spare. Gregson's fame as a sportsman increasingly made him a popular and familiar figure in the colony. Surprisingly enough, he was also something of a painter, his best known work being a portrait of the Reverend Robert Knopwood mounted on horseback (owned by Tasmanian Museum and Art Gallery).

Sorell thought highly enough of Gregson to appoint him a magistrate, at that time an unpaid office.

Governor Arthur (1824-1836)

Gregson, soon after his arrival, began to take an active interest in the administration of the colony which was then a dependency of N.S.W. He organised a petition asking that Van Diemen's Land be given separate status, a change which the Imperial Government made in 1825 in the second year of Arthur's governorship. The new arrangement, however, did not lead to the benefits which Gregson had expected and soon he clashed with Arthur on a number of issues.

The Press

The Legislative Council passed the *Press Licensing Act* in 1827 and Arthur used its provisions to suppress the *Colonial Times*, a paper antagonistic to the administration but enjoying the support of Gregson; Arthur hoped thus to control the tone of the colony's press but Gregson got up a petition and the Colonial Office ruled that the Act be disallowed. In 1832, Gregson, with George Meredith as partner, launched a paper called the *Colonist* and used it as the organ for his quarrels with Arthur; the virulent attacks resulted in a number of libel suits and Gregson decided to resign his share of the ownership, since journalism of this kind could lead to expensive litigation or even imprisonment.

The Aborigines

Gregson was a severe critic of Governor Arthur's capture parties, sent out to raid aboriginal tribes and bring the natives into temporary captivity; he refused to join the expeditions nor would he allow any of his servants to participate. He objected to the principle underlying Arthur's approach to the problem and denounced it in most unequivocal terms: '... it is altogether illegal, evil and bloody and those who went out to kill would just as soon kill and murder the white men'. In a period when the aboriginal was regarded simply as a nuisance or a menace, but scarcely as a human being, Gregson obviously had moral and legal scruples shared by very few of his contemporaries.

Trial by Jury and the Usury Laws

One of Gregson's goals was to establish the right to trial by jury for all free settlers; in this, he could not obtain Arthur's support and a petition he organised in March 1827 was simply ignored by the Colonial Office. Another contentious issue in the colony was the lack of protection for borrowers against exorbitant rates of interest; in the United Kingdom, limitations existed but Arthur's Council in 1829 passed legislation which allowed lenders to charge any rate they wished. Gregson led the settlers' outcry against the administration and charged Arthur with actively encouraging usury. In some of the causes he espoused, Gregson may have acted simply on principle but in the matter of usury he was definitely an interested party—he was having extreme difficulty in meeting interest payments to the Derwent Bank. A year earlier, Arthur had dismissed Gregson, and other settlers, as magistrates and had installed paid officials in their place; Gregson attributed his replacement to the fact that he was not either 'truckler or apostate' and was therefore being punished for his political activities, a most unfair explanation of Arthur's attempt to re-organise effectively the control of the police and the enforcement of the law.

The Recall of Arthur

When Arthur's governorship had gone on for twelve years, he was recalled to England and Gregson gave the main address of jubilation at a 'thanksgiving' dinner held to celebrate the event. But he had not forgotten that Arthur's subordinates were still holding the principal positions of power within the colony and he loudly expressed his intention of having them all removed from office.

Two days after Arthur's departure, Gregson met Jellicoe, one of the ex-governor's friends, in the saloon of the Theatre Inn and beat him across the face with his gloves (he held that Jellicoe was a 'tale-bearer and moral slanderer'). Jellicoe, thus humiliated, challenged Gregson to a duel and sent Henry Arthur, the ex-governor's nephew to convey his message. Possibly worried by the legal hazards, Gregson declined whereupon, Jellicoe and Henry Arthur distributed a card branding him *inter alia* '... liar, a bully, and a dastardly coward'. Casting aside all doubts as to legality, Gregson had the pleasure of horse-whipping Henry Arthur outside Government House and of accepting Jellicoe's challenge. They met on Bellerive Beach on New Year's Eve, 1836 and Gregson calmly brought his opponent down with a shot through each thigh.

Henry Arthur was apparently unwilling to take his chance behind a pair of duelling pistols and instead filed a public prosecution against Gregson. At the trial, Gregson seemed singularly unrepentant and boasted thus: 'I flogged him as I would one of my hounds and the coward took it more tamely than any hound would have done'. Denied the right to trial by civil jury, Gregson defended himself vigorously by making vitriolic attacks on the character of Henry Arthur, but he was found guilty, fined £200 and sentenced to three months' imprisonment.

Sir John Franklin (1837-1843)

Such was Gregson's popularity that Judge Montagu's sentence seemed vindictive, so much so indeed that 1,400 settlers presented a petition to the new governor, Sir John Franklin, asking for his release. Sir John decided to remit Gregson's sentence... 'not on the merits of the case itself, but as an act of grace calculated at the commencement of my administration to allay

public feeling'. This was a bitter blow to Arthur's friends who had hoped to see Gregson's influence wane, once he carried the stigma of having served a prison sentence. Sir John went further by receiving Gregson as a guest at Government House and later by appointing him to the Legislative Council (in 1842).

During Sir John's governorship, Gregson still campaigned for certain cherished principles, such as 'no taxation without representation'. However, he showed considerable restraint and supported Sir John in many matters, partly out of gratitude perhaps and partly through his hatred for the Montagu-Arthur faction which still exercised power and influence in the colony.

Sir John Eardley-Wilmot (1843-1846)

The part played by Gregson in the constitutional crisis which plagued Wilmot is described in the prior section of this chapter.

Sir William Denison (1847-1855)

In 1847 Sir William Denison became lieutenant governor and was instructed that 'The Patriotic Six' were absolved of all charges of disloyalty; such being the case, they should all be re-appointed to the Legislative Council. However 'the replacement six' had also acted with equal loyalty and Denison wondered whether some arrangement acceptable to all twelve could be reached. He called a meeting of both 'sixes' but any hope of an amicable settlement was quickly shattered by Gregson who launched into a bitter attack on the replacement members. Eventually Denison was left with no reasonable alternative but to re-appoint 'The Patriotic Six' who refused to hold office if any of the replacement members were also seated in the Council.

In the early days of Denison's regime, expectation ran high that the Imperial Government would end transportation and give the colony representative government (as had been done in N.S.W.). Gregson was slow to realise that Denison himself was a supporter of transportation but, in 1848 after 'The Patriotic Six' had taken their seats in the Council, the lieutenant governor announced that the Imperial Government had changed its announced policy and had decided to continue the system. From this point of time, Gregson emerged as a strong and violent opponent of transportation, even subjecting one of his political opponents to the indignity of a sound thrashing.

On 1 January 1852, Gregson took his seat in the newly-constituted Legislative Council, of which 16 members were elected and eight were appointees of the lieutenant governor; he personally had been elected unopposed for Richmond and the other 15 successful candidates were all pledged to the cause of anti-transportation. Gregson was successful in having a resolution passed stating that the Council would not sanction that third of police expenditure connected with the management and control of convicts. At the end of the year, the Council only authorised three months' expenditure to cover the cost of police, gaols and courts. Further opposition came to an end when the Imperial Government terminated transportation in 1853, thus paving the way for more effective self-government. Gregson sat on the committee which drew up a draft constitution but clashed with his colleagues on two points: he did not want members of the proposed legislature to be paid, maintaining that parliament should be filled with public-spirited men of adequate means; he also opposed the secret ballot as a method of election. On both issues, he was defeated.

Sir Henry Fox Young (1855-1861)

The new bi-cameral legislature, with all members elected, sat first on 2 December 1856 but Gregson, in the previous year, had been in conflict with the new governor, Sir Henry Fox Young, over the constitutional authority of the old Legislative Council. Gregson had made allegations of corruption affecting Convict Department officials but Fox Young absolved them of all charges, admitting nevertheless the existence of certain abuses. The Legislative Council was not satisfied with the governor's statement and set up a 14-member committee of enquiry with Gregson as chairman; the committee called on Hampton, the Comptroller General of the Convict Department, to appear as a witness but he refused to attend, claiming that the Council was exceeding its authority. Gregson persuaded the Council to issue a warrant for this official's arrest, Hampton barricaded himself in his house, feelings ran high and the *Advertiser* advised Governor Young to call out the army. Fox Young found a simpler solution to the problem—he prorogued the Legislative Council.

In the elections for the new bi-cameral legislature, held in 1856, Gregson stood for Richmond in the lower house but was opposed by Dickson who had the backing of the *Mercury*; the poll was close, Gregson won by only a narrow margin and his wild allegations against the proprietor of the *Mercury* involved him in legal proceedings for libel. In the House of Assembly, he advocated: retrenchment in the public service; a tariff revision so that the poor would pay less for necessities than the rich; encouragement of immigration. Some of his proposals tended to make him unpopular with the landed gentry who had been his previous supporters. For the first four months, William Champ was premier and Gregson led the opposition. The Champ government was eventually brought down by the Legislative Council which initiated and passed a motion reducing the salaries of the colony's chief executive officers; it was Gregson, in opposition, who had been advocating this measure of economy in the lower house.

In March 1857, Gregson was sworn in as premier and undertook to encourage education; reform the penal system; reduce expenditure; and to make retrenchments in the public service. To meet the immediate financial crisis, the new premier proposed that the government should borrow £55,000, a suggestion which put the house into uproar and which drew elaborate and scathing criticism from Chapman (Colonial Treasurer in Champ's ministry). Gregson's intemperate attacks on his critics resulted in a motion deploring his aggressive and vituperant language, and his conduct then became so outrageous that the opposition left the house in a body. In April, Weston moved a censure motion: 'the present Ministry does not possess the confidence of the House'. Gregson turned on his opponents and denounced them one by one: '... another sat there by the indulgence of a father-in-law, another was a placegetter and a dog, another had deserted his wife'. The motion was carried 15 to 10 and Gregson resigned, his ministry having lasted less than two months.

Conclusion

For another 15 years, Gregson remained an active politician but his views, radical on many issues, were not coherent enough to win members' support or to form a creed round which a party could be built. He died in 1874.

The end of transportation in 1853 and the sitting of the first bi-cameral parliament in 1856, were major concessions by the Imperial Government which represented victory for causes persistently and vigorously championed

by Gregson. In his earlier campaigns, he had been helped by an uninhibited and earthy flow of language coupled with a sublime contempt for all his opponents; once self-government was granted, these qualities ceased to be an asset and robbed him of the parliamentary support which his past record might have merited.

(References: *Australian Dictionary of Biography*; *Thomas Gregson—a Tasmanian radical*, unpublished paper by R. J. Brain in Tasmanian Archives.)

CHRONOLOGY

Preface

The following chronology was compiled in two sections, the period 1642 to 1929 from a document specially prepared by officers of the State Archives, and the period beginning 1930 from a search of contemporary newspapers by Bureau officers.

In the record of more recent years, it was found impossible to describe purely Tasmanian events in isolation since certain national events necessarily form a part of the history of a State within a federal system; particularly is this true with regard to some Commonwealth Government decisions, the state of the economy and industrial arbitration. On the other hand, there is the difficulty of deciding which events of a purely local character are sufficiently important to warrant inclusion. Obviously Tasmania's first Parliament in 1856 is an item appearing more worthy of permanent record than Hobart's adoption of parking meters in 1955. This difficulty of selection is partly avoided by giving the record of recent years in considerably more detail but inevitably such a policy results in matters of major and minor importance being mingled without distinction. It follows also that the second part of the chronology is limited largely to what the newspapers of the day considered important and that some events of greater significance may have escaped notice.

To round off the picture of any given year, there is a constant temptation to introduce events of world importance; as far as possible, this has been avoided except where such events had considerable local impact, for example, the sighting of a space satellite overhead, a war involving Australians or the death of a Prime Minister. In no way should the record which follows be interpreted as an 'official' chronology of the State; in actual fact, the record derives from two levels of subjective evaluation, firstly, the selection of items of importance carried out by contemporary journalists, and secondly, the further selection from this narrowed field of items that appeared important to the compilers of the chronology. Some items have been introduced not because they are important but because they have a strong local flavour, for example, the suspected sighting of a Tasmanian tiger, the winning yacht in the Sydney-Hobart race or an isolated football victory over a V.F.L. side.

Chronology of Events from First Discovery of Tasmania

- 1642 Abel Janszoon Tasman, commanding *Heemskirk* and *Zeeban*, sighted west coast and named his discovery 'Anthony Van Diemenslandt'. Landings on Forestier Peninsula and near Blackman Bay on east coast.
- 1772 Landing of a party from Du Fresne's expedition at Marion Bay and affray with aborigines.
- 1773 Tobias Furneaux, in the *Adventure*, became separated from James Cook in *Resolution* and landed party at Adventure Bay.
- 1777 James Cook anchored *Resolution* in Adventure Bay on third expedition.

- 1788 William Bligh anchored *Bounty* in Adventure Bay on first breadfruit expedition.
- 1789 John Henry Cox sailed *Mercury* from Cox Bight to Maria Island.
- 1792 William Bligh, on second breadfruit voyage, anchored *Providence* in Adventure Bay. Bruny D'Entrecasteaux, commanding *La Recherche* and *L'Esperance*, discovered D'Entrecasteaux Channel and charted south-east coast.
- 1793 D'Entrecasteaux returned for further exploration of south-east coast. John Hayes, commanding *Duke of Clarence* expedition, explored Derwent River.
- 1798 Matthew Flinders and George Bass circumnavigated Tasmania.
- 1802 Nicholas Baudin, commanding *Geographe* and *Naturaliste*, explored south-east coast.
- 1803 John Bowen's party of 49 made first settlement at Risdon Cove.
- 1804 David Collins' settlement party landed at Sullivan's Cove (Hobart). Aborigines killed in an affray at Risdon. Risdon settlement closed down. William Paterson's settlement party landed at Port Dalrymple (Tamar estuary).
- 1805 Collins forced by famine to cut rations by one third.
- 1806 Settlers moved from York Town to Launceston area (Tamar estuary).
- 1807 Thomas Laycock's party crossed island overland from Port Dalrymple to Hobart. First Norfolk Island settlers shipped to Hobart in *Lady Nelson*.
- 1809 Governor William Bligh aboard *Porpoise* anchored in Derwent after N.S.W. mutiny and embarrassed Collins with problem of jurisdiction.
- 1810 Lieutenant-Governor Collins' death. Issue of the newspaper *Derwent Star*.
- 1811 Governor Macquarie's first visit to Tasmania.
- 1812 Lieutenant-Governor Thomas Davey arrived. Northern settlement at Port Dalrymple made subordinate to Hobart. *Indefatigable* brought first shipload of convicts direct from England.
- 1815 Hobart and Port Dalrymple declared free ports for import of goods. Davey proclaimed martial law against bushrangers. James Kelly circumnavigated island in a whaleboat.
- 1816 First issue of *Hobart Town Gazette*.
- 1817 Succession of William Sorell as Lieutenant Governor.
- 1818 Death of Michael Howe, notorious bushranger.
- 1820 Visit by John Thomas Bigge to conduct his enquiry into colonial administration.
- 1821 Second tour by Governor Macquarie.
- 1822 Penal settlement established at Macquarie Harbour.
- 1823 Passage of British Act 'for the better administration of justice in N.S.W. and Van Diemen's Land'.
- 1824 Inauguration of Supreme Court. Arrival of Lieutenant-Governor Arthur.
- 1825 First Launceston newspaper, the *Tasmanian and Port Dalrymple Advertiser*, established. Tasmania constituted a colony independent of N.S.W. Establishment of appointed Executive and Legislative Councils. Departure of Governor Darling from Tasmania left Arthur with the authority of Governor (but not the title).

- 1826 Van Diemen's Land Co. sent first party. Appointment of Commissioners of Survey and Valuation.
- 1827 Colonial Act passed for the regulation of the colonial press—disallowed. Lieutenant Governor received petition for trial by jury and some representation in Legislative Council.
- 1828 Passage of British Act 9 Geo. IV, cap. 83 which increased membership of Legislative Council. Martial law proclaimed against aborigines.
- 1830 George Augustus Robinson began his mission to conciliate the aborigines. First use of juries in civil cases. Beginning of the 'Black Line', the military campaign to round up the aborigines. First volume of *Quintus Servinton*, first novel to be published in Australia. Port Arthur established as penal settlement.
- 1831 Approval of British Government's new land regulations discontinuing free grants of land, and replacing them with land sales.
- 1832 First shipment of aborigines to Straits Islands. Establishment of the Caveat Board to settle land disputes and to confirm titles. Maria Island closed down as a penal settlement.
- 1833 Macquarie Harbour penal settlement closed down.
- 1834 Henty brothers from Launceston became first settlers in Victoria, occupying land in Portland Bay area.
- 1835 John Batman sailed from Launceston to Port Phillip as agent for the Port Phillip Association. Tasmania divided into counties and parishes. Opening of Ross Bridge. Population estimated as 40,172 persons.
- 1837 Arrival of Sir John Franklin and assumption of office as Lieutenant Governor.
- 1838 Sessions of Legislative Council opened to the public.
- 1840 Cessation of transportation to N.S.W., and consequent increase in numbers transported to Tasmania. Population estimated as 45,999 persons.
- 1841 Assignment System of convict discipline replaced by the Probation System. Rossbank Observatory for magnetic and meteorological observations established.
- 1842 Tasmania created a separate Anglican diocese. Hobart made a city. Peak year for convict arrivals (5,329).
- 1843 Recall of Sir John Franklin and succession of Sir John Eardley-Wilmot.
- 1844 Transfer of Norfolk Island penal settlement from N.S.W. to Tasmanian control.
- 1845 Resignation of the 'Patriotic Six' members of the Legislative Council, opposing the heavy expenditure of colonial revenue for imperial police charges.
- 1846 Recall of Wilmot. Foundation of the Launceston Church Grammar and the Hutchins Schools.
- 1847 Succession of Sir William Denison. The Lieutenant Governor re-appointed the 'Patriotic Six', dispensing with those who had replaced them as Legislative Councillors.
- 1848 Tasmania now the only place of transportation in the British Empire.
- 1850 Foundation of the Anti-Transportation League. Population estimated as 68,870 persons.
- 1851 British Act 'for the better governing of the Australian colonies' reached Tasmania; provided for limited representative government. First elections for 16 non-appointed members of Legislative Council.

- 1852 First payable gold found near Fingal. Elections held for first municipal councils in Hobart and Launceston.
- 1853 Arrival of last convicts to be transported.
- 1854 Bad floods throughout colony. Passage of Bill establishing responsible government.
- 1855 Succession of Sir Henry Fox Young; title now Governor. British Government approved Constitution Bill.
- 1856 Name of Van Diemen's Land changed to Tasmania. Opening of new bi-cameral Parliament with W.T.N. Champ leading first government in the House of Assembly. Reorganisation of Police Department.
- 1858 Council of Education set up. Rural Municipalities Act passed.
- 1859 Charles Gould appointed to make geological survey of western Tasmania. Telegraph established as link with Victoria.
- 1860 Population estimated as 89,821 persons.
- 1861 Succession of Colonel Thomas Gore Browne. Telegraph cable to Victoria failed.
- 1862 Promotion of scheme for a railway between Launceston and Deloraine.
- 1864 Arrival of first successfully transported salmon ova.
- 1868 Visit by Alfred, Duke of Edinburgh. Bill passed making primary education compulsory.
- 1869 Succession of Charles Du Cane. Death of William Lanne, thought to be last male full-blood aborigine. Death of Sir Richard Dry. New cable laid to Victoria.
- 1870 Withdrawal of remaining Imperial troops. Population 99,328 persons (Census).
- 1871 Opening of Launceston-Deloraine railway.
- 1872 Contract concluded for building Main Line Railway.
- 1873 Main Line Railway construction begun. Tin discovered at Mt Bischoff. Start of economic recovery.
- 1874 Riots in Launceston in protest at rates levied for Launceston-Deloraine railway.
- 1875 Succession of Sir Frederick Weld.
- 1876 Race meetings established at Elwick. Gold nugget worth \$12,200 found at Nine Mile Spring. Death of Truganini, thought to be last female full-blood aborigine. Main Line Railway opened for traffic.
- 1877 Port Arthur closed down as a penal settlement.
- 1878 Increased activity in exploration of West Coast.
- 1879 Settlement of constitutional issue known as the 'Hunt Case'. Rich lode of tin discovered at Mt Heemskirk.
- 1880 First telephone in Tasmania with line from Hobart to Mount Nelson Signal Station.
- 1881 Purchase of three diamond drills by government for hire to private prospectors. Succession of Sir George Strahan. Population 115,705 persons (Census).
- 1882 Increased prospecting on West Coast.
- 1883 Discovery of the 'Iron Blow' at Mt Lyell.
- 1885 Russian war scare followed by activity in improvement of defences. Formation of Mt Lyell Prospecting Association.

- 1886 Abye Douglas, Tasmanian Premier and President of the Federal Council, spoke in favour of Australian republicanism.
- 1887 Succession of Sir Robert Hamilton.
- 1890 Establishment of University of Tasmania.
- 1891 Collapse of Van Diemen's Land Bank; deep economic depression. Population 146,667 persons (Census).
- 1892 Mt Lyell Mining Co. established.
- 1893 Succession of Viscount Gormanston.
- 1896 Establishment of Tattersalls Lottery by George Adams.
- 1897 Record shade temperature of 105.5° at Hobart on 30 December.
- 1898 Serious bush fires. Polling 4 to 1 by Tasmanians in favour of Federation.
- 1899 Departure from Hobart of *Southern Cross* (Borchgrevinck) expedition to Antarctic.
- 1900 Departure of Tasmanian contingents to fight in the Boer War.
- 1901 Proclamation of the Commonwealth read. Polling for first elections to Federal Senate and House of Representatives. Visit of the Duke and Duchess of Cornwall and York. Succession of Sir Arthur Havelock. Population, 172,475 persons (Census).
- 1903 Celebration of 100 years' settlement cancelled because of smallpox epidemic in Launceston. Suffrage extended to women.
- 1904 Succession of Sir Gerald Strickland at reduced salary.
- 1905 Experiments in wireless telegraphy between Tasmania and the continent and between Tasman Island and Hobart.
- 1906 Visit by Ramsay MacDonald (later British Prime Minister).
- 1907 New Public Library opened; built with gift from Andrew Carnegie.
- 1909 Succession of Sir Harry Barron. Potato crop wiped out by Irish blight. State's first Labor government under J. Earle.
- 1911 Population 191,211 persons (Census).
- 1912 Disastrous fire at North Lyell Mine, Queenstown.
- 1913 Succession of Sir William Ellison-Macartney.
- 1914 First aeroplane flight in Tasmania. Departure of first Tasmanian contingent to fight in Great War. Second State Labor government formed under John Earle. Formation of Hydro-Electric Department.
- 1915 Serious bushfires.
- 1917 Establishment of electrolytic zinc works at Risdon and of Snug carbide works. Succession of Sir Francis Newdegate.
- 1918 End of Great War.
- 1919 First export of frozen meat.
- 1920 Visit by Edward, Prince of Wales. Establishment of Cadbury's chocolate factory at Claremont. Succession of Sir William Allardyce.
- 1921 Population 213,780 persons (Census).
- 1922 Completion of Waddamana power station.
- 1924 Succession of Sir James O'Grady. First superphosphate manufactured by Electrolytic Zinc Co. at Risdon.
- 1925 Discovery of osmiridium fields at Adamsfield.
- 1927 Enquiry into proposed bridge over Derwent. Visit by Duke and Duchess of York.

- 1929 Serious floods throughout island. Establishment of automatic telephone system in Hobart. Beginning of economic depression.
- 1930 Export prices fell to half 1928 level. Australian pound devalued so that £ Sterling equalled £A 1.25 (\$A 2.50).
- 1931 Depression continued—10 per cent cut in Federal basic wage. Initiation of austere Premiers' Plan. Conversion loan to reduce rate on internal Federal debt by 22½ per cent. Census of population deferred due to economic crisis.
- 1933 Census of population—Tasmania, 227,599 persons. Succession of Sir Ernest Clark. Commonwealth Grants Commission appointed to enquire into affairs of claimant States.
- 1934 Labor ministry of A. G. Ogilvie first in many years of continuous Labor governments. Second phase of hydro-electric development commenced at Tarraleah and Butlers Gorge.
- 1936 Tasmania linked with Victoria by submarine telephone cable.
- 1937 Epidemic of poliomyelitis. Economic recovery evidenced by \$0.50 'prosperity' loading added to Commonwealth basic wage.
- 1938 Paper mill using native hardwoods established at Burnie. First turbines began operating at Tarraleah power station.
- 1939 Outbreak of World War II.
- 1940 Tasmanians sailed for Middle East with Australian 6th, 7th and 9th Divisions.
- 1941 Newsprint production began at Boyer on the Derwent. Tasmanians sailed for Malaya with Australian 8th Division.
- 1942 Uniform Federal income tax commenced.
- 1943 The floating-arch Hobart Bridge opened for traffic.
- 1944 Pay-as-you-earn income taxation introduced from 1 July.
- 1945 End of World War II. Succession of Sir Hugh Binney.
- 1946 Cessation of man-power controls. Rejection by Legislative Council of bill to grant Federal Government price control powers for three years. Referendum gave Commonwealth power in regard to social services but refused power over marketing and employment. Crash of DC3 airliner at Seven Mile Beach with 25 deaths.
- 1947 Census of population—Tasmania, 257,078 persons. Federal arbitration decision favouring 40-hour week. Court action to stop bank nationalisation by Federal Government. Demobilisation of forces completed. 'Displaced persons' commenced arriving from Europe.
- 1948 Forty-hour week awarded to most workers from 1 January. Tasmanians voted 'No' almost 2 to 1 in referendum denying Federal Government power over prices and rents. State price and rent controls introduced. State Premier resigned but soon re-instated in office. Hobart's Ocean Pier gutted by fire. Hydro-electric capacity exceeded one-quarter million horsepower. Legislative Council's denial of supply forced dissolution of House of Assembly—Cosgrove ministry returned to power. High Court ruled against bank nationalisation. Abolition of toll on Hobart Bridge.
- 1949 Compulsory X-ray introduced in fight against tuberculosis. Saturday morning closing of banks. Clark Dam at Butlers Gorge completed. Theatre Royal purchased by Government. Repco Bearing Co. officially opened at Launceston. Construction begun on Bell Bay

aluminium plant. Port of Hobart held up by 29-day strike; coal supplies cut off by major strike on N.S.W. coalfields and at Tasmanian mines. Sterling devalued by 30.5 per cent and Australian pound similarly devalued. Outbreak of poliomyelitis caused cancellation of Hobart Show. Federal Labor government defeated at elections and Liberal government installed.

- 1950 End of Federal petrol rationing. Dissolution of House of Assembly granted by Governor and Cosgrove ministry returned to power. Federal child endowment extended to cover first child. Invasion of South Korea and recruiting of volunteers for Australian contingent. Federal basic wage increase of \$2.00 followed by State Wages Boards. Communist Party Dissolution Bill passed by Federal Parliament. Control of State meat prices abandoned.
- 1951 Serious bushfires in January and February. Succession of Sir Ronald Cross. Electric power rationing introduced due to prolonged drought. Communist Party Dissolution Act declared invalid by High Court. Double dissolution of Federal Parliament. Part of Macquarie Harbour frozen over on 2 July. Hobart Federal basic wage increased from \$16.50 (February) to \$19.90 (November). First intake of National Service trainees entered Brighton camp. Referendum to give Commonwealth powers in regard to communism—'No' vote prevailed although Tasmanians expressed slight preference for 'Yes'. Announcement of drastic Federal anti-inflation budget—economic effects of record wool prices and the Korean war becoming apparent.
- 1952 Inflation continued—Hobart Federal basic wage rose from \$20.80 (February) to \$23.00 (November). Single licensing authority established for hotels, clubs, etc. First women elected to Hobart City Council. Two women elected to Legislative Council. Bad floods in Derwent Valley. Artificial lake, King William, filled to capacity. State free hospital scheme ceased on acceptance of Commonwealth insurance scheme. State Racing Commission established. Rejection by Legislative Council of bill to give State aid to private schools. Butlers Gorge power station began operating.
- 1953 Inflation continued—Hobart Federal basic wage rose from \$23.20 (February) to \$24.20 (August). In September, Court abandoned system of quarterly adjustment of Federal basic wage. Special Premiers' conference discussed return of income tax powers to States but no action followed. Tungatinah power station began operating. Armistice in Korea. Announcement of transfer to Victoria by Tattersalls Lottery. Price control of meat re-introduced. Bad storm temporarily closed Hobart Bridge. State Wages Boards decided to follow Federal Court in suspension of quarterly basic wage adjustments.
- 1954 Royal visit by Queen in liner *Gothic*. Completion of Trevallyn tunnel for hydro-electric power. Menzies government re-elected. Bad flood in South with much damage in Hobart Rivulet area. Rationing of electric power ended. Bill to increase House of Assembly to 35 members defeated in Legislative Council. Census of population—Tasmania, 308,752 persons. State prices control organisation disbanded. Federal Arbitration Court awarded margins based on two and a half times their 1937 level. Bill passed to resolve deadlocks in House of Assembly. Foundation of Metropolitan Transport Trust.
- 1955 Nubeena suffered damage from tidal wave. Uranium ore discovered at Mt Balfour and Royal George. Bell Bay aluminium plant officially opened. Cosgrove ministry returned to power without effective

majority. First women (two) elected to House of Assembly. Australia's first capital city parking meters installed in Hobart. Trevallyn turbines started operating. Tungatinah scheme officially opened. Anti-Communist Labor Party (later the D.L.P.) formed in State. Drastic cut in imports enforced under Federal licensing provisions. State visited by Earl of Home (later British Prime Minister). Tasmanian Lotteries announced \$500,000 prize for sweep. Tasmania's first woman mayor (Launceston). Menzies government re-elected. Three hundred whales stranded near Dunally.

- 1956 State Wages Boards' restoration of 'cost-of-living' adjustments effective from 1 February. Watersiders strike at Tasmanian ports for 22 days. Mile-long Wayatinah tunnel bored through for hydro-electricity. Tasmanian Lotteries announced \$1,000,000 prize for sweep. Passage by Legislative Council of long-service leave bill. Bad floods State-wide in May. Federal Court increased basic wage \$1.00. State granted \$2.60 increase to own employees. State Wages Boards again suspended cost-of-living adjustments. Deadlocked Premiers' Conference failed to agree on uniform wages policy as counter to inflation. Minister for Housing joined Liberal Party, depriving State Government of its majority. Sir Ronald Cross flew from Colombo and granted dissolution of House of Assembly. Labor returned to power in State. Official opening of E.Z. Co's sulphate of ammonia plant. Centenary of self-government celebrated.
- 1957 Parking meters introduced in Launceston. 88-year-old Mt Nicholas coal mine closed down in Fingal Valley. Legislative Council rejected bill giving aid to private schools. Serious recession in timber industry. Substantial relaxation of Federal import curbs. First fall for three years in 'C' series index (March quarter). Federal court increased basic wage \$1.00. Clarence rate payers voted to replace elected Council with appointed Municipal Commission. High Court upheld principle of uniform income tax (challenged by Victoria and N.S.W.). Severe flooding in Hobart. 'Comprehensive High School' policy announced. First space satellites—Sputniks I and II—seen over State. Keel laid of *Princess of Tasmania*. Commonwealth announced greater financial aid to Universities, following Murray Report. Centenary of Hobart's incorporation celebrated.
- 1958 Unsuccessful agitation by churches and other bodies for re-opening of Orr case. Federal court increased basic wage by \$0.50. Bad floods in Derwent Valley. Establishment of Rivers and Water Supply Commission. Viscourt prop-jets introduced on Bass Strait routes. Four-mile-long Liapootah tunnel bored through for hydro-electricity. Mr Cosgrove succeeded by Mr Reece as Premier. Number of Supreme Court judges increased to five. Commercial licence granted to Tasmanian Television Ltd. Completion of Hobart's Olympic Pool. Menzies government re-elected. Public Service Tribunal established as industrial authority. *Princess of Tasmania* launched.
- 1959 Hobart temperature 105° on 20 January. Extensive bushfires. New licensing Act further restricted Sunday drinking. New system of increased Commonwealth grants for State roads. Dissolution of House of Assembly. State visited by discoverer's descendant—Herman Abel Tasman. First election to fill 35 seats in House of Assembly; Labor re-elected. Succession of Lord Rowallan. Federal Court awarded \$1.50 increase in basic wage. New Commonwealth system of grants reduced claimant States to two—Tasmania and W.A.

High Court verdict in Hursey case upheld right of unions to strike levies for political purposes. *Princess of Tasmania* commenced roll-on roll-off ferry service Melbourne to Devonport. One-way street traffic plan introduced in Hobart. Visit by Earl Attlee (ex-Prime Minister of Britain). Brooker Highway open for traffic between Elwick Road and Cleary's Gates. Federal Court granted 28 per cent increase in margins. Tender accepted for new bridge across Derwent to be finished in three years. Severe hail damage to Huon Valley orchards.

- 1960 Liapootah power station commissioned. Kingborough Council replaced by Municipal Commission. Zeehan-Strahan railway closed. Tasmanian Industrial Mission visited U.K. and Europe. Inland Fisheries Commission created. First Tasmanian telecast. Federal Court refused basic wage increase. Severe floods in central Hobart and Derwent Valley; flood relief fund opened for victims. In football, Tasmania defeated V.F.L. Macquarie No. 1 wharf officially opened. Construction begun of board mills at Wesley Vale. Tasmanian Lotteries surrendered licence. Negotiations begun for sale of Commonwealth interest in Bell Bay aluminium plant. State Parliament ignored committee's report recommending increased members' salaries. Royal Flying Doctor Service commenced in State. Australian 'give way to right' rule introduced. Last Hobart trams ceased running. *Bass Trader*, a trailer-container vessel, launched. Hobart Gaol vacated, the new prison being at Risdon.
- 1961 Government initiated plan for bulk water supplies to west bank of Derwent. *Bass Trader* commenced service to Melbourne from northern ports. Concern at growing unemployment followed by easing of Federal credit restrictions in June. Census of population—Tasmania, 350,340 persons. Carpet factory opened at Devonport. Rosebery-Tullah road officially opened. Federal court increased basic wage \$1.20. *William Holyman*, cargo container vessel, entered Bass Strait trade. Matriculation college policy announced. Construction started for Hobart-Sydney ferry terminal. Establishment of Metropolitan Water Board. Savage River iron ore samples tested in U.S. furnaces. Legislative Council rejected equal pay legislation. Menzies government re-elected.
- 1962 'Sputnik' dredges banned from Channel scallop beds. Power boat licensing introduced. Board of enquiry reported adversely on prospects of thermal power generation in Fingal Valley. Federal Court refused basic wage increase. Butter oil production commenced at Deloraine. Official opening of ferro-manganese plant at Bell Bay. Catagunya turbines began producing electricity. State Wages Boards granted three weeks' annual leave. Federal grant of \$2,336,000 to Tasmania to stimulate employment. Roster system introduced for 'out of hours' petrol sales. State subsidies announced for municipal fluoridation schemes. Closure of Mt Lyell Railway, Queenstown to Strahan. Wood pulp production commenced at Geeveston. West Derwent Water Scheme inaugurated; end of metropolitan water shortages.
- 1963 Speed limit in built-up areas increased from 30 to 35 mph. Collapse of negotiations for Britain's entry into Common Market. Abolition of State entertainments tax. Succession of Sir Charles Gairdner. Federal court increased margins 10 per cent and granted three weeks' annual leave. New consolidated Local Government Act effective from 1 July. Trans-Derwent ferries ceased operating. Uniform marriage laws

operative from 1 September. Tasmanian fishermen began exploitation of Port Phillip Bay scallops. Universities Commission recommended medical school for Tasmanian University. Federal Government granted \$5,000,000 for road to Gordon River. Hydro-Electric Commission imposed power cuts on industrial consumers. *Seaway Queen*, trailer and container ship, launched. Menzies government returned with substantial majority. Opening of Murchison Highway.

- 1964 Launching of *Seaway King*. T.A.A. commenced intra-State air services. Launching of *Empress of Australia*. Poatina turbines commenced electricity generation; industrial power cuts ended. Alginate plant began operations on east coast. Strahan airport completed and first used by Japanese examining Savage River iron ore. Labor re-elected at State elections. Federal court reduced long service leave qualifying period from 20 to 15 years. *Seaway Queen* began Melbourne-Hobart operations. Federal court increased basic wage \$2.00; rejected total wage concept. Shannon power station closed down. Severe flooding in Launceston area. Federal grants to private home builders made available. Tasman Bridge opened for traffic and Hobart Bridge towed away. *Seaway King* began Sydney-Hobart operations. Forestry works extended in Fingal Valley as counter to coalminers' unemployment. Increase in State parliamentary salaries. Abolition of 'junior minister' status in State Cabinet. State subsidies for electric power in remote localities abolished. Hobart's water supply fluoridated. One-way street scheme introduced in Launceston. Tasmania re-established as separate Army Command. Glenorchy raised to city status. Compulsory National Service on selective basis introduced. Hobart transportation study published. Pickands Mather and Co. International (U.S.A.) and Mitsubishi Shoji Kaisha Ltd agreed to joint investigation of Savage River iron ore deposits.

- 1965 *Empress of Australia* sailed from Sydney on first voyage to Hobart. Provisional driving licences introduced. Geeveston wood pulp expansion programme announced. Contract let to raise Great Lake level by new Miena Dam. Dental nurse scheme for schools announced. Abalone fishing stepped-up. Visit by Archbishop of Canterbury (Dr Ramsey). Discovery of off-shore natural gas in Gippsland Basin. Battalion of Australian troops sent to South Vietnam. D'Entrecasteaux scallop beds closed for 1965 season. New Shops Act extended Saturday morning closing to Hobart's eastern suburbs. Commonwealth Conciliation and Arbitration Commission increased total award wage 1.5 per cent, the rise being credited to the margin not, the basic wage. Waddamana 'A' power station closed down. Television coverage extended to West Coast. Bass Strait oil drilling commenced. Expansion of ferro-manganese plant at George Town announced. Geeveston wood pulp capacity raised to 48,000 tons. Report of Municipal Commission recommended reduction of local government authorities from 49 to 20. Three-year expansion programme commenced at Boyer newsprint mills—production to lift from 93,000 tons to 165,000 tons. Expansion programme announced for George Town aluminium plant—annual capacity to be lifted to 71,000 tons. Australian woolgrowers voted 'No' in referendum on Reserve Price Scheme; Tasmanians voted marginally 'Yes'.

- 1966 *Freya* won Sydney-Hobart race. Offshore natural gas discovered at new site in Victorian waters. Sir Robert Menzies retired and Mr Holt became Prime Minister. Dental nursing school opened. Decimal currency introduced on 14 February 1966. Railton cement works

announced \$4m expansion programme. Hobart airport to be developed for pure jet travel. Savage River workers declared eligible for taxation zone allowance. Acrylic yarn plant to be built at George Town. Advanced College of Education announced for Hobart (to cost \$2m). Tamar River made navigable for large ships at night. Burnie-Launceston co-axial cable completed. New Queenstown airport opened officially. Renison Bell to process tin with Capper Pass fuming method. Hobart gas works used oil after 112 years' production based on coal. Contract let for construction of Port Latta. Savage River agreements involving \$62m signed. Contract let for \$3m State Government offices. Equal pay for certain females in Public Service contained in State Act. Breathalyser tests approved for use by police. Census of population—Tasmania, 371,435 persons. Tin production at Mt Cleveland to re-commence. Workers' compensation extended to cover travel to and from work. Commonwealth Conciliation and Arbitration Commission increased basic wage by \$2. Sunday observance dispute; Victorian Q.C. appointed as board of enquiry. Limit on co-operative building society loans raised to \$8,000. Shipping rates to Britain increased 6.4 per cent. Huge copper reserves discovered in Mt Lyell area. State budget lifted commercial vehicle taxation as much as 50 per cent; private vehicle taxation about 15 per cent. H.E.C. programmes accelerated. Huge floating crane towed from U.S.A. to Port Latta. Launceston airport's new passenger terminal officially opened. Holt Liberal Government returned to power with record majority; Tasmanian representation remained 3 A.L.P., 2 Liberal. S.T.D. extended to Tasmania. Commonwealth Public Service removed marriage bar. Lake Meadowbank filled. Commonwealth Conciliation and Arbitration Commission, in interim margins case, gave increases based on total wage (ranging from 1 per cent to 2.5 per cent).

- 1967 Thirty-foot sloop *Cadence* won Sydney-Hobart race. Longford abattoirs to start \$0.5m expansion. Damage in south with gusts to 81 mph. Board of Inquiry suggested more liberal Sunday observance legislation. Bush fire disaster of 7 February resulting in 62 deaths. Tasmanian bale of wool brought record price of 760 cents per lb. First home rebuilt and occupied 18 days after its destruction. Pardoe Beach at Devonport mass grave for 150 sperm whales. Smithton additional base for Flying Doctor Service. Chief Guide, Lady Baden-Powell, visited State. Lambs killed in fire devastated areas for want of fodder. Four months to April driest in Hobart since 1840. Senate rejected Federal Government's attempt to raise postal charges. Housing grants to fire victims liberalised by Federal Government. Chief Justice of Tasmania appointed to head second *Voyager* Royal Commission (Federal matter). Petition presented against a proposal to flood Lake Pedder as part of Gordon hydro-electric scheme; plan for thermal station at Bell Bay also announced. Federal referendum held. Federal Arbitration Commission abolished basic wage concept, substituted total wage concept and awarded \$1.00 increase to males and females. Israel defeated Arab nations; closure of Suez Canal trapped some Tasmanian apple shipments. Luina, new 61-home township near Waratah, finished for Mt Cleveland tin mines. State Wages Board in test case gave \$1.00 increase to males and females but retained basic wage concept. Scallop beds in D'Entrecasteaux Channel opened for one month's trial. Hydro-electric water reserves down to 16 per cent due to sustained drought in catchment areas. Cabinet decided to intro-

duce daylight saving legislation to conserve power. Industrial power rationing with 25 per cent cuts to operate from 1 October. Federal Government to erect 50 migrant reception flats in main centres. Legislative Council consented to bill authorising Gordon River hydro-electric scheme and Bell Bay thermal station. Mt Lyell Co. purchased three oil-fired generators for emergency power production. Liberalised Licensing Act proclaimed, lowering drinking age to 20 years, licensing restaurants and taverns, extending hours on Fridays and Saturdays, etc. Daylight saving legislation to operate from 1 October. Higher electricity charges introduced. Parliamentary Salaries Tribunal increased members' rates. Federal Trade Practices Act operational from 1 October. Purchase of N.Z. ferry *Hinemoa* to feed 10,000 kW into grid and to accommodate Bell Bay thermal station construction workers. Change in Special Grant calculation; four State standard to operate in 1970. Savage River iron ore passed as slurry to Port Latta. U.K. devalued pound sterling by 14.3 per cent; Australia did not devalue. Senate election result in State: two Liberal, two A.L.P., one independent. Bulk electricity supplies cut 35 per cent from 1 December; domestic users to reduce consumption by 20 per cent. Legislative Council defeated price control measure. Deadlock between two Houses resulted in end of legislation controlling shop hours. Arbitration Commission gave work value award in Federal metal trades case; suggestion that increases could be absorbed where over-award payments in operation. Sixty mph driving limit introduced. Union challenge to total wage concept defeated in Full High Court. Australian Prime Minister, Mr Harold Holt, disappeared while swimming off Victorian coast.

- 1968 *Rainbow II*, winner on handicap, Sydney-Hobart race. St John's Park hospital to be extended. Search for Mr Holt's body given up. Rain-making experiments made over H.E.C. catchment areas. Registrar appointed, Advanced College of Education. Hobart residents served notice to clear fire hazards. Senator Gorton became Australian Prime Minister. Royal Hobart Hospital acquired State's first artificial kidney machine. Burnie municipal abattoir lost licence; other rural abattoirs below standard. National postal strike (mail van drivers' case). Mt Lyell Company introduced superannuation scheme for wage-earners. Repulse H.E.C. dam on Lower Derwent completed. Japanese inspected ports for possible woodchip industry. New Vice-Chancellor of University (Sir George Cartland). First H.E.C. emergency gas turbine arrived for installation in north. Casino promoters put proposal before State Government. Asthma survey of schoolchildren commenced. Launceston Port Authority let tender for removal of part of Garden Island. New post, State Fire Control Officer, advertised. Bad bushfires in north-west and north-east. Federal Arbitration Commission in second metal trades work value decision, reduced amounts granted by 30 per cent; restoration to be considered later in year. Federal scheme announced for reconstruction of dairy industry. State Government undertook to subsidise processors of William Bartlett pears. Mr Gorton won by-election and entered Federal House of Representatives. Savage River iron ore project officially opened. E.Z. Co. announced plans for Burnie sulphuric acid plant (1,200 tons daily capacity). Supreme Court held valid the report of the Municipal Commission. Contract let for H.E.C. Bell Bay thermal plant. Mt Cleveland tin mine, first worked in 1908,

officially re-opened. Woodchip industry study indicated south suitable. St Leonards council dismissed and administrator appointed. Rowallan power station, first of Mersey-Forth chain, began operating. H.E.C. water storages at record low level. *California Maru* cleared Port Latta with cargo of iron ore pellets. Railways increased charges. Contract (\$5.6m) let for H.E.C. village at Strathgordon; part of south-west power scheme. New airstrip opened at Bichenor. Launceston tug *Wybia* holed in Tamar. Good rains; industrial power rationing to be relaxed to 25 per cent formula from 1 July when other restrictions would cease. Batman Bridge across lower Tamar opened. Federal Government announced subsidies for apples and pears exported to U.K. and other countries which devalued their currency in 1967. Indian Prime Minister, Mrs Ghandi, visited Australia. Gale damage in north-west with 110 mph recorded. Ceilcote Pty Ltd opened Devonport factory to make corrosion resistant materials. Avoca kangaroo shoot aroused national criticism. Metropolitan Transport Trust to replace trolley-buses with motor buses for \$0.5m. Launceston General Hospital to be extended at cost of \$1.9m. Legislative Council set up select committee to examine daylight saving. Warrane to be site of new Government printery. Bureau of Statistics installed powerful computer for Federal and State use. Naracoopa Rutile Ltd began construction of \$0.75m King Island plant. Tasmanian Public Service Tribunal ruled women teachers entitled to equal pay (by 1972 in stages as prescribed in State Act). W.A. at own request ceased to be claimant State for Special Grants; Tasmania now only claimant. On Legislative Council's initiative, Parliament legislated for government Green Coach Line to cease operations by November 1968. H.E.C. ordered second 'mole' for tunnels. Beach sand mining project announced for Devonport. Stanley wharf area endangered by rock-fall from the Nut. Royal Commission reported favourably on fluoridation. *Wakabata Maru* delayed by big seas at Port Latta. Transport Commission purchased Danish ship *Birthe Andreason* for coastal services. Strahan Marine Board began dredging of Macquarie Harbour entrance. Mt Lyell blister copper shipped to Port Kembla (N.S.W.). H.E.C. office block for erection at cost of \$3.5m. Open road speed limit of 65 mph imposed. State receipt tax of 1 cent in each \$10 imposed (but wages and salaries exempt). Industrial power rationing to cease from 1 October. Daylight saving to operate in 1968-69 for shortened period. Arbitration Commission increased male and female adult award rates by \$1.35 per week in national wage case. Public meeting held in protest against Wrest Point casino proposal; bomb threats against two members of State Parliament. Re-count of votes to fill vacancy created in Assembly by death of Mr John Steer, pioneer of Tasmanian daylight saving. Government Green Coach Line to be acquired by private operator. Federal Commissioner, Trade Practices, investigated hotel-keeper's allegation that his local supply of draught had been cut off because he sold Melbourne draught. H.E.C. storages, down to 14 per cent in March, up to 54 per cent in October. Traces of oil and natural gas discovered in Tasmanian part of Bass Strait. Full adult suffrage for Legislative Council elections from 1 July 1969. Stock moved from drought-stricken east coast farms. Rural Fires Board to use aircraft for fire spotting. Centre for treating alcoholics and drug addicts planned for New Town. Tasmanian Pulp and Forest Holdings (woodchip exports) sign contract with Japanese paper manufacturers. Legislation passed allowing government loans

to drought affected farmers. Master planning authority to be established for the Tamar Valley area. State's new governor (Sir Edric Bastyan) took-up office. First major shipment of live abalone from Tasmania to Japan. Woodchip company received large concession area in east and centre of State; company has until June 1971 to commence operations. Capital punishment abolished. 'Yes' vote prevailed in 'Casino Referendum'; *Wrest Point Casino Licence and Development Bill* passed by Legislative Council in late December.

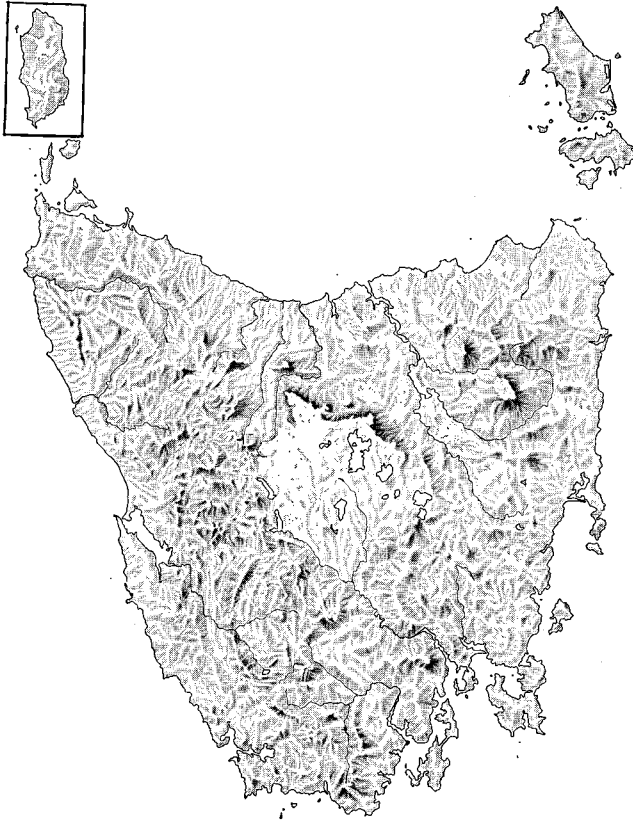
Chapter 2

PHYSICAL ENVIRONMENT

GENERAL DESCRIPTION

Location and Area

The State of Tasmania is a group of islands lying south of the south-east corner of the Australian continent; the major island is called Tasmania and the more important of the lesser islands include King, Flinders and Bruny. The major island, roughly heartshaped with the greatest breadth in the north, extends from $40^{\circ} 38'$ to $43^{\circ} 39'$ South latitude and from $144^{\circ} 36'$ to $148^{\circ} 23'$ East longitude. All the coastline lies in the Southern Ocean except in the north where Bass Strait separates the island from the Australian continent by approximately 150 miles.



Relief Map

The area of the whole State, including the lesser islands, is 26,383 square miles or about 0.9 per cent of the area of the Australian Commonwealth (2,967,909 sq. miles); it is just under one third the size of Victoria, the smallest continental State.

Australia, extending as it does well north of the Tropic of Capricorn and with much of its area in the zone of the sub-tropical anti-cyclones, is basically a warm, dry continent. By way of contrast, Tasmania is in the temperate zone and practically the whole island is well watered with no marked seasonal concentration; there are no deserts or drought areas as found extensively on the adjacent continent. Because Tasmania is the most southern State of the Commonwealth, there is a tendency to think of it as being close to the Antarctic but its latitude is matched, in the northern hemisphere, by that of Marseilles (France), and Boston (U.S.A.). In addition, the fact that Tasmania is an island shelters it from the extremes of heat and cold experienced in these two centres. The effect of its insular position is illustrated by the variation between summer and winter mean temperatures in coastal towns—this rarely exceeds 15°F. Comparing Hobart (Tasmania) with Melbourne (Victoria), mean maxima are some 6° warmer and mean minima 3° warmer in the Victorian capital although Hobart enjoys slightly more sunlight as it is subject to less fog.

Apart from the Great Dividing Range in the east, Australia is predominantly a land of low plateau and plains with little relief. By way of contrast, Tasmania could legitimately be called the island of mountains, since it has the largest proportion of high country in its total area when compared with the other States. The distinctive feature of the island is not so much the size of the mountains—few exceed 5,000 feet—but rather the frequency with which they occur. The British Admiralty Pilot Book describes Tasmania as 'probably the most thoroughly mountainous island on the globe.'

Population Distribution

With a population of about 383,000, Tasmania is still thinly populated although its density of 14 persons per square mile is exceeded only by Victoria among the Australian States. Asian comparisons are Japan, 700 persons per square mile; China, 210; Indonesia, 190.

A marked characteristic of the continental States of the Commonwealth is the very high concentration of population in their respective metropolitan areas, Brisbane providing the only example where this concentration falls below 50 per cent of the State's total population. By way of contrast, the Tasmanian population is concentrated in two main areas: (i) Hobart Metropolitan Area with about 32 per cent, and (ii) Urban Launceston with about 16 per cent. This deviation from an Australian pattern is partly explained by the relative proximity of Launceston to the principal mainland markets, a factor also operating in favour of the north-western towns of Burnie-Somerset and Devonport which together now contain a further 9 per cent of the State's population. As might be expected with an island, the main centres of population have grown up around ports.

Economic Development

In the nineteenth century, the basic economic activities were farming, mining, forestry and fishing (with whaling of prime importance in the first half of the century). In the twentieth century, evolution of secondary industry was at first inhibited by two major factors—the smallness of the local island market and the relative advantage enjoyed by competitors located closer to the principal markets. There were, however, two geographical features of the island which could be utilised to offset these disadvantages, namely a mountainous terrain and an assured rainfall. Taken together, these two factors mean cheap electric power (if the necessary investment is made in dams and generating stations), for it has been estimated that Tasmania has at least 50 per cent of the

total Australian hydro-electric potential. In the last three decades, the State Hydro-Electric Commission has developed a generating system such that the turbines now in use generate 1.16 million kilowatts, and work is still proceeding on harnessing fresh sources. Development of the Gordon River power potential is in an advanced stage of planning. The first power from this West Coast scheme is due to be generated in 1975. The abundance of cheap electric power has led to the establishment of a number of major industrial plants and has transformed the island's economy, which was once heavily dependent on primary industry. Evidence of this change is given by the Census of 30 June 1966 when 11.69 per cent of the Tasmanian work force was shown as engaged in 'Primary Production' but 23.05 per cent in 'Manufacturing'. Compared purely on the basis of these two percentages, Tasmania is, relatively speaking, a more industrialised State than Queensland or Western Australia.

An island, by definition, can suffer from isolation and there is little doubt that Tasmania has been handicapped by transport difficulties. Two developments are now operating to minimise the effects of isolation—regular and frequent air services and roll-on roll-off ferries. The pure-jet air service puts a Tasmanian traveller down in Melbourne in one hour's flying time or less from Hobart, while cargoes are air-freighted daily. Roll-on roll-off ferries are playing the part of a bridge and are carrying tourist cars and loaded road freighters interstate; the main terminal is Melbourne but a similar direct Sydney link also operates.

Origin of Population

Apart from natural increase, the chief source of the island's population has been the British Isles. At the Census of 30 June 1966, 96 per cent of the people in the State were recorded as having been born in Tasmania, other parts of Australia, the British Isles and New Zealand. The other main countries of birth were the Netherlands, Germany, Poland, Italy, Yugoslavia and Greece, in that order. The Census also showed 71,000 persons with a Tasmanian birthplace on the Australian mainland, but only 33,000 persons with a mainland birthplace in Tasmania; the long-term tendency has been for the migration of Tasmanians to the mainland to exceed the migration of 'mainlanders' to Tasmania.

PHYSIOGRAPHY

Introduction

Tasmania is an island of mountains and is unique among Australian States in being predominantly influenced by polar maritime air masses. From the point of view of settlement and development, these two factors have combined to create assets against which must be weighed certain liabilities. The island, a mere 180 miles from north to south and 190 miles from east to west, concentrates in small compass an amazing variety of mountain, plateau and plain, of river, lake and tarn, of forest, moorland and grassland, of town, farm and uninhabited, even virtually unexplored country. The temperate maritime climate partly explains Tasmania being called the most English of all States but other factors operate to heighten the comparison—the pattern of agricultural settlement with orchards, hedges and hopfields; the Lake country; the early freestone architecture still common in the east; the roads and villages dotted with oaks, elms and poplars. Here, then, is something new for the visitor to see and all the natural assets for a flourishing tourist industry have been amply provided. Assured rainfall and mountain storages have also given birth to massive

development of hydro-electric power and, indirectly, to industry. The growth of forests, too, is promoted by suitable factors of rainfall and temperature, and this forms the basis for industries such as timber-milling and newsprint and other paper production.

The mountainous nature of the island is confirmed by survey which shows six features exceeding 5,000 feet, 28 exceeding 4,000 feet and a further 28 exceeding 3,000 feet. The highest mountain is Mt Ossa (5,305 feet) some ten miles north-west of Lake St Clair, and north-west again from this peak lie Mt Pelion West (5,100 feet), Barn Bluff (5,114 feet) and Cradle Mountain (5,069 feet); the furthest distance, 15 miles, is from Mt Ossa to Cradle Mountain. In the Ben Lomond area, the principal features are Legges Tor (5,160 feet) and about six miles south, Stacks Bluff (5,010 feet). Each of these mountainous regions and a number of others have been set aside as National Parks and Ben Lomond is renowned for its winter sport.

Water Resources and Rainfall

Fresh water navigation has played very little part in the island's development, the rivers being too fast-running, too shallow or too short. Of the four major ports, three are located on tidal estuaries—Hobart on the Derwent; Launceston on the Tamar; Devonport on the Mersey (Burnie has built a port on the open sea protected by breakwaters). Rivers, however, are significant in the Tasmanian scene for three reasons: (i) use of headwaters for electricity generation, (ii) domestic and industrial water supply, (iii) irrigation, although there are no major schemes, either private or government, in operation. Hobart, for example, draws much of its water supply direct from the upper Derwent River without use of a dam and the flow is adequate to serve a population at least ten times greater than that at present. The development of hydro-electric power has been based on full utilisation of the sources and tributaries of the Derwent, with a chain of power houses stretching from Poatina on the Great Lake to Meadowbank only 32 miles from Hobart. At Launceston, too, the waters of the South Esk have been harnessed at Trevallyn. This does not exhaust the possibility of future development and work is proceeding to exploit the Mersey-Forth system (north-west) and the Gordon-Serpentine system (south-west); the first of the north-west power stations, Rowallan, began operating in 1968.

The exceptional drought experienced in some areas in 1967 and early 1968 does not invalidate the general truth of previous statements about assured rainfall.

As a liability must be entered the fact that large areas of the State cannot be cultivated because there is too much rainfall (in contrast with the mainland of Australia where often the reverse situation applies). Further, the mountainous terrain and accompanying highland climate have restricted farming to relatively small areas of suitable country, mainly river valleys, coastal plains and the lower plateaus. In 1967-68, farm statistics showed that 39 per cent of the State's area was occupied by rural holdings. Only 3.9 per cent of the area of rural holdings was under crop and a further 28 per cent under clover and grasses (other than native). The remaining 68 per cent of rural holdings included bush runs, uncleared scrub or possibly land unsuitable for any rural purpose at all. A high proportion of the State's area not included in rural holdings is composed of forests, national parks and lakes.

Population Centres

The distribution of the State's population is largely influenced by factors of terrain and climate. A convenient way to summarise the present pattern of settlement is to imagine three circles of 25 mile radius centred on Hobart (representing the south-east), Launceston (the north) and Ulverstone (the north-west): (i) with Hobart as centre, 42 per cent of the Tasmanian population is located within the 25 mile circle, (ii) with Launceston as centre, 22 per cent, (iii) with Ulverstone, 17 per cent. Since all circles are exclusive of each other, these three defined areas will together contain more than 81 per cent of the State's population and this fact justifies the generalisation that the main settlement is in the south-east, the north and the north-west. Residual population not included in the three defined areas is mainly located in the more distant north-west and more distant north-east, in the midlands between Hobart and Launceston, on King and Flinders Islands and along the east coast. Even a 50-mile circle with Queenstown as centre includes only four per cent of the State's population and here the activity is mining, not farming, since this is predominantly an area of high mountains and heavy rainfall. The south-west is completely uninhabited and the central plateau where the main activities are summer grazing and hydro-electric power generation, is very thinly populated.

Physiographic Regions

To explain this particular pattern of settlement, it is necessary to isolate the various physiographic regions of the State as follows:

Central Plateau: The main feature is a relatively undissected, dolerite-capped plateau sloping generally south-eastward from an average level of 3,500 feet in the north to 2,000 feet in the south, and drained almost wholly by the Derwent system (although recent hydro-electric development has involved diversion of some waters to the north at Poatina). The northern and eastern boundary of the Plateau is the Great Western Tiers (paradoxically named since they lie in the central north of the island). This is known as the Lake country of the island and is the chief source of the State's hydro-electric power.

High Dissected Plateau: West of Lake St Clair, the dolerite caps steeply tilted sediments and the plateau is much dissected; it is formed of a series of peaks and broken ridges. The coastlands in the extreme south of the region are rugged but in the D'Entrecasteaux Channel and Huon River areas, narrow coastal belts have been devoted to specialised agriculture.

Western Ranges: The high dissected plateau is bounded by a mountainous series of ranges running parallel to the west coast and in this region are located the principal mines of the State. The south of the region is completely uninhabited except for construction workers on the Gordon scheme.

Western Coastal Platforms: Throughout almost the entire length of the west coast, an uplifted and much dissected peneplain slopes down westward from about 900 feet to end abruptly in cliffs more than 100 feet high. In the south of this region, superhumid button grass plains predominate, and the area is uninhabited. On the coastal plain south of the Arthur River, however, dairy cattle are wintered on agistment runs while north of the river dairying begins to appear and swamps formed by recent emergence have been cleared for farming.

North-West Plateau: North of the Western Ranges lies a plateau averaging nearly 2,000 feet and important mainly for forestry; the coastlands derive mainly from basalt, giving rise to intensive mixed farming based on dairying, potatoes and crops for canning, such as peas and beans.

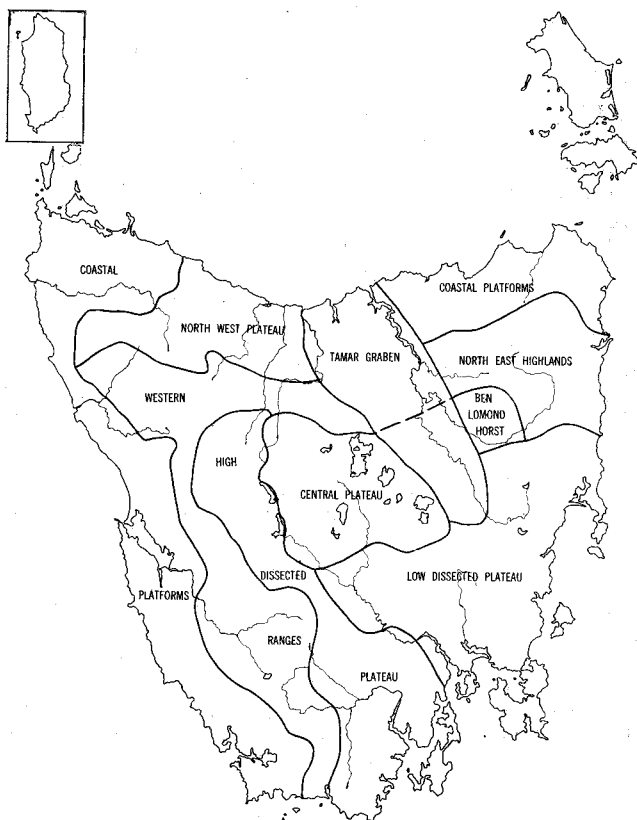
Tamar Graben: This graben (rift valley) is the largest plain and the leading agricultural and pastoral district in the State; it ends in the drowned inlets of the Tamar and Mersey estuaries and Port Sorell in the north.

North-East Coastal Platforms: This region consists of undulating lowland but the soils are acid and the land is used only for grazing.

North-East Highlands and Ben Lomond Horst: This region comprises mostly uplifted remnants of old fold mountains dominated by the 5,000 foot dolerite-capped plateau horst of Ben Lomond, an outlier of the Central Plateau. Here agriculture is largely confined to small basalt-derived basins, and some minerals are worked.

Low Dissected Plateau: In the south-east lies a low dissected dolerite plateau averaging perhaps 1,200 feet and used mainly for grazing. The northern coastlands of this region are narrow and also devoted to sheep but the southern coastland is important for its specialised agriculture. At the extreme south of the region is the drowned estuary of the Derwent, and the Tasman and Forestier Peninsulas.

(The above regions derive from a classification by J. L. Davies, M.A., Ph.D., University of Tasmania.)



Physiographic Regions (after J.L.Davies)

DESCRIPTION OF STATISTICAL DIVISIONS

Introduction

Earlier the State of Tasmania was briefly described by analysing its terrain into nine physiographic regions. For statistical purposes, the State is analysed in divisions but these do not necessarily coincide with physiographic regions and have been evolved empirically, mainly on the basis of affinity of type of rural production or identity of economic interest. For obvious reasons of convenience and simplicity, statistical divisions are built generally from *whole* municipalities and this fact alone will largely explain the divergence of the statistical divisions from the physiographic regions. Two examples will suffice: (i) Esperance Municipality is included in the Southern Division; only the eastern coastlands of the municipality are settled, the balance lying in the uninhabited south and southwest of the island; thus, due to the relatively large area of Esperance Municipality, the Southern Division not only includes the hop and fruit growing areas of the Derwent, Huon and Channel districts but also Port Davey and Lake Pedder in the remote west; (ii) Deloraine Municipality extends into at least three physiographic regions: the Tamar Graben, the Western Ranges and the Central Plateau. For statistical purposes, it is grouped with other municipalities in the North Western Division.

Statistical Divisions

In subsequent chapters, data for the State will be given in terms of statistical divisions and the following briefly describes each (with population estimated for 30 June 1968):

1. *Hobart Division*: On the Derwent Estuary, the cities of Hobart and Glenorchy, the Clarence Municipality and *portions* of the municipalities of Kingborough, New Norfolk, Brighton and Sorell form this aggregate. It is contained in the approximate quadrilateral New Norfolk—Pontville—Carlton River mouth—Snug, the boundaries having been drawn to encompass all future urban extensions of the main inner area over a period of 20 or 30 years. The division contains the State capital and a number of large industrial undertakings, with a major port located at Hobart. (Population, 144,850.)

'The Hobart Metropolitan Area' lies at the centre of the Hobart Division, of which it forms part; it comprises the *densely settled contiguous parts* of the cities of Hobart and Glenorchy, and of the municipalities of Clarence and Kingborough. (Population, 123,500.) The boundaries of the Metropolitan Area and the Hobart Division do not conform with borders defining local government areas. (The details of these boundaries are given in Chapter 5, 'Demography', under 'Population Centred on Hobart'.)

2. *North Central Division*: The City of Launceston on the Tamar Estuary is ringed by five municipalities, which, in addition to suburban elements, have large tracts of rural land; accordingly the City of Launceston is treated as a division in its own right. (Population, 36,880.)

'Urban Launceston' is an auxiliary statistical grouping and composed as follows: the North Central Division and the *suburban* portions of the bordering municipalities of Beaconsfield, St Leonards, Lilydale, Westbury and Evandale. (Population, 61,870.)

3. *North Western Division*: The constituent municipalities are King Island, Circular Head, Wynyard, Burnie, Penguin, Ulverstone, Kentish, Devonport, Latrobe and Deloraine. In general, the division extends north from the Pieman River mouth in the west, then along Bass Strait to the east of

Port Sorell. Rainfall in the division is generous—from forty to fifty inches near the shore-line to sixty or seventy inches on the higher country inland. The area is cut into sections by rivers discharging into Bass Strait, the chief being the Mersey, Forth, Leven, Blythe, Cam, Inglis, Black, Duck and Montagu.

It has large tracts of fertile soil which, together with good rainfall and a mild climate, account for relatively dense settlement and an ascendancy in dairying, beef-cattle farming, potato growing and production of crops for canning and quick-freezing (e.g. green peas and french beans). The division is making extensive use of its timber resources, not only for sawmilling but for large undertakings producing fine writing and printing paper, parchment and other special papers, and hardboard.

The two main ports of the division are Burnie and Devonport, the latter being the main terminal for a roll-on roll-off ferry service to Melbourne; urban development has not been confined to these two centres, however, and the coast road along Bass Strait runs through a number of townships serving the rural hinterland.

Until 1963, the north-west coast was isolated from the central west coast, the only direct link being the Emu Bay Railway; the Murchison Highway now connects the two areas and makes the coastal road along Bass Strait part of the 'round the State' route. (Population, 90,130.)

4. *North Eastern Division:* The constituent municipalities are Beaconsfield, George Town, Lilydale, Scottsdale, Ringarooma, Portland, Fingal and Flinders. In general, the division extends from east of Port Sorell along Bass Strait, then south along the Tasman Sea as far as the Denison River.

In terms of terrain, the division exhibits wide variety, including as it does the Tamar Estuary the north-east coastal plains and the north-east highlands. In the Tamar Valley from Trevallyn to the sea, the average rainfall is about 30 inches; elsewhere it varies from 30 inches on the coastal plains to 60 inches on some of the highlands. The rivers in the division, apart from the Tamar and South Esk, are mostly small; the Piper, Brid, Big Forester, Little Forester and Ringarooma flow into Bass Strait while the Mussel Roe, Anson, George and Scamander flow into the Tasman Sea.

Along the Tamar Estuary, the main rural activity is orcharding; elsewhere farming, dairying and grazing play an important role alongside tin and coal-mining, sawmilling, and metallurgical refining.

The main ports for the division are those on the Tamar Estuary, including Launceston, Beauty Point and Bell Bay, the last being the outlet for metallurgical refinery products, including aluminium, from plants at George Town. In considering the population of the division it should be taken into account that approximately 28 per cent is located in *suburban* portions of Beaconsfield and Lilydale municipalities adjacent to Launceston. (Population, 37,010.)

5. *North Midland Division:* The constituent municipalities are St Leonards, Evandale, Longford and Westbury. Lying between the Western Tiers and Ben Lomond, the heart of the division contains the largest area of level land in the island and is thought to have its origin in two vast freshwater lakes of an earlier era. The ancient lake-bed soils were easily worked by the early settlers and the area became the island's main centre for cereal crops; cereal crop growing is still practised extensively but the rich grazing potential of the land is also being exploited. Rainfall varies from forty inches in the west to twenty five inches in the south; the chief rivers are the North and South Esk, the Meander and the Macquarie.

In considering the population of this division it should be taken into account that nearly 54 per cent is located in *suburban* portions of St Leonards, Westbury and Evandale municipalities adjacent to Launceston. (Population, 26,620.)

6. *Midland Division*: The constituent municipalities are Bothwell, Hamilton, Campbell Town, Ross and Oatlands. In the west are the Central Plateau and Lake Country, generally at an elevation that allows only limited summer grazing. To the east is a lower dissected plateau where graze more sheep than in any other division. Rainfall varies from 80 inches in the extreme west to almost as low as 20 inches in the east and south. The principal rivers in the sheep belt are the Macquarie, Elizabeth and Clyde; the division also contains the western source and upper waters of the Derwent. (Population, 9,940.)

7. *South Eastern Division*: The constituent municipalities are Glamorgan, Spring Bay, Sorell (*part*), Richmond, Brighton (*part*) and Green Ponds. The division includes the east coast from the Denison River south to Forestier Peninsula and extends inland north of the Derwent opposite New Norfolk (but totally excludes Clarence Municipality). Its partitioned municipalities—Sorell and Brighton—have small areas included in the Hobart Division. In the west of the division, rainfall is as light as twenty inches with slightly more in the east. There is good farmland in the area north of the Derwent but, taken as a whole, the division is mainly devoted to grazing. (Population, 7,140.)

8. *Southern Division*: The constituent municipalities are Esperance, Port Cygnet, Huon, Kingborough (*part*), New Norfolk (*part*), Bruny and Tasman. Its partitioned municipalities—Kingborough and New Norfolk—have areas included in the Hobart Division. The division includes the Derwent Valley, the Huon Valley and the D'Entrecasteaux Channel district as well as Bruny Island and Tasman Peninsula; the western half is uninhabited. Rainfall in the west approaches 60 inches or more, in the Huon and Channel districts 35 inches and in the lower Derwent Valley 25 inches or less. The main rural industries are concentrated on hops, orchards and small-fruit while exploitation of timber is important, not only for sawmilling, but also for the mills at Boyer and Geeveston where native hardwoods are converted to paper pulp. The main port used by the division is located at Hobart with Port Huon used seasonally in the export of fruit. (Population, 18,240.)

9. *Western Division*: The constituent municipalities are Waratah, Zeehan, Gormanston, Queenstown and Strahan. The division reaches south from the mouth of the Pieman River to Port Davey and extends east almost to Lake St Clair. Agriculture plays virtually no part in this area of heavy rainfall and rugged mountains. In a division where rain is measured in feet rather than inches, it is difficult to generalise but 30-year averages for individual stations are as follows: Gormanston, 120 inches; Lake Margaret, 142 inches; Queenstown, 99 inches; Waratah, 89 inches; Zeehan, 97 inches. Considering the mountainous terrain and abundant rainfall, it is not surprising that the island's largest river, the Gordon, should flow in this division, discharging into Macquarie Harbour; the Pieman River to the north is almost as big. The only port—Strahan on Macquarie Harbour—is approached through a narrow rocky entrance called Hells Gates; strong currents and a sand bar are additional navigational hazards.

Settlement in the division is mainly related to mining since this is the island's richest mineral-bearing tract, the chief minerals being copper, zinc, silver-lead, tin and iron ore.

Until 1963, the west coast was isolated from the north-west coast, the only link being the Emu Bay Railway. The completion of the Murchison Highway has put the main western towns on a 'round the State' route.

The main population concentrations are in and around Queenstown, Rosebery, Zeehan and Strahan. (Population, 10,570.)

Former Statistical Divisions

The Statistical Divisions just described are those employed to classify data from the 1966 Census of population. Prior to the Census the cities of Hobart and Glenorchy were combined and called the South Central Division. The revised classification does away with this grouping and substitutes the Hobart Statistical Division, an area much larger than the South Central Division.

AREA OF STATE

Major and Minor Islands

Until recently, the official area of the State of Tasmania was stated to be 26,215 sq. miles (16,778,000 acres), this measurement dating from the previous century; a re-calculation from existing maps in 1907 confirmed that figure. In 1963, a further calculation was carried out using a new series of maps which incorporated fresh survey data and the new official area was announced as 26,383 sq. miles (16,885,000 acres).

The State is composed of 49 local government areas (cities and municipalities) and three of these are either islands or groups of islands.

Details of the 'island municipalities' are as follows:

Island Municipalities—						Area (Sq. Miles)
Bruny	..	..	..	..	..	139.80
King Island	..	..	..	..	..	424.40
Flinders	..	..	..	..	..	768.93
Total						1,333.13
Remaining Municipalities and Cities						25,049.87
Grand Total						26,383.00

While the 'island municipalities' include the bulk of the lesser islands forming part of the State, some islands are still included in the area of coastal municipalities, e.g. Maria Island in Spring Bay Municipality. Macquarie Island, site of an Antarctic Research Station and situated in 54° South latitude, is a Tasmanian dependency and included in the Esperance Municipality; the island is 21 miles long with an average width of two miles.

Area of Municipalities and Cities

In the table that follows, the measured area of the State (16,884,971 acres or 26,382.76 sq. miles) has been rounded, in total, to the nearest 1,000 acres and to the nearest sq. mile. The corrections necessary to reconcile to the rounded totals have been made by adjusting the area of Esperance, the largest munici-

pality. Where municipal boundaries lie in the sea, these have been disregarded so that the stated area relates to a physical boundary (i.e. the coastline) and not to a legal boundary (which may lie in a seaway or estuary.)

Area of Statistical Divisions and Local Government Areas

Local Govt Area and Statistical Division	Area		Local Govt Area and Statistical Division	Area	
	Acres	Sq. Miles		Acres	Sq. Miles
Hobart (H) (a) ..	19,728	30.82	Beaconsfield ..	157,628	246.29
Glenorchy (H) (a) ..	29,593	46.24	Fingal	674,953	1,054.61
Clarence (H) ..	62,075	96.99	Flinders ..	492,115	768.93
Brighton (SE) (H) ..	108,905	170.16	George Town ..	161,614	252.52
Glamorgan (SE) ..	379,325	592.70	Lilydale ..	168,987	264.04
Green Ponds (SE) ..	102,827	160.67	Portland ..	390,783	610.60
Richmond (SE) ..	140,391	219.36	Ringarooma ..	403,238	630.06
Sorell (SE) (H) ..	193,199	301.87	Scottsdale ..	319,143	498.66
Spring Bay (SE) ..	277,195	433.12	Total NE. Div.	2,768,461	4,325.71
Bruny (S)	89,476	139.80	Evandale ..	244,513	382.05
Esperance (S) (b) ..	1,528,586	2,388.61	Longford ..	246,506	385.17
Huon (S)	191,306	298.92	St Leonards ..	220,202	344.06
Kingborough (S) (H)	87,682	137.00	Westbury ..	223,390	349.05
New Norfolk (S) (H)	325,121	508.00	Total N. Midland Div.	934,611	1,460.33
Port Cygnet (S) ..	59,385	92.79	Bothwell ..	644,463	1,006.97
Tasman (S)	118,570	185.27	Campbell Town..	354,714	554.24
Total—Hobart Div.	238,067	371.98	Hamilton ..	1,445,459	2,258.53
SE. Div. ..	1,156,655	1,807.27	Oatlands ..	380,520	594.56
S. Div. (c) ..	2,318,642	3,623.07	Ross	306,488	478.89
Launceston (a) ..	6,974	10.90	Total Midland Div.	3,131,644	4,893.19
Total N. Central.. Division	6,974	10.90	Gormanston ..	709,627	1,108.79
Burnie	152,647	238.51	Queenstown ..	34,973	54.65
Circular Head ..	1,215,094	1,898.58	Strahan	922,355	1,441.18
Deloraine	720,687	1,126.07	Waratah ..	669,373	1,045.90
Devonport	28,696	44.84	Zeehan	742,009	1,159.39
Kentish	293,436	458.49	Total W. Div. ..	3,078,337	4,809.91
King Island ..	271,615	424.40	Total Tasmania (d)	16,885,000	26,383.00
Latrobe	135,608	211.89			
Penguin	106,712	166.74			
Ulverstone	126,342	197.41			
Wynyard	200,772	313.71			
Total NW. Div. ..	3,251,609	5,080.64			

(a) Cities.

(b) Measured area is 2,388.37 sq. miles (1,528,557 acres).

(c) Measured area is 3,622.83 sq. miles (2,318,613 acres).

(d) Measured area is 26,382.76 sq. miles (16,884,971 acres).

At the 1966 Census, new definitions based on high population density were employed to fix the boundaries of urban areas. The two major centres in the state, with boundaries conforming to the definitions, were: (i) Hobart Metropolitan Area (40.2 sq. miles); and (ii) Urban Launceston (26.6 sq. miles). (See Chapter 5 for definition of these areas.)

Area of Tasmania and Other Australian States

The following table compares the area and length of coastline of Tasmania with those of other Australian States and Territories:

Australia: Areas and Coastline of States and Territories

State or Territory	Area	Proportion of Total Area	Coastline	Area per Mile of Coastline
	sq. miles	per cent	miles	sq. miles
Tasmania	26,383	0.89	(a) 900	29
New South Wales ..	309,433	10.43	(b) 700	443
Victoria	87,884	2.96	680	129
Queensland	667,000	22.47	3,000	222
South Australia ..	380,070	12.81	1,540	247
Western Australia ..	975,920	32.88	4,350	224
Northern Territory ..	520,280	17.53	1,040	500
A.C.T.	939	0.03	..	..
Mainland	2,941,526	99.11	11,310	260
Australia	2,967,909	100.00	12,210	243

(a) Excludes coastline of islands totalling at least a further 500 miles.

(b) Includes coastline of Jervis Bay which is part of Australian Capital Territory.

Jurisdiction in Bass Strait

There are in Bass Strait numerous islands, the chief being the Furneaux group (Flinders, Cape Barren and Clarke), King Island and the Hogan, Curtis and Kent groups. These all form part of the State since the boundary line between Tasmanian and Victorian sovereignty is defined as 39° 12' South latitude; this parallel lies 5 miles south of Wilsons Promontory, so some Tasmanian territory is located only 8 to 10 miles from the Victorian coast (Rodondo and West Moncoeur islands).

The proclamation of 39° 12' South latitude as the northern boundary of Tasmanian sovereignty dates from 1825 when Van Diemen's Land became a colony distinct from New South Wales. Subsequent State mining legislation has followed the limits of the 1825 proclamation and Tasmania claims mining jurisdiction over Bass Strait as far north as 39° 12' South latitude. Australia is a signatory to the Convention on the Continental Shelf signed at Geneva on 29 April 1958; in 1967, the Commonwealth and all the States passed legislation affecting oil exploration on the continental shelf. Tasmania remains the authority to issue permits and licences for the area south of 39° 12' South latitude. To date, five drill holes have been bored in Tasmanian waters without success. Three wells have been sunk in the Bass Basin, one in the Otway Basin and one in the Gippsland Basin. All holes proved to be dry. Victoria has constructed pipelines to convey natural gas and oil found in its territorial waters to Melbourne via the Latrobe Valley.

CLIMATE OF TASMANIA

Introduction

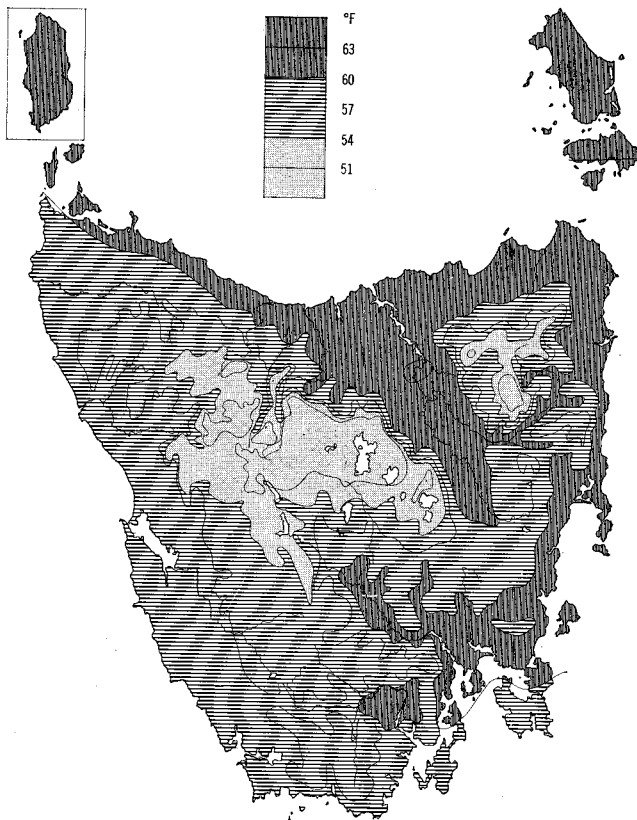
Since the island lies between 40° and 43½° south of the Equator, and no point is more than 70 miles from the sea, the climate is classified as temperate maritime. There is a small daily temperature range approximating 10°F at the coast and double this inland, thus indicating a slight 'continental' effect.

The mountainous topography, especially in the western half, causes an east-west variation which, with the general westerly wind system common to these latitudes, is the predominant feature influencing the climate of the island.

The maximum elevation of the sun is 70° - 73° in midsummer and 23° - 26° in midwinter. The difference between the longest and shortest days is $5\frac{3}{4}$ hours at the northern and $6\frac{1}{2}$ hours at the southern end of the island, while the period of daylight is never less than nine hours. Heat absorption and storage by the sea produce remarkably mild winters and cool summers in coastal areas.

Temperature

Temperatures at sea level are reduced by 5.4°F for each 1,000 feet of altitude, which partly explains the lower temperatures in the west of the State. Increased cloud cover leads to decreased insolation which further decreases temperatures. Thus, above 2,000 feet, temperatures are everywhere too cold to permit growth of agricultural crops in Tasmania.



Mean Temperature - January

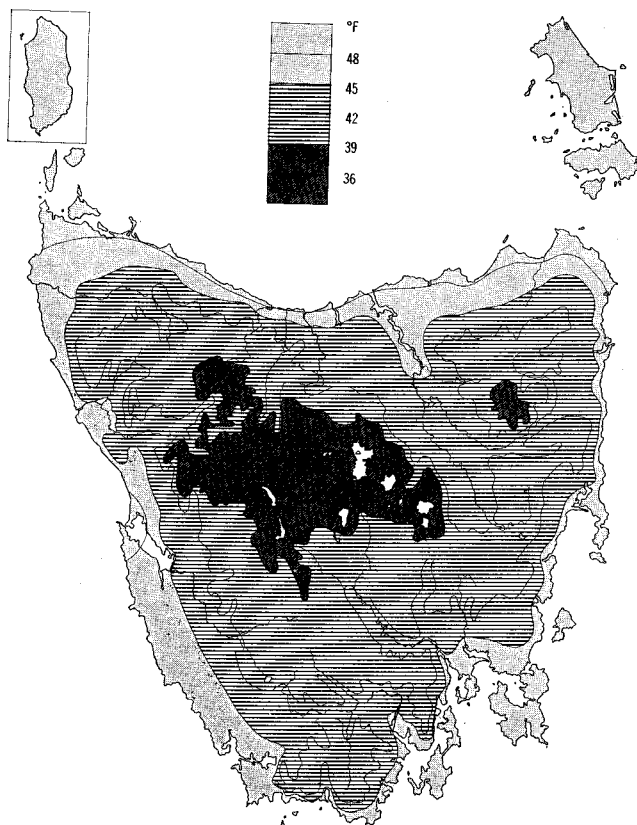
Frosts are affected to a marked degree by topography. Valleys act as natural channels for the drainage of cold, dense air at night, and frost pockets occur on valley floors. Inland centres are only frost-free in summer while the north coast, east and southeast are free after early October. Above 1,000 feet there is no frost-free month.

A further cause of higher mean temperatures in the east is the föhn effect. Moist air from the west is cooled as it is forced to ascend over the western and central highlands; moisture is precipitated ('orographic' rain), and the descending air mass is drier and therefore more susceptible to warming. The result is a net warming of the airstream in the eastern lowlands.

In the descriptions of temperature that follow, three averages are used, the basis of all being continuous observation over a 24-hour period yielding two extreme readings; namely a maximum and a minimum. In summarising temperature recordings for a longer period (e.g. a week, a month, etc.), it is usual to employ these averages:

- (i) Mean maxima: the average of the daily maxima for the period;
- (ii) Mean minima: the average of the daily minima for the period;
- (iii) Mean: from formula $\frac{1}{2}$ (maxima + minima) for the period.

To avoid any possible confusion, the following terms have been used, corresponding to the above averages, namely (i) mean maximum temperature, (ii) mean minimum temperature, (iii) mean temperature.



Mean Temperature - July

The recorded extremes of temperature for Hobart are 105°F (on three occasions), and 27.7°F in July 1895. Such readings are extremely rare, the mean maximum temperature being 70°F in summer and 54°F in winter, and the

matching minimum 52°F in summer and 41°F in winter. Thus Hobart can be said to have a cool to mild, even climate, with uncomfortable extremes being the rare exception.

Rainfall

The overall pattern for Tasmania is one of precipitation from a general westerly circulation modified by topography. As the island is located on the northern boundary of the westerly rainfall regime, much of the rain falls in winter, but nevertheless the balance falling outside this period is substantial.

In the dominant west coast mountains, average annual rainfall ranges from 50 to 60 inches on the coast to 142 inches at Lake Margaret; in the north-east, from 22 inches on the coast to 50 inches on the highlands; and the north-west's rainfall ranges from 35 inches near the coast to 70 inches in the higher inland areas.

Extreme three to five-day rainfalls occur in late June on the west coast brought by strong westerlies, but the north coast and the country extending inland to the Western Tiers receive extreme rainfall in mid to late-autumn, when the wind flow is sustained (up to two days) from the north-east.

There is a distinct rainshadow area on the eastern side of the Central Plateau and parts of the Midlands receive 20 inches, and even less in some years. Totals in the east and south-east, and on the Tasman Peninsula, are higher (to 40 inches on the slopes, or even more on rain-attracting peaks), while 70 inches is probable in the uninhabited south. The shadowing effect of mountains reduces amounts in the D'Entrecasteaux area to 30 to 40 inches.

Of note is the sharp gradient in isohyets along the northern and western boundaries of the Central Plateau. This is closely linked with topography.

Rainfall is least reliable in the east, south-east, Midlands and Derwent Valley during late summer and late winter. It is wettest in late autumn and spring. In general, rainfall is least in these parts when the westerlies are strongest (late winter) or relatively absent (summer). The autumn and spring maxima are due to small cyclonic centres of pressure affecting the eastern half of the State.

Effective rainfall, which takes evaporation into account, is that amount required to start germination and maintain plant growth above the wilting point. This obtains from May to October everywhere, but in midsummer there is only one chance in two of effective rainfall being received in the coastal north and lowland areas, and one in three for the drier part of the Derwent Valley and the Midlands.

Floods

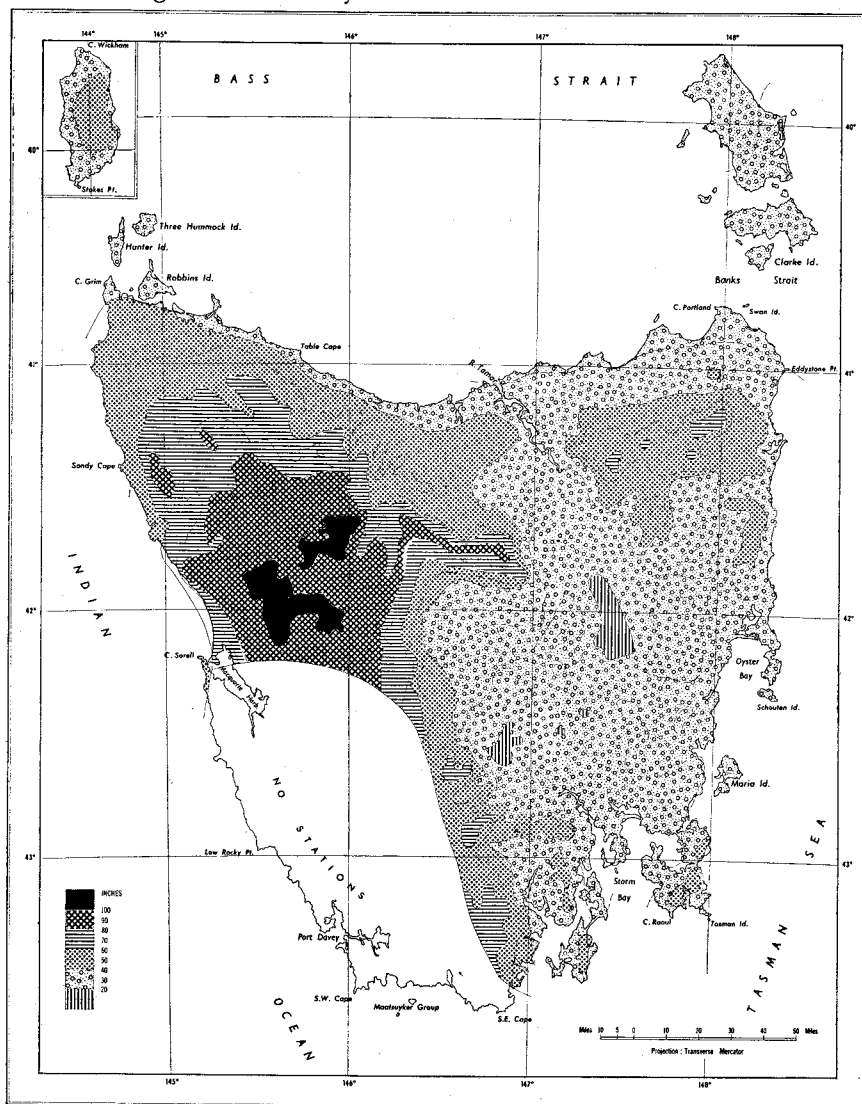
The basin of the South Esk is most likely to be flooded as the catchment area includes most of the north-east highlands, where rainfall exceeds 50 inches. As most of the river flows through flat country, flooding can be widespread.

Flooding of the Derwent can be extensive but is less frequent, while streams in the north-west, because of their smaller catchments, have localised flooding. This also applies to most southern streams, but little is known about flooding in the sparsely populated western mountains.

The most severe floods in the South Esk Basin occurred in April 1929 and late May 1969, and in the Derwent Valley in April 1960.

Droughts

These are not so pronounced as in the continental States and are usually confined to a particular region. 1908-1910 was a time of record drought in almost all agricultural areas, resulting in severe crop and stock losses in the east and south-east, and 1914 was even drier. Rationing of hydro-electric power operated in 1951-1954 and in 1963-64. The first half of 1967 was associated with drought conditions in the southern half of the State, and with disastrous bush fires on 7 February. Industrial electricity supplies again had to be restricted from October 1967, when daylight saving was introduced, and in November supplies were further reduced. The drought continued in early 1968 but it was possible to end all restrictions from 1 October due to later good rains. However, a section of the east coast south of St Helens experienced drought conditions throughout the whole year.



Mean Annual Rainfall

Winds

Tasmania is influenced by windflow backing from north-west to south-west in all seasons of the year, with greatest strength during late winter. The wind circulation in the westerly belt is not regular, and marked variations are imposed on the average seasonal changes.

The first variation in speed is approximately weekly and is connected with the eastward passage of cells of high and low pressure. This cycle disappears when the mean speed of the westerlies decreases, a phenomenon following a broader cycle of several weeks. When the westerlies are weakest, prevailing winds are from the north-east to south-east.

Windspeeds do not become as high as in tropical storms, but gusts to 90 mph occur with the passage of cold fronts or with the formation of small, intense storms. The highest average windspeeds are associated with extensive deep depressions over ocean areas south of Tasmania.

Snow and Hail

(a) *Snow*: Extensive snow to low levels (below 500 feet) occurs with outbreaks of air from Antarctica less than once every two years. It is common on all highlands during July and August. There is no permanent snowline, although patches of snow can remain on the highest peaks of the Central Plateau until December.

(b) *Hail*: This is possible in any month, but is most likely in spring, causing damage to fruit crops, especially in the Huon Valley and Tasman Peninsula. Hail storms occur about four times per year in Hobart, and occasionally in the north and north-west. Orchardists insure against possible losses under a hail insurance scheme.

Thunderstorms

These are most common in the north and north-west, and are associated with the lifting of warm, moist air by a cold front. Under conditions of sufficient instability, heating of low level air in summer also produces storms. They are rare in winter and occur mainly between December and February.

Humidity

Due to its maritime location, the average 9 am relative humidity at all stations is greater than 50 per cent for all months of the year. In fog, the relative humidity is close to 100 per cent. This condition occurs mainly during winter. In summer, periods of high humidity in combination with high temperatures are rare.

Evaporation

Tasmania's climate precludes extremes of evaporation, and no station exceeds six inches as its highest monthly average (this obtains in the lowlands in January, when the highlands have less than four inches). In July, only a small section of the east coast has evaporation of over one inch.

Over the whole year, most agricultural areas have an average evaporation between 25 inches and 30 inches, which is in many places less than the average rainfall. This has had a podsolization effect on many soils, with consequent reduction of fertility in some areas.

The Climate of Hobart

Temperature: Mean maximum temperature exceeds 70°F in January and February, and is lower than 60°F from May to September. There are only two or three days per year with maxima greater than 90°F, and no two successive days have exceeded 100°F. The maximum reading in 1968 was 96.2°F on 18 March.

Mean minimum temperatures exceed 40°F in all months and readings lower than 30°F are rare on any day. The minimum reading in 1968 was 32.3°F on 20 July.

Frost: The average annual frequency of days of frost is 31, mostly between June and August. None has been recorded in January. Cold air drainage is found in the hilly suburbs, and frosts are common on the valley floors.

Rainfall: Mount Wellington induces a strong relief variation in rainfall. At the pinnacle, annual rainfall is 65 inches, and the Springs and Ferntree have 56 inches and 55 inches respectively. The Hobart Weather Bureau receives 25 inches, but some eastern shore suburbs have only 23 inches.

Monthly totals are fairly evenly distributed but with small peaks in April, October and December. The probability of rain on any day is highest during the afternoon in the spring months.

The wettest 12 months on record yielded 43.4 inches to December 1916, and the driest, 13.0 inches to November 1943.

Relative Humidity: Highest humidity is at the time of lowest temperature, in the early mornings during winter. As temperatures rise to 3 pm, humidity decreases by 15-20 per cent. The seasonal variation is not great, although the average humidity during the winter months is 70 to 75 per cent and during the summer months 58 per cent. Periods of high humidity combined with high temperatures are rare.

Fogs occur about four times per year, but are usually confined to low areas flanking the Derwent during the cooler months. In fact, Hobart experiences more hours of sunshine than Melbourne due to its relative freedom from fog.

Sunshine and Cloud: No marked seasonal variation of cloud amount occurs, but a strong dependence on time of day is evident. The average coverage is five-eighths to six-eighths. During April to September, cloud cover is greater in the afternoon, and from October to March in the morning.

A clear-cut seasonal variation in monthly average hours of sunshine also occurs, with amounts varying from 231 hours in January to 111 hours in June.

Wind: The main wind direction is west to north-west, induced by the shape of the Derwent Valley; the other is the south-east sea breeze experienced during the summer months.

Strong winds are comparatively frequent from passing storms, especially during winter and spring. The strongest gust recorded was 93 mph, in September 1965. Strong winds from the south-east may also occur during storms.

Thunderstorms: These occur less than five times per year mainly between December and February.

Snow and Hail: Snow below 1,000 feet occurs less than once per year, but falls lying at sea level have been recorded, the latest being August 1951. Snow is likely on Mt Wellington during any winter month, but rarely between

October and March. The two television transmitters located on the pinnacle (4,166 feet) are equipped to withstand breaks in road communication caused by snow.

Hailstorms occur four times per year, on average, mainly between September and November.

The Climate of Launceston

Launceston is located on the Tamar Estuary at the confluence of the North Esk and South Esk Rivers. Being 40 miles from the coast, Launceston exhibits a continental effect in its climate, i.e. more extreme seasonal and daily variations in temperature, and lower total rainfall than at the coast.

Temperature: The average maximum temperature exceeds 70°F from December to March, and only during June and July does it fall below 55°F. In January and February the average maximum exceeds 75°F.

The average minimum temperature is 50°-52°F during the summer months, and below 40°F during the winter months. Temperatures lower than 32°F are common during winter, the lowest recorded being 21°F.

Frost: Up to 50 days of frost can be expected in any year and these are most likely from May to August. Ten consecutive days of frost have been recorded and there have been light frosts during summer.

Rainfall: Monthly totals show a strong seasonal variation with July (3.4 inches) having double that of January, the annual total being 29 inches.

Rainfall is least reliable during summer, and is most likely to be less than one inch in February. Heavy rain is mainly confined to the colder half of the year, the wettest recorded month being August 1936, with 10.01 inches.

In 1916 and 1946, annual falls of over 40 inches were recorded, and in 1908, 1914 and 1919 less than 20 inches. Highest intensity of rainfall occurs during thunderstorms.

Relative Humidity: Seasonal and daily variations are similar to those for Hobart, but the daily readings are five per cent to 10 per cent higher.

Occasions of high humidity, associated with moist north-easterly air-streams, are frequent at Launceston, and fogs may occur 30 or more times annually, mostly between May and August, and in association with cold air drainage down the Tamar Valley.

Sunshine and Cloud: Only a small seasonal variation in cloud amount occurs, and average coverage varies from six-eighths to seven-eighths in winter to five-eighths to six-eighths in summer. There is a tendency for slightly reduced cloud cover during the afternoons, especially in winter.

The monthly average number of hours of sunshine varies from 300 in January to 120 in June, and there is no interruption to the strong seasonal variation.

Wind: A marked effect on Launceston's wind regime is induced by the Tamar Valley. It is orientated northwest-southeast, and most winds conform to these directions. Speeds are roughly similar to those at Hobart, but an increase of 10 to 15 mph in the north-westerly wind occurs on summer afternoons, due to the sea breeze effect.

Strong winds are most common during the colder half of the year, but can occur at any time in association with thunderstorms.

Snow: Settling of snow does not occur in the city area, but falls on the foothills are not uncommon.

Rainfall at Selected Stations
Annual Rainfall at Representative Stations
(Inches)

Station	Statistical Division	1965	1966	1967	1968	Long-term Average(a)
Avoca	NE.	17.02	20.80	n.r.	20.57	21.43
Beaconsfield	NE.	34.86	30.12	25.29	48.34	36.91
Burnie (Holymans)	NW.	31.34	34.64	28.46	46.56	38.65
Campbell Town	Midland	16.97	20.42	12.96	19.78	21.93
Deloraine (Ashley)	NW.	31.03	36.05	26.88	45.77	37.64
Franklin	Southern	33.03	30.79	27.72	42.74	35.28
Hobart (Weather Bureau)	Hobart	20.98	27.52	19.23	18.64	24.83
Hobart (Airport)	Hobart	17.34	23.43	18.31	15.98	22.42
Launceston (Airport)	N. Midland	23.98	26.63	19.40	35.98	28.03
Lilydale	NE.	33.69	31.70	27.13	45.79	38.21
Longford	N. Midland	21.76	24.26	18.58	32.39	24.72
Lymington South	Southern	25.01	27.21	n.r.	n.r.	31.24
New Norfolk	Southern	15.43	22.26	15.17	20.82	21.88
Oatlands	Midland	19.86	22.83	14.80	16.83	22.35
Ringarooma	NE.	41.85	39.37	29.53	60.48	48.49
Scottsdale	NE.	32.11	32.95	n.r.	n.r.	41.99
Smithton	NW.	31.42	37.24	32.40	52.28	42.89
Swansea	SE.	16.39	24.74	17.84	n.r.	24.07
Triabunna	SE.	22.98	26.06	22.02	14.72	25.90
Ulverstone	NW.	33.45	34.09	28.09	45.47	37.96
Woodbridge	Southern	30.57	33.24	29.90	37.68	35.96
Zeehan	Western	97.92	81.87	72.11	n.r.	96.71

(a) Number of years of record ranges from 85 at Hobart Weather Bureau down to 23 years at Hobart Airport.

n.r. = no record.

Temperature and Rainfall, Hobart

The next table gives the main measures for Hobart during the year 1968 on a monthly basis:

Hobart Weather in 1968

Month	Shade Temperature				Mean Daily Hours of Sunshine	Rainfall	
	Mean Maxima	Mean Minima	Extremes			Total in 1968	Long- term Average (<i>b</i>)
			Maximum (<i>a</i>)	Minimum (<i>a</i>)			
	°F	°F	°F	°F	hours	inches	inches
January ..	70.7	52.7	89.7	45.3	9.3	0.61	1.93
February ..	73.5	54.9	93.7	46.5	7.7	1.63	1.59
March ..	68.7	53.9	96.2	44.0	5.1	1.86	1.85
April ..	64.4	49.2	76.9	41.2	5.5	1.35	2.18
May ..	56.1	43.1	68.3	36.4	4.2	2.30	1.91
June ..	52.6	40.8	65.7	35.6	4.3	1.26	2.38
July ..	53.3	40.0	60.9	32.3	4.5	0.96	2.12
August ..	55.6	41.7	64.2	33.4	5.6	2.61	1.89
September ..	59.6	43.6	69.0	36.0	6.6	0.83	2.10
October ..	63.1	45.1	83.4	35.9	7.1	1.28	2.52
November ..	63.3	48.2	76.9	41.6	7.2	2.86	2.15
December ..	67.0	50.7	85.0	43.7	7.6	1.08	2.21
Total for Year	..	..	..	..	..	18.63	24.83

(a) Maximum for year: 96.2°F on 18 March, minimum for year: 32.3°F on 20 July.

(b) Period of record is 85 years.

Seasonal Temperatures

The mean temperature for any locality can give quite a false impression, e.g. a mean temperature of 60°F based on a maximum of 120°F and a minimum of 0°F, all in the one day. A better way of examining a locality's climate is to take the maximum temperature each day and average these readings for each season; similarly to take the minimum temperature each day and average these readings for each season. These mean maxima and minima then give an indication of the daily variation that may be expected. The following table shows the mean maximum and mean minimum temperatures for six selected stations in summer, autumn, winter and spring; Hobart, Devonport and St Helens are on the coast; Launceston is about 30 miles from the sea but at a low altitude; Oatlands is also about 30 miles from the sea at 1,400 feet; Zeehan is 12 miles from the sea at 580 feet.

Temperatures at Selected Stations, 1968

(°F)

Station	Maximum Temperatures		Minimum Temperatures		Mean Temperatures	
	Mean for Season (a)	Departure from Normal	Mean for Season (b)	Departure from Normal	Mean for Season	Departure from Normal
SUMMER (December to February)						
Hobart	69.8	0.0	52.6	+0.5	61.2	+0.3
Launceston ..	72.6	-2.4	50.9	-0.7	61.7	-1.5
Zeehan	68.7	+1.9	47.2	-0.8	57.9	+0.5
Devonport ..	68.2	-1.1	52.6	+0.6	60.4	-0.3
Oatlands	70.7	+1.0	46.0	+0.1	53.3	+0.5
St Helens	73.3	+2.1	51.4	+0.1	62.3	+1.1
AUTUMN (March to May)						
Hobart	63.0	+0.4	48.7	+1.3	50.3	+0.9
Launceston ..	61.4	-4.1	46.6	+1.3	54.0	-1.4
Zeehan	59.9	-0.2	44.4	-0.2	52.1	-0.2
Devonport ..	62.0	-1.3	49.5	+2.4	55.7	+0.5
Oatlands	59.6	-0.6	42.8	+1.9	51.2	+0.7
St Helens	64.9	+0.1	46.7	+1.2	55.8	+0.7
WINTER (June to August)						
Hobart	53.8	+0.3	40.8	+0.1	47.3	+0.2
Launceston ..	51.7	-3.1	37.2	-0.5	44.4	-1.8
Zeehan	51.2	-0.8	38.9	+0.1	45.0	-0.3
Devonport ..	53.8	-1.1	40.5	+0.7	47.1	-0.2
Oatlands	49.2	-0.9	34.8	-0.1	42.0	-0.5
St Helens	57.2	+0.9	39.1	+1.3	48.1	+1.1
SPRING (September to November)						
Hobart	62.0	-0.1	45.6	+0.1	53.8	0.0
Launceston ..	58.9	-5.4	42.0	-3.4	50.4	-4.4
Zeehan	55.8	-2.8	41.5	-1.2	48.6	-2.0
Devonport ..	58.3	-2.1	46.0	+1.6	52.1	-0.3
Oatlands	57.3	-2.6	39.3	-0.4	48.3	-1.5
St Helens	64.8	+1.4	42.1	-1.6	53.4	-0.1

(a) Average of maximum daily temperatures for season.

(b) Average of minimum daily temperatures for season.

Rainfall in Districts

Tasmania is divided into nine meteorological districts (not to be confused with statistical divisions) with fairly well defined land use patterns appropriate to each. The following table shows rainfall totals for the past 10 years:

**Rainfall of Tasmania in Districts
(inches)**

Period	Agriculture, Dairying and Mixed Farming		Grazing (Mainly Sheep)		Fruit Growing, Grazing, Forestry		Dairy Farming	Mining	Grazing
	Northern	King Island	Central Plateau	Midlands	Derwent Valley	South East	East Coast	West Coast	Flinders Island
1959	29.51	27.53	38.27	17.46	20.69	22.85	30.41	80.51	26.29
1960	41.50	46.37	55.15	26.00	27.55	32.05	37.90	91.79	30.23
1961	29.91	34.55	33.83	15.38	18.61	21.67	28.17	76.69	30.46
1962	37.60	35.48	47.17	20.07	29.93	30.12	29.96	105.99	37.07
1963	33.65	30.79	30.74	14.94	17.94	19.69	24.40	73.26	26.99
1964	50.44	45.49	57.47	26.56	30.98	32.05	36.65	115.97	37.45
1965	31.06	35.89	35.86	18.25	21.92	27.66	25.89	93.60	25.45
1966	31.63	38.41	34.47	21.40	25.15	31.03	28.72	78.02	26.04
1967	25.85	29.67	30.19	13.89	20.10	25.24	22.58	72.39	24.83
1968	43.32	42.05	49.39	18.34	29.09	28.53	22.02	124.70	26.41
District Average (a)	39.43	36.97	38.03	21.70	26.52	29.18	32.07	91.34	28.84

(a) Long-term annual average based on 55 years of record.

Tasmanian Droughts, 1840 to 1969

Introduction

Although Tasmania is the wettest State in the Commonwealth drought conditions are not unknown. Unlike the remainder of Australia droughts in Tasmania tend to be highly localised and of reasonably short duration, usually spanning only two to three years.

The localised nature of the Tasmanian drought greatly reduces its severity when compared with droughts in mainland States, where they tend to influence vast areas. The most severe droughts recorded in this State prior to 1967-68 were those occurring in the periods 1888-89, 1897-98, 1918-20, 1933-34 and 1945-46.

Nineteenth century droughts

Early rainfall records indicate the decade commencing 1840 was one of low rainfall, particularly in the south. The driest twelve month period on record for Hobart was from November 1842 to November 1843 when the rainfall was only 13 inches. From December 1846 to October 1847 rainfall was well below normal and apart from a slight recovery in November the dry spell persisted until May 1848.

In 1888 a general drought affected Tasmania and more particularly the Derwent Valley, which had recorded relatively low rainfall in the two previous years. Grain crops failed, while the orchard harvest was poor. In the Burnie area 1888-89 was the driest period on record.

Severe droughts were widespread during the years 1896-98. In Northern Tasmania the most severe period was immediately prior to the autumn rains of 1898. Due to the tinder-dry condition disastrous bushfires occurred in the summer of 1897.

Twentieth century droughts

Drought periods of an average duration of about two years have been recorded in every decade since 1900. In the period between 1908 and 1910 severe stock and agricultural losses occurred in the northern and central areas of the State. During the 1913-15 drought good rain fell only in April 1914. Bushfires were widespread in both 1914 and 1915, reaching a climax in February 1915. In central and southern Tasmania the water shortage became acute in 1914; crops failed and stock were turned in on them, while lambs were slaughtered to conserve fodder.

Severe drought occurred in the north during the three years 1918-20 and again in 1926. Rainfall fell below normal throughout the period 1933-36, except for the winter of 1934. In January 1934 the dry weather was of concern to primary producers; rivers fell and water supplies became inadequate. Due to the water shortage the mines at Mt Lyell and Mt Bischoff ceased operation. The drought broke temporarily with the onset of winter in 1934. By August 1935 the State was again in the grip of a drought, particularly in the north-west. Pea and potato crops failed in the north-west, while southern apple and pear harvests were below average.

A decade passed before drought conditions returned. Cereal crops failed and water supplies were depleted soon after the next onset in 1945. Concentrated in the midlands the drought took a heavy toll of the cattle population which fell to two-thirds of the 1945 level by the end of 1946.

Rainfall deficiency in the years 1949-52 brought drought conditions to southern areas. By September 1949 stock losses were heavy and householders were forced to buy water. July 1950 was the driest on record in Hobart, (0.17 inches of rain for the month). The water supply situation became critical and to conserve reserves hydro-electricity power restrictions were introduced.

East Coast drought 1967-1968

The years 1967 and 1968 saw a period of severe drought in the eastern half of the State. The rainfall which had been near normal in 1966, failed during the first half of 1967 and the drought did not break in central Tasmania until the second half of 1968, and on the extreme east coast until the summer of 1969.

The drought was primarily due to an absence of eastern airstreams, which bring moisture laden winds to the east coast. Westerlies predominated throughout 1968, and generally rainfall in the western half of the State was above average. The situation deteriorated in the spring of 1967 and for the second time since 1950 the Government was forced to introduce electricity restrictions on bulk consumers. These restrictions, although relaxed, were not removed until 1 October 1968. Stock losses in the central and eastern areas were high. Agistment was undertaken by landowners in the western and northern areas of the State allowing considerable numbers of sheep and cattle to be moved from the drought area. The fodder situation was worsened to some degree by the running down of reserves following the provision of emergency supplies for pastoralists affected by the disastrous bushfires in southern Tasmania during February 1967. Conditions improved during early 1969, although a drought pocket remained on the east coast between Bicheno and St Helens until autumn.

**Rainfall at Stations in Drought Affected Areas:
Central and Eastern Tasmania**

Station	Period					
	Jan.- June 1967	July- Dec. 1967	Jan.- June 1968	July- Dec. 1968	1967	1968
Campbell Town—						
Actual... .. (points)	266	1,030	917	1,061	1,296	1,978
Proportion of Normal (per cent)	27	86	92	88	59	90
Mathinna—						
Actual... .. (points)	371	1,949	1,113	1,616	2,320	2,729
Proportion of Normal (per cent)	23	110	69	92	69	81
St Marys—						
Actual... .. (points)	815	1,619	858	1,076	2,434	1,934
Proportion of Normal (per cent)	39	83	42	55	61	48
St Helens—						
Actual... .. (points)	511	1,354	702	1,101	1,865	1,803
Proportion of Normal (per cent)	34	89	47	72	60	58
Bicheno—						
Actual... .. (points)	433	1,315	888	696	1,748	1,584
Proportion of Normal (per cent)	28	103	58	54	62	56
Orford—						
Actual... .. (points)	459	1,990	853	745	2,449	1,598
Proportion of Normal (per cent)	32	138	59	52	85	55

Meteorological Conditions, 1968

The below normal rainfall pattern of the previous year was relieved to a large extent during 1968. The western half of the State and parts of the north-east received normal or above average rainfall for the year. Drought conditions continued in much of the eastern half with the east coast margin receiving only two-thirds of its normal fall. The most severely drought affected area can be enclosed by an arc passing through St Helens, St Marys and Swansea. Within this area rainfall was below 60 per cent of normal.

Above average rainfall in the Hydro-Electric Commission catchment areas facilitated the recovery of water storages. From a low of 14 per cent in March, the storages increased to 54 per cent by October. The general improvement in water reserves enabled the reduction, and finally, the abandonment of power restrictions on 1 October 1968.

Mean temperatures throughout Tasmania were above average during the four month period, January to April. Temperatures remained mainly below average for the remainder of the year, except for June and July when temperatures were normal.

Due to the lack of rainfall surface water run off was below normal. River flow in the eastern half of the State was reduced. Consequently flooding did not become a serious problem during 1968, although minor floods were recorded in April and August.

The drought conditions were primarily due to an unusual westerly wind pattern, which resulted in above average falls in the western half of the State. Easterly winds were infrequent, creating a moisture deficient area in eastern Tasmania.

Strong winds were a feature of the 1968 weather pattern. Gale force westerlies battered Tasmania in October, creating new wind velocity records. Average wind velocities were also high in November. Hobart experienced its windiest year on record.

(The section on Climate was prepared from data made available by the Bureau of Meteorology).

The Beginnings of Meteorological Observation in Tasmania.

Establishment

Before 1840 meteorological observations were kept on a private basis throughout the British Empire. The British Royal Society had approached the Westminster government in 1836 and requested the establishment of meteorological observation stations at the Cape of Good Hope, St Helena, Toronto (Canada) and Hobart. However, it was not until 1840 that Sir James Clark Ross led a naval expedition to the colony for the purpose of establishing an observation station.

The site selected was on the Hobart Domain near the present Government House. Although the station commenced operation on 1 October 1840, construction on the site continued until 1844. The station was staffed by naval personnel, under the command of Lieutenant Kay, R.N. for the first eight years of its existence.

Colonial Control 1853-1908

In April 1853 the new Colonial Government assumed control of the station and one of Commander Kay's civilian assistants Mr Jeffery was appointed Colonial Meteorologist. Despite the successful establishment of the station, official interest appears to have waned as the station ceased activity on 31 December 1854.

It was left to Mr Francis Abbott to volunteer his services as an unpaid observer, a position he retained until his retirement in June 1880.

In 1880 the Hobart Royal Society approached the government requesting the creation of a Colonial Meteorological Department but it was not until 1882 that observations commenced at the Anglesea Barracks station under the control of Captain Shortt. Following the death of Captain Shortt, Mr Henry C. Kingsmill was appointed Government Meteorologist, a position he held until the Commonwealth of Australia assumed responsibility for meteorological services in 1908.

Daylight Saving in Tasmania

Introduction

Daylight saving was introduced as a temporary measure during World War II (from 1942) and was given up as soon as peace came. In 1967-68, the Tasmanian Parliament re-introduced it for the six-month period October to March inclusive; for these months, Tasmanian clocks were set one hour ahead of E.S.T. (Eastern Standard Time) which corresponds with longitude 150°E and which is observed in the eastern Australian States (but not in S.A. or W.A.). In 1968-69, the Tasmanian Parliament again legislated for daylight saving but shortened the period, the start being 27 October 1968 and the end 9 March 1969 (both Sundays); local time in this period was officially christened T.S.T. (Tasmanian Summer Time). The following text discusses the question of daylight saving from the aspect of times of sunrise and sunset, and of the length of day. The times of sunrise and sunset quoted in the tables are taken from *The Nautical Almanac* 1969 (joint Royal Navy and U.S. Navy edition).

Effect of Latitude

While the Tasmanian Parliament has acted unilaterally in the matter of daylight saving, there is general agreement in the island that it would be far more convenient if the other eastern States would also adopt it. However, it is true to say that the further south the latitude, the more desirable daylight saving becomes. The Australian capitals in the east have the following latitudes: Brisbane, Qld $27^{\circ}28'S$; Sydney, N.S.W. $33^{\circ}52'S$; Canberra, A.C.T. $35^{\circ}18'S$; Melbourne, Vic. $37^{\circ}49'S$; Hobart, Tas. $42^{\circ}53'S$.

The following table has been compiled to show the length of daylight over a year at latitude $30^{\circ}S$ and latitude $45^{\circ}S$; times of sunrise and sunset are expressed in E.S.T. and correspond with observations at $150^{\circ}E$ longitude. For Hobart, in longitude $147^{\circ}20'E$, the events will occur approximately 11 minutes later than any time deduced from the tables. It is important to realise that *simple linear interpolation* will not give the accurate time for these events for any specific latitude between $30^{\circ}S$ and $45^{\circ}S$; nevertheless the table values can be accepted as a guide to the range of daylight lengths from south of Hobart to north of Sydney.

At latitude $40^{\circ}S$ ($45^{\circ}S$) the shortest day, 21 June, sunrise is 0722 (0739) and sunset 1642 (1625). The longest day, 23 December, sunrise occurs at 0428 (0410) and sunset at 1929 (1947).

Length of Daylight: Selected Latitudes, 1969

(24-hour Clock Notation) (a)

Date			Sunrise (b)		Sunset (b)		Hours of Daylight	
			Lat. $30^{\circ}S$	Lat. $45^{\circ}S$	Lat. $30^{\circ}S$	Lat. $45^{\circ}S$	Lat. $30^{\circ}S$	Lat. $45^{\circ}S$
Jan.	2	.. ..	0503	0418	1905	1950	1402	1532
	17	.. ..	0515	0435	1905	1944	1350	1509
Feb.	1	.. ..	0528	0456	1858	1930	1330	1434
	16	.. ..	0541	0518	1847	1909	1306	1351
Mar.	3	.. ..	0552	0539	1831	1844	1239	1305
	18	.. ..	0602	0559	1814	1816	1212	1217
Apr.	2	.. ..	0611	0618	1756	1748	1145	1130
	17	.. ..	0620	0637	1739	1721	1119	1044
May	2	.. ..	0629	0656	1724	1658	1055	1002
	17	.. ..	0639	0713	1714	1639	1035	0926
June	1	.. ..	0647	0728	1708	1628	1021	0900
	16	.. ..	0654	0737	1707	1624	1013	0847
July	1	.. ..	0656	0739	1711	1628	1015	0849
	19	.. ..	0653	0730	1720	1643	1027	0913
Aug.	3	.. ..	0644	0715	1729	1658	1045	0943
	18	.. ..	0631	0653	1737	1715	1106	1022
Sept.	2	.. ..	0614	0627	1745	1733	1131	1106
	17	.. ..	0556	0559	1753	1751	1157	1152
Oct.	2	.. ..	0538	0531	1802	1809	1224	1238
	17	.. ..	0520	0504	1811	1828	1251	1324
Nov.	1	.. ..	0506	0439	1822	1849	1316	1410
	16	.. ..	0456	0420	1834	1910	1338	1450
Dec.	1	.. ..	0451	0409	1847	1929	1356	1520
	19	.. ..	0455	0409	1859	1946	1404	1537

(a) In this notation, the first two figures are the hour, the second two figures the minute (e.g., 1707 equals 7 past 5 in the afternoon).

(b) E.S.T. at longitude $150^{\circ}E$.

Tasmanian Latitudes

The next table has been compiled to show the time of sunrise and sunset at latitudes 40°S and 45°S. Latitude 40°S passes through King and Flinders islands while latitude 45°S lies a hundred miles or so in the sea south of the Tasmanian south coast. Rounded latitudes for Tasmanian centres are: Hobart, 43°S; Queenstown, 42°S; Launceston, 41°30'S; George Town and Burnie, 41°S. *Simple linear interpolation* will not yield the time of sunrise or sunset for latitudes between 40°S and 45°S with complete accuracy, but the error will only be of the order of one or two minutes (if due allowance is made for the longitude of the locality, the rule being to *add 4 minutes* for each degree of longitude west from 150°E).

Sunrise and Sunset at Longitude 150°E for 1969

(24-hour Clock Notation)

Date	Sunrise (a)		Sunset (a)		Date	Sunrise (a)		Sunset (a)	
	Lat. 40°S	Lat. 45°S	Lat. 40°S	Lat. 45°S		Lat. 40°S	Lat. 45°S	Lat. 40°S	Lat. 45°S
Jan. 2 ..	0436	0418	1932	1950	July 1 ..	0723	0739	1645	1628
8 ..	0441	0424	1932	1949	7 ..	0721	0738	1648	1632
14 ..	0447	0431	1930	1946	14 ..	0719	0735	1652	1638
20 ..	0454	0439	1927	1942	21 ..	0714	0728	1659	1644
26 ..	0501	0448	1923	1937	28 ..	0709	0722	1705	1652
Feb. 1 ..	0509	0456	1918	1930	Aug. 3 ..	0703	0715	1710	1658
7 ..	0516	0505	1912	1922	9 ..	0656	0707	1715	1705
13 ..	0523	0514	1904	1914	15 ..	0648	0658	1721	1712
19 ..	0531	0523	1857	1904	21 ..	0640	0648	1726	1719
25 ..	0538	0531	1848	1854	27 ..	0632	0638	1732	1726
Mar. 3 ..	0544	0539	1839	1844	Sept. 2 ..	0622	0627	1738	1733
9 ..	0551	0548	1830	1833	8 ..	0613	0616	1743	1740
15 ..	0557	0555	1820	1822	14 ..	0603	0605	1749	1747
21 ..	0604	0603	1810	1811	20 ..	0553	0554	1754	1754
27 ..	0610	0611	1801	1759	26 ..	0543	0542	1800	1801
Apr. 2 ..	0616	0618	1751	1748	Oct. 2 ..	0533	0531	1806	1809
8 ..	0622	0626	1742	1737	8 ..	0524	0520	1812	1816
14 ..	0628	0633	1732	1726	14 ..	0514	0509	1818	1824
20 ..	0634	0641	1724	1716	20 ..	0505	0458	1825	1832
26 ..	0640	0648	1715	1707	26 ..	0457	0448	1832	1840
May 2 ..	0646	0656	1708	1658	Nov. 1 ..	0449	0439	1839	1849
8 ..	0651	0703	1701	1650	7 ..	0443	0431	1846	1857
14 ..	0657	0710	1655	1643	13 ..	0437	0424	1853	1906
20 ..	0703	0716	1650	1636	19 ..	0432	0417	1900	1914
26 ..	0708	0722	1646	1632	25 ..	0428	0413	1906	1922
June 1 ..	0712	0728	1643	1628	Dec. 1 ..	0426	0409	1913	1929
7 ..	0716	0732	1641	1625	7 ..	0425	0407	1919	1936
13 ..	0719	0736	1641	1624	13 ..	0425	0407	1924	1941
19 ..	0721	0738	1641	1624	22 ..	0428	0410	1929	1947
25 ..	0723	0739	1643	1626	28 ..	0432	0414	1931	1949

(a) E.S.T. at longitude 150°E.

From the data in the previous table, it is possible to deduce the length of the day by subtracting sunrise from sunset. The following table has been compiled to give the hours of daylight for latitude 40°S and latitude 45°S. Approximations can be obtained for intermediate latitudes by *simple linear interpolation* but they will not be completely accurate and may be subject to an error of one or two minutes.

Length of Daylight: Selected Days, 1969
(24-hour Clock Notation)

Date	Lat. 40°S	Lat. 45°S	Date	Lat. 40°S	Lat. 45°S
Jan. 2 ..	1456	1532	July 1 ..	0922	0849
17 ..	1438	1509	19 ..	0941	0913
Feb. 1 ..	1409	1434	Aug. 3 ..	1007	0943
16 ..	1334	1351	18 ..	1040	1022
Mar. 3 ..	1255	1305	Sept. 2 ..	1116	1106
18 ..	1215	1217	17 ..	1154	1152
Apr. 2 ..	1135	1130	Oct. 2 ..	1233	1238
17 ..	1057	1044	17 ..	1312	1324
May 2 ..	1022	1002	Nov. 1 ..	1350	1410
17 ..	0953	0926	16 ..	1422	1450
June 1 ..	0931	0900	Dec. 1 ..	1447	1520
16 ..	0921	0847	19 ..	1501	1537

Sunrise and Sunset, 1970

The previous tables have been compiled from 1969 data but they give *approximate* times for sunrise and sunset in 1970; the maximum error that can occur from using the 'wrong' year is less than two minutes (2 January 1969 is a Thursday; 2 January 1970, a Friday).

Twilight

Daylight saving can be studied purely in relation to hours of daylight; there is also the question of twilight. 'Civil twilight' is defined as 'the degree of illumination such that the brightest stars are visible and the horizon is clearly defined, i.e. for practical purposes, when the sun is 6° or less below the horizon. The following table shows civil twilight at latitudes 40°S and 45°S.

Civil Twilight at 150°E: Selected Days, 1969
(24-hour Clock Notation)

Date	Civil Twilight Begins		Civil Twilight Ends		Length of Twilight (Pre-Dawn and Evening Added) (a)		Length of Twilight and Daylight Added (b)	
	Lat. 40°S	Lat. 45°S	Lat. 40°S	Lat. 45°S	Lat. 40°S	Lat. 45°S	Lat. 40°S	Lat. 45°S
Jan. 2 ..	0403	0341	2005	2027	0106	0114	1602	1646
Feb. 1 ..	0439	0423	1948	2003	0100	0106	1509	1540
Mar. 3 ..	0517	0509	1906	1914	0054	0100	1349	1405
Apr. 2 ..	0549	0549	1818	1817	0054	0058	1229	1228
May 2 ..	0617	0625	1736	1729	0057	0102	1119	1104
June 1 ..	0642	0654	1713	1701	0100	0107	1031	1007
July 1 ..	0652	0705	1715	1702	0101	0108	1023	0957
Aug. 3 ..	0634	0643	1739	1730	0058	0104	1105	1047
Sept. 2 ..	0555	0558	1805	1802	0054	0058	1210	1204
Oct. 2 ..	0506	0501	1833	1839	0054	0100	1327	1338
Nov. 1 ..	0420	0407	1908	1921	0058	0104	1448	1514
Dec. 1 ..	0354	0333	1945	2005	0104	0112	1551	1632

(a) Pre-dawn twilight is half the figures shown.

(b) From beginning of pre-dawn twilight to end of evening twilight.

THE MARSUPIALS OF TASMANIA

Mammals and Marsupials

The Sub-Classes of Mammals

Mammalia was the term invented by Linnaeus in 1758 to include that class of animals in which the young are brought forth alive and nourished with milk from the mother's breasts. At this point of time, two mammalian sub-classes were known, the first including man, monkeys, dogs, whales, cows, etc. and the second the marsupials, their existence having been established in 1500 by the Pinzons when they took a Brazilian opossum back to Granada. The discoverers of Australia then slowly expanded the coverage of the marsupial sub-class by reporting kangaroos, wombats, bandicoots, 'opossums' and the wolf-like thylacine.

The Australian continent was also the home of the platypus and the echidna with the result that a third mammalian sub-class had to be formed, these egg-producing creatures satisfying other mammalian criteria (which had now been expanded beyond the mere mechanics of reproduction).

Tasmanian Mammals

Tasmania's indigenous fauna provides examples of all three mammalian sub-classes: (i) Prototheria, represented by *Ornithorhynchus anatinus* (platypus) and *Tachyglossus setosus* (an endemic species of echidna); (ii) Metatheria, represented by 19 species of marsupials of which seven are endemic; (iii) Eutheria, represented by 5 species of native rodents and six species of bats. An important distinction between Tasmania and continental Australia is the absence, in this island, of two eutherian predators: the dingo, widespread in Australia when the first white settlers arrived, and the fox, introduced by the settlers there in the nineteenth century.

Marsupial Characteristics

The term marsupial is applied, in general, to animals which, after bearing young in an immature state of development, suckle the offspring in a pouch. Thus the young of marsupials, from conception, may be traced through two stages: (i) gestation; (ii) pouch life; in the case of the Tasmanian devil, for example, gestation is about 31 days and the pouch life about 4½ months.

In the larger marsupials, for example the kangaroo, the new-born are small and poorly developed, except for the fore-limbs which are proportionately very large and tipped with strong claws; the hind legs at this stage may be only embryonic buds. The young are about an inch in length, naked of fur, blind and with ears hardly visible. The female kangaroo, at parturition, sits with her tail brought forward between her legs and spends some of her time scratching at her pouch and licking it. When the offspring emerges from the cloaca, it climbs by its clawed fore-limbs into the pouch and reaches the teats, one of which it eventually fastens to with its mouth.

The tip of the teat expands within the mouth so that the young kangaroo cannot be released without rupturing the sides of its mouth and, for a start, the body grows without any corresponding increase in the size of the mouth. The end of the offspring's pouch life draws near when it is freed from the teat; it then begins to eat vegetation by leaning from the pouch when the mother herself is feeding.

The pouch itself exhibits considerable variety, opening downward or backward in some marsupials, or forward or upwards in others; the kangaroos, for example, which rest in a sitting position, have pouches opening upward.

The period of dependency of offspring does not necessarily end when the young leave the pouch. For example, young bandicoots live on in the mother's nest until they are able to look after themselves.

Isolation from Mainland

About 30,000 years ago, a great increase in the volume of world ice caused shorelines to fall hundreds of feet below their existing level. Eventually the melting of this ice reversed the process and a slow, great flooding began, one result being the formation of Bass Strait and the isolation of Tasmania as an island. By interpolation on recently published curves for world sea level changes, this event dates back about 11,000 years.

Because of this land link in comparatively recent times (in terms of the geological time scale), it is not surprising that Tasmania should have few endemic marsupials. The two most quoted examples are the Tasmanian tiger and the Tasmanian devil (*Thylacinus cynocephalus* and *Sarcophilus harrisii*) but allied species are known to have lived in continental Australia, despite the fact that they were extinct there before white settlement began. It is true that, putting aside the tiger and the devil, there are five other endemic marsupial species but these are closely related to corresponding continental species. All Tasmanian marsupials are indigenous with one exception; the exotic species is the sugar glider or flying possum, *Petaurus breviceps*, Victorian specimens having been brought to the island in the period 1835-1837 as pets, only to escape and take to the bush.

Arrangement of Species

The pouched mice, native cats, Tasmanian tigers and Tasmanian devils all belong to the family Dasyuridae, a group of the superfamily Dasyuroidea. However, the grouping of the Tasmanian marsupial species in the sections that follow is not made in conformity with any scientific principle but is based, in the main, on the common names of the animals (e.g. 'possum' as a heading covering five species, the nexus being the fact that the common name of each contains the word possum).

The Major Carnivores

(1) *Thylacinus cynocephalus*

The Tasmanian Tiger apparently earned this title from the 13-18 stripes on the rump but the animal is much more akin to a very large dog or a wolf if an analogy must be sought. The tail is long, rigid and slightly compressed laterally. Thylacines of up to six feet total length have been known.

Thylacines are carnivorous animals and naturally turned to sheep killing in the days of early settlement; from 1888 the government paid a bounty of \$2 per head for them and they were vigorously hunted up to the turn of the century. From about 1914 the species became very rare whilst today, for all practical purposes, the animal is extinct. Reported sightings still are investigated from time to time and the discovery of pad marks and other evidence have revived hope that the species may still exist; for many years now, however, no capture has been made. To most Tasmanians, the tiger is only a picture in a book but some of the older generation had the opportunity of seeing live specimens in a Hobart zoo in the 1920s.

(2) *Sarcophilus harrisii*

The early settlers were unable to adequately compare this animal with anything in their experience and therefore coined the name Tasmanian Devil; the head, equipped with massively strong jaws, is large and broad at the base

and this makes the hind quarters appear relatively weak and out of proportion. The devil is black with white chest, shoulder and rump markings although occasionally all-black specimens are found.

Unlike thylacine, the devil is still very common, particularly on the west coast and in the north-east, and is spreading into other areas where it had not been seen in living memory. The animal is carnivorous and not fastidious, so in disposing of prey or carrion it eats the lot—skin, fur or feathers, and intestines; its sight is better adapted to night hunting and is defective in daylight.

March is the main breeding month and three or four young are born after a gestation period of about 31 days. The offspring are then reared in the pouch for about 4-5 months. It has been observed that, in captivity, the male eats the young; possibly in the natural state, the male is driven from the den when offspring are being reared.

(3) *Dasyurus maculatus*

Tiger Cat is not a happy choice of name for this animal; the head is most 'uncatlike', resembling more that of a weasel or similar species and its characteristic spots, on body and tail, are most 'untigerlike'. Possibly the tiger prefix is a tribute to the creature's reputation as a courageous and fierce fighter. Specimens of up to four feet in length have been recorded; the animal is usually dark brown in colour although black varieties are common. It is a good tree climber and can therefore rifle birds' nests but it preys also on small mammals and reptiles, with poultry yards as occasional targets.

The main mating months are June-July, with gestation lasting about three weeks. The tiger cat's pouch contains six nipples in which four to six offspring are reared for a further three months. The species is widely distributed in the eastern States from mid-coastal Queensland to Tasmania; within the island, it is widespread but not as common as the native cat.

(4) *Dasyurus quoll*

The Native Cat (*D. quoll*) has a spotted body but not a spotted tail, and this is the easiest way of distinguishing it from the tiger cat (*D. maculatus*); in general, it is smaller and less fierce than the latter. Specimens range in colour from sandy through olive-grey to black, but the lighter spots are always present.

The main breeding months are from late May to early August and 20 to 25 embryos may be born, of which only six have a chance of living by attaching themselves to nipples within the pouch. The species is widespread in the eastern States from N.S.W. to Tasmania; it occurs also on King Island.

Possums

(5) *Trichosurus vulpecula*

The Brush Possum is not so exclusively arboreal as the ringtail and spends some of its time on the ground. Its long, bushy, prehensile tail has the inner surface naked at the end and this helps distinguish it from the ringtail which has a tail covered by short hair and marked by a prominent white tip. In general, brush possums are larger than ringtails and range in colour from grizzled grey through rufous brown to black, the underside being invariably lighter; the black specimens are usually found in the wetter parts of the island. Cream or silver colouring has occasionally been recorded.

The female breeds twice a year, March and August being the main months, and the gestation period is 16 to 21 days. Since the offspring, usually one or

sometimes two, remain in the pouch for five months, female brush possums taken at any time of the year are likely to be carrying young. The species is widespread throughout Tasmania and found also in eastern Australia.

(6) *Pseudocheirus convolutor*

The Ringtail Possum can be distinguished from the brush possum by its tail (see previous section), and varies in colour from dark grey to dark brown or even black. More strictly arboreal than the brush possum, it is widespread in Tasmania but is thought to suffer severely from natural population cycles; the numbers fell off greatly about 1951-52 and have been slow to recover. The ringtail lives in most types of country except plains and possibly rain forest. Eucalypt leaves and young shoots form the main item of food; if it raids an orchard, the ringtail will attack young shoots.

Young are found in the pouch during most months of the year, but especially in winter. Gestation may result in the birth of as many as six young but only two can survive (the pouch contains four teats but only two are functional). The species is found also in the Bass Strait islands but not on the mainland of Australia; however, a related species lives there.

Ringtail and brush possums are hunted for their skins but are partially protected by short game seasons (or total prohibition for a year or series of years, as for the ringtail). Other species given the name possum are described in the following sections.

(7) *Cercaertus nanus*

The Pigmy Possum (*C. nanus*) is less than six inches in body length and is hard to distinguish from an allied species, *C. lepida*. The ears of *nanus* are broader and larger, and *lepida* is the smaller in body length, the snout-rump length being less than three inches. One peculiarity of both species is a swelling of the tail at the base, especially in autumn, due to the deposition of fat.

The pigmy possum makes a nest in the bark of trees and lives on nectar, blossom and insects; it hibernates for a period in winter. The species occurs also in the eastern States as far north as south-east Queensland and in S.A. but little is known of its Tasmanian distribution; Tasmanian specimens have been recorded at Cullenswood in the north-east and Franklin in the south.

(8) *Cercaertus lepida*

The Little Tasmanian Pigmy Possum (*C. lepida*), on superficial examination, appears to be a diminutive of *C. nanus* but there is sufficient differentiation to label it as a separate species. Specimens have been caught in places as widely separated as Tyenna and Port Davey in the south and near Launceston in the north. The species is confined to Tasmania.

(9) *Petaurus breviceps*

The Sugar Glider, often called the flying possum, is readily distinguished by the beautiful, soft, dove grey fur and by the presence of the gliding membrane which runs down the side of the body. The tail is long and bushy with a dark tip. A dark stripe runs along the head and down the back. The species is not a native of Tasmania and was introduced from Port Phillip into the north by travellers who had made pets of the creatures in the period 1835-1837.

The creature lives on insects, fruits, buds and blossoms, and the female bears two offspring each season, usually in June or July. It is now widely distributed in Tasmania and is found in the eastern States of Australia, and even in the Northern Territory.

Pouched Mice

(10) *Antechinus swainsonii*

The Dusky Marsupial Mouse is dark brown in colour with a lighter belly; it has small ears and white on its tail which is hairy and almost as long as the body. The relation of tail to crown-rump length establishes the distinction between *A. swainsonii* and *A. minimus*; in the former species, the tail is shorter than this length, in the latter, longer. The snout-rump length is known to be as great as six inches in *A. swainsonii*.

Eight or nine young are born in July or August and are carried in an incomplete pouch for some seven to eight weeks; the offspring then commence nest life when their eyes open and their fur has developed. The species has been recorded at Maydena, Orford, Nietta, Lake St Clair, Dromedary and Sandy Bay but, due to its habits, it is rarely encountered. There are two races of this species, the one confined to Tasmania and the other occurring in the highlands of Victoria and N.S.W. The mainland race has thinner fur and the underside is dark brown with a red-yellow tinge.

(11) *Antechinus minimus*

The Little Tasmanian Marsupial Mouse can be distinguished from *A. swainsonii* by the tail relationship described in the previous section; in general, *A. minimus* is a smaller species and is characterised by a blunter face. The species is confined to Tasmania and the Bass Strait islands.

(12) *Sminthopsis leucopus*

The Whitefooted Sminthopsis has a very sharply pointed snout, white feet and a white and hairy tail, tufted at the tip. The body is dark grey to black, but the snout and ears are fawn colour. The species is rarely encountered but is distributed in the eastern States from Victoria to south Queensland; recent specimens have been recorded at Hawley in northern Tasmania and at Orford in the east.

Bandicoots

(13) *Perameles gunnii*

The Barred Bandicoot is easily recognised by having four or five dark bars across the rump; the tail is short, the snout long and the ears are almost rabbit-like. The colour is light whitish fawn, the bars are dark brown and the tail and undersurface near white. The animal lives in open country and lightly timbered areas in nests constructed in grass tussocks; its main food is vegetable matter and insects.

Three or four young may be born at any time of the year and the pouch has eight teats. The period of immaturity is spent first in the pouch and later in the nest. The species is widely distributed in Tasmania in suitable country but is not found in continental Australia; it closely resembles a mainland species, the eastern barred bandicoot, *P. fasciata*.

(14) *Isodon obesulus*

The Short-nosed Bandicoot is usually light brown, coarse-haired and near white underneath; the tail is short, thinly furred and somewhat scaly. The absence of dark bars on the rump easily distinguishes it from *Perameles gunnii*.

This animal tends to live in thick scrub country where it makes a nest of twigs, leaves and earth to blend with the surroundings; it is mainly an insect eater and digs after its prey. It is a hopper, rather than a walker, moving both hind feet simultaneously and is chiefly nocturnal in habit.

The main breeding season is in June and July, with four offspring as the usual outcome. The pouch has eight nipples and the young, after leaving the pouch, live on in the nest. The short-nosed bandicoot is widely distributed not only in Tasmania but also in the eastern States.

Wallabies and Kangaroos

(15) *Wallabia rufogrisea*

Bennett's Wallaby has a long face and long ears; the tips of the ears and the end of the snout are dark. The usual colour is reddish brown with a grey undersurface, though grey and dark individuals are common. The back is often greyish. This species can be distinguished from the pademelon (*Thylogale billardierii*) by the foot length: between 150 and 250 mm in the wallaby, but under 150 mm in the pademelon; another difference is that the pademelon's face and ears are much shorter and the snout blunter.

Bennett's wallaby inhabits relatively open country (when compared with the pademelon which prefers the thicker scrubs) and is often wrongly called a kangaroo. The main breeding months are January and February, gestation lasting about 40 days. One young is usually carried though twins are not uncommon and triplets have been recorded. Life in the pouch is very prolonged and the young do not leave it before November or December. The species is very widely distributed in Tasmania in open savannah woodlands, coastal scrub, sclerophyll forest and on the fringes of pastoral clearings. A species of the same name (*W. rufogrisea*) is found in continental Australia but the mainland wallaby is larger in size and has a shorter coat. The Tasmanian animal is sometimes referred to as *W.r. bennetti*.

(16) *Thylogale billardierii*

The Pademelon is usually called a wallaby but the previous section gives the way of distinguishing it from a true wallaby; its colour can be one of many shades of brown, with dark reddish brown the most common. The ventral surface tends to be yellow-brown or reddish.

Breeding takes place in the summer but young may be found in the pouch throughout the year; only one young is usually carried. The animal is widespread in Tasmania, preferring the thicker lower scrubs for its habitat.

(17) *Macropus giganteus tasmaniensis*

Tasmania has only one species of kangaroo, the Forester Kangaroo, and it can easily be distinguished by its size, often five feet or more in height. The colour is grizzled grey and the fur is rather coarse; the nose is hairy.

The main mating month is December, the gestation period lasting about 40 days. Life in the pouch is very prolonged and the young quit it after about ten months. The Forester kangaroo was once very widespread in Tasmania but is now confined to the north-east and east; it is a wholly protected species. The species *Macropus giganteus* is widely distributed in continental Australia and *tasmaniensis* is a sub-species.

Rat Kangaroos

(18) *Bettongia cuniculus*

The Bettong is the largest of the rat kangaroos and superficially resembles a small wallaby; the easiest distinguishing feature is the tail, which, in the bettong, is laterally compressed and usually white-tipped. Another animal it resembles is the potoroo and in this comparison, the basic relationship is between hind foot and head; in the bettong, the hind foot is longer than the head but, in the potoroo, the hind foot is shorter.

The face of the bettong is shorter than that of the potoroo and the animal ranges in colour from sandy to dark brown, with the undersurface lighter. The species is widely distributed and lives on the fringes of forests or in lightly forested areas, as compared with the potoroo which prefers low thick scrub and the fringes of rain forests. Bettongs are nest builders, using bark or grass, and eat mainly roots; favourite sites for nests are hills exposed to the sun, with light timber and grass cover.

The breeding season is long, from at least March to December, and the gestation period is about six weeks; the one young spends about four months in the pouch, although twins are sometimes carried. The species is confined to Tasmania and is sometimes known as the Tasmanian rat kangaroo.

(19) *Potorous tridactylus*

The Potoroo can be distinguished from other macropods by the hind foot being shorter than the head; the snout provides an alternative name, long-nosed rat kangaroo. The usual colour is dark brown, with the under-surface greyish brown. The animal avoids open country and inhabits thick scrub where its diet is mainly roots.

The gestation period is about 35 days, when one young is born; it then lives in the pouch for about 135 days. The pouch contains four nipples and young may be found in the pouch of captives taken at any time of the year. The potoroo is widely distributed in Tasmania and was once common in the eastern States but is now believed to be almost extinct there.

Wombats

(20) *Phascolomys ursinus*

The Wombat is often called a badger, on account of its robustness and burrowing habits, but it far excels the true or placental badger in strength and in ability to dig deep tunnels with great rapidity. The animal is squat and bear-like in shape, powerfully built and with a very small tail. The usual colour is brown though grey and buff variations occur.

The animal usually lives in a burrow, though caves or piles of rocks may also serve for a den; it feeds on herbage and grasses and prefers open forest country or rocky areas, from sea level to as high as 3,000 feet. It avoids thick rain forest, probably to get freedom of movement. The wombat family is widespread in Tasmania and on the Australian continent, but its reproductive habits are not completely known; the young, usually a single individual, is born in the autumn, but there are two nipples available for suckling.

Protection Policy

The preservation of the State's indigenous animals is a major aim of the Animals and Birds Protection Board and, under State legislation, species may be declared wholly protected or partially protected. Wholly protected marsupial species include the pouched mice, the pigmy and flying possums, the native cats, the Tasmanian tiger and devil, the bandicoots, the Forester kangaroo, the bettong and the potoroo.

The brush possum and the ringtail possum are partially protected species, the animals being hunted for their skins; 'partially protected' means that the Board can nominate the opening and closing days for the hunting period, or alternatively keep the season closed for years at a time. The main consideration is the survival of the species and, due to low ringtail numbers, there has not been a season declared for some time. The two wallabies, Bennett's and the

pademelon, are also partially protected, the question of open or closed seasons being a little more complex; not only are they hunted for skins and meat but, if allowed to thrive on the fringe of settled areas, they become a pest, attacking farmers' crops and competing with farm animals for the grass and herbage on pasture lands. The wombat is not protected but the survival of the species is assured; the animal, being a burrower, is something of a nuisance on farm properties but is not hunted for skin or meat in the bush and few would destroy this harmless, attractive creature without good reason.

In addition to the protection measures just described, there are, of course, national parks and game sanctuaries where no hunting or destruction is allowed at any time of the year.

In the 1968 season, the number of skins taken by hunters was: possum, 99,072; wallaby, 24,079; pademelon, 22,465. The police, who issue hunters', sellers' and dealers' licences, obtain a count of skins from royalty payment collections.

(Further reading: (i) *Marsupials of Tasmania*, author Dr E. R. Guiler, booklet of Tasmanian Museum and Art Gallery. (ii) *Marsupials*, article in *Encyclopaedia Britannica*.)

SPECIES OF SALMONIDAE IN TASMANIA

The following article was contributed by Mr D. D. Lynch, Commissioner, Inland Fisheries Commission.

Introduction

The introduction of trout into the southern hemisphere was first successful in Tasmania, Atlantic salmon and brown trout were hatched from ova at the island's Plenty River over a century ago, and some Australian and New Zealand brown trout caught today can be traced back to stocks that once spawned in Tasmanian waters.

Why Tasmanians should have taken the initiative in this field is not hard to determine, one factor undoubtedly being the cooler climate, the snow-fed lakes and the numerous streams and rivers. Some settlers drew close parallels with the British Isles and felt intuitively that this southern environment would be ideal for trout from the northern hemisphere. The settler, even if colonial born, was still essentially British and retained the British love of sport; true, there was some fishing to be had in inland waters but it was in no way comparable with that enjoyed in British lakes and streams. The early settlers had crossed half the globe, bringing their cattle, sheep, horses and dogs; a later generation put its mind to the problem of bringing out to Tasmania the prized fish of their earlier homeland.

Indigenous Freshwater Fish

When the early settlers in the island had time to examine their environment, they found the coastal seas and tidal estuaries rich in many strange, edible species of fish but they were disappointed with the life in the rivers and lakes. The varieties of native freshwater fish included *Prototroctes maraena* Gunther (the Australian grayling or cucumber herring) and the genus *Galaxias* which was soon given the misleading name of 'mountain trout', the main species being later identified as *G. auralus* Johnson (golden mountain trout), *G. truttaceus truttaceus* Cuvier (spotted mountain trout) and *G. attenuatus* Jenyns (the jollytail). It was *G. truttaceus truttaceus* which ascended the mountain rivulets and, deservedly perhaps, earned that part of its name referring to

spotted and mountain. It should be emphasised that 'trout' was an honorary title conferred by the settlers on the basis of unscientific analogy; they did the same with the sea species *Arripis trutta esper* Whitley and gave it the unmerited title 'salmon' (now prefixed with Australian to distinguish it from the true salmons).

Another freshwater species, Tasmanian blackfish, *Gadopsis tasmanicus* Parrish was found in the north-western rivers and in the Arthur, and was much later introduced into southern rivers. Writing in 1890, R. M. Johnstone, the Government Statistician, had this opinion of the native freshwater fish: 'blackfish—an excellent fish, peculiar to our northern rivers; cucumber herring—the most delicious of our freshwater fish; the *Galaxias* genus—small fish, very abundant in all our streams; excellent for the table, and caught readily by rod and line.' The settlers' criticism of the native freshwater species was on two main grounds: they were too small, and their fighting qualities, apart from that of the Australian grayling, fell short of those required for true angling. It was this discontent, together with the primary aim of establishing a commercial fishery for salmon, which fostered experiments to bring species of the family Salmonidae from the northern hemisphere for introduction into Tasmanian waters.

The Salmonidae

Main Groups and Distribution

The family Salmonidae is made up of three principal groups of fishes: (i) salmon; (ii) trouts; (iii) chars. The family is intermediate in classification between the sharks with their primitive cartilaginous skeleton and the bony fishes such as the cods. The word salmon probably derives from the French 'salire' meaning 'to leap'. Leaping is a prominent characteristic of the group in upstream migrations.

The family Salmonidae may be divided into two genera; the genus *Salmo* which contain the Atlantic salmon and the trouts and the genus *Oncorhynchus* which contains the Pacific salmons. The number of species belonging to the genus *Oncorhynchus* varies from six to eight depending upon which authority one follows. The principal species are: *O. gorbuscha* (Walbaum) pink salmon; *O. keta* (Walbaum) chum salmon; *O. kisutch* (Walbaum) coho; *O. mason* (Brevoort) masu; *O. nerka* (Walbaum) sockeye; *O. tshawytscha* (Walbaum) chinook salmon.

The name *Oncorhynchus* is derived from the Greek words meaning 'hook' and 'snout'. This refers to the conspicuous hooked snout which the male Pacific salmon develop at spawning time. It is considered that the ancestral genus *Salmo* was at one time predominantly freshwater and later took to the sea to take advantage of the better feeding grounds there. The genus *Oncorhynchus* became separated from the genus *Salmo* in the Pleistocene age and it developed certain characteristics which make it distinctly different from the populations of *Salmo* which continued to inhabit the coastal areas of the North Pacific.

The natural distribution of the family is the colder waters of the northern hemisphere, in the Pacific and Atlantic oceans, and in the coastal waters or inland waters of Europe, Asia and America and of Africa in the Atlas Mountains region. Several species of the family are now firmly established in the southern hemisphere in Australia, New Zealand and South Africa but this has been brought about by man's intervention.

Atlantic Salmon

This species, *S. salar*., occurs on both sides of the North Atlantic and extends north to the Arctic circle. Although the Atlantic salmon is anadromous, it has near relatives that live entirely in freshwater lakes and streams. Like the Pacific salmon, *S. salar*, ascends rivers to spawn but, unlike the Pacific salmon, it does not die immediately after spawning, and may live to spawn three or four times. The eggs are deposited in shallow excavations made in gravel by the female and they are covered over by her. The eggs are about 0.25 inches in diameter and the incubation period is about five months; the young fish then start swimming in their search for food and mainly migrate to sea at the age of two years when they have attained a length of about six inches; colour changes allow two other growth stages to be identified, and the fish is given the name smolt and later grilse (the latter term being applied to those which reappear on the coast within a year of first taking to the sea).

A few may spawn at the grilse stage but many more do so after living in the ocean two years; others do not make a return migration for three, four or even five years. Those that delay spawning attain the greatest size, and the Atlantic salmon can grow to gigantic proportions when compared with some other members of the family. Individuals weighing over 80 lb have been reported from England.

The Atlantic salmon was a species with which some of Tasmania's settlers were familiar and early attempts at introduction were concentrated on this fish; the species did not become established. The Atlantic salmon has near relatives that habitually live in freshwater, the nearest of all being the land-locked forms, the seabago Salmon being an example.

The species best known in Tasmania is the brown trout *S. trutta* Linn. which was introduced at the same time as *S. salar*; the former became firmly established whereas the latter failed to become acclimatised. Another species now in Tasmanian lakes is the rainbow trout *S. gairdneri* Richardson but this was introduced later; it arrived in 1893 from North America via New Zealand. There are a few relic populations of rainbow trout in a few Tasmanian streams but it is the exception rather than the rule for this species to live in streams with access to the sea. Where access to the sea is available, the rainbow trout in Tasmania makes a non-returning migration to sea. On the other hand, when the brown trout is not restricted by barriers some migrate to the sea and return to the freshwater to spawn.

The Chars

In 1962 the most recent attempt to acclimatise a member of the salmonidae in Tasmania was made when 50,000 eyed ova of the eastern brook trout, *Salvelinus fontinalis* Mitchell were brought from Canada. In its native habitat, its distribution appears to be conditioned by the temperature of the water. South of Cape Cod, the species is content to remain in freshwater and is found as far south as Georgia; from Cape Cod northward, a proportion of the population in any river may take to the estuaries. Chars may be distinguished from trouts by their much smaller scales. The Eastern brook trout has its back and dorsal and caudal fins mottled and barred with black and olive, the actual pattern of mottling being very variable. Although the Eastern brook trout are not big fish (the largest reported in Tasmania weighed 5 lb) they are highly rated for their fighting qualities.

Pacific Salmon

The Pacific salmon are commercially valuable, both in North American and northern Asian waters. In the nineteenth century, extensive attempts were made to introduce Chinook salmon into Victorian rivers but it failed to become established. Other attempts to acclimatise it were made in Tasmania, the most recent being in 1935 when 17,000 yearlings were liberated in the following waters: Lake St Clair (5,000), Great Lake (4,000), Franklin River (5,000), King River (3,000). Fifty were held until November 1936 when they were liberated in the Plenty River at an age of over two years. The only recorded catch from the river liberations was that of one fish from the Derwent River near its confluence with the Plenty River. Although the Chinook salmon did not become acclimatised in Tasmania, it did so in some waters of New Zealand, where a small stock of sockeye salmon also became established after abandoning its seagoing habit.

Migration

Practically all species of the Salmonidae make some sort of migration to spawn. Those living habitually in rivers may go upstream only a short distance; lake dwelling species usually make somewhat longer migrations up one of the lake sources; whilst species which live most of their life in the sea make long migrations to and in freshwaters. 'Long' is a relative word for the sea-frequenting species but the Chinook salmon *Oncorhynchus tshawytscha* has been found in the upper Yukon and Columbia Rivers 3,000 miles from the sea. Fish which migrate from the sea to freshwater to spawn are classified as anadromous. In general, the tendency of the anadromous Salmonidae is to return for spawning to the general area of its own hatching. Experiments with tagged brown trout in Tasmania showed that at Plenty River and at Great Lake brown trout returned a number of times to the same river to spawn.

The life cycle and homing migrations of the salmon are among the most remarkable to be found in the animal kingdom, beginning with the time spent by the fertilised egg in the inland stream, then passing through a larval and fry stage with a short downstream migration for some of the salmon and a long downstream migration of other salmon, such as Chinook or Atlantic, to the sea. Then follows a period of rapid growth and far ranging movements of 2,500 miles for Chinook and 1,500 for Atlantic salmon, in the open sea which ends with the onset of sexual maturity, and a long homing migration into the mouth of the home river. This is followed by an upstream migration over barriers until the stream of origin is reached where spawning takes place. In the natal stream the egg receives an imprint which the adult can recall; this imprint is thought to be derived from the characteristics of the soils and plant communities draining into the stream bed. This unique organic quality of the home stream remains imprinted on the salmon throughout adult life.

When the young salmon has attained a certain state it abandons its natal pools and the fry or smolts drift, or make active downstream migrations towards the sea. In the open ocean the Pacific salmon's movements carry them to productive feeding grounds and great concentrations are in the Gulf of Alaska. Atlantic salmon, too, range over large distances of the North Atlantic and stay there for two or three years or more until they become sexually mature when they start their return journey from the sea to freshwater. There is considerable evidence that the salmon use the sun to navigate towards the land mass and on reaching the coast line 40 or 50 miles from the home river system, it is likely that they then detect the odours of the main river. The imprint received early in its life enables the homing salmon to recognise its natal stream.

Introduction into Tasmania

The Problem

At the beginning of the 19th Century, it was known in Europe that impregnated ova of *Salmo* genus could be taken from the bed of a stream and transported to other waters for hatching; streams deficient in *Salmo* species had been artificially stocked in this manner. The two obvious barriers to the early introduction of Salmonidae to Tasmania were time and temperature: the incubation period of impregnated ova is about five months, sailing ships had to go round the Cape of Good Hope and a good part of their journey had to be spent in warm or tropical latitudes and a rise in temperature shortened the incubation period. Mechanical injury to the ova through the ship's motion was later found to be a third inhibiting factor.

First Attempt

In 1848, James Burnett of the Tasmanian Survey Department visited the Duke of Sutherland's fisheries in Inverness shire and discussed the possibility of making a shipment to Tasmania; the governor, Sir William Denison, expressed support and the plan came to fruition in 1852 when the *Columbus* set sail from England. Mr Burnett's description of the technique employed follows:

'About 50,000 ova of salmon and trout were placed in a large oval tub or vessel with a false bottom, 4 feet 6 inches by 3 feet 4 inches, 1 foot 8 inches deep, double sided, made of wood cased in lead, and capable of containing 60 gallons of water, besides the requisite quantity of gravel.' In the cooler latitudes, 24 gallons of fresh water a day were added, and 24 gallons extracted; in the warmer latitudes, this was increased to 36 gallons. Mr Burnett and the secretary of the Royal Society eagerly inspected the tub on the arrival of the *Cumberland* in Tasmania only to find no trace of spawn or fish.

The Second Attempt

The *Cumberland* experiment had ended in a fiasco but it emphasised the need for some way of keeping down the temperature. Enthusiasts, of whom the chief was Mr James Youl, arranged a shipment of ova on the *Curling* in 1860 and this time ice was carried but not in sufficient quantities; on the 59th day out it was exhausted and the ova perished. So confident was the government of success that it constructed hatchery ponds at North-West Bay; they were never used.

The Third Attempt

In 1862, Mr Youl arranged a shipment of 50,000 salmon ova on a small steamer, the *Beautiful Star*: she rolled excessively, the ice supply gave out and the last ova perished on the 74th day. This voyage was notable because it revealed the superiority of the method which later brought success. The last of the *Beautiful Star*'s ova to perish were not those to which special attention had been given but those packed in a small box with a layer of moss and charcoal.

English Experiment

Mr Youl consulted with Sir Thomas Brady of the Irish Fisheries Board and they both concluded that moss packing might be the solution to the problem. A test was arranged in England, ova were packed in moss and the

boxes lodged with the Wenham Lake Ice Company in London. At intervals, boxes were withdrawn from the ice and the hatching of the ova recorded; the last ova, withdrawn after 144 days, were hatched successfully.

The Successful Attempt

In 1864, the owners of the clipper *Norfolk* donated about 50 tons of space and Mr Youl arranged another shipment, the bulk of the ova being *Salmo salar*, (118,000) but including also some *Salmo trutta* (2,700). Mr Youl wrote a letter to *The Times* (21 January 1864) to let Londoners know his method:

"The boxes in which the ova are packed are made of inch pine, $11\frac{3}{4}$ " long, $8\frac{3}{4}$ " wide, and $5\frac{1}{4}$ " deep, perforated with holes top, bottom, and sides, to allow the water from the ice as it melts to flow into the boxes and percolate through the moss and ova inside.

The manner of packing is as follows: a couple of handfuls of charcoal are spread over the bottom of the box, then a layer of broken ice; after this, a bed or nest of wet moss is carefully made and well drenched with water. The box is now filled up with moss, and pure water poured upon it, until it streams out from all the holes. Another layer of finely pulverized ice is spread all over the top of the moss; the lid is then firmly screwed down. As soon as this process is completed it is most desirable, in my opinion, that the boxes should be placed in immediate contact with ice. One hundred and sixty-four boxes, containing above 90,000 ova so treated, were firmly packed at the bottom of the ice-house, covering the entire space. Upon these, a solid mass of ice was piled, to the height of 9 feet so that as long as any ice remained the ova would derive benefit from it. Sixteen more boxes were placed in other parts of the ice-house, making a total of 181 boxes, containing about 100,000 salmon and 3,000 brown trout ova.'

The *Norfolk* sailed in January 1864, made good time and reached Hobsons Bay on 15 April; by 18 April, the ova boxes had been trans-shipped to the sloop *Victoria* of the Victorian Navy which set off across Bass Strait to Hobart, arriving there on 20 April. The steamer *Emu* then towed a barge containing the boxes to New Norfolk, arriving the next day. A few miles further on, a hatchery had been built on the Plenty River, a Derwent tributary, but the *Emu* could proceed no further due to falls upstream from New Norfolk. The people of the town turned out in a body, the cases containing the boxes were slung on bamboos, and enthusiasts carried them to the Plenty hatchery. From England to the hatchery, the time expired was 91 days, well within the limits revealed by Youl's experiment in London.

On 4 May 1864, the first *Salmo trutta* (brown trout) ova were hatched and *Salmo salar* (Atlantic salmon) hatchings occurred the next day. Trout hatchings continued until 25 May and salmon hatchings until 8 June.

Sequel

Youl's shipment in 1864 on the *Norfolk* consisted almost exclusively of Atlantic salmon but included in the boxes was a present from Admiral Keppel of 1,200 brown trout ova and a present from Mr Francis Francis of 1,500 brown trout ova. The motive for bringing in Atlantic salmon was partly the sheer love of angling but there was also hope that a commercial fishery might be established. The Plenty hatchings had shown that both salmon and trout could be successfully trans-shipped to Tasmania but the question still to be resolved was whether the two species would thrive in their new home and whether they would reproduce.

The Atlantic salmon project was a disappointment; it could be hatched in Tasmania from imported ova but its sea-going habits eventually took it downstream, and no adults returned to spawn. Later importations were made but the result was always the same: the fish went to sea and failed to return. The most recent attempt to acclimatise seabago salmon was made when ova of the land-locked form were imported from New Zealand and hatched. 2,500 two year old fish were liberated in Great Lake in 1936. They failed to become established here.

A number of reasons have been brought forward to explain the failure of the Atlantic salmon to become acclimatised in Tasmanian waters. The first is the low survival of ova to the fry stage. Secondly, there was the release of the fish in the fry stage. Another reason was the long interval between successive shipments of Atlantic salmon ova—25 years. Some authorities consider that the sea water temperatures are too high in Tasmanian waters for the survival of the salmon. However, in this regard it must be admitted that adequate records of sea temperatures have not been taken in Tasmanian waters.

In the Northern hemisphere it is known that a high mortality of Atlantic salmon occurs in the sea, it could be as high as 95 per cent in some years. Further, salmon have a divided migration pattern in that not all return to spawn in the same year. Some stay longer at sea than others.

Fortunately, the brown trout, introduced almost as an afterthought in 1864, proved to be a species well adapted to Tasmanian lakes and rivers, so much so, that this island became the distribution centre for stocking Australian and New Zealand waters.

Sea Run Brown Trout

In 1866 a consignment of 1,500 sea run brown trout ova from the River Tweed were sent to Tasmania. In 1928 a further shipment of sea run brown trout ova was sent from the Solway Fisheries in the belief that sea run brown trout had not been established in Tasmania, when, in point of fact, they were firmly established from the Tweed ova.

It now seems that two racially distinct populations of sea run trout exist in Tasmania as they have maintained at least some of the characteristics which they showed in the extreme ranges of their origins, i.e. the East and West coasts of Scotland.

From time to time controversy arises regarding the identification of fish in the Derwent River and West coast rivers. The rapid growth of fish in some Tasmanian waters and the huge size which they reach is responsible for reviving the view that some of the fish in the Derwent River are Atlantic salmon and not sea run brown trout. This view has arisen because of the characteristics displayed by the fish in these waters. When species of the salmon group were transferred from the Northern hemisphere to Tasmania the environmental conditions were very much to their liking, but in fact they were quite different from the native environment of the northern hemisphere, and the extremely plastic nature of some characteristics of the salmon group allowed brown trout to show characteristics normally found in Atlantic salmon.

Brown trout up to 29 lb have been caught in the Huon River and large brown trout up to 23 lb are still caught in lakes such as Lake Crescent. The fast growth rate and the large size to which brown trout grow in southern Tasmanian waters also led to confusion with mis-identification of the species as Atlantic salmon.

Distribution of Species in Tasmania

Currently Tasmania has three species of trout: the brown trout, rainbow trout and Eastern brook trout. Except for a temporary phase when rainbow trout were the predominant species caught in Great Lake and Lake Leake, brown trout have been the dominant species of Salmonidae in Tasmania, and self supporting populations now occupy most lakes and streams. Sea run brown trout are a feature of the spring fishery in many estuaries. There are only a few relic populations of rainbow trout in streams where physical barriers such as waterfalls prevent the entry of brown trout. Smaller sized rainbow trout persist in the Arve River, Diddleum Creek, the upper reaches of the Mersey River, Staverton Creek and a few other places. Larger size fish are caught October to November as they move downstream to the sea.

Many and prolonged attempts to establish sea run rainbow trout in the State by stocking streams failed, the last substantial stocking with this objective was in the Forth River in 1950. The hypothesis for the failure is that the fish go to sea and fail to return to freshwater. Only in waters where barriers such as dams or waterfalls hold them back from the sea have rainbow trout self maintaining populations become established in Tasmania; examples are Great Lake, Dee Lagoon, Lake Leake and Lake Rowallan.

The dominance of brown trout in most waters containing populations of both species has brought about a decline in the rainbow trout fishery but attempts to rehabilitate rainbow trout stocks in enclosed or semi enclosed waters since 1960 have met with some success. Waters lacking spawning facilities are stocked with hatchery raised rainbow trout. At Great Lake artificial spawning grounds have been constructed in Liawenee Canal for the use of rainbow trout from 1960 to 1968. At Lake Leake, the hatch of brown trout fry from the main tributary has been trapped and liberated elsewhere. In 1967 the entire spawning run of brown trout from the main tributary of Lake Leake was removed.

Hatchery culture is not the only means of obtaining fish to liberate in various waters; for example Big Waterhouse Lake and Little Waterhouse Lake have both been stocked on occasions with small adult brown trout obtained by electro-fishing minor north eastern streams which have an abundance of small fish. Between 1960 and 1968 a major project in fisheries management at Great Lake has been the annual transference of old unthrifty brown trout, most of which were over two pounds in weight. Nearly 58,000 have been trapped in annual spawning runs up Liawenee Canal and transferred elsewhere. Evidence gathered from the recovery of marked transferred fish has shown that they thrive in some enclosed waters. Farm dams are good in this regard but Lake Fergus and Lake Crescent are even better in that the growth rate of the transferred fish here is remarkable. For example, when a brown trout $2\frac{1}{2}$ lb in weight and $17\frac{1}{2}$ in in length was transferred from Great Lake to Lake Crescent it increased its weight by $8\frac{1}{2}$ lb and its length by $9\frac{3}{4}$ in during the 3 years 3 months. Transfers of brown trout from Great Lake to rivers has not been successful mainly because the fish deteriorated in condition.

The following waters are managed as rainbow trout waters, Great Lake, Lake Leake, Dee Lagoon, Lagoon of Islands and Lake Rowallan. Here later opening and closing dates for the seasons allow for the later spawning habits of this species. In recent years the Commission has made liberations of hatchery raised fish, and, in addition at Great Lake, plantings of eggs in Vibert boxes, which are small plastic containers, have been carried out at the spawning grounds. Both these practices augment the number of recruits from natural spawning.

Since 1963 Eastern brook trout have been liberated in Clarence Lagoon, Harveys Lagoon, Little Waterhouse Lagoon, Little Pine Lagoon, the water hole at Derby, Lake Lilla, Lee's Dam at Deloraine and dams at Ridgley. In 1966 the most substantial liberation was made in Little Pine Lagoon where 9,642 fish 6-8 in in length were released. This is an area where the fish might become acclimatised and establish self supporting populations. Already from this stocking, downstream migrants have been caught in Bronte Lagoon, and upstream migrants have been caught in Lake Fergus. However, Harveys Lagoon and Little Waterhouse Lagoon provide the better returns to anglers and the current policy is to stock enclosed storages of about 20 acres with Eastern brook trout.

The Hatcheries

In 1861, six Salmon Commissioners were appointed and their first task was preparing the hatchery on the Plenty River, money having been voted for this purpose in 1860. Since 1861, the control of trout species in Tasmanian waters has been vested in a variety of authorities, the most recently constituted being the Salmon and Freshwater Commission (from 1926 to 1959) and the Inland Fisheries Commission (from 1959).

Early policy of the authorities concerned with the introduced species of the Salmonidae was to raise young fish at hatcheries for subsequent liberation, either as fry or fingerlings, into the rivers and lakes of the State. In fact, this policy continued for 90 years and all resources were deployed to this end. For example, in 1934 there were eleven hatcheries operating in Tasmania.

The comprehensive investigations carried out on the trout fisheries of Tasmania from 1947 to 1958 by Dr A. G. Nicholls of the C.S.I.R.O., as well as the work of scientists elsewhere, showed the relatively small contribution which hatchery-raised fish made to the maintenance of populations in streams. In general terms, the main factors controlling the abundance of trout were shown to be: (i) the availability of spawning grounds; (ii) the adequacy of food supplies; (iii) the availability of suitable habitat; (iv) the rate of fishing. These findings influenced the Commission to limit artificial fish culture, close down most hatcheries and concentrate on conservation work in the lakes and rivers which are the trout's natural habitat. The hatchery at Plenty (known as the Salmon Ponds) is now mainly a display centre of historic interest to commemorate the arrival of the first brown trout eggs in the southern hemisphere. However, some hatchery raised fish are needed to stock those waters such as coastal lagoons, farm dams and some inland storages lacking suitable spawning facilities for rainbow trout and eastern brook trout.

Tasmanian Inland Waters

For its size Tasmania is undoubtedly the best watered State in the Commonwealth with a maximum rainfall of 146 inches at Lake Margaret in the west. The amount of precipitation declines from the West to the East of the State.

The Central Plateau consists of an area of about 2,000 square miles, most of which drains naturally to the south. This altitude of the plateau ranges from 2,000 to over 4,000 feet and the topography varies from flat to steeply undulating. The plateau contains many broad valleys and plains which are situated between stony rises. The annual precipitation ranges from 90 inches on the western plain to under 35 inches on the eastern margin. There are many thousands of lakes in Tasmania, which vary from large natural lakes in the highlands and other large artificial lakes in the highlands and on river courses.

Many of the lakes are deep and of glacial origin. Around the coasts are a number of smaller lakes bounded by sand dunes and the waters in these, in contrast to the dilute waters elsewhere, are high in nutrients. The rivers show a wide range of characteristics in terms of length, width, depth and gradient.

Great Lake

Great Lake, the largest Tasmanian lake, is a shallow lagoon with an area of approximately 61 square miles and a shore line of about 70 miles. Since 1964 Great Lake water has been diverted northwards and the natural flow south to the Shannon River has been cut off. Prior to that date the continuous flow of fast running cold water provided a uniquely favourable habitat for the Snow caddis *Asmicridea grisea* Mosley in the Shannon River between Great Lake and Shannon Lagoon. In December each year the larvae hatched in huge numbers, the emerging flies attracted a large head of trout into the less than half a mile long stretch of Shannon River. The hatch itself, with adults covering the water and the landscape with a snow like mantle, was a unique phenomenon and the many trout which fed voraciously on emerging, living and dead flies made the spectacle even more remarkable. The phenomenon, known as the 'Shannon Rise', attracted world wide interest and its passing is regretted by many anglers.

Other Plateau Lakes

Undoubtedly one of the most beautiful lakes to be found is Lake St Clair with Mt Olympus to the west and Mt Ida to the north. It is a glacial and the deepest Australian lake.

Lake Echo, a large natural lake, is outside the glacial range. Lake King William is formed by Clark Dam on the Derwent River and has an area of 16 square miles and a shore line of about 46 miles.

Five miles to the East of Great Lake is the shallow Authurs Lake whose area has been increased by the construction of a dam at the source of the Lake River. To the north west of the Central Plateau there are over 4,800 lakes and ponds formed by glacial action. Some are dammed lakes and others are mountain cirque type. They are diverse in character but in general they have a high depth to area ratio. In the winter many of the small tarns are interconnected. Lack of formal road access to the Western Lakes presents no insuperable difficulties to anglers who use 4-wheel drive vehicles, motor cycles, horses and helicopters to visit the area. The construction of a road to Lake McKenzie has facilitated access to the Western Lakes situated in the north west of the Central Plateau.

Lake Sorell and Lake Crescent

Lake Sorell and Lake Crescent are situated at an altitude of 2,700 feet. The naturally formed Lake Sorell is connected by an artificial channel to Lake Crescent, which is actually a dammed up portion of the Clyde River. Lake Sorell is larger than Lake Crescent, which is $7\frac{1}{2}$ square miles, and the depth of the lake fluctuates between 4 and 6 feet depending upon the amount of draw off. The catchment is $14\frac{1}{2}$ square miles. The lakes show marked dissimilarity in the chemical content of the water and in their microfaunas and microfloras. At present both lakes carry stocks of brown trout and Lake Sorell has a small population of rainbow trout as well. The Sebago salmon,

a landlocked form of Atlantic salmon *S. Salar* was liberated in Lake Sorell but failed to become acclimatised. In 1885 C. A. Agnew and A. S. Page liberated brown trout fry in Lakes Crescent and Sorell where the access at that time was better than to the larger Great Lake.

The history of trout acclimatisation at Interlaken between the 1800's and the early 1900's shows that Commissioners and anglers made a number of improvisations to suit the conditions prevailing at the time. Rearing ponds were built and maintained off the race between the two lakes for the purpose of raising small brown trout for liberation in the two lakes. This was essential for the initial stocking but, of course, it is known from investigations carried out that these two lakes do not need stocking with pond raised trout, as the lake populations are self supporting, being maintained by recruits from natural reproduction in the tributaries to Lake Sorell.

It is interesting to recall that the Salmon and Freshwater Fisheries Commission used Mountain Creek, a tributary of Lake Sorell, as its source of brown trout ova to supply hatcheries at Plenty, Waverley, Lobster Creek, Wynyard and Geeveston. A hatchery at Mountain Creek, Lake Sorell, was used to raise both brown trout and rainbow trout fry. The collecting of brown trout ova here began before 1909 and was still collected up to 1928 when less emphasis was placed on operations here, as the improved road to the highlands made it more convenient to collect brown trout eggs at Liawenee Canal, Great Lake. However, the W. T. Cramp hatchery which was built in 1920 on the northern shore of Lake Sorell and which had a capacity of 300,000 ova, continued in use as a functional hatchery until the 1940's.

In 1963 gravel was deposited in the canal between these lakes to entice brown trout to spawn here instead of proceeding to the tributaries off Lake Sorell. For several reasons the project did not have the desired effect: the spawning fish were vulnerable to poachers and it was decided that it was better to allow them to proceed up the canal to Lake Sorell and to use the good spawning grounds available there. As the water from the two storages is used for domestic and irrigation purposes under the management of the Clyde Water Trust, it was found desirable and necessary in February 1968, following prolonged dry spells, to remove logs, silt and gravel to increase the flow in the canal from Lake Sorell to Lake Crescent.

For many years Lake Sorell provided good fishing for the few people fortunate enough to visit it. It became better known after the formation of an angling branch at Oatlands, which was active in promoting fishing in the 1940's, and it is from this date that Lake Sorell and Lake Crescent achieved prominence as trout fisheries.

The situation today is that Lake Crescent provides the trophy size fish; persons wishing to take big fish would choose Lake Crescent in preference to other waters in Tasmania. Anglers are well aware that very large size brown trout occur in Lake Crescent as some fish up to 23 lb are taken each year, while ones about 10 lb are common here. The fishing is slow, the bites are few, and the sort of gear used at Lake Crescent is not for all trout fishermen, but in other ways, such as size of fish and tranquility the rewards are more than adequate. For the fly fisherman Lake Sorell with tadpoles and reedy marshes, and where excellent hatches of fly occur, is more attractive.

When licensed commercial fishermen started using fyke nets to catch eels in the two lakes it ushered in a new phase in the development and utilisation of these waters as fisheries.

Lagoon of Islands

The Lagoon of Islands storage was completed in 1964 as a joint project by the Hydro-Electric Commission and the Inland Fisheries Commission. It is the first instance in Australia where power and fisheries authorities have planned, constructed and financed an impoundment on a shared basis. The Inland Fisheries Commission's justification for its share of \$18,000 construction cost was that unless action was taken, the water in the impoundment could be channelled off each summer to a level unsuitable for the maintenance of trout. The impoundment is of 2,000 acres and although the depth will fluctuate there will be a guaranteed minimum of 2 ft 6 in. The storage was stocked with rainbow trout fingerlings in 1964, and with additional liberations of this species in succeeding years the storage is being managed as a rainbow trout fishery. The record spell of dry conditions from 1965-1968 has prevented the storage from reaching full supply level and the expected potential of the water as a trout fishery may not be achieved until the storage fills.

Lakes Associated with Hydro-Electric Schemes

There are a number of storages built in hydro-electric schemes which have made fine trout waters. Some of the more important in this regard are Laughing Jack Lagoon, Mossy Marsh Lagoon, Tungatinah Lagoon, Lake Binney, Brady's Lake, Bronte Lagoon, Dee Lagoon, Pine Tier Lagoon, Little Pine Lagoon, Shannon Lagoon and Penstock Lagoon.

In the Lower Derwent Scheme there are impoundments at Repulse, Cluny and Meadowbank dams. Of the latter, Lake Meadowbank, area 2.6 square miles, has provided a good brown trout fishery.

In the Mersey-Forth scheme the artificial Lake Rowallan has an area 3.4 square miles, and the larger natural Lake McKenzie both provide good trout habitats. Other storages in the system, due to fluctuating water levels or the physical characteristics of the storages, are unlikely to provide important trout fisheries.

The constructions in the Gordon River scheme will provide a number of storages with varying surface areas. The largest is expected to be about 200 square miles and it will flood button grass plains. The low pH of the water and the depauperate aquatic fauna of the area hold little promise for the establishment of good permanent trout fisheries here.

Lake Leake and Tooms Lake

Further towards the east coast at an altitude of 2,000 feet are Lake Leake and Tooms Lake; both are artificial water storages created to supply water to Campbell Town and Ross respectively; both are about 1,500 acres in extent. Spawning facilities for trout are better at Lake Leake (on the Elizabeth River) than at Tooms Lake (on the Macquarie River) and each lake supports a mixed population of brown and rainbow trout.

North-West Rivers

In the north-west where the coast consists of a low plateau, the rivers have considerable variations in flow throughout the year. The larger rivers open into wide estuaries. The Mersey River of 100 miles is the longest, others range from 25 to 55 miles in length, provide suitable habitat for brown trout will falls barring movement of fish on some. In all, there are eleven important rivers between Port Sorell and Smithton and their estuaries provide good trout angling from August to November when the whitebait run is on.

Southern Rivers

In the south, the Derwent River stretches 100 miles from its origin in Lake St Clair to Bridgewater, and the estuary then extends a further 25 miles south-east of Storm Bay. It has numerous tributaries, the major ones include Nive, Florentine, Dee, Ouse, Clyde and Jordan Rivers, and the minor including Tyenna, Styx and Plenty Rivers. Hydro-electric schemes on the Derwent River have created a number of large artificial storages, of which Meadowbank Lake in the River Derwent is the most recently completed, 1966-67, and the whole Derwent system maintains an important trout fishery.

The Huon River is over 70 miles in length and is fed by many tributaries. The upper two-thirds is in fairly inaccessible country, and only the lower third is usually fished; very large brown trout are occasionally taken. The rivers of the south-east, such as Coal and Prosser are short, being less than 30 miles in length.

Northern Rivers

The North Esk River and the South Esk River discharge independently into the Tamar River near Launceston. The South Esk system has two major tributaries, the Meander and the Macquarie and occupies an area of about 3,500 square miles. After a rapid descent, the South Esk and its tributaries become slow moving streams marked by a succession of deep pools interspersed with short reaches of shallow water.

The North Esk, together with its main tributary the St Patricks River, drains the north-east corner of the State. Both are tumbling streams with a steep gradient. The pools and reaches of the North and South Esk systems provide some of the best dry fly fishing in Tasmania.

Western Rivers

Apart from the estuaries such as those of Pieman, Henty and Gordon Rivers, little fishing for trout is provided in west coast streams because the inhospitable nature of the country limits access to anglers. Mining developments on the Savage River have improved access to the Pieman and its tributaries. In the south-west the first stage of the Gordon River hydro-electric scheme will not only create a storage of 200 square miles but will provide a good access road to the storage. The popularity of the Gordon storage may not be as great as might be expected for a lake of its size. The water and aquatic fauna conditions expected in the new lake are hostile to the establishment of a high quality trout fishery.

Chapter 3

GOVERNMENT AND ADMINISTRATION

GOVERNMENT IN TASMANIA

Historical Summary

In its short history, Tasmania has experienced diverse modes of government; beginning with autocratic rule, it graduated to responsible self-government as a British colony and finally surrendered some sovereign powers to take its place as an original State of the Australian Commonwealth.

The evolution of the system of bi-cameral responsible government within a Federal system falls into five distinct phases:

1803-1825: The island was part of the colony of New South Wales and its lieutenant governors and commandants were subordinate to the Governor in Sydney.

1825-1851: On 14 July 1825, Van Diemen's Land was created a separate colony with a Lieutenant Governor directly responsible to the Secretary of State in London. A nominated Legislative Council was established.

1851-1856: The passage of the *Australian Constitution Act* 1850 by the Parliament in London was followed by the establishment of a new Legislative Council in which sixteen members were elected and eight were nominees of the Lieutenant Governor; the newly constituted Council first sat on 1 January 1852.

1856-1901: By the *Constitution Act* 1854, two houses of parliament, the House of Assembly and the Legislative Council were established, both houses being elected. The first Parliament sat on 2 December 1856 (the first year in which the island was officially called Tasmania); representatives of the Crown carried the title of Governor.

1901: The Tasmanian Constitution was limited by the establishment of the Commonwealth Constitution. (The *Commonwealth of Australia Constitution Act* 1900 granted legislative and executive powers upon certain specified matters to the Commonwealth Parliament and Government, some of them exclusively, and provision was made that, in the case of inconsistency of valid laws, the Commonwealth law should prevail.) In effect, the Parliament of Tasmania may make laws operative within the State upon all matters not within the exclusive power of the Commonwealth Parliament but, upon some of these matters, the Tasmanian law may be superseded by the passing of a Commonwealth Act. The Commonwealth Government was established in 1901.

Introduction

Government in Tasmania is exercised at three levels:

1. The Commonwealth, with authority based on a written constitution, and centred in Canberra.

2. The State, with residual powers and centred in Hobart.
3. The Cities and Municipalities, with authority derived from State Acts, and operating in forty nine sub-divisions of the State.

This chapter deals primarily with the State Government and with Tasmanian representation in the Commonwealth Parliament. The administration of the cities and municipalities is described in Chapter 4, 'Local Government.'

Tasmanian Representation in Commonwealth Parliament

The Parliament of the Commonwealth of Australia consists of the Queen, a Senate and a House of Representatives. The Queen is represented in Australia by the Governor General.

The Senate

The founders of the Australian Constitution had in mind that the Senate should give expression to the interests of the States as partners in the federation; in other words, the Senate should be a States' house. Accordingly the proportional representation suggested by the varying populations of the States was disregarded, and it was provided that each State should be represented by six senators; the first Senate in the first Parliament comprised thirty-six members of whom six represented Tasmania. The numbers remained unchanged until the Commonwealth *Representation Act* 1948 when each State became eligible to elect ten senators.

The founders also envisaged the Senate as a house of review and accordingly provided for continuity of membership by requiring only one-half of the Senate to retire every three years, and for each senator's term to be six years. If the normal pattern of three-yearly rotational retirement is broken by a double dissolution of both Houses, provision exists to elect a complete Senate with members divided into two equal classes: senators of the first class with a three-year term and senators of the second class with a six-year term. (The basis for this classification is the order in which the senators are declared elected.) After a normal rotational election, senators' terms commence from the following first day of July; in the case of an election for the whole Senate, terms commence from the first day of July preceding the election.

The House of Representatives

In designing the House of Representatives, the founders envisaged a legislative body representing the national interest and provided that the numbers of members chosen in the several States must be in proportion to population, but that no original State should have less than five members. The first House of Representatives in 1901 had 75 members of whom five were elected in Tasmania. The term of office was set as three years.

The *Representation Act* 1948 increased the Senate to 60 members and increased the House of Representatives to 123, although only 121 were elected from the States, the Northern Territory and the Australian Capital Territory having one member each with only restricted voting powers. At 1 January 1970, the House of Representatives stood at 125 members, 123 from the States and two representing the Northern Territory and the Australian Capital Territory respectively. Throughout the whole period since Federation, Tasmanian representation has remained constant at five members.

Electoral redistributions were undertaken soon after the 1947, 1954 and 1966 population censuses, the most recent being carried out by the Electoral Commissioners in 1968. The 1968 recommendations were accepted by the Federal Parliament and their net effect was to increase membership of the Federal

House of Representatives by one to 125 members. The 1969 Federal House of Representative election was the first Commonwealth election to be conducted in accordance with the new boundaries and subsequent to the election State representation in the House of Representatives became: N.S.W., 45 (lost one); Victoria, 34 (gained one); Queensland, 18 (unchanged); South Australia, 12 (gained one); W.A., 9 (unchanged); Tasmania, 5 (unchanged). The A.C.T. and Northern Territory each returned one member who has full voting rights.

The following table indicates the state of the House of Representatives at the election immediately following an electoral redistribution.

Membership—House of Representatives

Year	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T. (a)	A.C.T. (b)	Total
1948	28	20	10	6	5	5	1	..	75
1949 (c) ..	47	33	18	10	8	5	1	1	123
1955 (c) ..	46	33	18	11	9	5	1	1	124
1969 (c) ..	45	34	18	12	9	5	1	1	125

(a) Representative in House since 1922; full voting rights granted 1969.

(b) Representative in House since 1949; full voting rights granted 1966.

(c) Election following an electoral redistribution.

Referendum of 1967

Section 24 of the Commonwealth constitution reads: 'The House of Representatives shall be composed of members directly chosen by the people of the Commonwealth, and the number of such members shall be, as nearly as practicable, twice the number of senators.' In May 1967, a referendum was held, one issue being a proposal to terminate this requirement so that representation in the lower house could be increased without affecting the size of the Senate. This particular proposal was decisively rejected by the Australian voters; Tasmanian voters said 'No' (142,660) and 'Yes' (42,764). A further 3,821 voted informally.

Qualifications of Voters for Commonwealth Elections

An elector on a Federal roll is entitled and required by law to vote both in elections for the House of Representatives and for the Senate. An elector is any person, male or female, aged at least twenty-one years who is a British subject, who has lived in Australia for six months continuously and whose name appears on the roll. Residence in an electoral sub-division for at least one month is necessary to enable a qualified person to enrol. Enrolment is compulsory. All servicemen overseas irrespective of age can vote.

Qualifications of Candidates—Either Federal House

Qualifications necessary for membership of either House of the Commonwealth Parliament are possessed by any British subject, twenty-one years of age or over, who has resided in the Commonwealth for at least three years and who is, or who is qualified to become, an elector of the Commonwealth.

The term of office for a member of the House of Representatives is three years unless the House is dissolved earlier by the Governor General.

Disqualification as Elector or Member

Grounds for disqualification as an elector include being of unsound mind, or being convicted and under sentence for offences punishable by imprisonment for a year or longer. Grounds for disqualification as a member of either House include these prohibitions and also the following: membership of the other House, being an undischarged bankrupt or insolvent, holding office of profit under the Crown (with certain exceptions), or having pecuniary interest in any agreement with the public service of the Commonwealth except as a member of an incorporated company of more than 25 persons.

Senate (Tasmanian Members)

The following lists the senators for Tasmania and shows, in parenthesis, the years of retirement ('1974' senators were elected in November 1967):

Liberal senators: Lillico, A. E. D. (1971); Marriott, J. E. (1971); Rae, P. E. (1974); Wright, The Hon. R. C. (1974); *Labor* senators: Devitt, D. M. (1971); Lacey, R. H. (1971); O'Byrne, J. H. (1971); Poke, A. G. (1974); Wriedt, K. S. (1974); *Australia Party*: Turnbull, R. J. D. (1974).

House of Representatives (Tasmanian Members)

The following lists the Tasmanian members of the House of Representatives, and shows, in parenthesis, the division each represents:

Barnard, L. H. (Bass); Davies, R. (Braddon); Gibson, A. (Denison); Pearsall, T. G. (Franklin); Duthie, G. W. A. (Wilmot). At the election held in November 1966, Denison and Franklin elected Liberal candidates, the other three seats being won by Labor candidates.

Elections for the Senate

In Senate elections, there are only six electorates, each State being an electorate. Electors are required to cast a vote for every candidate standing within the State in order of their preference, and election of members is carried out in accordance with the principles of proportional representation by the single transferable vote (see 'Elections for House of Assembly' for a description of similar electoral principles). If a vacancy occurs in the Senate, the appropriate State Government nominates a replacement who sits until the next Commonwealth general election (either for the House of Representatives or for the Senate), when an election is held to fill the vacancy. It is usual for appointed replacements to be of the same party as those they replace, although no law exists to require it.

If a senator fills a vacancy through an election held at the same time as an election for the House of Representatives, his term will be the same as if the vacating member's term were to run its full course. If the vacant seat is contested at an ordinary Senate election, then six, instead of five candidates, will be elected in the State affected and the senator last elected will fill the vacancy for a term shorter than the full six years.

Elections for the House of Representatives

The Commonwealth is divided into 125 single-member electorates and electors are required to cast a vote for every candidate standing within the electorate in order of their preference. Election of members is carried out in accordance with the principles of the absolute majority through use of the alternative vote (see 'Elections for Legislative Council' for a description of similar electoral principles). If a vacancy occurs in the House of Representatives, it is filled by holding a by-election in the electorate concerned. The five Tasmanian electoral divisions are: Denison, Franklin, Wilmot, Bass and Braddon (also used in elections for the State House of Assembly).

Division of Powers

Under the *Commonwealth of Australia Act* 1900, the State of Tasmania surrendered part of its sovereignty and it was possible, at that point in time, to classify the totality of powers to be vested in the Commonwealth and the State as follows:

1. Exclusive powers to be exercised by the Commonwealth alone.
2. Concurrent powers to be exercised both by the Commonwealth and the State (subject to the supremacy of Commonwealth law in cases of inconsistency of laws).
3. Residual powers to be exercised by the State.

Since the establishment of the Commonwealth of Australia, there have been considerable changes in functions actually performed by the two Governments due to constitutional amendments and to inter-governmental agreements affecting function. It will suffice, therefore, to list the main fields of activity of the Commonwealth Government today:

External affairs and diplomatic representation; maintenance of the armed forces; customs and excise; posts and telegraphs; control of broadcasting and television; control of civil aviation; repatriation of ex-servicemen; immigration; industrial arbitration for national industries; control of coinage and currency; overseas trade promotion; employment service; age, invalid and widows' pensions; national health benefits; federal territories and overseas dependencies; census and statistics; meteorological service; Commonwealth courts and police; control of banking; collection of sales and income taxes; housing assistance and war service homes; scientific and industrial research; management of State and National debt; lighthouses and navigation. (For a fuller treatment of this subject, the *Constitution in the Commonwealth Year Book* is recommended.)

The departments, authorities, etc. of the Tasmanian Government are listed in a later section of this chapter headed 'Administration'.

Governor

Introduction

Democratic forms of government exhibit great variety but, with regard to the selection and role of the head of State, two clearly conflicting concepts can be discerned. In the American tradition, the head of State is elected and must necessarily play an active role in party politics. In the British tradition, the head of State is the holder of hereditary office and is expected to be above and beyond party politics. Tasmania follows the British tradition and accepts as its Queen, Elizabeth the Second. Her Majesty appoints the Governor who acts as head of State, generally for a five-year term. The relationship existing between the Queen and the British Parliament is broadly the same as that existing between the Governor and the Tasmanian Parliament.

Authority

The Governor's authority is derived from Letters Patent (issued in 1900) under the Great Seal of the United Kingdom, from the Commissions of Appointment and from the Governor's Instructions issued under the Royal Sign Manual and Signet.

Powers and Duties

The Governor summons and prorogues Parliament; in special circumstances he may dissolve it after considering the advice of his Premier. Bills which have passed all stages in Parliament are submitted to the Governor for his assent although there are some subjects which are specifically reserved for the Royal Assent (e.g. a Bill granting land or money to the Governor). He opens each session of Parliament by outlining the legislative programme of the Government which, irrespective of its party affiliation, he refers to as 'My Government', but takes no other part in the sittings of either House.

His executive powers include the appointment of Ministers of the Crown, judges and other important State officers but not those whose appointments may be made by certain statutory corporations. By appointing Ministers of the Crown, the Governor creates the Executive Council of the day and he is required by his instructions to be guided by the advice of this body. Should he feel it necessary to act against the advice of the Executive Council, he may do so but the reasons for such action must be immediately reported to the Queen. The Governor's relations with the Executive Council and with Cabinet are more fully discussed in the section headed 'The Cabinet and Executive Government'.

The Governor has the power to pardon, reprieve and remit sentences and fines. In capital cases, he is required to seek the advice of the Executive Council and, in other cases, the advice of at least one Minister. He also has the power to appoint a deputy to act in his stead during his temporary absence from the seat of government, whether within or outside the State. (In Tasmania, it is usual for the Chief Justice to act as Administrator of the Government in the absence of the Governor.) Further reference to the Governor's discretionary powers will be found under the section headed 'Dissolution of Parliament'. On all official State occasions, he performs the ceremonial functions as the representative of the Crown, and so becomes the focal point and the unifying symbol of the community.

Present Governor

All Tasmanian Governors since the first settlement have come from the United Kingdom, although Australians, in some other States and the Commonwealth, either hold or have held the vice-regal office. Lt-General Sir Edric Bastyan, a former Governor of South Australia, was sworn in on the 2 December 1968 as Governor of Tasmania succeeding Lt-General Sir Charles Gairdner whose term of office ended on 11 July 1968.

Lieutenant-General Sir Edric Montague Bastyan, KCMG, KCVO, KBE, CB

Born in England on 5 April 1903, married Victoria Eugenie Helen Batt 1944. Entered Sandhurst Royal Military College in 1921 at the age of 18. Graduated in 1923 with the rank of 2nd Lieutenant. Served with the Sherwood Foresters, 1923; West Yorkshire Regiment, 1935; Royal Irish Fusiliers, 1937; and the 53rd Welsh Infantry Division (TA) and Mid West District (Commander) 1952-1955. He saw active service in Palestine, 1938-1939; with the Eighth Army in Africa and Italy, 1939-1943; and in south east Asia, 1944-1945. Post war service included a period as Major-General-in-Charge Administration, British Army of the Rhine, 1946-1948; Chief of staff, Eastern Command, 1949-1950; Vice-Adjutant General War Office, 1955-1957; and until his retirement Commander, British Forces, Hong Kong, 1957-1960.

Sir Edric served as Governor of South Australia, 1961 to 1968, before taking office as Governor of Tasmania on 2 December 1968.

The Administrator

In the Letters Patent of 1900 (as amended in 1934), provision was made for a Lieutenant Governor to administer the Government in the event of the Governor's death, incapacity, removal or departure from the State. Should there be no Lieutenant Governor then appointed or should he be unable to act, the duties of the Governor were to be discharged by the Administrator. Attached to the Letters Patent was a Dormant Commission authorising the Chief Justice to act as Administrator 'in the event of the death, incapacity or absence of the Governor and the Lieutenant Governor if any'.

Lieutenant Governors have often acted in lieu of the Governor but since 1943, it has been customary for the Chief Justice to act as Administrator in accordance with the provisions of the Dormant Commission which further nominates the next Senior Judge to act in the absence of the Chief Justice. (The last Lieutenant Governor appointed was Sir John Evans, 1937-1943.)

The present Chief Justice is Sir Stanley Burbury, K.B.E., who has already acted as Administrator in the intervals between governorships, and on other occasions.

Succession of Governors

The next table shows the succession of governors from the time of Lieutenant Bowen's settlement in 1803. For the first 40 years, all appointed were officers of the navy, marines or army, Sir Eardley Wilmot being the first civilian (in 1843). The title 'governor' was first used by Sir H. E. Fox Young, under whose administration the colony graduated to self-government.

Succession of Governors, Acting Governors, and Their Predecessors from 1803

Name	Designation	Period
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(i) 1803-1825

Lieut John Bowen	Commandant	11. 9.03 - 16. 2.04
Colonel David Collins, R.M.	Lieutenant Governor	16. 2.04 - 24. 3.10
Lieut Edward Lord, R.M.	Commandant	24. 3.10 - 8. 7.10
Captain J. Murray, 73rd Regt	Commandant	8. 7.10 - 20. 2.12
Major A. Geils, 73rd Regt (a)	Commandant	20. 2.12 - 4. 2.13
Colonel Thomas Davey, R.M.	Lieutenant Governor	4. 2.13 - 9. 4.17
Colonel William Sorell	Lieutenant Governor	9. 4.17 - 14. 5.24
Colonel George Arthur (b)	Lieutenant Governor	14. 5.24 - 3.12.25

(ii) 1825-1855

Colonel George Arthur (b)	Lieutenant Governor	3.12.25 - 29.10.36
Lieut K. Snodgrass	Administrator	29.10.36 - 5. 1.37
Sir J. Franklin, KCH, R.N.	Lieutenant Governor	5. 1.37 - 21. 8.43
Sir J. E. E. Wilmot, Bart	Lieutenant Governor	21. 8.43 - 13.10.46
C. J. La Trobe, Esq.	Administrator	13.10.46 - 25. 1.47
Sir W. T. Denison	Lieutenant Governor	25.1.47 - 8. 1.55

Succession of Governors, Acting Governors and Their Predecessors—*continued*

Name	Designation	Period
(iii) 1855-1900		
Sir H. E. Fox Young	Governor	8. 1.55 - 10.12.61
Colonel Thomas Gore Browne, CB ..	Governor	10.12.61 - 30.12.68
Lt-Col W. C. Trevor, CB	Administrator	30.12.68 - 15. 1.69
Charles Du Cane, Esq.	Governor	15. 1.69 - 28.11.74
Hon. Sir Francis Smith, CJ	Administrator	28.11.74 - 13. 1.75
F. A. Weld, Esq.	Governor	13. 1.75 - 5. 4.80
Hon. Sir Francis Smith, CJ	Administrator	5. 4.80 - 21.10.80
Lt-General Sir J. H. Lefroy, KCMG, CB	Administrator	21.10.80 - 7.12.81
Sir G. C. Strahan, RA, KCMG	Governor	7.12.81 - 28.10.86
Hon. W. R. Giblin, Esq. SJ	Administrator	28.10.86 - 18.11.86
Hon. Sir W. L. Dobson, CJ	Administrator	18.11.86 - 11. 3.87
Sir R. G. C. Hamilton, KCB	Governor	11. 3.87 - 30.11.92
Sir W. L. Dobson	Administrator	30.11.92 - 8. 8.93
Rt Hon. J. W. Joseph, Viscount Gormanston, KCMG	Governor	8. 8.93 - 14. 8.00
(iv) 1900-		
Sir John Dodds, KCMG	Administrator	14. 8.00 - 8.11.01
Sir A. E. Havelock, GCSI, GCME, GCIE	Governor	8.11.01 - 16. 4.04
Sir John Dodds, KCMG	Lieutenant Governor	16. 4.04 - 28.10.04
Sir G. Strickland, KCMG	Governor	28.10.04 - 20. 5.09
Sir John Dodds, KCMG	Lieutenant Governor	20. 5.09 - 29. 9.09
Sir Harry Barron, KCMG, CVO	Governor	29. 9.09 - 8. 3.13
Sir John Dodds, KCMG	Lieutenant Governor	8. 3.13 - 4. 6.13
Sir William Ellison-Macartney, KCMG	Governor	4. 6.13 - 31. 3.17
Sir Herbert Nicholls	Administrator	31. 3.17 - 6. 7.17
Sir F. A. Newdigate Newdegate, KCMG	Governor	6. 7.17 - 9. 2.20
Sir Herbert Nicholls	Administrator	9. 2.20 - 16. 4.20
Sir W. L. Allardyce, KCMG	Governor	16. 4.20 - 26. 1.22
Sir Herbert Nicholls	Administrator	26. 1.22 - 30.11.23
Hon. N. K. Ewing, Esq.	Administrator	30.11.23 - 13. 6.24
Sir Herbert Nicholls	Administrator	13. 6.24 - 23.12.24
Sir James O'Grady, KCMG	Governor	23.12.24 - 23.12.30
Sir Herbert Nicholls, KCMG	Lieutenant Governor	23.12.30 - 4. 8.33
Sir Ernest Clark, GCMG, KCB, CBE ..	Governor	4. 8.33 - 4. 8.45
Sir John Morris	Administrator	4. 8.45 - 24.12.45
Admiral Sir Hugh Binney, KCB, KCMG, DSO	Governor	24.12.45 - 8. 5.51
Sir John Morris, KCMG	Administrator	8. 5.51 - 22. 8.51
Rt Hon. Sir Ronald Cross, Bart KCMG, KCVO	Governor	22. 8.51 - 4. 6.58
Hon. Sir Stanley Burbury, KBE	Administrator	4. 6.58 - 21.10.59
Rt Hon. the Lord Rowallan, KT, KBE, MC	Governor	21.10.59 - 25. 3.63
Hon. Sir Stanley Burbury, KBE	Administrator	25. 3.63 - 24. 9.63
Lt-General Sir Charles Gairdner, KCMG, KCVO, KBE, CB	Governor	24. 9.63 - 11. 7.68
Hon. Sir Stanley Burbury, KBE	Administrator	11. 7.68 - 2.12.68
Lt-General Sir Edric Bastyan, KCMG, KCVO, KBE, CB	Governor	2.12.68 -

- (a) Originally the Launceston settlement had its own officials appointed from N.S.W. Lieutenant Governor W. Paterson was followed, as Commandants, by Captain J. Brabyn and Major G. A. Gordon. The next, Captain J. Ritchie, took office on 1 July 1812 subordinate to Major A. Geils.
- (b) On 3 December 1825, Lt-General Sir Ralph Darling displayed in Hobart two commissions, one as Governor of N.S.W. and one as Governor of Van Diemen's Land. This was the device for separating Van Diemen's Land from N.S.W. Colonel George Arthur was sworn in again as Lieutenant Governor on 6 December 1825.

The Cabinet and Executive Government

General

In Tasmania, as in the other States and the Commonwealth, executive government is based on the system which was evolved in Britain in the 18th century, and which is generally known as 'Cabinet' or 'responsible' government. Its essence is that the head of the State (in Tasmania, the Governor representing Her Majesty the Queen) should perform governmental acts on the advice of his Ministers; that he should choose his principal Ministers of State from members of Parliament belonging to the party, or coalition of parties, commanding a majority in the popular House; that the Ministry so chosen should be collectively responsible to that House for the government of the country; and that the Ministry should resign if it ceases to command a majority there.

The Cabinet system operates chiefly by means of constitutional conventions, customs or understandings, and through institutions that do not form part of the legal structure of the government at all. In law, still, the executive power of the State is exercised by the Governor who is advised by the Executive Council which he himself has appointed and which meets for formal purposes, to be later explained. The whole policy of a Ministry is, in practice, determined by the Ministers of the Crown, meeting without the Governor under the chairmanship of the Premier, and this body is known as the Cabinet.

The Cabinet

This body does not form part of the legal mechanism of government and its meetings are private and deliberative. The actual Ministers of the day alone are present, no records of the meetings are made public, and the decisions taken have, in themselves, no legal effect. As Ministers are the leaders of the party commanding a majority in the House of Assembly, the Cabinet substantially controls not only the general legislative programme of Parliament, but the whole course of Parliamentary proceedings. In effect, though not in form, the Cabinet, by reason of the fact that all Ministers are members of the Executive Council, is also the dominant element in the executive government of the State. Even in summoning, proroguing or dissolving Parliament, the Governor is usually guided by the advice tendered him by the Cabinet, through the Premier, though legally the discretion is vested in the Governor.

In Tasmania, the present Cabinet consists of the nine Ministers of the Crown, including the Premier.

The Executive Council

This body is usually presided over by the Governor, the members thereof holding office during his pleasure. All Ministers of the Crown must be members of the Executive Council. Ministers actually remain members of the Executive Council on leaving office, but are not summoned to its meetings, for it is an essential feature of the Cabinet system that attendance should be limited to the Ministers of the day. The Chief Justice and Judges of the Supreme Court are also members of the Executive Council, but they too are not summoned to its meetings for the same reason. The meetings of the Executive Council are formal and official in character, and a record of proceedings is kept by the Clerk (who is the permanent head of the Premier's and Chief Secretary's Department). At Executive Council meetings, the decisions of Cabinet are (where necessary) given legal form, appointments made, resignations accepted, proclamations issued, and regulations and the like approved. The quorum required is three, comprising the Governor and at least two Ministers.

The Appointment of Ministers

Legally, Ministers hold office during the pleasure of the Governor. In practice, however, the discretion of the head of State in the choice of Ministers is limited by the conventions on which the Cabinet system rests. When a Ministry resigns, the Governor's custom is to send for the leader of the party which commands a majority in the lower House, and to commission him, as Premier, to 'form a Ministry'—that is, to nominate other persons to be appointed as Ministers of the Crown and to serve as his colleagues in the Cabinet.

The *Constitution Act* 1854 defined the Parliament of Tasmania as 'the Governor and the Legislative Council and House of Assembly together'. Although no legal requirements enforce it, the selection of all Ministers of the Crown from Parliament stems from the British tradition and sharply contrasts with the American system which requires its Ministers *not* to be members of Congress.

The Governor's power to revoke the appointment of a Minister of the Crown was exercised in 1959, the circumstances being that a Minister had refused to resign from Cabinet; in the absence of the Governor, and on the advice of the Premier, the Administrator terminated the Minister's appointment.

Present Ministry

After the elections held on 10 May 1969, the Ministry led by the Hon. W. A. Bethune, was announced as follows:

Ministry (at May 1969)

Name	House	Responsibility (a)
The Hon. W. A. Bethune	Assembly	Premier, Treasurer, Hydro-Electric Commission
The Hon. K. O. Lyons	Assembly	Deputy Premier, Chief Secretary, Tourists
The Hon. R. Mather	Assembly	Education
The Hon. W. G. Barker	Assembly	Lands and Works, Local Government
The Hon. E. W. Beattie	Assembly	Agriculture, Forestry
The Hon. E. M. Bingham	Assembly	Attorney-General, Police, Licensing
The Hon. D. F. Clark	Assembly	Development, Housing, Fisheries
The Hon. N. D. Abbott	Assembly	Health, Road Safety
The Hon. L. H. Bessell	Assembly	Transport, Racing and Gaming, Mines

(a) See section 'Administration' later in chapter for fuller statement of responsibility.

Relations of Two Houses

Status of Legislative Council

A vexed question for many years was the exact status of the Legislative Council in relation to the House of Assembly from which the Ministry of the day was predominantly chosen. The 1854 Constitution Act had defined Parliament as 'the Governor and the Legislative Council and House of Assembly together' and obviously the approval of all three was necessary for laws to become valid; on the other hand, there was no adequate provision for resolving situations in which the Legislative Council rejected bills or amended bills in ways unacceptable to the House of Assembly. The lower house was elected on a wider franchise, and could legitimately claim to be the more accurate instrument of public opinion to the extent that it was not a perpetual body like the Legislative Council, as its members were all elected at the one time.

(Only in 1968 was legislation passed to introduce adult franchise for Legislative Council elections.) The power of the Legislative Council to reject and amend was most resented in relation to money bills, since these vitally affected the administration of public affairs by the Ministry of the day.

The Conflict of 1924 and 1925

The 1924-25 Appropriation Bill was amended by the Legislative Council, involving a reduction of \$37,000. The Premier (J. A. Lyons) decided to challenge the right of the upper house to amend money bills; after a two-house conference had failed to reach agreement, the House of Assembly voted 17 to 10, directing the Speaker to seek Royal Assent for the bill 'in the form it passed the House of Assembly'.

The Administrator (Sir Herbert Nicholls) had already been warned of the constitutional crisis and had cabled the Secretary of State in London before the bill was presented for his assent. The advice from London was that he should consult the Crown's law officers as to validity; if he then gave consent, 'responsibility will rest exclusively with your Ministers and no question can arise as to the constitutionality of your action'. The Administrator gave assent to the bill and it went on the statute book with the usual preamble: 'with the advice and consent of the Legislative Council'. A truer description would have been 'against the advice and without the consent of the Legislative Council'.

By 1925, a new Governor (Sir James O'Grady) had taken up office but he followed the precedent set by the Administrator, giving assent to 'one-house' bills (i.e. those in which Legislative Council amendments had not been accepted by the lower house). Both houses were concerned with the possible illegality of these developments and set up a Joint Committee to propose constitutional changes; the outcome is described in the next section.

Money Bills

A period of conflict was followed by the passage of the *Constitutional Amendment Act* 1926 defining the relations of the two houses in the passing of money bills. The following current principles are found in the Act: the Legislative Council retains the right to reject any bill, including a money bill; the Council is specifically prevented from amending bills to raise revenue for the ordinary annual services of the Government and bills imposing land and income tax; it can still suggest to the House of Assembly that amendments be made but the adoption or rejection of such amendments is at the discretion of the Assembly; the operation of such bills is restricted to a period of one year. Apart from the above specific exceptions, the Council retains the right to amend money bills, e.g. those dealing with loan funds or probate. The House of Assembly is given the sole right to initiate bills for the raising of revenue and the imposition of taxes. Finally, the powers of the two houses are declared equal in all matters except for these specific exceptions.

Deadlocks and Dissolutions

It should be observed that there is no provision for a double dissolution as in the Commonwealth Constitution and that the Legislative Council, by rejection of a supply bill, can force the House of Assembly to seek a dissolution without itself needing to face the electorate. This last occurred in 1948.

The Legislative Council has the tradition of being a non-party house and, in actual fact, the majority of its members are elected as independents without the official endorsement of any party, members who have received party endorsement (from the Labor Party) are heavily outnumbered. The leader of

the Government in the Legislative Council cannot rely upon a vote taken on party lines to ensure the passage of any government bill. It is the ability to command a majority in the House of Assembly which gives a party the right to form the government of the day and which ensures the passage of government legislation through the lower house; no such certainty exists in the passage of bills through the upper house and accordingly the Legislative Council is in a position to exercise considerable influence on the form in which bills are finally passed through both houses.

As from July 1964, the Liberal Party reversed its policy of non-endorsement of candidates for the Legislative Council and decided to endorse candidates in certain circumstances. It gave endorsement to only one candidate in the period 1964-1969, but an independent won the seat.

Consultation Machinery

When a position is reached in which one house refuses to accept the amendments or legislation of the other, provision exists under the Standing Orders for joint consultation by the calling of a 'Free Conference' at which each house is represented by 'managers'. (It is usual for each house to be represented by four managers.) The free conference endeavours to find a compromise acceptable to both houses.

Another form of consultation between the two houses is the appointment of a joint select committee which is set terms of reference and which is primarily concerned with fact-finding. The passage of a bill may be temporarily delayed while a joint select committee makes a specific investigation; this machinery provides members with the information necessary to cast an informed vote. The next section describes an episode in 1967 when the consultation machinery was unable to prevent a deadlock.

Deadlock over Trading Hours, 1967

The regulation of shop trading hours in Tasmania was last provided for in the *Factories, Shops and Offices Act* 1965 but its continuance beyond 31 December 1967 required the consent of Parliament. One section of the legislation prohibited general Saturday morning trading within a six miles radius of the Hobart G.P.O.

Late in 1967, legislation necessary to continue the regulation of trading hours was passed by the House of Assembly; the Legislative Council, however, insisted on an amendment to allow Saturday morning trading in the eastern suburbs and at Taroona (both within the six mile zone). The usual consultation machinery was employed, the final position of the two houses being: (i) *House of Assembly*; not willing to accept any amendment affecting the six mile zone; (ii) *Legislative Council*; not willing to pass the legislation without acceptance of its amendment. Neither house was willing to yield so regulation of shop trading hours throughout the State ceased as from 1 January 1968 and any shop might observe any hours its owner pleased. The decision not to accept the Legislative Council's amendment was supported by both major parties in the House of Assembly. (The two houses did agree, however, to continue regulation of trading hours and rostering in the case of petrol filling stations; legislation for this purpose was enacted.)

The decision to repeal sections of the *Factories, Shops and Offices Act* 1965 has had little impact on the hours of retail trading. To date only a slight variation has occurred in the trading hours of some suburban shops within the six mile zone. No shopping centre as such opens on Saturday morning within the zone.

Premiers

The following is a list of the Premiers of Tasmania from 1856 (the year in which the first elected Parliament sat):

Premiers from 1856

Name of Premier	Date of Assumption of Office	Date of Retirement from Office	Duration of Office (Months)
1856-1900			
W. T. N. Champ	1.11.56	26. 2.57	4
T. G. Gregson	26. 2.57	25. 4.57	2
W. P. Weston	25. 4.57	12. 5.57	1
F. Smith	12. 5.57	1.11.60	42
W. P. Weston	1.11.60	2. 8.61	9
T. D. Chapman	2. 8.61	20. 1.63	18
J. Whyte	20. 1.63	24.11.66	46
Sir Richard Dry	24.11.66	4. 8.69	32
J. M. Wilson	4. 8.69	4.11.72	39
F. M. Innes	4.11.72	4. 8.73	9
A. Kennerley	4. 8.73	20. 7.76	36
T. Reibey	20. 7.76	9. 8.77	13
P. O. Fysh	9. 8.77	5. 3.78	7
W. R. Giblin	5. 3.78	20.12.78	9
W. L. Crowther	20.12.78	30.10.79	10
W. R. Giblin	30.10.79	15. 8.84	58
Adye Douglas	15. 8.84	8. 3.86	19
J. W. Agnew	8. 3.86	29. 3.87	13
P. O. Fysh	29. 3.87	17. 8.92	65
H. Dobson	17. 8.92	14. 4.94	20
Sir Edward Braddon	14. 4.94	12.10.99	66

1900-

Sir N. E. Lewis	12.10.99	9. 4.03	42
W. B. Propsting	9. 4.03	11. 7.04	15
J. W. Evans	11. 7.04	19. 6.09	59
Sir N. E. Lewis	19. 6.09	20.10.09	4
J. Earle (a)	20.10.09	27.10.09	..
Sir N. E. Lewis	27.10.09	14. 6.12	32
A. E. Solomon	14. 6.12	6. 4.14	22
J. Earle (a)	6. 4.14	15. 4.16	24
Sir Walter Lee	15. 4.16	12. 8.22	76
J. B. Hayes	12. 8.22	14. 8.23	12
Sir Walter Lee	14. 8.23	25.10.23	2
J. A. Lyons (a)	25.10.23	15. 6.28	56
J. C. McPhee	15. 6.28	15. 3.34	69
Sir Walter Lee	15. 3.34	22. 6.34	3
A. G. Ogilvie (a)	22. 6.34	10. 6.39	60
E. Dwyer Gray	11. 6.39	18.12.39	6
R. Cosgrove	18.12.39	18.12.47	96
E. Brooker	18.12.47	25. 2.48	2
R. Cosgrove	25. 2.48	26. 8.58	126
E. E. Reece	26. 8.58	26. 5.69	129
W. A. Bethune	26. 5.69		

(a) Tasmania had an unbroken succession of Labor Premiers, starting with the Ogilvie Ministry (1934), until the resignation of the Reece government, (following electoral defeat) on May 26 1969; earlier Labor Ministries were led by J. Earle (first in 1909) and by J. A. Lyons.

Parties

In the period 1909-1969, the major parties have been the Labor Party and the Nationalist Party (which in 1948 became the Liberal Party). In the early 1920s, a Country Party appeared with five members in the House of Assembly but it soon went out of existence. At the 1964 Assembly elections, a number of Country Party candidates stood but none was successful. In October 1966 K. O. Lyons, one of the House of Assembly members for Braddon, resigned from the Liberal Party and formed the Australian Centre Party, an organisation affiliated with the Australian Country Party.

The record term in office of 35 years for the Labor Party ended with the electoral defeat of the Reece government on 10 May 1969. A Liberal-Australian Centre Party coalition led by the Hon. W. A. Bethune was sworn in on 26 May 1969.

Dissolution of Parliament

The Governor may dissolve the House of Assembly whenever he considers it desirable but he has no power to dissolve the Legislative Council. In effect then, the Legislative Council is a perpetual body except that approximately one-sixth of its seats fall vacant annually. (See 'Elections for Legislative Council.')

In practice, the Governor considers dissolving the House of Assembly only when requested to do so by his Ministers. Two recent dissolutions are recorded below:

1950: The Governor, Admiral Sir Hugh Binney, received a request for dissolution from the Premier, the main grounds being the difficulty of passing legislation in a House where the Government was dependent on the support of an independent member for its majority. Having first interviewed the Leader of the Opposition and ascertained that no alternative Government could be formed, the Governor granted the dissolution.

1956: The Governor, Sir Ronald Cross, received a request for dissolution from the Premier, the grounds being that a Minister of the Crown had resigned and joined the opposition, thus depriving the Government of its majority on the floor of the House. In this case, the Governor could have requested the Leader of the Opposition to form a Government since the opposition now had the majority. However, the Government had not been defeated on the floor of the House, since Parliament had adjourned after the Minister announced his change of allegiance. In granting a dissolution, the Governor thought it 'proper in all the circumstances that the electorate should have an opportunity of expressing its will' and maintained that this decision was a legitimate exercise of his discretionary powers.

Sessions of Parliament

Parliament is required to sit every year and, having risen, must sit again before twelve months have elapsed. When the House of Assembly is dissolved and a general election held, the Governor is required to call Parliament together within ninety days of the dissolution, subject to a discretionary extension of a further thirty days.

Elections for the House of Assembly

Elections for the House of Assembly are conducted under a system which can be classified as proportional representation by the single transferable vote and which is popularly but incorrectly called 'Hare-Clark'.

Hare's Proposals

The principle of proportional representation by the single transferable vote was first suggested by Thomas Wright Hill in 1821 and later elaborated by Thomas Hare in his treatise of 1859, *The Election of Representatives, Parliamentary and Municipal*. Hare was primarily concerned with elections to the House of Commons and the essence of his proposal was that each voter was to be allowed to support any candidates, anywhere in Britain, and that his votes could be transferred to other candidates in the order of his preference. A candidate was to be declared elected on attaining the quota found by dividing the total votes in the country by the number of seats in the House of Commons; the votes cast for a candidate in his own locality were to be counted for him first and those from more distant places only if required to make up a quota.

The Droop Quota

The concept of the quota was developed in a more sophisticated manner by H. R. Droop as follows:

The Droop Quota

Number of Members to be Elected from Constituency	Minimum Votes Necessary to Ensure Election of Any Member (i.e. Quota)
1	$\frac{1}{2}$ of total votes + 1 vote
2	$\frac{2}{3}$ of total votes + 1 vote
3	$\frac{3}{4}$ of total votes + 1 vote
n	$\frac{1}{n + 1}$ of total votes + 1 vote

Contribution of Clark

In 1896, the Tasmanian Attorney General, A. I. Clark, secured the use of proportional representation for electing the Hobart and Launceston town councils and for choosing Hobart and Launceston representatives for the House of Assembly. (The country seats were still single member constituencies.) To Clark also is attributed the credit for working out the modern method for dealing with surpluses and transfers.

Tasmanian System

The essential features of the system are as follows:

1. For an elector to cast a valid vote, he must express at least three preferences.
2. Names on the voting papers are arranged in distinct groups to facilitate recognition of allegiance to parties (but names of parties are not specified).
3. To secure election, candidates must secure a quota in accordance with the Droop formula (i.e. the total first-preference votes in the constituency divided by eight, plus one vote).
4. Should a candidate secure an exact quota on first preferences, his voting papers are set aside as finally dealt with.
5. If the first successful candidate secures a surplus above the quota, then all his voting papers are re-examined to determine which candidates should secure the second preferences.
6. The second preferences are first adjusted by multiplying them by a fraction called the transfer value. The transfer value is calculated by dividing the successful candidate's surplus first-preference votes by his total first preferences. The second-preference votes, adjusted in this way, are now transferred to other candidates.

7. When repetition of the above process results in a position where no further candidates can reach a quota, the candidate who is lowest on the poll is excluded and the preferences shown on his voting papers transferred to the remaining candidates.

The above processes are repeated until seven candidates have been elected. As might be expected, the counting of votes, calculation of transfer values and the transferring of votes are time-consuming and a week may elapse before the declaration of the poll.

Tasmanian Adoption

In 1907, an Electoral Act provided that all members of the House of Assembly were to be elected by proportional representation, the State being divided into five constituencies each of which was to be represented by six members. The first election in accordance with this Act was held in 1909.

The fourth schedule to the 1907 Act dealing with quotas, transfer of votes, exclusion of candidates, etc. is still the blue-print for counting votes today; however, as from the 1959 elections, the number of members for each constituency was increased from six to seven for reasons that will be later specified.

Advantages of System

The major advantage claimed for the system is that the composition of the House of Assembly tends to faithfully reflect the wishes of the electors viewed on a State basis, and that a party with a minority of first preferences is most unlikely to obtain a majority of seats, as sometimes occurs in systems with single-member constituencies. By way of example, South Australia using single-member electorates has sometimes been governed by parties receiving a minority of votes but a majority of seats; other Australian States have had similar experience.

Leaving aside the matter of independents and minority parties, and assuming that only candidates from the two major parties are elected, then the present pattern is for each constituency to elect four candidates from one of the major parties and three from the other. It follows, therefore, that the opposition is always adequately represented in the House of Assembly and supporters of the opposition party always have representatives for their constituency.

Resolution of Assembly Deadlocks

House of 30 Members

One of the virtues claimed for the Hare-Clark system is the adequate representation given to minorities. In a small House of 30 members, this virtue tended to be too evident and led to situations where the government of the day did not have the necessary majority to carry all its legislation with confidence.

The first remedy employed was the *Constitution Amendment Act 1954* which provided that, in the event of a 15-all draw between the two major parties in an election, an Electoral Commission would be established. This body's function would be to decide, on the basis of primary votes cast for each party, which were the majority and minority parties. On the meeting of Parliament, the minority party would then have the right to nominate one of its members to the office of Speaker. If the minority party refused to exercise this right, then the majority party might proceed to appoint one of its own members and it would receive an additional member in replacement, elected from the Speaker's constituency.

The election of 1955 created an equal distribution of seats and an Electoral Commission was accordingly appointed to decide the question of which was the majority party. The minority party nominated a member for Speaker and the Assembly elected him to the Chair.

The 1954 Act provided machinery for overcoming deadlocks but still did not have much impact on the major problem—that of providing the government of the day with an effective working majority.

House of 35 Members

In 1958, a further constitutional amendment was made in which the number of members to be elected for each constituency was increased from six to seven, thus enlarging the House of Assembly from 30 to 35 members. At the first elections held under the provisions of this amendment (May 1959), the major parties secured 17 and 16 seats respectively, the remaining seats being won by independents. At the May elections of 1969, the major parties secured 17 seats each, the other going to the Australian Centre Party.

Life of House of Assembly

After the *Constitution Act* 1936, the House was elected for five-year terms. The 1954 Act provided that the term should be reduced to three years if the special deadlock provisions were invoked to appoint a Speaker, but passage of the 1958 Act restored the status-quo, i.e. five-year terms irrespective of the outcome of the election.

Constituencies of House of Assembly

The five constituencies for the House of Assembly are identical with the five electoral divisions electing members to the Federal House of Representatives. The alteration of electoral boundaries to accord with changes in population is carried out under a joint Commonwealth-State agreement.

Alteration of Electoral Boundaries

In July 1968 the Electoral Commissioners submitted their recommendations on electoral boundaries for the Federal House of Representatives. Tasmania's representation in the House of Representatives remained unchanged at 5 members but the electoral boundaries of Denison, Franklin and Wilmot were altered. The following table summarises the effect of the Electoral Commissioners' recommendations for Tasmania:

Recommended Boundary Changes, Tasmanian Federal Electorates, July 1968

Electorate	Enrolments at 31 May 1968		Nature of Change Recommended
	In Previous Boundaries	In Recommended Boundaries	
Bass	40,139	40,139	No change
Braddon	41,803	41,803	No change
Denison	35,353	42,917	Increased from parts of Franklin
Franklin	49,026	37,203	Parts transferred to Denison and Wilmot
Wilmot	37,103	41,362	Increased from parts of Franklin
Total	203,424	203,424	

Apparent Inequality: The low enrolment for *Franklin* (37,203) in the recommendation is based on the fact that it includes areas with the fastest population growth rates; hence, the inequality will tend to disappear.

Denison: Increased by extending southern boundary in Sandy Bay south to Blackmans Bay and taking in Fern Tree; also by extending northern boundary in Glenorchy on the mountain side of the railway to Humphreys Rivulet. These changes involve transfers from *Franklin*.

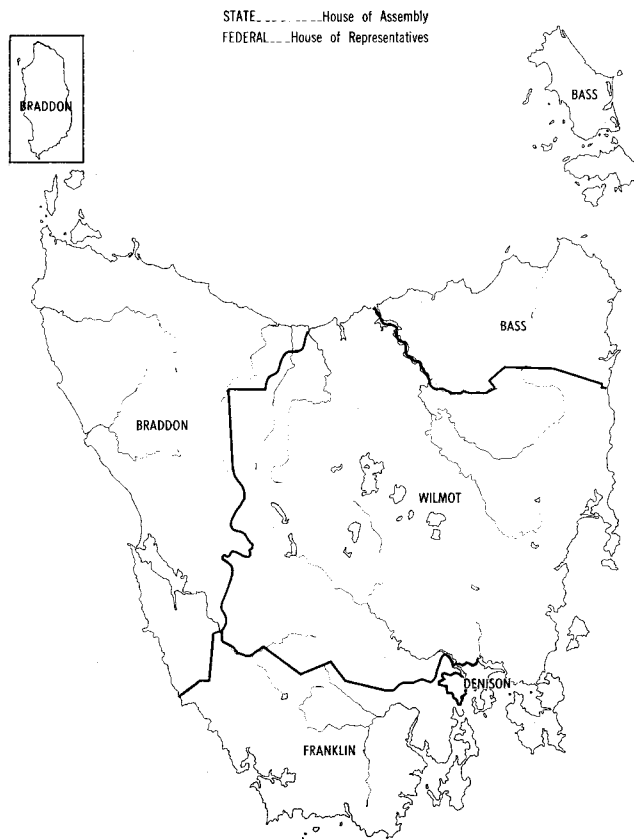
Franklin: Decreased as specified in *Denison* and *Wilmot*.

Wilmot: Increased by including the subdivisions of Richmond, Sorell, Spring Bay and Tasman (the previous boundary on the east coast extended only as far south as Little Swanport). These changes involve transfers from *Franklin*.

The Electoral Commissioners' recommendations for Tasmania were accepted without amendment. Since electorates for the Federal House of Representatives and State House of Assembly are identical, the May 1969 House of Assembly elections were conducted in accordance with the new electoral boundaries described in the preceding section.

ELECTORAL DIVISION

(Changed 1968)



Proportional Representation by the Single Transferable Vote

Many regard the system of election for the House of Assembly as being a phenomenon peculiar to Tasmania. This is by no means so, since the following countries either use or have used a similar system of election: Republic of Ireland (both Houses), South Africa (Senate), Malta (both Houses), Gibraltar (Legislative Council), Canada (for some provincial electorates in Alberta and Manitoba) and Australia itself, in the election of the Federal Senate. If the State has any claim to being unique in the field of electoral reform, it must be based on the fact that Tasmania was the first country in the world to introduce proportional representation by the single transferable vote.

Elections for the Legislative Council

Annual Fractional Elections

For the purpose of electing members of the Legislative Council, the State is divided into nineteen single-member constituencies. Each member, when elected, holds office for six years and Council elections are held every year to elect three members; however, in every sixth year counting from 1965, it is necessary to elect four members.

Should the seat of a member become vacant otherwise than by effluxion of time, the person elected to fill the vacancy holds office only till the expiration of the period for which the vacating member was elected.

Preferential Voting

Candidates appear on the voting paper in alphabetical order and are not grouped to show party allegiance as in voting papers for the House of Assembly. If there are two candidates, the voter need only vote for one. If there are three or more candidates, the voter must indicate at least three preferences to record a valid vote.

If any candidate secures first-preference votes exceeding half the total first preferences, he is declared elected. If no candidate satisfies this condition, then the candidate with the fewest votes is excluded and the second preferences shown on his voting papers are transferred to other candidates, the transfer value of each such second preference being equal to one.

If no candidate now has the required majority, the process of exclusion is repeated until such time as one candidate secures the majority.

The method of counting is identical with that used in elections for the Federal House of Representatives and is termed preferential. The full description is election by absolute majority through use of the alternative vote.

New Boundaries, Legislative Council Divisions

Introduction

Late in 1967, the *Constitution Act* 1934 was amended to change the boundaries of the Legislative Council Divisions; the *old* boundaries were to be used for the 1968 election and the *new* boundaries for the 1969 election.

Nature of Change

The number of electors within old boundaries in 1967 in *Launceston* was 2,883; in *Pembroke*, 16,693. Between these extremes, there was considerable variation. The Select Committee, whose recommendations were accepted, could have devised new boundaries to give an approximate equality of electors in each Division, but this would have been effective only for a short period due to differential population growth rates. The Committee's solution was to classify and form amended Divisions as follows:

(i) *Urban and Suburban*: The Divisions based on Hobart were changed to exclude rural population (e.g. *Pembroke* restricted to Clarence Municipality and municipalities of Sorell, Richmond, Tasman, Spring Bay and Glamorgan transferred to *Monmouth*). A similar change in the Launceston-based Divisions involved a conversion of *Westmorland* to a basically urban electorate, with a resultant drastic decrease in area. Within these newly-defined urban areas, adjustments were made to give maximum electors (12,693) in *Pembroke* and minimum electors (8,574) in *Buckingham*.

(ii) *Rural*: The main changes were the excision of urban areas, e.g. Hobart's outer northern suburbs transferred from *Derwent* to *Buckingham*. The new boundaries give maximum electors (8,026) in *Russell* and minimum electors (5,456) in *Monmouth*.

(iii) *Special*: *Gordon* was treated as a special case on the grounds of geography and special community of interest (mining). No change was made.

The following table shows: (i) the classification of the Divisions; (ii) the number of electors within both old and new boundaries.

Legislative Council: Effect of Changed Boundaries on Number of Electors in Each Division

Division (a)	Approximate Enrolments 1967, Within—		Division (a)	Approximate Enrolments 1967, Within—	
	Old Boundaries	New Boundaries		Old Boundaries	New Boundaries
Urban Group—			Non-urban Group—		
Hobart (H) ..	4,724	10,724	Derwent (R) ..	13,324	6,650
Newdegate (H) ..	7,801	11,039	Huon (R) ..	9,302	7,502
Buckingham (H) ..	11,138	8,574	Macquarie (R) ..	6,704	6,654
Pembroke (H) ..	16,693	12,693	Meander (R) ..	5,414	6,780
Queenborough (H) ..	7,466	9,266	Monmouth (R) ..	3,556	5,456
Launceston (L) ..	2,883	9,353	Russell (R) ..	8,026	8,026
Cornwall (L) ..	6,519	9,309	South Esk (R) ..	9,350	7,396
Westmorland (L) ..	13,451	8,737	Tamar (R) ..	8,259	6,117
West Devon (BP) ..	9,200	9,534	Gordon (S) ..	3,610	3,610
Mersey (DU) ..	10,881	10,881			
			Total ..	158,301	158,301

(a) Key to symbols: (H) = Hobart and suburban; (L) = Launceston and suburban; (BP) = Burnie and Penguin municipalities; (DU) = Parts of Devonport and Ulverstone municipalities; (R) = rural; (S) = special.

Qualifications of Electors and Members

Qualifications of an Elector for the House of Assembly

An elector for the House of Assembly is any person, aged at least twenty-one years, male or female, who has lived in the State six months continuously, who is a natural-born or naturalised subject of the Queen and whose name is on the electoral roll for any Assembly division. Voting has been compulsory since the *Electoral Act* 1928.

Qualifications of Members of House of Assembly

To be eligible for election as a member of the House of Assembly, a candidate must comply with the following conditions:

He must either be an elector or be qualified to be an elector for the House of Assembly, and resident in Tasmania for five years at any one time or resident for two years immediately preceding the election.

Qualification of Electors for the Legislative Council

An elector for the Legislative Council is any person, aged at least twenty one years, male or female, who is a natural-born or naturalised subject of Her Majesty, who has been resident in the State for a period of six months and whose name is on the electoral roll for any Council division.

Special qualifications necessary for a person to obtain enrolment as an elector for the Legislative Council were abolished by amendments in 1968, to the *Constitution Act* 1934 and the *Electoral Act* 1907; from 1 July 1969 qualifications for Legislative Council and House of Assembly electors became the same.

Voting has been compulsory since the *Electoral Act* 1928.

Qualifications of Members of Legislative Council

A candidate for the Legislative Council must be an elector or have the qualifications of an elector for the Council; in addition to meeting the residential and nationality restrictions imposed on candidates for the House of Assembly, he must be at least twenty-five years of age.

Persons of unsound mind or in prison under any conviction are barred from voting at elections for either House or from being elected to either House. No person shall be capable of being a Member of both Houses at the one time.

By-Elections*House of Assembly*

In the case of a vacancy occurring in the House of Assembly, there is provision for the Chief Electoral Officer to publicly invite nominations from candidates who were unsuccessful at the last general election in the constituency which elected the vacating member. If one nomination only is received, then the Chief Electoral Officer declares the consenting candidate elected and notifies the Governor to this effect.

If more than one such nomination is received, the Chief Electoral Officer is required to examine the voting papers counted for the vacating member at the last general election. In the simple case—where the vacating member obtained a surplus above the quota—this can be confined to voting papers expressing first choices. In the more difficult case—where the vacating member did not obtain a quota on first choices—it is necessary to take into account not only original first-choice papers but also all voting papers representing votes transferred to the vacating member.

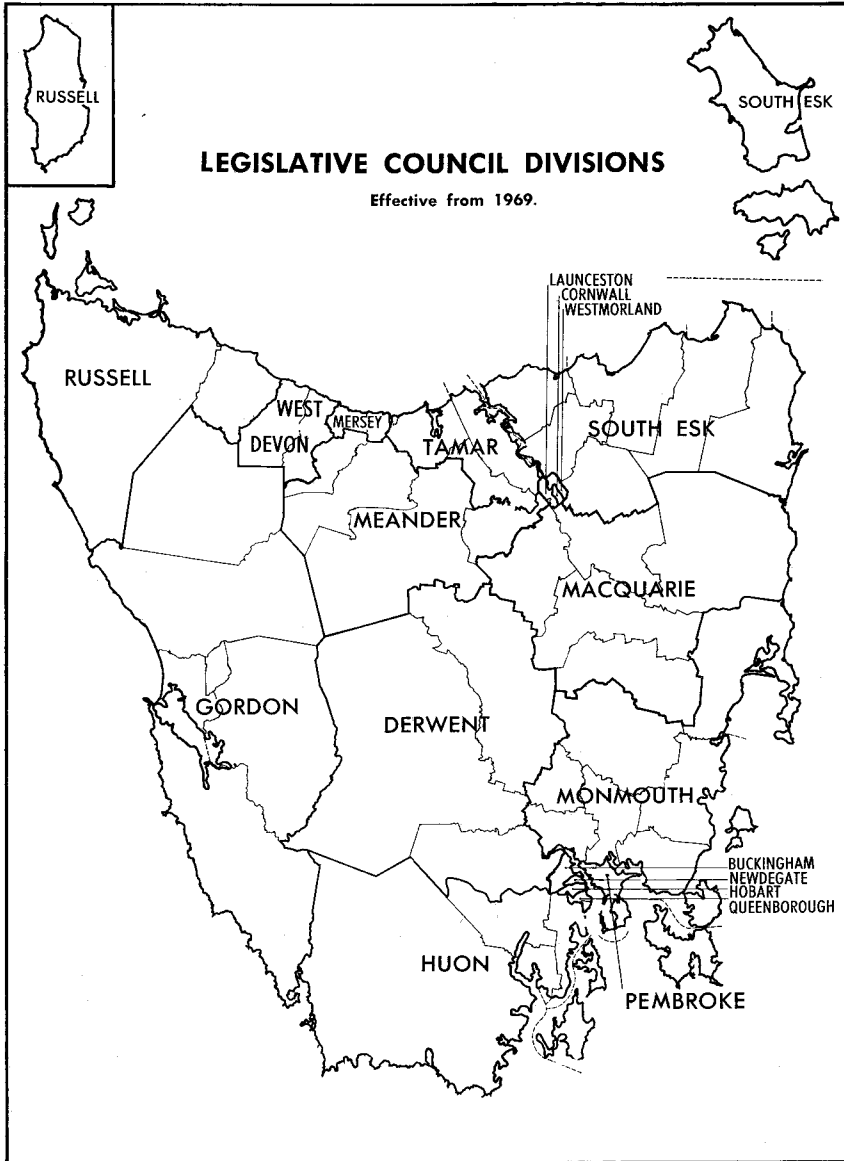
The vacating member's voting papers, as defined above, are examined and all his votes are transferred to the consenting candidates according to the preferences expressed thereon. Second preferences derived from first choice votes of the vacating member have a transfer value of one, but from votes he obtained by transfer, only the value at which he obtained them. For the purpose of the count, first-choice votes received by the consenting candidates at the general election are not relevant—the selection is based on preferences as revealed by the voting papers of the vacating member.

When the number of votes in favour of each consenting candidate has been ascertained, the final selection is by the method of the absolute majority through the alternative vote.

If no nominations are received from candidates unsuccessful at the last general election, then an election is held to fill the vacancy.

Legislative Council

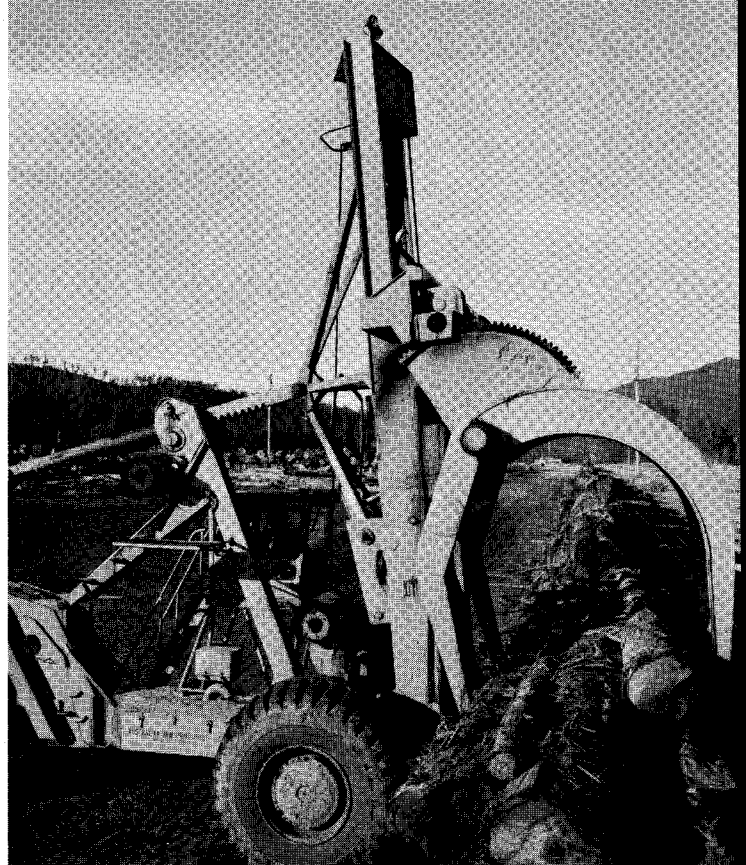
In the case of a vacancy occurring in the Legislative Council, a writ is issued directing that an election be held to fill the vacancy. There is no provision for a re-count of voting papers of the vacating member as in by-elections for the House of Assembly.



Produced by the Lands and Surveys Department, Hobart.

Boundary Variations

The map above shows the electorate boundaries following the 1967 amendment to the *Constitution Act 1934*. The boundary variations are discussed in detail earlier in this chapter on page 117.

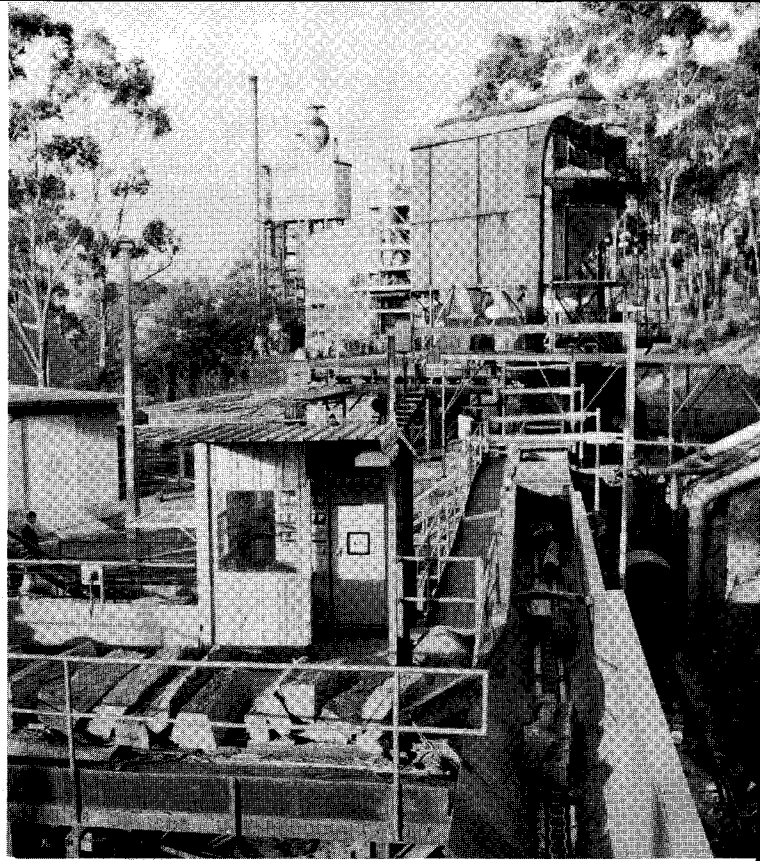


(Dept of Film Production
Skagit log loader near Maydena

Moving logs by road, Maydena area

(Dept of Film Production





(A.P.M. Ltd)

High speed conveyor and wood chipping plant, Geeveston

Australian Newsprint Mills Ltd, beside the River Derwent at Boyer

(Dept of Film Production)



Members of Legislative Council

The following shows members of the Legislative Council and the year in which each will retire:

Electoral Division	Member's Name	Year for Retirement
Buckingham ..	Lowrie, The Hon. Kenneth Francis	1974
Cornwall	Foot, The Hon. Geoffrey James (a)	1972
Derwent	Dixon, The Hon. Joseph Henry	1973
Gordon	Broadby, The Hon. Albert James (b)	1970
Hobart	Benjamin, The Hon. Phyllis Jean, M.B.E. (c)	1970
Huon	Hodgman, The Hon. William Michael	1972
Launceston ..	Shipp, The Hon. Raymond William (b)	1970
Macquarie ..	Shaw, The Hon. George Arthur	1974
Meander	Best, The Hon. Charles Robinson	1971
Mersey	McFie, The Hon. Hector	1972
Monmouth ..	Bisdee, The Hon. Louis Fenn	1975
Newdegate ..	Miller, The Hon. Brian Kirkwall (c)	1975
Pembroke ..	McKay, The Hon. Eric Charles	1971
Queenborough ..	Shoobridge, The Hon. Louis Manton (b)	1971
Russell	Fenton, The Hon. Charles Balfour Marcus	1975
South Esk ..	Carins, The Hon. Lloyd Horton	1974
Tamar	Hitchcock, The Hon. Daniel	1973
West Devon ..	Davis, The Hon. Walter John Torley	1971
Westmorland ..	Gregory, The Hon. Oliver Harold	1973

(a) Leader of the Government in the Legislative Council.

(b) Elected at a by-election: Hon. A. J. Broadby (29 June 1968); Hon. L. M. Shoobridge (28 September 1968); Hon. R. W. Shipp (21 December 1968).

(c) Endorsed by Australian Labor Party; balance of members independents.

Members of House of Assembly

The following shows members of the House of Assembly elected on 10 May 1969 and their party allegiance:

Electoral Division	Member's Name	Party Affiliation
Bass	Atkins, A. C. Barnard, M. T. C. Barrenger, T. A. Beattie, The Hon. E. W. Bushby, M. H. Foster, A. J. Henty, J. W.	A.L.P. A.L.P. Liberal Liberal Liberal A.L.P. Liberal
Braddon	Barker, The Hon. W. G. Breheny, J. G. Chrisholm, G. D. Costello, L. E. A. Lyons, The Hon. K. D. (a) Reece, The Hon. E. E. (b) Ward, S. V.	Liberal Liberal A.L.P. A.L.P. Centre A.L.P. A.L.P.

Members of House of Assembly—*continued*

Electoral Division	Member's Name	Party Affiliation
Denison	Abbott, The Hon. N. D.	Liberal
	Austin, K. E.	A.L.P.
	Baker, R. W.	Liberal
	Batt, N. L. C.	A.L.P.
	Bingham, The Hon. E. M.	Liberal
	Everett, M. G., Q.C.	A.L.P.
	Mather, The Hon. R.	Liberal
Franklin	Barnard, E. W.	A.L.P.
	Clark, The Hon. D. F.	Liberal
	Frost, S. C.	A.L.P.
	Gough, S. W.	Liberal
	Lowe, D. A.	A.L.P.
	Neilson, W. A.	A.L.P.
	Pearsall, G.	Liberal
Wilmot	Anderson, W.	A.L.P.
	Bessell, The Hon. L. H.	Liberal
	Bethune, The Hon. W. A. (c)	Liberal
	Braid, I. M.	Liberal
	Cashion, D. A.	A.L.P.
	Fagan, R. F.	A.L.P.
	Ingamells, C. R.	Liberal

(a) Deputy Premier in the Liberal-Centre Party coalition government.

(b) Leader of the Opposition.

(c) Premier of Tasmania.

Parliamentary Elections

House of Assembly

The last general election for the House of Assembly was held on 10 May 1969. The following table shows the voting in general elections held for the House of Assembly since 1931:

Assembly Elections Since 1931

Year of Election	Electors on Roll	Votes Recorded		Informal Votes	
		Number	As Percentage of Enrolled Electors	Number	Percentage of Total Votes
1931	118,730	112,779	95.0	3,885	3.44
1934	127,681	120,622	94.5	3,855	3.20
1937	132,001	124,460	94.3	2,997	2.41
1941	139,234	127,034	91.2	6,344	4.99
1946	157,756	143,674	91.1	14,484	10.08
1948	161,088	148,588	92.2	5,866	3.95
1950	161,650	152,785	94.5	6,841	4.48
1955	173,165	162,637	93.9	6,158	3.79
1956	174,632	166,293	95.2	6,968	4.19
1959	180,344	170,559	94.6	9,816	5.76
1964	193,364	184,571	95.5	7,980	4.32
1969	210,276	198,571	94.4	9,248	4.66

Electors on the joint rolls (for State House of Assembly, Federal House of Representatives and Senate elections) at 10 May 1969 numbered 210,276 distributed as follows: Bass, 41,098; Braddon, 43,356; Denison, 44,625; Franklin, 38,940; Wilmot, 42,257. In the Senate elections of 25 November 1967, voters numbered 193,307, distributed thus: Bass, 37,840; Braddon, 39,485; Denison, 33,473; Franklin, 46,772; Wilmot, 35,737.

The percentage of informal votes in the previous table is not particularly high, even though the voting papers for six or seven-member electorates are necessarily more complicated than those for single-member electorates. In Senate elections held in Tasmania, informal votes tend to be rather a large proportion of votes cast and, in the 1934 election, exceeded 16 per cent. In Assembly elections, only three preferences are compulsory whereas in Senate elections, the voter must indicate as many preferences as there are candidates.

Legislative Council

There are no general elections for the Legislative Council; three members retire each year except in every sixth year (e.g. 1971, 1976) when four members retire. At 28 February 1969 161,103 electors were enrolled. In the last six years, votes cast at the annual elections have varied from 71.5 to 91.8 per cent of enrolled electors in individual electorates. When a select Committee investigated boundaries in 1967 with revision as an aim, the electorate with the greatest enrolment was Pembroke (16,693) and with the smallest, Launceston (2,883). As from 1969, revised divisional boundaries will be in use but the new divisions by no means contain equal numbers of electors (see 'New Boundaries, Legislative Council Divisions' earlier in chapter).

Effectiveness of Hare-Clark System

Tasmania as a Single Electorate

Since voting for the House of Assembly requires a voter to make at least three choices in order of preference, any complete investigation of the effectiveness of the system requires a study of all preference votes. However, an approximate measure of effectiveness can be obtained by treating the State as a single electorate and finding the total first-preference votes obtained by each party; from these totals it is possible to calculate, by simple proportion, the theoretical share of seats to which each party is entitled. In the table that follows, this measure of effectiveness has been calculated for all House of Assembly elections in the period 1931-1969 inclusive. It will be seen that the relationship between seats actually won and the calculated proportionate share is fairly close in most years for the major parties. In 1955 and 1956, however, the allocation of preferences from non-elected candidates outside the two main parties must be taken into account. Similarly, in 1959, 1964 and 1969, the increase in the size of the House brought about by seven-member electorates appears to give the two major parties a slight surplus of seats over and above the calculated proportionate share, the major influence again being the allocation of preferences from candidates outside the two major parties. (At the 1969 elections, the contending parties were Australian Centre Party, Democratic Labor Party, Labor Party and Liberal Party, whilst a number of candidates stood as independents.)

Criticism of System

Following the 10 May 1969 election considerable criticism was made of the Hare-Clark preferential voting system. Critics claim that single member electorates would have more closely reflected the feelings of the electorate and would have ensured more equitable representation for all areas, rather than a concentration of members in a particular part of an electorate as is possible due to the large size of Tasmanian electorates. Of the 35 members in the House of Assembly 16 reside in the Hobart metropolitan area, 13 in other urban centres and only six in the rural areas of the state.

Representation of Parties for the Whole State, 1931-1969

House of Assembly

Election Year	Labor		Liberal or Nationalist (b)		Other (c)	
	Proportionate Share (a)	Seats Won	Proportionate Share (a)	Seats Won	Proportionate Share (a)	Seats Won
1931	10.47	10	16.92	19	2.61	1
1934	13.74	14	14.01	13	2.25	3
1937	17.61	18	11.64	12	0.75	..
1941	18.78	20	10.98	10	0.24	..
1946	15.29	16	10.27	12	4.44	2
1948	14.82	15	11.35	12	3.83	3
1950	14.59	15	14.27	14	1.14	1
1955	15.79	15	13.60	15	0.61	..
1956	15.08	15	13.08	15	1.84	..
1959 (d) ..	15.58	17	14.37	16	5.05	2
1964 (d) ..	17.97	19	13.47	16	3.56	..
1969 (d) ..	15.91	17	14.68	17	4.51	1

(a) State treated as single electorate and proportionate share of seats calculated on basis of first preference votes cast for parties.

(b) Liberal as from 1948 election.

(c) Independents and minority parties.

(d) 35 members elected.

Salaries of Members of Parliament

Committees of Enquiry

In determining the level of parliamentary salaries in State and Commonwealth legislatures, it has been fairly general practice in the last decade to establish committees of enquiry, the members of which are drawn from outside parliament. The committees of enquiry are required to make recommendations but their findings are treated by the parliaments as being merely a guide, and the legislation fixing new salaries and allowances has not necessarily followed the committees' recommendations in detail.

Parliamentary Salaries Tribunal

In 1962, the Tasmanian Parliament established a new principle by passing an Act for the setting up of a parliamentary salaries tribunal; this was to be a committee with members drawn from outside the Parliament but its findings, instead of being recommendations, were to be determinations binding on the Crown. Under Section 7 of the 1962 Act, 'a determination is binding upon the Crown' and 'where no date is specified in a determination as the date on which the determination is to come into force, the determination comes into force on the date on which it is made'. In effect, the Tasmanian Parliament has adopted the principle of wage and salary fixation by independent tribunal and placed its members in the same position as the great majority of workers whose remuneration is fixed by determinations of industrial courts.

The Parliamentary Salaries Tribunal heard evidence after the elections on 2 May 1964, and made a determination to come into effect as from 1 October 1964. It made its second determination in 1967.

A member of parliament receives a basic salary of \$6,000 and an additional amount if he holds a position of responsibility in the House or Party. In addition to salary, he also receives an electorate allowance which varies depending on the size of the electorate and its location.

Determinations of the Parliamentary Salaries Tribunal, 1964 and 1967
(**\$**)

Particulars	Rate Per Annum from 19.4.1962	Rate Per Annum from 1.10.1964	Rate Per Annum from 1.10.1967
BASIC SALARY OF MEMBERS			
Member, Legislative Council ..	3,700	4,600	6,000
Member, House of Assembly ..	3,700	4,600	6,000
SPECIAL RATES (GROSS) (a)			
Cabinet—			
Premier	(b) 8,100	(b) 10,000	(b) 13,300
Deputy-Premier	6,500	8,200	11,300
'Senior' Ministers	6,100	7,600	} 10,200
'Junior' Ministers	5,300	7,600	
Legislative Council—			
President	5,000	6,200	8,060
Chairman of Committees	4,400	5,400	7,300
Government Leader	5,900	7,000	9,100
Deputy Leader	4,350	5,250	6,800
House of Assembly—			
Speaker	5,000	6,200	8,060
Leader of Opposition	(c) 5,900	(c) 7,400	(c) 9,950
Deputy Leader	4,400	5,400	7,020
Chairman of Committees	4,400	5,400	7,300

(a) All rates include the basic salary received by the office-holder as a member.

(b) Excludes entertainment allowance of \$700 (1962 and 1964) and \$900 (1967).

(c) Excludes travelling allowance of \$400 (1962); \$500 (1964); and \$650 (1967).

Electorate Allowances: Parliamentary Salaries Tribunal, 1964 and 1967

Electorate	Rate Per Annum from 19.4.1962	Rate Per Annum from 1.10.1964	Rate Per Annum from 1.10.1967(a)
Legislative Council—			
(i) Buckingham	\$ 570	} 600	\$ 700
Hobart	550		600
Newdegate	550		600
Queenborough	500		600
(ii) Cornwall	770	} 750	600
Launceston	770		600
Westmorland	770		800
(iii) Derwent	920	} 900	1,100
Huon	880		1,000
Mersey	880		900
Tamar	1000		1,000
West Devon	770		900
(iv) Gordon	1000	} 1000	1,000
Macquarie	1000		1,100
Monmouth	1050		1,000
Pembroke	920		1,400
(v) Meander	1150	} 1100	1,200
Russell	1100		1,400
South Esk	1100		1,400
House of Assembly—			
Denison	1100	1100	1,100
Franklin	1450	1450	1,650
Bass	1500	1500	1,700
Braddon	1700	1700	1,900
Wilmot	1750	1850	2,100

(a) Ministers and Leader of Opposition receive only 75 per cent.

One effect of the 1964 determination was to remove the salary distinction between 'senior' Ministers and 'junior' Ministers; the tribunal found that the distinction rested solely on historical grounds. In 1967, provision was made to pay Ministers \$18 a week residential allowance if unable to return home each day.

The Tribunal also reviewed electorate allowances and arranged Legislative Council electorates into five groups, members from each group receiving the same allowance. It changed these relativities in 1967.

The previous salaries and allowances (dated from 19.4.62) were as suggested by a Board of Enquiry which reported in 1960.

The Tribunal in 1964 specified \$7.50 per day 'when Parliament sits payable to a Member (other than a Minister) who incurs expense in securing overnight accommodation away from his ordinary place of residence'. This was increased to \$10 in 1967. Also in 1967, home telephone rentals were to be paid for members.

ACTS OF STATE PARLIAMENT

Summary of Recent Acts

In the list that follows, the notation used is:

(A 1952)—An Act to amend an Act of the same title passed in 1952.

(R 1952)—An Act to repeal an Act of the same title passed in 1952.

(P 1952)—An Act to be incorporated and to be read as one with the Principal Act passed in 1952.

(RS 1952)—An Act to repeal an Act of the same title passed in 1952 and to substitute new legislation.

State Acts, 1967

Number	Short Title and Summary
1	Fire Damage Relief—assistance for victims of February fire disaster.
2	Marketable Securities—prescription of method of transfer, etc.
3	Stamp Duties (A 1931)—taxation affecting marketable securities, etc.
4	Supply 1967-68—appropriation of funds.
5	Plumbers' Registration (1951)—local authorities' rights.
6	Coroners (A 1957)—deaths on roads and criminal proceedings.
7	State Employees (Long Service Leave) (A 1950)—calculation of service; transferred employees.
8	Entertainments Tax (A 1953)—re-imposition of tax.
9	Audit (A 1918)—calculation of fortnightly, daily, etc. salaries.
10	Launceston Flood Protection (A 1960)—works management, powers of Board.
11	Stock (A 1932)—compensation for animals destroyed.
12	Wesley Vale Pulp and Paper Industry (A 1961)—variation in water rights.
13	Apprentices (A 1942)—attendance at classes; regulations.
14	Lands Resumption (A 1957)—compensation and value of land.
15	Public Authorities' Land Acquisition (A 1949)—miscellaneous provisions.
16	North Esk Regional Water (A 1960)—completion of works; schedule amendment.
17	Cosgrove Park (A 1962)—transfer of land.
18	Queen Victoria Maternity Hospital (A 1952)—the Board; appointment of chairman, etc.
19	Apple and Pear Crop Insurance (R Hail Insurance 1957)—setting up of fund and Board.
20	Education (A 1932)—capitation grants to private schools.
21	Kingborough Municipal Commission—validation of past actions, extension of term.
22	Burnie Marine Board Loan (A 1936)—extension of borrowing power.
23	Public Service Tribunal (A 1958)—fixation of salaries, review of determinations.
24	Mental Health Services—establishment of new Commission, etc.
25	Softwood Industry—financial agreement with Commonwealth for plantations.
26	Stamp Duties (No. 2) (A 1931)—tax variation.

State Acts, 1967—continued

Number	Short Title and Summary
27	Statutes Amendment (Basic Wage)—definition of basic wage in other Acts.
28	Licensing (A 1932, 1937, 1952, 1965)—restaurant licences; miscellaneous provisions.
29	Wages Boards (A 1920)—boards' powers, interim awards, union officials' entry, etc.
30	Hydro-Electric Commission (Power Development) (P 1944)—construction, Gordon River Scheme and Bell Bay thermal station.
31	Hydro-Electric Commission (A 1944)—flow in the Huon, level of Serpentine lake, conservation authority in south-west of State, etc.
32	Water (A 1957)—water levels.
33	Daylight Saving—creation of Tasmanian clock time.
34	Stamp Duties (No. 3) (A 1931)—Traffic Act applications; exemption of certain cheques.
35	Hydro-Electric Commission (Emergency Powers) (P 1944)—authority to cope with power shortage.
36	Maintenance (RS 1921)—matrimonial and affiliation proceedings, maintenance orders, local enforcement, reciprocal agreements for enforcement, etc.
37	Loan Fund Appropriation 1967-68—issue from Loan Fund.
38	Appropriation 1967-68—Consolidated Revenue Fund.
39	Supplementary Appropriation 1966-67—validation of some 1966-67 expenditure.
40	Land Tax (P Land and Income Tax 1910)—rates of tax.
41	Education (No. 2) (A 1932)—new titles, e.g. Director-General; other minor provisions.
42	Guide Dogs—to assist blind in public places and on public transport.
43	Devonport Marine Board Loan (A 1953)—extension of borrowing powers.
44	National Literature Board of Review—protection of members from legal action.
45	Circular Head Marine Board Loan (A 1950)—extension of borrowing powers.
46	Flinders Marine Board Loan (A 1952)—extension of borrowing powers.
47	Administration and Probate (A 1935)—succession on intestacy.
48	Trustee Companies (Amalgamation) (A 1953)—merger of two specified companies.
49	Elderly Citizens' Clubs and Youth Centres (A 1966)—approval of buildings; loans to municipalities.
50	Licensing (No. 2) (A 1932)—permits for social gatherings in hotels, etc.
51	Public Trust Office (A 1930)—miscellaneous provisions.
52	Evidence (A 1910)—affidavits, declarations, oaths.
53	Public Authorities' Land Acquisition (No. 2) (A 1949)—interest on compensation.
54	Constitution (A 1934)—Parliamentary sittings, Council elections, contractors; all money bills to originate in the Assembly.
55	Launceston Corporation (A 1963)—postal votes, vacancies, building estate roads.
56	Statutory Authorities' Reports—tabling of reports.
57	Marine (A 1921, 1963, 1966)—fees, change of authority title, fishing boats, etc.
58	Hospitals (A 1918)—recovery of cost of treatment from outside State, etc.
59	Superannuation (A 1938)—new scale of units.
60	Traffic (A 1925)—application of regulations to Crown.
61	Public Works Committee (A 1914)—travelling expenses.
62	Local Government (A 1962; A Hobart Corporation 1963 and Launceston Corporation 1963)—extensive provisions.
63	Petroleum (Submerged Lands)—complementary Commonwealth-State legislation dealing with oil in continental waters.
64	Hobart Corporation (A 1963)—new election provisions.
65	Electoral (A 1907)—changing rolls, postal votes, polling, bribery.
66	Public Service (A 1923)—provisions affecting married women.
67	Door to Door Sales—protection of purchasers.
68	Licensing (No. 3)—liquor in vicinity of public halls.
69	Crown Lands (Miscellaneous Provisions) (P 1935)—sale, transfer, etc. of specified properties.
70	Constitution (No. 2) (A 1934)—new Legislative Council boundaries.
71	Roads and Jetties (A 1935)—miscellaneous provisions.
72	Auctioneers and Estate Agents (A 1959)—the Council of agents; commissions.
73	Ex-servicemen's Badges—illegal wearing and possession.

State Acts, 1967—continued

Number	Short Title and Summary
74	Loan Guarantees (Electricity Generating Plant)—guarantees to specified companies purchasing generating plant.
75	Rural Fires (RS 1950, 1961, 1963)—a revised organisation for the Rural Fires Board; Rural Fire Brigades; new financial provisions, etc.
76	Local Government (No. 2) (A 1962)—special and local rates, fire protection, etc.
77	Fire Brigades (A 1945, 1964)—new Commission constitution, new position Chief Officer, etc.
78	Workers' (Occupational Diseases) Relief Fund (A 1954)—definitions and interpretation.
79	Factories Shops and Offices (A 1965)—continuation of control of hours of petrol sales.

State Acts, 1968

Number	Short Title and Summary
1	St John's Hospital Loan Guarantee—guarantee repayment of loan.
2	Ambulance Board of Southern Tasmania (Lands)—disposal of land owned by Southern Tasmanian Ambulance Transport Service Board.
3	Pear Subsidy—canning pear subsidy.
4	Tasmanian University (A 1951)—constitution of council, guarantee loans raised by affiliated colleges.
5	Nurses' Registration (A 1952)—constitution of Nurses' Registration Board, vacation of office and filling of vacancies, qualifications for registration as a nurse.
6	Legal Assistance (A 1962)—schemes for granting legal assistance.
7	Supply 1968-69—Consolidated Revenue.
8	Transport (P 1938)—authorise Transport Commission to carry on certain road transport services until 30 November 1968.
9	Loan Fund Supply 1968-69—appropriation of funds.
10	Advanced Education—facilitate provision of advanced education.
11	Rural Fires (Confirmation)—confirm <i>Rural Fires Act</i> 1967.
12	Cleveland Tin Loan Guarantee—guarantee repayment of loan.
13	Education (A 1932)—functions of Board of Technical Education, various other amendments.
14	Motor Vehicles Tax (A 1917)—exemption of fire-fighting vehicles.
15	Police Association Loan Guarantee—guarantee repayment of loan.
16	Public Account (A 1957)—repeal of section of original Act.
17	Mines Inspection—repeal of <i>Mines and Works Regulation Act</i> 1915, new provisions for inspection and regulation of mines and like works.
18	Ambulance (A 1959)—compensation for injuries, etc. to ambulance officers.
19	Physiotherapists' Registration (A 1951)—provisional registration.
20	Electric Power Development—Commonwealth-State financial assistance agreement for development of hydro-electric power.
21	Hydro-Electric Commission (A 1944)—Temporary borrowing powers, electrical mechanics' licences and permits.
22	Superannuation (A 1938)—transfer funds to Superannuation Board, conversion of certain annuities.
23	Lady Clark Geriatric Centre—transfer of Crown land to Lady Clark Geriatric Centre.
24	Local Government (A 1962, 1967)—dog tax, parking meter offences, right to establish parking meters, closure of metered spaces.
25	Weights and Measures (A 1934)—miscellaneous provisions.
26	War Service Land Settlement (A 1950)—disposition of land by the Board, residence, purchase, leases.
27	Public Service Tribunal (A 1958)—awards by consent.
28	Strahan Marine Board Loan (A 1963)—guarantee repayment of certain loans, borrowing powers.
29	Stamp Duties (A 1931)—duty on cheques, bankers' drafts, letters of credit, etc.
30	Albert Henry Jackson Pension (A 1931)—pension payable to Albert Henry Jackson.

State Acts, 1968—continued

Number	Short Title and Summary
31	Public Service Tribunal (No. 2) (A 1958)—miscellaneous provisions.
32	Sunday Observance—consolidate and amend Sunday observance legislation.
33	Adoption of Children (RS 1920, 1960)—provisions affecting adoption of children.
34	Disposal of Uncollected Goods—right to dispose uncollected goods.
35	Traffic (A 1925)—licensing of public vehicles, offences in relation to public vehicles, correction of <i>Traffic Act (No. 2)</i> 1964.
36	Long Service Leave (A 1956)—entitlement to long service leave, payment in lieu of long service leave on death of employee.
37	Primary Producers Relief—grant loans to drought affected farmers.
38	State Employees (Long-Service Leave) (A 1950)—calculation of length of leave, allowances to employees on death or termination of employment.
39	Huon Valley Pulp and Paper Industry (A 1959)—water rights.
40	Parliamentary Retiring Allowances (A 1955)—revise method of calculating parliamentary pensions.
41	Governor's Salary (A 1951)—increase salary of the governor and administrator.
42	Daylight Saving—promote daylight saving.
43	Supplementary Appropriation 1967-68—appropriation of funds from Consolidated Revenue.
44	Appropriation 1968-69—appropriation of funds from Consolidated Revenue.
45	Land Tax—rate of land tax for 1968-69.
46	Legal Practitioners (A 1959)—miscellaneous provisions.
47	Loan Fund Appropriation 1968-69—issue and application of moneys from Loan Fund, borrowing powers, satisfaction of certain expenditure.
48	Maintenance (A 1967)—maintenance of children, interim orders for maintenance.
49	Constitution (Disqualification Removal)—election and vacation of seat by Hon. J. R. Orchard.
50	Tasmanian Sanatorium (A 1950)—alteration of trust, vesting of site in Minister upon trust.
51	Stamp Duties (No. 2) (A 1931)—Stamp duty on insurance policies, sale of real or personal property.
52	Medical (A 1959)—special licences.
53	Wrest Point Casino Licence and Development (Referendum)—authorise referendum.
54	Constitution (No. 2) (A 1934)—amend boundaries of House of Assembly electoral divisions.
55	Transport Commission (Road Transport Undertaking Disposal)—authorise Transport Commission's disposal of 'Green Coach Line'.
56	Fisheries (A 1959)—miscellaneous provisions.
57	Appeal Costs Fund—establish a fund to meet appeal costs.
58	Registration of Births and Deaths (A 1895)—miscellaneous provisions.
59	Mowbray Heights War Memorial Hall (Transfer of Moneys)—sale of certain land situated at Mowbray Heights and handling of net proceeds from sale.
60	Marine (A 1921)—number and election of members on Flinders Island Marine Board.
61	Alcohol and Drug Dependency—treatment of alcoholics and drug addicts, repeal of earlier legislation.
62	Racing and Gaming (A 1952)—suspension and cancellation of bookmakers' licences.
63	State Employees (Long-Service Leave) (No. 2) (A 1950)—right of employee to retire, preservation of other rights.
64	Congregational Union (Shipwrights Point Land)—ownership of Congregational cemetery and right to dispose the land.
65	Primary Producers' Relief (No. 2) (A 1968)—loan terms, Commonwealth provision of funds.
66	Coroners (A 1957)—miscellaneous provisions.
67	Stamp Duties (No. 3) (A 1931)—miscellaneous provisions.
68	Constitution (A 1934)—qualifications of members of Legislative Council and Legislative Council electors.
69	Electoral (A 1907)—persons entitled to enrol on Legislative Council electoral roll.

State Acts, 1968—continued

Number	Short Title and Summary
70	Wheat Industry Stabilisation—marketing of wheat, powers of Australian Wheat Board.
71	Pulpwood Products Industry (Eastern and Central Tasmania)—establishment of woodchip industry in eastern and central Tasmania, granting of concession areas.
72	Audit (A 1918)—stamp duties.
73	Judges' Contributory Pensions—contributory pensions for judges of Supreme Court.
74	Traffic (No. 2) (A 1925, 1966)—production of licence, hearing of charges, cancellation of licences, Public Vehicles Licensing Appeal Tribunal, effect of disqualification on licences issued outside the State, incorporation of standards, alcohol content of drivers' blood.
75	Textile Products (Description) (A 1953)—prohibition of sale of textile products without a prescribed trade description being affixed.
76	Rural Fires (A 1967)—Hobart special fire area, compensation for injury or death of firefighters.
77	Criminal Code—abolish capital punishment.
78	Wrest Point Casino Licence and Development—development of Wrest Point Hotel, issue of casino licence.
79	Deceased Persons' Estates Duties (A 1931)—estate upon which duty payable, amendment of assessment, certificate from Commissioner before dealing with estate of deceased person.
80	Local Government (No. 2) (A 1962)—miscellaneous provisions.
81	Railway Management (Emu Bay Railway Employees)—employees transferring from Emu Bay Railway Co. Ltd to Transport Commission.
82	State Employees (Long-Service Leave) (Emu Bay Railway Employees)—application to employees transferring from E.B.R. to Transport Commission.
83	Education (No. 2) (A 1932)—powers of Schools Board of Tasmania, issue of certificates by the Schools Board.
84	Mining (A 1929)—officers holding interests in mines.
85	Superannuation (No. 2) (A 1938)—miscellaneous provisions.
86	Pesticides—control sale and use of pesticides, amend <i>Stock Medicines, Fertilisers and Pesticides Act</i> 1950.
87	Fluoridation—addition of fluoride to public water supplies.
88	Crown Lands (Miscellaneous Provisions)—miscellaneous provisions relating to Crown and other land.
89	Auctioneers and Estate Agents (A 1959)—licences, rules of practice, limitations on commission, advertising, and other provisions.

CASINO REFERENDUM

Introduction

Gambling in Tasmania, as in other Australian States and territories, is strictly controlled by legislation. Prior to the passage of the *Wrest Point Casino Licence and Development Act* 1968 through the Tasmanian Parliament, the principal Act covering gambling in Tasmania was the *Racing and Gaming Act* 1952. The following forms of gambling are permitted by this Act: (i) betting on horse and greyhound racing with registered bookmakers or on-course totalisators; (ii) lotteries for which a permit has been obtained from the Chief Secretary; (iii) authorised raffles; (iv) sweepstakes where total contributions do not exceed thirty dollars and the total sum contributed is paid out in prize money; (v) card games (providing they are not played in a public place) where all players have an equal chance and no player (or bank) retains a fixed percentage of the amounts wagered. Dice games, the Australian game of two-up (swy) and roulette, a game basic to casinos throughout the world, are all illegal under the Act's provisions. The Act also prohibits the establishment of a casino or similar gaming house.

Therefore in early 1968 when Federal Hotels Ltd approached the Tasmanian government for a casino licence the first step was the passage of special legislation legalising: (i) the establishment of a casino; (ii) games, including roulette, that were illegal under the *Racing and Gaming Act*. Accordingly the Premier, Mr Reece, introduced the *Wrest Point Casino Licence and Development Bill* to the House of Assembly in late 1968. (The main provisions of the *Wrest Point Casino Licence and Development Act* 1968 are discussed in a later section.)

Passage Through Parliament

The *Wrest Point Casino Licence and Development Bill* was introduced to the House of Assembly on 3 October 1968. This was the first in a series of moves which culminated in the casino referendum and final acceptance of the 'Casino Bill' by Parliament. Members on both sides of the Lower House expressed opposition to the casino proposal and it soon became apparent that the legislation would pass the House of Assembly with a majority of only one or two votes. As several members of the Legislative Council voiced strong opposition to the Casino proposal there was the possibility of its defeat in the Upper House.

After some debate on the casino legislation, the Premier announced to the House of Assembly on 31 October that he had decided to hold a referendum on the issue. The Premier's stated reason for the referendum was that since the casino would have an important impact upon the community and in view of the controversy aroused by the casino proposal the most democratic method of reaching a decision was to allow the Tasmanian voters to decide the casino's fate.

The *Wrest Point Casino Licence and Development (Referendum) Bill* was introduced to the House of Assembly on 31 October. Debate then continued on the 'Casino Bill' itself which passed the Lower House with a one vote majority on 8 November. The 'Casino Referendum Bill' received approval from the House of Assembly on 13 November and passed the Legislative Council on 21 November.

The *Wrest Point Casino Licence and Development (Referendum) Act* 1968 made it obligatory for (i) the publication of an argument, not exceeding one thousand words, in favour of the casino and authorised by a majority of members of Parliament supporting the establishment of a casino; (ii) an argument against the casino of similar length and authorised by a majority of members of Parliament against the establishment of a casino; (iii) both cases were to be printed in Tasmania's three daily newspapers (*Mercury*, *Examiner* and *Advocate*); (iv) publication in the three daily newspapers of the complete text of the 'Casino Bill'. The campaigns waged by the vote 'yes' and 'no' groups were intense and climaxed in the referendum of 14 December when all State electors were required to vote 'Yes' or 'No' on the following question: 'Are you in favour of the granting of a casino licence to Wrest Point Hotel conditional on the proposed development of that hotel?' The final outcome of the referendum was: Yes 96,839; No 85,862; Informal 8,339. The 'Yes' vote represented 50.7 per cent of the total votes cast.

In view of the wide publicity given to the 'Casino Bill', the electors had not only consented to the establishment of a casino but also had given approval to the provisions of the Casino Bill. Although several members of the Legislative Council gave notice of their intention to oppose the Legislation, on the 20 December the *Wrest Point Casino Licence and Development Bill* passed the Upper House with a four vote majority. (Only 12 members of the Legislative Council recorded a final vote on the Casino Bill.) The Bill received royal assent on 24 December.

Voting Pattern

While the voting indicates only a slight majority for the 'Yes' vote over the 'No' vote, the voting pattern is of interest. *Of the valid votes cast* the two southern electorates, Denison and Franklin, which have the most to gain or lose by the establishment of a casino, voted 57.7 and 59.9 per cent respectively in favour of the casino. Wilmot, an electorate covering central and eastern Tasmania, voted 50.2 per cent in favour. The two more remote northern electorates opposed the casino. The vote in Bass was only 47.5 per cent for the casino, while in Braddon the vote was 49.6 per cent in favour.

The following table shows how each electorate voted:

Casino Referendum Voting

Electorate	Number and Percentage of Votes Cast						Total Number of Votes Cast
	Yes		No		Informal		
	Number	Pro- portion of Total	Number	Pro- portion of Total	Number	Pro- portion of Total	
		per cent		per cent		per cent	
Bass	16,622	45.1	18,367	49.8	1,877	5.1	36,866
Braddon ..	18,453	47.0	18,736	47.7	2,079	5.3	39,268
Denison ..	22,407	55.9	16,407	41.0	1,241	3.1	40,055
Franklin ..	20,856	58.0	13,982	38.9	1,142	3.2	35,980
Wilmot ..	18,501	47.6	18,370	47.3	2,000	5.1	38,871
Total ..	96,839	50.7	85,862	44.9	8,339	4.4	191,040

Main Provisions of the Act

The *Wrest Point Casino Licence and Development Act* 1968 not only gave the Treasurer the right to grant a casino licence to Federal Hotels Ltd but it also contained provisions which ensured strict control of the casino operations.

The Casino Licence

The right to grant a casino licence is contained in *Section 5* of the Act which reads:

'5—(1) It shall be lawful for the Treasurer to grant the company a licence, to be known as a 'casino licence', for the purposes of, and in the circumstances set forth in clause 4 of the agreement.

(2) A casino licence shall—

- (a) specify to what proportion of the premises it relates;
- (b) specify what games have been authorised by the Treasurer pursuant to the agreement;
- (c) authorise the conduct and playing of such games in the casino;
- (d) be issued and renewed in accordance with the agreement and regulations;
- (e) be subject to compliance by the company with such directions as the Treasurer may give pursuant to the agreement; and
- (f) be subject to variation within the terms of the agreement or as prescribed by regulations not inconsistent therewith.'

The granting of the casino licence is conditional upon Federal Hotels Ltd carrying out a major developmental project at the Wrest Point Hotel which includes erection of a circular residential tower containing approximately 196 bedrooms and capped by a revolving restaurant and construction of a casino building. The company must also satisfy the Treasurer that the building project will be completed within a specified time and that the company is able to economically finance the venture.

Renewal of the casino licence is at the sole discretion of the Treasurer who may refuse the application on any one of the following grounds: (i) breach of any provisions of the casino agreement by the company; (ii) failure by the company to comply with the development requirements of the Act; (iii) the company is subject to a winding-up petition other than for the purposes of amalgamation or reconstruction; (iv) the company or any of its directors is convicted of a crime, which in the Treasurer's opinion renders the company unfit to carry on the business of the casino. The casino licence must be renewed on 1 July of each year, the licence fee being \$2,500. The Treasurer accepted the obligation not to issue any other company or individual with a licence to operate a similar establishment in southern Tasmania for a period of 15 years after the original Wrest Point Casino Licence is granted. Should the company fail to renew the licence or the Treasurer refuse a renewal application then the way is clear for the Treasurer to grant some other person or business a licence to establish a casino in southern Tasmania.

The Licensee

The casino licensee must be an employee of the holder of the casino licence who is charged with the management of the premises. The licensee by virtue of section 9, sub-section 2 of the Act is empowered to exclude from the casino premises any person whose honesty he has reasonable grounds to doubt. The Commissioner of Police may also give written notice to the casino licensee requiring him to exclude any undesirable person from the casino premises. Persons under the age of twenty-one are not permitted to enter the casino; their exclusion is the responsibility of the licensee.

Offences

Intentional or unintentional contravention of the Act or the provisions of the casino licence is punishable by a fine of \$2,000 or \$500 respectively. Excluded persons are also liable to a heavy fine if they refuse to obey the exclusion order.

Revenue

In addition to the \$2,500 annual licence fee the State government will levy a tax upon the monthly gross profits of the casino in accordance with the following rates:

Taxation Rates

Gross Profit for Month	Rate of Tax applicable to Gross Profit for each Day during that Calendar Month (a)
Less than \$25,000	5 per cent
\$25,000-\$125,000	5 per cent plus 0.25 per cent of every \$1,000 by which gross profit exceeds \$25,000 (b)
Greater than \$125,000.. ..	30 per cent

(a) Gross profits is defined as the total amount wagered less amounts paid out in winnings.

(b) Adjusted to the nearest \$1,000.

The method of accounting for the casino operations must be approved by the Treasurer who is empowered to give directions at any time as to how the casino accounts will be prepared. The Treasurer can also: (i) appoint persons to oversee operations of the casino; (ii) require the company to produce such information in relation to the casino operations as he thinks fit. These regulations not only help prevent contravention of the Act but assist in protecting the government's financial interest.

ADMINISTRATION

The Government of 1870

Introduction

The population of the colony was estimated as 100,765 on 31 December, 1870. During the twelve month period net migration increased the population by only 94. This minor rise reversed the trend of the previous year, 1869, when emigration exceeded immigration. While the colony was in its fourteenth year of self government, Great Britain remained in control of colonial defence and foreign affairs. In all other functions the embryonic state was independent.

Parliament and Cabinet

The legislature of the colony was divided into two houses; the House of Assembly with 30 members, and the Legislative Council consisting of 15 members. All electorates returned one member for each electorate except Hobart and Launceston, which each returned several members to both houses. James Milne Wilson, in the second year of his ministry, headed the Cabinet. Contrary to modern practice, he held his seat in the Legislative Council. The remaining members of the Cabinet, except for J. A. Dunn, were seated in the House of Assembly. T. D. Chapman (Colonial Treasurer), W. R. Giblin (Attorney General) and H. Butler (Minister for Lands and Works) completed the small cabinet of five men.

Imperial Convict Department

The colony still supported a convict population of 610 persons although transportation had officially ceased in 1853. Of those under detention 333 were being held for punishment, 91 were insane and 186 were listed as paupers. Some 39 officers of the Imperial Convict Department were employed to guard and care for the 610 convicts.

Salaries varied from £600 for James Boyd, Civilian Commandant to £15 for Jessie Todd, school mistress. The Medical Officer G. J. Dinham received £405/12/6 per annum, but, in addition to his medical work he acted as an assistant magistrate. The Imperial Government still financed the Port Arthur penal station and in 1870 spent £45,387 in maintaining the establishment.

Aborigines' Establishment

In 1869, under the miscellaneous officers of the colony's civil establishment, there appeared John Dandridge listed as Superintendent of Aborigines; at 31 December 1869 there were only two female aborigines residing at the Oyster Cove station. In the civil establishment list for 1870, John Dandridge's name and office are missing, the inference being that the Oyster Cove station was closed down. Truganini, thought to be the last full-blood aboriginal of the Tasmanian race, had a further six years to live.

Defence

The last Imperial troops were withdrawn from the colony in 1870. Although the colony should have been making some effort to raise a local defence force little headway appears to have been made, possibly due to the fact that Great Britain still remained in control of colonial defence. The volunteer corps, under the Governor, Charles Du Cane, who held the title of Captain-General, boasted of a total strength of seven officers and 181 other ranks. The entire force consisted of 3 artillery batteries; one located in the north and two in the south. Expenditure for 1870 amounted to £510.

Postal and Telegraph Services

In 1870, Tasmania had its own distinctive stamps and administered its own postal services, the Postmaster and Secretary to the Post Office, A. C. Douglas, receiving a salary of £350. In contrast, the salaries of country postmasters ranged from 26 shillings (one) to £50 (three). Telecommunications were in the hands of a separate department known as the Electric Telegraph, supervised by Francis Butler who, for a salary of £400 and forage, discharged the triple responsibility of Director of Public Works, Inspector of Telegraphs and Director-General of Roads. The communication chain with the other Australian colonies can be partly deduced from the civil establishment with operators listed at Brighton, Melton Mowbray, Oatlands, Campbell Town and Ross; Hobart, Launceston and Low Head are not listed but were obviously part of the chain. The total value of 20,536 messages transmitted during 1870 was £2,229/3/0; of the 20,536 messages only 11,354 were fully paid; 6,182 were free and 3,000 were classified as 'shipping messages'.

Law and Order

The civil establishment of 1870 lists a number of agencies concerned with law and order. These were: (i) Supreme Court with a Chief Justice at £1,500 and a Puisne Judge at £1,200; (ii) Stipendiary Magistrates, eight in number and widely distributed; (iii) Law Officers of the Crown, comprising the Attorney-General (a cabinet minister) at £700 and the Solicitor-General at £300; (iv) Sheriff's Department; (v) Inspector of Police's Branch with John Forster of Franklin's era in command and paid £600; (vi) Police Clerks' Branch; (vii) Gaol and House of Correction for Males, Hobart Town; (viii) a matching establishment for females; (ix) Penal Establishment, Launceston. Other legal work was carried out by the following agencies: (i) Lands' Titles and Registrar of Deeds Office; (ii) Commissioner of Insolvent Estates (an office held by John Whitefoord whose colonial service had begun in the days of Governor Arthur).

Charitable and Health Functions

In 1870, a number of institutions in the civil establishment were obviously concerned with social welfare and caring for the sick, although the names of some have a most uncharitable ring in modern ears. They were: (i) Cascade Pauper Establishment; (ii) Brickfields Pauper Establishment; (iii) Queen's Asylum (for destitute children); (iv) General Hospitals at Hobart and Launceston; (v) Hospital for the Insane, New Norfolk. Medical men did not command high salaries, the surgeons in charge of the Hobart and Launceston hospitals receiving only £350 and £250 respectively from government employment. The Surgeon Superintendent of the Hospital for the Insane, New Norfolk was the highest paid medical officer in the colony receiving an annual salary of £500.

Colonial Secretary's Department

In the days before self-government, the Colonial Secretary had been the chief official under the Governor and it was natural that some of the early Premiers should have taken this portfolio after 1856. This was J. M. Wilson's position in 1870 and, like other cabinet ministers holding an office, he received £700 a year. The Chief Secretary of today derives from the Colonial Secretary of earlier times, and the modern Premier's and Chief Secretary's Department owes its origin, in part, to this practice of the early Premiers.

Customs Department

A major source of government revenue in 1870 was customs duties and the civil establishment included Collectors of Customs at Hobart and Launceston, both in receipt of £500; the sub-ports were Leith, Torquay, Wynyard and Stanley. Officers in the department included landing waiters, warehouse keepers, tide waiters (in Launceston), weighers, markers, bonders and coopers. If some of these designations seem obscure, it is of interest only within the last few years has the Commonwealth Department of Customs given up using the term 'jerquer' to describe its own internal auditors.

Ecclesiastical Establishment

With our modern concept of the separation of Church and State, it is something of a surprise to find 29 ministers of religion listed as part of the civil establishment, with their salaries recorded alongside those of gaolers, constables, beadles and draftsmen. However, although the Colonial Treasurer provided the funds, he did not pay them directly to the ministers but to the governing bodies of the churches which then assumed responsibility for the salaries. The Church of England had 20 ministers on the civil establishment, salaries ranging from £200 to £310; the Church of Scotland, seven ministers, salaries ranging from £200 to £450; and the Church of Rome, two ministers at £250 and £310 respectively. The offices of the ministers are listed and they were obviously parish priests, in most cases.

Statistician's Department

Obviously in 1870 the Government Statistician was not a full-time officer since his salary was only £100 and his staff consisted of one clerk at £74. The Statistician, E. C. Nowell, was also recorded receiving £100 as Clerk of the Executive Council and £300 as Clerk of the Legislative Council. A glance at the *Statistics of the Colony of Tasmania* for 1870 shows that many of the returns were submitted and compiled by other authorities and that the Statistician, in some fields, was simply an editor; most statistics originated as by-products of government administration and there were very few direct collections initiated by the Statistician.

A New Department

The year 1870 was notable for the creation of a new body known as the Inspector of Sheep's Department, with a chief inspector drawing £500 in salary and allowances, and five subordinate inspectors drawing £250 in salary and allowances. In the following year, the department was again listed with this further explanatory note: 'The above salaries are paid out of the Scab Act Fund, which is paid into the Colonial Treasury, but forms no part of the public revenue'. This display of government interest in the condition of livestock was later to expand into wider fields and may be regarded as an early milestone along the road to the creation of a Department of Agriculture.

Embryonic Functions

In 1870, there was an Inspector of Timber Licences at £150 but no Forestry Commission; there were also Gold Commissioners for the West Tamar, Waterhouse and Fingal, but there was no Mines Department. These officers came under the Minister for Lands and Works. Education so much a drain on revenue today, required the services of only six officers in the civil establishment; these included the Chief Inspector at £450 and a second Inspector at £400 (the actual teachers themselves were excluded from the civil establishment). The Salmon Fisheries Commission bred the first brown trout hatched in the southern hemisphere in 1864. In 1870 23,390 salmon and brown trout ova and fry were distributed from breeding ponds.

The Government of 1970

The system of responsible government requires that the executive power of the State shall be exercised by the Cabinet; in exercising this power, the Ministers of the Cabinet are held responsible for the actions and administration of government departments and other governmental authorities which have been created for three basic purposes: (i) to put into practice the laws made by the Parliament; (ii) to give effect to the decisions of the Ministry; and (iii) to advise the Ministry on matters of policy.

The next section lists the departments and authorities under the various Ministers but the allocation of responsibility is subject to change and Cabinet has the power to vary it at any time. A detailed account of the work of the various departments and authorities appeared earlier in the *Year Book* series. Where a chapter reference is given, the reader will know that data on the department or authority appear elsewhere in this volume.

Premier, Treasurer and Minister in Charge of the Hydro-Electric Commission

Premiers' and Chief Secretary's Dept The Hydro-Electric Commission (Ch. 8) Treasury Dept (Ch. 11)	Supply and Tender Dept Government Printing Office Government Insurance Office
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Attorney-General, Minister for Police and Licensing

Attorney-General's Dept Solicitor General's Dept Supreme Court and Sheriff's Dept (Ch. 9) Magistracy Dept and Court of Requests (Ch. 9) Lands Titles and Registry of Deeds Dept	Parliamentary Draftsman's Dept Public Trust Office Registrar General's Dept (Ch. 5) Prisons Dept (Ch. 9) Police Dept (Ch. 9) Licensing Court (Ch. 9)
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Minister for Education

Education Department (Ch. 9)

Minister for Lands and Works and Local Government

Dept of Public Works (Ch. 12) Dept of Lands and Surveys Rivers and Waters Supply Commission (Ch. 4) Metropolitan Water Board (Ch. 4)	Dept of Film Production Town and Country Planning Commission (Ch. 4) Local Government Office
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Deputy Premier, Chief Secretary and Minister for Tourists

Audit Dept Public Service Commissioner's Dept Electoral Dept (Ch. 3) Dept of Labour and Industry (Ch. 10) Public Service Tribunal Dept (Ch. 10) Tasmanian Grain Elevators Board (Ch. 4)	Social Welfare Dept (Ch. 9) The State Library Fire Brigades Commission (Ch. 9) Rural Fires Board (Ch. 9) Miners Pensions Board (Ch. 11) Tourist and Immigration Bureau
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Minister for Agriculture and Forests

Dept of Agriculture (Ch. 6) Inland Fisheries Commission (Ch. 7) Animals and Birds Protection Board (Ch. 2)	Agricultural Bank of Tasmania (Land settlement function) (Ch. 6) Forestry Dept (Ch. 9)
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Minister for Development, Housing and Fisheries

Housing Dept (Ch. 9) Directorate of Industrial Development (Ch. 8)	Agricultural Bank of Tasmania (Housing function;) (Ch. 9) Sea Fisheries Division (Ch. 7)
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Minister for Transport, Racing and Gaming and Mines

The Transport Commission (Ch. 12) Metropolitan Transport Trust (Ch. 12)	Racing Commission (Ch. 11) Mines Dept (Ch. 7)
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Minister for Health and Road Safety

Dept of Health Services (Ch. 9)	Mental Health Services Commission (Ch. 9)
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- (a) The Supply and Tender Department, the Government Printing Office and the Government Insurance Office are listed as falling within the responsibility of the Treasurer but, by arrangement, they have been under the ministerial control of the Deputy Premier.

Chapter 4

LOCAL GOVERNMENT

GENERAL DESCRIPTION

Historical

Introduction

In Tasmania, the functions of local government are more restricted than in some other countries, due to the State Government taking direct responsibility for important services such as the police, education, housing, public transport, etc. This peculiarity is not confined to Tasmania and is encountered in the other Australian States, where central control is exercised over functions often delegated to local government authorities in overseas countries; the origin of this tendency probably lies in early colonial history when the continent was virtually empty but the apparatus of government existed at each of the new coastal settlements (Sydney, Hobart, Perth, Melbourne, Adelaide, and Brisbane, in order of age). In the Australian situation, strong central administrations came first and local government was a much later growth, the initiative for its creation often coming from the central administration itself in the respective colonies.

The development of local government in Tasmania falls into three distinct phases:

Hobart and Launceston

Hobart Town was granted elected commissioners in 1846, and under an Act of 1852, both Hobart and Launceston were given elected municipal councils. In 1857 the City of Hobart was incorporated, as was the Town of Launceston a year later. Launceston was proclaimed a city in 1888. For the next 76 years, these were the only two cities in the State, but in 1964 the number was increased to three when Glenorchy was granted city status.

The form of local government in Hobart and Launceston is governed by separate corporation Acts for each authority; in the case of Glenorchy, however, its operation as a city is provided for in the *Local Government Act 1962*.

Rest of State before 1906

Prior to the passing of the *Local Government Act 1906*, there was a great variety of elected Boards, Trusts, etc. in Tasmania, each in control of a district for certain specified objects, but they were all abolished by that Act. The principal local authorities were as follows:

Road Districts: The main legislation was the *Roads Act 1840*, the *Cross and Bye Roads Act 1851* and the *Main Roads Act 1880*. The general effect was to partition the State into districts and to set up elected bodies of trustees whose responsibility was confined to roads. In 1907, the last year in which the road trusts operated, there were 105 in existence.

Rural Municipalities: Under the *Rural Municipalities Act* 1858, any town, electoral, police or road district could be proclaimed a rural municipality with a council elected by the ratepayers. By 1865, 18 rural municipalities had been constituted and the whole State (excluding Hobart, Launceston and Tasman Peninsula) was divided into 30 areas, each to be a municipal district; this plan for the future did not make much progress for in 1907, the last year in which rural municipalities operated, there were only 19 in existence.

Town Boards: Under the *Town Boards Act* 1884, the Governor could constitute a town, provided that it was not situated within the boundaries of a rural municipality. Trustees elected by the ratepayers exercised the provisions of the *Police Act* with regard to the health and improvement of towns, and in 1885 every town was declared to be a road district. In 1907, the last year of operation of town boards, there were 23 in existence.

Other Authorities: The types of local authority described in the previous sections by no means cover the complete field. Examples of other authorities included fruit boards, rabbit trusts, boards of health, boards of works, recreation ground trusts and school boards. The general picture, to say the least, was one of complexity and confusion; the main need was obviously a reduction in the number of separate authorities and the creation of municipalities with responsibility for *all* local government functions in their respective areas. A simplification along these lines was achieved by the *Local Government Act* 1906.

Rest of State after 1906

At present, local government functions throughout the State, the relevant bodies being the Hobart, Launceston and Glenorchy city corporations and 46 municipalities. The genesis of this framework is found in the *Local Government Act* 1906 under which a commission was appointed to divide the State into not more than 60 districts and to subdivide each district into not less than three nor more than five wards, each ward including as nearly as practicable an equal rateable area. The Commissioners were empowered to adjust the boundaries of adjoining municipalities, provided that in so dividing the State any town might be deemed to be included or excluded from such boundaries. The cities (at that time, Hobart and Launceston) were not to be included, and were exempt from the provisions of the Act.

The Commissioners, in terms of the Act, divided the State into 49 districts but the later absorption of the municipalities of Queenborough and New Town into the City of Hobart reduced the number to 47; the granting of city status to Glenorchy in 1964 resulted in the present total of 46. When the Commissioners deliberated after the passing of the Act of 1906, the population of the State was under 190,000 and their decision to create 49 districts may seem somewhat extravagant. But in 1906, the motor car was still a novelty, roads were poor and the creation of fewer but larger districts would have made it extremely difficult for the elected councillors to meet with any regularity, or for municipal inspectors, etc. to travel in their area of supervision. In short, the districts were designed with the horse as the limiting factor.

Prior to the passing of the Act in 1906, the State had been split up into districts of different kinds, each controlled for a specific purpose by a Board, Trust or Council. The effect of the Act was to abolish all the separate districts as well as the rural municipalities and town boards and to set up new authorities, uniformly constituted and exercising similar functions.

Since the Act of 1906, there has come into effect a large body of legislation affecting local government and there has been some widening of function. Accordingly a new consolidating Act, the *Local Government Act* 1962, was passed and is now in operation.

City of Hobart

Description

The City of Hobart (42°54'S; 147°21'E) is the seat of the State Government and capital of the State of Tasmania. Founded in 1804, Hobart is the second oldest capital city in Australia.

The population of the City of Hobart was 53,257 and of the Hobart Metropolitan Area 119,469 at the Census of 30 June 1966. Estimated population at 30 June 1968 for the City of Hobart was 52,810 and for the Hobart Metropolitan Area, 123,500. Further detailed information on the population centred on Hobart is contained in Chapter 5, 'Demography'.

Hobart City, covering 30.8 square miles, is built on the plains and foothills below Mt Wellington (4,166 feet) on the west, and with the River Derwent on the east. The city has a first rate deep sea port where, during World War II, ships of up to 50,600 tons berthed without assistance. The eight mile road to the summit of Mt Wellington passes through an enormous natural park which is the source of part of the city's water supply. Hobart has a mild climate, and its attractions include its mountain, picturesque harbour, broad four-lane-bridged river, early colonial architecture, the Queen's Domain and nearby beaches.

Hobart City Council

The present council consists of 12 aldermen, including the Lord Mayor and Deputy; elections are held every two years when six aldermen retire. The Lord Mayor and Deputy Lord Mayor are elected by the ratepayers at each biennial election; only aldermen of two years, or more, service are entitled to stand for election to these two offices. Candidates do not stand for wards, and all ratepayers can vote for the filling of vacancies. Elections were held in June 1964, 1966, 1968, etc. An amendment to the *Hobart Corporation Act* in 1967 required electors to vote for at least six candidates in choosing aldermen; previously an elector could cast a valid vote even if he only chose one candidate (although there were six vacancies to fill).

Historical Development

In 1846, Hobart was divided into five wards, each electing three commissioners to deal with lighting, draining and paving; an elected municipal council was established in 1852 and, in 1857, Hobart Town was proclaimed a city. Its graceful Town Hall was completed in 1866. The city was enlarged by the absorption of Glebe Town, Mt Stuart, Wellington, Queenborough and New Town between 1907 and 1920. The number of aldermen was last varied in 1934 (to 12), the year in which the title Lord Mayor was bestowed by Royal Command.

Description

City of Launceston

Launceston owes its origin to Lieutenant-Colonel Paterson who made a settlement lower down the Tamar in 1804 but moved upstream in 1806 to seek better land. The 10.9 square mile city surrounds the source of the Tamar River where it is formed by the confluence of the North Esk and South Esk Rivers. The Tamar is navigable along its 42 miles to Bass Strait. There are interstate berths in the city but the deepwater berths are downstream at Bell Bay, Beauty Point and Inspection Head, all within seven miles of the entrance to the Tamar.

The population of the City of Launceston at the time of the Census of 30 June 1966 was 37,217; estimated population at 30 June 1968 was 36,880. For statistical purposes Launceston is grouped with suburban portions of neighbouring municipalities to form 'Urban Launceston', population 60,456 at 30 June 1966; 61,870 persons at 30 June 1968. An extensive explanation of 'Urban Launceston' and the statistical concept involved will be found in Chapter 5, 'Demography'.

The city is well endowed with parks and gardens. One of the best known is the First Basin Reserve through which the South Esk River flows in Cataract Gorge, providing a spectacle in flood-time. In common with Hobart, Launceston has many well preserved examples of colonial architecture.

Because of its position, Launceston is the focal point for the State's transport and communication networks. Launceston has been described as the 'capital of the North', and has numerous retail, cultural, governmental and judicial associations with northern and north-eastern Tasmania.

Launceston City Council

The council consists of nine aldermen including the Mayor. The Mayor is chosen each November by the aldermen. Elections are held each year when the three aldermen who have been in office for three years retire; they may stand for re-election if nominated. All property owners and occupiers, their spouses, and ex-servicemen residents are entitled to vote.

Historical Development

The first seven-member council was elected in 1853 and in 1858 the Town of Launceston was incorporated under the title of 'the Mayor, Aldermen and Burgesses of the Town of Launceston'. It was proclaimed a city in 1888 and was enlarged in 1907 by absorbing the towns of Invermay and Trevallyn. Its present form of local government is provided for in the *Launceston Corporation Act* 1963 as amended.

City of Glenorchy

Description

The relatively new City of Glenorchy (46 square miles), like the City of Hobart (31 square miles), is bounded on the east by the Derwent estuary, and on the west by a chain of steep hills and mountains. The built-up areas of the two cities meet at New Town Creek and, from this boundary, Glenorchy stretches north to Granton near the Bridgewater causeway. In terms of environment and scenic beauty, Hobart and Glenorchy have much in common, the younger city being a northern extension of the older.

The Glenorchy 1966 Census population of 39,053 persons increased to an estimated 40,900 persons at 30 June 1968. For statistical purposes the densely settled parts of Glenorchy are grouped with similar contiguous parts of Hobart and its suburbs to form the Hobart Metropolitan Area.

Glenorchy City Council

The City of Glenorchy is divided into three wards (east, west and central) and each ward is represented by four aldermen, whose period of office is four years. Half the aldermen retire at two-year intervals when elections are held (i.e. six aldermen are elected biennially). The Mayor and Deputy Mayor are also chosen by the ratepayers at the biennial elections, but only hold office for two years. Glenorchy became a city on 24 October 1964; prior to this date, each ward had had three councillors and the councillors had themselves elected a Warden.

Historical Development

The *Rural Municipalities Act* 1858 gave Glenorchy residents the chance of local self-government but boundary disputes between residents of Glenorchy and New Town delayed recognition of the Glenorchy boundaries until 1864. The then rural municipality was defined in much the same way as the present City of Glenorchy. In 1936 financial difficulties led to government intervention and a three man commission controlled municipal affairs until 1942 when a new council was elected. On 24 October 1964, Glenorchy was granted city status and almost exactly one year later (22 October 1965) the Municipal Commission issued its report recommending *inter alia* that the densely settled parts of Glenorchy should be incorporated in a new city to be known as Greater Hobart.

The Town of Burnie

Description

Burnie, situated on the north-west coast and about 100 miles from Launceston, is the principal industrial and commercial centre of Tasmania's north-west region. Urban Burnie is bordered on the east by the Blythe River and on the west by the Cam, giving it an east-west extent of almost nine miles. The pattern of urban development has been heavily influenced by physical geography; the far-eastern suburbs being severed from the town proper by rugged hills extending down to the coast line. Urban development first concentrated on the semi-circular coastal plain surrounding Emu Bay. The steep scarp fringing the narrow coastal plain between the Emu and Cam Rivers acted as a natural barrier to inland expansion. However, expansion beyond the scarp in a south and south-westerly direction from the main business centre has accompanied the rapid post-war growth of the town. The urban belt now approaches three and a half miles, at its widest point. Westward of the business centre the town follows the narrow coastal plain to the Cam River. Thus, when viewed from the air the town is an inland bulge in an area to the south-west of Emu Bay with narrow arms extending to the east and west.

The advent of the Associated Pulp and Paper Mills in 1938 and the establishment of the Australian Titan Products Pty Ltd's pigment factory at Heybridge in the late 1940's gave tremendous stimulus to the town's growth. The population of Burnie at the 1947 Census was only 7,235 persons but by the 1966 Census the population had increased to 15,806 persons. The rapid population growth has placed a heavy demand on the Council for the supply of sewerage, water and street facilities.

The town possesses excellent sporting facilities, which include the West Park Oval, an olympic swimming pool, soccer and hockey grounds and several centres for indoor sports. The Burnie Park combines a natural bush setting with lawns and gardens only a few minutes' walk from the town centre. Fern Glade, famous for its profusion of manferns and Round Hill, from which a panoramic view of Burnie and its surroundings can be obtained, are both easily accessible from the town's business area.

The A.P.P.M. is one of the largest paper making complexes in the southern hemisphere. In addition to paper the company produces hardboard, sawn timber and pulp at its Burnie site. Other industries include the production of paint pigments, food processing and the engineering workshops of the Emu Bay Railway Co. Production of sulphuric acid will shortly be added to the town's list of industries.

Burnie's port, immediately adjacent to the business area, is the principal port of the north-west, the major export items being paper products, paint pigments, timber, potatoes, butter and meat. Facilities include a tanker berth located at an island break water, a roll-on roll-off ferry terminal, heavy duty cranes and extensive marshalling yards. (A more detailed description of the Port of Burnie is contained in the *Marine Boards* section of the *Trade, Transport and Communications* chapter.)

Burnie Municipal Council

The twelve member council is elected by rate payers of the four municipal wards; each ward being represented by three councillors. Councillors are elected for a three year term, one seat in each ward falling vacant every year. The Warden is elected by the councillors.

Historical Development

First settlement was made by the Van Diemen's Land Company in 1829; the name of the settlement then being Emu Bay. In 1832 the settlement was renamed Burnie. Growth was slow; by 1853 the population was only 200 and by 1880 it had reached 300 persons. The first post office was opened at Burnie in 1865 and it was another fourteen years before the telephone reached the small town. Modern port facilities at Burnie date back to 1886 when McGaw pier was commenced. In 1891 Jones pier was added.

Before 1908 local government administration had been entrusted to town boards and road trusts. However, on 6 January 1908 the Burnie municipal council met for the first time. The election procedures, number of wards and number of councillors have not been varied since the inception of the council.

One of the most important events in the town's recent history was the decision taken by the A.P.P.M. company to establish its factory at Burnie. Employment opportunities created as a result of this decision have been largely responsible for the town's accelerated growth rate in the period since 1938.

Local Government—Present Organisation

Authority and Functions

The authority for and the forms of local government are prescribed entirely by State legislation and such legislation has largely been consolidated in the *Local Government Act* 1962. Hobart and Launceston cities operate under their own separate corporation Acts but the other authorities, including the City of Glenorchy, operate under the Act of 1962.

The functions of the municipalities are set out in broad general terms in Section 176 of the *Local Government Act* as:

'A Municipality: (a) may for the welfare and good government of its district and the inhabitants thereof: (i) make by-laws; (ii) undertake, make and maintain works, buildings and services; and (iii) order and dispose the common affairs of its members; and (b) shall cause the Queen's peace to be kept and maintained within its districts.'

Particular authority is given by Section 180 for a council clerk to be a Deputy Clerk of the Peace, Registrar of the Court of General Sessions and Clerk of Petty Sessions in his municipality.

Administration of Justice

This responsibility of the municipality to administer the lower courts of justice is confined to Tasmania and it would appear to be a carryover from the very early days of local government when the municipality was required to provide the police force as well. In all other States, the administration is in the hands of a State department. The practice here would now appear to be continued by reasons of expediency. (It should be noted that the process of removing this function from the municipalities has already commenced because the lower courts in the cities of Hobart and Glenorchy and the municipalities of Clarence and Kingborough are administered by the State. It should also be noted that where municipalities administer the courts, they receive all fines into their revenue, and in some instances the council clerks receive additional salary for this court work.) In addition, by certain Acts, the municipalities are given specific responsibilities, e.g. *Health Act*, *Local Courts Act*, etc.

Electors

The electors are natural born or naturalised British subjects who either:

- (a) own land within the municipality;
- (b) occupy land within the municipality;
- (c) being neither owner nor occupier, are spouses of such owners or occupiers, and are enrolled as voters for an Assembly division;
- (d) being neither owner nor occupier, are discharged servicemen.

Generally speaking, but with unexpectedly complicated modifications where land is shared, etc., owner-electors and occupier-electors have each from one to four votes depending upon the annual value of the land. Each spouse-elector and ex-service elector has one vote.

A municipality may be divided into three, four or five wards or be undivided. If the former, the electors elect representatives for their own ward; if the latter, the election is for the whole council.

Councillors

A councillor must be an elector of and either reside in, or carry on business in, the municipality and he is subject to disqualification for certain breaches of conduct. He is elected for three years and one-third of the council retires each year. Councils may comprise 6, 9, 12 or 15 councillors. Councils annually elect their Warden, Deputy Warden and Treasurer. (The electors of the City of Hobart elect the Lord Mayor and in Glenorchy, the electors elect the Mayor.) The office of Warden is comparable with that of the Mayor of a town or the President of a shire in other States.

Government Intervention

For any of a number of reasons, the Minister administering the *Local Government Act* may consider it necessary to recommend suspension of the elected councillors and the appointment of officers to carry on municipal government. In 1969, Kingborough, Clarence, Zeehan and St Leonards were being administered by commissions appointed by the Governor. Provision exists under the Act for the restoration of elected councils, subject to certain conditions being satisfied.

Cities, Municipalities and Towns

In Tasmania there are only two categories of local government: a municipality or a city. The Act provides for the establishment of towns and indicates requirements before such towns are proclaimed, but these are not municipal administrative units. It would seem that the only reason for the proclamation

of an area as a town is to bring into action certain provisions relating to rating and to building requirements. Before a municipality can petition for a town to become a city, the town must have had, for five years before the petition, a population of not less than 20,000.

Other than this population requirement for a city, there are no provisions such as exist in some of the other States and in Canada for enlarging or diminishing the status of municipalities to accord with increasing or decreasing population.

Sources of Revenue

There are four main sources of revenue, namely rates, Government grants, business undertakings and services. The rates are levied at so much in the dollar on the assessed annual value without any fixed maximum. The amount of rates paid is, generally speaking, unequal to the cost of supplying the services which have, in the last thirty years, increased considerably in both range and expense. The Government grants are a recognised means of increasing the revenue of municipalities.

The municipalities are unable to collect any rates for land owned by the Crown but where services are provided, the Crown does pay for such services. Grants and subsidies are made, generally speaking, to assist the municipalities to meet the overall costs of municipal government and sometimes the grant is made to assist in a particular project. Grants are sometimes made to induce the councils to undertake the provision of certain services or to develop those services. Grants may also be made in order to assist in paying the costs of particular services which are shared by two or more adjoining municipalities. Earnings from business undertakings include charges for the supply of water and for the use of abattoirs. Some of these businesses show a small profit but, in most cases, the fees demanded are usually only just sufficient to cover the cost of providing the services.

In the matter of water supply, where a number of local government areas could be served from a common source, the State Government did not consider a system of individual grants adequate and created two statutory authorities to act as 'wholesalers', the affected local government authorities acting as 'retailers'. This development is described later in the chapter under 'Water Supply and Sewerage'.

Municipal Commission

Provision was also made in the *Local Government Act* 1962 for the appointment of a commission, to be called the Municipal Commission. The Commission is a permanent body, whose members hold office for five years. The prime function of the Commission was to inquire into and report to the Governor not later than December 1965:

- (i) whether any existing municipality had insufficient financial resources for the proper performance of its functions and, if so, what re-arrangements were best for strengthening or disposing of it;
- (ii) whether any town had boundaries substantially different from those of the actual town and, if so, what ought the boundaries to be;
- (iii) on the division of the State into counties and how that division might best be brought into conformity with the Act or subparagraph (iia) and, if so, what special powers it should have in what municipalities and whether any of those municipalities should be reduced in status;

- (iii*a*) on the division of the State into municipalities and whether any and, if so, what changes should be made by the enlargement and contraction of municipal boundaries and the creation and abolition of municipalities, by reason of changes in population, industry (primary and secondary), means of communication and transport, and urban development, and
- (iv) whether the establishment of the county council was a reasonable alternative to a recommendation under sub-paragraph (i).

On completion of its report, the Commission is required from time to time as directed by the Governor to inquire into and report on similar questions of amalgamation, abolition, etc. affecting municipalities.

REPORT OF MUNICIPAL COMMISSION

Main Recommendations

On 22 October 1965, the Municipal Commission issued, in the one publication, seven reports containing, as its principal recommendations, proposals for a reduction in the number of local government authorities from 49 to 20. Since the recommendations involve the partition of some existing areas, this terminology is used in the following summary table:

- (U) the urban portion of a local government area adjacent to Hobart or Launceston;
- (C) the non-urban portion of a local government area adjacent to Hobart or Launceston;
- (P) a fraction of any local government area other than those adjacent to Hobart and Launceston.

Changes Recommended by Municipal Commission

Local Government Bodies Recommended	Description of Constituent Parts (In Terms of Present Cities and Municipalities)
Greater Hobart (City) ..	Hobart; Glenorchy (U); Clarence (U); Kingborough (U)
Municipality—'A'	Kingborough (C); Esperance; Huon; Port Cygnet; Bruny.
'B'	Clarence (C); Spring Bay (P); Richmond; Sorell; Oatlands (P); Tasman.
'C'	New Norfolk; Hamilton; Glenorchy (C).
Greater Launceston (City) ..	Launceston; Beaconsfield (U); Westbury (U); St Leonards (U); Lilydale (U); Evandale (U).
Municipality—'D'	Beaconsfield (C); Lilydale (C); George Town.
'E'	Westbury (C); Deloraine.
'F'	Evandale (C); St Leonards (C); Longford.
King Island ..	King Island (No change).
Flinders ..	Flinders (No change).
Circular Head ..	Circular Head (P).
Burnie	Burnie (No change).
'G'	Circular Head (P); Wynyard; Waratah; Zeehan (P).
'H'	Kentish (P); Ulverstone (P); Penguin.
'I'	Kentish (P); Ulverstone (P); Devonport; Latrobe.
'J'	Scottsdale, Ringarooma; Portland (P).
'K'	Portland (P); Fingal; Glamorgan.
'L'	Queenstown, Gormanston, Strahan, Zeehan (P).
'M'	Bothwell (P); Campbell Town; Ross (P).
'N'	Green Ponds; Bothwell (P); Brighton; Spring Bay (P); Ross (P); Oatlands (P).

Effect of Recommendations

As indicated in the previous table, formation of the 20 recommended new administrative authorities involves the partition of some existing municipalities and cities; the number so affected is 17. In some cases, e.g. Spring Bay, Oatlands and Ross, the areas to be excised are extremely small and merely correspond with properties which are illogically partitioned by existing boundaries. In the case of Portland, the recommended change will have the effect of bringing under one authority a township at present partitioned between two authorities by a river boundary (Scamander River). The greatest changes, from the aspect of area, are proposed in relation to Bothwell (severance of the Great Lake Ward), Circular Head (severance of area east from the Detention River) and Kentish (severance of Wilmot ward).

The other major change affects Hobart and Launceston where it is envisaged that the urban areas of 'fringe' municipalities should be joined with the inner cities to form a Greater Hobart and a Greater Launceston.

The following table gives details of partitions recommended by the Municipal Commission:

Partitions Recommended by Municipal Commission

Present Local Government Authority	Partition of Existing Areas	For Incorporation As Part Of:
Glenorchy ..	(i) Urban development along Derwent (ii) Balance of City of Glenorchy	Greater Hobart Municipality 'C'
Clarence	(i) Urban development, from Risdon Vale to Tranmere inclusive (ii) Balance of Municipality	Greater Hobart Municipality 'B'
Kingborough ..	(i) Urban development known as Taroona, Kingston and Blackmans Bay (ii) Balance of Municipality	Greater Hobart Municipality 'A'
Spring Bay ..	(i) Small area on Little Swanport River on Oatlands municipal boundary (ii) Balance of Municipality	Municipality 'N' Municipality 'B'
Oatlands	(i) Small area near Woodsdale on Spring Bay municipal boundary (ii) Balance of Municipality	Municipality 'B' Municipality 'N'
Beaconsfield ..	(i) Urban development known as Riverside and Riverside North (ii) Balance of Municipality	Greater Launceston Municipality 'D'
Westbury ..	(i) Urban development known as Prospect Vale (ii) Balance of Municipality	Greater Launceston Municipality 'E'
St Leonards ..	(i) Urban development known as Kings Meadows, Youngtown, Prospect, Waverley, Ravenswood and the town of St Leonards (ii) Balance of Municipality	Greater Launceston Municipality 'F'

Partitions Recommended by Municipal Commission—*continued*

Present Local Government Authority	Partition of Existing Areas	For Incorporation As Part Of:
Lilydale	(i) Urban development known as Newnham, Alanvale, Mayfield and Rocherlea (ii) Balance of Municipality	Greater Launceston Municipality 'D'
Evandale	(i) Small triangle, southern end of Franklin Village (ii) Balance of Municipality	Greater Launceston Municipality 'F'
Circular Head ..	(i) Large area west of Wynyard boundary back to Detention River (ii) Balance of Municipality	Municipality 'G' Circular Head
Zeehan	(i) Town of Corinna (ii) Balance of Municipality	Municipality 'G' Municipality 'L'
Kentish	(i) Wilmot Ward (ii) Balance of Municipality	Municipality 'H' Municipality 'I'
Ulverstone ..	(i) Small portion of Town of Forth (ii) Balance of Municipality	Municipality 'I' Municipality 'H'
Portland	(i) Scamander area north of Scamander River (ii) Balance of Municipality	Municipality 'K' Municipality 'J'
Bothwell ..	(i) Large area being the whole Great Lake Ward (ii) Balance of Municipality	Municipality 'M' Municipality 'N'
Ross	(i) Small area on Lake Crescent on Oatlands municipal boundary (ii) Balance of Municipality	Municipality 'N' Municipality 'M'

Implementation of Recommendations

The Governor may give effect to the recommendations without further legislation (with one exception) once certain rights of appeal have been exercised by 'persons aggrieved', a term defined in the Act to include any municipality whose existence or boundaries are recommended to be ended or altered. The exception relates to the merging of Glenorchy into Greater Hobart; to effect this, new legislation would be required.

Thirty-nine municipalities have petitioned against the recommendations while three have counter-petitioned in favour; in addition, six opposing petitions have been lodged by other parties. The Act provides that the Commission shall hear evidence in support of the petitions and then recommend to the Governor either (i) the original plan as amended, or (ii) the original plan without amendment. The hearing of petitions commenced in September 1966, was interrupted by legal objections and finally commenced again in late March 1967. Nearly 20 petitions had been heard *with regard to fact* by July 1967, when the Commission itself suspended hearings to obtain legal rulings from the Supreme Court. A major point to be determined was whether the report itself was valid, since individual Commissioners had been absent at various stages of the enquiry. In December 1968 a Supreme Court judgment gave a number of municipalities the right to challenge the validity of the Municipal Commission's Report. At present an appeal relating to the legality of the report is pending to the High Court of Australia.

PLANNING AUTHORITIES

Town and Country Planning Commissioner's Office

Introduction

Before the Federal Labor Government took office in 1941, governments (both State and Commonwealth) had shown little interest in townplanning legislation. The war-time Federal Labor Government encouraged activity in this field and in the period 1944-45 four States, including Tasmania, passed legislation with provisions largely based on existing British and New Zealand planning statutes.

The Tasmanian *Town and Country Planning Act*, passed in 1944, only applied to areas which were proclaimed as a result of municipal request. The Act created the position of Town and Country Planning Commissioner and made him responsible to the Minister for Lands and Works; any decisions made by the Commissioner are subject to ministerial approval. In 1962 the *Town and Country Planning Act* was repealed and its provisions incorporated in *Part xviii* of the *Local Government Act* 1962. The powers of the Commissioner were broadened and he could require any municipality to prepare a planning scheme.

The Governor appoints the Commissioner for a period not exceeding five years and the Commissioner's tenure of office may be terminated at any time by the Governor. The Commissioner is also a member of the following bodies: the Municipal Commission; the Building Regulations and Nomenclature Boards; the co-ordination of Mapping Committee

The Town and Country Planning Commissioner's office exercises statutory power in its own right, but for administrative convenience it is regarded as a branch of the Public Works Department. The office consists of the Commissioner, the Deputy Commissioner, a position created in 1963, and a small staff. The Town and Country Planning Commissioner's office should not be confused with the Southern Metropolitan Planning Authority, described next in this chapter.

Functions

Briefly the function of the Commissioner is to approve municipal planning schemes and to certify that subdivision proposals are in accordance with the schemes and meet the other requirements as laid down in the *Local Government Act*. Also the Commissioner may require: (i) any municipality to prepare a planning scheme; (ii) two or more municipalities to co-operate in the preparation of a master planning scheme; he is empowered to specify the completion date for such schemes. If the municipality fails to comply with the Commissioner's request, then the Commissioner may prepare a scheme for that municipality and the municipality must meet all the preparation costs of the scheme. A municipality may voluntarily prepare a planning scheme and submit it to the Commissioner for approval. If a scheme is prepared for an area to which a master plan applies and submitted to the Commissioner for approval then the Commissioner, before giving a decision, must consult the authority which prepared the master plan.

The Commissioner is also empowered to deal with objections to any planning scheme, including master plans prepared by a master planning authority.

In relation to subdivisions, the Commissioner's approval is required because all activities of this nature, other than rural subdivisions, are subject to *Part xviii* of the Act.

Legal Procedure

After the Commissioner has given provisional approval to a plan, the municipality must give public notice of the scheme and place a copy in the municipal office for public inspection. The period allowed for objections is three months from the date of public notification of the plan. Objections may be lodged by: (i) any owner or occupier of rateable property affected by the plan; (ii) the municipality, which may only object if the plan has been altered or prepared by the Commissioner, other than at the request of the municipality. Should any objector request a formal hearing then the Commissioner must comply with the request. The Commissioner has power to provisionally determine an objection and after dealing with all objections he passes the plan to the Minister for Lands and Works for final approval. If the Minister gives his approval, the plan is then sealed by the Commissioner and becomes effective from a date specified by him. When a plan is sealed, the municipality must abide by the scheme and enforce its observance. A sealed scheme can only be modified or altered with the Commissioner's approval.

Scope of the Plan

A town and country planning scheme may deal with the following planning matters: (i) all (public and private) roads, streets, footpaths, building lines and land adjacent to foreshores; the plan should cover both alteration to existing roads, streets, etc. and proposed new roads, streets, etc.; (ii) positioning of buildings and the general nature and design of buildings; (iii) preservation of land for afforestation, recreation and public works; (iv) preservation of objects of historical or natural interest; (v) sewerage and drainage; (vi) lighting and water supply systems; (vii) specification of the use to which areas may be put; (viii) provision of amenities; (ix) stages of development; (x) ancillary or consequential works.

Southern Metropolitan Master Planning Authority*Introduction*

For statistical purposes, the Hobart Metropolitan Area is a densely settled region defined in Chapter 5, 'Demography'. For the purposes of the planning authority, metropolitan Hobart extends far beyond this area. The area for which the Authority is planning is best defined broadly as a triangle based on Pontville (Brighton Municipality), Snug (Kingborough Municipality) and Seven Mile Beach (Clarence Municipality). Such a triangle includes the Cities of Hobart and Glenorchy and also those parts of Brighton, Kingborough and Clarence municipalities which are likely, in the future, to experience urban expansion because of their proximity to Hobart.

For the purposes of this section, the triangular area just defined will be referred to as the 'S.M. area'.

Establishment of Authority

For purposes of local government administration, the urban area centred on Hobart is at present divided between four authorities: the municipalities and cities of Clarence, Kingborough, Hobart and Glenorchy; on the northern fringe of the area lies the Municipality of Brighton sharing the Derwent River as a boundary with Glenorchy. In 1954, a 'Hobart Metropolitan Planning Committee' adopted resolutions to the effect that a planning authority should be set up, that a 'Master Plan' should be prepared and that the plan should provide for an eventual population of 250,000 persons in the 'S.M. area'. (The Census population of Hobart and Suburbs in that year was 95,206 persons.)

The five participating municipalities and cities previously named indicated that they were prepared to support the establishment of such an authority by striking a special townplanning rate of up to $\frac{1}{2}$ d. in the pound (0.208 cents in \$). The necessary legislation setting up the Southern Metropolitan Master Planning Authority was passed in 1957.

Representation and Finance

The *Local Government Act* 1962 prescribes that each city shall have the right to appoint three representatives and each municipality two. The authority is also empowered to make contracts, accept trusts of properties for townplanning purposes and make by-laws for domestic purposes. By demand under its common seal, the Authority obtains from each constituent member council a contribution based on the annual value of all rateable property. The demand, however, is not to exceed $\frac{1}{2}$ d. in the pound (0.208 cents in \$), unless the Authority has the consent of all its constituent municipalities and cities.

Functions of the Authority

The main function of the Authority is the technical and legal preparation of a master plan for the prescribed area (the detailed planning nevertheless remaining the responsibility of each constituent municipality or city). The *Local Government Act* 1962 (Section 744-2) defines the purpose of a master plan as follows:

'A master plan shall be made with regard for the present and probable future requirements of the area and may provide for:

- (a) communications;
- (b) areas the use of which is to be restricted in respect of purpose, or which are to remain unbuilt on;
- (c) public buildings, facilities and amenities; and
- (d) areas and sites for things and processes that would constitute nuisances if done among houses or offices'.

A master plan therefore involves the zoning of land and restricting its use for specific purposes such as housing, retail trade, factories or parks and reserves; it is also concerned with the problem of the highways and outlets that will become essential in the future.

A factor influencing the preparation of a master plan is the present and future execution of major works by instrumentalities other than those which constitute the Authority, examples being the Public Works Department, the Housing Department, the Health Department, the Transport Department and the Metropolitan Water Board.

The preparation of a master plan requires extensive surveys and studies, the results of which are sometimes of general interest quite apart from their prime relevance to the master plan. Two examples will suffice: (i) a population forecast for the 'S.M. area'; (ii) mapmaking. Before the Authority's formation in 1958, there were no fully detailed maps available of any part of the 'S.M. area'. As the availability of maps for townplanning is very important, their production was started immediately. Practically the whole area is now covered with precise, up-to-date and contoured maps on scales of 1,000 feet and 400 feet to the inch. A similar but much more detailed set is also in preparation on a scale of 200 feet to the inch. Although designed primarily for townplanning, the maps are sold for a variety of other purposes.

Legal Procedure With Master Plan

After preparation of the draft master plan, the Town and Country Planning Commissioner gives provisional approval, thus allowing it to be put on statutory exhibition for three months while objections are recorded;

objections may be lodged not only by ratepayers but also by the member-councils of the Authority. Having heard the objections, the Town and Country Planning Commissioner may order modifications and then approve the amended plan; final approval rests with the Minister for Local Government.

When finally approved and sealed, the plan comes into effect on a specified date and, from then onwards, all detailed planning within the prescribed area must conform to this master plan. It should be noted that all modifications to the master plan have to be treated as if they were a new plan, again requiring public exhibition and the recording of objections.

The Master Plan

The Master Plan 1962 was put up for statutory exhibition and objections were considered; the most powerful objection held that the provisions of the system of communications were not sufficiently specific, a point not disputed by the Authority which maintained that the transportation study essential to proper planning was beyond the financial resources of local government.

In 1963, the Authority withdrew its Master Plan 1962 and the State Government decided to carry most of the cost of a full transportation study, the results of which became available late in 1964. In the meantime, the Authority issued a 'Townplanning Policies Map 1964' which, although not having the legal standing of a master plan, was of value to member councils in their detailed planning and to other authorities concerned with development in the 'S.M. area'.

With the vital information relating to transport now available, the Authority set about revising the Master Plan and this is now well advanced.

Industrial Areas in the 'S.M. Area'

A vital part of the master plan for the 'S.M. area' is the attention given to industrial development. While it is recognised that the 'S.M. area' may have difficulty in attracting major new industries, townplanners believe that a new infusion of industrial activity would be possible if existing local industries had more physical room for expansion and regrouping, and facilities were made available for secondary and service industries. To this end, work is being done to foster the establishment of fully serviced industrial subdivisions with easy access to transport systems and residential areas.

The 'Urban Fringe'

Residential fringe development is receiving close attention, as it had a habit in the past of incurring further municipal financial commitments on improved roads and the provision of services quite out of scale with the population served. Although this type of subdivision is often good business for the individual land subdivider, the financial consequences often cause a spreading and escalation of rating expenditure in times and areas which are not always good business for the ratepaying community as a whole. It is the difficult task of the Metropolitan Planning Authority to formulate policies that strike a fair compromise between these conflicting interests.

Administration

A re-appraisal of Tasmanian townplanning administration is being undertaken. It is hoped to create a new policy making structure, which will more efficiently implement townplanning principles. The need for rationalisation is becoming apparent, as the discipline of townplanning is increasingly looked to as a practical medium to formulate common developmental policies.

Transportation Studies

Hobart

The Hobart Area Transportation Study examined traffic problems in detail, and brought to public scrutiny the need for greatly increased expenditure in meeting these problems. The findings of the study were that metropolitan traffic will increase nearly 100 per cent during the next 20 years and that a number of major new roads will be required. The proposals resulting from the study are estimated as likely to cost \$50m spread over 20 years. The State Government has offered to meet most of the costs of the freeways and expressways while the councils will finance the balance.

The present programme of freeway construction makes use of the Queen's Domain as an oversize roundabout (or traffic circle). From this circle, three outlet roads will carry traffic on 4-lane freeways; the northern and eastern outlets have already been built, the southern is now under construction. A limitation of the northern outlet is that its main catchment area is on its western side, but foothills and existing buildings prevented a location further to the west. The eastern outlet, after passing over the Tasman Bridge, is met by various contributory road links giving quick access to popular suburbs such as Lindisfarne and Howrah.

The construction of the third freeway, the Southern Outlet Road, is well advanced; the road has been completed to the highest point, the Mt Nelson saddle, while formation work is in progress on the Mt Nelson-Kingston section. Sealing of the latter section has commenced and the road will be opened late in 1969.

Construction of the Eastern Outlet (a freeway from the Tasman Bridge to Cambridge) will commence during the 1969-70 financial year.

Launceston

The realisation that existing traffic problems in the Launceston area would become more acute with the passage of time led to the undertaking of a traffic survey during 1967. This survey closely paralleled the 1963 Hobart study.

The purpose of the survey was to predict the transportation needs of urban Launceston some twenty years in the future, and to determine what improvements to the existing transportation system would be appropriate to meet these needs.

The survey estimated an increase in inter-district vehicle trips of some 90 per cent in the period 1967 to 1987. To overcome the resultant traffic congestion a detailed transport system plan was prepared. The plan, costing \$22.7 million, has been divided into four, five-year stages, the first stage giving priority to a new South Esk bridge.

The main features of the proposed highway system are: a new bridge across the South Esk at Royal Park; a north-south Expressway along the east bank of the Tamar; a second Expressway, also running north to south, in the valley of the North Esk, curving westwards to the Bass Highway at Youngtown; and connecting roads (one-way in the central business district and two-way in the outer areas) between the major elements of the system.

The transportation system, when completed in 1987, will provide adequate facilities for 85,000 persons and 38,000 private vehicles; increases of 35 and 115 per cent respectively over the 1967 levels.

FINANCE

Introduction

For many years, local government in Tasmania operated in 49 areas, comprising 47 municipalities and the cities of Hobart and Launceston. As from 24 October 1964, a third city, Glenorchy, came into being and the number of municipalities fell to 46. There are no unincorporated areas.

Local government finance statistics in Tasmania are compiled by the Bureau of Census and Statistics from the following sources:

1. *The 46 municipalities*: each municipality is required to submit annually to the Auditor General a 'Statement of Accounts' in pursuance of section 329 of the *Local Government Act* 1962; copies of these statements are made available to the Bureau. The 'Statements of Accounts' are compiled by the municipalities on a *cash receipts and payments* basis and two basic types of accounts are distinguished, namely revenue and loan accounts.

2. *The cities*: the cities of Hobart and Launceston submit annually to the Auditor General statements of accounts compiled on an *income and expenditure* basis but analysed on a cash receipts and payments basis. Glenorchy, however, still submits a municipal-type statement.

The term 'local government' is employed only in relation to the municipalities and city corporations. Details of *semi-government* authorities concerned with water supply appear in the last section of this chapter; such authorities provide bulk water but reticulation and sale to householders remains a local government function.

Value of Rateable Property

The principal source of revenue for local government authorities in Tasmania is the charging of rates on the annual value of property. For any property, the annual value is what it would bring annually if it were rented; the valuer is guided by actual rentals in operation at the time he makes his estimate.

Under the *Local Government Act* 1962, rates may be based on annual value, unimproved value (i.e. value of land only), the capital value (i.e. value of land plus improvements) or finally upon a composite value incorporating the unimproved value plus some arbitrary proportion of the value of improvements. In Tasmania, it has been usual for rates to be based on annual values despite isolated and unsuccessful campaigns in favour of taxing on unimproved value only. In estimating annual value, the valuer is taking into account not only the land but also the improvements (e.g. buildings) so there is, in actual fact, a close relation between total capital value of any property and its assessed annual value. The *Land Valuation Act* 1950 fixes a minimum relationship between annual value and capital value (4 per cent) but sets no maximum.

The following table shows the total value of all rateable properties in the State and gives individual details for local government authorities with total capital value exceeding \$20,000,000.

As might be expected the City of Hobart had a greater total capital value than any other local government area. In 1967-68 the figure of \$286.82m was almost twice that for Launceston (\$144.42m). The smallest 34 municipalities had, in total, a rateable capital value of \$332.76m. Of the 49 municipalities in Tasmania only three had a rateable capital value of more than \$100m, one of more than \$90m and only two more than \$60m. The remainder were below \$40m.

**Value of Rateable Properties: Tasmania and Selected Municipalities and Cities
(\$ million)**

Municipality or City	Year Reval- ued (a)	1965-66		1966-67		1967-68	
		Total Capital Value	Rateable Annual Value	Total Capital Value	Rateable Annual Value	Total Capital Value	Rateable Annual Value
Hobart (City)	1963	281.29	17.21	286.47	r 17.48	286.82	17.49
Launceston (City) ..	1965	140.67	11.13	142.85	11.24	144.42	11.41
Glenorchy (City) ..	1962	112.39	6.69	116.47	6.84	120.23	6.84
Clarence	1964	83.19	4.26	87.15	4.46	90.39	4.51
Devonport	1967	51.02	3.00	52.97	3.08	69.24	3.99
Burnie	1965	61.44	3.96	63.32	4.06	64.34	4.16
St Leonards	1966	30.67	1.39	38.36	2.35	39.77	2.47
New Norfolk	1966	22.01	0.87	31.77	1.29	32.27	1.32
Ulverstone	1964	28.16	1.49	28.99	1.51	29.78	1.56
Beaconsfield	1964	26.70	1.56	27.70	1.61	28.55	1.66
Wynyard	1967	23.53	1.15	23.89	1.19	27.78	1.50
Kingborough	1961	27.16	1.28	27.63	1.31	26.34	1.24
Circular Head	1963	22.36	1.01	23.28	1.05	23.69	1.07
George Town	1967	16.47	0.85	16.89	0.93	21.86	1.36
Longford	1963	21.02	1.01	21.12	1.02	21.33	1.03
Remaining Municipalities ..	..	263.02	11.54	288.96	13.10	332.76	15.16
Total Tasmania .. ..	..	1,211.10	68.40	1,277.82	r 72.52	1,359.60	76.76

(a) The year shown is the year of the latest complete revaluation.

System of Valuation

The valuation of property is carried out by a State Government authority, the Land Valuation Branch; its valuations form the basis for two distinct taxes: (i) land tax collected by the State on the basis of unimproved land values; (ii) rates collected by local government authorities on the basis of assessed annual values. Since it is impossible to value all the properties within the State in the course of a single year, valuation is carried out on a rotational basis, e.g. Wynyard valued in 1961 and again in 1967; Devonport valued in 1962 and again in 1967.

The table that follows shows the total value of rateable property over the last ten years:

**Total Rateable Property Valuation in Cities and Municipalities (a)
(\$ million)**

Year	Unim- proved Value	Value of Improve- ments	Capital Value	Year	Unim- proved Value	Value of Improve- ments	Capital Value
1958-59 ..	164.6	488.8	653.4	1963-64 ..	271.6	803.5	1,075.1
1959-60 ..	179.0	560.4	739.4	1964-65 ..	290.5	849.9	1,140.4
1960-61 ..	186.0	622.2	808.2	1965-66 ..	317.7	893.4	1,211.1
1961-62 ..	193.6	676.5	870.1	1966-67 ..	329.1	948.7	1,277.8
1962-63 ..	216.1	726.8	942.9	1967-68 ..	351.7	1,007.9	1,359.6

(a) As valued by State Valuation Branch.

In the period covered by the table (1958-59 to 1967-68), the following increases have been recorded: (i) in unimproved value, 114 per cent; (ii) in value of improvements, 106 per cent; (iii) in capital value, 108 per cent.

Total Receipts and Payments

The next table shows the total cash receipts and payments of Tasmanian municipalities and cities, the annual surplus or deficit and the balance of funds at the commencement of each year:

Local Government Authorities Total Receipts and Payments—All Funds (\$'000)

Year	Open- ing Balance (a)	Receipts				Payments			Surplus (+) or Deficit (-)
		Loan Accounts (b)	Revenue Accounts	Special Accounts (c)	Total	Loan Accounts	Revenue Accounts	Total	
1957-58	985	4,110	7,998	-143	11,965	3,238	7,902	11,140	+ 825
1958-59	1,810	3,622	8,836	+ 99	12,557	3,542	8,836	12,378	+ 179
1959-60	1,989	5,308	9,782	+ 3	15,093	4,670	9,762	14,432	+ 661
1960-61	2,650	5,420	10,868	-155	16,133	5,260	10,924	16,184	- 51
1961-62	2,599	6,447	12,098	+ 39	18,584	5,658	11,778	17,436	+ 1,148
1962-63	3,747	6,873	13,764	+690	21,327	7,212	13,256	20,468	+ 859
1963-64	4,606	7,268	14,792	+242	22,302	7,431	14,654	22,085	+ 217
1964-65	4,823	7,273	16,250	(d)	23,522	6,354	16,176	22,530	+ 993
1965-66	5,816	7,579	17,395	(d)	24,974	8,342	17,085	25,426	- 452
1966-67	5,369	7,680	19,076	(d)	26,756	8,091	18,550	26,640	+ 116
1967-68	5,922	9,604	20,792	(d)	30,396	9,364	20,415	29,779	+ 617

(a) Bank balances (less unrepresented cheques), securities and cash on hand.

(b) Includes loan raisings, sales, capital grants received, etc.

(c) Net movement in special accounts.

(d) Special accounts analysed and included under loan or revenue accounts.

Business Undertakings

In the analysis of the local government authorities' accounts a distinction is drawn between 'ordinary services' and 'business undertakings'.

The classification 'business undertaking' is used in Australian local government finance statistics to include municipal tram and bus services, municipal electricity supply (generation or distribution), municipal water and sewerage schemes, municipal abattoirs, etc. In Tasmanian local government finance statistics, electricity supply ceased to appear as from 1948-49 (the Hydro-Electric Commission is now the sole supplier). Municipal tram and bus services ceased to appear as an item in 1955-56, the Metropolitan Transport Trust having acquired the city transport services operating in Hobart and Launceston. Consequently, the only activities under the heading of municipal 'business undertakings' in current Tasmanian statistics relate to water supply, sewerage and abattoirs.

Rate Collections

There is considerable diversity in the types of rate imposed by individual local government authorities. In Hobart, virtually all properties are subject to the one consolidated rate and a similar position exists in Launceston; in most municipalities, however, the property holder, after being charged the basic general, road, light and health rates, is subject also to additional rates assessed according to the location of the property and the nature of the services provided (e.g. a fire brigade rate for properties which are close enough to

enjoy fire protection, a water rate where the service is available). Property holders in a particular district may be called upon to pay a special rate for an improvement peculiar to the district (e.g. a reserves and recreation rate to finance a sports ground or a garbage rate to finance a disposal service).

It should be noted that the rates analysis in the next table does not dissect the ordinary rates of Hobart and Launceston cities; their ordinary rates are all entered as 'general' but their business undertaking rates are dissected under 'water' and 'sewerage'.

The following table shows details of the rates collected in Tasmania during a three-year period:

Rates Received (a) by Local Government Authorities
(\$'000)

Particulars	1965-66	1966-67	1967-68
Ordinary Rates (b)—			
General (b)	3,671	3,968	4,522
Light	201	226	227
Road	2,684	3,049	3,381
Health	251	273	298
Sanitary	84	77	58
Garbage	117	137	164
Reserves and Recreation	471	523	633
Halls	55	72	78
Library	78	90	100
Fire Brigade	61	64	81
Drainage	(c)	(c)	74
Other	75	105	24
Total	7,748	8,584	9,638
Business Undertaking Rates—			
Water	2,405	2,697	2,952
Sewerage	1,352	1,548	1,761
Total	3,757	4,245	4,712
Grand Total.. .. .	11,505	12,829	14,351

(a) Net of refunds.

(b) Where a single consolidated rate has been charged (as in Hobart and Launceston), the collection has been dissected between 'ordinary' and 'business undertakings' but the 'ordinary' component has been entered, without further analysis, as 'general'.

(c) Rates levied for the purpose of 'drainage' were included in 'other' prior to 1967-68.

Revenue of Local Government Authorities

The biggest proportion of local government revenue comes from rates (69 per cent in 1967-68) and these are a direct charge on owners of property.

Critics of this mode of raising revenue point out that in any city or municipality, there are some wage-earners enjoying the services provided by the local authority but paying no rates because they own no property. It can be argued, of course, that tenants pay rates in a disguised form since their rents are probably adjusted to cover this charge upon the owner; however, this still leaves a residue of wage-earners in the community who are neither tenants nor owners. From time to time, suggestions have been made that some new form of municipal taxation (e.g. a poll tax) should be levied on this non-contributing residue but no scheme has yet been implemented in Tasmania.

After rates, the most important sources of revenue are: (i) Government grants and refunds; (ii) charges for public works and services. Among sources of revenue are listed 'council properties'; these include parks, recreation grounds, markets, halls, cemeteries, libraries, mechanical plant, etc. The next table shows, for a three-year period, the total annual revenue receipts of all municipalities and cities:

Local Government Authorities

Revenue Receipts Ordinary Services and Business Undertakings,

Classified According to Source

(\$'000)

Source of Receipts	1965-66	1966-67	1967-68
Ordinary Services—			
Rates	7,748	8,584	9,638
Licences	100	129	147
Total	7,848	8,714	9,785
Public Works and Services—			
Health, Sanitary and Garbage Services ..	87	61	57
Council Properties	1,159	1,199	1,205
Private Street Construction	77	75	85
Private Works	383	318	285
Other	126	194	74
Total	1,832	1,847	1,705
Government Grants and Refunds—			
Roads	1,390	1,374	1,653
Other	204	267	203
Total	1,594	1,640	1,856
Other Receipts (a)	544	649	686
Total Ordinary Services	11,818	12,850	14,033
Business Undertakings—			
Water Supply—			
Rates	2,405	2,697	2,952
Government Grants (b)	629	709	682
Charges, Sales, etc.	443	470	517
Total	3,477	3,875	4,151
Sewerage—			
Rates	1,352	1,548	1,761
Government Grants	85	77	92
Charges, etc.	164	183	169
Total	1,601	1,808	2,022
Abattoirs—			
Charges, Sales, etc.	499	543	586
Total Business Undertakings	5,578	r 6,226	6,759
Grand Total	17,395	r 19,076	20,792

(a) Includes contributions to sinking funds and interest earned by such funds, and net receipts of deposits and superannuation accounts.

(b) These figures understate actual receipts since some municipalities offset their grants against payments made to State regional water schemes.

Revenue Receipts Summary

In the preceding table, the dissection between ordinary services and business undertakings prevents totals emerging for rates and for government grants; details for these items, in total, are shown in the summary which follows:

Revenue Receipts Ordinary Services and Business Undertakings
(\$'000)

Year	All Rates (net)	Licences	Total Govt Grants and Refunds	Business Undertakings (a)	Ordinary Municipal Services (b)	Other Receipts	Total Receipts
1957-58 ..	5,434	30	852	582	816	284	7,998
1958-59 ..	5,962	30	788	714	1,014	328	8,836
1959-60 ..	6,622	58	950	870	918	364	9,782
1960-61 ..	7,286	60	1,240	842	1,068	372	10,868
1961-62 ..	8,084	66	1,690	924	1,064	270	12,098
1962-63 ..	8,710	68	2,410	926	1,338	312	13,764
1963-64 ..	9,411	77	2,443	1,016	1,346	499	14,792
1964-65 ..	10,380	87	2,462	1,153	1,679	489	16,250
1965-66 ..	11,505	100	2,308	1,106	1,832	544	17,395
1966-67 ..	12,829	129	r 2,426	r 1,196	1,847	649	r 19,076
1967-68 ..	14,351	147	2,630	1,273	1,705	686	20,792

(a) Excludes rates and grants which are shown separately.

(b) Includes receipts from council properties, e.g. sports grounds, halls, etc.

Revenue Payments by Local Government Authorities

The following table shows, for a three-year period, annual payments by local government authorities from ordinary revenue and from the revenue of business undertakings:

Local Government Authorities
Revenue Payments, Ordinary Services and Business Undertakings, Classified According to Service
(\$'000)

Payments for	1965-66	1966-67	1967-68
Ordinary Services—			
General Administration	r 1,614	r 1,606	(a)1,509
Debt Services—Interest (b)	r 1,023	r 1,331	1,503
Redemption	1,101	r 1,226	1,258
Paid to Sinking Funds	r 132	152	160
Total	r 2,255	r 2,709	2,921
Public Works and Services—			
Roads, Streets, Bridges	4,375	4,429	5,144
Health	213	247	350
Sanitary and Garbage Services	426	493	576
Street Lighting	319	359	302
Parks, Recreation Grounds, etc.	768	976	1,075
Other Council Properties	907	973	1,071
Other Services	44	155	92
Total	7,052	7,632	8,610
Grants	352	368	405
Other Payments (c)	310	r 160	309
Total Ordinary Services	11,585	r 12,475	13,754

**Revenue Payments, Ordinary Services and Business Undertakings,
Classified According to Service—continued**
(\$'000)

Payments for	1965-66	1966-67	1967-68
Business Undertakings—			
Water Supply—			
Working Expenses (d)	2,064	r 2,387	2,732
Interest	r 701	r 737	787
Redemption	r 550	r 554	544
Contributions to Sinking Funds	99	29	24
Other	r 134	106	71
Total	3,548	r 3,812	4,160
Sewerage—			
Working Expenses	484	592	678
Interest	641	747	851
Redemption	341	r 385	408
Contribution to Sinking Funds	29	37	40
Other	54	21	7
Total	1,548	1,782	1,985
Abattoirs—			
Working Expenses	r 341	408	438
Interest	37	r 39	45
Redemption	19	r 25	24
Contribution Payments to Sinking Funds	r 7	r 8	8
Total	404	481	516
Total Business Undertakings	5,500	r 6,075	6,661
Grand Total—Payments	17,085	r 18,550	20,415

(a) Some items included under General Administration in previous years have been allocated to specific functions in 1967-68.

(b) Excludes interest on overdraft charged to General Administration.

(c) Excludes payments from deposit and superannuation accounts which are offset against receipts.

(d) These figures understate actual payments since some municipalities offset their payments to State regional water schemes against grants received from the State.

Principal items included as 'Council Properties' in the table are car parks, halls, markets, cemeteries and libraries. 'Roads, streets and bridges' includes road construction and maintenance, drainage, cleaning and watering, streets, private street construction, private works, plant purchase and net plant maintenance costs.

The Beaconsfield municipality is served by the West Tamar Water Supply Scheme, which the municipality maintains and manages as agent for the Rivers and Water Supply Commission. All debt and payments in the municipality in respect of water supply became the responsibility of the Commission on 1 July 1960; interest and principal repayments on loans raised for the purpose of water have been included in 'Other' payments.

The following municipalities operate abattoirs: Launceston; Burnie; Longford; Devonport and Campbell Town. Other abattoirs in Tasmania are commercially operated concerns.

Payments, Summary

Details of total interest and redemption payments appear below:

**Payments, Ordinary Services and Business Undertakings
(\$'000)**

Year	Adminis- tration (a)	Loan Charges		Ordinary Services (b)		Business Undertak- ings (b)	Total
		Interest (a)	Redemp- tion	Roads Streets, Bridges	Other		
1957-58 ..	r 707	r 721	816	2,434	1,906	1,320	7,902
1958-59 ..	782	922	888	2,658	2,154	1,432	8,836
1959-60 ..	r 885	r 1,095	1,000	2,914	2,168	1,700	9,762
1960-61 ..	r 882	r 1,247	r 1,137	3,350	2,396	r 1,910	10,924
1961-62 ..	r 921	r 1,471	r 1,255	3,620	2,404	r 2,106	11,778
1962-63 ..	r 992	r 1,853	r 1,421	3,990	2,948	r 2,053	13,256
1963-64 ..	r 1,190	r 2,019	r 1,631	4,160	3,236	r 2,419	14,654
1964-65 ..	r 1,383	r 2,164	r 1,897	4,027	3,741	r 2,697	(c) 16,176
1965-66 ..	r 1,614	r 2,402	r 2,011	4,375	3,339	r 3,082	(c) 17,085
1966-67 ..	r 1,606	r 2,856	r 2,192	4,429	r 3,730	r 3,511	(c) 18,550
1967-68 ..	1,509	3,186	2,234	5,144	4,180	3,928	(c) 20,415

(a) Interest on overdraft has been charged to Administration.

(b) Excluding interest and redemption shown separately.

(c) Includes contributions to sinking fund not specified in the table: 1964-65, \$263,000; 1965-66, \$261,000; 1966-67, \$225,000; 1967-68, \$233,000. In earlier years similar contributions were eliminated from the analysis as contra items.

Loan Receipts

At 30 June 1968 the aggregate loan debt of all local government authorities was \$62,820,600, of which only \$917,500 (i.e. 1.5 per cent) was in respect of debt due to the State Government. The principal Tasmanian sources of loans for local government authorities are banks, superannuation and various trust funds, insurance companies, and for cities, public issues. The amount that any local government authority can raise is governed by: (i) the difficulty in finding willing lenders, (ii) the fact that the approval of the State Treasury is required and (iii) under the *Local Government Act* 1962, total loan indebtedness is strictly controlled and cannot exceed a predetermined figure based on annual income for the preceding three years.

The following table shows, for a three-year period, the receipts of the loan accounts of all local government authorities:

**Local Government Authorities: Receipts to Loan Account
(\$'000)**

Particulars	1965-66	1966-67	1967-68
Loan Raisings for—			
Ordinary Services	3,727	3,602	4,182
Water	876	1,255	1,174
Sewerage	1,904	2,114	2,801
Abattoirs	5	10	(a)
Total Raisings	6,512	6,981	8,157
Government Capital Grants	867	455	1,157
Offsets to Loan Expenditure (b)	200	244	289
Total Receipts	7,579	7,680	9,604

(a) Included in 'Ordinary Services'.

(b) Sales of capital assets, sales of surplus materials, etc.

Loan Payments and Loan Debt

The next table shows, for a three-year period, details of payments from the loan accounts of all local government authorities; also the loan debt at the end of the period (in the matter of debt, Launceston City can report only three components: water; sewerage; and other):

**Local Government Authorities: Annual Loan Payments and
Loan Debt Classified According to Purpose
(\$'000)**

Purpose	Loan Payments			Loan Debt at 30 June 1968
	1965-66	1966-67	1967-68	
Water	1,968	1,595	2,184	14,829
Sewerage	2,627	2,529	2,747	17,396
Drainage	171	242	333	1,577
Roads, Bridges, Streets, Footpaths	1,684	1,979	1,982	11,466
Plant Machinery, etc.	200	190	122	846
Council Property, including Halls	883	813	1,147	5,433
Recreation, including Parks and Gardens	611	586	555	4,471
Other	198	155	293	(a) 6,801
Total	8,342	8,091	9,364	62,821

(a) Includes \$4.81m, part of the debt of Launceston City, which is not allocated to purpose; the balance of the debt is included in the water and sewerage totals above but not allocated to other items.

Loan Summary

The following table shows, in summary form, loan raisings, loan debt and sinking funds:

**Local Government Authorities: Loan Raisings, Loan Debt and Sinking Funds
(\$'000)**

Year	Loan Raisings During Financial Year			Loan Debt at 30 June			Total of Sinking Funds at 30 June (c)
	From State Govern- ment (a)	From Other Sources (b)	Total	To State Govern- ment	To Other Creditors	Total	
1957-58	..	4,024	4,024	114	20,078	20,192	351
1958-59	43	3,642	3,685	144	22,835	22,979	388
1959-60	138	5,094	5,232	268	26,876	27,144	422
1960-61	269	5,010	5,279	524	29,906	30,429	473
1961-62	301	5,863	6,164	808	34,543	35,351	561
1962-63	116	5,209	5,325	853	38,173	39,026	662
1963-64	165	5,681	5,846	990	(d) 42,279	(d) 43,269	817
1964-65	9	6,228	6,237	932	46,665	47,597	849
1965-66	82	6,430	6,512	977	51,119	52,096	991
1966-67	21	6,960	6,981	907	55,980	56,888	1,206
1967-68	79	8,104	8,183	917	61,903	62,821	1,496

(a) These advances were from the State Treasury direct, and exclude those from authorities such as the Housing Department and the Metropolitan Transport Trust.

(b) Includes advances from the Housing Department and the Metropolitan Transport Trust.

(c) Sinking funds maintained by municipalities and cities for debt redemption purposes.

(d) Revised to exclude the loan debt of Beaconsfield Municipality for the purpose of water supply. This debt became the responsibility of the Rivers and Waters Supply Commission on 1 July 1960.

Source of Loan Funds

It can be seen from the preceding table that the local government loan debt includes only a small liability in respect of advances made by the State Treasury. The proportion of total debt now owed to State authorities (but not directly to the Treasury) has increased somewhat, principally due to co-operation between individual municipalities and the State Housing Department. In planning the establishment of large housing estates, the Housing Department has been concerned with the provision of certain essential services (e.g. water and sewerage); where such services have required capital expenditure by a municipality, the Department has made some loan funds available.

Instalment Debentures

Much of the debt of the municipalities is in the form of instalment debentures which involve equal periodic payments (usually yearly or half-yearly); such payments are credited to redemption and interest in changing proportions, the accounting being the same as used to record home instalment purchase transactions.

Financial Statistics of Individual Local Government Authorities

In this chapter, local government finance statistics have been presented in total only; similar details for individual authorities are shown annually in the Tasmanian Office's bulletin, *Finance*. The following table shows, for each municipality and city: (i) rates received; (ii) payments from loan and revenue accounts; (iii) balance of funds; (iv) loan debt.

Individual Municipalities and Cities: Financial Summary, 1967-68
(£'000)

Municipality or City	Total Rates Received (Net)	Payments		Funds at 30-6-68 (a)	Loan Debt at 30-6-68
		Loan Accounts	Revenue Accounts		
Beaconsfield	308.6	326.1	406.2	19.8	977.7
Bothwell	39.7	0.1	85.4	-0.1	32.4
Brighton	48.8	11.1	92.7	55.1	112.1
Bruny	13.0	..	46.9	8.4	10.3
Burnie	865.6	517.8	1,016.3	452.9	3,592.4
Campbell Town	75.6	50.7	108.4	37.4	268.7
Circular Head	206.2	140.5	292.6	86.3	358.6
Clarence	1,130.7	682.5	1,546.0	114.6	5,577.1
Deloraine	113.7	..	188.2	44.7	224.4
Devonport	699.1	728.5	985.7	-16.4	4,072.7
Esperance	85.2	57.9	152.3	8.1	437.5
Evandale	43.8	80.2	93.9	38.4	127.0
Fingal	83.6	17.7	147.3	17.2	291.5
Flinders	52.0	28.5	150.2	14.4	89.4
George Town	221.7	136.9	276.7	79.5	1,000.9
Glamorgan	53.6	81.3	79.5	16.7	267.8
Glenorchy (City)	1,374.0	1,109.6	1,894.2	78.2	6,988.4
Gormanston	15.7	..	16.1	6.0	1.9
Green Ponds	24.7	4.6	44.3	12.0	43.4
Hamilton	53.1	8.8	104.7	3.3	102.2
Hobart (City)	3,132.0	2,090.8	3,783.3	2,095.1	14,240.0
Huon	103.8	98.7	197.9	56.6	425.4

Individual Municipalities and Cities: Financial Summary, 1967-68—continued
(\$'000)

Municipality or City	Total Rates Received (Net)	Payments		Funds at 30-6-68 (a)	Loan Debt at 30-6-68
		Loan Accounts	Revenue Accounts		
Kentish	95.5	110.6	186.4	13.5	269.3
Kingborough	302.6	366.1	510.3	154.3	1,792.3
King Island	84.0	39.8	165.6	37.4	318.0
Latrobe	158.7	63.1	193.1	69.7	693.8
Launceston (City)	2,109.7	787.8	3,330.7	1,865.7	8,135.0
Lilydale	190.2	75.6	232.0	128.3	828.5
Longford	148.6	323.7	239.6	12.7	938.8
New Norfolk	208.5	49.1	332.8	93.6	682.2
Oatlands	88.7	16.7	145.0	37.0	192.4
Penguin	119.1	41.5	179.7	53.5	473.8
Port Cygnet	69.3	11.0	125.5	27.9	242.5
Portland	48.4	99.1	101.9	33.2	223.5
Queentown	110.7	16.2	135.4	24.5	106.7
Richmond	44.3	21.2	123.8	20.3	175.8
Ringarooma	68.0	10.2	135.7	22.4	110.0
Ross	29.2	4.8	63.3	13.2	23.7
St Leonards	534.7	197.5	643.4	85.1	2,663.6
Scottsdale	101.6	23.2	163.3	40.9	354.6
Sorell	126.0	103.1	265.1	121.1	512.3
Spring Bay	40.1	4.8	68.6	8.2	94.4
Strahan	11.9	80.9	34.4	3.0	102.7
Tasman	20.7	..	50.3	8.2	4.0
Ulverstone	324.1	275.8	475.0	179.9	2,494.7
Waratah	24.0	8.0	21.8	15.9	7.8
Westbury	125.7	55.1	205.7	70.3	371.8
Wynyard	315.4	295.8	425.1	148.7	1,367.6
Zeehan	106.7	110.1	152.2	22.9	398.9
Total	14,350.6	9,364.2	20,414.7	6,538.7	62,820.6

(a) Value of bank balances (less unrepresented cheques), securities and cash on hand. A minus sign (—) indicates a debit balance.

It will be seen from the previous table that the local government authorities collecting the greatest sums in rates were: Hobart (\$3.13m); Launceston (\$2.11m); Glenorchy (\$1.37m); and Clarence (\$1.13m). The local government authorities with the greatest loan debts were: Hobart (\$14.24m); Launceston (\$8.14m); Glenorchy (\$6.99m); and Clarence (\$5.58m). The authorities collecting the smallest sums in rates were: Strahan (\$11,900); Bruny (\$13,000); Gormanston (\$15,700); Tasman (\$20,700). The very wide range in the capacity of the 49 local government authorities to raise revenue, using boundaries which in many cases date back to 1906, was one of the factors advanced by the Municipal Commission when it made its 1965 report recommending the creation of 18 municipalities and two cities; amalgamation of existing authorities into larger units was seen as a method of solving this problem.

Employees of Local Government Authorities

The following table shows employees of local government authorities at 30 June 1968 the twelve authorities specified in descending order are those employing 40 or more. The range of employees of individual authorities

extends from around 500 persons in Hobart and Launceston cities to as low as two persons in some of the minor municipalities. The number of employees is not a complete guide to the level of activity since much work is carried out by private contractors in some areas.

**Local Government Authorities: Persons Employed by Main Authorities
and in Total at 30 June 1968 (a)**

Local Government Authority	General Administration		All Other Services		Total		
	Males	Females	Males	Females	Males	Females	Persons
Launceston (City) ..	91	33	367	23	458	56	514
Hobart (City)	128	37	325	7	453	44	497
Glenorchy (City) ..	46	17	113	3	159	20	179
Devonport	18	7	139	6	157	13	170
Clarence	36	11	108	10	144	21	165
Burnie	23	8	118	1	141	9	150
Kingborough	15	9	43	..	58	9	67
St Leonards	10	7	49	..	59	7	66
Ulverstone	9	5	42	2	51	7	58
Wynyard	6	3	47	..	53	3	56
New Norfolk	7	3	33	1	40	4	44
Beaconsfield	6	4	29	2	35	6	41
Other Municipalities ..	91	48	411	4	502	52	554
Total	486	192	1,824	59	2,310	251	2,561

(a) Includes permanent and temporary employees but excludes part-time employees.

The next table shows total employees of local government authorities over a five-year period:

Local Government Authorities: Persons Employed (a) at 30 June

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
General Administration—					
Males	383	386	451	485	486
Females	166	169	177	195	192
Persons	549	555	628	680	678
All Other Services—					
Males	1,727	1,691	1,749	1,777	1,824
Females	60	60	45	43	59
Persons	1,787	1,751	1,794	1,820	1,883
Total—					
Males	2,110	2,077	2,200	2,262	2,310
Females	226	229	222	238	251
Persons	2,336	2,306	2,422	2,500	2,561

(a) Includes permanent and temporary employees but excludes part-time employees.

The total number of local government employees rose rapidly from 1964-65 to 1966-67. For the period 1966-67 to 1967-68 growth continued at a slower rate; for non-administrative personnel growth occurred at a lower rate while the total number of general administrative personnel fell by two.

WATER SUPPLY AND SEWERAGE

Introduction

Water supply and sewerage were once exclusively the responsibility of the cities and municipalities; two semi-government authorities now operate bulk supply schemes, piping water for distribution by the local government authorities in the Hobart and Launceston areas, and directly to certain industrial consumers. Details of these authorities follow.

Metropolitan Water Board

The overall control of water supply in Hobart, Clarence, Glenorchy and Kingborough is vested in the Metropolitan Water Board, but the four local government authorities retain primary responsibility for reticulation and sale to consumers. The Board has constructed a large pumping station at Bryn Estyn on the Derwent, pipeline capacity being 20m gallons per day. Before the Board came into operation in 1962, the four metropolitan local government authorities had their own supply schemes (e.g. Hobart supplied from Lake Fenton and Mount Wellington); these schemes still operate but the Board's pumping works based on the Derwent now give an assured supply. The eventual limiting factor will not be a shortage of water but simply the need to duplicate pumping and pipeline capacity.

The Board also controls the Southern Regional Water Supply Scheme drawing water from the Derwent, and originally constructed to supply Hobart's eastern shore suburbs (reticulation is still the responsibility of the local government authorities). On the eastern shore, the Board has now extended its service to the towns of Cambridge, Midway Point, Sorell, Seven Mile Beach, Lauderdale and Rokeby, whilst western shore extensions serve Margate, Snug and Howden. At Risdon Brook, an 800m gallon storage has been completed; the cost, including connections to Bellerive and Lindisfarne, was \$2.9m.

Under the *Metropolitan Water Board Act 1961*, the four metropolitan local government authorities no longer borrow money for water works, the Board now providing them with the necessary capital in the form of grants; the local authorities in turn are required to make revenue contributions to the Board. At 30 June 1968, the loan debt of the Board to the State Treasury was \$13.93m and, to other lenders, \$2.80m.

Financial Relationship

The relations between the Board and the four metropolitan local government authorities are summarised in the following table:

Metropolitan Water Board—Income and Expenditure
(£'000)

Particulars	1965-66	1966-67	1967-68
INCOME			
Municipal Contributions—			
Hobart	395	457	536
Glenorchy	324	359	393
Clarence	385	416	448
Kingborough	20	69	76
Special Consumers	222	225	221
Direct Earnings, Southern Regional Scheme ..	150	158	173
Other Revenue	5	8	8
Total	1,501	1,693	1,855

Metropolitan Water Board—Income and Expenditure—continued
(\$'000)

Particulars	1965-66	1966-67	1967-68
EXPENDITURE			
Re-imbursement of Working Expenses—			
Hobart	294	317	314
Glenorchy	213	221	216
Clarence	118	119	130
Kingborough	17	36	37
Bulk Supply, Operation Costs	200	263	270
Administrative Expenses	25	31	35
Interest	523	593	668
Depreciation	139	160	186
Total	1,529	1,738	1,854

Capital Expenditure

In 1967-68, the Board's capital expenditure was \$2,769,000, the chief items being: (i) \$954,000 on Risdon Brook Dam; (ii) \$232,000 on the Sorell-Clarence extension; (iii) \$1,247,000 advanced to the four local government authorities for construction of approved works and for the redemption and conversion of their water loans.

Rivers and Water Supply Commission

The Commission operates two regional schemes: (i) the North Esk Regional Water Supply, serving portion of the municipalities of Evandale, George Town, Lilydale, St Leonards and Westbury, and industrial users at Bell Bay; (ii) the West Tamar Water Supply, serving the west shore of the Tamar located in Beaconsfield Municipality. The local government authorities retain primary responsibility for reticulation and sale to consumers, except to certain industrial users. At 30 June 1968, the loan debt of the Commission to the State Treasury in respect of these two schemes was \$4.01m and, to other lenders, \$0.90m.

A smaller Commission scheme operates on the Prosser River, supplying water to the sodium alginate industry at Louisville near Orford and supplementing the water supply for the town of Orford in Spring Bay Municipality; loan debt to the State Treasury in respect of this scheme was \$0.40m at 30 June 1968.

In addition, the Commission recommends to the Minister the payment of subsidies if construction of water and sewerage schemes is beyond the financial capacity of local government authorities, or if they require assistance to pay for water supplied from regional schemes. In 1967-68, Government subsidies in respect of local government water, sewerage and drainage schemes were \$368,415 (excluding a subsidy of \$83,000 to the West Tamar scheme.)

Municipal Waterworks and Sewerage Schemes

The following table gives details of the number of properties served by municipal water and sewerage schemes, the receipts from and the payments made for these schemes:

**Municipal Water and Sewerage Schemes (a): Properties Served,
Receipts and Payments 1967-68**

Municipality	Water Supply				Sewerage			
	Properties Served (No.)	Revenue Receipts (\$'000)	Revenue Payments (\$'000)	Loan Fund Payments (\$'000)	Properties Served (No.)	Revenue Receipts (\$'000)	Revenue Payments (\$'000)	Loan Fund Payments (\$'000)
Beaconsfield (b)	4,446	147	146	..	1,473	38	36	163
Bothwell ..	200	4	5	..	..	..	..	..
Brighton ..	341	15	13	..	..	..	..	..
Burnie ..	5,462	193	197	29	4,642	104	109	291
Campbell Town	541	8	7	13	299	15	16	38
Circular Head	1,340	49	48	6	93	6	5	23
Clarence ..	9,742	539	536	179	4,500	232	223	256
Deloraine ..	907	25	28	..	..	..	..	..
Devonport ..	5,500	232	232	132	4,000	99	96	149
Esperance ..	992	24	33	1	210	7	9	50
Evandale ..	284	30	12	63	..	..	..	..
Fingal ..	1,084	31	30	15	..	..	..	..
George Town	1,371	51	51	1	966	37	38	32
Glamorgan ..	778	21	23	3	245	..	..	..
Glenorchy ..	11,950	554	553	347	10,600	328	328	369
Gormanston..	270	2	2	..	..	..	..	..
Green Ponds	132	5	6	1	..	..	..	..
Hamilton ..	147	12	10	1	..	..	..	..
Hobart ..	15,037	646	644	637	15,300	236	235	168
Huon ..	1,829	23	23	36	260	16	16	7
Kentish ..	700	21	26	30	..	2	4	73
Kingborough	3,176	129	139	39	1,385	53	58	201
King Island ..	318	15	17	5	197	13	12	1
Latrobe ..	1,037	30	28	4	680	35	37	13
Launceston ..	14,509	481	469	217	13,774	392	366	64
Lilydale ..	1,846	66	66	44	1,517	40	39	22
Longford ..	1,078	31	33	6	20	13	15	279
New Norfolk	1,955	51	49	8	1,487	30	30	26
Oatlands ..	386	14	14	17	..	..	..	..
Penguin ..	956	31	29	5	460	13	12	11
Port Cygnet ..	406	16	16	..	240	5	4	..
Portland ..	326	19	18	87	197	..	..	..
Queenstown..	1,572	15	20	2	1,482	10	14	..
Richmond ..	361	16	17	1	..	..	..	..
Ringarooma ..	696	15	17	3	..	..	..	..
Ross ..	170	4	3	..	..	..	..	..
St Leonards ..	4,721	225	221	36	3,700	144	129	107
Scottsdale ..	1,537	46	48	9	..	..	..	..
Sorell ..	980	81	94	12	..	3	1	78
Spring Bay ..	424	13	13	1	..	..	..	..
Strahan ..	473	4	3	77	..	..	..	..
Ulverstone ..	2,697	97	94	72	2,363	91	92	77
Westbury ..	959	34	34	9	271	7	7	27
Wynyard ..	1,760	68	75	24	900	43	42	148
Zeehan ..	747	20	20	11	370	11	14	78
Total ..	106,143	4,151	4,160	2,184	71,631	2,022	1,985	2,747

(a) The municipalities of Flinders, Tasman, Bruny and Waratah did not operate water or sewerage schemes during 1967-68.

(b) Beaconsfield municipality is served by the West Tamar Water Scheme; all debt and payments in the municipality in respect of water supply became the responsibility of the Rivers and Water Supply Commission on 1 July 1960. The scheme is maintained and managed by the municipality as agent for the Commission, which also determines the receipts to be collected by the municipality and reimburses all payments.

At 30 June 1968, there were 105 municipally operated waterworks, the total reservoir capacity approximating 2,900m gallons (some major schemes operate by pumping directly from rivers and therefore have very limited need for storage capacity). The number of properties served exceeded 106,000. In 1967-68, the receipts of all local government authorities for water supply totalled \$4.15m, their loan debt for construction purposes at 30 June 1968 standing at \$14.83m. (See previous section, 'Metropolitan Water Board', for new arrangement reducing debt of metropolitan local government authorities.)

At 30 June 1968, there were 28 municipal sewerage schemes and the number of properties served exceeded 71,000. In 1967-68, the receipts of all local government authorities for sewerage services were \$2.02m, their loan debt for construction standing at \$17.40m at 30 June 1968.

Chapter 5

DEMOGRAPHY

POPULATION

(See Appendix C for 1969 population estimate)

Introduction

Inclusion of Aborigines in Population Statistics

In this Chapter, aborigines are not included in any of the tables prior to 1961 nor are they included in any of the detailed census classifications in 1961 and 1966. In tables showing only the total population for the State (and for local government areas), they have been included, however, from 1961. This change was brought about by the repeal of Section 127 of the Commonwealth Constitution but, for all practical purposes, it has had no effect on Tasmanian population figures. One aboriginal only was recorded in Tasmania at the 1966 Census.

Historical

In 1803, Lieutenant John Bowen's expedition of 49 persons made the first white settlement at Risdon Cove; at 30 June 1968, Tasmania's population was estimated to be 382,030 persons.

The Statistical Tables, Tasmania 1804 to 1823 show the first population record in 1816 when the white inhabitants numbered 1,461, analysed as 1,032 free, 409 convicts and 20 children of convicts. From the year 1816, there exists a continuous annual record of Tasmania's population.

Source of Population Figures

There are two principal methods by which population figures can be obtained: (i) by census enumeration; (ii) by application of vital and migration statistics to census data. The second method involves taking account of natural increase (excess of births over deaths), and net migration (excess of arrivals over departures) and applying these net figures to information obtained from an earlier census, the result being termed an intercensal estimate. (*Net migration* may be ascertained by two methods: taking account of *all* arrivals and departures, or only of arrivals and departures related to permanent change of place of residence. The former method was used for all estimates up to 30 June 1961, the latter method for later series. In relation to this change, see later section headed 'New Method of Estimating Population'.)

Censuses were conducted by the State in 1841, 1847, 1851, 1857, 1861, 1870, 1881, 1891 and 1901; the Commonwealth Statistician became responsible for censuses with the establishment of the Commonwealth Bureau of Census and Statistics and conducted them in 1911, 1921, 1933, 1947, 1954, 1961 and 1966.

Population from 1820

The table that follows is based on the traditional historical series and has been compiled to show the population at the end of each decade from 1820, and also to show the average annual growth in each decade on two bases, firstly gross and secondly, attributable to natural increase.

Historical Summary of Population in Decades

Year	Estimated Population (a)			Average Annual Increase For Decade (b) :	
	Males	Females	Persons	In Total Population	From Natural Increase (c)
1820	4,057	1,343	5,400	..	..
1830	18,108	6,171	24,279	1,888	..
1840	32,040	13,959	45,999	2,172	106
1850	44,229	24,641	68,870	2,287	656
1860	49,653	40,168	89,821	2,095	1,214
1870	53,517	47,369	100,886	1,107	1,622
1880	60,568	54,222	114,790	1,390	1,542
1890	76,453	68,334	144,787	3,000	2,496
1900	89,763	83,137	172,900	2,811	2,776
1910	97,026	92,781	189,807	1,691	3,322
1920	106,236	103,189	209,425	1,962	3,649
1930	111,148	108,835	219,983	1,056	3,127
1940	121,911	118,280	240,191	2,021	2,438
1950	140,339	135,563	275,902	3,571	3,768
1960	174,379	169,531	343,910	6,801	5,523
1968 (d) ..	192,724	189,306	382,030	4,765	5,079

(a) Up to 1900, at 31 December; from 1910, at 30 June.

(b) Decade ending in year shown.

(c) Excess of births over deaths in calendar years.

(d) Incomplete decade; averages based on eight-year period only.

Pattern of Net Migration

From the first settlement until 1850 the rapid growth in population was due in part, to the British Government's convict transportation policy. After the cessation of transportation in 1853, the immigration rate slowed and natural increase became the more important component of population growth.

By comparing the last two columns in the previous table, it is possible to make an assumption as to whether net migration (excess of arrivals over departures) tended to be positive or negative in any decade.

In the two decades ended 1870 and 1880, for example, natural increase was becoming a more significant factor but the growth of population was checked by negative net migration. Important mining discoveries (e.g. Mt Bischoff, Zeehan and Mt Lyell) brought prosperity to the State, and the two decades ended 1890 and 1900 were characterised by positive net migration.

The main characteristic of the next five decades up to 1950 was persistent loss of population due to negative net migration, the decade most affected ending in 1930. This trend in net migration loss persisted till the end of World War II (1945). The Commonwealth Government's post-war immigration policy and the increasing industrialisation of the State combined to reverse the adverse trend of the previous half-century, and the last decade, ending 1960, was

characterised by positive net migration. In the present incomplete decade, some loss of population by negative net migration is suggested by the figures. The actual annual increase in population, for each year ended 30 June, has been: 1961, 6,430 persons; 1962, 5,328; 1963, 5,059; 1964, 3,584; 1965, 3,594; 1966, 3,531; 1967, 4,998; 1968, 5,596; in all an increase of 38,120 persons over a period of eight years, or an average of 4,765 persons each year.

Census Populations from 1841

The following table records the population and masculinity at each census since 1841 and compares the rate of intercensal growth.

Population and Masculinity at each Census from 1841

Census Date	Population			Average Annual Percentage Rate of Increase (a)	Masculinity (b)
	Males	Females	Persons		
27 Sept. 1841 ..	34,504	15,712	50,216	..	219.60
31 Dec. 1847 ..	47,828	22,336	70,164	5.29	214.13
1 Mar. 1851 ..	44,648	25,482	70,130	- 0.01	175.21
31 Mar. 1857 ..	46,606	34,886	81,492	2.53	133.60
7 Apr. 1861 ..	49,593	40,384	89,977	2.51	122.80
7 Feb. 1870 ..	52,853	46,475	99,328	1.11	113.72
3 Apr. 1881 ..	61,162	54,543	115,705	1.40	112.14
5 Apr. 1891 ..	77,560	69,107	146,667	2.40	112.23
31 Mar. 1901 ..	89,624	82,851	172,475	1.64	108.17
3 Apr. 1911 ..	97,591	93,620	191,211	1.04	104.24
4 Apr. 1921 ..	107,743	106,037	213,780	1.12	101.61
30 June 1933 ..	115,097	112,502	227,599	0.52	102.31
30 June 1947 ..	129,244	127,834	257,078	0.87	101.10
30 June 1954 ..	157,129	151,623	308,752	2.65	103.63
30 June 1961 ..	177,628	172,712	350,340	1.82	102.85
30 June 1966 ..	r 187,391	184,045	r 371,436	1.18	101.82

(a) Intercensal increase in total population as compound rate of growth per cent.

(b) Number of males per 100 females.

Population growth varied widely during the nineteenth century. From 1841 to 1847 the annual population increase averaged 5.29 per cent, largely due to the transportation system. Following self-government the colony entered a period of depression and the growth rate fell until the development of mining at the end of the century. A steady increase has been maintained throughout the twentieth century except for a slowing in the period of the 1930s and an immediate post-war acceleration due to an influx of European migrants.

The census figures up to 1870 include the British military establishment; the last Imperial troops were withdrawn later in 1870. However, the traditional annual series quoted previously in the summary for each decade excludes the establishment after 1842.

Comparison with other States

The following table compares the Tasmanian population at Censuses from 1901 with that of other States and Territories (full-blood aboriginals are excluded)

Australia: Census Populations of States and Territories (a)
(^{'000} Persons)

State or Territory	1901	1921	1933	1947	1954	1961	1966
N.S.W.	1,355	2,100	2,601	2,985	3,424	3,917	4,234
Victoria	1,201	1,531	1,820	2,055	2,452	2,930	3,220
Queensland	498	756	947	1,106	1,318	1,519	1,664
S.A.	359	495	581	646	797	969	1,092
W.A.	184	333	439	502	640	737	837
Tasmania	172	214	228	257	309	350	371
N.T.	5	4	5	11	17	27	37
A.C.T. (b) .. ..	..	3	9	17	30	59	96
Australia	3,774	5,436	6,630	7,579	8,987	10,508	11,550

(a) Census of 1911 not shown.

(b) Part of N.S.W. prior to 1911.

The next table shows the average annual rate of increase of population in each State and Territory during intercensal periods:

Australia: Average Annual Percentage Rate of Increase of Population
During Intercensal Periods

State or Territory	1911-21	1921-33	1933-47	1947-54	1954-61	1961-66
N.S.W.	2.46	1.76	0.99	1.98	1.94	1.57
Victoria	1.53	1.42	0.87	2.56	2.58	1.90
Queensland	2.24	1.86	1.11	2.53	2.04	1.84
S.A.	1.94	1.31	0.76	3.05	2.83	2.41
W.A.	1.66	2.29	0.97	3.51	2.03	2.58
Tasmania	1.12	0.52	0.87	2.65	1.82	1.18
N.T.	1.57	1.87	5.93	6.12	7.40	6.58
A.C.T.	4.14	10.71	4.65	8.70	9.93	10.30
Australia	2.01	1.63	0.96	2.46	2.26	1.91

It will be observed that only in the period 1947-54 did the Tasmanian rate of growth exceed that for Australia as a whole and that 1921-33 was the period of minimum Tasmanian growth.

Intercensal Adjustment

Earlier, mention was made of the method for calculating intercensal estimates of population by taking account of recorded natural increase and recorded net migration. The following two tables show these factors in successive intercensal periods from 1911; 'arrivals' and 'departures' in the first table refer to both short-term and long-term movements.

Analysis of Intercensal Increase in Population
(i) Recorded Natural Increase and Recorded Net Migration

Intercensal Period	Births	Deaths	Natural Increase	Arrivals	Departures	Net Migration
3.4.1911 to 4.4.1921 (a) ..	56,459	20,011	36,448	386,377	396,642	-10,265
4.4.1921 to 30.6.1933 (b) ..	61,955	25,174	36,781	507,209	535,780	-28,571
30.6.1933 to 30.6.1947 ..	73,130	34,767	38,363	482,577	493,305	-10,728
30.6.1947 to 30.6.1954 ..	51,615	17,557	34,058	870,768	845,009	+25,759
30.6.1954 to 30.6.1961 ..	59,282	18,631	40,651	1,070,297	1,065,254	+5,043
30.6.1961 to 30.6.1966 ..	41,276	14,786	26,490	1,071,892	1,077,942	-6,050

(a) Numbers recorded between the March quarters of 1911 and 1921, i.e. the quarter nearest to the census date.

(b) Numbers recorded from the March quarter of 1921.

(ii) Census Population, Intercensal Records and Intercensal Adjustment

Census Date	Population	Numbers Recorded Since Previous Census		Intercensal Adjustment (a)
		Natural Increase	Net Migration	
4.4.1921 ..	213,780	36,448	— 10,265	— 3,614
30.6.1933 ..	227,599	36,781	— 28,571	+ 5,609
30.6.1947 ..	257,078	38,363	— 10,728	+ 1,844
30.6.1954 ..	308,752	34,058	+ 25,759	— 8,143
30.6.1961 ..	350,340	40,651	+ 5,043	— 4,106
30.6.1966 ..	r 371,436	26,490	— 6,050	+ r 656

(a) For definition, see following section; adjustment is to reconcile increase deduced from first column with net increase recorded in second and third columns.

In general, two population estimates are made for any specific date: (i) *original* estimates for dates subsequent to a census and made before another census is taken; (ii) *revised* estimates for each newly completed intercensal period to adjust for the difference between the new census result and the comparable estimate. Thus, all original estimates of population for the intercensal periods from 1911 to 1966 have been revised to reconcile with the results of successive censuses from 1921 to 1966 and can be regarded as final. Estimates of population for dates after 30 June 1966 must be regarded as subject to revision, and will be revised after the 1971 Census.

Population Estimates, Intercensal Years

The following are estimates of State population as at 30 June and 31 December for successive years since 1952:

Estimated Population, 30 June and 31 December

Year	At 30 June			At 31 December		
	Males	Females	Persons	Males	Females	Persons
1953 ..	155,161	148,919	304,080	161,305	155,160	316,465
1954 (a) ..	157,129	151,623	308,752	162,393	156,825	319,218
1955 ..	159,861	154,231	314,092	165,356	159,563	324,919
1956 ..	162,196	156,274	318,470	168,695	162,645	331,340
1957 ..	165,940	160,190	326,130	172,186	166,621	338,807
1958 ..	169,123	163,943	333,066	174,465	169,433	343,898
1959 ..	172,097	167,279	339,376	178,109	173,240	351,349
1960 ..	174,379	169,531	343,910	180,511	175,458	355,969
1961 (a) ..	177,628	172,712	350,340	178,864	174,394	353,258
1962 ..	179,966	175,702	355,668	181,085	177,002	358,087
1963 ..	182,439	178,288	360,727	183,330	179,469	362,799
1964 ..	184,074	180,237	364,311	185,051	181,457	366,508
1965 ..	185,789	182,116	367,905	186,483	183,125	369,608
1966 (a) ..	187,391	184,045	371,436	188,539	185,366	373,905
1967 ..	189,912	186,522	376,434	191,446	188,182	379,628
1968 ..	192,724	189,306	382,030	194,666	191,365	386,031

(a) Figures at 30 June as recorded at Census.

'De Facto' and 'De Jure'

Australian censuses credit persons to the State where they happen to be at census date (*de facto* basis) and not to the State where they normally reside (*de jure* basis); net migration, as defined and measured prior to 1961, was also on a *de facto* basis. Thus the December estimates in the table prior to 1961 are consistently higher than those for the preceding June by anything from 10,000 to 15,000 persons, due to the seasonal tourist influx.

New Method of Estimating Population

Until the Census of 1966, the quarterly intercensal population of each State had been estimated using three components: (i) the previous census population; (ii) accumulated natural increase; (iii) accumulated net migration. In this calculation, net migration was the algebraic sum of all arrivals, *less* all departures, recorded for shipping and aircraft (Tasmania) and for shipping, aircraft, rail and omnibus movements (other States); it therefore included overseas and interstate travel irrespective of purpose. The interstate component of net migration was obviously a composite figure, affected by persons who had permanently changed their State of residence, but even more by persons who had merely visited another State on business or holiday.

The new method of estimation, introduced after the 1966 Census, still relies on the same three components but defines and measures net migration in a different way, so that holiday, business or other similar short-term movements between States are eliminated. *Intercensal estimates for the period 1961-1966 have been revised in accordance with the new method, and incorporate the changed concept of net migration.*

In the new method, the State population is estimated by adding to the previous census population the natural increase and the allocation of the net gain to Australia by overseas migration for that State; gains or losses that result from movements between States are also taken into account, in so far as they are recorded as transfers of residence under child endowment procedures or Commonwealth Electoral procedures, supplemented by the results of any sample surveys. Revised estimates subsequent to the 1961 Census omit the effect of holiday, business or other similar short-term movements between the States.

Mean Population

Mean populations are calculated for twelve-month periods to provide a satisfactory average basis for calculations requiring allowance for the continuous change in population figures during such periods. From 1901 onwards, the mean population for any year has been calculated by the formula:

$$\text{Mean Population} = \frac{a + 4b + 2c + 4d + e}{12}$$

where *a* is the population at the end of the quarter immediately preceding the year and *b*, *c*, *d* and *e* are the populations at the end of the quarters making up the year under consideration, (e.g. in the case of a mean population for the calendar year 1960, the populations in the formula represented by *a*, *b*, *c*, *d* and *e* are those at the following dates: 31.12.1959, 31.3.1960, 30.6.1960, 30.9.1960 and 31.12.1960).

The following table shows the State's mean population on two bases: (i) for financial years; (ii) for calendar years.

Mean Population, Financial and Calendar Years

Year	Estimated Mean Population		Year	Estimated Mean Population	
	Year Ended 30 June	Year Ended 31 December		Year Ended 30 June	Year Ended 31 December
1954 ..	309,416	311,055	1964 ..	362,758	364,554
1960 ..	344,111	346,913	1965 ..	366,366	367,970
1961 ..	350,077	353,628	1966 ..	369,600	371,632
1962 ..	353,175	355,682	1967 ..	373,916	376,588
1963 ..	358,180	360,590	1968 ..	379,367	382,298

Arrivals and Departures

Earlier in this chapter, reference was made to net migration as one factor determining the growth of the State's population. Net migration, on a *de facto* basis for any period, is the difference between arrivals and departures, such movements being reported by the shipping companies and airlines. 'Arrivals' in the following table applies to all persons arriving in Tasmania from overseas or from other Australian States; it includes Tasmanians returning home. Similarly, 'departures' applies to all persons leaving Tasmania for overseas or for other Australian States; it includes visitors returning home. The table below shows annual arrivals and departures and also quarterly arrivals and departures for recent years, but the intercensal adjustments referred to in an earlier section have not been applied to the figures:

Recorded Arrivals In and Departures From Tasmania, Interstate and Overseas (a)

Period	Arrivals	Departures	Period	Arrivals	Departures
1957 ..	143,601	141,310	1966—March Qr ..	73,627	79,962
1958 ..	141,814	141,995	June Qr ..	58,358	62,520
1959 ..	162,761	160,569	September Qr ..	50,601	50,201
1960 ..	182,537	183,513	December Qr ..	74,877	63,385
1961 ..	186,423	184,165	1967—March Qr ..	85,186	92,476
1962 ..	185,268	186,023	June Qr ..	57,899	61,612
1963 ..	198,443	199,918	September Qr ..	55,224	54,734
1964 ..	219,930	223,380	December Qr ..	72,625	62,738
1965 ..	248,964	249,619	1968—March Qtr ..	76,316	82,408
1966 ..	257,463	256,068	June Qtr ..	62,863	66,766
1967 ..	270,934	271,560	September Qtr ..	53,307	53,684
1968 ..	274,223	274,227	December Qtr ..	81,737	71,369

(a) Arrivals and departures on a *de facto* basis.

If annual arrivals and departures are added, the result may conveniently be termed 'annual movements' and a comparison of 'annual movements' over the years gives some indication of the degree to which travel and tourism have affected the State. Thus, in 1901, the year of Federation, annual arrivals and departures together totalled 51,000; in 1913, 91,800; in 1931, 58,500; in 1939, 120,200 and in 1968, over 500,000. The increase in 'annual movements' since World War II is largely attributable to the growing use of air travel and roll-on roll-off ferries. Another factor has been industrial legislation providing for paid holidays (two weeks' leave was increased to three weeks by the Federal Arbitration Commission in 1963); this has not only increased the tourist inflow but also has resulted in more Tasmanians taking holidays in the continental States.

The quarterly figures show a marked seasonal pattern with arrivals at their maximum in the spring and summer quarters (those ending December and March). Net migration figures on a *de facto* basis also show a seasonal pattern with substantial deviations from the quarterly average, approximating *plus* 11,000 persons in the December quarter; they also reflect the tourist outflow in the March quarter.

Population in Local Government Areas

The next table shows the population in cities, municipalities and statistical divisions at the Censuses of 1954, 1961 and 1966, and estimated for 1968. A new development following from the 1966 Census was the creation of the Hobart Statistical Division, comprising three complete and *portions* of four local government areas. The following symbols are used in the table to indicate the

Division (or Divisions) to which certain local government areas belong:
(H)—Hobart Statistical Division; (SE)—South Eastern Statistical Division;
(S)—Southern Statistical Division.

The creation of the Hobart Statistical Division has had the effect of reducing the area of the Southern and South Eastern Statistical Divisions. (For fuller details, see subsequent section headed 'Population Centred on Hobart'.)

Population in Local Government Areas and Statistical Divisions At 30 June

Local Government Area and Statistical Division	Census 1954	Census 1961	Census 1966	Estimated 1968
Hobart (H)	54,887	54,021	53,257	52,810
Glenorchy (H)	25,810	35,682	39,053	40,900
Clarence (H)	12,604	23,140	30,236	31,610
Brighton (H) (SE)	2,570	2,115	2,207	2,250
Glamorgan (SE)	1,099	1,128	1,125	1,140
Green Ponds (SE)	949	969	880	860
Richmond (SE)	1,679	1,673	1,658	1,660
Sorell (H) (SE)	2,391	2,878	3,309	3,440
Spring Bay (SE)	1,048	1,155	1,205	1,230
Bruny (S)	591	504	400	410
Esperance (S)	3,200	3,436	3,740	3,830
Huon (S)	5,615	5,460	5,264	5,200
Kingborough (H) (S)	8,335	10,025	10,322	10,300
New Norfolk (H) (S)	9,429	10,217	10,315	10,930
Port Cygnet (S)	2,861	2,754	2,550	2,490
Tasman (S)	1,079	1,108	1,126	1,170
Total Hobart Div.	134,147	(a) 130,236	141,311	144,850
Total SE. Div.		(a) 7,116	7,123	7,140
Total S. Div.		(a) 18,913	18,213	18,240
Launceston	37,627	38,118	37,217	36,880
Total N. Central Div.	37,627	38,118	37,217	36,880
Burnie	13,785	16,745	18,611	19,450
Circular Head	7,568	7,733	7,884	8,140
Deloraine	5,477	5,574	5,205	5,130
Devonport	11,827	14,276	16,758	17,920
Kentish	4,510	4,167	5,614	6,320
King Island	2,554	2,784	2,462	2,380
Latrobe	4,145	4,367	4,807	4,860
Penguin	3,889	4,673	4,677	4,850
Ulverstone	8,091	9,365	10,150	10,780
Wynyard	7,394	8,835	9,564	10,300
Total NW. Div.	69,240	78,519	85,732	90,130
Beaconsfield	7,573	8,550	9,983	10,530
Fingal	4,418	4,475	3,791	3,630
Flinders	1,027	1,407	1,234	1,240
George Town	2,516	3,677	5,101	5,470
Lilydale	4,583	6,744	7,841	8,100
Portland	1,412	1,274	1,391	1,450
Ringarooma	3,440	3,056	2,866	2,820
Scottsdale	3,189	3,417	3,628	3,770
Total NE. Div.	28,158	32,600	35,835	37,010
Evandale	1,676	1,608	1,554	1,520
Longford	4,345	6,762	5,354	5,170
St Leonards	7,095	11,032	13,660	14,860
Westbury	3,974	4,581	4,964	5,070
Total N. Midland Div.	17,090	23,983	25,532	26,620

Population in Local Government Areas and Statistical Divisions At 30 June—*continued*

Local Government Area and Statistical Division	Census 1954	Census 1961	Census 1966	Estimated 1968
Bothwell	1,260	1,288	1,008	1,000
Campbell Town	1,919	1,893	1,753	1,640
Hamilton	6,143	4,178	4,329	4,250
Oatlands	2,914	2,691	2,501	2,410
Ross	680	672	617	640
Total Midland Div. ..	12,916	10,722	10,208	9,940
Gormanston	523	507	540	540
Queenstown	4,497	4,624	4,393	4,520
Strahan	574	565	470	470
Waratah	514	367	698	1,370
Zeehan	2,816	3,191	3,489	3,660
Total W. Div.	8,924	9,254	9,590	10,570
Migratory	650	879	675	650
Total Tasmania	308,752	350,340	371,436	382,030

(a) These figures are partly estimated (see section prefacing table).

The estimated population distribution at 30 June 1969 is shown in Appendix C at end of book.

Distinction Between Urban and Rural

After the Censuses of 1954 and 1961 the Commonwealth Statistician published a population classification using the terms metropolitan, urban and rural. Delineation of the urban boundaries was subjective and the methods used were not completely comparable between states.

In order to develop an objective definition of 'urban' and 'rural' areas intensive research into the problem was undertaken by Dr G. J. R. Linge of the Australian National University.

At the 27th Conference of Statisticians in 1965 the following resolutions relating to the delimitation of urban areas and based substantially on Dr Linge's report were passed:

- (i) (a) That the new concept of an *inner* and *outer* boundary around each of the State capitals and other cities with an urban population of at least 75,000 and a regional population of at least 100,000 be adopted; and
- (b) that the inner boundary be drawn to delimit the extent of urban development at each Census and it should, therefore, be a moving boundary to be adjusted after each Census, except that any State may extend the inner boundary during intercensal years to encompass significant and well-defined peripheral population growth; and
- (c) that the outer boundary be designed to contain the anticipated urban development of a city for a period of at least 20 to 30 years.
- (ii) (a) That an urban boundary be defined as soon as possible for all other settlements with a population of 1,000 or more; and

- (b) that State, Statistical Division, Local Government Area, and other boundaries be ignored in delimiting these urban areas.
- (iii) That urban boundaries be defined so as to include all contiguous census collector's districts which have a population density of 500 or more per square mile (subject to certain special rules).

Effect of Change in Tasmania

The resolution previously quoted as (i) affected only one centre in Tasmania, since only the Hobart area has 'an urban population of at least 75,000 persons and a regional population of at least 100,000'. Resolutions (ii) and (iii) affected all other cities and towns, including Launceston. The concept of ringing the capital city with two statistical boundaries, an inner and an outer, was discussed in depth in the 1968 and 1969 *Year Books*. The following section broadly outlines the current situation in Tasmania.

Population Centred on Hobart

Historical

After the 1891 Census the Tasmanian Government Statistician evolved a new grouping, *Hobart and Suburbs*, applicable to the urban population of Hobart. From 1921 to 1961 *Hobart and Suburbs* comprised the municipalities of Hobart and Glenorchy plus the defined urban areas of the Clarence and Kingborough municipalities. Urban growth during intercensal periods resulted in boundary changes which made population comparisons at census dates not strictly valid. If such urban growth had been ignored the population total for *Hobart and Suburbs* would have been meaningless.

Comparability problems stemming from urban growth were significant throughout Australia. Analysis of the 1961 Census indicated that the problem would become more acute with the passage of time. As a step towards a solution Dr G. J. R. Linge of the *Australian National University* was commissioned by the Commonwealth Statistician to examine and report on 'the delimitation of metropolitan and other boundaries, together with suggestions as to nomenclature, boundaries, mapping and other matters considered pertinent'.

Research Before 1966 Census

In 1963, Dr G. J. R. Linge of the Australian National University was commissioned by the Commonwealth Statistician to examine and report on 'the delimitation of metropolitan and other boundaries, together with suggestions as to nomenclature, boundaries, mapping and other matters considered pertinent'. His report led to the adoption by the 27th Conference of Statisticians of a series of *objective* criteria for the delimitation of urban boundaries, variations from Dr Linge's recommendations being only of a minor nature. These new criteria were applied in the 1966 Census.

The Basic Criterion (1966 Census)

The basic criterion adopted for the delimitation of urban boundaries was *population density* as applied to small areas. As urbanisation increases, the change from rural to urban uses is accompanied by increasing population density. Extensive field investigations have shown that areas at the fringe, which have largely lost their rural characteristics, and are developing towards urbanisation, have densities varying over only a small range. The adoption of a specific density from within that range provided a criterion which adequately delimits urban boundaries, and which can be applied objectively, uniformly,

easily and without undue delay. *The criterion adopted was a density of 500 or more persons per square mile.* The geographic units classified according to the density criterion are census collector's districts, the smallest units available. These areas vary in size and shape, but as far as possible they have been designed to ensure that significant urban development in large rural collector's districts is split off as a separate collector's district.

Rigid application of the 500-person density criterion in every case would have created non-urban enclaves in obviously urban areas, e.g. sports grounds, industrial sites, etc. so special rules had to be formulated. The special rules are set out in the 1968 *Year Book*.

The Two Boundaries Concept

For the purpose of presenting the 1966 Census results, *two* boundaries were drawn:

(i) *The Outer Boundary*: This is *fixed* and circumscribes the area in close economic and social contact with the main city; the enclosed area is large enough to contain the expected growth of the major urban centre for a period of from 20 to 30 years, and its limits were defined after consultation with State authorities. This area is called the *Hobart Statistical Division*; with boundaries unchanged at successive censuses, the Hobart Statistical Division will record population totals for a constant area. Details of this Division are:

Components of Hobart Statistical Division

Local Government Area	Remarks
(i) Cities of Hobart and Glenorchy, and Municipality of Clarence	} Included without partition.
(ii) Municipality of Kingborough	
(iii) Municipality of New Norfolk	<i>Partitioned</i> south of Snug; northern portion included.
(iv) Municipality of Brighton	<i>Partitioned</i> ; west bank strip of Derwent River to New Norfolk, with Boyer and New Norfolk itself, included.
(v) Municipality of Sorell	<i>Partitioned</i> ; east bank strip of Derwent River as far north as Pontville included.
	<i>Partitioned</i> ; coastal strip to Carlton River, with Sorell and Midway Point, included.

(ii) *The Inner Boundary*: This confines the continuous area within which, at the time of the Census, there was a density of at least 500 persons per square mile. The boundary is *not fixed* and will move outwards from census to census, as urbanisation develops. The area within this inner boundary is called the *Hobart Metropolitan Area*.

Components of Hobart Metropolitan Area

Local Government Area	Included	Excluded
(i) City of Hobart	Densely settled eastern portion	Hills and mountains to western boundary
(ii) City of Glenorchy	Densely settled eastern portion	Hills and mountains to western boundary
(iii) Municipality of Kingborough	Taroona (north of Shot Tower)	Balance of municipality
(iv) Municipality of Clarence	Densely settled western portion from Risdon Vale to Howrah	Balance of municipality

The *Hobart Metropolitan Area* includes four local government areas (Hobart, Glenorchy, Clarence, Kingborough) but application of the density criterion means that all have to be partitioned.

The *Hobart Metropolitan Area* embraces a much smaller area than the old concept, *Hobart and Suburbs*. Firstly, it excludes the sparsely settled hill and mountain country in the western parts of Hobart and Glenorchy. Secondly, application of the continuity criterion results in the exclusion of Kingston which, while satisfying the density criterion, is nevertheless separated from Tarooma by several miles of very thinly populated terrain.

(iii) *Urban Areas Between Boundaries*: Between the inner and outer boundaries are a few areas which satisfy the density and other criteria and are therefore classified as urban; they are nevertheless excluded from the *Hobart Metropolitan Area* because there is a substantial break in continuity between them and the main inner urban centre. At present, there are four such centres, namely New Norfolk, Sorell-Midway Point, Lauderdale and Kingston.

(iv) *Other Areas Between Boundaries*: All areas between the inner and outer boundaries not classified as urban are called rural.

(v) *Administrative Boundaries*: In the delineation of both the *Hobart Statistical Division* and the *Hobart Metropolitan Area*, administrative boundaries have been ignored, as these boundaries do not adequately indicate areas of population growth.

The Hobart Statistical Division

The next table shows the population of the components of the *Hobart Statistical Division* at the Census of 1966, and also gives comparative figures from the Census of 1961. (To obtain the 1961 figures, it was necessary to draw boundaries according to the new criteria and to use some estimations.)

Population of Hobart Statistical Division (a)

Components	Census, 30 June 1961	Census, 30 June 1966				
		Males	Females	Persons	Intercensal Increase	
					Number	Percent
Hobart Metropolitan Area (b) ..	110,217	58,537	60,932	119,469	9,252	8.39
Other Urban Centres—						
Urban New Norfolk	5,494	2,875	2,895	5,770	276	5.02
Urban Kingston	2,980	1,630	1,633	3,263	283	9.50
Urban Sorell-Midway Pt ..	1,264	849	803	1,652	388	30.70
Urban Lauderdale	649	461	455	916	267	41.14
Total Other Urban ..	10,387	5,815	5,786	11,601	1,214	11.69
Total Urban	120,604	64,352	66,718	131,070	10,466	8.68
Rural	9,632	5,278	4,963	10,241	609	6.32
Total Hobart Statistical Division	130,236	69,630	71,681	141,311	11,075	8.50

(a) See 'Post-censal Estimates' immediately following for latest data.

(b) This concept replaces the obsolete classification *Hobart and Suburbs*.

Post-censal Estimates: At 30 June 1969, the population estimate for the *Hobart Statistical Division* was 147,830 persons, made up of 124,880 in the *Hobart Metropolitan Area* and 22,950 elsewhere in the Division.

Comparisons: The increase 1961-1966 for the *Hobart Statistical Division* relates to the population within the fixed outer boundary, i.e. the area is the same in both censuses; for the *Hobart Metropolitan Area* the intercensal increase 1961-1966 reflects: (i) population changes within the 1961 boundaries; (ii) urban growth beyond these boundaries as contained by the 1966 boundaries.

Population Centred on Launceston

Population of Launceston and Suburbs

In 1891 the Tasmanian Government Statistician first published figures for an area called *Launceston and Suburbs* which comprised Launceston City plus the urban areas of surrounding municipalities; a practice continued until 1966. When the new method of defining urban boundaries was introduced in 1966 to co-incide with the population census, the new terminology *Urban Launceston* was adopted in lieu of *Launceston and Suburbs*; however, at the time of this change, the *Urban Launceston* boundary differed very little from that of the former *Launceston and Suburbs*.

Urban Launceston's population at 30 June was: 1961 Census, 56,465 persons; 1966 Census, 60,456; 1969 (estimated), 62,390.

Urban and Rural Population of Tasmania

The population density criteria were applied uniformly throughout Tasmania after the 1966 Census and the next table has been compiled to show a dissection of each local government area into urban and rural components; the *Hobart Metropolitan Area* and *Urban Launceston* are specified separately but it should be noted that these two areas are identical in statistical concept with other urban localities.

The localities classified as urban had to have populations exceeding 1,000 persons, but special rules applied to holiday resorts where housing density was taken into account. The urban-rural dissection for Tasmania follows:

Population in Local Government Areas Classified as Urban and Rural
Census, 30 June 1966

Local Government Area and Statistical Division		Total	Rural	Hobart Metropolitan Area	Urban Launceston	Other Urban (a)
Hobart	(H)	53,257	1,118	52,139	..	..
Glenorchy	(H)	39,053	1,283	37,770	..	..
Clarence	(H)	30,236	2,334	26,986	..	916
Brighton	{ (H)	2,207	{ 1,150	..	..	..
	{ (SE)		{ 1,057	..	..	..
Glamorgan	(SE)	1,125	1,125	..	..	..
Green Ponds	(SE)	880	880	..	..	..
Richmond	(SE)	1,658	1,658	..	..	..
Sorell	{ (H)	3,309	{ 459	..	..	1,652
	{ (SE)		{ 1,198	..	..	..
Spring Bay	(SE)	1,205	1,205	..	..	..
Bruny	(S)	400	400	..	..	..
Esperance	(S)	3,740	3,740	..	..	..
Huon	(S)	5,264	5,264	..	..	..
Kingborough	{ (H)	10,322	{ 3,363	2,574	..	3,263
	{ (S)		{ 1,122	..	..	..
New Norfolk	{ (H)	10,315	{ 534	..	..	5,770
	{ (S)		{ 4,011	..	..	..
Port Cygnet	(S)	2,550	2,550	..	..	..
Tasman	(S)	1,126	1,126	..	..	..
Totals—Hobart Div.	..	141,311	10,241	119,469	..	11,601
SE. Div.	..	7,123	7,123	..	..	..
S. Div.	..	18,213	18,213	..	..	..

Population in Local Government Areas Classified as Urban and Rural
Census, 30 June 1966—continued

Local Government Area and Statistical Division	Total	Rural	Hobart Metropolitan Area	Urban Launceston	Other Urban (a)
Launceston	37,217	..	..	37,217	..
Total N. Central Div. ..	37,217	..	..	37,217	..
Burnie	18,611	2,805	..	..	15,806
Circular Head	7,884	5,186	..	..	2,698
Deloraine	5,205	3,412	..	..	1,793
Devonport	16,758	1,883	..	..	14,875
Kentish	5,614	5,614	..	..	..
King Island	2,462	2,462	..	..	..
Latrobe	4,807	2,566	..	..	2,241
Penguin	4,677	2,528	..	..	2,149
Ulverstone	10,150	3,308	..	..	6,842
Wynyard	9,564	3,973	..	..	5,591
Total NW. Div.	85,732	33,737	..	..	51,995
Beaconsfield	9,983	4,179	..	3,903	1,901
Fingal	3,791	3,791	..	..	..
Flinders	1,234	1,234	..	..	..
George Town	5,101	1,008	..	..	4,093
Lilydale	7,841	2,254	..	5,587	..
Portland	1,391	1,391	..	..	..
Ringarooma	2,866	2,866	..	..	..
Scottsdale	3,628	1,930	..	..	1,698
Total NE. Div.	35,835	18,653	..	9,490	7,692
Evandale	1,554	1,527	..	27	..
Longford	5,354	2,664	..	..	2,690
St Leonards	13,660	877	..	12,783	..
Westbury	4,964	4,025	..	939	..
Total N. Midland Div. ..	25,532	9,093	..	13,749	2,690
Bothwell	1,008	1,008	..	..	..
Campbell Town	1,753	1,753	..	..	..
Hamilton	4,329	4,329	..	..	..
Oatlands	2,501	2,501	..	..	..
Ross	617	617	..	..	..
Total Midland Div.	10,208	10,208	..	..	..
Gormanston	540	540	..	..	..
Queenstown	4,393	98	..	..	4,295
Strahan	470	470	..	..	..
Waratah	698	698	..	..	..
Zeehan	3,489	698	..	..	2,791
Total W. Div.	9,590	2,504	..	..	7,086
Migratory	675	..	..	..	..
Total Tasmania	371,436	109,772	119,469	60,456	81,064

(a) Details of urban localities are given in the next section. The last three columns of the table list the Local Government areas classified as *urban*; a more detailed analysis of urban areas is shown below.

Details of Urban Localities

In the previous table, each local government area has been dissected to show the distribution of its population, the final column reading 'Other Urban'. The next table gives details of the localities classified as urban (but excludes the Hobart Metropolitan Area and Urban Launceston).

Populations in Localities Classified as Urban (Excluding Hobart Metropolitan Area and Urban Launceston) at Census 30 June 1966

Locality Classed as Urban	Local Government Area (a)	Persons in Urban Locality	Locality Classed as Urban	Local Government Area (a)	Persons in Urban Locality
Lauderdale ..	Clarence ..	(b) 916	Ulverstone ..	Ulverstone ..	6,842
Sorell ..	Sorell ..	1,652	Wynyard ..	Wynyard ..	3,355
Kingston ..	Kingborough..	3,263	Beaconsfield	Beaconsfield	1,028
New Norfolk ..	New Norfolk..	5,770	Beauty Point	Beaconsfield	(b) 873
Burnie-Somerset	Burnie ..	(c) 15,806	George Town	George Town	4,093
Burnie-Somerset	Wynyard ..	(c) 2,236	Scottsdale ..	Scottsdale ..	1,698
Smithton ..	Circular Head..	2,698	Longford ..	Longford ..	1,688
Deloraine ..	Deloraine ..	1,793	Perth ..	Longford ..	1,002
Devonport ..	Devonport ..	14,875	Queenstown	Queenstown	4,295
Latrobe ..	Latrobe ..	2,241	Rosebery ..	Zeehan ..	1,774
Penguin ..	Penguin ..	2,149	Zeehan ..	Zeehan ..	1,017

(a) See previous table for *total* population of local government area.

(b) Defined as *urban* under special rules relating to *resort areas*.

(c) See other component marked (c).

Full details of the Hobart Metropolitan Area and the Hobart Statistical Division follow:

Population of the Hobart Statistical Division at Census of 30 June 1966

Local Government Area	Total	Rural	Hobart Metro- politan Area	Other Urban	Locality Classified as Urban (U)
Hobart	53,257	1,118	52,139	..	..
Glenorchy	39,053	1,283	37,770	..	..
Clarence	30,236	2,334	26,986	916	(U) Lauderdale (a)
Brighton (Part) ..	1,150	1,150	..	..	..
Sorell (Part)	2,111	459	..	1,652	(U) Sorell
Kingborough (Part) ..	9,200	3,363	2,574	3,263	(U) Kingston
New Norfolk (Part) ..	6,304	534	..	5,770	(U) New Norfolk
Total Hobart Div...	141,311	10,241	119,469	11,601	..

(a) Defined as *urban* under the special rules relating to *resort areas*.

The following points relate to the previous table: (i) the Hobart Metropolitan Area, the inner heart of the division, has a continuous density of 500 or more persons per square mile; (ii) some parts of the cities of Hobart and Glenorchy do not satisfy the density criterion and are therefore classified as rural; (iii) outside the Metropolitan Area, but still within the division, lie four centres with populations dense enough to be classified as urban; (iv) the area of the Hobart Metropolitan Area will be adjusted from time to time as the boundaries of urban concentration spread; (v) the area of the division will be kept constant for the next twenty or thirty years.

The analysis of the local government areas enclosing Launceston follows:

**Population of Launceston and Surrounding Local Government Areas
at Census of 30 June 1966**

Local Government Area	Total	Rural	Urban Launceston	Other Urban	Locality Classified as Urban (U)
Launceston (N. Central)	37,217	..	37,217	..	..
Beaconsfield (NE.) ..	9,983	4,179	3,903	1,028	(U) Beaconsfield
				(a) 873	(U) Beauty Point
Evandale (N. Mid.) ..	1,554	1,527	27	..	..
Lilydale (NE.) ..	7,841	2,254	5,587	..	..
St Leonards (N. Mid.) ..	13,660	877	12,783	..	..
Westbury (N. Mid.) ..	4,964	4,025	939	..	..
Total	(b)	(b)	(b)60,456	(b)	..

(a) Defined as *urban* under the special rules relating to *resort areas*.

(b) Total distributed in North Central, North Eastern and North Midland Statistical Divisions.

Post-censal Locality Estimates: At 30 June 1969, the estimated populations of selected urban localities were: Hobart Metropolitan Area, 124,880; Urban Launceston, 62,390; Burnie-Somerset, 19,550; Devonport, 16,600; Ulverstone, 7,450; New Norfolk, 6,350.

Australian Comparison

The next table compares the proportions of urban and rural population of the Australian States at the Census of 30 June 1966. (In the table, Urban Launceston is included with 'Other Urban'.)

**Proportion of Urban and Rural Population, Australian States and Territories
Census, 30 June 1966
(Per Cent)**

Classification	Proportion of Total Population of State								
	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Urban—									
Metropolitan	57.78	65.54	43.21	66.67	59.76	32.16	..	96.14	58.14
Other ..	28.61	19.97	33.55	15.92	16.76	38.10	76.81	..	25.08
Rural ..	13.40	14.39	23.12	17.27	23.11	29.55	22.40	3.86	16.61
Migratory ..	0.21	0.10	0.12	0.14	0.37	0.18	0.79	..	0.17
Total ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Decentralisation of Population

Tasmania differs very significantly from the five continental States: (i) lowest proportion in the metropolitan area; (ii) highest proportion classified as 'other urban'; (iii) highest proportion classified as 'rural'. The Tasmanian distribution is unique in one respect—none of the continental States has a non-metropolitan urban centre with a population exceeding 50 per cent of that in the metropolitan area; this is the Tasmanian situation, however, such a centre being Urban Launceston (included in 'other urban' in the above table).

The population of the State is located along what has been termed the 'fertile crescent'. This crescent arcs from Smithton (in the west) along the northern face of the Western Tiers and south, through the Midlands to Hobart and the D'Entrecasteaux Channel.

Populations of Australian Capital Cities

The populations of Australian capital cities at Censuses since 1901 are shown in the following table:

Australia: Populations of Capital Cities at Census Dates (a)

Metropolitan Area (b)	1901	1921	1933	1947	1954	1961 (c)	1966 (c)
Sydney ('000)	482	899	1,235	1,484	1,863	2,197	2,446
Melbourne .. (")	496	783	992	1,226	1,524	1,859	2,110
Brisbane .. (")	119	210	300	402	502	588	719
Adelaide .. (")	162	256	313	382	484	580	728
Perth (")	67	155	208	273	349	424	500
Hobart (")	35	52	60	77	95	110	119
Canberra .. ( " )	..	..	7	15	28	56	92
Total—Persons ('000)	1,361	2,355	3,115	3,859	4,845	5,814	6,714
Percentage (d)	36	43	47	51	54	55	58

(a) Census of 1911 not shown.

(b) Some of the apparent increase in the percentage of total population living in capital cities is due to periodic revision and extension of metropolitan boundaries.

(c) *Objective density criterion* introduced in 1966 Census, and 1961 figures revised on comparable basis.

(d) Percentage of total Australian population.

CHARACTERISTICS OF POPULATION

Age Distribution

The Demography chapter of the 1969 *Year Book* contained an age distribution table based on the actual 1966 Census figures. However, it is known that census figures for age are subject to inaccuracies such as apparent preference for certain ages. The 1966 Census figures, which are benchmark for intercensal age distribution estimates, have been adjusted for these inaccuracies and, therefore, in the following table age distribution figures for the 1966 Census will differ slightly from the Census age distribution figures published in the 1969 *Year Book*.

The estimated age distribution for 1968 is based on adjusted 1966 Census figures and subsequent records of births, deaths, arrivals and departures. The adjusting and updating procedures used are not sufficiently accurate to allow preparation of estimates down to the last unit. Therefore in the next table the State's population for each age group is given to the nearest ten and totals for the State to the nearest fifty.

Age Distribution of the Population at 30 June

Age Last Birthday (Years)	1966 (Census) (a)			1968 (Estimate) (b)		
	Males	Females	Persons	Males	Females	Persons
	no.	no.	no.	no.	no.	no.
0-4	20,670	19,710	40,380	19,700	18,800	38,500
5-9	21,340	20,350	41,690	21,930	20,940	42,870
10-14	19,500	18,780	38,280	20,050	19,240	39,290
15-19	17,730	17,250	34,980	18,470	17,680	36,150
20-24	13,010	12,690	25,700	15,280	14,730	30,010
25-29	11,930	11,280	23,210	12,370	11,570	23,940
30-34	10,930	10,220	21,150	11,210	10,670	21,880
35-39	11,940	10,960	22,900	11,590	10,630	22,220
40-44	12,000	11,530	23,530	12,060	11,260	23,320
45-49	10,610	10,340	20,950	11,100	11,040	22,140

Age Distribution of the Population at 30 June—*continued*

Age Last Birthday (Years)	1966 (Census) (a)			1968 (Estimate) (b)		
	Males	Females	Persons	Males	Females	Persons
	no.	no.	no.	no.	no.	no.
50-54	10,320	9,810	20,130	10,270	10,030	20,300
55-59	8,530	7,990	16,520	9,050	8,690	17,740
60-64	6,560	6,460	13,020	7,040	6,840	13,880
65-69	4,750	5,580	10,330	4,990	5,700	10,690
70-74	3,330	4,730	8,060	3,390	4,710	8,100
75-79	2,380	3,430	5,810	2,310	3,600	5,910
80-84	1,230	1,860	3,090	1,250	2,020	3,270
85 and Over ..	640	1,080	1,720	640	1,150	1,790
Total	187,400	184,050	371,450	192,700	189,300	382,050

(a) The actual population at 30 June 1966 was 371,435 persons comprising 187,390 males and 184,045 females.

(b) The estimated population at 30 June 1968 was 382,030 persons comprising 192,720 males and 189,310 females.

Conjugal Condition

The next table shows the conjugal condition of the population at the Census of 1966 compared with that of the previous Census of 1961:

Conjugal Condition of the Population

Conjugal Condition	Census, 30 June 1961		Census, 30 June 1966			
	Persons		Males	Females	Persons	
	Total	Pro-portion of Total			Total	Pro-portion of Total
		per cent				per cent
Never Married—						
Under 15 years of age	117,299	33.48	61,396	58,768	120,164	32.35
15 years and over	58,039	16.57	37,078	27,287	64,365	17.33
Total	175,338	50.05	98,474	86,055	184,529	49.68
Married	153,014	43.68	81,811	81,320	163,131	43.92
Married but permanently separated	4,096	1.17	2,090	2,200	4,290	1.15
Widowed	15,563	4.44	3,782	13,177	16,959	4.57
Divorced	2,329	0.66	1,233	1,293	2,526	0.68
Grand Total	350,340	100.00	187,390	184,045	371,435	100.00

Birthplaces of the Population

The following table is of particular interest in view of the Commonwealth's post-war policy of actively encouraging migration from Europe. From the table it is evident that the proportional representation of the immigrants' birthplaces has varied to only minor degree during the intercensal period 1961 to 1966. It is of note that only those born in the United Kingdom and Eire, Greece and Yugoslavia have increased proportionally. All other groups of European birth have declined. The table shows birthplaces of the population at the Censuses of 1961 and 1966:

Birthplaces of the Population

Birthplace	Census, 30 June 1961		Census, 30 June 1966			
	Persons		Males	Females	Persons	
	Total	Pro- portion of Total			Total	Pro- portion of Total
		per cent				per cent
Australia and Territories ..	317,478	90.62	167,572	168,100	335,672	90.37
New Zealand	1,128	0.32	617	620	1,237	0.33
United Kingdom and Eire ..	16,741	4.78	9,911	9,190	19,101	5.14
Germany	2,223	0.63	1,137	879	2,016	0.54
Greece	489	0.14	451	304	755	0.20
Italy	1,536	0.44	918	530	1,448	0.39
Netherlands	3,556	1.02	1,809	1,558	3,367	0.91
Poland	1,608	0.46	1,064	503	1,567	0.42
Yugoslavia	699	0.20	588	233	821	0.22
Other European Countries ..	2,993	0.85	1,842	1,048	2,890	0.78
Total Europe ..	29,845	8.52	17,720	14,245	31,965	8.61
Other Birthplaces	1,889	0.54	1,481	1,080	2,561	0.69
Grand Total ..	350,340	100.00	187,390	184,045	371,435	100.00

The analysis of the birthplaces of the population at 30 June 1966 can be viewed broadly as a measure of the degree to which migration from overseas has contributed to population growth over a long period.

The next table contrasts the position in the various States and Territories at 30 June 1966:

Australia: Birthplaces of the Population, Census of 30 June 1966
Proportion of Population of State or Territory According to Birthplace
(Per Cent)

Birthplace	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Australia and Territories ..	82.73	78.89	87.99	77.50	76.27	90.37	77.64	73.70	81.61
New Zealand ..	0.61	0.36	0.46	0.20	0.32	0.33	0.95	0.81	0.45
U.K. and Eire	7.20	7.44	6.38	11.18	12.44	5.14	8.25	10.24	7.87
Other European Countries ..	7.69	11.76	4.10	10.11	8.73	3.46	10.11	12.80	8.53
Other Birthplaces ..	1.77	1.55	1.07	1.01	2.24	0.69	3.05	2.46	1.54
Total ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

It will be observed that the Tasmanian pattern differs significantly from that of other States and Territories, the most similar being that of Queensland. Tasmania has the highest percentage of 'Australian' born of any state. The percentage of 'non-British' born i.e. those born outside the British Commonwealth and Eire is the lowest of any state. The following table shows particulars of the period of residence in Australia of persons born outside Australia, both for Tasmania and for the Commonwealth:

**Period of Residence in Australia of Persons Born Outside Australia
Census of 30 June 1966**

Period of Residence (Years)	Tasmania		Australia	
	Persons		Persons	
	Total	Proportion of Total	Total	Proportion of Total
		per cent		per cent
Born Outside Australia—				
Under 1	2,566	0.69	161,861	1.40
1 and under 2	1,838	0.49	124,341	1.08
2 and under 3	1,494	0.40	110,329	0.96
3 and under 4	1,020	0.27	88,038	0.76
4 and under 5	993	0.27	72,902	0.63
Total Under 5	7,911	2.13	557,471	4.83
5 and Over	27,078	7.29	1,527,072	13.22
Not Stated	864	0.23	46,378	0.40
Total Born Outside Australia	35,853	9.65	2,130,921	18.45
Born in Australia	335,582	90.35	9,419,542	81.55
Grand Total	371,435	100.00	11,550,463	100.00

During the intercensal period 1961-1966, the number of persons born outside Australia in the Tasmanian and Commonwealth populations increased by 9.1 per cent and 19.8 per cent respectively. This can be related to the Commonwealth's policy of encouraging migration.

The previous table shows that this policy has had less effect upon the Tasmanian population than upon the Australian population.

Nationality of Population

Comparable percentages of persons of British nationality at 30 June 1966 were: N.S.W., 95.79; Victoria, 93.61; Queensland, 98.28; S.A., 95.24; W.A., 96.26; Tasmania, 98.46; N.T., 93.17; A.C.T., 92.51; Australia, 95.58. It should be noted that the Federal *Nationality and Citizenship Act* 1948 created, for the first time, the status of 'Australian Citizen'; all Australian citizens under the provisions of this Act are declared to be British subjects. From the earlier table on birthplaces of the Tasmanian population, it is established that 95.84 per cent were born in Australia, N.Z., the United Kingdom or Eire. While birthplace does not necessarily determine nationality in all cases, comparison of birthplace with nationality suggests that the percentage of naturalised British subjects was probably less than three per cent of the Tasmanian population at 30 June 1966.

The question has been asked: why is there no mention of 'Australian' as a separate nationality in census tables? The chief difficulty lies in the fact that persons born in the United Kingdom, New Zealand, Eire, Canada, and other proclaimed countries with British links, may permanently reside in Australia, enjoy the same privileges as native-born citizens but never take any formal steps to acquire Australian citizenship; such persons at the time, of a census, may report their nationality as 'Irish', 'Australian' or 'British'. A further difficulty is that some native-born citizens may report their nationality as 'British', rather than 'Australian'. Accordingly, no attempt is made to isolate Australian citizens in the British group.

The following table shows the nationality of the Tasmanian population at 30 June 1966 and also at 30 June 1961:

Nationality (i.e. Allegiance) of the Population

Nationality	Census, 30 June 1961		Census, 30 June 1966			
	Persons		Males	Females	Persons	
	Total	Pro-portion of Total			Total	Pro-portion of Total
		per cent				per cent
British (a)—						
Born in Australia	317,478	90.62	167,531	168,051	335,582	90.35
Born Outside Australia ..	24,927	7.12	16,345	13,795	30,140	8.11
Total British	342,405	97.74	183,876	181,846	365,722	98.46
Foreign—						
Dutch	2,241	0.64	685	580	1,265	0.34
German	1,223	0.35	467	325	792	0.21
Greek	384	0.11	325	231	556	0.15
Italian	1,213	0.35	550	363	913	0.25
Polish	649	0.19	257	160	417	0.11
Yugoslavian	397	0.11	270	108	378	0.10
Other (incl. Stateless) ..	1,828	0.52	960	432	1,392	0.37
Total Foreign	7,935	2.26	3,514	2,199	5,713	1.54
Grand Total	350,340	100.00	187,390	184,045	371,435	100.00

(a) All persons of individual citizenship status who, by virtue of the Federal *Nationality and Citizenship Act 1948*, are deemed to be British subjects. Includes naturalised British. For purposes of this table, Irish nationality is included with British.

Occupational Status

Lack of Comparability

The comparison in the next table is *approximate only*, since the method of classifying the occupational status of the population was changed in the 1966 Census; one result of this change was to classify as work force some persons who would possibly have excluded themselves in the 1961 Census. The essential difference between the pre-1966 approach to work force and the 1966 approach was this: in the pre-1966 censuses, people were invited to classify themselves (e.g. as unemployed, employee, etc.); in the 1966 Census, people were invited to describe their *activity* in a specific week and the Statistician, using pre-determined definitions, classified them on the basis of their answer.

The effect of the new approach and definitions was to include additional persons in the work force. This applied particularly to those working part-time (sometimes for only a few hours a week), some of whom in 1961 may not have considered themselves as '... engaged in an industry, business, profession, trade or service'.

The new method of classification is fully discussed in Chapter 10, 'Labour, Prices and Wages', the relevant sections being headed 'Employment' and 'Unemployment'. 'At Work' was the classification employed at the 1961 Census; the 1966 equivalent was 'Employed', a changed concept.

The table below shows the occupational status of persons in the work force at the respective census dates (30 June 1961 and 1966):

Occupational Status: Analysis of Those in Work Force

Occupational Status	Census, 30 June 1961		Census, 30 June 1966			
	Persons		Males	Females	Persons	
	Total	Proportion of Work Force			Total	Proportion of Work Force
In Work Force—		per cent				per cent
At Work—						
Employer	8,221	6.28	8,245	1,759	10,004	6.79
Self-Employed	13,191	10.08	9,162	1,644	10,806	7.33
Employee (a)	104,716	79.99	87,572	35,451	123,023	83.51
Helper (b)	699	0.53	432	940	1,372	0.93
Total Employed ..	126,827	96.88	105,411	39,794	145,205	98.56
Not at Work—						
Unemployed (c)	2,592	1.98	1,146	971	2,117	1.44
Others not at Work ..	1,498	1.14	..	..	..	..
Total in Work Force ..	130,917	100.00	106,557	40,765	147,322	100.00
Not in Work Force	219,423	..	80,833	143,280	224,113	..
Grand Total	350,340	..	187,390	184,045	371,435	..

(a) On wage or salary.

(b) Not on wage or salary.

(c) In 1961, total of those 'unable to secure employment'; in 1966, total of 'unemployed'.

See the previous text for changes in classification.

The following table shows the status of persons not in the work force in the 1961 and 1966 Censuses:

Occupational Status: Analysis of Those not in the Work Force

Occupational Status	Census, 30 June 1961		Census, 30 June 1966			
	Persons		Males	Females	Persons	
	Total	Proportion of those not in Work Force			Total	Proportion of those not in Work Force
Not in Work Force—		per cent				per cent
Child not at School	45,447	20.71	22,544	21,474	44,018	19.64
Child Attending School or Full-time Student	79,114	36.06	44,325	42,103	86,428	38.56
Mainly Dependent on Pension or Superannuation	22,230	10.13	9,310	13,551	22,861	10.20
Independent Means	3,390	1.54	1,287	1,541	2,828	1.26
Home Duties	65,619	29.91	..	61,113	61,113	27.27
Inmates of Institutions ..	2,349	1.07	1,248	1,594	2,842	1.27
Other	1,274	0.58	2,119	1,904	4,023	1.80
Total Not in Work Force	219,423	100.00	80,833	143,280	224,113	100.00
Total in Work Force	130,917	..	106,557	40,765	147,322	..
Grand Total	350,340	..	187,390	184,045	371,435	..

In the next table, the proportions of the population in the work force in Tasmania and Australia at the respective Census dates are shown. It is obvious from the table, that for both males and females, the proportion of the population in the work force in Tasmania is lower than the Australian average.

Tasmania and Australia: Proportions of Population in Work Force (Per Cent)

Particulars	Census, 30 June 1961			Census, 30 June 1966		
	Males	Females	Persons	Males	Females	Persons
Total in Work Force—						
Tasmania	57.02	17.15	37.37	56.86	22.15	39.66
Australia	59.59	20.38	40.21	58.83	25.02	42.05

Industry

The next table shows the main groups of industry in which the work force of Tasmania was employed at 30 June 1966, compared with 1961.

Industry of Population

Industry Group	Census, 30 June 1961		Census, 30 June 1966			
	Persons		Males	Females	Persons	
	Total	Pro- portion of Work Force			Total	Pro- portion of Work Force
		per cent				per cent
Primary Production	17,157	13.11	15,054	2,161	17,215	11.69
Mining and Quarrying	3,631	2.77	3,245	128	3,373	2.29
Manufacturing	29,531	22.56	27,109	6,850	33,959	23.05
Electricity, Gas, Water and San- itary Services (a)	3,165	2.42	3,743	258	4,001	2.72
Building and Construction	13,343	10.19	13,956	333	14,289	9.70
Transport and Storage	9,014	6.89	8,294	566	8,860	6.01
Communication	3,645	2.78	2,907	984	3,891	2.64
Finance and Property	3,726	2.85	2,846	1,720	4,566	3.10
Commerce	20,547	15.69	14,194	8,777	22,971	15.59
Public Authority (n.e.i.) and Defence Services	5,010	3.83	3,941	1,556	5,497	3.73
Community and Business Services (including Professional) (b)	13,023	9.95	6,933	10,555	17,488	11.87
Amusement, Hotels, Cafes, Per- sonal Service, etc.	7,038	5.38	3,241	5,037	8,278	5.62
Other	2,087	1.59	1,094	1,840	2,934	1.99
Total in Work Force	130,917	100.00	106,557	40,765	147,322	100.00
Persons not in Work Force	219,423	..	80,833	143,280	224,113	..
Grand Total	350,340	..	187,390	184,045	371,435	..

(a) Production, supply and maintenance.

(b) Includes police, fire brigades, hospitals, medical and dental services, education, business services such as consultant engineering and surveying, accounting and auditing, industrial and trade associations, advertising, etc.

In the case of employees, the basis of classification is the industry of the employer; thus a carpenter employed by a mining company will appear under 'Mining and Quarrying', not under 'Building and Construction'. Employees in the government sector (Commonwealth, State, Semi-Government, and Local Government) are not recorded separately but are allocated to appropriate industry groupings, e.g. State railway workers to 'Transport', postal workers to 'Communication', etc. Government employees not classified under any of the major industry groups in the following table appear under 'Public Authority n.e.i.'.

'Work force' should not be confused with wage and salary earners since the term, by definition, includes employees, employers, self-employed, unpaid helpers and those classified as unemployed. For a full discussion, see Chapter 10.

Religion

Commencing with the Census of 1933, and in subsequent censuses, the collection forms carried a note reminding the public that there was no legal obligation to answer the question on religion. The proportions of the population (10.28 per cent in 1961 and 9.78 cent per in 1966) not answering the question appear in the associated table as 'No Reply'.

The following table analyses the Tasmanian population according to religion reported at the Censuses of 1961 and 1966.

Religions of the Population

Religion	Census, 30 June 1961		Census, 30 June 1966			
	Persons		Males	Females	Persons	
	Total	Pro-portion of Total			Total	Pro-portion of Total
Christian—		per cent				per cent
Baptist	7,227	2.06	3,719	4,040	7,759	2.09
Brethren	2,008	0.57	1,508	1,554	3,062	0.82
Catholic (a)	63,993	18.27	36,058	35,031	71,089	19.14
Churches of Christ	2,507	0.72	1,328	1,373	2,701	0.73
Church of England	159,101	45.41	83,098	82,925	166,023	44.70
Congregational	4,193	1.20	2,145	2,385	4,530	1.22
Greek Orthodox	1,009	0.29	880	634	1,514	0.41
Lutheran	1,555	0.44	922	820	1,742	0.47
Methodist	42,236	12.06	20,994	22,090	43,084	11.60
Presbyterian	16,757	4.78	8,648	8,850	17,498	4.71
Protestant (Undefined)	1,975	0.56	1,288	1,373	2,661	0.72
Salvation Army	2,316	0.66	663	834	1,497	0.40
Seventh Day Adventist	1,567	0.45	980	944	1,924	0.52
Other (including Christian Undefined)	5,090	1.45	2,584	2,659	5,243	1.41
Total Christian	311,534	88.92	164,815	165,512	330,327	88.93
Non-Christian—						
Hebrew	150	0.04	119	88	207	0.06
Other	118	0.04	199	79	278	0.07
Total Non-Christian	268	0.08	318	167	485	0.13
Indefinite	1,766	0.50	1,212	1,063	2,275	0.61
No Religion	775	0.22	1,345	675	2,020	0.54
No Reply	35,997	10.28	19,700	16,628	36,328	9.78
Grand Total	350,340	100.00	187,390	184,045	371,435	100.00

(a) Includes Catholic and Roman Catholic. (The Census forms do not list religions and followers of the one religion may describe it under different titles.)

VITAL STATISTICS

Historical

In 1839, John Montagu, Colonial Secretary of Van Diemen's Land, submitted to the Governor, Sir John Franklin, a series of statistical returns; below is shown part of Return No. 17:

Vital Statistics of Van Diemen's Land

Year					Births	Deaths	Marriages
1824	..	..	..	..	177	132	75
1828	..	..	..	..	309	250	120
1829	..	..	..	..	301	260	166
1830	..	..	..	..	460	270	163
1831	..	..	..	..	422	282	114
1833	..	..	..	..	455	379	257
1834	..	..	..	..	714	557	370
1835	..	..	..	..	730	525	356
1836	..	..	..	..	684	443	496
1837	..	..	..	..	754	597	381
1838	..	..	..	..	717	403	331

The complete table covers the period 1824-1838 but entries for 1825, 1826, 1827 and 1832 read 'No Returns'. In a commentary for the Governor's guidance, Montagu wrote: 'I would also observe that the number of births and deaths are those only returned by ministers of the Church of England, and the former column refers to those only who have been christened; and although the number of deaths must be near the truth, yet the actual number of births has been very much under-stated'. Thus, even though the Tasmanian record of births, deaths and marriages covers a period of 140 years, these early figures cannot be accepted as being very reliable.

Registration Provisions

Franklin's Legislative Council had passed in 1838 *An Act for Registering Births, Deaths and Marriages in the Island of Van Diemen's Land and its Dependencies*. This provided for a Registrar in Hobart with subordinate Deputy Registrars in registration districts throughout the colony; they were to record births and deaths and report them to the Registrar. Ministers celebrating marriage were required to report direct to the Registrar; Deputy Registrars could also officiate and had certain licensing functions. As late as 1867, the Government Statistician complained that accurate death rates could not be compiled because Section 22 of the 1838 Act excluded the registration of the death of any prisoner of the Crown serving under an unexpired sentence of transportation. In 1868, he reported that the death rate could be accepted as correct since 'only one transported offender died during the year'. This would certainly suggest that *total* deaths for the island were not recorded for the years 1839 to 1866.

From 1857 to 1882, the Registrar of the Supreme Court was also Registrar of Births, Deaths and Marriages; from 1882 to 1919, the Government Statistician was the Registrar; from 1919, the Registrar-General's Department operated as a separate entity.

The Registrar General

The principal Act under which the Registrar General operates is the *Registration of Births and Deaths Act* 1895 as amended which provides for district Registrars and the appointment of a Registrar General to be responsible

for the maintenance of central registers; in essence, the regional approach of the 1838 Act is retained. The functions of the Registrar General in relation to the registration of marriages were last defined in the *Marriage Act* 1942. However, in 1961, the Commonwealth Parliament passed the *Marriage Act* 1961. A few minor provisions (relating mainly to certain extensions of the application of the prohibited degrees) came into operation on the date the Act received the Royal Assent (6 May 1961) and the remainder of the Act came into operation on 1 September 1963. On this date, the Act superseded the marriage laws of all the States but did not affect the essential function of the Registrar General in the central registration of marriages. (The Commonwealth's passage of a uniform marriage law for Australia was the sequel to negotiations with all States.)

At the office of the Registrar General, there is kept a collection of all registrations made since 1839, as well as church records for earlier periods.

Summary of Principal Statistics

The principal numbers and rates relating to vital statistics in Tasmania for recent years are given in the following table:

Summary of Vital Statistics

Year	Number of—				Rate per 1,000 of Mean Population			Infant Mortality
	Marriages	Live Births	Deaths	Infant Deaths (a)	Marriages	Live Births	Deaths	Deaths Under One Year per 1,000 Live Births
1958	2,475	8,568	2,708	167	7.38	25.55	8.07	19.5
1959	2,567	8,625	2,780	202	7.52	25.26	8.14	23.4
1960	2,713	8,853	2,670	169	7.82	25.52	7.70	19.1
1961	2,677	8,982	2,789	151	7.57	25.40	7.89	16.8
1962	2,485	8,894	2,870	184	6.99	25.01	8.07	20.7
1963	2,579	8,530	2,818	153	7.15	23.66	7.82	17.9
1964	2,869	8,252	3,174	166	7.87	22.64	8.71	20.1
1965	2,888	7,535	3,043	125	7.85	20.48	8.27	16.6
1966	2,946	7,401	3,159	108	7.93	19.91	8.50	14.6
1967	3,213	7,547	3,228	130	8.53	20.04	8.57	17.2
1968	3,426	8,317	3,284	143	8.96	21.76	8.59	17.2

(a) Deaths under one year; included also in total deaths.

Crude Rate Comparisons

The rates per 1,000 of mean population for births, deaths and marriages are referred to as *crude* rates. It will be seen, in regard to marriages, that not *all* the population is 'at risk', children and those already married being obvious excluded examples. Similarly, births are clearly events related to certain fertile age groups of women and not to the total population; births also are directly related to the number of married persons and to the age structure of the married proportion of the community. Finally, deaths have a definite relationship with the numbers of each sex and the age structure of the community. Crude rates are valid measures of comparison in the short term only.

Subject to this limitation, the following Tasmanian historical comparisons exist as from 1880:

1. Crude Marriage Rate: highest 10.51 (1946); lowest 5.50 (1895 and 1896).
2. Crude Birth Rate: highest 36.63 (1884); lowest 19.39 (1935).
3. Crude Death Rate: highest 17.41 (1883); lowest 7.70 (1960).

It is probably significant that 1946 was the year of rapid demobilisation after World War II and that a similar marriage trend was recorded for 1919 and 1920 after World War I; as to the minima for marriage and birth rates, the 1890s and 1930s were decades characterised by severe economic depression. The crude birth rate for 1966 (19.91 per 1,000 of mean population) is not far above the State's lowest figure recorded in the 20th century (i.e. 19.39 in 1935). There is, of course, no suggestion that 1966 was a year of economic depression and the popularly accepted theory attributes the low figure to deliberate family planning. However, other factors are operative, the principal being the age composition of the female population. Girls born in the immediate post-war period are now entering the ranks of those likely to marry and this is increasing the number of potentially fertile women. The crude birth rate for 1968 rose to 21.76, the previous year's rate being 20.04.

The effect of the post-war increase in births on the number of potentially fertile women may be inferred from the following table:

Pre-War, War-Time and Post-War Female Births

Year	Female Births	Year	Female Births	Year	Female Births
1934	2,127	1941	2,574	1948	3,452
1935	2,211	1942	2,612	1949 (a) ..	3,532
1936	2,226	1943	2,677	1950	3,490
1937	2,359	1944	2,503	1951	3,553
1938	2,366	1945	2,882	1952	3,790
1939	2,409				
		1946	3,287	1953	3,843
1940	2,425	1947	3,517	1954	3,851

(a) Survivors in 1970 are females aged 21 years.

Review of Infant Mortality

Infant mortality relates to the number of deaths *under one year* and the rate is expressed as the number of such deaths per 1,000 live births. It follows that comparisons over long periods of time are valid and not affected by the limitations attached to crude rates. In the record of infant mortality, the drop in rates has been dramatic:

Infant Mortality Rate, Selected Years, from 1880

Year	Deaths under One Year Per 1,000 Live Births	Year	Deaths under One Year Per 1,000 Live Births	Year	Deaths under One Year Per 1,000 Live Births
1880 ..	112.3	1920 ..	65.5	1960 ..	19.1
1890 ..	105.6	1930 ..	50.6	1966 ..	14.6
1900 ..	80.0	1940 ..	35.2	1967 ..	17.2
1910 ..	101.7	1950 ..	23.8	1968 ..	17.2

The peak year since 1880 was 1883 with a rate of 124.0. In the period 1880-1910, the annual infant mortality rate exceeded 100 on 14 occasions. By way of contrast, the rate in 1966 reached a *record minimum* of 14.6.

At the turn of the century, 20 to 25 per cent of all deaths were those of infants under one year. It is apparent that the rapid fall in infant mortality rates will have markedly affected crude death rates, infant deaths being a

component of total deaths. Infant mortality rates are used by some authorities as an index of the degree of civilisation attained by a community; by such standards, Tasmania, in common with other Australian States, ranks extremely high in comparison with other countries of the world.

Marriages

The following table summarises the number of marriages and the crude marriage rate since 1880:

Marriages and Crude Marriage Rates, Selected Years from 1880

Year	Marriages		Year	Marriages	
	Number	Crude Rates (a)		Number	Crude Rates (a)
1880 ..	840	7.39	1940 ..	2,476	10.27
1890 ..	954	6.66	1950 ..	2,422	9.18
1900 ..	1,332	7.72	1960 ..	2,713	7.82
1910 ..	1,493	7.82	1966 ..	2,946	7.93
1920 ..	1,999	9.50	1967 ..	3,213	8.53
1930 ..	1,450	6.56	1968 ..	3,426	8.96

(a) Number of marriages per 1,000 of mean population.

A feature of recent years has been the increase in the proportion of marriages which involve minors. Although the number of females marrying under sixteen years has fallen due to a change in the minimum legal age of marriage, the tendency to marry younger, evident since the end of World War II, continues as shown in the following table:

Marriages of Minors

Year	Age in Years							Total	
	14	15	16	17	18	19	20	Number	Percentage of Total Marriages (a)

Bridegrooms

1963 ..	..	..	2	18	71	118	228	437	16.94
1964 ..	..	..	..	8	79	142	254	483	16.84
1965 ..	..	..	..	5	131	176	249	561	19.43
1966 ..	..	..	..	3	103	239	241	586	19.89
1967 ..	..	..	1	3	107	220	329	660	20.54
1968 ..	..	..	..	8	120	215	317	660	19.26

Brides

1963 ..	..	2	12	94	193	296	361	311	1,269	49.20
1964 ..	..	..	1	118	237	314	382	370	1,422	49.56
1965 ..	..	..	3	105	253	370	401	382	1,514	52.42
1966 ..	..	..	2	128	189	350	448	425	1,542	52.34
1967 ..	..	..	2	102	232	354	444	516	1,650	51.35
1968 ..	..	..	3	119	234	384	482	559	1,781	51.98

(a) Includes marriages involving adults.

The next table analyses the ages of all bridegrooms and brides contracting marriages:

Age of Bridegrooms and Brides, 1968

Age (Years)	Bridegrooms		Brides	
	Number	Per Cent of Total	Number	Per Cent of Total
Under 20	343	10.01	1,222	35.67
20-24	1,934	56.45	1,650	48.16
25-29	664	19.38	229	6.68
30-34	155	4.52	71	2.07
35-39	73	2.13	59	1.72
40-44	72	2.10	58	1.69
45-49	57	1.66	46	1.34
50-54	38	1.11	30	0.88
55-59	33	0.96	25	0.73
60-64	22	0.64	17	0.50
65 and Over	35	1.02	19	0.55
Total	3,426	100.00	3,426	100.00

The following table gives the average age of brides and bridegrooms in recent years:

Average Age of Bridegrooms and Brides
(Years)

Particulars	1963	1964	1965	1966	1967	1968
Average Age of Bridegrooms—						
Bachelors	24.23	24.25	24.01	24.44	24.33	24.06
Widowers	56.63	57.44	55.40	57.55	56.29	58.07
Divorcees	41.43	42.02	40.60	40.87	41.70	40.73
All Bridegrooms	26.48	26.64	25.99	26.88	26.13	25.97
Average Age of Brides—						
Spinsters	21.16	21.09	21.05	21.50	21.39	21.26
Widows	49.25	51.39	49.86	51.59	48.57	50.47
Divorcees	36.97	38.14	36.83	38.84	36.42	37.35
All Brides	23.10	23.30	22.82	23.84	23.14	23.12

In the next table, the conjugal condition of persons marrying is shown for a six-year period:

Conjugal Condition of Persons Marrying

Year	Bridegrooms			Brides			Total Marriages
	Bachelors	Widowers	Divorced	Spinsters	Widows	Divorced	
1963 ..	2,334	100	145	2,332	89	158	2,579
1964 ..	2,581	112	176	2,592	122	155	2,869
1965 ..	2,638	106	144	2,643	96	149	2,888
1966 ..	2,636	125	185	2,634	117	195	2,946
1967 ..	2,952	85	176	2,930	114	169	3,213
1968 ..	3,138	99	189	3,126	118	182	3,426

Over the last ten years, the months in which marriages most frequently occurred were April, followed by December and January in that order; July appears to be the least popular. The numbers of marriages performed according to the rites of the principal religious denominations and of civil marriages contracted before Registrars are shown for recent years. The number of Civil Ceremonies has increased each year since 1964, when a sharp drop in numbers occurred.

Marriages, Religious and Civil

Particulars of Celebration	1963	1964	1965	1966	1967	1968
Religious Rites—						
Church of England	934	1,108	1,089	1,097	1,299	1,433
Catholic	518	605	641	652	690	732
Presbyterian	113	138	143	141	147	144
Methodist	398	377	381	416	434	417
Congregational	46	31	49	47	44	39
Baptist	85	75	98	79	83	91
Church of Christ	23	25	21	19	20	16
Salvation Army	20	21	20	17	19	32
Seventh Day Adventist	5	6	3	11	9	14
Other	74	71	86	92	83	83
Civil Ceremonies (a)	363	412	357	375	385	425
Total	2,579	2,869	2,888	2,946	3,213	3,426

(a) Marriages contracted before Registrars.

Divorce

Divorce in Tasmania was previously provided for under the *Matrimonial Causes Act* 1860 as amended in 1864, 1874 and 1959. However, as from 1 February 1961, Australia came under uniform divorce law, the new *Matrimonial Causes Act* 1959 of the Commonwealth Parliament having come into effect on that date. (Like the uniform marriage law, the Commonwealth legislation relating to divorce was the sequel to negotiations with the States.)

In 1968, dissolutions of marriage approached nine per cent of the number of marriages contracted for that year (303 dissolutions against 3,426 marriages). The increase in the number of annual dissolutions is shown in the historical table which follows.

Dissolutions of Marriage (a) Granted, Summary from 1881

Decade Ending—	Maximum in Decade		Minimum in Decade	
	Year	Number	Year	Number
1890	1886	6	1884	..
1900	1894	6	1896	3
1910	1909	13	1904	2
1920	1920	18	1916	2
1930	1928	55	1924	20
1940	1938	109	1937	30
1950	1949	266	1942	83
1960	1954	233	1958	176
1968 (b) ..	1966	319	1964	230

(a) Includes nullities of marriage and judicial separations.

(b) Incomplete decade.

The following table gives the number of petitions filed by husbands and wives respectively, and the number of dissolutions of marriage during the last six years. Every decree of dissolution of marriage is, in the first instance, a decree nisi and is not made absolute till the expiration of not less than three months thereafter.

Petitions Filed and Dissolutions Granted

Particulars	1963	1964	1965	1966	1967	1968
Petitions for Dissolution (a) Filed By—						
Husband	126	149	146	156	151	198
Wife	147	175	185	201	169	210
Total Petitions	273	324	331	357	320	408
Dissolutions (a) Granted on Petition of—						
Husband	108	116	131	142	96	154
Wife	153	114	149	177	152	149
Total Dissolutions ..	261	230	280	319	248	303

(a) Includes nullities of marriage and judicial separations.

The next table deals with petitions filed:

Petitions Filed, 1968

Petition For	Petitioner		Total
	Husband	Wife	
Dissolution	197	208	405
Nullity	1	1	2
Judicial Separation .. ..	..	1	1
Total	198	210	408

The table that follows analyses the grounds on which dissolutions were granted:

Dissolutions Granted According to Grounds, 1968

Grounds	Petitioner		Total
	Husband	Wife	
DISSOLUTION OF MARRIAGE (a)			
Single Ground—			
Desertion	59	54	113
Adultery	49	36	85
Separation	32	37	69
Cruelty .. .. .	..	6	6
Drunkenness	1	1	2
Other	2	..	2
Dual Grounds—			
Desertion and Adultery ..	2	2	4
Desertion and Separation	8	7	15
Cruelty and Drunkenness	..	2	2
Other	1	3	4
Three Grounds or More ..	..	1	1
Total	154	149	303

(a) Includes nullities of marriage and judicial separations.

The more frequent grounds for the granting of dissolutions are:

Dissolutions (a) Granted According to More Frequent Grounds

Grounds	1963	1964	1965	1966	1967	1968
On Petition of Husband—						
Adultery	32	37	30	33	18	49
Desertion	46	48	61	69	44	59
Separation	23	20	27	27	24	32
Other	7	11	13	13	10	14
On Petition of Wife—						
Adultery	27	17	27	25	23	36
Desertion	66	47	58	72	65	54
Separation	40	25	41	47	38	37
Other	20	25	23	33	26	22
Total	261	230	280	319	248	303

(a) Includes nullities and judicial separations.

An analysis is made of the ages of the parties:

Dissolutions of Marriage, 1968—Ages of Parties at Time of Dissolution

Age of Husband (Years)	Age of Wife (Years)						Total Husbands
	Under 21	21-29	30-39	40-49	50-59	60 and over	
Under 21 .. .. .	..	..	..	..	..	..	..
21-29	3	60	..	..	..	..	63
30-39 .. .. .	..	30	62	6	..	..	98
40-49 .. .. .	..	4	26	50	2	..	82
50-59 .. .. .	..	1	2	22	18	..	43
60 and Over .. .. .	..	1	..	2	10	4	17
Total Wives ..	3	96	90	80	30	4	303

(a) Includes nullities of marriage and judicial separations.

The duration of marriage and issue are analysed below:

Dissolutions of Marriage, 1968 (a)—Duration of Marriage and Issue

Duration of Marriage (Years)	Dissolutions of Marriages with—						Total Marriages Dissolved	Total Number of Children (b)
	No Children	1 Child	2 Children	3 Children	4 Children	5 or more Children		
0- 4 ..	13	9	..	..	..	..	22	9
5- 9 ..	23	28	26	6	3	..	86	110
10-14 ..	15	11	21	17	4	3	71	135
15-19 ..	6	6	18	5	4	2	41	88
20-24 ..	6	7	7	7	10	4	41	109
25-29 ..	5	7	4	3	2	1	22	37
30-34 ..	8	6	..	1	..	..	13	9
35-39 ..	3	..	..	..	1	..	4	4
40-44 ..	1	..	..	..	..	..	1	..
45 and Over ..	..	..	..	..	..	..	..	..
Total Dissolutions	80	74	76	39	24	10	303	..
Total Children (b) ..	..	74	152	117	96	62	..	501

(a) Includes nullities of marriage and judicial separations.

(b) Under 21 years of age.

Births

The following table summarises births and crude birth rates from 1880:

Number of Births and Crude Birth Rates, Selected Years from 1880

Year	Births		Year	Births	
	Number	Per 1,000 of Mean Population		Number	Per 1,000 of Mean Population
1880 ..	3,739	32.90	1930 ..	4,785	21.66
1885 ..	4,637	36.29	1935 ..	4,456	19.39
1890 ..	4,813	33.60	1940 ..	4,994	20.71
1895 ..	4,790	31.16	1945 ..	5,785	23.27
1900 ..	4,864	28.18	1950 ..	7,242	25.96
1905 ..	5,257	28.50	1955 ..	8,089	25.63
1910 ..	5,586	29.25	1960 ..	8,853	25.52
1915 ..	5,845	29.78	1966 ..	7,401	19.91
1920 ..	5,740	27.29	1967 ..	7,547	20.04
1925 ..	5,218	24.21	1968 ..	8,317	21.76

The next table shows, for a six-year period, the number of births and the age-groups of the mothers:

Number of Births Classified According to Age of Mother, and Crude Birth Rates

Age Group of Mothers (Years)	1963	1964	1965	1966	1967	1968
10-14	5	2	6	1	6	7
15-19	1,001	1,073	1,074	1,113	1,091	1,163
20-24	2,869	2,834	2,632	2,586	2,749	3,206
25-29	2,302	2,190	2,039	2,000	2,064	2,272
30-34	1,368	1,196	1,016	980	997	1,033
35-39	717	704	572	541	471	468
40-44	255	231	186	168	159	160
45 and over ..	13	22	10	12	10	8
Total	8,530	8,252	7,535	7,401	7,547	8,317
Crude Birth Rate (a)	23.66	22.64	20.48	19.91	20.04	21.76

(a) Births per 1,000 of mean population.

One common observation is that births of males, in total, usually exceed those of females. The next table shows births by sex and indicates masculinity:

Births by Sex and Masculinity

Particulars	1963	1964	1965	1966	1967	1968
Births of—						
Males	4,428	4,218	3,876	3,753	3,870	4,288
Females	4,102	4,034	3,659	3,648	3,677	4,029
Total	8,530	8,252	7,535	7,401	7,547	8,317
Masculinity (a) ..	107.95	104.56	105.93	102.88	105.25	106.43

(a) Number of male births per 100 female births.

In the following table, births are analysed by sex and by the age of the mother and classified as nuptial or ex-nuptial:

Births by Sex, Age of Mother and Nuptial State, 1968

Age Group of Mothers (Years)	Nuptial		Ex-Nuptial		All Births		
	Male	Female	Male	Female	Male	Female	Total
10-14 .. ..	..	..	5	2	5	2	7
15-19	449	409	144	161	593	570	1,163
20-24	1,571	1,447	95	93	1,666	1,540	3,206
25-29	1,125	1,070	36	41	1,161	1,111	2,272
30-34	510	480	24	19	534	499	1,033
35-39	225	217	14	12	239	229	468
40-44	80	69	6	5	86	74	160
45 and Over ..	4	4	..	..	4	4	8
Total ..	3,964	3,696	324	333	4,288	4,029	8,317

In 1968, the 8,317 livebirths were the result of 8,227 confinements. Included in the confinements were 89 cases of twins, and one case of triplets. ('Confinements' in this context relates only to those resulting in at least one live-birth.)

The following table shows nuptial first births according to age of mother and duration of marriage:

Nuptial First Births, 1967

Duration of Marriage	Age of Mothers (Years)									Total Nuptial First-Born Children (a)
	Under 17	17	18	19	20-24	25-29	30-34	35-39	40 and Over	
Months—										
0	4	5	4	1	3	..	..	..	..	17
1	2	8	5	4	7	4	1	1	..	32
2	5	11	7	6	17	3	..	..	..	49
3	3	15	16	13	27	4	1	..	..	79
4	6	24	27	24	46	5	4	1	..	137
5	9	34	54	51	80	2	1	1	..	232
6	4	22	38	52	94	6	..	1	..	217
7	1	7	12	15	33	7	..	2	..	77
8 .. ..	..	3	6	8	32	6	2	1	1	59
9	1	3	3	13	64	12	2	1	..	99
10 .. ..	..	2	4	10	42	11	3	3	1	76
11	1	5	6	6	48	5	5	2	1	79
Total Under 1 Year	36	139	182	203	493	65	19	13	3	1,153
Years—										
1	1	6	15	48	351	76	24	11	2	534
2 .. ..	..	..	3	6	176	83	14	6	1	289
3 .. ..	..	..	..	1	88	53	5	..	..	147
4 .. ..	..	..	..	1	34	49	5	2	1	92
5 .. ..	..	..	..	..	7	23	3	1	..	34
Over 5 ..	..	..	..	..	3	36	36	11	2	88
Total Nuptial First-born Children (a) ..	37	145	200	259	1,152	385	106	44	9	2,337

(a) The figures represent live-born children only. In the case of multiple births, only the eldest live-born is included.

The table that follows summarises, for a six-year period, births according to whether the child was first-born or the issue of a subsequent birth:

Births of First Born and Subsequent Births; Nuptial State of Mothers

Classification of Births	1963	1964	1965	1966	1967	1968
Nuptial—						
First Born (a) ..	2,324	2,296	2,211	2,234	2,337	<i>n.a.</i>
Subsequent Birth ..	5,742	5,454	4,853	4,643	4,648	<i>n.a.</i>
Ex-Nuptial ..	464	502	471	524	562	657
Total	8,530	8,252	7,535	7,401	7,547	8,317
Ex-Nuptial Births as Percentage of Total Births	5.4	6.1	6.3	7.1	7.4	7.9

(a) In case of plural births with no previous issue, first child born alive is recorded as 'First Born' and subsequent child or children as 'Subsequent Birth'.

It should be noted that 'first born' in the previous tables refers specifically to the union from which the child originates; thus a mother married for the second time could be credited with a 'first born' child despite issue from the previous union.

Birth Rates

The *crude birth rate* is expressed as the number of births per 1,000 of mean population; this is obviously an unsatisfactory measure since births are events strictly related to the number of women in the fertile age groups. A more satisfactory index is the *fertility rate*, expressed as the number of births per 1,000 women aged 15-44 years. However, there are profound differences between the relative fertility of various age groups and a further refinement is the calculation of *age-specific birth rates*. The following table shows age-specific birth rates, the fertility rate, and crude birth rate for a six year period:

Birth Rates

Particulars	1963	1964	1965	1966	1967	1968
-------------	------	------	------	------	------	------

AGE SPECIFIC BIRTH RATES (a)

Age Group of Mother (Years)—						
10-14	0.3	0.1	0.3	0.1	0.3	0.4
15-19	62.6	64.6	62.9	64.7	62.9	65.8
20-24	254.4	233.8	209.9	203.6	199.9	217.7
25-29	218.6	207.2	193.1	176.9	180.1	196.4
30-34	128.2	114.9	102.6	95.9	95.5	96.8
35-39	63.2	63.5	52.6	49.3	43.6	44.0
40-44	22.5	20.1	16.1	14.6	14.0	14.2
45-49	1.3	2.2	1.0	1.2	0.9	0.7

FERTILITY RATE (b)

Fertility Rate (b) ..	119	114	104	100	100	108
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Birth Rates—continued

Particulars	1963	1964	1965	1966	1967	1968
CRUDE BIRTH RATE (c)						
Crude Birth Rate (c)	23.7	22.6	20.5	19.9	20.0	21.8

(a) Number of births per 1,000 women in age groups shown.

(b) Number of births per 1,000 women aged 15-44 years.

(c) Number of births per 1,000 of mean population.

From the data in the table, it is apparent that the two principal factors determining the number of births in any year are:

- (i) the age distribution of women within the fertile age groups;
- (ii) the relative fertility of women in each age group (as indicated by age-specific birth rates). The female age groups 15-19 years and 20-24 years are tending to increase due to a high level of births in the post-war period, but the effect of this trend on births in 1968 is offset, in some measure, by the decline in the fertility rate (and notably by the decline in the relative fertility of the age group 20-24 years).

Infant Mortality

Infant mortality relates to children dying within one year of birth. The table that follows analyses such deaths in further detail and shows that the greatest mortality rate is associated with infants in their first day of life. To obtain a correct picture of relative risk, it should be noted that deaths in the 'one day and under one week' class are spread over 6 days; in the 'one week and under four weeks' class' spread over 21 days; and in the final class, spread over 337 days.

Infant Mortality—Number of Deaths and Mortality Rates at Specific Ages

Year	Infant Deaths		Mortality Rate (a) at Age Specified—			
	Number	Per 1,000 Live Births	Under 1 Day	1 Day and under 1 Week	1 Week and under 4 Wks	4 Weeks and under 12 Mths
1963 ..	153	17.9	6	5	1	6
1964 ..	166	20.1	6	7	1	6
1965 ..	125	16.6	6	4	1	6
1966 ..	108	14.6	5	4	1	4
1967 ..	130	17.2	5	5	1	6
1968 ..	143	17.2	6	4	1	6

(a) Infant deaths per 1,000 live births; rates have been rounded to whole numbers.

The rate for Tasmania is usually the lowest of any state and well below the Australian average. The Tasmanian figures since 1963 are (Australian figures in brackets): 1963, 17.9 (19.6); 1964, 20.1 (19.1); 1965, 16.6 (18.5); 1966, 14.6 (18.2); 1967, 17.2 (18.3); and 1968, 17.2 (17.8).

To put current infant mortality rates in their true perspective, it is necessary to refer to rates prevailing at the turn of the century when 100 infant deaths per 1,000 live births was not an uncommon experience. This is discussed in an earlier section headed 'Crude Rate Comparisons'.

Cause of Infant Deaths

The next table shows the causes of infant deaths during the last six years, with specification of groups of items and single items:

Infantile Mortality—Causes of Deaths Under One Year

Cause		1962	1963	1964	1965	1966	1967
057	Meningococcal Infections .. ..	..	..	..	..	1	..
001-056 } 058-326 }	Other General Diseases (a)	2	4	2	2	1	5
340	Meningitis	2	..	2	1	..	4
330-334 } 341-398 }	Other Diseases of the Nervous System	1	1	2	1	1	1
400-468	Diseases of the Circulatory System ..	..	1	..	..	..	..
470-475	Acute Upper Respiratory Infections ..	..	..	..	..	..	1
480-483	Influenza .. ..	..	..	1	..	..	..
490-493	Pneumonia	22	22	18	15	13	17
500-502	Bronchitis	1	1	1	1	1	1
510-527	Other Diseases, Respiratory System ..	7	3	6	8	2	4
571	Gastro-Enteritis	2	3	3	2	2	..
530-570 } 572-587 }	Other Diseases of the Digestive System	3	3	4	3	3	1
590-594	Nephritis and Nephrosis .. ..	..	..	..	..	..	..
600-637	Other Diseases of the Genito-Urinary System	1	1	1	..	..	1
690-716	Diseases of the Skin .. ..	..	1	..	..	..	..
720-749	Diseases of the Bones and Organs of Movement .. ..	..	..	..	..	..	..
750-759	Congenital Malformations	50	35	28	27	14	19
760-769	Birth Injuries, Asphyxia and Infections of the New-Born	44	34	51	37	26	38
770-776	Other Diseases of Early Infancy	44	38	40	24	37	35
780-795	Ill-defined Conditions .. ..	..	..	..	..	..	..
800-999	External Causes	5	6	7	4	7	3
Total		184	153	166	125	108	130

(a) Principally infective and parasitic diseases.

All death statistics prior to 1968, including those relating to infant mortality, have been compiled in accordance with the Seventh Revision (1955) of the International Classification of Diseases (World Health Organisation).

The following table has been compiled on the basis of the Eighth Revision (1965) of the International Classification of Diseases (World Health Organisation) and is not fully comparable with the table above.

Infantile Mortality—Causes of Death Under One Year

Cause		1968
009	Diarrhoeal Disease	4
036	Meningococcal Infection	1
000-008 } 010-035 }	Other General Disease (a)	3
037-315 }	Meningitis	1
320	Other Diseases of the Nervous System and Sense Organs	1
321-389	Diseases of the Circulatory System	3
390-458	Acute Respiratory Infections (except Influenza)	3
460-466	Influenza	3
470-474		

Infantile Mortality—Causes of Death Under One Year—*continued*

Cause							1968
480-486	Pneumonia .. .. .	..	..	..	..	..	28
490-493	Bronchitis, Emphysema and Asthma .. .. .	..	..	..	..	..	..
500-519	Other Diseases of Respiratory System .. .. .	..	..	..	..	..	..
520-577	Diseases of the Digestive System .. .. .	..	..	..	..	..	..
580-629	Diseases of Genito-Urinary System .. .. .	..	..	..	..	..	..
680-709	Diseases of Skin and Subcutaneous Tissue .. .. .	..	..	..	..	..	..
710-738	Diseases of Musculoskeletal System and Connective Tissue .. .. .	..	..	..	..	..	1
740-759	Congenital Anomalies .. .. .	..	..	..	..	..	23
760-763	Certain Maternal Conditions .. .. .	..	..	..	..	..	10
764-768	Birth Injury, Difficult Labour and Other Anoxic and Hypoxic Conditions .. .. .	..	..	..	..	..	23
772-776		..	..	..	..	..
769-771		..	..	..	..	..
773-775	Other Causes of Perinatal Mortality .. .. .	..	..	..	..	..	36
777-779		..	..	..	..	..
780-796	Symptoms and Ill-Defined Conditions .. .. .	..	..	..	..	..	1
800-999	Accidents, Poisonings and Violence .. .. .	..	..	..	..	..	2
Total							143

(a) Principally infective and parasitic diseases.

Deaths

The following table summarises the number of deaths and crude death rates since 1880:

Number of Deaths and Crude Death Rates, Selected Years from 1880

Year	Deaths		Year	Deaths	
	Number	Per 1,000 of Mean Population		Number	Per 1,000 of Mean Population
1880 ..	1,832	16.12	1930 ..	1,948	8.82
1885 ..	2,036	15.94	1935 ..	2,353	10.24
1890 ..	2,118	14.79	1940 ..	2,387	9.90
1895 ..	1,811	11.78	1945 ..	2,413	9.71
1900 ..	1,903	11.02	1950 ..	2,466	8.85
1905 ..	1,844	10.00	1955 ..	2,489	7.89
1910 ..	2,120	11.10	1960 ..	2,670	7.70
1915 ..	2,015	10.27	1965 ..	3,043	8.27
1920 ..	2,036	9.68	1967 ..	3,228	8.57
1925 ..	1,996	9.26	1968 ..	3,284	8.59

A marked difference exists between male and female crude death rates:

Male and Female Deaths and Crude Rates

Year	Number of Deaths			Deaths Per 1,000 of Mean Population			Ratio of Male to Female Crude Death Rates
	Males	Females	Persons	Males	Females	Persons	
1958 ..	1,534	1,174	2,708	9.01	7.11	8.07	1.267
1959 ..	1,553	1,227	2,780	8.97	7.29	8.14	1.230
1960 ..	1,546	1,124	2,670	8.79	6.57	7.70	1.338
1961 ..	1,601	1,188	2,789	8.96	6.79	7.89	1.320
1962 ..	1,622	1,248	2,870	9.01	7.10	8.07	1.269
1963 ..	1,601	1,217	2,818	8.75	6.83	7.82	1.281
1964 ..	1,797	1,377	3,174	9.76	7.64	8.71	1.277
1965 ..	1,716	1,327	3,043	9.24	7.29	8.27	1.267
1966 ..	1,726	1,433	3,159	9.21	7.79	8.50	1.182
1967 ..	1,790	1,438	3,228	9.42	7.71	8.57	1.222
1968 ..	1,906	1,378	3,284	9.89	7.27	8.59	1.360

In the following table, crude death rates for Tasmania are compared with those of the continental States:

Australian States—Crude Death Rates (a)

State	1921 (b)	1933 (b)	1947 (b)	1954 (b)	1961 (b)	1966 (b)	1968 (c)
N.S.W. ..	9.50	8.58	9.53	9.46	8.95	9.58	9.53
Victoria ..	10.52	9.59	10.44	9.20	8.37	8.91	9.00
Queensland ..	9.37	8.83	9.15	8.64	8.42	8.94	9.27
S.A. ..	10.02	8.44	9.62	9.02	8.06	8.55	8.81
W.A. ..	10.42	8.64	9.39	8.38	7.77	8.10	8.21
Tasmania ..	10.30	9.60	9.17	8.67	7.89	8.50	8.59
Australia (d) ..	9.91	8.92	9.69	9.10	8.47	9.00	9.10

(a) Deaths per 1,000 of mean population.

(b) Census year.

(c) Aboriginal deaths included (repeal of Section 127 of Constitution).

(d) Includes A.C.T. and N.T.

Death Rates for Specific Age Groups

Previously in this chapter, crude death rates were described as unsuitable for comparisons over long periods of time due to changes in the age structure of the community. In the following table, this difficulty is overcome by calculating death rates for specific age groups. The method employed is to obtain the average annual deaths for specific age groups over those three-year periods which are broken in equal parts by a census of population (e.g. 30 June 1933 is the census date for a calculation of rates in the three years 1932-1934 inclusive). Rates can then be calculated by comparing the average number of deaths for each group with the number of persons in each group as revealed by the census. In theory, the calculation of such rates need not be restricted to periods for which a census date forms the midpoint but the advantage of accepting such restriction lies in the accuracy of the age distribution obtained from the census. In the table, three-year periods have been selected appropriate to the censuses of 1933 and 1961 (the data relate to the Tasmanian population):

Death Rates for Specific Age Groups (a)

Age Group (Years)	Males		Females		Persons	
	1932-34	1960-62	1932-34	1960-62	1932-34	1960-62
0-4	12.77	5.25	10.42	4.33	11.62	4.81
5-9	2.08	0.63	1.54	0.33	1.81	0.48
10-14	1.27	0.43	0.91	0.35	1.09	0.39
15-19	2.05	1.30	2.22	0.56	2.14	0.94
20-24	2.73	1.60	2.58	0.36	2.66	0.99
25-29	2.98	1.67	3.74	0.56	3.35	1.13
30-34	3.78	1.23	3.63	0.84	3.71	1.05
35-39	4.71	1.90	4.43	1.65	4.56	1.78
40-44	4.85	3.62	4.88	1.92	4.86	2.78
45-49	6.90	5.33	5.44	3.76	6.19	4.57
50-54	9.96	9.18	10.08	5.14	10.02	7.25
55-59	14.47	16.12	11.62	7.98	13.09	12.23
60-64	23.92	26.21	16.87	13.65	20.52	19.72
65-69	35.11	39.64	30.46	21.74	32.87	29.72
70-74	59.22	65.56	48.31	37.48	53.89	49.91
75-79	94.23	94.25	83.58	62.47	88.97	76.57
80-84	160.80	130.89	125.15	107.61	142.64	117.12
85-89	204.45	198.46	195.28	154.97	199.07	173.40
90 and over ..	401.97	407.69	363.63	276.59	376.36	323.29

(a) Rate per 1,000 of the population in the specified age group at census date.

A later section of this chapter is headed 'Expectation of Life and Life Tables'. The theory of constructing life tables can be related to the table above, the major difference being that the former depend on the calculation of differential rates for each year, and not for five-year age groups.

Causes of Death

The Sixth (1948) Revision of the International Classification of Diseases was adopted for use in classifying causes of death in 1950. The Revision introduced international rules for a uniform method of selecting the underlying cause of death to be tabulated. The adoption of the 1948 revision affected the comparability of statistics for years prior to 1950 with those for 1950 and after.

The Eighth (1965) Revision of the International Classification of Diseases was adopted for use in 1968 but has not materially affected comparability. The following table shows causes of deaths, the rates per 100,000 of mean population and the proportion of deaths from each cause.

Causes of Death: Numbers and Rates, 1968

Cause of Death	Detailed List Numbers	Number of Deaths	Rate per 100,000 of Mean Population	Percentage of Total Deaths
0-4 (a)	(a)	14	3	0.4
5. Tuberculosis of respiratory system	010-012	11	3	0.3
6. Other tuberculosis including late effects ..	013-019	3	1	0.1
7-16 (b)	(b)	2	1	0.1
17. Syphilis and its sequelae	090-097	2	1	0.1
18. All other infective and parasitic diseases ..	(c)	5	1	0.2
19. Malignant neoplasms—				
Digestive organs and peritoneum	150-159	179	47	5.5
Trachea, bronchus and lung	162	80	21	2.4
Breast	174	40	10	1.2
Genito-Urinary organs	180-189	89	23	2.7
Leukaemia	204-207	22	6	0.7
Other malignant and lymphatic neoplasms	(d)	83	22	2.5
20. Benign and unspecified neoplasms	210-239	3	1	0.1
21. Diabetes mellitus	250	51	13	1.6
22. Nutritional deficiencies	260-269	2	1	0.1
23. Anaemias	280-285	12	3	0.4
24. Meningitis	320	5	1	0.2
25. Active rheumatic fever	390-392	..	..	..
26. Chronic rheumatic heart disease	393-398	30	8	0.9
27. Hypertensive disease	400-404	70	18	2.1
28. Ischaemic heart disease	410-414	924	242	28.1
29. Other forms of heart disease	420-429	149	39	4.5
30. Cerebro-vascular disease	430-439	396	103	12.1
31. Influenza	470-474	8	2	0.2
32. Pneumonia	480-486	150	39	4.6
33. Bronchitis, emphysema and asthma	490-493	138	36	4.2
34. Peptic ulcer	531-533	22	6	0.7
35. Appendicitis	540-543	2	1	0.1
36. { Intestinal obstruction and hernia	550-553	3	1	0.1
	560	5	1	0.2
37. Cirrhosis of liver	571	15	4	0.5
38. Nephritis and Nephrosis	580-584	18	5	0.6
39. Hyperplasia of prostate	600	11	3	0.3
40. Abortion	640-645	..	..	..
41. { Other complications of pregnancy, child-	630-639	1	..	..
birth and the puerperium. Delivery without				
mention of complication	650-678	3	1	0.1
42. Congenital anomalies	740-759	33	9	1.0
43. { Birth injury, difficult labour and other anoxic	764-768	5	1	0.2
and hypoxic conditions	772,776	18	5	0.6

Causes of Death: Numbers and Rates, 1968—*continued*

Cause of Death	Detailed List Numbers	Number of Deaths	Rate per 100,000 of Mean Population	Percentage of Total Deaths
44. Other causes of perinatal mortality ..	760-763	10	3	0.3
	769-771	29	7	0.9
	773-775	3	1	0.1
	777-779	4	1	0.1
	780-796	14	3	0.4
45. Symptoms and other ill-defined conditions ..	Remainder of			
46. All other diseases	240-738	301	79	9.1
EXTERNAL CAUSE OF INJURY				
47. Motor vehicle accidents	810-823	139	36	4.2
48. All other accidents	800-807	1	..	..
	825-949	118	31	3.6
49. Suicide and self-inflicted injuries	950-959	54	14	1.7
50. All other external causes	960-999	7	2	0.2
All Causes		3,284	859	100.0

(a) 000-009.

(b) 020, 032, 033, 034, 036, 040-043, 050, 055, 080-084.

(c) 021-027, 031, 032, 035, 037, 038, 039, 044-046, 051-054, 056, 057, 060-068, 070-079, 085-089, 098-117, 120-136.

(d) 140-149, 160, 161, 163, 170-173, 190-203, 208, 209.

It will be noted that Items 0-4 and 7-16 in the table were not listed individually, few associated deaths having been recorded. The specification of causes reads: (1) Cholera; (2) Typhoid fever; (3) Dysentery, all forms; (4) Enteritis and other diarrhoeal diseases; (7) Plague; (8) Diphtheria; (9) Whooping Cough; (10) Streptococcal sore throat and scarlet fever; (11) Meningococcal infection; (12) Acute poliomyelitis; (13) Smallpox; (14) Measles; (15) Typhus and other rickettsial diseases; (16) Malaria. Uncertainty as to diagnosis in earlier periods makes comparison difficult but, at the turn of the century, whooping cough, diphtheria, typhoid fever and scarlet fever were diseases associated with numerous deaths.

Causes of Death in Age Groups

The previous table showing causes of death makes no reference to age, a complete dissection by age and cause being beyond the scope of a year book. Nevertheless, there is an extremely significant relationship between age and cause of death and the next table indicates, in summary form, their close inter-connection.

For each of the specified causes in the table, two percentages are shown:

- (i) Deaths in a particular age group as a proportion of total deaths from all causes in that age-group.
- (ii) Deaths in a particular age group as a proportion of total deaths from the same cause at all ages.

The causes chosen and specified are such that they account, in total, for approximately 75 per cent or more of deaths in most of the given age groups.

Attention is called to 'Accidental and Violent Deaths' (800-999) which account for over 50 per cent of deaths in the age groups from 5-14 years to 25-34 years inclusive. Also noteworthy is the present relative unimportance

of 'Infective and Parasitic Diseases' (001-136). The most important group, in a total sense, is 'Diseases of the Heart' (390-398, 400-404, 410-429) followed by 'Malignant Neoplasms—All Forms' (140-209); then 'Cerebrovascular diseases' (430-438) followed by 'Pneumonia, Bronchitis and Influenza' (470-474, 480-486, 490-493); nevertheless, the inter-connection between age and cause of death is so close that none of these causes needs to be specified for some age-groups in the table.

Main Causes of Death (in Age Groups), 1968

Detailed List Numbers	Age Group and Cause of Death	Deaths from Specified Cause			
		In Age Group		At All Ages	
		Number	Per Cent	Number	Per Cent (a)
	Under 1 year:	143	100.0	..	..
760-763	Maternal conditions	10	6.9	10	100.0
740-759	Congenital anomalies	23	16.1	33	69.7
769	Multiple birth	21	14.7	21	100.0
776	Anoxic and hypoxic conditions ..	14	9.8	14	100.0
480-486	Pneumonia	28	19.6	150	18.7
..	Other causes	47	32.9	..	..
	1-4 years:	38	100.0	..	..
800-999	Accidental and violent deaths ..	14	36.9	319	4.4
740-759	Congenital anomalies	3	7.9	33	9.1
140-209	Cancer (all forms) (b)	4	10.5	493	0.8
480-486	Pneumonia	3	7.9	150	2.0
490-493	Bronchitis, emphysema, asthma ..	3	7.9	138	2.2
..	Other causes	11	28.9	..	..
	5-14 years:	30	100.0	..	..
800-999	Accidental and violent deaths ..	17	56.7	319	5.3
140-209	Cancer (all forms) (b)	8	26.7	493	1.6
480-486	Pneumonia .. ..	..	..	150	..
490-493	Bronchitis, emphysema, asthma ..	..	..	138	..
..	Other causes	5	16.6	..	..
	15-19 years:	53	100.0	..	..
800-999	Accidental and violent deaths ..	45	84.9	319	14.1
140-209	Cancer (all forms) (b)	2	3.8	493	0.4
..	Other causes	6	11.3	..	..
	20-24 years:	43	100.0	..	..
800-999	Accidental and violent deaths ..	32	74.4	319	10.0
140-209	Cancer (all forms) (b)	1	2.3	493	0.2
..	Other causes	10	23.3	..	..
	25-34 years:	72	100.0	..	..
800-999	Accidental and violent deaths ..	48	66.7	319	15.0
140-209	Cancer (all forms) (b)	7	9.7	493	1.4
390-398, 400-404, 410-429	Diseases of heart	3	4.2	1,173	0.3
..	Other causes	14	19.4	..	..
	35-44 years:	101	100.0	..	..
800-999	Accidental and violent deaths ..	33	32.7	319	10.3
140-209	Cancer (all forms) (b)	26	25.7	493	5.3
390-398, 400-404, 410-429	Diseases of heart	18	17.8	1,173	1.5
480-486	Pneumonia .. ..	..	..	150	..
490-493	Bronchitis, emphysema, asthma ..	3	3.0	138	2.2
..	Other causes	21	20.8	..	..

Main Causes of Death (in Age Groups), 1968—*continued*

Detailed List Numbers	Age Group and Cause of Death	Deaths from Specified Cause			
		In Age Group		At All Ages	
		Number	Per Cent	Number	Per Cent (a)
390-398, 400-404, 410-429	45-54 years:	246	100.0	..	..
140-209	Diseases of heart	88	35.8	1,173	7.5
800-999	Cancer (all forms) (b)	60	24.4	493	12.2
430-438	Accidental and violent deaths ..	31	12.6	319	9.7
480-486	Cerebrovascular diseases	19	7.7	396	4.8
490-493	Pneumonia	4	1.6	150	2.7
..	Bronchitis, emphysema, asthma ..	7	2.9	138	5.1
..	Other causes	37	15.0	..	..
390-398, 400-404, 410-429	55-64 years:	494	100.0	..	..
140-209	Diseases of heart	204	41.3	1,173	17.4
800-999	Cancer (all forms) (b)	118	23.9	493	23.9
430-438	Cerebrovascular diseases	43	8.7	396	10.9
480-486	Accidental and violent deaths ..	35	7.1	319	11.0
490-493	Pneumonia	7	1.4	150	4.7
..	Bronchitis, emphysema, asthma ..	26	5.3	138	18.8
..	Other causes	62	12.3	..	..
390-398, 400-404, 410-429	65-74 years:	741	100.0	..	..
140-209	Diseases of heart	335	45.2	1,173	28.6
800-999	Cancer (all forms) (b)	123	16.6	493	24.9
430-438	Cerebrovascular diseases	77	10.4	396	19.4
480-486	Pneumonia	21	2.8	150	14.0
490-493	Bronchitis, emphysema, asthma ..	48	6.5	138	34.8
..	Accidental and violent deaths ..	29	3.9	319	9.1
..	Other causes	108	14.6	..	..
390-398, 400-404, 410-429	75 years and over:	1,325	100.0	..	..
140-209	Diseases of heart	520	39.2	1,173	44.3
430-438	Cerebrovascular diseases	246	18.6	396	62.1
440-448	Cancer (all forms) (b)	143	10.8	493	29.0
480-486	Diseases of arteries	80	6.0	119	67.2
490-493	Pneumonia	85	6.4	150	56.7
..	Bronchitis, emphysema, asthma ..	49	3.7	138	35.5
..	Other causes	202	15.2	..	..

(a) Deaths in the specified age group as a percentage of total deaths for a particular cause.

(b) Includes Hodgkin's disease and the leukaemias.

Heart Diseases

As the previous table indicates, heart diseases (list items 390-398, 400-404, 410-429, are the greatest single cause of death. In the following record of deaths due to heart diseases, 1950 has been chosen as a start-point since earlier figures are not strictly comparable. It can be seen from the table that heart diseases account for over one-third of the 'deaths from all causes'. The table also shows that more males die of heart disease than females.

Deaths from Heart Diseases (All Causes) (a)

Year	Number of Deaths			Death Rate Per 100,000 of Mean Population	Deaths as a Percentage of Deaths from All Causes
	Males	Females	Persons		
1950 ..	413	304	717	257	29.1
1963 ..	599	426	1,025	284	36.4
1964 ..	677	454	1,131	310	35.6
1965 ..	701	458	1,159	315	38.1
1966 ..	656	464	1,120	301	35.5
1967 ..	663	473	1,136	302	35.2
1968 ..	680	493	1,173	307	35.7

(a) List items 390-398, 400-404, 410-429.

Tuberculosis

A development of recent years has been the marked decline in deaths attributed to tuberculosis. In the following table, 1950 has been chosen as the start-point, earlier figures being not strictly comparable due to changes in classification and in the method of determining a single cause of death where multiple causes are shown on the death certificate.

Deaths from Tuberculosis (All Forms) (a)

Year	Number of Deaths			Death Rate Per 100,000 of Mean Population	Deaths as a Percentage of Deaths from All Causes
	Males	Females	Persons		
1950 ..	27	44	71	25	2.9
1963 ..	10	4	14	4	0.5
1964 ..	10	1	11	3	0.3
1965 ..	6	3	9	2	0.3
1966 ..	6	5	11	3	0.3
1967 ..	4	3	7	2	0.2
1968 ..	12	2	14	4	0.4

(a) List items 010-019.

Malignant Neoplasms

In the next table, deaths attributed to list items 140-209 are analysed, the causes being summarised as 'Malignant Neoplasms including Hodgkin's Disease and the Leukaemias':

Deaths from Malignant Neoplasms (All Causes) (a)

Year	Number of Deaths			Death Rate Per 100,000 of Mean Population	Deaths as a Percentage of Deaths from All Causes
	Males	Females	Persons		
1950 ..	159	164	323	115	13.1
1963 ..	207	211	418	116	14.8
1964 ..	230	221	451	124	14.2
1965 ..	246	233	479	130	15.7
1966 ..	251	245	496	133	15.7
1967 ..	302	227	529	140	16.4
1968 ..	273	220	493	129	15.0

(a) List items 140-209.

Lung Cancer

There has been considerable interest recently in lung cancer because of its suspected connection with smoking habits. The following table shows deaths attributed to 'Malignant Neoplasm of Respiratory System' (160-163) since 1950:

Deaths from Malignant Neoplasm of Respiratory System

Year	Deaths, List Items 160-163			Year	Deaths, List Items 160-163		
	Males	Females	Persons		Males	Females	Persons
1950 ..	20	4	24	1961 ..	47	3	50
1954 ..	23	5	28	1962 ..	70	8	78
1955 ..	33	7	40	1963 ..	44	9	53
1956 ..	35	9	44	1964 ..	51	16	67
1957 ..	43	7	50	1965 ..	60	11	71
1958 ..	29	10	39	1966 ..	76	16	92
1959 ..	43	11	54	1967 ..	78	9	87
1960 ..	40	3	43	1968 ..	69	12	81

Expectation of Life and Life Tables

Previously reference was made to the limitations of crude death rates as a measure of mortality. However, a correct measurement of the mortality of the population can be obtained from life tables.

A life table is, in effect, a mathematical model, its starting point being a hypothetical population (say 100,000) of newly-born males or females. Using data for a given period (e.g. single year age distribution of an actual population, deaths at single ages, etc.), the compiler calculates the theoretical number of survivors at each age in the hypothetical population until there are no survivors remaining.

In the table that follows, l_x is the number of persons surviving at exact age x . From this survivors' table, other measures can then be computed, namely:

- L_x : the average number living between any year x and $x + 1$
 e^o_x : the complete expectation of life (i.e. the average number of years lived after age x by each of a group of persons aged exactly x).

Not only does the l_x column give numbers of survivors at each age but, if accumulated, it gives an approximate measure of the total number of years lived by the life-table population. To obtain a more refined measure of the total number of years lived, it is necessary to accumulate L_x values. These can be obtained by averaging each consecutive pair of l_x values.

Taking the male life table as an example:

Total of all l_x values (0-105) = 6,841,916 years

Total of all l_{x+1} values (1-105) = 6,741,916 years

Therefore, total L_x values (0-105) = 6,791,916 years

According to the table, 100,000 males live a total of 6,791,916 years.

It follows, then, that the complete expectation of life (e^o_x) can be taken as 67.92 years as from birth.

The above calculation shows the derivation of $e^{\circ}x$ where x is 0. The same logic applies to all other ages:

Again taking the male life table as an example:

Total of l_x values (10-105) = 5,865,686 years

Total of all l_{x+1} values (11-105) = 5,768,624 years

Therefore, total L_x values (10-105) = 5,817,155 years

According to the table, 97,062 males live a total of a further 5,817,155 years. It follows then that each male aged 10 has an average life expectancy of a further 59.93 years (i.e. $\frac{5,817,155}{97,062}$)

From these examples, it will be seen that $e^{\circ}x$ is simply an average or per capita figure, the two elements involved being the total number of years lived by a given population and the given population itself.

For the sake of brevity in the table, the following usual values have not been given:

dx ; the number of deaths in the year of age x to $x + 1$ among the l_x persons who enter on that year.

p_x ; the probability of a person aged x living a year.

q_x ; the probability of a person aged x dying within a year.

If required, these values can be computed from the tables as follows:

$$dx = l_x - l_{x+1}$$

$$p_x = \frac{l_{x+1}}{l_x}$$

$$\text{and } q_x = 1 - p_x$$

Australia: Life Tables, 1960-62
Survivors (l_x) and Complete Expectation of Life ($e^{\circ}x$)
Males

Age x	l_x	$e^{\circ}x$	Age x	l_x	$e^{\circ}x$	Age x	l_x	$e^{\circ}x$
0 ..	100,000	67.92	35 ..	93,931	36.45	70 ..	54,944	9.77
1 ..	97,761	68.46	36 ..	93,749	35.51	71 ..	52,100	9.27
2 ..	97,584	67.59	37 ..	93,554	34.59	72 ..	49,168	8.80
3 ..	97,467	66.67	38 ..	93,343	33.67	73 ..	46,160	8.34
4 ..	97,379	65.73	39 ..	93,112	32.75	74 ..	43,092	7.90
5 ..	97,315	64.77	40 ..	92,859	31.84	75 ..	39,984	7.47
6 ..	97,259	63.81	41 ..	92,580	30.93	76 ..	36,860	7.06
7 ..	97,206	62.84	42 ..	92,274	30.03	77 ..	33,745	6.67
8 ..	97,154	61.87	43 ..	91,938	29.14	78 ..	30,661	6.29
9 ..	97,105	60.91	44 ..	91,569	28.25	79 ..	27,629	5.92
10 ..	97,062	59.93	45 ..	91,165	27.38	80 ..	24,669	5.57
11 ..	97,022	58.96	46 ..	90,723	26.51	81 ..	21,803	5.24
12 ..	96,981	57.98	47 ..	90,238	25.65	82 ..	19,054	4.92
13 ..	96,936	57.01	48 ..	89,705	24.80	83 ..	16,448	4.63
14 ..	96,885	56.04	49 ..	89,118	23.96	84 ..	14,008	4.35

Australia: Life Tables, 1960-62
Survivors (l_x) and Complete Expectation of Life (e^o_x)—continued
Males

Age x	l_x	e^o_x	Age x	l_x	e^o_x	Age x	l_x	e^o_x
15 ..	96,825	55.07	50 ..	88,473	23.13	85 ..	11,758	4.08
16 ..	96,752	54.11	51 ..	87,762	22.31	86 ..	9,716	3.84
17 ..	96,660	53.16	52 ..	86,979	21.51	87 ..	7,897	3.61
18 ..	96,541	52.23	53 ..	86,119	20.72	88 ..	6,306	3.40
19 ..	96,384	51.31	54 ..	85,175	19.94	89 ..	4,943	3.20
20 ..	96,215	50.40	55 ..	84,142	19.18	90 ..	3,800	3.02
21 ..	96,049	49.49	56 ..	83,015	18.43	91 ..	2,862	2.85
22 ..	95,886	48.57	57 ..	81,790	17.70	92 ..	2,111	2.70
23 ..	95,728	47.65	58 ..	80,459	16.99	93 ..	1,524	2.55
24 ..	95,577	46.73	59 ..	79,017	16.29	94 ..	1,076	2.42
25 ..	95,432	45.80	60 ..	77,456	15.60	95 ..	742	2.29
26 ..	95,292	44.86	61 ..	75,771	14.94	96 ..	500	2.17
27 ..	95,154	43.93	62 ..	73,954	14.29	97 ..	329	2.06
28 ..	95,014	42.99	63 ..	72,002	13.67	98 ..	211	1.96
29 ..	94,871	42.06	64 ..	69,915	13.06	99 ..	132	1.86
30 ..	94,726	41.12	65 ..	67,699	12.47	100 ..	80	..
31 ..	94,577	40.18	66 ..	65,361	11.90	101 ..	47	..
32 ..	94,425	39.25	67 ..	62,910	11.34	102 ..	27	..
33 ..	94,267	38.31	68 ..	60,353	10.80	103 ..	15	..
34 ..	94,103	37.38	69 ..	57,696	10.28	104 ..	8	..

Australia: Life Tables, 1960-62
Survivors (l_x) and Complete Expectation of Life (e^o_x)
Females

Age x	l_x	e^o_x	Age x	l_x	e^o_x	Age x	l_x	e^o_x
0 ..	100,000	74.18	35 ..	96,183	41.70	70 ..	72,505	12.19
1 ..	98,243	74.49	36 ..	96,065	40.75	71 ..	70,378	11.54
2 ..	98,074	73.62	37 ..	95,936	39.81	72 ..	68,079	10.92
3 ..	97,974	72.70	38 ..	95,797	38.86	73 ..	65,600	10.31
4 ..	97,911	71.74	39 ..	95,646	37.92	74 ..	62,939	9.72
5 ..	97,854	70.78	40 ..	95,481	36.99	75 ..	60,096	9.16
6 ..	97,805	69.82	41 ..	95,302	36.06	76 ..	57,077	8.62
7 ..	97,762	68.85	42 ..	95,107	35.13	77 ..	53,888	8.10
8 ..	97,725	67.88	43 ..	94,893	34.21	78 ..	50,543	7.60
9 ..	97,693	66.90	44 ..	94,658	33.29	79 ..	47,058	7.13
10 ..	97,664	65.92	45 ..	94,400	32.38	80 ..	43,453	6.68
11 ..	97,637	64.94	46 ..	94,117	31.48	81 ..	39,756	6.25
12 ..	97,611	63.95	47 ..	93,809	30.58	82 ..	36,006	5.85
13 ..	97,584	62.97	48 ..	93,474	29.69	83 ..	32,247	5.47
14 ..	97,556	61.99	49 ..	93,109	28.80	84 ..	28,530	5.12
15 ..	97,525	61.01	50 ..	92,713	27.92	85 ..	24,909	4.79
16 ..	97,488	60.03	51 ..	92,283	27.05	86 ..	21,440	4.49
17 ..	97,443	59.06	52 ..	91,817	26.18	87 ..	18,174	4.20
18 ..	97,391	58.09	53 ..	91,314	25.32	88 ..	15,158	3.94
19 ..	97,335	57.12	54 ..	90,773	24.47	89 ..	12,427	3.70
20 ..	97,278	56.16	55 ..	90,191	23.63	90 ..	10,005	3.48
21 ..	97,220	55.19	56 ..	89,566	22.79	91 ..	7,905	3.27
22 ..	97,161	54.22	57 ..	88,895	21.96	92 ..	6,125	3.08
23 ..	97,101	53.26	58 ..	88,171	21.13	93 ..	4,650	2.91
24 ..	97,042	52.29	59 ..	87,388	20.32	94 ..	3,457	2.74

Australia: Life Tables, 1960-62
Survivors (*l_x*) and Complete Expectation of Life (*e^o_x*)—continued
Females

Age <i>x</i>	<i>l_x</i>	<i>e^o_x</i>	Age <i>x</i>	<i>l_x</i>	<i>e^o_x</i>	Age <i>x</i>	<i>l_x</i>	<i>e^o_x</i>
25 ..	96,984	51.32	60 ..	86,537	19.51	95 ..	2,515	2.59
26 ..	96,924	50.35	61 ..	85,608	18.72	96 ..	1,789	2.45
27 ..	96,861	49.38	62 ..	84,591	17.94	97 ..	1,243	2.32
28 ..	96,794	48.42	63 ..	83,479	17.17	98 ..	843	2.19
29 ..	96,723	47.45	64 ..	82,265	16.42	99 ..	557	2.08
30 ..	96,649	46.49	65 ..	80,944	15.68	100 ..	359	..
31 ..	96,570	45.53	66 ..	79,512	14.95	101 ..	225	..
32 ..	96,485	44.57	67 ..	77,962	14.24	102 ..	137	..
33 ..	96,392	43.61	68 ..	76,285	13.54	103 ..	81	..
34 ..	96,292	42.65	69 ..	74,470	12.86	104 ..	46	..

The tables are extracts from those produced by the Commonwealth Actuary, the source data being supplied by the Commonwealth Statistician and comprising: (i) the number of males and females living at each age last birthday, as shown by the 1961 Census; (ii) the number of male and female deaths at each age (last birthday) in the years 1960, 1961 and 1962.

There are no life tables prepared on the basis of Tasmanian experience and in most legal and actuarial situations, it is normal to use the Australian Life Tables.

True Death Rates

The true death rate is the reciprocal of the complete expectation of life of a person at birth. In calculating e^o_x where x is 0, the sum of the L_x values was taken as the total number of years lived by the original 100,000 over a period of a century or more. To arrive at the true death rate, the life-table can also be regarded as the experience of *a single year* so that the sum of the L_x values no longer represents years lived but simply persons 'at risk' in association with 100,000 deaths. By way of illustration, in the male life table the sum of all survivors (L_x values) is 6,791,916 males associated with 100,000 deaths:

$$\text{True Death Rate} = \frac{100,000}{6,791,916} = 14.72 \text{ per 1,000}$$

The true death rate for a given period is unaffected by the particular age distribution of that period, and is determined solely by the mortality experience of the period as manifested in the rate of survival from each year of age to the next. The table below sets out complete expectation of life at birth and true death rates for the periods covered by Australian life tables:

Australia—Complete Expectation of Life at Birth and True Death Rates

Period	Complete Expectation of Life At Birth (Years)		True Death Rate (a)	
	Males	Females	Males	Females
1881-1890	47.20	50.84	21.19	19.67
1891-1900	51.06	54.76	19.58	18.26
1901-1910	55.20	58.84	18.12	17.00
1920-1922	59.15	63.31	16.91	15.80
1932-1934	63.48	67.14	15.75	14.89
1946-1948	66.07	70.63	15.14	14.16
1953-1955	67.14	72.75	14.89	13.75
1960-1962	67.92	74.18	14.72	13.48

(a) Number of deaths per 1,000 in stationary (or life-table) population.

While the complete expectation of life at birth has shown a marked increase in successive tables, the increase at other ages has not been so pronounced. The following table compares the complete expectation of life at selected ages for the period 1891-1900 with that for 1960-1962:

Australia—Comparative Complete Expectation of Life

Age x	Expectation of Life ($e^{\circ}x$) at each age according to experience of period.			
	Male Lives		Female Lives	
	1891-1900	1960-62	1891-1900	1960-62
0	51.06	67.92	54.76	74.18
5	55.61	64.77	58.64	70.78
10	51.43	59.93	54.46	65.92
15	46.98	55.07	49.97	61.01
20	42.81	50.40	45.72	56.16
25	38.90	45.80	41.69	51.32
30	35.11	41.12	37.86	46.49
35	31.34	36.45	34.14	41.70
40	27.65	31.84	30.49	36.99
45	23.99	27.38	26.69	32.38
50	20.45	23.13	22.93	27.92
55	17.08	19.18	19.29	23.63
60	13.99	15.60	15.86	19.51
65	11.25	12.47	12.75	15.68
70	8.90	9.77	9.89	12.19
75	6.70	7.47	7.37	9.16
80	5.00	5.57	5.49	6.68

It will be noted that $e^{\circ}x$ for age 5 years in the period 1891-1900 was actually higher than for age 0 years. This peculiarity was associated with the extremely high rate of infant mortality then prevailing.

Number of Life Table Survivors

The following table shows the number of survivors (i.e. l_x values) at various ages as presented in Australian Life Tables since 1901 i.e. for the periods 1901-1910, 1946-1948, 1953-1955 and 1960-1962.

Australia: Number of Survivors (l_x) at Selected Ages out of 100,000 Births

Age x	Period			
	1901-1910	1946-1948	1953-1955	1960-1962
MALES				
0	100,000	100,000	100,000	100,000
10	86,622	95,619	96,488	97,062
20	84,493	94,562	95,460	96,215
30	80,844	92,967	93,801	94,726
40	75,887	90,823	91,861	92,859
50	68,221	85,946	87,553	88,473
60	56,782	74,251	76,256	77,456
70	38,275	52,230	54,054	54,944
80	14,330	22,785	23,658	24,669

Australia: Number of Survivors (lx) at Selected Ages out of 100,000 Births—*continued*

Age x	Period			
	1901-1910	1946-1948	1953-1955	1960-1962

FEMALES				
0	..	..	100,000	100,000
10	..	..	88,395	96,549
20	..	..	86,459	95,953
30	..	..	82,909	94,740
40	..	..	78,001	92,758
50	..	..	71,945	89,011
60	..	..	63,247	81,257
70	..	..	46,793	65,398
80	..	..	21,356	35,401

The most significant feature is the increased number of survivors at age 10 years and this can be related directly to the dramatic fall in infant mortality rates since the turn of the century. Attention is called also to the wide disparity between male and female survivors at ages 60, 70 and 80 years.

Chapter 6

PRIMARY INDUSTRY—RURAL

LAND TENURE AND SETTLEMENT

Introduction

The area of Tasmania is 16,885,000 acres, all of which had been proclaimed as Crown property when the first settlers arrived in 1803. In the hundred and sixty years or so since their landing, 39.4 per cent of the State's total area has been alienated by grant or sale, the Crown still owns 59.3 per cent and the residual 1.4 per cent is in the process of alienation (i.e. being purchased from the Crown by instalment payments).

Historical

The first concern of the settlers on the Derwent and the Tamar in 1804 was the growing of grain for which small holdings were adequate; thus by 1820, land obtained as grants from the Crown was confined to areas within easy reach of Hobart and Launceston and of the 16,885,000 acres of Crown land, less than 70,000 acres had been alienated.

In the 1820s, the successful export of wool to Britain created a demand for land in very much larger holdings and annual alienation of Crown land by free grant increased rapidly as shown in the following table:

Area of Land Alienated by Grants in Van Diemen's Land, 1820 to 1843
(⁰⁰⁰ Acres)

Year	Area Granted	Year	Area Granted	Year	Area Granted	Year	Area Granted
1820 ..	} 69	1826 ..	60	1832 ..	33	1838 ..	45
1821 ..		1827 ..	77	1833 ..	24	1839 ..	15
1822 ..		1828 ..	165	1834 ..	9	1840 ..	10
1823 ..	<i>n.a.</i>	1829 ..	208	1835 ..	9	1841 ..	7
1824 ..	434	1830 ..	108	1836 ..	8	1842 ..	..
1825 ..	43	1831 ..	206	1837 ..	22	1843 ..	1
1825 ..	(a)462						

(a) Includes 350,000 acres granted to Van Diemen's Land Company.

From the previous table, it can be calculated that the alienation of Crown land by grant exceeded, in total, one million acres by 1825 and two million acres by 1843 (when this early system of free grants had virtually ceased). Apart from the 350,000 acres granted to the Van Diemen's Land Company in the north-west, the other alienated land included virtually the whole Midlands, the upper Derwent Valley and much of the east coast. At the same point in time—1843—less than 500,000 acres of Crown land had been sold, even though the price per acre ranged from \$0.50 to \$1.20.

A table in *Statistics of Van Diemen's Land* gives details of alienation, in aggregate, and of leasing of Crown land at 1 January 1850 as follows:

Total Area Granted and Sold to Settlers	2,722,513 acres
Area of Land Held under Depasturing Licences ..	1,335,779 acres

The Crown land under licence was a source of revenue to the Government which made available 1.3 million acres for a rental of \$33,428 in 1849. From this point of time, the process of alienation can be summarised as follows:

Land Alienation from 1860
(^{'000 Acres})

Year (a)	Land		Year (a)	Land	
	Aggregate Alienated	In Process of Alienation		Aggregate Alienated	In Process of Alienation
1860 ..	3,069		1960	6,386	190
1880 ..	4,233		1962	6,417	197
1900 ..	4,835		1963	6,430	199
1910 ..	4,932	1,104	1964	6,598	220
1920 ..	5,242	964	1965	6,619	204
1930 ..	5,721	542	1966	6,616	208
1940 ..	5,912	423	1967	6,652	246
1950 ..	6,143	365	1968	6,651	229

(a) At 31 December until 1948; at 30 June for 1950 and following years.

Sales of Crown Land

The sale of Crown land is currently carried out under the *Crown Lands Act* 1935 as amended. Sales fall into two broad categories: (i) by selection; (ii) by auction. In the case of selection, three classifications of rural land are established and purchase is made over a number of years by instalments, the term depending on the class of land. Land on which such instalments are being paid is defined as 'Crown land in process of alienation'. The following table shows details of recent sales:

Sales of Crown Land, 1967-68

Particulars	Number of Lots	Area	Value	
			Total	Average per Acre
		acres	\$	\$
Selections (Country Land) (a)—				
First-class land	8	868	19,229	22.15
Second-class land	26	2,670	31,692	11.80
Third-class land	2	2,605	4,068	1.56
Sold by Auction (Country Land)	16	1,753	37,207	21.22
Total	52	7,896	92,196	11.68
Town and Suburban Lots ..	37	496	82,543	166.42
Grand Total ..	89	8,392	174,739	..

(a) Financial details refer to the contract price, the actual payment being made in instalments over a period of years.

The next table summarises sales of Crown land over a five-year period:

Sales of Crown Land—Summary

Year	Area of Land Sold (Acres)			Average Price Per Acre (\$)	
	Country Lots	Town and Suburban Lots	Total	Country Lots	Town and Suburban Lots
1963-64	33,518	747	34,265	3.73	53.33
1964-65	22,454	255	22,709	7.94	154.47
1965-66	24,035	1,591	25,626	5.30	56.76
1966-67	46,633	128	46,761	13.20	390.63
1967-68	7,896	496	8,392	11.68	166.42

Present Use of Crown Lands

The total area of Tasmania is 16,885,000 acres, of which, at 30 June 1968, 39.4 per cent had been alienated; 1.4 per cent was in the process of alienation; the balance, 59.3 per cent, was Crown land, a proportion of which was under lease or licence for pastoral, agricultural and mining purposes. Crown land reserved for forestry purposes, including the State Forests, accounted for 26.9 per cent of the State's area. ('Reservation' in the context of forestry does not imply land withheld from all types of use but simply land either used or to be used exclusively for forestry purposes.)

Alienation and Occupation of Crown Lands, 30 June 1968

Classification of Land	Area	
	Acres	Acres
Alienated (Aggregate)		6,651,313
In Process of Alienation		228,878
Crown Lands—		
Leased or Licensed—		
Through Lands Department—		
Pastoral	708,426	
Closer Settlement	15,747	
Soldier Settlement	40,882	
Short-term	1,128	
Through Mines Department	59,600	
Total Leased or Licensed		825,783
Forestry Reservations—		
State Forests (a)	2,704,821	
Other Land Reserved for Forestry Purposes (b)	1,832,119	
Total Forestry Reservations		4,536,940
Other Crown Land		4,642,086
Area of State		16,885,000

(a) Comprises area of State forest as proclaimed at 30 June 1968 (2,557,143 acres) plus the additional area disclosed by revised mapping (147,678 acres).

(b) Includes estimated forested component of national parks and scenic reserves.

In the previous table appears the item 'forestry reservations'. Almost 3.5 million acres of this area are lands where cutting rights have been granted, either by exclusive forestry permit or by the award of pulpwood concessions. A large proportion of the logs for sawmills, paper mills, etc. is obtained from these forestry reservations. Further details of Crown land reserved for forestry appear in the Forestry section of Chapter 7, 'Primary Industry—Non Rural'.

The next table summarises the alienation and occupation of Crown lands over a five-year period:

**Alienation and Occupation of Crown Lands
At 30 June**

Classification of Land	1964	1965	1966	1967	1968
AREA ('000 ACRES)					
Alienated (Aggregate)	6,598	6,619	6,616	6,652	6,651
In Process of Alienation	220	204	208	246	229
Crown Lands—					
Leased or Licensed (a)	1,104	1,025	977	969	826
Forestry Reservations (b)	r 4,426	r 4,437	r 4,489	r 4,513	4,537
Other	r 4,537	r 4,600	r 4,595	r 4,505	4,642
PROPORTION OF TOTAL AREA (PER CENT)					
Alienated (Aggregate)	39.1	39.2	39.2	39.4	39.4
In Process of Alienation	1.3	1.2	1.2	1.5	1.4
Crown Lands—					
Leased or Licensed (a)	6.5	6.1	5.8	5.7	4.9
Forestry Reservations (b)	r 26.2	r 26.3	r 26.6	r 26.7	26.9
Other	r 26.9	r 27.2	r 27.2	r 26.7	27.5

(a) Through Lands Department and Mines Department.

(b) Includes State forests and estimated forested component of scenic reserves and national parks.

As shown in the previous table, Crown land at 30 June 1968 occupies 59.3 per cent of the State's total area. The bulk of this land is located in the western half of the island where altitude, rainfall and soil, either individually or in combination, prevent successful farming development. The only other large concentration of Crown land is in the north-east.

Although the possibility of rapidly alienating more Crown land for farming purposes on any large scale may seem remote, it should be noted that much of this area is nevertheless of importance to the State's economy, specifically for forestry and tourism. Crown land reserved for forestry use occupies approximately 26.9 per cent of the area of the State while reservations classed as National Parks and Scenic Reserves account for 3.6 per cent. Details of the latter type of reservation appear in the next section.

National Parks and Scenic Reserves

The Scenery Preservation Board is responsible for the administration of the State's National Parks and Scenic Reserves which occupy a part of the residual Crown land. Details of National Parks are as follows:

National Parks at 30 June 1968 (a)

Name	Locality	Area (Acres)
Cradle Mountain-Lake St Clair	Central Highlands	338,496
Lake Pedder	South-West	59,000
Mt Field	Derwent Valley	40,058
Ben Lomond	North-East	39,615
Frenchmans Cap	West Coast	25,240
Hartz Mountains	South	21,300
Mt Barrow	North	1,134
Freycinet Peninsula	East Coast	18,420
Rocky Cape	North-West	4,000

(a) There were no variations of any magnitude in 1967-68 but the Hydro-Electric Commission was given permission to undertake construction work in the Lake Pedder National Park.

The area under reservation as National Parks is 547,264 acres, and as Scenic Reserves, a further 62,024 acres; in total, 609,288 acres. The following list gives details of the various types of reserve, together with location and area (expressed to the whole number below where fractions of an acre are recorded):

Scenic Reserves at 30 June 1968

Type of Reserve and Name	Locality	Area (Acres)
Coastal Reserves—		
Stewarts Bay	Tasman Peninsula	4
Stewarts Bay, Esplanade, Pt Puer	Tasman Peninsula	58
Pt Puer-Crescent Bay	Tasman Peninsula	92
Brown Mt.-Remarkable Cave	Tasman Peninsula	150
Eaglehawk Neck and Foreshore	Tasman Peninsula	90
Eaglehawk Neck-Taranna	Tasman Peninsula	61
Tasman Arch-Blowhole	Tasman Peninsula	140
Waterfall Bay	Tasman Peninsula	30
Fossil Island	Tasman Peninsula	3
Tessellated Pavement	Forestier Peninsula	9
Lookout Rock	Bicheno	5
Cookville-Penguin Island	Bruny Island	3
Fluted Cape-Cloudy Bay	Bruny Island	600
Port Davey Foreshore	South-West	1,350
Port Davey Islands	South-West	202
Schouten Island	East Coast	8,500
Waterfalls—		
St Columba	Pyengana	775
Forth	Sheffield	135
Marriott	National Park	300
Liffey	Western Tiers	250
Mt Barrow	North	200
River Reserves—		
River Pieman	West Coast	8,215
River Gordon	West Coast	6,200
Roger River Pass	North-West	430
Derwent Cliffs	New Norfolk	11

Scenic Reserves at 30 June 1968—*continued*

Type of Reserve and Name	Locality	Area (Acres)
Cave Reserves—		
Hastings	South	131
Marakooa	Mole Creek	146
King Solomon	Mole Creek	500
Baldock (3 areas)	Mole Creek	{ 37
		{ 63
		{ 5
Gunns Plains	Ulverstone	24
Scenic Roads—		
Lyell Highway	Western Highlands	18,000
Zeehan-Renison Bell	West Coast	272
St Marys Pass	St Marys	674
Murchison Highway	West Coast	1,640
Fern Gullies, Forests, etc.—		
Thermal Springs	Kimberley	1
Thermal Springs	Hastings	19
Chalet	Hastings	1
Waterfall Creek	Bruny Island	60
Ferndene Gorge	Penguin	6
Notley Gorge	West Tamar	28
Hellyer Gorge	Waratah area	1,406
Cotra Linn	Launceston	1
Corinna	West Coast	8
Bird Sanctuary	Steppes	16
Fairy Glade	Western Tiers	97
Bradys Lookout	Rosevears	2
Parramores Lookout	Port Arthur	1
Mt Strzelecki	Flinders Is.	9,750
St Patricks Head	St Marys	370
Historic Sites, Buildings and Monuments—		
Town of Port Arthur	Tasman Peninsula	217
Mt Arthur	Tasman Peninsula	10
Convict Coal Mines	Saltwater River	528
Bowen's Monument	Risdon	..
Bowen Park	Risdon	6
George III Monument	Southport	25
Tasman Monument	Dunalley	..
D'Entrecasteaux Monument	Gordon	1
York Town	West Tamar	6
Recherche Bay	Ramsgate	3
Settlement Island	Macquarie Harbour	15
Isle of Condemed	Macquarie Harbour	..
Old Gaol and Paddock	Richmond	1
Entally House	Hadspen	85
Steppes Homestead	Steppes	25
Shot Tower	Taroona	8
Waubadobar's Grave	Bicheno	..
Toll House	New Norfolk	..
Bluff Battery	Bellerive	4
Oatlands Mill	Oatlands	..
161 Davey Street	Hobart	..
Batchelor's Grave	Taroona	..

Tasmania's largest national park, South-West National Park (excluded from the earlier table), was created by a proclamation issued on 16 October 1968. The Park covers 473,500 acres and incorporates the former Lake Pedder National Park within its boundaries.

War Service Land Settlement

After both World War I and World War II, Government schemes were operated with the aim of assisting ex-servicemen to settle on the land. The following section deals only with the scheme initiated to settle on the land eligible ex-servicemen from the 1939-45 War, and the Korean and Malayan operations.

The Commonwealth has provided finance but the administration has been undertaken by the War Service Land Settlement Division of the Agricultural Bank, a State development authority. Work has been completed and all holdings have been made over to settlers; it is expected that all valuations will be completed by 30 June 1970.

The following table summarises progress in physical terms (farms allotted, etc.) and in financial terms (loans to settlers, payments for acquisition, etc.):

War Service Land Settlement
(1939-45 War and Korea-Malaya Operations)
Summary to 30 June 1968

Operations		Commonwealth Expenditure (Aggregate)	
Particulars	Total to 30 June 1968	Advances in Respect of Tasmania	Total to 30 June 1968 (\$'000)
Land Acquired (Acres) ..	495,106	For Acquisition of Land	5,067
Farms Allotted—		For Development and Improvement of	
Number	500	Land	35,434
Area (Acres)	452,317	Contribution to Excess Cost over Val-	
Farms Being Developed—		uation	12,430
Number .. ..	..	Settlers' Credit Facilities	13,654
Area (Acres) .. ..	..	Remission of Settlers' Rent and Interest	569
		Living Allowances For Settlers ..	441
		Irrigation Projects	6
		Loss on Advances	211
		Cost of Administration of Credit	
		Facilities	711
		Total	68,523

Of the farms allotted to 30 June 1968, the largest concentrations were at King Island, Flinders Island, the Lawrenny estate and the Montagu project. At the end of the 1967-68 financial year 15 were vacant; 13 applicants are recorded as still interested though not pressing for settlement in any particular area.

Of the 500 farms both allotted and occupied at 30 June 1968 the most popular types were: dairy farms, 197; fat lamb farms, 172; fat lamb and beef farms, 73; wool sheep farms, 20.

Advances to Primary Producers

Although the principal efforts in land settlement since World War II have been made under the War Service Land Settlement Scheme, the State Government has also operated its own schemes to assist primary producers by providing loans. The following table shows particulars of advances under various Acts:

Advances to Primary Producers

Advances	Total Advances Made During 1967-68	Total Advances to 30 June 1968	Balance Outstanding at 30 June 1968	
			Number	Amount
Agricultural Bank—	\$'000	\$'000		\$'000
State Advances Act (including Rural Credits) 1935 ..	1,330	13,584	1,363	4,581
Commonwealth Re-establishment and Employment Act 1945 ..	..	815	60	55
Primary Producers' Relief Act 1947 ..	..	595	7	4
Primary Producers' Relief Act 1960 ..	..	18	1	2
Primary Producers' Relief Act 1962 ..	..	19	3	5
Closer Settlement (Soldiers) Act ..	33	2,168	133	103
Closer Settlement Act ..	57	500	78	466
Fire Damage Relief Act 1967 ..	2,061	2,089	850	2,089
Total	3,481	19,788	2,495	7,305

Details of the main forms of assistance now available to settlers are as follows:

The State Advances Act 1935

Under Part III of the Act, loans may be made to persons in rural industries for the purchase of farm properties, discharge of mortgage or for making improvements. Loans may be made for periods up to 30 years at an interest rate determined by the Treasurer. The rate during 1967-68 was five and three-quarter per cent. The present limit on any single advance is \$20,000.

Under Part IV of the Act (Short Term Rural Credits), loans may be made to persons engaged in prescribed rural industries for the purchase of stock, plant, seeds and manures and for other purposes considered necessary for carrying on their industry. There is no statutory limit to the amount which may be advanced to each applicant. Usual period of loans are: plant, 10 years; stock, five years; land development, 10-15 years; structural improvements, 20 years; working expenses, one to three years.

RURAL INDUSTRY

General

Tasmania is associated in most peoples' minds with apples and hops, since it is Australia's leading producer of these crops, but its rural industry is based on a very much wider range of products. In fact, the Tasmanian rural economy is marked by great diversity and, even allowing for the special regional adaptations made necessary by soil, climate, terrain and altitude, there are many rural holdings which individually exhibit an extremely varied range of activities.

In the early colonial days, Tasmania was actually famed as Australia's granary (because of its wheat), yet there is hardly any extensive area suitable for the large-scale mechanised farming as now practised in the continental wheat belt. At a later stage, the island acquired a reputation for potato growing, production in some years outstripping that of any other Australian State. The present pattern of farming puts far more emphasis on the rearing of livestock and on the increased production of wool, meat and dairy products; field crops

now include vegetables for canning and freezing but the relatively large areas devoted to oats, green fodder and vegetables for stock fodder are indicative of an orientation towards livestock raising. The traditional 'specialties', orchards and hop growing, are still important in the total picture but the major development in the years since World War II has been the rapid creation of large areas of sown and semi-improved pasture.

The next section deals with the early history of Tasmanian farming and emphasises the importance of wheat growing in the early colonial era.

Historical

In 1856 appeared the *Statistical Account of Van Diemen's Land or Tasmania* compiled by H. M. Hull from official records; the following extracts from this publication describe events in the colony when provision of food was undoubtedly the most urgent problem:

- 1804 February 19. Governor Collins landed in Sullivan's Cove from Port Phillip . . . 10s. an acre was charged for reaping wheat by the Convicts . . . Scurvy existed in the Settlement.
- 1805 Kangaroos were boiled down into Soup, and issued a quart at a time at the Colonial Hospital.
- 1806 Great scarcity of provisions. Grain prohibited from being used for brewing.
- 1807 Wheat crop failed.
- 1808 In July all the wheat and maize was gone, so 12 lb of barley was issued. In August, the beef and pork were expended, so kangaroo meat was issued instead. In October the barley was all gone, so 1½ lb a week of rice was issued instead.
- 1809 In October all the grain was expended; 7 lb of kangaroo meat was issued instead. Seed wheat and barley issued in March and May to the Settlers on loan.
- 1811 Acres in wheat 1500.
- 1812 The *Cyclops* sailed for Sydney with a cargo of wheat grown in the Colony.

In the same publication appear farm statistics for the Tamar settlement in 1816 and the Derwent settlement in 1817. Records for the next year (1818) contain statistics for the whole colony as follows:

'Land in cultivation—Wheat, 5049 acres; barley, 214 ditto; peas and beans, 148½ ditto; potatoes, 268 ditto; total, 5679½ acres. Livestock in the colony—horses, 267; horned cattle, 12,356; sheep, 127,883.'

The pattern of early agricultural development can be inferred from the following summary of official farm statistics:

Area Under Crops—Van Diemen's Land, 1818-1841
(Acres)

Year	Wheat	Barley	Oats	Peas	Beans	Pota- toes	Turnips	English Grasses	Tares	Total Crops
1818 ..	5,049	214	<i>n.a.</i>	149		268	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	(a)
1828 ..	20,357	3,864	1,573	646	35	1,292	1,296	4,970	..	34,033
1838 ..	41,760	13,495	21,576	868	128	3,532	9,054	17,150	437	108,000
1841 ..	63,734	9,010	16,471	738	102	4,185	15,943	22,082	349	132,614

(a) Not available on a comparable basis.

Livestock statistics for the same period are summarised as follows:

Livestock—Van Diemen's Land, 1818-1841

Year	Horses	Horned Cattle	Sheep	Goats
1818	267	12,356	127,883	..
1828	2,034	84,476	553,698	708
1838	9,656	75,087	1,214,485	2,400
1841	12,000	90,498	1,167,737	2,630

Early Development—First Phase

Although the early colonists had come halfway round the globe, Tasmania's temperate climate allowed them to pursue a type of farming which was little different from that carried on in contemporary England—certainly the crops grown were the same; however, the grazing of livestock on extensive bush-runs, the use of convict labour, the clearing of scrub and the occasional menace of the aborigine and bushranger were sufficient reminders that home lay 12,000 miles away.

Early farm development round the Derwent settlement occurred in what are now Hobart suburbs (New Town and Glenorchy) and further up-river at New Norfolk. The attraction of open plains and open forest country then drew settlers into the Coal River Valley (Richmond and Sorell), into the Midlands and parts of the East Coast. The Tamar settlers in the north first worked land on the plains around the site of Launceston, with early expansion to the Longford area and with grazing in the St Leonards and White Hills districts; the Northern Midlands were also developed as farming country in this era.

As suggested by the previous table of areas, the principal crop was wheat. It is hard today to picture Tasmania as Australia's principal wheatgrower but, in 1842, the island colony with nearly 80,000 acres sown to this crop, outstripped N.S.W., W.A., Victoria and S.A. individually and contained nearly half the Australian wheat acreage. Throughout the 19th century, wheat was a principal cash crop, but eventually competition from the continental States (both in type and price) caused a decline, as shown in the following table:

Wheat for Grain—Area and Total Production, Selected Years

Year	Area	Production	Year	Area	Production
	acres	'000 bushels		acres	'000 bushels
1860-61 ..	66,450	1,416	1930-31 ..	19,107	391
1870-71 ..	57,382	897	1940-41 ..	8,038	140
1880-81 ..	50,022	750	1945-46 (b) ..	4,982	67
1890-91 ..	32,452	643	1950-51 ..	5,318	95
1898-99 (a) ..	85,287	2,304	1960-61 ..	6,912	148
1900-01 ..	51,825	1,110	1965-66 ..	14,107	368
1910-11 ..	52,242	1,121	1966-67 ..	12,747	385
1920-21 ..	28,284	566	1967-68 ..	12,018	316

(a) Peak production year.

(b) Record low production year.

The present position is that Tasmanian bread is made entirely from imported wheat and the home-grown product is used to make high quality biscuit flours for which it is well suited, and for stock fodder.

Early Development—Second Phase

Before the 1850s, most farm land had been confined to the eastern half of the State where open plains and open forest country encouraged penetration. The pastoral venture of the Van Diemen's Land Company in the north-west is the principal exception to this generalisation. Further development, supported by the buoyant market during the Victorian gold rush, required the clearing of more thickly timbered land, the principal attraction being the fertile chocolate-coloured volcanic soils of the North-West Coast; in the same decade, the discovery of the basalt lands in the Scottsdale-Ringarooma area was followed by settlement in the North-East. It was in this second phase that the practice of ring-barking trees helped settlers make progress in thickly-forested country.

Late in the 19th century, pioneers began to develop orchards, mainly for apples, in the thickly timbered country of the Huon, Tamar and lower Mersey Valleys. In the decade after Federation, annual apple production commenced to exceed one million bushels (as compared with the 1963-64 record crop of 8½ million bushels).

Because of the heavy clearing work necessary in the second phase of development (which lasted up till the First World War), it can appropriately be called the bush pioneering period.

Recent Development

Following World War I, the State fostered farming development through schemes for the settlement of returned soldiers, but this largely involved the acquisition and sub-division of existing properties, the only major conversion of virgin land being at Brittons Swamp on the North-West Coast. After World War II, soldier settlement and closer settlement schemes of a more ambitious nature were undertaken, the main areas of development being King and Flinders Islands, the Waterhouse and Tomahawk projects in the North-East and the reclamation of Montagu Swamp on the far North-West Coast. (Another project involved the sub-division of the Lawrenny estate in the Hamilton area of the Midlands.) Major private schemes are now in progress for pastoral development in the far North-East, where modern machinery makes light work of clearing the low scrub and where low-density grazing had once been the only form of utilisation.

*Sources of Information***Rural Industry Statistics**

The statistics are, in the main, compiled from census returns of agricultural, pastoral and dairying production collected from rural holdings in Tasmania at 31 March each year. In conjunction with the general census, supplementary collections from farms are conducted where the harvesting of certain crops has not been completed by 31 March (e.g. apples, potatoes).

Additional information is also obtained from a number of entirely separate collections covering such data as slaughterings, meat production and dairy production and from various marketing and other authorities.

Period Covered

Data relating to area sown, production and number of holdings growing crops are, in general, for the season ended 31 March. In cases where harvesting has not been completed by 31 March (e.g. potatoes), total production is nevertheless collected and included in published figures. Livestock numbers also are reported as at 31 March.

Rural Holdings

A 'rural holding' is defined as a piece of land of one acre or more in extent, used for the production of agricultural products or for the raising of livestock and the production of livestock products. Care should be exercised in drawing conclusions from changes in the number of rural holdings over a series of years. There are many small sub-commercial holdings, a proportion being no more than large residential blocks with perhaps a small plot of potatoes or other crops, or carrying a house-cow or poultry. It is very difficult, in some cases, to determine whether or not they should be regarded as rural holdings within the definition, and some variation in treatment over time has occurred.

Area of Crops

Total area of land sown or planted to crops is shown irrespective of whether the whole area was subsequently harvested or whether a portion or the whole of the crops failed and was not harvested. Where two *successive* crops are grown on the same land during the one season, the land is included twice in the area of crops.

Value of Production

The statistics in the following sections refer, in the main, to areas sown to crops and quantities produced. The value of the various crops is shown under 'Value of Production' in Chapter 7.

Classification of Rural Holdings By Type of Activity

Because many Tasmanian holdings are devoted, in the main, to more than one specific type of farming activity, it is difficult to present, in summary form, the essential characteristics or structure of rural industry in the State today. Before considering in detail crop areas, production statistics and livestock numbers, it is logical to examine the 'main line' of each farm and to determine what are the principal activities; from this study can be evolved a classification of holdings by type of activity. In 1959-60, the first attempt was made at classifying rural holdings in all States on a uniform basis. A similar classification was made for 1965-66, and Tasmanian details are shown in the next table. A detailed publication entitled *Classification of Rural Holdings by Size and Type of Activity* 1965-66 has been issued for each State and Australia as a whole by the Bureau of Census and Statistics. Classification by type of activity is carried out at irregular intervals and not annually.

Because of the large number of holdings on which more than one type of activity occurs, it was necessary to determine the principal activity before such holdings could be classified to particular types. Since it was desirable to exclude from the principal classification small sub-commercial holdings (generally operated only on a part-time basis), it was also necessary to have some means of determining at what scale of operations holdings engaged in various activities could be considered as commercial propositions. The measuring of the importance of each type of activity was based on *gross receipts at the farm* (estimated from quantity details shown on the annual statistical returns together with price data from independent sources).

Holdings for which estimated farm gross receipts were less than \$1,600 (\$1,200 in 1959-60) were treated as 'sub-commercial' and these, together with unused holdings, holdings used for intermittent grazing, and holdings attached to prisons, hospitals, etc. were not classified by type of farming activity. When these holdings had been eliminated, farms were classified according to the formulae that follow.

If a single activity accounted for 50 per cent or more of the total gross receipts, that activity determined the holding type. Where no single activity accounted for 50 per cent of the total gross receipts, the holdings were classified as 'multi-purpose'. Principal exceptions to this general rule were holdings reporting (i) sheep and cereal grains, and (ii) cattle (milk production) and pigs. In the former case, the holding was treated as a composite sheep-cereal grain type if the combined receipts obtained from the two activities added to 75 per cent or more of total gross receipts, so long as gross receipts from sheep were no more than four times and not less than one quarter of the gross receipts obtained from cereal grains. In the latter case, if the combined receipts obtained from cattle (milk production) and pigs represented 50 per cent or more of total gross receipts, the holding was classified as dairying.

The next table provides details of the number of holdings classified to each type of activity in each statistical division. Because of changes to the wording of the Farm Census schedule, statistics in this table are not strictly comparable with the 1959-60 classification.

A number of interesting conclusions emerge from a consideration of 'classified holdings' in the following table: (i) the main activity of over 62 per cent of classified holdings is concerned with either cattle or sheep; (ii) cereal grain growing barely exists as a main activity and is principally carried out in conjunction with the grazing of sheep or cattle; (iii) three main types of holding, namely dairying, sheep and fruitgrowing in that order, account for over 74 per cent of classified holdings; (iv) nearly 12 per cent of classified holdings must carry on at least three distinct activities, otherwise they could not be classified as 'multi-purpose' in accordance with the 50 per cent formula prefacing the table; (v) dairying is clearly the major activity of the NW. Statistical Division and fruitgrowing of the Southern Statistical Division.

Holdings Classified According to Type of Activity, 1965-66 (a)

Type of Holding	Statistical Division								Total
	NW.	NE.	North Mid-land	Mid-land	SE.	Southern	Western	Balance (b)	
Sheep-Cereal									
Grain ..	7	1	15	10	58	1	..	1	93
Sheep ..	185	272	315	360	353	61	..	1	1,547
Cereal Grain ..	..	..	..	..	2	..	..	..	2
Cattle (Meat) ..	146	60	17	4	10	31	5	3	276
Cattle (Milk) ..	2,109	546	164	26	48	128	..	5	3,026
Fruitgrowing ..	48	152	1	14	49	944	..	26	1,234
Vegetables—									
Potatoes ..	168	13	..	37	12	4	1	1	236
Other & Mixed	173	32	6	3	21	9	..	20	264
Poultry ..	17	18	9	3	12	27	..	7	93
Pigs ..	9	5	4	1	7	11	1	3	41
Other (One Main Purpose)	9	6	..	34	2	68	..	9	128
Multi-Purpose	474	118	161	45	66	54	1	5	924
Total 'Classified' ..	3,345	1,223	692	537	640	1,338	8	81	7,864
Sub-Commercial	761	478	258	181	358	559	9	111	2,715
Unused ..	51	48	12	9	15	47	1	15	198
Total All Holdings	4,157	1,749	962	727	1,013	1,944	18	207	10,777

(a) Classification by type of activity is carried out at irregular intervals.

(b) Cities of Hobart, Launceston and Glenorchy (the statistical divisions are those in use before the Population Census of 30 June 1966).

Size of Rural Holdings

A classification of rural holdings by size is carried out at irregular intervals; the following table compares the size of holdings in selected years:

Classification of Rural Holdings by Size

Size of Holdings (Acres)	Number of Holdings		Area of Holdings (⁰ 000 Acres)	
	1928	1966	1928	1966
1 and under 50	3,164	2,365	58	50
50 and Under 100	2,108	1,625	147	117
100 and Under 500	4,779	4,770	1,095	1,069
500 and Under 1,000	726	946	594	654
1,000 and Under 5,000	775	845	1,600	1,771
5,000 and Under 10,000	146	130	1,018	892
10,000 and Under 20,000	67	67	925	910
20,000 and Under 50,000	29	24	812	711
50,000 and Over	5	5	384	323
Total	11,799	10,777	6,633	6,496

Types of Farming Activity, 1967-68

At 31 March 1968, there were 10,631 rural holdings (compared with 11,389 in 1958). The following table shows the number of holdings growing selected principal crops or carrying livestock; this gives some indication of farming activities but on a cruder basis than the earlier table since the same holding may be included more than once in the figures (in an extreme case, the one holding could be included eleven times):

Number of Holdings Growing Principal Crops or Carrying Livestock

Particulars	1957-58	1964-65	1965-66	1966-67	1967-68
Number of Rural Holdings ..	11,389	10,979	10,777	10,641	10,631
Holdings—					
Growing—					
Grain (a)—					
Barley	136	255	348	383	403
Oats	295	387	341	465	463
Wheat	95	255	213	194	159
Hops	96	109	107	106	111
Vegetables (b)—					
Potatoes	3,151	1,605	1,963	1,582	1,543
Onions	16	17	13	22	24
Fruit (b)—					
Orchard	1,631	1,317	1,305	1,260	1,184
Small Fruit	622	474	418	393	344
Carrying—					
Cattle	9,424	8,384	8,667	8,598	8,631
Sheep	5,753	5,114	5,276	5,224	5,294
Pigs	3,799	3,315	3,153	2,749	2,545

(a) Twenty acres and over.

(b) One acre and over.

It should be noted that a fall in the number of holdings engaged in a particular activity does not necessarily involve decreased total activity. Holdings carrying cattle have decreased over the last ten years, while cattle numbers have shown a 52 per cent increase in the same period. The decline in holdings growing potatoes and small fruit has been matched by an actual fall in crop acreage and in production.

Land Utilisation on Rural Holdings

Rural holdings at present occupy 39.0 per cent of Tasmania's total area which is 16,885,000 acres; details of utilisation follow:

**Land Utilisation on Rural Holdings
(Acres)**

Particulars	1957-58	1965-66	1966-67	1967-68
Area Used for Crops (a)	300,720	389,560	447,131	419,708
Land Lying Fallow (b)	68,919	76,308	86,271	76,711
Sown Pasture Grazed (c)	1,130,715	1,537,590	1,550,636	1,679,395
Other Land Used for Grazing	3,590,816	2,992,488	3,009,752	3,058,074
Balance of Holdings	1,455,765	1,500,516	1,413,507	1,345,329
Total Area of All Holdings	6,546,935	6,496,461	6,507,297	6,579,221

(a) Includes area of sown pasture *cut* for hay, seed, silage or green fodder; includes also orchards and small fruits.

(b) Excludes short or summer fallow.

(c) Excludes area *cut* for hay, seed, silage or green fodder.

Definition of 'Crops'

As defined in the previous table, crops are produced not only from cultivated fields and orcharding land but also from sown pasture if its growth is *cut* for hay, seed, silage or green fodder. The following table shows the total area of crops on this basis when double-cropping is taken into account:

**Total Area of Crops
(Acres)**

Particulars	1957-58	1965-66	1966-67	1967-68
Area Used for Crops (a)	300,720	389,560	447,131	419,708
Area Double Cropped	380	7,217	8,891	10,822
Total Area of Crops	301,100	396,777	456,022	430,530

(a) First item in preceding table 'Land Utilisation on Rural Holdings'.

Definition of 'Sown Pasture'

Sown pasture is defined in these statistics as 'clovers and grasses (other than native).' The next table shows the total area of sown pasture and distinguishes between areas *cut* for various purposes and areas simply grazed:

**Sown Pasture—Classification of Total Area
(Acres)**

Particulars	1957-58	1965-66	1966-67	1967-68
Clover for Seed	493	728	880	203
Grass for Seed	507	2,382	4,256	2,182
Clover and Grasses Cut—				
For Hay	92,639	133,178	186,959	152,481
For Silage and Green Fodder ..	9,508	10,922	12,525	7,920
Total 'Under Crop'	103,147	147,210	204,619	162,786
Clover and Grasses Grazed (Not Cut)	1,130,715	1,537,590	1,550,636	1,679,395
Total Sown Pasture	1,233,862	1,684,799	1,755,255	1,842,181

Trend in Land Utilisation

The total area of rural holdings is still approximately the same as it was at the end of World War I. The most striking change is the rapid development of sown pasture, the previous table showing a 49 per cent increase in the decade ending 1967-68. Twenty-three years ago (1944-45), the area of sown pasture was under 500,000 acres, it passed 1,000,000 acres in 1955-56 and reached 1,842,000 acres in 1967-68. A similar increase has also occurred in the area of sown pasture *cut* for hay, seed, silage or green fodder and since this is, for the purpose of these statistics, a component of the area used for crops, corresponding variations in total crop areas are due to this factor.

In fact, the area of land under the plough is slightly less than it was 50 years ago, which does not indicate a lack of progress in farming but rather a change in the farming pattern. Grain crops are no longer the dominant item and many primary producers, through their development of sown pasture, have become grassland farmers with the mower and pick-up baler as their main 'harvesting' machines (as opposed to the reaper and binder on ploughed fields). The trend to grassland farming has meant greatly increased capacity to carry stock, the numbers of both sheep and cattle having more than doubled since World War I. (In the decade ending 1967-68 sheep have increased from 3.3 million to 4.4 million; cattle from 371,000 to 564,000. The percentage increases for the ten-year period are: sheep, 34 per cent; cattle, 52 per cent.)

Temporary and Permanent Pasture

It should be noted that some of the areas included as sown pasture are 'temporary' in the sense that they may be put under crop after some years of use for grazing. In the same sense, specific areas used for crops in any year are also 'temporary' since they may later be converted to sown pasture. This rotational pattern, characteristic of much of Tasmania's mixed farming, obviously is designed to maintain soil fertility at a high level and to guard against the soil exhaustion associated with the earlier era of intense cultivation of cash crops. 'Ley' farming is the technical term for this rotational method.

Farm statistics for 1967-68 showed the area of sown pasture as 1,842,181 acres and indicated that the trend of the previous decade is being maintained. The main seed varieties produced on Tasmanian farms (in cwt) in 1967-68 were: perennial ryegrass, 3,971; H.1. short rotation ryegrass, 298; Italian ryegrass, 457; white clover, 394. The total weight of grass and clover seed harvested was 5,373 cwt (as compared with 11,702 cwt in 1966-67). In all years since 1960-61, perennial ryegrass seed has accounted for more than 60 per cent of the total seed harvested.

In the sowing of temporary pastures, the main grasses and clovers used are: ryegrass (perennial, Italian and hybrid) and red clover. Permanent pastures are based on perennial ryegrass and white clover with *phalaris tuberosa* and subterranean clover especially suitable for the drier regions and cocksfoot in the wetter.

Tasmania's capacity for extending the area of sown pasture is certainly not yet exhausted since, in 1967-68, in addition to the 1.84 million acres of sown pasture, there were a further three million acres of other land used for grazing. However, much of this land is rough 'bush run' country unsuitable for future development.

Agriculture

Sufficient has been said on land utilisation to emphasise the trend to grass-land farming. In the summary table below showing the area devoted to the principal crop types, the area of sown pasture *cut* for hay, seed, silage or green fodder is attributed to the appropriate crop, e.g. as a component of hay and green fodder areas.

Area of Principal Crops—Summary
(Acres)

Crop	1957-58	1965-66	1966-67	1967-68
Cereals for Grain	35,443	62,338	69,738	71,532
Hay	110,164	147,828	203,181	178,838
Green Fodder	63,602	89,153	86,843	83,003
Field Peas (Blue, Grey and Other)	13,849	7,866	5,982	5,562
Vegetables for Stock Fodder ..	17,790	29,726	29,907	35,053
Grass Seed	1,000	3,110	5,136	2,385
Industrial Crops (Hops & Mustard)	1,694	1,822	1,801	1,907
Vegetables for Human Consumption	33,481	30,539	28,747	29,157
Orchard Fruit	20,661	20,707	20,735	20,340
Small Fruit	2,352	1,719	1,608	1,422
All Other Crops	1,064	1,970	2,346	1,331
Total Area of Crops ..	301,100	396,777	456,022	430,530

Details of individual crops, their area, production and yield per acre, are shown in the next table:

Crops—Area, Production and Yield Per Acre

Crop and Unit of Quantity	Average, Ten Years Ended 1966-67			Year 1967-68		
	Area (Acres)	Production		Area (Acres)	Production	
		Total	Yield Per Acre		Total	Yield Per Acre

CEREALS FOR GRAIN

Barley .. (bushels)	15,416	496,450	32.20	24,051	884,222	36.76
Oats (bushels)	26,896	627,911	23.35	35,371	1,013,665	28.66
Rye (bushels)	317	4,585	14.46	92	1,940	21.09
Wheat .. (bushels)	11,963	301,155	25.17	12,018	316,288	26.32

HAY

Grass & Clover (tons)	138,676	262,227	1.89	152,481	259,689	1.70
Oaten .. (tons)	14,802	27,881	1.88	22,598	42,636	1.89
Other .. (tons)	3,035	5,904	1.95	3,759	6,774	1.80

GRASS SEED

Clover .. (cwt)	1,120	803	0.72	203	403	1.99
Other (a) .. (cwt)	3,158	7,280	1.94	2,182	4,970	1.71

Crops—Area, Production and Yield Per Acre—continued

Crop and Unit of Quantity	Average, Ten Years Ended 1966-67			Year 1967-68		
	Area (Acres)	Production		Area (Acres)	Production	
		Total	Yield Per Acre		Total	Yield Per Acre
FIELD PEAS						
Blue (bushels)	4,470	95,481	21.36	4,262	93,336	21.90
Grey & Other (bushels)	4,651	87,397	18.79	1,301	26,009	19.99
VEGETABLES FOR STOCK FODDER						
Horse Beans. . (bushels)	448	9,691	21.62	429	9,559	22.31
Turnips—Swede and White (tons)	23,570	<i>n.a.</i>	<i>n.a.</i>	34,553	<i>n.a.</i>	<i>n.a.</i>
Other	262	..	..	72	..	..
INDUSTRIAL CROPS						
Hops (<i>b</i>) .. (lb)	1,444	2,640,000	1,828	1,502	3,005,000	2,001
Mustard .. (lb)	315	133,000	424	302	122,000	404
VEGETABLES FOR HUMAN CONSUMPTION						
Beans, French and Runner .. ('000 lb)	426	3,163	7.425	1,041	8,792	8.448
Peas, Green (<i>c</i>)— For Processing ('000 lb)	11,705	33,026	2.789	14,877	53,926	3.614
Sold in Pod ('000 lb)	216	220		67	79	
Potatoes .. (tons)	13,172	75,174	5.71	10,960	79,058	7.21
Turnips—Swede and White.. (tons)	865	5,579	6.45	639	4,256	6.66
Other Vegetables ..	1,340	..	..	1,574	..	..
ORCHARD FRUIT						
Bearing—						
Apples .. (bushels)	15,783	6,621,000	419	14,945	7,943,000	531
Apricots .. (bushels)	530	46,329	87	306	12,300	40
Pears .. (bushels)	1,446	507,340	351	1,220	511,000	419
Plums and Prunes .. (bushels)	80	17,372	217	39	13,000	333
Other .. (bushels)	95	..	..	63	..	..
Non-bearing Areas	2,345	..	..	3,767	..	..
SMALL FRUIT						
Bearing—						
Currants (Black and Red) (lb)	852	2,849,000	3,344	548	2,160,000	3,940
Gooseberries (lb)	35	304,000	8,686	24	122,000	5,058
Loganberries (lb)	172	1,073,000	6,238	94	511,000	5,450
Raspberries (lb)	817	4,117,000	5,039	452	2,502,000	5,533
Strawberries (lb)	77	305,000	3,961	66	241,000	3,632
Non-bearing Areas	185	..	..	237	..	..

(a) Production includes seed harvested from areas sown to oats for grain; this seed is excluded from the average yield figures.

(b) Non-bearing area excluded; production expressed in dry weight.

(c) Ex-shell weight.

Summary of Principal Crops

The following tables, which summarise the area of selected principal crops and give details of production for recent years, illustrate: (i) the increasing importance of cereal grain crops, green peas and french runner beans for processing and the hay crop to the agricultural industry; (ii) the declining importance of potatoes, field peas and small fruit.

Selected Principal Crops—Area and Production

Crop	1957-58	1963-64	1964-65	1965-66	1966-67	1967-68
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AREA (ACRES)

Barley for Grain	8,384	13,790	15,479	19,907	21,057	24,051
Oats for Grain	20,711	30,344	28,086	28,290	35,909	35,371
Wheat for Grain	5,884	17,562	16,805	14,107	12,747	12,018
Hay	110,164	149,640	180,256	147,828	203,181	178,838
Field Peas	13,849	10,982	7,545	7,866	5,982	5,562
Grass Seed	1,000	3,734	9,013	3,110	5,136	2,385
Hops—Bearing	1,410	1,462	1,475	1,491	1,468	1,502
Beans—French and Runner	142	495	470	606	970	1,041
Peas, Green—						
For Processing	8,514	11,884	14,995	15,907	15,221	14,877
Sold in Pod	519	186	215	133	83	67
Potatoes	21,696	10,806	9,393	11,993	10,278	10,960
Bearing—						
Apples	16,812	15,545	15,532	15,454	15,235	14,945
Pears	1,388	1,460	1,469	1,435	1,398	1,220
Currants (Black & Red)	779	978	875	765	695	548
Loganberries	203	166	124	108	139	94
Raspberries	1,027	753	703	651	577	452
Strawberries	92	80	70	74	67	66

PRODUCTION

Barley for Grain (bushels)	270,146	414,230	529,377	683,827	771,750	884,222
Oats for Grain .. (bushels)	481,895	843,643	520,470	676,739	947,960	1,013,665
Wheat for Grain (bushels)	153,493	482,757	364,161	368,351	385,243	316,288
Hay (tons)	204,775	249,176	364,356	257,237	436,907	309,099
Field Peas .. (bushels)	287,275	186,533	190,376	148,576	151,828	119,345
Grass Seed .. (cwt)	2,275	7,361	19,934	5,316	11,702	5,373
Hops (a) .. ('000 lb)	2,870	1,580	2,088	3,069	2,091	3,005
Beans—French and Runner ('000 lb)	259	3,495	3,873	5,548	8,127	8,792
Peas, Green (b)—						
For Processing ('000 lb)	18,204	32,757	51,383	51,114	56,689	53,926
Sold in Pod .. ('000 lb)	337	187	255	153	101	79
Potatoes .. (tons)	101,500	66,420	57,062	76,400	73,300	79,058
Apples .. ('000 bushels)	6,635	8,545	6,207	8,364	6,301	7,943
Pears .. ('000 bushels)	566	625	490	650	404	511
Currants (Black & Red) ('000 lb)	2,909	2,955	2,300	2,936	2,715	2,160
Loganberries .. ('000 lb)	905	977	623	675	681	511
Raspberries .. ('000 lb)	4,846	3,841	3,374	3,502	3,240	2,502
Strawberries .. ('000 lb)	407	175	317	218	262	241

(a) Dry weight.

(b) Ex-shell weight.

Principal Crops

The data on acreage and production of crops are compiled, in general, to give totals for each municipality. In subsequent parts of this chapter dealing with geographical distribution, the information is presented only in Statistical Divisions; however, the component attributable to the North Central and Western Divisions (i.e. the City of Launceston and the western mining districts) is so small that they are combined and described as 'Rest of State'. Also, in the following tables, the Hobart Division has been combined with the Southern, since the aim is to give the distribution in broad outline and not in detail.

Cereals for Grain

The next table shows the geographical distribution of cereal grain growing:

**Cereals for Grain—Area of Crops in Statistical Divisions, 1967-68
(Acres)**

Cereals for Grain	NW.	NE.	North Midland	Midland	SE.	Hobart and Southern	Rest of State	Total
Barley ..	8,294	1,863	5,499	1,193	5,408	1,794	..	24,051
Oats	2,554	2,669	11,852	12,241	4,217	1,839	..	35,371
Rye	10	..	..	64	18	..	..	92
Wheat ..	1,424	292	4,463	3,457	1,712	671	..	12,018
Total ..	12,282	4,824	21,814	16,955	11,355	4,304	..	71,532

The area for grain under barley and oats has tended to increase in recent years, 1957-58 acreages being barley, 8,384; oats, 20,711. In 1963-64 the area under wheat for grain was 17,562 acres, the largest area since 1937-38. However, since 1963-64 the area of wheat for grain has declined progressively each year to 12,018 acres in 1967-68.

Hay and Green Fodder

The following table shows the geographical distribution of hay and green fodder crops:

**Hay and Green Fodder—Area of Crops in Statistical Divisions, 1967-68
(Acres)**

Crop	NW.	NE.	North Midland	Midland	SE.	Hobart and Southern	Rest of State	Total
Hay—								
Grass and								
Clover ..	78,775	27,036	21,967	6,213	6,575	11,670	245	152,481
Oaten ..	7,370	3,286	5,668	2,960	2,093	1,209	13	22,598
Other ..	760	554	546	1,336	356	207	..	3,759
Total Hay	86,905	30,876	28,181	10,509	9,024	13,086	258	178,838
Green Fodder	25,596	15,654	13,046	16,103	7,132	5,468	5	83,003

It should be noted that the grass and clover hay area in the table (152,481 acres) relates to hay produced by mowing sown pasture. Reference to a previous section *Definition of 'Sown Pastures'*, which gives details of the geographic distribution of sown pastures, indicates that the North West Division has the largest area used in this way and is therefore in the best position to produce hay.

The predominance of the North West Division in acreage under hay and green fodder can be related to the fact that it carries 50 per cent of the State's cattle and is the principal dairying area.

The chief sources of green fodder are areas sown to oats (usually about 50 to 60 per cent of total green fodder acreage), and areas of grasses and clovers cut from sown pasture (9.5 per cent in 1967-68); other green fodder crops are obtained from chou moellier, barley, lucerne, millet, rape, ryecorn and wheat.

Vegetables for Human Consumption

As previous acreage and production tables indicated, there has been a decline in potato growing; the next table traces the history of this crop over the last one hundred years:

Potatoes—Area Under Crop and Total Production, Selected Years

Year	Area	Production		Year	Area	Production	
		Total	Yield Per Acre			Total	Yield Per Acre
	acres	tons	tons		acres	tons	tons
1860-61..	7,621	33,589	4.41	1930-31 ..	37,229	95,289	2.56
1870-71..	9,823	36,028	3.41	1940-41 ..	37,364	114,041	3.05
1880-81..	10,421	32,548	3.12	1944-45 (a)	81,092	345,232	4.26
1890-91..	20,133	73,158	3.63	1950-51 ..	31,581	124,000	3.93
1900-01..	23,068	93,862	4.07	1960-61 ..	10,875	39,050	3.59
1910-11..	26,230	70,090	2.67	1966-67 ..	10,278	73,300	7.13
1920-21..	32,000	88,679	2.77	1967-68 ..	10,960	79,058	7.21

(a) Peak acreage and production year.

Potato growing was for many years a major activity in the NW. Statistical Division and even in 1967-68, 80 per cent of the acreage and 86 per cent of the production of the State's potato crop was located in that area. The size of the Tasmanian potato crop has always been influenced by the demand from other States, in particular, New South Wales. In 1951-52, over one hundred thousand tons were exported; in the last four years annual exports have not exceeded 35,000 tons. The considerably increased yield per acre in recent years has been due mainly to the greater use of irrigation and artificial fertilisers. In 1967-68 54 per cent of the State potato crop was irrigated compared with only 3 per cent ten years earlier. (See 'Technical Aspects of Rural Industry' later in this chapter.)

The decline in this export crop has been largely offset by increased opportunities for disposing of other vegetable crops to dehydrating, canning and deep-freezing plants developed on the North-West coast and in the Scottsdale area since World War II. The main crop now grown for processing is green peas, its area in 1967-68 exceeding the area planted to potatoes (14,877 acres as against 10,960 acres); a demand by processing plants also exists for other vegetables. In 1967-68, 1,041 acres of french and runner beans were grown compared with only 142 acres ten years earlier. The production from all but 23 acres of the 1967-68 crop was for processing factories.

The concentration of vegetable growing in certain areas of the State is illustrated in the following table:

Vegetables for Sale for Human Consumption (a)
Area Under Selected Crops in Statistical Divisions, Season 1967-68
(Acres)

Crop	NW.	NE.	North Midland	Midland	SE.	Hobart and Southern	Rest of State	Total
Beans, French and Runner	996	31	5	..	..	8	..	1,041
Peas, Green ..	11,552	1,149	2,194	..	13	37	..	14,944
Potatoes ..	8,785	1,003	85	523	175	372	17	10,960
All Other Veg- etables ..	917	553	73	40	75	549	7	2,213
Total ..	22,250	2,736	2,357	563	263	966	24	29,158

(a) Includes vegetables for processing.

Grass Seed

The geographical distribution (in acres) of areas yielding grass seed in 1967-68 was as follows: NW., 323; NE., 246; N. Midland, 1,092; Midland, 251; SE., 349; Hobart and Southern combined, 124; total 2,385. The area of grass seed fluctuates widely depending on farming conditions; in 1964-65, 9,013 acres yielded seed while in 1967-68, the total fell to 2,385 acres.

Field Peas and Vegetables for Stock Fodder

The geographical distribution of these crops is shown as follows:

Field Peas and Vegetables for Stock Fodder
Area of Crops in Statistical Divisions, 1967-68
(Acres)

Crop	NW.	NE.	North Midland	Midland	SE.	Hobart and Southern	Rest of State	Total
Field Peas— Blue ..	773	257	3,160	21	51	..	..	4,262
Grey and Other ..	494	102	556	4	83	63	..	1,301
Vegetables for Stock Fodder— Turnips ..	9,687	12,011	3,368	6,387	2,002	1,087	13	34,553
Other ..	296	64	105	..	35	..	..	500

Hops

The principal industrial crop is hops grown mainly in the Derwent Valley, with most production in the Southern Statistical Division, and, across the Derwent, in the Midland Division. In 1967-68, the State's hop-bearing area was 1,502 acres. Hop growing is now being developed in other parts of the State.

Tasmania has for many years been the principal Australian grower of hops, producing about 70 per cent of the crop; hops are mainly used in brewing beer.

Orchard Fruit and Small Fruit

The geographical distribution of orchards and small fruit areas is shown below:

**Orchard Fruit and Small Fruit
Area (Bearing and Non-bearing) in Statistical Divisions, 1967-68
(Acres)**

Fruit	NW.	NE.	North Midland	Midland	SE.	Hobart and Southern	Rest of State	Total
Orchard Fruit	993	3,671	5	3	430	15,240	..	20,340
Small Fruit ..	7	16	1	187	15	1,196	..	1,422

Orcharding is heavily concentrated in and around the Huon Valley (Southern Statistical Division); the other main area is in the Tamar Valley (NE. Division). Small-fruit growing is almost entirely confined to the Derwent Valley and the Huon Valley.

On the average over recent years, the value of the apple crop alone has represented one third of the value of the State's total agricultural production. The next table gives recent details of area, production and average yield:

Apples—Area and Production

Year	Area		Number of Trees		Production		
	Bearing	Non-Bearing	Bearing	Non-Bearing	Total	Yield	
						Per Acre	Per Tree
	acres	acres	'000	'000	'000 bush	bushels	bushels
1963-64	15,545	2,076	2,305	308	8,545	550	3.71
1964-65	15,532	2,543	2,310	378	6,207	400	2.70
1965-66	15,454	2,935	2,266	430	8,364	541	3.69
1966-67	15,235	3,305	2,257	490	6,301	414	2.79
1967-68	14,945	3,433	2,228	512	7,943	531	3.56

After World War I, apple acreage was 26,000 acres but the decline in area since then has been more than offset by greatly increased average yield per acre. The higher yields can be attributed to several factors including the greater use of irrigation. In the last decade the irrigated area of orchard and small fruit has increased from 8 to 42 per cent of the total crop.

In the 1967-68 season, devaluation of sterling threatened to reduce the return to overseas exporters and the Commonwealth Government outlined a scheme in May 1968, the main provision being a 50 cent subsidy for each bushel of apples exported and 53 cents for each bushel of pears exported.

Production of small fruits in the State has dropped by two thirds over the last 20 years. In spite of this, Tasmania accounts for over half the Australian total production of major small fruits, apart from strawberry production where Victoria is predominant. Part of the 1967-68 production decline, shown in the following table, is attributable to the 1967 bush fires in southern Tasmania. Their effect was not apparent in the 1966-67 season since small fruit harvesting was completed before the fires.

Principal Small Fruits—Area and Production

Year	Currants (Black & Red)		Loganberries		Raspberries		Strawberries	
	Bearing Area	Pro- duction	Bearing Area	Pro- duction	Bearing Area	Pro- duction	Bearing Area	Pro- duction
1948-49 (a) ..	acres 2,006	'000 lb 6,030	acres 213	'000 lb 837	acres 2,086	'000 lb 7,603	acres 250	'000 lb 871
1963-64 ..	978	2,955	166	977	753	3,841	80	175
1964-65 ..	875	2,300	124	623	703	3,374	70	317
1965-66 ..	765	2,936	108	675	651	3,502	74	218
1966-67 ..	695	2,715	139	681	577	3,240	67	262
1967-68 (b) ..	548	2,160	94	511	452	2,502	66	241

(a) Representative year from period when small fruit areas were at record level.

(b) Part of 1967-68 decline due to bush fires in Southern Tasmania.

Statistics of the plantings of apple and pear trees by variety were first collected in 1967. The following table shows trees planted in: (i) new orchard areas; (ii) existing orchard areas as replacements for trees removed.

Apple and Pear Trees Planted according to Variety

Variety	Number of Trees Planted					
	1967			1968		
	In Existing Orchards (a)	In New Orchards	Total	In Existing Orchards (a)	In New Orchards	Total
Apples—						
Jonathon ..	1,112	626	1,738	1,375	..	1,375
Sturmer Pippin ..	1,848	592	2,440	1,674	370	2,044
Democrat ..	10,750	7,840	18,590	7,636	5,495	13,131
Granny Smith ..	16,376	9,056	25,432	8,022	6,950	14,972
Cleopatra ..	1,465	1,070	2,535	592	..	592
Golden Delicious ..	9,370	7,673	17,043	4,474	6,386	10,860
Red Delicious ..	5,662	4,517	10,179	6,709	5,106	11,815
Other	9,905	4,692	14,597	4,069	2,951	7,020
Total ..	56,488	36,066	92,554	34,551	27,258	61,809
Pears—						
Packhams Triumph	2,577	750	3,327	628	300	928
Winter Cole ..	171	..	171	312	..	312
Beurre Bosc ..	370	..	370	66	..	66
Other	687	..	687	174	..	174
Total ..	3,805	750	4,555	1,180	300	1,480

(a) Trees planted as replacements for trees removed. The heavy planting in 1967 reflects the replacement of bushfire damaged or destroyed.

The Granny Smith was the most popular apple type planted in 1967 and 1968. The second favoured was the Democrat, although the Golden Delicious replaced this type in second popularity in the 1968 'new orchard' plantings. Of the pear types Packhams Triumph dominated plantings and was the only type used to establish 'new orchards' in both years.

'All Other Crops'

In the table 'Area of Principal Crops' appears an item 'All other crops', (1,331 acres in 1967-68). These crops, not specified in previous tables, include oil poppies, lavender, flower seeds, cut flowers, a variety of crops grown for seed, and green manure crops (e.g. lupins).

LIVESTOCK**Introduction**

This subject is dealt with in two parts:

- (i) Number of Livestock on Rural Holdings;
- (ii) Livestock Products.

The first part needs no definition but the second part (livestock products) requires explanation. In relation to the various types of livestock, the following products are included:

Cattle — meat, milk, butter, cheese.

Sheep — meat, wool.

Pigs — meat.

Poultry — meat, eggs.

It should be noted that some of these products (e.g. butter and cheese) are made, in the main, in establishments classified as factories. From a theoretical point of view, it can therefore be correctly argued that some livestock products are attributable to secondary, rather than primary, industry; it is nevertheless impossible to describe adequately the pattern and scale of livestock farming without giving details of factory production of these items.

Number of Livestock on Rural Holdings

The following summary table shows the numbers of livestock on rural holdings since 1860:

Livestock on Rural Holdings—Selected Years

Year	Horses	Cattle	Sheep	Pigs
	no.	no.	'000	no.
1860 (a)	21,034	83,366	1,701	31,290
1870 (a)	22,679	101,459	1,350	49,432
1880 (a)	25,267	127,187	1,794	48,029
1890 (a)	31,165	162,440	1,619	81,716
1900 (a)	31,607	165,516	1,684	68,291
1910 (a)	41,388	201,854	1,788	63,715
1919-20 (a)	39,452	214,442	1,781	35,530
1929-30 (b)	34,336	214,643	2,091	52,899
1939-40 (b)	29,605	252,484	2,677	44,941
1949-50 (c)	21,197	274,740	2,170	35,841
1959-60 (c)	10,512	375,342	3,494	67,118
1966-67 (c)	6,660	521,664	4,321	85,654
1967-68 (c)	n.a.	563,726	4,428	86,517
1967-68—Tasmanian numbers as proportion of Australian total ..	n.a.	2.9 per cent	2.7 per cent	4.2 per cent

(a) At varying dates.

(b) At 31 December.

(c) At 31 March.

Cattle

Classification

The traditional way of classifying cattle has been to call them either 'dairy' or 'beef' cattle, but this has possibly been confusing since the terms may refer either to *purpose* or *breed*. In the period 1942-43 to 1962-63, the annual farm census required this dissection but the terms were not defined. The classification was obviously difficult for a farmer who was engaged not only in producing milk for sale but also in marketing cattle for meat production. In 1963-64, the cattle questions were amended as follows: (i) bulls were to be classified by *breed*; (ii) 'house cows' were to be specified separately; (iii) all other cattle were to be classified according to *purpose*; i.e. milk production or meat production. The results of the 1967-68 farm census are given, the table showing the way in which the questions were asked and providing an analysis in which it is possible to isolate the number of cows and heifers *directly* associated with dairying (i.e. the fourth, fifth and sixth items on the collection form).

Description of Cattle on Rural Holdings, 31 March 1968
(Form Used for Collection)

Cattle and Calves	Bulls used or intended For Service	Bulls (1 year and over)—Dairy Breeds .. Beef Breeds .. Bull Calves (under 1 year)	3,508 6,152 3,542
	Cows and Heifers used or intended for production (for sale) of Milk and Cream	Cows—In Milk and Dry at 31 March .. Heifers (1 year and over) Heifer Calves (under 1 year)	152,179 43,321 44,802
	House Cows (in milk and dry) and Heifers (one year and over) being kept primarily for own milk supply		5,529
	Other Cattle and Calves (not included above) i.e. mainly for Meat Production	Cows and Heifers (1 year and over) .. Calves (under 1 year) including Vealers .. Other (1 year and over) i.e. Steers, Bullocks, etc.	130,422 114,116 60,155
	Total Cattle and Calves for all Purposes		563,726

The total of 'cows and heifers used or intended for production (for sale) of milk and cream' in the previous table (240,302) can be associated directly with the dairying industry. In the same way, the total of 'other cattle and calves, i.e. mainly for meat production, (304,693) can be associated directly with the beef cattle industry. Comparable figures for 1964 when the classification was first used are: cows and heifers associated with the dairying industry, 223,435; cattle and calves associated with the beef cattle industry, 207,698.

The previous change in classification makes it impossible to compare, in full detail, the description of cattle in 1963-64 and subsequent years with descriptions reported in previous years but the following table is compiled to show broad groups regarded as generally comparable:

Description of Cattle on Rural Holdings

At 31 March	Number of Holdings with Cattle	Bulls (1 year & over)	Cows and Heifers (1 year & over)	Calves (Under 1 year)	Other Cattle	Total Cattle
1950	9,759	6,186	158,424	60,601	49,529	274,740
1955	9,668	7,002	194,016	78,252	40,147	319,417
1960	9,031	7,237	229,162	100,849	38,094	375,342
1963	8,671	8,944	270,223	122,383	42,053	443,603
1964	8,547	(a) 8,125	276,190	122,385	43,298	449,998
1965	8,384	(a) 8,311	283,955	119,455	39,750	451,471
1966	8,667	(a) 8,816	298,954	141,536	42,611	491,917
1967	8,598	(a) 9,094	315,316	145,928	51,326	521,664
1968	8,631	(a) 9,660	331,451	162,460	60,155	563,726

(a) The specification of 'Bull Calves (under 1 year)' from 1963-64 may have affected the comparability of this figure.

The distribution of holdings with cattle is shown below:

Cattle on Rural Holdings in Statistical Divisions, 31 March 1968

Particulars	NW.	NE.	North Mid-land	Mid-land	SE.	Hobart and Southern	Rest of State	Total
Holdings with Cattle	3,728	1,471	800	512	492	1,608	20	8,631
Total Cattle (All Descriptions) ..	284,435	115,721	54,498	46,908	19,764	41,060	1,340	563,726
Cows in Milk and Dry (a)	105,289	25,549	10,423	2,563	1,878	6,465	12	152,179
Heifers (1 year and over) (a)	28,179	7,427	3,594	871	804	2,436	10	43,321
Heifer Calves (under 1 year) (a) ..	29,829	7,955	3,289	962	562	2,197	8	44,802
Total (a)	163,297	40,931	17,306	4,396	3,244	11,098	30	240,302
Bulls (1 yr & over)—								
Dairy Breeds ..	2,328	538	307	74	76	183	2	3,508
Beef Breeds ..	2,110	1,390	875	890	300	564	23	6,152

(a) 'Cows and heifers used or intended for production (for sale) of milk and cream'. The total (240,302) can be associated directly with the dairying industry.

Breeds of Cattle

The main breeds of dairy cattle in Tasmania are Jersey, Ayrshire, milking Shorthorn, Friesian and Guernsey, while beef breeds are Hereford, Devon, Aberdeen Angus and Shorthorn.

A recent development, associated with the trend in the beef industry towards the production of lean carcasses, is the production of meat from dairy breed calves. Dairy farmers retain male calves and, in some cases, heifer calves for sale as vealers (calves aged from nine to twelve months). The dairy breed best suited for this form of meat production is the Friesian with its high birthweight (85 to 95 lb) and inherent ability to make rapid liveweight gains. Farmers rearing calves from dairy herds for sale as meat vealers normally mate their cows to Friesian or to recognised beef breed bulls.

Sheep

The table below shows how sheep numbers have more than doubled since the end of World War II.

Sheep on Rural Holdings At 31 March
(’000)

Year	Sheep	Year	Sheep	Year	Sheep	Year	Sheep
1945 ..	2,156	1951 ..	2,182	1957 ..	2,943	1963 ..	3,570
1946 ..	1,926	1952 ..	2,338	1958 ..	3,298	1964 ..	3,600
1947 ..	1,933	1953 ..	2,422	1959 ..	3,536	1965 ..	3,793
1948 ..	2,087	1954 ..	2,465	1960 ..	3,494	1966 ..	4,127
1949 ..	2,160	1955 ..	2,595	1961 ..	3,439	1967 ..	4,321
1950 ..	2,170	1956 ..	2,673	1962 ..	3,532	1968 ..	4,428

The next table shows the geographical distribution of sheep, also the various descriptions and the outcome of the lambing season:

Description of Sheep at 31 March 1968 and Lambing in Statistical Divisions

Particulars	NW.	NE.	North Mid- land	Midland	SE.	Hobart and South- ern	Rest of State	Total
Holdings with Sheep	1,582	975	769	650	625	685	8	5,294
Sheep—								
Rams (1 year and over) ..	7,522	7,961	11,241	13,591	5,949	2,236	6	48,506
Breeding Ewes ..	304,876	329,294	404,073	523,809	274,771	117,180	351	1,954,354
Other Ewes (1 year and over)	17,373	32,857	41,337	66,884	33,453	11,244	59	203,207
Wethers (1 year and over) ..	49,280	176,174	178,179	424,488	177,582	66,185	110	1,071,998
Lambs and Hoggets (under 1 year) ..	191,102	179,672	239,201	330,581	151,771	57,670	98	1,150,095
Total Sheep and Lambs ..	570,153	725,958	874,031	1,359,353	643,526	254,515	624	4,428,160
Lambing, Season 1967—								
Ewes Mated ..	283,281	305,899	381,428	475,935	238,276	93,283	445	1,778,547
Lambs Marked—Number ..	261,499	254,326	340,933	398,411	188,877	77,674	385	1,522,105
Marking Ratio (a) ..	92.3	83.1	89.4	83.7	79.3	83.3	86.5	85.6

(a) Lambs marked as percentage of ewes mated.

The marking ratio reflects: (i) ewe fertility rates; (ii) lamb mortality rates.

Lambing Mortality

Lambing losses are related to: (i) weather conditions; (ii) mismothering and ewe mortality; (iii) the nature of the lamb's coat at birth; and (iv) goitre.

Current research is being conducted into losses due to goitre. Goitre (iodine deficiency) is caused by an unknown factor which reduces the lamb's iodine level. Although the cause is unknown the condition can be treated by increasing the nursing ewes iodine intake.

The following table summarises the description of sheep on a State basis and also gives details of lambing:

Description of Sheep at 31 March and Details of Lambing—Summary

Particulars	1958	1963	1964	1965	1966	1967	1968
Holdings with Sheep ..	5,753	5,415	5,255	5,114	5,276	5,224	5,294
Sheep ('000)—							
Rams (1 year and over)	39	42	41	43	45	47	49
Breeding Ewes ..	1,482	1,608	1,567	1,739	1,826	1,997	1,954
Other Ewes (1 year and over) ..	167	195	193	157	172	164	203
Wethers (1 year and over) ..	753	886	890	943	951	1,022	1,072
Lambs and Hoggets (under one year) ..	857	839	909	910	1,133	1,090	1,150
Total Sheep and Lambs ..	3,298	3,570	3,600	3,792	4,127	4,321	4,428
Lambing (a)—							
Ewes Mated .. ('000)	1,266	1,419	1,458	1,478	1,651	1,688	1,779
Lambs Marked—							
Number .. ('000)	1,199	1,310	1,353	1,374	1,594	1,574	1,522
Marking Ratio (b)	94.7	92.3	92.8	93.0	96.5	93.3	85.6

(a) In the season preceding the year named.

(b) Lambs marked as percentage of ewes mated.

Breeds of Sheep

The Merino is the mainstay of the Australian wool industry and accounts for 75 per cent of the Australian sheep population. However, in Tasmania the predominant sheep breeds are Polwarth and Corriedale; both were originally developed from Merino cross-breeds. A new sheep breed, the 'Cormo', is at present being developed in Tasmania by crossing a Corriedale ram with a fine wool Merino ewe.

Over the last ten years, the breeds of sheep reported by growers have shown a trend in favour of Polwarths and Corriedales with a slight relative decline in Merinos and a greater decline in Comebacks and Crossbreds. The following table shows the percentage of the main breeds of sheep (including rams):

**Proportion of Breeds of Sheep at 31 March
(Per Cent)**

Breed	1958	1963	1964	1965	1966	1967	1968
Polwarth	29.1	35.8	36.7	38.6	39.3	39.9	40.5
Corriedale	14.2	16.1	16.3	17.8	18.6	19.5	18.0
Merino	9.7	9.7	9.7	9.3	8.7	8.0	7.1
Romney Marsh ..	2.2	2.5	2.3	2.2	2.1	2.2	2.0
Other Breeds (a) ..	4.6	4.4	3.5	3.3	3.4	3.0	3.0
Comebacks	12.5	11.5	12.2	11.1	10.0	10.5	10.7
Crossbreds	27.7	20.0	19.3	17.7	17.9	17.0	18.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Recognised breeds of sheep which individually, in 1968, accounted for less than one per cent of all sheep; includes Cheviot, Dorset Horn, Border Leicester, English Leicester, Ryeland, Southdown, Suffolk, Lincoln, Poll Dorset and Shropshire.

The Polwarths and Merino Comebacks are well adapted to the sparse grazing of the plateau regions of the Midland Statistical Division. While the Corriedales are mainly run on improved pasture, the Merinos tend to thrive in the drier regions on native grasses; increasing numbers of Merinos are now being raised on sown and semi-improved pastures, the theory that they *had* to be run on hard country being discredited.

Pigs

The geographical distribution of pigs is shown in the next table:

**Description of Pigs in Statistical Divisions
At 31 March 1968**

Particulars	NW.	NE.	North Mid- land	Mid- land	SE.	Hobart and South- ern	Rest of State	Total
Holdings with Pigs ..	1,283	550	226	85	120	276	5	2,545
Pig Numbers—								
Boars.	1,046	399	151	28	53	161	2	1,840
Breeding Sows ..	7,806	2,676	1,032	149	329	1,206	29	13,227
Other (a) ..	42,511	15,999	5,563	487	1,068	5,765	57	71,450
Total Pigs ..	51,363	19,074	6,746	664	1,450	7,132	88	86,517

(a) Includes baconers and porkers, backfatters, stores, weaners, suckers and slips.

The concentration of pigs in the North West Statistical Division has been related to the fact that this is the main dairying area and that pig-raising and dairying are almost invariably carried on as closely associated activities, separated milk providing an important item of pigfeed. Although some farmers have adopted the practice of selling their dairy products as whole milk for manufacture into products such as butter, cheese and casein and have abandoned pig raising, the pig population is being maintained at a relatively high level.

Pig Population

The pig population at 31 March each year is not, of itself, a very significant figure. It is possible for a sow to produce two litters within the one year and the offspring to number more than ten in each litter. It follows, therefore, that the real measure of activity in pig-raising is not so much the size of the pig herd at a particular point in time but rather the number of pigs slaughtered and the dressed carcass weight of the meat so produced; such information is given in the 'Livestock Products' section of this chapter.

In the previous table, the most significant item is the number of breeding sows. A sow can be mated at nine or ten months and the gestation period is a mere four months. The older technique was to allow the piglets to suckle for eight weeks before weaning but this could involve a 350 lb sow in the loss of 80 to 100 lbs live weight. A newer technique involves weaning within a month so that the sow loses relatively little weight and can be re-mated within a fortnight or so after farrowing; the short gestation period and the planned synchronisation of farrowing with the maximum periods of food supply make possible the production of two litters within the one year.

The following table summarises pig descriptions and pig numbers:

Description of Pigs on Rural Holdings

At 31 March	Holdings with Pigs	Boars	Breeding Sows	Other (a)	Total Pigs
1950	<i>n.a.</i>	1,106	5,451	29,284	35,841
1955	4,235	1,608	9,065	47,709	58,382
1960	3,681	2,075	10,730	54,313	67,118
1964	3,304	2,260	13,234	67,040	82,534
1965	3,315	2,327	14,578	75,116	92,021
1966	3,153	2,143	13,788	80,225	96,156
1967	2,749	1,972	13,148	70,534	85,654
1968	2,545	1,840	13,227	71,450	86,517

(a) Includes baconers and porkers, backfatters, stores, weaners, suckers and slips.

LIVESTOCK PRODUCTS

Value of Production

The statistics in the following section refer, in the main, to quantities of livestock products. The associated values will be found under 'Value of Production' in Chapter 7.

Wool

In a report in 1836, the Colonial Secretary, John Montagu, described the early export trade in wool: 'It appears that the quantity of Wool imported into England from N.S.W. and Van Diemen's Land in 1810 was 167 lbs; in 1820, it amounted to 99,415 lbs; in 1825, to 323,995 lbs. From 1827, the returns for the two Colonies are separated.' The report then quotes the following exports of wool from the island colony:

**Exports of Greasy Wool—Report of John Montagu
(lb)**

Year	Quantity	Year	Quantity	Year	Quantity
1827	192,075	1830	993,979	1833	1,547,201
1828	528,846	1831	1,359,203	1834	1,601,280
1829	925,320	1832	951,131	1835	1,942,800

Prices in 1824 varied from two and a half cents to five cents per lb but, by 1836, they had increased to range from 15 to 25 cents. The progress of wool production in the remainder of the 19th century can be gathered from the following table (compiled from export figures, since production details were not collected for the whole period):

**Exports of Wool (a) (Overseas and Interstate)—Historical Summary
(*000 lb)**

Year	Quantity	Year	Quantity	Year	Quantity
1835	(b) 2,429	1860	4,538	1885	5,774
1840	3,637	1865	4,924	1890	8,984
1845	3,662	1870	4,147	1895	7,223
1850	5,855	1875	6,199	1900	6,754
1855	5,858	1880	9,025	1905	9,566

(a) The figures relate basically to greasy wool but a small proportion of washed wool is included in the later years.

(b) An amendment of Montagu's original figure.

Unfortunately the above series cannot be carried through the period 1910-1922 due to lack of interstate trade figures, or through the period 1922-1951 because 'pure' greasy wool export figures (i.e. separated from scoured wools and tops and noils) are not available. Recent exports are:

Exports of Wool, Greasy (Overseas and Interstate)
(^{'000} lb)

Year	Quantity	Year	Quantity	Year	Quantity
1953-54 ..	15,474	1958-59 ..	25,167	1963-64 ..	25,086
1954-55 ..	17,663	1959-60 ..	27,977	1964-65 ..	30,329
1955-56 ..	18,491	1960-61 ..	24,403	1965-66 ..	34,376
1956-57 ..	20,707	1961-62 ..	27,209	1966-67 ..	35,802
1957-58 ..	23,659	1962-63 ..	26,278	1967-68 ..	30,854

It should be noted, however, that not all Tasmanian wool is exported, some being used, after scouring, etc., for manufacturing purposes within the State; any locally processed wool exported would not be classified under greasy wool.

Wool Production

For statistical purposes, the total amount of wool produced in the State in any year consists not only of the 'clip' (shorn wool) but also of the wool on skins, irrespective of whether it is actually removed by local fellmongers or is exported on skins. Production figures follow:

Wool Production Since 1956-57
(^{'000} lb)

Year	Wool as in the Grease			Year	Wool as in the Grease		
	Shorn Wool (including Crutchings)	Fell- mongered and Dead Wool, and Wool Exported on Skins	Total		Shorn Wool (including Crutchings)	Fell- mongered and Dead Wool, and Wool Exported on Skins	Total
1956-57	25,705	2,974	28,679	1962-63	30,318	4,243	34,561
1957-58	26,110	3,065	29,175	1963-64	29,597	4,410	34,007
1958-59	28,892	3,742	32,634	1964-65	35,619	4,052	39,671
1959-60	29,091	4,509	33,600	1965-66	36,948	4,910	41,858
1960-61	27,881	3,989	31,870	1966-67	38,687	4,466	43,153
1961-62	30,039	4,430	34,469	1967-68	33,700	4,608	38,308

In the previous tables dealing with exports, a gap exists between 1905 and 1950-51 but production statistics are available as follows:

Total Wool Production—Historical Summary
(^{'000} lb)

Year	Production of Wool (as in the Grease) (a)	Year	Production of Wool (as in the Grease) (a)	Year	Production of Wool (as in the Grease) (a)
1905 ..	11,753	1929-30	15,000	1954-55	23,797
1910 ..	13,339	1934-35	14,035	1959-60	33,600
1914-15 ..	12,049	1939-40	18,334	1964-65	39,671
1919-20 ..	13,069	1944-45	16,324	1966-67	43,153
1924-25 ..	12,483	1949-50	16,958	1967-68	38,308

(a) Total wool production, including shorn, dead and fellmongered wool and wool exported on skins; fellmongered converted to greasy wool equivalent weight.

'Wool as in the Grease'

The above term indicates that fellmongered wool included in previous total production figures has been attributed a weight as though it were *greasy* wool, although the original information is received in terms of the weight of *soured* wool recovered by fellmongering. The logic of conversion is simple: if 100 lb of *greasy* yields 60 lb of *clean*, and 100 lb of *soured* (fellmongered) yields 80 lb of *clean*, it follows that 100 lb of *soured* (fellmongered) is equivalent to 133 lb of *greasy*. The factors in the example are only approximations of those in actual use, which are obtained from woollscourers (*greasy/clean* relativity) and fellmongers (*soured/clean* relativity). Conversion of such wool to a greasy wool equivalent is necessary to put all the components of total production on a common basis.

Shorn Wool

The principal months for shearing in Tasmania are October, November and December. The following table gives shearing details for recent years:

Shearing and Shorn Wool Obtained

Year Ended 31 March	Numbers Shorn			Shorn Wool Obtained			Average Yield		
	Sheep	Lambs	Total	From Sheep (a)	From Lambs	Total	From Sheep	From Lambs	Total
	'000	'000	'000	'000 lb	'000 lb	'000 lb	lb	lb	lb
1958	2,576	812	3,388	24,163	1,947	26,110	9.38	2.40	7.71
1964	3,049	819	3,868	27,862	1,735	29,597	9.14	2.12	7.65
1965	3,171	807	3,978	33,752	1,867	35,619	10.64	2.31	8.95
1966	3,339	979	4,318	34,524	2,424	36,948	10.34	2.48	8.56
1967	3,542	975	4,517	36,210	2,477	38,687	10.22	2.54	8.56
1968	3,673	899	4,572	31,648	2,052	33,700	8.62	2.28	7.37

(a) Includes crutchings from sheep.

The next table shows the geographical distribution of shorn wool production:

Shearing and Shorn Wool Obtained (a) in Statistical Divisions, 1967-68

Particulars	NW.	NE.	North Mid-land	Mid-land	SE.	Hobart and Southern	Rest of State	Total
Number Shorn—								
Sheep (no.)	407,408	629,121	741,047	1,175,115	531,233	188,606	560	3,673,090
Lambs (no.)	124,177	146,445	201,876	272,587	119,569	34,183	6	898,843
Shorn Wool Obtained								
From Sheep ('000 lb)	3,532	5,483	6,611	10,125	4,343	1,550	5	31,648
From Lambs ('000 lb)	438	398	447	465	217	87	..	2,052
Total ('000 lb)	3,971	5,881	7,058	10,590	4,560	1,636	5	33,700
Average Yield—								
Sheep (lb)	8.67	8.71	8.92	8.62	8.18	8.21	9.09	8.62
Lambs (lb)	3.53	2.72	2.21	1.70	1.81	2.54	2.17	2.28

(a) Includes crutchings from sheep.

Wool Auctions

The bulk of Tasmanian shorn wool is marketed in Hobart and Launceston at auctions organised by the wool-selling brokers; in a typical year, there are three sales usually in November, February-March, and May. Some wool, however, is bought direct from growers by dealers and by local manufacturers of woollen goods. A small proportion of the State's wool is marketed at Victorian auctions, growers on King Island and Flinders Island tending to use this outlet because of sea transport factors.

The following table shows the average price of shorn greasy wool sold at Tasmanian auctions since World War II and also the value of all wool produced (the record price in 1950-51 can be related to the Korean War):

Tasmanian Average Auction Price and Total Value of Wool Produced

Year	Average Auction Price per lb of Shorn Greasy Wool	Total Value of Wool Produced (a)	Year	Average Auction Price per lb of Shorn Greasy Wool	Total Value of Wool Produced (a)
	cents	\$'000		cents	\$'000
1946-47 ..	23.00	3,880	1957-58 ..	54.62	15,484
1947-48 ..	37.23	5,714	1958-59 ..	43.99	13,688
1948-49 ..	46.92	7,530	1959-60 ..	51.62	16,508
1949-50 ..	59.65	9,530	1960-61 ..	48.18	14,458
1950-51 ..	150.05	24,226	1961-62 ..	48.62	15,752
1951-52 ..	57.59	11,218	1962-63 ..	55.12	17,772
1952-53 ..	67.42	12,758	1963-64 ..	67.40	21,352
1953-54 ..	69.09	13,310	1964-65 ..	49.35	19,050
1954-55 ..	63.75	14,464	1965-66 ..	56.20	22,405
1955-56 ..	54.60	12,380	1966-67 ..	50.85	20,983
1956-57 ..	71.82	19,948	1967-68 ..	43.72	15,609

(a) Includes value of shorn wool, fellmongered and dead wool and estimated value of wool exported on skins. Excludes profits of \$3,201,510 arising from the War-time Wool Disposals Plan and distributed to growers in the period 1949-50 to 1954-55.

The preceding price series refers only to shorn greasy wool sold at auction. In arriving at the value series for all wool produced, account is taken not only of wool sold at auction, but also of direct grower's sales to dealers, manufacturers and fellmongers plus estimated value of wool exported on skins.

Classification of Greasy Wool Sold at Auction

The following information is compiled by the Wool Statistical Service of the Australian Wool Board on the basis of catalogues of auction sales. 'Quality' (64s, 60s, 58s, etc.) is a measure of the fineness and texture of wool for spinning purposes. Broadly, it means the maximum number of hanks of yarn, each of 560 yards in length, which can be spun from one pound of combed wool. For instance, wool of 64s quality is of a fineness and texture which will produce 64 hanks, each of 560 yards, from one pound of tops (combed wool) of that particular wool.

The next table shows, on a percentage basis, the proportion of wool sold at auction according to its predominating quality. Less than 40 per cent of the Tasmanian wool clip is of a quality of 60's and finer compared with an Australian total of 75 per cent.

Classification of Greasy Wool Sold at Tasmanian Auctions According to Quality
(Source: Australian Wool Board)

Predominating Quality	Proportion of Each Quality (Per Cent)					
	1957-58	1963-64	1964-65	1965-66	1966-67	1967-68
70s and Finer	5.6	6.4	4.8	5.2	4.5	5.2
64/70s	2.7	2.8	2.7	2.3	2.4	2.1
64s	3.7	4.9	3.3	3.2	3.1	3.9
64/60s	0.7	0.8	0.6	0.7	0.6	0.7
60/64s	8.6	9.7	7.0	8.7	6.6	9.5
60s and 60/58s	16.7	19.1	15.6	17.3	15.3	17.6
Total 60s and Finer	38.0	43.7	34.0	37.4	32.5	39.0
58s	23.5	25.0	30.5	29.4	31.7	27.4
56s	20.5	16.9	20.6	19.8	20.4	18.2
50s	10.4	8.0	8.8	8.1	9.3	8.3
Below 50s	5.4	3.3	4.3	3.3	3.9	3.6
Oddments	2.2	3.1	1.8	2.0	2.2	3.5
Total All Wool	100.0	100.0	100.0	100.0	100.0	100.0

Clean Wool Yield

The Tasmanian proportion of auctioned greasy wool classified as '60s and finer' in recent years has ranged from 32 to 44 per cent whereas the corresponding Australian proportion exceeds 70 per cent. In the matter of price, however, the Tasmanian auction average is usually a few cents above the Australian auction average. Tasmanian averages, with Australian equivalents in brackets, have been: 1964-65, 49.35c (47.83c); 1965-66, 56.02c (50.08c); 1966-67, 50.85c (47.38c); 1967-68, 43.72c (41.75c). This apparent contradiction is explained by taking into account a second factor, not included in the foregoing quality analysis, namely the yield of clean wool that can be obtained from greasy wool. In respect of this factor, Tasmanian wools tend to yield higher than Australian, both natural and artificial environmental factors operating to the advantage of the Tasmanian clip. Evidence of this peculiarity of Tasmanian wool is provided in the next table:

Average Clean Yield of Wool Clip, Tasmania and Other Australian States
(Source: Australian Wool Board)

State of Sale (a)	Percentage of Clean Yield from Greasy Wool					
	1957-58	1963-64	1964-65	1965-66	1966-67	1967-68
N.S.W.	55.99	57.42	56.84	55.86	56.19	55.91
Victoria	59.40	59.63	59.21	58.98	59.72	58.70
Queensland	57.11	56.21	55.70	54.50	54.68	54.68
S.A.	52.67	53.98	53.10	53.07	54.00	52.53
W.A.	54.16	55.26	54.76	54.94	55.55	55.01
Tasmania	63.40	62.93	62.93	62.82	62.99	62.14
Australia	56.74	57.38	56.86	56.38	56.94	56.13

(a) Wool from the continental States is not sold at Tasmanian auctions so, for Tasmania, 'State of Sale' and 'State of Origin' are virtually the same except that some King and Flinders Islands' wool is sold at Victorian auctions.

As the above figures suggest, Tasmanian wool is freer from dust and vegetable fault than wool produced in the continental States.

While the proportion of fine wool (6os and finer) is comparatively low in the Tasmanian clip (since the State is historically and climatically a producer of crossbred wool), nevertheless growers offering '6os and finer' sell a high proportion of superfine Merino wool at premium prices; this factor also operates to raise Tasmanian average auction prices above the Australian average.

Meat

Slaughtering

An obvious starting point in any description of meat production is the slaughtering of livestock for human consumption. To fully record the level of this activity, statistics should deal with operations in abattoirs, other slaughtering establishments and factories; slaughtering on farms also needs to be taken into account. Information on this complete basis did not become available before 1912, previous statistics relating only to slaughtering in Hobart and Launceston. The following table has been compiled to give an indication of slaughtering activity from 1912 to the present day:

Stock Slaughtered (a) For Human Consumption—Historical Summary ('000)

Year	Cattle and Calves	Sheep and Lambs	Pigs	Year	Cattle and Calves	Sheep and Lambs	Pigs
1912	29	216	16	1954-55 ..	75	643	79
1915	32	309	32	1959-60 ..	145	1,166	115
1924-25 ..	36	276	55	1962-63 ..	158	1,095	115
1929-30 ..	35	342	64	1963-64 ..	176	1,127	124
1934-35 ..	38	349	51	1964-65 ..	174	987	135
1939-40 ..	48	461	73	1965-66 ..	154	1,164	146
1944-45 ..	47	509	58	1966-67 ..	170	1,159	149
1949-50 ..	58	508	51	1967-68 ..	171	1,125	143

(a) In all registered slaughtering establishments and on farms.

The next table, compiled on the same basis, analyses the items 'Cattle and Calves' and 'Sheep and Lambs':

Stock Slaughtered (a) for Human Consumption ('000)

Year	Cattle and Calves				Sheep and Lambs			Pigs
	Bulls, Bullocks & Steers	Cows and Heifers	Calves	Total	Sheep	Lambs	Total	
1957-58 ..	42	45	31	118	283	451	734	91
1961-62 ..	42	49	44	135	511	649	1,160	120
1962-63 ..	50	62	46	158	466	629	1,095	115
1963-64 ..	51	71	54	176	545	582	1,127	124
1964-65 ..	53	71	50	174	425	562	987	135
1965-66 ..	47	61	47	154	567	597	1,164	146
1966-67 ..	52	67	51	170	552	607	1,159	149
1967-68 (b) ..	57	66	48	171	600	525	1,125	143

(a) In all registered slaughtering establishments and on farms.

(b) In 1967-68, the farm component of total livestock slaughtered was: cattle and calves, 860; sheep and lambs, 88,448; pigs, 1,344.

Meat Production

Slaughtering statistics in the previous two tables suggest that meat production has been relatively stable in the last six years; however, statistics of actual carcass weight of stock slaughtered provide a more precise measure of actual meat production and annual trends. The necessary weight data are collected from abattoirs, factories and licensed slaughterhouses (including 'country butchers'); in the case of livestock killed on farms, only the numbers are available and the resulting carcass weight has to be estimated. Statistics in terms of carcass weight cover the same field as the previous tables on slaughtering. The following shows details since 1924-25:

Production of Meat—Historical Summary
(*000 Tons—Carcass Weight)

Year	Beef and Veal	Mutton and Lamb	Pigmeat (a)	Total Meat	Year	Beef and Veal	Mutton and Lamb	Pigmeat (a)	Total Meat
1924-25 ..	8.1	5.0	2.5	15.6	1959-60	23.1	20.8	5.4	49.3
1929-30 ..	8.0	6.0	2.8	16.8	1962-63	23.7	19.4	5.4	48.5
1934-35 ..	8.1	6.0	2.3	16.4	1963-64	25.9	20.1	5.9	51.9
1939-40 ..	10.6	7.7	3.5	21.8	1964-65	26.3	18.1	6.6	51.0
1944-45 ..	9.2	9.2	3.0	21.4	1965-66	23.0	21.1	7.0	51.1
1949-50 ..	12.3	8.9	2.6	23.8	1966-67	24.7	20.9	7.2	52.8
1954-55 ..	13.7	11.9	3.4	29.0	1967-68	25.1	19.8	6.9	51.8

(a) Includes pork for manufacture into bacon and ham.

The next table, compiled on the same basis, analyses the items 'Beef and Veal' and 'Mutton and Lamb':

Production of Meat
(*000 Tons—Carcass Weight)

Year	Beef and Veal			Mutton and Lamb			Pigmeat (a)	Total Meat
	Beef	Veal	Total	Mutton	Lamb	Total		
1957-58 ..	19.3	0.7	20.0	5.6	7.6	13.2	4.2	37.5
1961-62 ..	18.8	0.9	19.7	10.1	10.1	20.2	5.4	45.3
1962-63 ..	22.7	1.0	23.7	9.5	9.9	19.4	5.4	48.5
1963-64 ..	24.6	1.3	25.9	10.9	9.2	20.1	5.9	51.9
1964-65 ..	25.4	0.9	26.3	9.1	9.0	18.1	6.6	51.0
1965-66 ..	22.1	0.9	23.0	11.5	9.6	21.1	7.0	51.1
1966-67 ..	23.7	1.0	24.7	11.2	9.7	20.9	7.2	52.8
1967-68 ..	24.1	1.0	25.1	11.5	8.4	19.8	6.9	51.8

(a) Includes pork for manufacture into bacon and ham.

Export of Meat

As early as 1890, the Australian continental States were exporting frozen (and later, chilled) lamb, mutton, beef and veal to overseas destinations but the development of a similar meat export trade from Tasmania has been of comparatively recent origin. The first major step was in the field of fat lamb production when the 1931-32 season resulted in approximately 19,000 carcasses being exported overseas; unfortunately the birth of this activity coincided with the economic depression of the 1930s and the attempt to introduce a new line in 'mixed' farming was at first discouraged by low prices. World War II saw a revival of demand with over 100,000 carcasses exported overseas in 1943-44, and, after something of a decline in the early post-war period, exports climbed to 161,815 carcasses in 1959-60. Statistics of the number of carcasses exported in recent years are not available.

The other major development has been the growth of an export trade in beef and veal, the first shipments overseas commencing in 1954-55. The following are meat export figures expressed in tons. Unfortunately export weights cannot be directly compared with production weights since the former include boneless meat and meat which has had its fat content reduced while the latter are in terms of carcass weight.

Exports of Meat, 1967-68
(Tons)

Destination	Beef and Veal	Lamb	Mutton	Pork	Offal (Edible)	Bacon and Ham
Interstate	885	232	419	754	18	119
Overseas	5,113	202	2,768	..	690	..
Total ..	5,998	434	3,187	754	708	119

The importance of the overseas meat trade can be judged from Australian Meat Board estimates of the percentage of Tasmanian production actually exported. The trend in recent years is shown in the following table:

Proportion of Tasmanian Meat Production Exported Overseas (a)
(Source: Australian Meat Board)
(Per Cent)

Type of Meat	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66 <i>r</i>	1966-67 <i>r</i>	1967-68
Beef & Veal	4.5	8.7	7.7	14.7	20.2	26.1	28.5	24.7	31.5	29.4
Mutton	1.4	6.0	3.2	10.9	<i>r</i> 17.3	27.8	19.8	39.5	44.1	44.4
Lamb	25.5	23.0	17.7	12.7	13.7	9.5	14.7	12.2	10.8	3.2

(a) The estimated percentages are derived by converting actual export weights to a carcass weight equivalent, thus giving a basis for comparison with production figures.

Meat Export Works

In 1967-68, there were nine licensed export slaughtering establishments in Tasmania. These were in Launceston (two), Hobart, Burnie, Devonport, Longford, King Island, Smithton and Sorell.

In broad terms, it is true to say that Tasmania has changed from a meat importing to a meat exporting State and this development can be related to the changed pattern of farming, the most significant indicator being the increase in the area of sown pasture and in the number of livestock carried.

Bacon and Ham

In the tables on meat production, the product from pig slaughtering has been referred to as 'pigmeat'. Approximately 25 per cent of pigmeat was converted in Tasmania to bacon and ham in 1967-68. Considerable quantities of pigmeat are also exported to other States some of which is converted to bacon and ham. The next table shows the production of bacon and ham since 1939-40 in summary form:

**Production of Bacon and Ham
(Tons)**

Year	Bacon and Ham			Year	Bacon and Ham		
	Factory (a)	Farm	Total		Factory (a)	Farm	Total
1939-40	1,142	150	1,292	1963-64	1,151	15	1,166
1944-45	1,122	68	1,190	1964-65	1,158	13	1,171
1949-50	948	43	991	1965-66	1,049	13	1,062
1954-55	992	35	1,027	1966-67	1,242	n.a.	(b) 1,242
1959-60	1,120	24	1,144	1967-68	1,281	n.a.	(b) 1,281

(a) From 1959-60, includes small quantities made in establishments not classified as factories.

(b) Excludes farm production.

Previous reference has been made to the close association between pig-raising and dairying, many dairy holdings raising pigs as a subsidiary activity.

Dairy Products

In 1967-68, Tasmania's production of milk was 90,793,000 gallons which was only slightly below the record level of the previous year. During the last four years milk used for cheese manufacture has more than trebled but there has been relatively little change in milk used for butter manufacture and other purposes. The following table summarises milk production since World War II:

Milk Production and Milk Utilisation—Summary

Year	Quantity of Milk Used For—			Total Milk Production	Dairy Cows at 31 March (b)	Average Annual Production of Milk per Dairy Cow (c)
	Factory Butter	Factory Cheese	Other Purposes (a)			
	'000 gal	'000 gal	'000 gal	'000 gal	no.	gal
1944-45 ..	(d) 19,019	(d) 2,629	7,080	28,728	75,435	382
1954-55 ..	38,737	548	12,736	52,021	111,781	485
1959-60 ..	54,597	735	14,894	70,226	126,183	554
1962-63 ..	60,877	1,440	16,201	78,518	141,255	570
1963-64 ..	63,525	2,994	16,605	83,124	140,425	577
1964-65 ..	64,621	5,265	17,457	87,343	143,257	589
1965-66 ..	65,092	6,592	16,206	87,890	148,452	578
1966-67 ..	66,520	8,411	16,636	91,567	149,148	591
1967-68 ..	64,046	10,408	16,339	90,793	152,179	581

(a) Milk used for 'other purposes' goes into the making of cream, ice cream, milk powder, concentrated milk, and other preserved milk products. It includes milk consumed as such. As from 1954-55, the milk equivalent of farm-made butter and cheese is also included.

(b) From 1963-64, the farm census recorded house cows (i.e. kept primarily for own milk supply) as a separate item excluded from the dairy cow population. It follows that figures for 1963-64 and subsequent years are not strictly comparable with those of previous years.

(c) Milk yielding population is taken as mean of 'dairy cows—in milk and dry' and house cows, at 31 March in year of production and in preceding year. The figures should therefore be treated as an index rather than as an actual average quantity of milk produced per dairy cow.

(d) Includes milk equivalent of farm-made product.

Production of Butter and Cheese

The Australian dairying industry is capable of producing butter and cheese in quantities considerably greater than are required for domestic consumption, but competition from other countries in overseas markets has resulted in low prices which tend to discourage exports. The solution to this problem has been, in general terms, to pool the returns from both domestic sales and overseas sales and to distribute from the pool to each individual factory, irrespective of whether its products are sold at home or abroad; in effect, a process of price equalisation operates, the higher domestic price being used as an offset to the lower overseas price. The administrative body implementing this scheme is the Commonwealth Dairy Produce Equalisation Committee Ltd.

The industry also receives subsidies from the Commonwealth Government under the provisions of the various Dairy Industry Assistance Acts, the first of which was passed in 1942. Subsidies are distributed by the Commonwealth Dairy Produce Equalisation Committee through factories to milk producers by payments on butter and cheese manufactured. It follows, then, that in the marketing of butter and cheese, two factors are in operation: (i) price equalisation directly affecting the return to factories; (ii) subsidies directly affecting the return to milk producers.

It should be noted that the Commonwealth subsidy is applicable to factory butter and cheese but not to the same products manufactured on farms; the decline in farm production is probably related in part to this factor.

Although Tasmanian butter factories had been in operation before the turn of the century, it was not till 1911 that annual factory production exceeded 1,000 tons and even by 1938-39, factory butter output was only approximately 4,000 tons. The next table summarises total production of butter and cheese since 1939-40:

Production of Butter and Cheese
(Tons)

Year	Butter			Cheese		
	Factory (a)	Farm	Total	Factory	Farm	Total
1939-40 ..	4,156	1,139	5,295	1,395	52	1,447
1944-45 ..	3,643	448	4,091	1,122	59	1,181
1949-50 ..	5,069	456	5,525	418	3	421
1954-55 ..	8,334	236	8,570	274	..	274
1959-60 ..	11,744	144	11,888	328	38	366
1963-64 ..	13,667	96	13,763	1,337	..	1,337
1964-65 ..	13,903	96	13,999	2,350	n.a.	(b) 2,350
1965-66 ..	14,004	n.a.	(b) 14,004	2,942	n.a.	(b) 2,942
1966-67 ..	14,311	n.a.	(b) 14,311	3,762	n.a.	(b) 3,762
1967-68 ..	13,779	n.a.	(b) 13,779	4,646	n.a.	(b) 4,646

(a) Includes butter equivalent of butter oil.

(b) Excludes farm production.

Farmers in the past traditionally 'separated' their milk, producing a cream concentrate for delivery to the butter factory; the residue, skim milk, was used to feed pigs. Some factories now are buying whole milk because they have diversified their output to include casein (a raw material for synthetic fibres, etc.) and dried skim milk.

Disposal of Butter

Tasmania is a butter exporting State as shown in the following table:

**Butter—Production, Exports and Local Consumption
(Tons)**

Year	Production (Farm and Factory)	Net Exports (a)	Local Consump- tion (b)	Year	Production (Farm and Factory)	Net Exports (a)	Local Consump- tion (b)
1958-59	11,001	6,956	4,300	1963-64	13,763	8,227	4,885
1959-60	11,888	7,741	4,612	1964-65	13,999	10,231	4,527
1960-61	10,385	5,301	4,685	1965-66	(c) 14,004	9,295	r 4,390
1961-62	12,181	7,457	4,467	1966-67	(c) 14,311	10,070	4,408
1962-63	13,193	8,642	4,521	1967-68	(c) 13,779	9,390	4,698

(a) Net and gross are identical except in 1960-61 when 35 tons were imported. Includes overseas and interstate.

(b) Quantity of butter released for Tasmanian market (as supplied by the Commonwealth Dairy Produce Equalisation Committee Ltd) less the butter content of major commodities exported.

(c) Excludes farm production.

Consumption of Butter

Over the last ten years there has been a decline of about four pounds in the Tasmanian per capita consumption of butter. The decline may be partly attributed to the greater use of margarine. However, in 1967-68 the State's average butter consumption of 26.4 pounds per head of population was still well above the Australian per capita butter consumption of 21.6 pounds.

Bee-Farming

Originally bee-farming statistics were collected from all apiarists irrespective of the number of hives operated but, as from 1956-57, the collection was restricted to apiarists operating five or more hives. The next table summarises bee-keeping statistics:

Bee-Farming

Year	Number of Apiarists	Number of Hives	Honey Produced		Beeswax Produced	
			Quantity	Average Per Productive Hive	Quantity	Average Per Productive Hive
1957-58 ..	183	6,099	'000 lb 480.9	lb 108.3	'000 lb 5.4	lb 1.21
1961-62 ..	164	6,651	278.6	57.1	3.8	0.78
1962-63 ..	153	7,156	547.3	103.3	6.2	1.16
1963-64 ..	160	7,261	632.1	111.9	6.3	1.11
1964-65 ..	202	8,373	715.3	114.5	10.1	1.61
1965-66 ..	229	9,305	630.0	94.0	8.0	1.20
1966-67 ..	223	9,668	385.5	59.0	6.5	1.00
1967-68 ..	232	9,799	841.3	114.2	12.7	1.72

Of the 232 apiarists with five or more hives in 1967-68, 23 with 100 or more hives contributed 87 per cent of the total honey produced.

A proportion of the larger commercial apiarists can be described as 'migratory', in the sense that they seasonally move their hives into the leatherwood areas of the West Coast. Leatherwood, *Eucryphia lucida*, from which a distinctively flavoured honey is produced has a large white flower and the

species is unique to Tasmania. The quantity of leatherwood honey produced varies considerably from year to year depending upon the amount of blossom and weather conditions. In 1967-68 it accounted for almost half of total honey production compared with only 21 per cent in 1966-67. Some hives are also moved into the orchard and small fruit areas at blossom time. The sources of honey for the Tasmanian market, and estimated honey consumption per head of population are shown in the following table:

Honey Consumption

Average for Three Years Ended—	Production	Imports	Exports	Balance Available For Local Con- sumption (a)	Estimated Per Capita Consumption
	'000 lb	'000 lb	'000 lb	'000 lb	lb
1957-58	385	283	46	622	1.90
1967-68	841	131	147	825	2.17

(a) Production *plus* imports *less* exports.

Poultry Farming

Introduction

Until recent years, little statistical information has been available on the poultry industry in Tasmania, principally due to difficulties of collection and adequate coverage, but changes in legislation and other factors have now made it possible to compile more detailed data.

Poultry Numbers and Egg Production

'Back-yarders': Many householders have small flocks of up to 20 birds (i.e. below the legal minimum involving registration and payment of fees) and surveys suggest that these 'back-yard' flocks may produce more than 50 per cent of all eggs. However, no accurate statistics are available for this 'back-yard' component and it is excluded from the tables that follow.

Commercial Producers: Producers with small flocks over the legal minimum size (more than 20 birds) may nevertheless keep them mainly to use, rather than to sell, the eggs and accordingly it was also decided to exclude from the statistics producers with less than 100 birds (of all types); the Bureau's 1966-67 census of the poultry industry established that producers in this excluded category numbered 213 but owned only three per cent of the total number of hens and laying pullets in commercial flocks in Tasmania.

In the poultry industry, as in many other primary industries, there has been a trend to fewer but larger establishments in recent years. In 1967 there were 196 poultry farms with a total of 189,600 hens and laying pullets; by 1968 the number of farms had decreased to 184 with 195,600 hens and laying pullets. A size classification of the 184 farms in 1968 shows that 16 farms accounted for only nine per cent of farm numbers but possessed 36 per cent of the laying stock. Fifty three per cent of the poultry farms each had less than 500 laying birds.

The following table shows the number of poultry on the 184 poultry farms which reported a total of 100 or more birds of all types at 30 June 1968; also the eggs produced from hens and pullets during 1967-68:

Poultry Numbers and Egg Production, 1967-68
Commercial Producers Only (a)

Statistical Division	Number of Poultry Farms (a)	Poultry Numbers at 30 June 1968					Eggs Produced 1967-68 (b)
		Hens and Laying Pullets	Other Fowls	Ducks	Turkeys	Geese	
		'000	'000	'000	'000	'000	'000 doz
Hobart	56	51.4	25.7	0.3	..	..	794.0
SE.	17	15.2	2.9	..	0.4	..	209.2
Southern	21	21.1	186.6	0.1	5.7	..	330.0
N. Central	7	3.3	6.5	..	..	..	55.7
NW.	38	47.1	13.6	1.0	0.5	0.1	802.1
N. Midland	27	35.9	15.3	1.9	..	..	595.4
Midland	14	13.0	0.7	..	..	..	234.1
Western	4	8.7	..	..	..	..	154.0
NE. .. ..	..	..	..	..	..	..	..
Total	184	195.6	251.2	3.3	6.6	0.1	3,174.5

(a) Includes only producers with a total of 100 or more birds of all kinds.

(b) Hen and pullet eggs only. Includes 47,020 dozen eggs produced by commercial poultry farms which ceased production before 30 June 1968.

Poultry Slaughtering

Poultry slaughtering statistics were first collected in 1960-61 from all known establishments slaughtering 100 or more birds (of all types) annually; up to 1964-65, only numbers slaughtered were sought but from 1965-66, data were expanded to include both live and dressed weight. The next table shows the information available for a three-year period:

Number and Weight of Poultry Slaughtered (a)

Year	Number	Live Weight		Dressed Weight (b)	
	Slaughtered	Total	Average per Bird	Total	Average per Bird
	'000	'000 lb	lb	'000 lb	lb

CHICKENS (I.E. BROILERS, FRYERS AND ROASTERS)

1965-66	545	1,910	3.5	1,310	2.4
1966-67	753	2,691	3.6	1,969	2.6
1967-68	861	3,057	3.6	2,264	2.6

OTHER FOWLS (c)

1965-66	117	596	5.1	418	3.6
1966-67	129	623	4.8	440	3.4
1967-68	148	743	5.0	525	3.5

DUCKS AND DRAKES, TURKEYS, GESE

1965-66	21	182	8.7	139	6.6
1966-67	35	230	r 6.6	172	5.0
1967-68	49	333	6.8	241	4.9

(a) Includes only establishments slaughtering 100 or more birds of all kinds.

(b) Includes weight of whole birds, pieces and giblets.

(c) Hens, roosters, etc.

Size Structure of Slaughtering Industry

The following table classifies slaughtering establishments according to the number of birds slaughtered:

Number of Poultry Slaughtered According to Size of Establishment, 1967-68

Size of Establishment (Number of Birds Slaughtered) (a)	Number of Establishments	Number of Birds Slaughtered			Total Birds Slaughtered	
		Chickens (including Broilers, Fryers and Roasters)	Other Fowls (b)	Ducks and Drakes, Turkeys and Geese	Number	Proportion of Total
		'000	'000	'000	'000	per cent
100- 500 ..	30	2	4	1	7	0.7
501- 1,000 ..	16	3	6	4	13	1.2
1,001- 1,500 ..	8	3	7	..	10	0.9
1,501- 2,000 ..	3	..	5	..	5	0.5
2,001- 3,000 ..	3	..	7	..	7	0.7
3,001- 5,000 ..	3	7	1	2	10	0.9
5,001-10,000 ..	4	11	15	..	26	2.5
10,001-20,000 ..	2	19	14	..	33	3.1
Over 20,000 ..	6	816	89	42	947	89.5
Total ..	75	861	148	49	1,058	100.0

(a) Classified according to number of birds of *all kinds* slaughtered.

(b) Hens, roosters, etc.

The following illustrates the trend towards larger poultry slaughtering establishments: in 1965-66 there were 95 establishments slaughtering 100 or more birds (of all types), nine establishments killing more than 5,000 birds each; in 1966-67 88 establishments slaughtered 100 or more birds, ten killing more than 5,000 birds each; in 1967-68 there were only 75 establishments slaughtering 100 or more birds but twelve establishments killed 5,000 or more birds each. The dressed carcass weight of birds slaughtered in the final group of establishments in the previous table (over 20,000) was 2,650,000 lb; for all establishments in the table, the total was 3,030,000 lb. In 1965-66 the over 20,000 birds size group accounted for 83.3 per cent of the number of birds slaughtered; in 1966-67, for 87.0 per cent; and in 1967-68, 89.5 per cent.

A principal factor in creating a larger poultry slaughtering industry has been the marketing of quick-frozen birds through supermarkets, delicatessens, grocers, etc. Before freezing cabinets were in general use, poultry was mainly sold by butchers; refrigeration techniques have had the effect of multiplying the sales outlets. Large scale production has also cut unit costs.

Chicken Hatching

In 1964-65, the first census of commercial chicken hatcheries (i.e. those establishments hatching chickens for sale) was undertaken. As from 1965-66, the census was extended to all hatcheries which set 1,000 or more eggs during the year, including hatcheries producing chickens for their own use and not for sale. Details of eggs set and chickens hatched during 1966-67 and 1967-68 in such hatcheries are shown in the following table:

Eggs Set and Chickens Hatched

Description	1966-67		1967-68	
	Number ('000)	Proportion of Total (per cent)	Number ('000)	Proportion of Total (per cent)
EGGS SET DURING YEAR				
Meat Strains	1,227	61.7	1,334	56.8
Egg Strains	761	38.3	1,024	43.2
Total	1,988	100.0	2,368	100.0
CHICKENS HATCHED (a) DURING YEAR				
Intended to be Raised for—				
Chicken Meat—				
Meat Strains—Unsexed	833	67.7	944	66.4
Eggs Strains (b)—Crossbred and other Cockerels	r 72	r 5.8	43	3.0
Egg Production—				
Egg Strains (b)—Pullets	r 273	r 22.2	371	26.1
Breeding—				
Meat Strains—Pullets	14	1.1	8	0.6
Cockerels	2	0.2	3	0.2
Egg Strains —Pullets	r 31	r 2.5	40	2.8
Cockerels	r 6	r 0.5	12	0.9
Total Chickens Hatched	1,231	100.0	1,421	100.0

(a) Excluding chicks destroyed.

(b) Egg strain chicks reported as 'unsexed' have been allocated equally between chicks for chicken meat and chicks for egg production.

Size Structure of Hatching Establishments

Of the 31 hatcheries which set 1,000 or more eggs in 1967-68, six of them in total set 98.3 per cent of the meat strain eggs and 65.0 per cent of the egg strain eggs. The next table shows 1967-68 details of the number of eggs set according to the size of the hatcheries (the size classification relating to the number of eggs set):

Eggs Set According to Hatchery Size, 1967-68

Size of Hatchery (Eggs Set)	Number of Hatcheries	Number of Eggs Set					
		Meat Strains		Egg Strains		All Strains	
		Number	Proportion of Total	Number	Proportion of Total	Number	Proportion of Total
		'000	per cent	'000	per cent	'000	per cent
1,000- 9,999	10	8	0.6	34	3.3	41	1.8
10,000-19,999	8	15	1.1	99	9.7	114	4.8
20,000-49,999	7	..	..	225	22.0	225	9.5
50,000-99,999	2	..	..	160	15.6	160	6.7
100,000 and Over ..	4	1,322	98.3	506	49.4	1,828	77.2
Total	31	1,344	100.0	1,024	100.0	2,368	100.0

RURAL POPULATION AND EMPLOYMENT

Employment on Rural Holdings

The following table gives details of males working on rural holdings as reported in the annual farm census at 31 March:

Male Farm Workers at 31 March

Particulars	1958	1964	1965	1966	1967	1968
Number of Rural Holdings, One Acre and Over	11,389	10,949	10,979	10,777	10,641	10,631
Males Working Permanently Full-time on Holdings—						
Owners, Lessees or Share Farmers	8,524	7,685	7,651	7,450	7,564	7,158
Relatives of Owners, etc. over 14 years not Receiving Wages	130	40	20	6	5	..
Employees including Managers and Relatives Working for Wages or Salary..	4,694	4,038	4,075	4,073	4,101	4,051
Total Permanent Males..	13,348	11,763	11,746	11,529	11,670	11,209
Males Working Temporarily on Holdings on Wages or Contract	5,896	5,733	5,993	5,715	4,773	4,621

Female Workers on Rural Holdings

Similar details of female employment are not available due to a difficulty of definition; the difficulty is to establish in what degree a woman performing ordinary domestic duties on a rural holding performs other tasks that justify her classification as a *permanent full-time worker*, in the same sense that the term is applied to a male.

Permanent Residents on Rural Holdings

Persons of all ages residing permanently on rural holdings (as defined for statistical purposes) numbered 23,466 males, 21,164 females, or a total of 44,630 persons at 31 March 1968. The total number in 1967 was 45,200 and in 1966, 47,890.

When those of school and lower ages, and women engaged in domestic duties, etc. have been excluded, the remaining rural population is not necessarily engaged full-time in farming. Some who are included in farm population devote much of their time to non-farming activities such as working in commercial or industrial enterprises, commercial fishing, sawmilling, etc. (which is only to be expected since a rural holding may be as small as one acre).

TECHNICAL ASPECTS OF RURAL INDUSTRY

Artificial Breeding

Introduction

Artificial breeding (by artificial insemination) is a technique applicable to animals, birds and bees. In Tasmania, its main application has been in cattle breeding where two major aims are being achieved: (i) the improvement of dairy herds by the use of semen from outstanding sires; (ii) the elimination of infertility diseases.

Herd Improvement

Herd improvement has always depended on selective breeding, but few primary producers can afford to own or even hire first-class stud bulls; artificial breeding techniques overcome this difficulty and give every farmer the chance to improve his herd at low cost. In 1967-68 for example, a Friesian bull named Mt Alvernia Prime Reunion was reported as providing 9,207 inseminations in Tasmania; in total, 95 bulls provided 60,587 inseminations involving 42,089 cows. (The population of cows in milk and dry at 31 March 1968 was 152,179.) The semen was provided from bulls located as follows: Victoria, 43; Tasmania, 27; New South Wales, 21; New Zealand, three; Queensland, one.

Infertility Diseases

Herd improvement relates to the quality of cattle, but even more basic, there is the problem of infertility and the diseases which cause it, principally by inducing abortion. Abortion in a cow means a direct financial loss to the farmer. The principal diseases are:

Brucellosis (Contagious Abortion): Fortunately this section can be written in the past tense—brucellosis was virtually eradicated from Tasmania by vigorous government action in 1965. The eradication campaign was based mainly on the test and slaughter of carrier cows, with Strain 19 vaccination used in limited areas.

Vibriosis: This bovine venereal disease is a cause of abortion but differs from brucellosis in that the infection will die out if the cows remain 'empty'. Since the bull *on the property* is the main agent in spreading the infection, artificial insemination is effective in completely eliminating the disease from a herd.

Trichomoniasis: The bull *on the property* is the main agent in propagation so artificial insemination is equally effective in eliminating this disease.

Infertility Research and Clinics

In 1956, the Department of Agriculture commenced an investigation of livestock reproductive diseases and of infertility. One finding was that 'empty' cows (those not conceiving) ranged from ten per cent in the Circular Head area to four per cent in northern and southern regions, and that brucellosis infected herds were less fertile than uninfected ones.

The vigorous measures taken to stamp out brucellosis were successful but *vibriosis* and *trichomoniasis* were also detected as causes of infertility, both diseases being spread by traditional breeding methods. In this situation, artificial insemination was seen as the most effective method of producing herds free from either disease.

The Department set up infertility clinics for treating badly infected herds, the necessary semen for artificial insemination being provided from the Mount Pleasant laboratory stud. Herds serviced in this way recovered fertility and were then transferred to commercial insemination centres. Treatment has been so successful that the clinics have now been disbanded but the service is still made available from Hadspen Park when herds are found to be infected.

Government Control of Artificial Breeding

The first A.I. (artificial insemination) centre was set up by north-west farmers at Marawah in 1955, semen being imported from other States.

In 1957, the Government established the Artificial Breeding Board consisting of the Chief Veterinary Officer as Chairman, the Chief Dairy Officer, two representatives of farmers' organizations and one representative of breed

societies. When the Board first met in 1958, other farmers' groups which had begun to operate A.I. centres were having financial difficulties, whilst the pioneering Marawah group had ceased to operate. Commercial A.I. centres were approved and licensed by the Board at Circular Head, Wynyard, Ulverstone, Devonport, Launceston and Ringarooma. In some cases, financial assistance was provided by the Board and by 1963 there were nine commercial centres operating, all controlled by committees of local farmers.

The *Artificial Breeding Act* 1964 re-constituted the Board, adding a sixth member who was to be a financial expert, and giving the new body authority to buy and sell semen, to produce semen from its own bulls, to employ staff and to function in general as a corporate body marketing a commodity and providing a service. The Board then took over the semen production facilities of the Department of Agriculture and relieved local farmers of the responsibility for management of local commercial A.I. centres.

Artificial Breeding Statistics

Details follow of artificial breeding by commercial centres and in the treatment of infertility by Department of Agriculture infertility clinics.

Artificial Breeding: Commercial and Infertility Services (a)

Year	Cows Served			Total Inseminations	Non-Return Rate for Commercial Service (c) (Per Cent)
	Commercial Service	Infertility Service (b)	Total Cows		
1959-60	5,239	3,910	9,149	15,003	57.9
1960-61	8,144	7,457	15,601	24,378	61.2
1961-62	10,008	9,527	19,535	30,674	61.5
1962-63	10,879	11,422	22,301	34,077	64.7
1963-64	14,427	9,765	24,192	38,029	61.2
1964-65	17,430	6,454	23,884	36,847	62.5
1965-66	27,152	2,010	29,162	46,106	61.4
1966-67	29,034	2,298	31,332	47,148	66.1
1967-68	41,892	197	42,089	60,587	68.3

(a) Compiled from annual reports, Artificial Breeding Board.

(b) Includes cows inseminated in Department of Agriculture's research programme.

(c) Percentage of cows not returning for further service within 90-120 days following first service.

In 1967-68, 60,587 inseminations at Board and private centres were made. Ninety-two per cent (50,634) of the Board's 54,814 inseminations were from sires of Tasmanian origin. Of this total 29,625 came from Friesians, 12,490 from Jerseys, 8,255 from Herefords and 264 from Illawara Shorthorns. The number of herds treated at Board centres was 1,734 (37,783 cows) and, at centres licensed by the Board, 100 (4,306 cows).

Farm Machinery on Rural Holdings

A previous table showing male farm workers over a ten-year period indicated a substantial fall in the rural work force. This decline must be associated, in some degree, with the increasing use of machinery on farms. In reviewing the complete field of farm mechanisation, it is not possible to make a ten-year comparison since some items have only become available in the required detail since 1959. The following table gives details of machinery on rural holdings at 31 March:

Machinery on Rural Holdings at 31 March

Type of Machinery	1959	1964	1965	1966	1967	1968
Cultivating Equipment—						
Rotary Hoes and Rotary Tillers—						
Self Contained Power Unit						
Type	(a) 1,134	1,218	1,270	1,199	1,221	1,284
Tractor Mounted or Trailing						
Type	(b) 525	(b) 681	680	626	723	927
Harvesting Equipment—						
Headers, Strippers and Other						
Harvesters	699	637	717	703	655	726
Mowers, Agricultural—						
Reciprocating (Cutter Bar)						
Type—						
Power Drive	3,639	4,703	4,940	5,132	5,193	5,134
Ground Drive	2,000	1,294	1,176	994	823	664
Rotary Types (incl. Slashers,						
etc.)	n.a.	n.a.	n.a.	n.a.	n.a.	1,197
Hay Rakes—						
Side Delivery	1,650	2,198	2,336	2,386	2,438	2,543
Buck	923	1,034	1,017	1,022	988	983
Dump	1,448	1,147	1,060	971	861	848
Forage Harvesters	69	231	241	269	309	317
Pick-up Balers	1,025	1,494	1,599	1,661	1,757	1,903
Potato Diggers	1,139	1,002	951	950	932	958
Seeding and Planting Equipment—						
Grain Drills (All Types) ..	3,871	4,002	4,036	4,036	4,011	3,944
Fertiliser Distributors & Broad-						
casters—						
Rotary	2,989	3,455	3,657	3,841	3,909	4,149
Direct Drop	1,778	1,970	1,978	1,925	1,896	1,911
Potato Planters	n.a.	204	215	239	250	270
Other Equipment—						
Shearing Machines (No. of						
Stands)	3,798	4,371	4,493	4,652	4,559	4,824
Milking Machines (No. of						
Stands)	10,721	13,382	13,806	15,894	16,414	16,968
Hammer Mills	225	415	440	512	570	635
Power Driven Spray Plants—						
Fruit	1,273	1,214	1,224	1,195	2,906	2,996
Vegetable and Pasture ..	744	1,528	1,678	1,870		
Power Driven Irrigation Plants	862	1,865	1,836	2,034	2,148	2,473

(a) Rotary hoes only.

(b) Tractor mounted type only.

The next table deals with tractors and gives a ten-year comparison:

Number of Tractors on Rural Holdings at 31 March

Type of Tractor	1958	1964	1965	1966	1967	1968
Wheeled	7,395	9,831	10,250	10,856	11,042	11,478
Crawler	974	1,073	1,129	1,091	1,129	1,186
Total	8,369	10,904	11,379	11,947	12,171	12,664

Every three years details are obtained from all farmers regarding characteristics of tractors used. A summary of this information for wheeled tractors is given in the next table (1966 being the most recent year for the detailed collection):

Classification of Wheeled Tractors on Rural Holdings at 31 March 1966

Horsepower (a)		Tractors Using as Fuel			Tractors Classified According to Age				
		Diesel Oil	Kerosene	Petrol	Under 5 Years	5 and Under 10 Years	10 and Under 15 Years	15 Years and Over	Total
Over	Up to								
..	10	2	..	17	11	3	1	4	19
10	20	47	158	85	15	33	51	191	290
20	30	1,000	864	2,023	119	840	2,100	828	3,887
30	40	3,586	701	530	1,937	1,834	677	369	4,817
40	55	1,305	111	10	842	303	186	95	1,426
55	100	411	5	..	354	52	8	2	416
100	..	1	..	..	1	..	..	..	1
Total	..	6,352	1,839	2,665	3,279	3,065	3,023	1,489	10,856

(a) Maximum belt horsepower.

Fruit Packing Sheds

In 1968, the Tasmanian Office of the Bureau of Census and Statistics conducted a survey to obtain information on: (i) the size of fruit packing sheds ('size' being defined as the quantity of fruit packed); (ii) the number and types of graders used. 'Fruit' in the survey means *apples and pears* since other types only accounted for three per cent of total production, and were therefore excluded. Of the 585 packing sheds, 451 packed only their own fruit, 116 sheds packed fruit from their own and other orchards and 18 packed fruit belonging exclusively to other persons.

In the table below the high proportion of small packing sheds (under 10,000 bushels per season) handling a low percentage of the total apple and pear crop is clearly indicated. In contrast a small number of sheds (over 20,000 bushels) pack a relatively high proportion of the total crop. The importance of the larger capacity shed is particularly evident among the sheds which packed over 60,000 bushels in the 1968 season.

Sheds Packing 'Fruit' (a): 1968 Season

Size of Packing Shed (Bushels of 'Fruit' Packed)	Number of Packing Sheds		'Fruit' Packed		Type of Grader Used		
	Packing Sheds	Proportion of Total	Quantity	Proportion of Total	Rotary	Other	Total
	no.	per cent	'000 bush	per cent	no.	no.	no.
0- 5,000 ..	180	30.77	496	7.65	60	120	180
5,001-10,000 ..	183	31.28	1,334	20.57	130	53	183
10,001-15,000 ..	106	18.12	1,288	19.87	99	7	106
15,001-20,000 ..	51	8.72	888	13.69	50	2	52
20,001-30,000 ..	33	5.64	806	12.42	36	..	36
30,001-40,000 ..	16	2.74	573	8.84	16	4	20
40,001-50,000 ..	6	1.03	275	4.24	10	..	10
50,001-60,000 ..	4	0.68	214	3.29	7	1	8
60,001 and over	6	1.03	610	9.41	15	1	16
Total ..	585	100.00	6,484	100.00	423	188	611

(a) 'Fruit' comprises apples and pears only.

Artificial Fertilisers

The trend over the last ten years has been to greater use of artificial fertilisers, not only in total, but also in average application per acre as illustrated in the next table:

Artificial Fertilisers Used

Particulars	Unit	1957-58	1964-65	1965-66	1966-67	1967-68
Vegetables (a)—						
Area Fertilised	'000 acres	52	26	30	29	28
Fertiliser Used—Total ..	'000 cwt	196	142	192	180	190
Per Acre	cwt	3.73	5.49	6.35	6.28	6.75
Fruit—						
Area Fertilised	'000 acres	21	21	21	21	20
Fertiliser Used—Total ..	'000 cwt	134	142	154	147	147
Per Acre	cwt	6.35	6.89	7.31	7.02	7.37
Pastures—						
Area Fertilised	'000 acres	999	1,380	1,475	1,588	1,561
Fertiliser Used—Total ..	'000 cwt	1,493	2,235	2,545	2,687	2,700
Per Acre	cwt	1.49	1.62	1.72	1.69	1.73
Other Crops—						
Area Fertilised	'000 acres	78	172	184	182	196
Fertiliser Used—Total ..	'000 cwt	158	333	388	380	409
Per Acre	cwt	2.03	1.94	2.11	2.09	2.09
Total Usage—						
Area Fertilised	'000 acres	1,150	1,598	1,711	1,819	1,805
Fertiliser Used	'000 cwt	1,981	2,853	3,278	3,395	3,444

(a) From 1964-65, figures refer to vegetables for human consumption only.

In the twenty-year period ending in 1967-68, artificial fertiliser usage has risen rapidly, the area treated increasing by 256 per cent and the quantity applied by 311 per cent. Three factors mainly account for these movements: (i) the marked increase in the area of treated pasture; (ii) the trend to more intensive application per acre generally; (iii) the encouragement provided by the Commonwealth Government through fertiliser subsidies.

Types of Artificial Fertiliser

The basic types of artificial fertiliser employed are phosphatic (e.g. superphosphate), nitrogenous (e.g. sulphate of ammonia) and potassic (e.g. muriate of potash), their essential chemical contribution to plant nutrition being phosphoric acid (P_2O_5), nitrogen (N) and potash (K_2O). Superphosphate, either 'straight' or with additives, is most widely used in Tasmania, the additives consisting of trace elements such as cobalt, molybdenum, copper, boron, zinc, etc. In addition to the basic fertiliser types, the following combinations are also in use: mixed nitrogenous and phosphatic; mixed nitrogenous and potassic; mixed phosphatic and potassic; mixed nitrogenous, phosphatic and potassic. Due to the numerous combinations on the market, it has not been possible to obtain any detailed analysis of the fertiliser types applied to various purposes. Some of the fertiliser combinations include agricultural lime which is used (separately or in mixtures) as a soil conditioner to reduce excess acidity. Over 29,000 tons were used during 1967-68.

One important cause of soil infertility is the absence of certain trace elements which occur in healthy soil in very small quantities. The remedy is soil analysis, detection of the deficiency and application of fertiliser containing the required trace element, or combination of elements.

Aerial Agriculture

The term 'aerial agriculture' is applied to the use of aircraft for top-dressing and seeding, for spraying and dusting of crops and pastures, and for pest and vermin destruction. In Tasmania, the obvious limitations to more extensive development of this technique are small holdings and the nature of the terrain. The area treated from aircraft in the year ended 31 March 1968 (in '000 acres) was as follows: N.S.W., 7,716; Victoria, 1,803; Qld, 1,030; Australia, 14,348 (because of the limited number of operators, details for South Australia, Western Australia and Tasmania are regarded as confidential). Even though the area treated in Tasmania is relatively small compared with that in the continental States, there has nevertheless been rapid development of this technique, particularly since 1964-65.

The following table gives details up to 1967. Information for subsequent periods is not available for publication.

Aerial Agriculture (a)

Year Ended 31 March	Area Treated			Materials Used		Aircraft Utilisation (Flying Time)
	Top- dressed and Seeded	Sprayed	Total	Super- phosphate	Seed	
	'000 acres	'000 acres	'000 acres	tons	'000 lb	hours
1963	86	..	86	5,695	4	1,081
1964	69	19	88	5,805	31	1,295
1965	215	1	215	17,057	40	2,798
1966	193	24	217	13,628	..	2,720
1967	<i>n.p.</i>	19	<i>n.p.</i>	22,009	<i>n.p.</i>	<i>n.p.</i>

(a) Source until January 1967, Department of Civil Aviation; collection then continued by Bureau of Census and Statistics.

Area of Land Irrigated

Comparison

Both N.S.W. and Victoria have over one million acres of irrigated land. by way of contrast, the Tasmanian total was only 66,243 acres in 1967-68; Owing to the generally more reliable rainfall in Tasmania, scarcity of water is not such a problem as it is in the continental States, though quite a number of streams are not permanently flowing. The drought conditions experienced in some areas of Tasmania in the last two or three years have given a warning that even here complete reliance on regular rainfall may lead to heavy individual loss.

Farm Storages

Until a few years ago, Tasmanian irrigated areas were negligible except for long-established hop fields, but there is a rapidly expanding use of spray irrigation on orchards and pastures and on potatoes and other vegetable crops. Until recently, there was an almost complete dependence on natural stream flows, but the need for some regulating storages became apparent. Farmers have been constructing storages for their own use, and the extension of this practice is seen as the logical solution in most areas, as valleys are narrow and steep sided. There are not many areas where single large reservoirs can economically serve areas of suitable land as the topography of Tasmania inhibits the construction of cross-country canals essential for the functioning of large-scale irrigation projects.

Water Resources

It is true that the State has very large volumes of water stored in the central lakes and behind the dams of the State Hydro-Electric Commission but no large irrigation scheme based on power-house discharge has yet been undertaken. Unlike the Snowy River scheme, Tasmanian hydro-electric construction has been undertaken with production of power as the primary goal although the resulting storages of water at high level could obviously be the logical starting point for extensive irrigation schemes if the decision were taken to develop them.

The Derwent affords an example of the benefits of hydro-electric power development in regulating the flow of a river. Prior to the installation of the Waddamana Power Station in 1916, when the river was completely unregulated, the summer minimum flow was known to have fallen as low as 200 cusecs, and it is estimated that the lowest ever was possibly 120 cusecs. Today, regulated by the highland storages, the minimum summer flow in normal operating conditions is about 1,400 cusecs and the average summer flow is considerably above this figure. In actual fact, the long term average flow at present being maintained in the River Derwent at its lower levels is about 4,500 cusecs (i.e. 2,250 million gallons per day or approximately nine times the average amount consumed daily from the water supply system serving Sydney and Wollongong). A flow of 4,500 cusecs, assuming no evaporation, would fill Australia's largest storage—the Eucumbene—in just over a year, the Eildon in 10 months, the Hume in nine months, the Menindee Lakes in seven months, or the Warra-gamba in six months. The Derwent is an obvious example of a river from which large quantities of water can now be obtained without the creation of storages and similar opportunities exist on the South Esk, Huon, Lake, Mersey and Forth Rivers. The State's biggest rivers, the Gordon and Pieman, flow out to the West Coast and no diversion to the eastern half of the watersheds has been planned, if indeed such a scheme were practicable.

There are no State irrigation projects at present, but the State Rivers and Water Supply Commission has investigated the possibility of establishing storages for the Coal Valley and investigations have also been made in the valleys of the Jordan, the Meander, the Piper and the Don Rivers. One scheme still under scrutiny is for irrigation in the Cressy district, the water source being Brumbys Creek which is fed by discharge from the Poatina power station. To assist with development of the scheme the Commonwealth Government has offered a grant of up to \$750,000. The scheme received the approval of the majority of property owners affected by the development and should now go ahead. The Commission advises farmers on dam construction and estimates that farm dams are currently being constructed at a rate of about 350 per year.

To summarise, it can be said that irrigation still plays only a minor role in Tasmanian farming generally but the basic resource—water—is available in plenty if ever the decision is taken to exploit the possibilities more fully.

Area Irrigated

A total of 2,299 farms reported the use of irrigation in 1967-68 compared with 1,918 in the previous year. In four municipalities the area irrigated exceeded 4,000 acres: Hamilton, 5,530 acres (pasture 4,798 acres and hops 262 acres); Ulverstone, 4,953 acres (vegetable crops 3,463 acres); Huon, 4,832 acres (fruit predominantly orchard fruit, 3,241 acres); Wynyard, 4,484 acres (vegetable crops 1,742 acres and pasture 1,722 acres). Details of the area of crops and pastures irrigated in Tasmania are shown in the following table:

**Area of Crops and Pasture Irrigated
(Acres)**

Year	Crop					Pasture	Total
	Hops	Green Fodder	Fruit	Potatoes	Other Crops		
1959-60	1,311	1,286	2,350	467	1,355	11,339	18,108
1960-61	1,364	1,177	3,311	863	1,850	10,369	18,934
1961-62	1,447	1,589	3,930	1,374	3,136	11,713	23,189
1962-63	1,465	2,043	4,446	1,688	3,208	11,435	24,285
1963-64	1,463	2,703	5,933	1,984	5,794	15,693	33,570
1964-65	1,553	2,583	5,955	2,246	7,791	14,194	34,322
1965-66	1,524	3,948	7,241	4,216	10,616	17,651	45,196
1966-67	1,495	5,433	8,287	4,100	9,799	18,111	47,225
1967-68	1,587	6,273	9,042	5,887	14,275	29,182	66,243

Irrigation Methods and Sources of Water

In 1967-68, for the first time, statistics of irrigation methods and source of water used for irrigation were collected. The main method of irrigation is by 'spray' which accounted for 80 per cent of the total area irrigated in 1967-68. The following table gives details of the methods of irrigation used:

**Method of Irrigation, 1967-68
(Acres)**

Crop or Pasture Irrigated	Method			Total
	Spray	Channel or Furrow	Flooding	
Crops—				
Potatoes	5,887	..	..	5,887
Other Vegetables ..	11,369	46	1	11,416
Fruit	8,450	501	91	9,042
Green Fodder	6,013	82	178	6,273
Hops	548	885	154	1,587
Other Crops	2,739	81	39	2,859
Pasture	17,932	2,511	8,739	29,182
Total	52,936	4,105	9,202	66,243

The next table shows areas irrigated from each source of water:

Source of Water for Irrigation, 1967-68

Source of Water	Area Irrigated (Acres)	Number of Holdings Reporting Each Source of Water
Surface Water Supplied by Communal Irrigation Schemes	1,265	16
Other Surface Water—		
Direct from Rivers, Creeks, etc.	34,466	979
From Farm Dams, etc.	29,518	1,345
Underground Water Supply (Bore, Well, etc.)	280	43
Town Water Supply	714	120
Total	66,243	(a)2,299

(a) The total 2,299 is the number of holdings reporting the use of irrigation and not the total number of holdings reporting each source of water since one holding may report a number of different sources.

The next table highlights the growing importance of irrigation in the potato growing industry:

Potatoes Irrigated

Particulars	1963-64	1965-66	1966-67	1967-68
Total Area of Potatoes Sown ..(acres)	10,806	11,993	10,278	10,960
Area Irrigated—				
Total .. .. .. ..(acres)	1,984	4,216	4,100	5,887
As Proportion of Area Sown (per cent)	18.4	35.2	39.9	53.7

TASMANIAN DEPARTMENT OF AGRICULTURE

Aims and Structure

The original Department of Agriculture created in the late 1880s had very narrow aims, principally administering plant and animal regulations, and advising the Government on all phases of agriculture. In 1927, however, the State Government decided to re-organise the Department, a new aim having been suggested by the Commonwealth Development and Migration Commission which most strongly urged the spread of scientific knowledge among primary producers.

The functions of the modern Department are: (i) active research and investigation into agricultural problems; (ii) wide dissemination of technical information to help farmers; (iii) regulatory and administrative action as required under various State Acts.

To carry out these functions, the Department headed by the Director is divided into six *divisions* (agronomy, horticultural, dairy, plant pathology, entomology and fisheries), three *services* (extension, animal health and administrative) and three *sections* (wool, piggery and poultry). The Department has its own laboratories, research stations and experimental farms.

Research and Investigations

Introduction

The fundamental work, undertaken in the State's research farms and laboratories, is aimed at increased production through improvements in plant and animal performance.

At present, there are three research stations and one laboratory associated with agronomical research, two research stations and a laboratory involved in horticultural research, one bacteriological laboratory devoted to dairy research and bacterial investigations, and laboratories which deal with entomological and pathological investigations. Livestock studies are conducted on two of the stations associated with agronomical research.

The following lists the stations, farms, etc. and summarises the principal work each performs:

Cressy Research Farm

Production of cereal, pulse and pasture species foundation seed; livestock research relating to poultry, sheep and pigs.

Elliott Research Farm

Production of foundation seed (oats, barley, field peas and potatoes; also pasture and multi-crop forage varieties); research relating to sheep.

Tewkesbury Potato Station

Improvement of foundation seed supplies; research into maximising potato yields.

Huon Horticultural Research Station

Research into pome fruits.

Forthside Vegetable Research Farm

Production of foundation seed; research into maximising vegetable yields.

New Town Experimental Station

The Department of Agriculture's New Town research complex, completed in late 1969, satisfies a long existing demand for an integrated research centre in southern Tasmania. In the past overcrowding and inadequate facilities imposed serious limitations upon the work of the Hobart based research sections. Dispersal of sites presented further problems to the various sections; the plant pathology and entomology research divisions, once separated by almost three miles from the Department's glass-houses and insectaries at New Town, are now located at the same site. The New Town complex also houses the main Department library, the weed section of the agronomy division, and the horticultural officers stationed at Hobart. Facilities to study nematodes and insecticides (for effect and efficiency) represent important new additions to the range of work undertaken by Departmental research teams. Cool rooms, where the effects of cool storage on fruit can be studied, have been included in the basement of the centre.

Nematodes, a growing pest to many agricultural and horticultural crops, are small microscopic animals that live in a variety of habitats; however, the species most interesting to agricultural research scientists inhabit the soil and attack plant root systems. The New Town laboratories include specially designed facilities for the study of these pests.

Provision of facilities to study the effects of cool storage upon fruit is of particular importance to Tasmanian apple and pear orchardists. In the past the Department's investigations into cool store life of fruit has been conducted in commercial cool stores; this method of study proved unsatisfactory since experiments had to be designed to fit in with the normal operations of the cool store.

Launceston Laboratories

The main centre is at Mt Pleasant and there is also a bacteriological laboratory. The chief fields of investigation are in agronomy, horticulture, bacteriology, entomology and pathology.

Chapter 7

PRIMARY INDUSTRY—NON-RURAL

FORESTRY

Introduction

Writing in 1891, the Government Statistician, R. M. Johnston, painted a glowing picture of Tasmania as an island covered with 'an almost continuous virgin forest', and drew this conclusion: 'With such a wealth of forest trees, Tasmania's sources of timber supply must be infinitely great, and, in the near future, must be of great industrial value.'

It is doubtful whether this picture of an island almost completely forested was true, even when the early settlers arrived, since some of them established holdings on open savanna-like country which owed its origin to a long history of firing by the Tasmanian natives. Far away in the west and south were extensive areas of sedgeland and button-grass plain while the upper mountain country took on the appearance of moors. In the one hundred and sixty years or so since the first settlement, land clearing, timber exploitation and fires have left their mark and the Forestry Commission estimated the total forest area as 7,784,000 acres at 30 June 1968, (i.e. approximately 46 per cent of the State's total area). By Australian standards, however, a State with 46 per cent of its area under forest is uniquely endowed.

Trees of the Tasmanian Forests

Forest Types

There are two basic types of forest in Tasmania, namely rain forest and sclerophyll forest, and their respective occurrence may be correlated with intensity of rainfall. The rain forest is principally located in the western half and also in the north-east highlands, the sclerophyll forest predominating elsewhere. In the Tasmanian situation, the sclerophyll forest can be regarded as eucalypt forest with very little loss of accuracy, so dominant are the eucalypts. The temperate rain forest is characterised by the dominance of *Nothofagus cunninghamii* (myrtle), *Eurcypbia lucida* (leatherwood), *Atherosperma moschatum* (sassafras), *Acacia melanoxylon* (blackwood) and other trees which appear with changed soil conditions. The exclusive appearance of myrtle types or of eucalypts is determined by rainfall factors. In areas with annual falls above 60 inches, the myrtle appears to exclude the eucalypts, while in areas averaging 45 to 60 inches myrtle is found as understorey cover to eucalypt growth. Since the eucalypts are the most important Tasmanian source of timber, in general it can be said that the better quality forests grow in regions between the 30-inch and 60-inch isohyets. The most valuable eucalypts in such forests belong to the ash group and include *delegatensis* (Alpine ash), *obliqua* (stringybark), and *regnans* (mountain ash). In areas with falls of less than 30 inches, the forests have *globulus* (blue gum), *linearis* and *pauciflora* (peppermint), *ovata* (swamp gum), *viminalis* (white gum) and also *obliqua* (stringybark).

Hardwoods and Softwoods

Tasmanian forests are now almost exclusively cut for hardwood, the slow growing indigenous softwoods having been exploited in the past without effective regeneration; they were never very plentiful. The principal varieties are *Athrotaxis selaginoides* (King Billy pine), *Dacrydium franklinii* (Huon pine) and *Phyllocladus aspleniifolius* (celery-top pine). The scarcity of indigenous softwoods is being met, in part, by the creation of exotic plantations, the principal variety grown being *Pinus radiata*, but at 30 June 1968 the softwood plantations (44,000 acres) accounted for only 0.6 per cent of the State's total forested area. The following table shows the area of softwood and hardwood plantations established by the Forestry Commission:

Area of Plantations at 30 June
(Acres)

District	1967			1968		
	Soft-woods	Hard-woods	Total	Soft-woods	Hard-woods	Total
Smithton		23.0	23.0		23.0	23.0
Burnie	4,218.1	..	4,218.1	4,557.5	..	4,557.5
Devonport	4,579.8	910.9	5,490.7	4,778.7	910.9	5,689.6
Launceston	1,051.0	..	1,051.0	1,096.0	..	1,096.0
Scottsdale	11,123.0	..	11,123.0	12,212.0	..	12,212.0
Fingal	5,859.0	..	5,859.0	8,807.0	..	8,807.0
Geeveston .. ..	..	..	..	75.0	..	75.0
Other (a)	28.0	..	28.0	28.0	..	28.0
Total	26,858.9	933.9	27,792.8	31,554.2	933.9	32,488.1

(a) Trial plots established in various localities.

The Forestry Commission intends to plant 4,600 acres of softwoods during 1969-70. The distribution of plantings by districts is (in acres): Fingal, 1,900; Devonport, 900; Scottsdale, 800; Strahan, 600; Burnie, 300; Launceston, 100. The Strahan project will provide employment for wharf labourers displaced by the closure of the Strahan port which resulted from the Mt Lyell Co.'s decision to export blister copper and concentrates through the north-west coast port of Burnie. Ultimately the total area of softwood plantations in the Strahan area will approach 30,000 acres.

Demand for Forestry Products

Timber was always in demand as a fuel, and as a building and construction material from the days of the original settlement. The possibility of using eucalypts for paper manufacture was investigated in the nineteenth century by Sir Ferdinand von Mueller, the celebrated botanist, and he concluded that eucalypts provided a bark which was suitable for the manufacture of paper. In actual fact, when paper making was begun at Burnie in 1938 the process involved discarding the bark and converting whole de-barked billets to pulp. Shortly afterwards, the only newsprint mill in Australia was established at Boyer on the Derwent and more recently, a pulp mill has begun operations at Geeveston in the south. Another paper mill is being built at Wesley Vale in the north. Further utilisation of forestry products has been introduced by factories producing plywood, hardboard, particle board, etc., while growing demand for woodchips for processing overseas has led to the creation of companies with plans to export this product.

Forest Area

In the next table showing details of Tasmania's total forest area, a distinction is made between *exploitable* and *potentially exploitable*. The first term needs no definition but the second describes forest too immature to warrant exploitation at present, or forest of higher quality where transport costs to the nearest market are prohibitive in present circumstances.

Obviously the distinction will change from time to time; for example the establishment of the paper pulp industry at Geeveston created a local market near forest areas once classed as only *potentially* exploitable, and created a demand for trees of lower grade than those used in sawmilling.

Classification of Forest Area (Gross) at 30 June 1968 (a)
(⁰000 Acres)

Forest Area	Located on—		Total
	Crown Land	Private Land	
Exploitable—Hardwood	2,653	1,125	3,778
Softwood	9	5	13
Total	2,662	1,129	3,791
Potentially Exploitable—Hardwood ..	2,077	424	2,501
Softwood ..	23	8	31
Total	2,099	432	2,532
Other Areas Classified as Forest ..	944	517	1,461
Estimated Total Forest Area ..	5,706	2,078	7,784

(a) Includes 44,000 acres of softwood plantations, and 1,000 acres of hardwood plantations at 30 June 1968.

The previous table includes all forests and plantations, whether easily accessible or not, and also the forested areas in scenic reserves. The next table gives details of that part of the total area which is under reservation ('reservation' in this context means land either used or to be used exclusively for forestry purposes; it includes also the forested areas of scenic reserves):

Forest Area (Gross) Under Reservation at 30 June 1968
(⁰000 Acres)

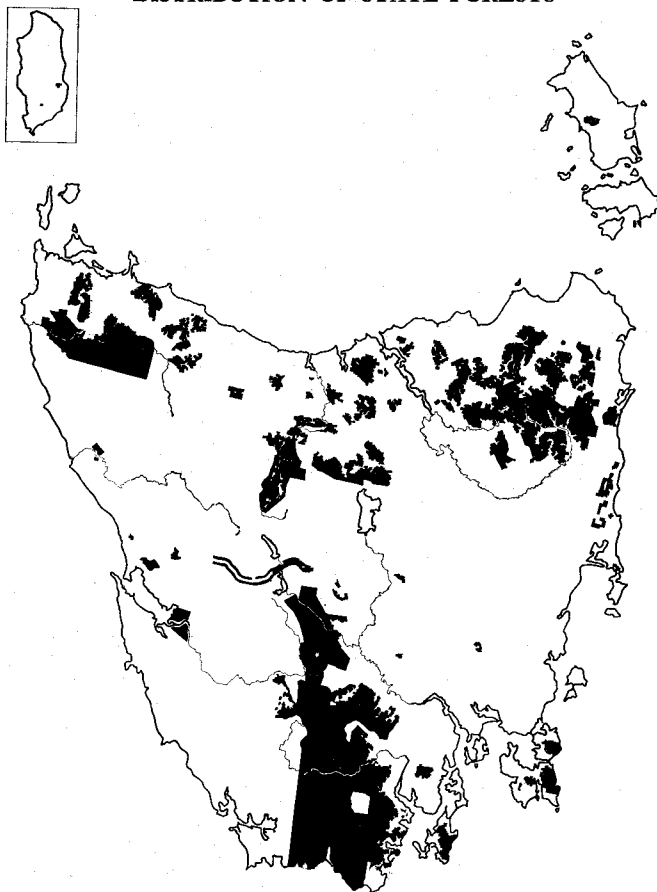
Particulars	Pulpwood Concessions	Exclusive Forestry Permits	Scenic Reserves (a)	Other	Total
State Forests (b) ..	1,756	294	..	655	2,705
Timber Reserves (c) ..	65	..	..	183	248
Other Forested Reserves	1,030	321	234	..	1,585
Total	2,851	615	234	838	4,538

(a) Estimated forested component of national parks and scenic reserves.

(b) Land permanently dedicated to timber production.

(c) Land reserved for timber supply, including fuel.

DISTRIBUTION OF STATE FORESTS



The area of plantations of exotic pines at 30 June 1968 was 43,940 acres, of which 12,386 acres were on private land and 31,554 acres located in State Forestry Commission plantations.

Classification of State Forests

The classification by the Forestry Commission of the State Forests is a continuous process and a large section still remains unclassified. The position, according to latest figures available, is as follows:

Classification of State Forests at 30 June 1968
('000 Acres)

Particulars	Area	
Commercial Forest—		
Eucalypt (sawlog quality)	529	
Eucalypt (pulpwood and firewood)	253	
Regrowth (immature forest)	193	
Rain Forest (myrtle, sassafras, etc.)	228	
Cleared Land (deforested areas)	57	
Total Productive Forest	—	1,260

Classification of State Forests at 30 June 1968—*continued*
(‘000 Acres)

Particulars	Area	
Protection Forest—		
Scrubland and Plains	331	
Barren and Waste	255	
Total Unproductive Forest		586
Total Classified Forest		1,845
Total Unclassified Forest		859
Total State Forest		(a) 2,705

(a) Includes area as proclaimed at 30 June 1968 (2,557,143 acres) plus 147,678 acres the additional area disclosed by revised mapping.

The State Forests are located, in the main, in four distinct regions: (i) far north-west about the axis of the Arthur River; (ii) north-eastern highlands; (iii) north and north-west of the Great Lake; (iv) from the south coast north to Lake King William.

Paper and Newsprint Industries

The establishment of paper, paper pulp and newsprint industries in the State has given rise to the need for some guarantee of assured timber supplies to the manufacturers, and therefore certain concessions and cutting rights have been awarded on Crown lands. All three pulp and paper manufacturers have plans to expand plant capacity. For a more detailed discussion of APPM and ANM see page 374.

Burnie and Wesley Vale

Associated Pulp and Paper Mills Ltd and subsidiaries: manufacturer of paper and hard lining-board at Burnie and also of particle board at Wesley Vale. The company owns 250,000 acres of forested land and holds cutting rights over Crown lands 15 miles each side of the Emu Bay railway line from the coast to the Pieman River.

During 1967-68 A.P.P.M. completed at Wesley Vale a building to house the first paper machine which has since been installed. Production of magazine and glossy papers from eucalypt hardwoods and *Pinus radiata* is expected to commence in early 1970.

A.P.P.M.'s particle board factory at Wesley Vale operates on *Pinus radiata*; the company owns some plantations and also obtains thinnings from plantations of the Forestry Commission. Production during 1967-68 was maintained at a high level.

Boyer

Australian Newsprint Mills Ltd: manufacturer of newsprint at Boyer on the Derwent. The company is Australia's sole newsprint manufacturer. The company's concession follows the general line of the Derwent as far north as Lake King William. In June 1966, the *Florentine Valley Paper Act* increased A.N.M.'s concession area from 273,000 acres to 373,000 acres to provide the basis for an expansion programme; the company is required by the Act to supply 10 million super feet of logs to other timber-using industries each year.

At Boyer a third paper machine came into production in January 1969 increasing annual capacity initially to 165,000 tons of newsprint. Ultimately annual capacity is expected to approach 200,000 tons of newsprint.

Geeveston

Australian Paper Manufacturers Ltd: manufacturer of paper pulp at Geeveston on the Huon River. The company's pulpwood concession includes virtually the whole D'Entrecasteaux Channel coastline and the south coast as far west as Prion Bay; inland it extends west to the Mt Picton area. Also included in the concession are Bruny Island and Tasman Peninsula.

On completion, the plant had an annual capacity of 25,000 tons of pulpwood; installation of a new pulp drier in 1966-67 raised capacity to 50,000 tons.

Multiple Use of the Forests

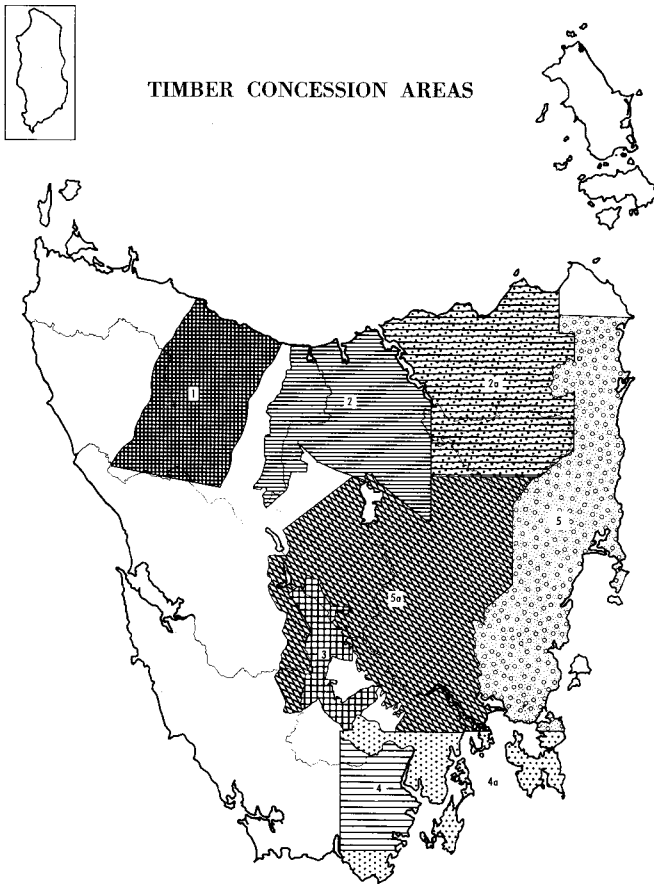
The establishment of paper-making industries in Tasmania has required careful use of existing forests and the Forestry Commissioners described the process in their 1960 report as follows:

'In respect of timber products, pulpwood and sawmill logs will come from the same areas and often the same trees. In this, the co-operation of the wood-using industries is already functioning well. Sawmill logs come out of both the A.N.M. and A.P.P.M. concession areas. Pulpwood is cut from areas cut by sawmillers or in conjunction with mill-log production; sawmill edgings and offcuts are delivered to the pulp mill at Burnie.' Since this report, A.P.M. has commenced operations at Geeveston and sawmill logs are also produced from this company's concession. In their 1964 report, the Commissioners made this point: 'The increased demand for pulpwood has led to the utilisation of trees and timber that would otherwise have been wasted.' Increased utilisation of timber resources is illustrated by the use at A.P.P.M.'s Wesley Vale particle board mill of thinnings from Forestry Commission *Pinus radiata* plantations; in the past these thinnings were often discarded as waste. Establishment of the east coast woodchip industry will lead to the development of low grade forest areas which were previously unproductive.

Two obvious examples of multiple use are: (i) pulpwood obtained as a by-product from mill-logging; (ii) waste from sawmilling operations used as a raw material in pulp and hardboard making. Despite this rational approach to more complete utilisation of timber resources, supplies are not inexhaustible and greater use must now be made of lower quality trees in milling. The Commissioners referred in their 1967 report to the role of Australian forests in the Australian economy as follows: 'Australia cannot afford the rising cost of importing from overseas countries the forest products it requires for development. Already \$200m of overseas credit is needed for this purpose. With the anticipated increase in population, the forest resources must be increased or this cost multiplied by two or three times in the next 35 years'.

Concession and Reserve Areas

The next map shows the disposition of concession and reserve areas in Tasmania. The concession areas are areas where the company is at present allowed to operate while reserve areas are set aside for future use. Providing that the company meets certain stipulated conditions, permission to remove timber from the reserve area will be granted by the Forestry Commission.



A.P.P.M.: (1) Concession Area; (2) Wesley
Vale Concession Area; (2a) Wesley
Vale Reserve.

A.N.M.: (3) Concession Area.

A.P.M.: (4) Concession Area; (4a) Reserve.

T.P.F.H.: (5) Concession Area; (5a) Reserve.

The *Pulpwood Products Industry (Eastern and Central Tasmania) Act 1968* granted concession and reserve areas over much of eastern and central Tasmania to Tasmanian Pulp and Forest Holdings Ltd (see previous map). T.P.F.H. may only utilise the timber resources of the reserve area subject to certain requirements, contained in *Part ii, Section ix* of the Act. The company must obtain written permission from the Forestry Commission to extract pulpwood from the reserve area. Authorisation is subject to the following conditions: (i) establishment of an approved wood pulp undertaking; (ii) annual usage of pulpwood by the pulping establishment of not less than 200,000 tons. The company is also permitted to obtain pulpwood from areas in the reserve required by the Commission for silvicultural purposes or by utilising trees removed for the purpose of opening the forest for the economic extraction of milling quality timber.

Plywood Manufacture

In 1947 there were four factories producing plywood but, by 1968, only one operator, Tas. Plywood Co. Ltd at Somerset remained in production. A considerable proportion of the State's production of plywood is exported and it ranks as a major export item. Raw materials for its manufacture are obtained from the hinterlands of Somerset, Wynyard and Burnie and from the A.N.M.'s Florentine Valley concession area. The company receives exclusive permits from the Forestry Commission, assuring it of a supply of raw material for a 15-year period.

Wood Chip Industry

The *Pulpwood Products Industry (Eastern and Central Tasmania) Act 1968* was passed by the State Parliament with the intention of encouraging the initial establishment of a wood chip industry and ultimately a pulp and paper industry in eastern Tasmania. Under the Act Tasmanian Pulp and Forest Holdings Ltd received extensive pulpwood concessions, totalling 1,478,000 acres, in eastern and central Tasmania. The company will utilise low grade timber not suitable for sawmills. The product will be exported to Japan for the production of brown wrapping paper.

The company commenced preparation of the plant site in 1969 and plans to begin erection of the plant in early 1970. Establishment of a wood chip industry at Triabunna has necessitated the construction of: (i) new port facilities; (ii) a high voltage transmission line to the plant; (iii) improved access roads. Production of wood chips is planned to commence in late 1970 in readiness to load the first ship in January 1971.

A second wood chip industry is planned for northern Tasmania where A.P.P.M. intends to establish a plant which will process sawmill and logging waste plus some timber from privately owned properties.

Definition of Forest Production

The cutting of logs in a forest and the production of sawn timber in a mill seem closely related activities and may both, in fact, be conducted by a single operator with the same team of employees; similarly, the cutting of pulpwood and its later conversion to newsprint or fine paper may be viewed, in a broad sense, as a single activity. For statistical purposes, however, sawmills, paper mills, newsprint mills, etc. are classified as factories and the raw materials (logs, etc.) on which they operate are treated as the product of the forestry sector of primary industry. It necessarily follows that the definition of forest production must be restricted to include only the output of logs, hewn timber, firewood, tanning bark, etc. before such products have passed into the sector covered by factory statistics (e.g. logging is a forestry activity, sawmilling a factory activity). Some forestry products, as just defined, (e.g. fence posts and rails, hewn sleepers, firewood, etc.) may go direct to the final consumer without passing as a raw material to the factory sector.

Subsequent tables dealing with forest production give details of quantity and value; the following definitions apply:

Measurement of Volume

There are three convenient units for expressing the volume of timber, namely cubic feet, true super feet and hoppus super feet. The volume in true super feet can be derived from this relationship:

- (i) Volume in true super feet = Volume in cubic feet \times 12. (A true super foot is the volume equivalent to a solid body, one foot long by one foot wide by one inch thick.)

The remaining measure, hoppus super feet, is used in the forest to record log volumes and is derived from the following formula for dealing with round timber:

- (ii) Volume in hoppus super feet = (One quarter the average girth in inches) squared, the result being multiplied by the length in feet and divided by 12.

The relationship between hoppus super feet and true super feet can be stated as follows:

$$(iii) \frac{\text{Volume in hoppus super feet}}{\text{Volume in true super feet}} = \frac{\pi}{4} = 0.7854$$

In this section, the volume of logs, timber, etc. is expressed in true super feet, some data originally received in terms of hoppus super feet having been converted.

Value of Forest Production

Gross Value of Production is the value placed on the recorded production at the wholesale price realised in the principal markets. In cases where forestry products are consumed at the place of production or where they become raw material for a secondary industry, these points of consumption are presumed to be the principal markets (e.g. the value of logs cut for sawmilling is the value on the mill skids, analogous to 'value at the factory door' for the input of raw materials in general factory statistics).

Local Value (i.e. gross production valued at the place of production) is ascertained by deducting marketing costs from gross value. Marketing costs include freight, cost of containers, commission, and other charges incidental thereto.

In other production sectors, local value of production is further reduced by subtracting the value of materials used in the process of production, the final figure being *net value of production*. In the forestry sector, however, these data on the cost of materials are not available and therefore the only two measures available are: (i) gross value of production, and (ii) local value of production.

Source of Production Data

The principal source of data are the returns of the various establishments classified as factories (e.g. sawmills, newsprint mills, paper mills, plywood mills, etc.) which report details of logs, pulpwood, sawmill edgings, off-cuts, etc. used as raw materials; other data are available from the State Forestry Department and the Bureau's export figures.

Statistics of Forest Production

Two items tanning bark and peat moss, both of interest but only minor importance, are included in the value of forest production shown in the following tables. Tanning bark, important in the pre-war period, is obtained from the 'black' wattle, *Acacia mollissima*, and is used in the hide tanning industry. Peat moss, harvested in the Great Lake area, is semi-decayed vegetable matter which occupies an intermediate stage between dead vegetation and peat. After harvesting the peat moss is cut and dried before sale to nurserymen who use it in the preparation of potting compounds.

The following table shows details of forest production:

Forest Production, 1967-68

Product	Obtained From—		Total
	Crown Land	Private Land	
Logs for sawing, peeling, slicing or pulping—			
Forest hardwoods .. ('000 sup ft true)	471,924	285,217	757,141
Indigenous softwoods .. ('000 sup ft true)	4,476	..	4,476
Plantation grown pines .. ('000 sup ft true)	17,256	4,967	22,223
Total logs—quantity .. ('000 sup ft true)	493,656	290,185	783,841
gross value .. (\$'000)	<i>n.a.</i>	<i>n.a.</i>	14,745
Hewn and other timber (not included above)—			
Firewood—weight .. ('000 tons)	20	357	377
gross value .. (\$'000)	<i>n.a.</i>	<i>n.a.</i>	2,191
Other (gross value) (a) .. (\$'000)	<i>n.a.</i>	<i>n.a.</i>	264
Other forest products (gross value) (\$'000)	<i>n.a.</i>	<i>n.a.</i>	9
Total gross value of forest products (\$'000)	<i>n.a.</i>	<i>n.a.</i>	17,209

(a) Includes sleepers, transoms, girders, bridge timbers, mining timber, poles, piles, etc.

In the previous table, log production is a composite figure including the log input of sawmills and the log equivalent of cords of pulpwood taken into paper mills and newsprint mills.

The next table shows details of forest production for a five-year period on a basis comparable with the previous analysis (logs in true volume):

Forest Production

Product	1963-64	1964-65	1965-66	1966-67	1967-68
Logs for sawing, peeling, pulping, etc.—					
Forest hardwoods .. (mill. sup ft)	625.5	645.7	667.9	690.4	757.1
Indigenous softwoods .. (mill. sup ft)	3.3	2.8	3.5	3.9	4.5
Plantation grown pines .. (mill. sup ft)	20.4	20.9	25.4	23.6	22.2
Total logs—quantity .. (mill. sup ft)	649.2	669.5	696.7	717.9	783.8
gross value .. (\$'000)	11,459	12,431	13,105	13,109	14,745
Hewn and other timber (not included above)—					
Firewood—weight .. ('000 tons)	410	431	440	444	377
gross value .. (\$'000)	1,829	1,934	2,083	2,557	2,191
Other (gross value) (a) .. (\$'000)	398	949	799	r 956	(b) 264
Other forest products (gross value) (\$'000)	13	12	3	6	9
Total gross value of forest products .. (\$'000)	13,699	15,326	15,990	16,627	17,209

(a) Includes sleepers, transoms, girders, bridge timbers, mining timber, poles, piles, etc.

(b) Not comparable with previous years' figures.

Tasmanian and Australian Log Production

In the last table, log production is defined as relating to 'logs for sawing, peeling, slicing or pulping', (i.e. it includes logs used in sawmills as well as those used for production of woodpulp in newsprint and paper mills). In terms of this definition, Tasmania is a major producer, the State's log production being nearly 18 per cent of the Australian total in 1966-67; the ranking

of the major producers was Victoria with 24.8 per cent and N.S.W. with 21.4 per cent. Considering Tasmania's small relative size and population, it is apparent that forest production is one of its more important contributions to the Australian economy.

Gross and Local Value of Production

The following table gives details of gross and local values of forestry production for a five-year period:

**Gross and Local Value of Forestry Production
(\$'000)**

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Gross Value (Gross Production Valued at Principal Markets)	13,699	15,326	15,990	16,627	17,209
Less Marketing Costs	2,060	2,057	2,154	2,295	2,442
Local Value (Gross Production Valued at Place of Production)	11,638	13,270	13,837	14,332	14,766

Values Derived From Factory Processing

For statistical purposes, some forest products are treated as passing through two sectors, namely (i) the forestry sector of primary production, and (ii) the factory sector. This treatment is necessary to the extent that the finished product of one sector may become the raw material of another (e.g. logs from the forestry sector pass to sawmills in the factory sector). To view the timber industry as a whole, it is necessary to take account of factory processing. The next table shows details of processing in the two most important factory sub-classes, namely sawmills and paper mills:

Factory Processing of Forest Products, 1967-68
Factory Class X, Sub-class 1—Sawmills
Factory Class XII, Sub-class 9—Paper Making

Item	Sawmills	Papermaking	Total
Factories Operating (no.)	274	4	278
Average Employment (a)—			
Males (no.)	2,745	3,110	5,855
Females (no.)	56	570	626
Total (no.)	2,801	3,680	6,481
Proportion of all Factory Classes (%)	8.1	10.6	18.7
Value of Output (\$'000)	32,425	50,639	83,064
Value of Production (b) (\$'000)	12,818	24,877	37,694

(a) Average whole year, including working proprietors.

(b) Value of output less recorded costs of manufacture, other than labour.

The previous table does not include factory sub-classes X-2 (plywood mills), X-10 (wall and ceiling boards) or minor processors of untreated forest products; total values of output and production would be increased as much as five per cent by their inclusion. (Further details of factory processing appear in Chapter 8, 'Secondary Industry—Manufacturing'.)

Timber and Timber Products

Mill Production of Timber

Particulars of logs treated and the production of sawn, peeled and sliced timber by sawmills and plywood mills are shown in the following table; the figures have been compiled from the annual factory collections and show the geographical distribution of milling activity (pulpwood treatment is excluded):

Logs Treated and Sawn Timber Produced, 1967-68

Statistical Division	Logs Treated (True Volume)		Sawn, Peeled or Sliced Timber Produced
	Quantity	Proportion of Total	
	'000 sup ft	per cent	'000 sup ft
Hobart	27,813	6.1	12,300
South Eastern	14,361	3.1	5,460
Southern	44,200	9.7	16,466
North Central	28,254	6.2	10,109
North Western	160,423	35.2	60,409
North Eastern	69,077	15.1	26,323
North Midland	48,557	10.6	19,180
Midland	51,607	11.3	19,290
Western	11,716	2.6	5,688
Total	(a) 456,007	100.0	175,225

(a) Hardwood logs, 447,188,000 super feet; softwood logs, 8,818,000 super feet; approximately 37.4 per cent of softwood logs were indigenous, the balance coming from plantations.

The difference between the volume of logs treated and of timber produced is not all waste from the millers' point of view. Admittedly, there is very limited use for sawdust but some offcuts are sold to the paper pulp industry and other waste is docked and sold as firewood.

In the previous table (from which logs cut for pulpwood are excluded), the principal centres of sawmilling activity are shown to be the north-west and north-east; the level of activity in the south can be gauged by adding the Hobart, Southern and Midland divisional figures.

Output and Exports

The following table shows timber production by mills for a five-year period, together with exports of sawn timber:

Production and Exports of Sawn Timber

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
LOGS TREATED ('000 Super Feet True)					
Hardwood	425,220	439,480	446,145	440,579	447,188
Softwood	15,111	12,906	12,813	11,468	8,818
Total	440,331	452,386	458,958	452,047	456,007

Production and Exports of Sawn Timber—*continued*

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
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SAWN, PEELED OR SLICED TIMBER PRODUCED FROM LOGS ABOVE (a) ('000 Super Feet)

Hardwood	164,946	172,987	173,622	170,075	171,972
Softwood	5,911	5,086	4,857	4,319	3,253
Total	170,857	178,073	178,479	174,394	175,225

VALUE OF TIMBER AT ROUGH SAWN STAGE (\$'000)

Total	14,317	15,450	16,239	16,372	16,882
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EXPORTS OF SAWN TIMBER (b) ('000 Super Feet)

Total	71,398	80,446	73,863	79,447	77,897
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VALUE OF EXPORTS OF SAWN TIMBER (b) (\$'000)

Total	11,175	12,811	12,145	13,672	13,492
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(a) Rough sawn timber including that subsequently seasoned and dressed to produce flooring, weatherboards, etc.

(b) Includes dressed and undressed timber.

Comparison

In the treatment of logs as defined in the previous table (i.e. basically of logs for sawmilling), Tasmania processed 12.5 per cent of the Australian total in 1967-68. The Tasmanian volume of logs treated was below that of all States except S.A. but its production of sawn, peeled or sliced timber far exceeds the demand generated by its relatively small population, a factor which accounts for considerable Tasmanian interstate exports of timber.

Employment

The next table shows the number of sawmills and the number of persons employed:

Number of Sawmills and Persons Employed (a)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Sawmills	305	308	289	279	274
Average Number Employed During Year—					
Males	2,701	2,793	2,880	2,834	2,745
Females	53	57	62	58	56
Persons	2,754	2,850	2,942	2,892	2,801

(a) In mills; excludes those engaged on logging operations.

In recent years, a number of small mills, particularly those operated on a part-time basis by orchardists for the cutting of case timber, have gone out of production. At the same time, the larger more efficient mills have intensified their operations, the result being a general rising trend in the number of persons employed by the larger mills.

Production of Wood Pulp and Paper

Details of paper and newsprint production are not available for publication but wood pulp figures are an indicator of activity.

Wood pulp is the basic material in the production of paper, newsprint, etc. and is made by any one of three processes, namely mechanical, chemical, or mechanical and chemical combined; the last process is referred to as 'semi-chemical'. The basic technological problem in producing satisfactory pulp from some eucalypt species, and from some other pulpwoods, was related to the relative shortness of their wood fibre; in the semi-chemical process, the preliminary chemical treatment of the wood reduces the amount of grinding required and thus prevents excessive fibre destruction. The following table shows production of wood pulp over a five-year period, together with employment details for the industry:

Factory Class XII, Sub-class 9—Paper Making

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Establishments ..	4	4	4	4	4
Average Number Employed During Year—					
Males	2,863	2,887	3,029	3,042	3,110
Females	510	448	527	546	570
Persons	3,373	3,335	3,556	3,588	3,680
Wood Pulp Produced (a) (tons)	157,413	172,130	181,868	198,566	183,779

(a) Ground wood pulp, chemical and semi-chemical pulp.

In the previous table, figures for wood pulp should be regarded only as an index of production since the pulp is an 'intermediate' product which has still to be converted to fine paper, newsprint, etc.

Role of the Forestry Commission

The State Forestry Commission is primarily concerned with the conservation of Tasmania's forests; this requires that it should exercise control over the rate at which logs and pulpwood are taken, and also that it should introduce effective measures to ensure regeneration. Other important functions include: (i) fire prevention and suppression; (ii) road construction to give access to forests; (iii) development of plantations. Some concept of the scope of Forestry Commission activities can be obtained from the following table:

Summary—Activities of Forestry Commission (a)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Production of Seedlings ('000)	823	1,351	1,876	2,104	2,725
Plantations—					
Established .. (acres)	1,235	1,800	3,489	3,251	4,695
Pruned (acres)	3,178	2,409	2,782	2,324	1,957
Thinned (acres)	489	631	851	597	859
Firebreaks—					
Constructed .. (miles)	105	127	75	67	59
Secondary Roads—					
Constructed .. (miles)	77	105	81	71	92
Improved (miles)	12	23	19	12	16
Major Roads—					
Constructed .. (miles)	24	24	28	19	24

(a) Source: Reports of Forestry Commission.

At 30 June 1968, the Forestry Commission was responsible for the maintenance of 1,851 miles of major and secondary forest access roads; of this total, 1,406 miles had been constructed by the Commission, the balance by sawmillers. The Commission has a responsibility for preventing and fighting forest fires; losses through bush fires fought by the Commission are reported in the following table:

Bush Fires Fought by Forestry Commission (a)

Year	Fires Reported	Area Burnt				Cost of Sup-pression
		State Forest	Other Crown Land	Private Property (b)	Total (c)	
	no.	acres	acres	acres	acres	\$
1962-63	126	6,001	11,640	4,039	21,680	17,918
1963-64	252	19,706	35,352	11,460	66,518	72,624
1964-65	146	4,037	4,701	3,077	11,815	31,828
1965-66	317	33,015	50,489	45,643	129,147	71,918
1966-67	264	83,954	194,979	147,286	426,219	108,018
1967-68	230	15,808	59,023	20,874	95,705	61,032

(a) Source: Reports of the Forestry Commission.

(b) Includes only fires fought to protect adjoining State Forest or timbered Crown Land.

(c) Incomplete; see note (b).

The main revenue of the Forestry Commission is derived from royalties, i.e. charges paid by those taking timber from Crown lands. By law, such revenue is specifically reserved for expenditure on forestry. The next table has been compiled to show the revenue and expenditure of the Commission for the last five years; expenditure exceeds revenue since money from State loan funds devoted to forestry purposes is included in expenditure.

Forestry Commission—Revenue and Expenditure (\$'000)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
REVENUE					
Royalties	1,115	1,387	1,427	1,480	1,492
Sale of Forest Products	61	73	34	32	101
Other	35	39	40	45	9
Total	1,211	1,499	1,500	1,557	1,603
EXPENDITURE (a)					
Administration—					
Revenue Collection ..	136	120	117	113	147
Forest Management ..	383	512	492	412	414
General	391	319	327	313	364
Forest Works—					
Road Construction ..	763	1,086	809	700	702
Building and Other ..	38	80	69	136	66
Afforestation and Reforestation	293	504	789	935	1,020
Forest Protection (n.e.i.) ..	225	119	87	112	119
Mapping and Surveys ..	52	77	73	92	80
Land Purchases	9	10	8	9	2
Purchase, Plant and Equipment	96	158	27	16	24
Interest on Advances (b) ..	..	..	..	257	286
Total	2,386	2,985	2,798	(c) 3,095	(c) 3,226

(a) Aggregate expenditure from all sources, i.e. Consolidated Revenue, Loan and Trust Funds.

(b) Forestry Fund Account charged with interest on advances from State Loan Fund in 1966-67 and 1967-68; no charge raised in previous years.

(c) Not comparable with previous totals; see note (b).

Commonwealth-State Agreement

The Federal *Softwoods Forestry Agreements Act* 1967 was passed with the specific intention of increasing the rate of softwood plantings in Australia by providing Commonwealth financial assistance to the States. Under the Act each State is allocated: (i) a *base year* area of softwood plantings which is financed by the State; (ii) a *scheduled* area in excess of the base year figure, the excess being financed by special Commonwealth loans. The base year area is constant for each year of the five year programme which commenced in 1966-67.

Main features of the special Commonwealth loans are: (i) repayment of advances, in 50 half-yearly instalments, is deferred until July of the eleventh year after the date on which payment was made to the State; (ii) the State may repay any portion of the advances at any time prior to the date that payment falls due; (iii) the loans are interest free for a period of ten years after which interest accrues on the outstanding balance.

The *base year* areas (financed by the State) of softwood plantings are: N.S.W., 8,100 acres; Vic., 6,000 acres; Qld, 5,200 acres; S.A., 4,500 acres; W.A., 3,000 acres; Tas., 1,940 acres. Tasmania's scheduled softwood plantings (with Australian totals in brackets) for the five years ended 30 June are: (in acres) 1967, 4,100 (40,500); 1968, 4,100 (47,600); 1969, 4,400 (53,300); 1970, 4,600 (56,900); 1971, 4,900 (58,500). In 1966-67 the State Forestry Commission planted 3,251 acres and part of the deficit was carried forward to 1967-68 when the target area was set at 4,775 acres of softwoods of which 4,695 acres were planted.

The Commonwealth aim is to establish 2 million acres of pine plantations in the next 40 years and Tasmania's target, as part of the plan, is 200,000 acres.

MINING

Introduction

For statistical purposes, mining is taken to cover the operations normally thought of as mining and quarrying (i.e. the removal from underground or surface workings of ores, etc.), the recovery of minerals from ore dumps, tailings, etc. and ore dressing (i.e. concentration and other elementary treatment). It does not include the smelting and/or refining of metallic minerals or the processing of non-metallic minerals (e.g. limestone into cement), and these operations are classified as manufacturing.

In the present Tasmanian economy, three important metals will serve to illustrate the distinction between mining and manufacturing: aluminium, produced at Bell Bay on the Tamar; zinc at Risdon near Hobart; and copper at Mt Lyell on the west coast. In terms of the previous definition, the three metals are considered to be the output of manufacturing and only a small part of their value is attributable to the mining industry in Tasmania. In the case of aluminium, no Tasmanian ores or concentrates are used and no value accrues to the Tasmanian mining industry. A substantial part of the value of the aluminium is, in fact, accounted for by imported materials. Zinc is produced from both imported and locally-produced concentrates, but only the value of the local concentrates produced at Rosebery is included in the Tasmanian mining industry. Blister copper is produced entirely from locally-produced concentrates, the whole operation, from mining the ore to producing blister copper, being integrated at the one location in the Mt Lyell area. In this case, a

division of the one establishment is made into mining (covering operations up to the concentration stage) and manufacturing (smelting). To take a more recent example, the digging of iron ore at the Savage River is taken as part of mining activity but the pellet-making at Port Latta is included in the manufacturing sector.

Source of Information

(i) Employment, Production Costs, Values of Output and Production, etc.: an annual census of mines and quarries is conducted by the Bureau of Statistics and details are collected for calendar years. The information on materials used, salaries and wages, etc. is compiled for mines and quarries employing four or more persons, thus achieving uniformity with other Australian States. Value of output is shown in two ways, either for all mines and quarries, or for mines and quarries employing four or more persons.

(ii) Data appearing on quantities produced, assayed contents, etc. are obtained primarily from the State Mines Department, with supplementary information from the Bureau's annual census of mines and quarries and from the Commonwealth Bureau of Mineral Resources.

Supply and Demand

Historical

While Tasmanian farm and factory activity over the years has displayed in the main, an orderly pattern of growth, mining activity has been subject to frequent and severe fluctuations, the result of changes in supply and demand as reflected in the market price of particular metals. Examples of factors contributing to this relative instability are: (i) *Supply*—the possible fall in prices when major fresh discoveries are worked in other countries; (ii) *Demand*—the possible rise in prices when war, or fear of war, leads to large-scale purchases of particular metals; (iii) *Technological change*—for example, after the invention of the ball point pen, osmiridium, used for tipping fountain pen nibs and once produced in large quantities in Tasmania, suffered a resulting decline in value.

Definition of Mining

Unfolding the record of the various minerals produced in the State is made difficult by the manner in which previous official mining statistics were compiled. In current statistics, a distinction is made, in broad terms, between mining a mineral and subsequently refining it to obtain its metallic content—the second process is treated as manufacturing and included under Class IV in factory statistics. However, this distinction was not made in earlier statistics and therefore historical comparisons cannot be made with any accuracy. A further difficulty occurs with regard to the value of ores which, in older series, were valued, in the main, according to the world price for their estimated metallic content, irrespective of whether the extraction was carried out in Tasmania itself, in other States or in overseas countries. Thus the earlier historical value series is inflated and does not reflect the true earnings of mineral producers within the State. In the evolution of a proper basis for current mining statistics, the chief requirement was to satisfactorily define a border between mining and factory activities and, for Tasmanian data, this was not accomplished until 1952 when the Bureau of Statistics conducted its first mining census.

Because of the definitional difficulties just listed, the historical account of mining in the State has been deliberately restricted largely to details of physical production, other measures such as employment, value of output, etc. not being comparable with those used in the current series commencing 1952.

*Early Fields***Coal**

The site of Tasmania's first mine was on Tasman Peninsula when the convicts from Port Arthur dug out 60 tons of coal in 1834. Highest production was 10,400 tons in 1840 but, within three years, the work ceased due to the poor quality of the coal and discoveries at other sites. The island's principal coalfields eventually were opened up in the Fingal Valley, and the following table shows coal production immediately before and shortly after their discovery in 1886:

**Coal Production at Tasmanian Mines, 1885, 1886 and 1890
(Tons)**

Locality (a)	1885	1886	1890
Mersey and Latrobe	2,114	1,400	3,778
Longford .. ..	..	1,230	1,000
Oatlands	700	600	600
Hobart (New Town)	460	936	..
Richmond (Jerusalem)	1,320	605	600
Kingborough	560	500	150
Franklin (Port Cygnet)	1,500	1,300	2,738
Fingal .. ..	..	3,820	44,946
Total	6,654	10,391	53,812

(a) Localities as listed in 1890 in 'Statistics of Tasmania'.

Decline in Production

By 1920, annual production had reached 75,000 tons; by 1950, it exceeded 220,000 tons. The peak production year was 1959-60 with an output of over 300,000 tons but, since then, there has been a decline due to competition from oil (the introduction of diesel locomotives contributed, in minor degree, to the fall in demand but the major factor has been a change from coal to oil fuel in manufacturing industries). Throughout this whole period, from 1886 till today, the mines of the Fingal Valley have been the State's principal source of coal. In 1967, annual Tasmanian production had fallen to 77,000 tons.

The fall in the demand for coal had an adverse effect upon employment in the Fingal Valley, and resulted in an enquiry into the possibility of generating electric power from Tasmanian coal; the subsequent report was not in favour of thermal generation, and considered expansion of existing hydro-electric works the more economic proposition. More recently it has been decided to proceed with the first thermal station, but this is being built at Bell Bay and will use oil fuel rather than coal. The State Government has begun plantations of exotic pines in the valley, with the aim of absorbing some of the displaced miners into forestry work.

By Australian standards, the State's black coal production has never been on a large scale and even in the year of peak Tasmanian production (1959-60), it represented only one and a half per cent of the Commonwealth total to which N.S.W. contributed nearly 80 per cent. (This total excludes brown coal mined in very large quantities almost exclusively in Victoria.)

Gold

The first appearance of gold mining in *Statistics of Tasmania* dated from 1866 when crushing at Fingal in the north-east produced 347 ounces from 2,872 tons of quartz. In actual fact, gold had been discovered much earlier, in slate rocks near Lefroy in 1849 and then at Mangana near Fingal in 1852, the second find setting off a minor gold rush to the alluvial diggings.

During 1859 the first quartz mine started operations at Fingal; in the same year James Smith (better known as 'Philosopher Smith') found gold at the River Forth, and Peter Lette at the Calder. Reef gold was discovered in 1869 at Lefroy. The first recorded returns from the Mangana fields date from 1870; Waterhouse, 1871; Hellyer, Denison and Beaconsfield, 1872; Lisle, 1878; Gladstone and Cam, 1881; Minnow and River Forth, 1882; Branhholm, 1883; and Mt Lyell, 1886.

The largest single source of gold was the 'Tasmania Mine' at Beaconsfield which began operating in 1878. The effect of Beaconsfield operations can be judged from the following State gold production figures (in ounces): 1877, 5,777; 1878, 25,249; 1879, 60,155. Employment in gold mining in 1879 was stated to exceed 2,000 men. Peak gold production for the State was reached in 1899 with 83,992 ounces but this was still only a minor contribution—just over 2 per cent—to the Australian total.

Ranked in order of accumulated yield, the State's three principal gold mining centres were Beaconsfield, Mathinna and Lefroy. The 20th century witnessed a decline in Tasmanian gold mining, as such; when the 'New Golden Gate' at Mathinna closed in 1912, State annual gold production had fallen to 37,973 ounces. In 1919, with the closure of the 'Tasmania Mine' at Beaconsfield, annual gold production fell to 7,686 ounces. The Mines Department has recently drilled test bores into the old 'Tasmania Mine', with a view to reopening it. A licence has been granted to Power Corporation Australia Ltd to undertake further exploration in the Beaconsfield area.

Today there are no gold mines, as such, operating but gold is still produced as a by-product from other minerals, principally concentrates of lead-copper, copper, lead and zinc. The assayed gold content of Tasmanian minerals mined in 1968 was 36,498 fine ounces, compared with a Commonwealth total of 810,000 fine ounces, i.e. the Tasmanian proportion had increased to 4.6 per cent.

Tin

In 1871 James ('Philosopher') Smith discovered 'tin oxide' (cassiterite) at Tinstone Creek near Mt Bischoff which was destined to become the greatest tin deposit known in the world. The Bischoff discovery was followed by numerous others, first in the north-east and then at Mt Heemskirk on the west coast. The Mt Bischoff Tin Mining Company, formed to work the deposit, had paid dividends totalling £177 per £5 share by 31 December 1907. Before production ceased, shortly after World War II, Mt Bischoff had yielded more than 80,000 tons of tin ore.

Main production today is centred on Renison Bell and Mt Cleveland on the west coast and Rossarden, Gladstone and South Mt Cameron in the north-east.

In 1968, the assayed tin content of tin concentrates produced throughout Australia was 6,734 tons, the Tasmanian component being 3,103 tons. Some concept of the earlier scale of Tasmanian tin mining can be obtained from these export figures: average annual Tasmanian exports of tin, decade ending 1890, 3,800 tons; decade ending 1900, 2,650 tons. A mixture of export and production figures in the decade ending 1910 suggests that tin production had lifted to an annual average of 3,350 tons. In 1920, annual production fell to 1,310 tons and, since then, has often been below 1,000 tons. An expansion of tin mining is now in progress, the 1968 figure (3,103 tons) representing a 103 per cent increase above the 1967 figure (1,529 tons).

Silver

The rush to the Zeehan-Dundas area, where silver-lead ore was discovered in 1882, commenced in 1888 and by 1891 159 companies and syndicates were operating in the area. Initial rich returns led to the installation of a smelting plant at Zeehan. However, the rich surface ores were soon depleted; payable ore was not located below 600 feet and the field gradually declined after the closing of the Zeehan smelters in 1909.

The State still produces silver today but mainly as a by-product of copper mining at Mt Lyell and zinc-lead mining at Rosebery; 'pure' silver-lead mining is carried on at Tullah but there is no silver production from the once famous Zeehan fields. In 1968, the assayed silver content of Tasmanian mine production was 1,748,606 fine ounces, approximately 8 per cent of the corresponding Australian total. N.S.W. and Queensland are the leading producers.

Copper

The history of the Mt Lyell field dates from 1883 when the McDonough brothers and Johannes Karlson discovered the Iron Blow outcrop. Isolation impeded development of the field and the transport problem was not solved until 1899 when the Mt Lyell Company's railway reached Strahan. The following year the North Mt Lyell Company completed a railway between Linda and Kellys Basin. The absurdity of two railways in the same area ended in 1903 with an amalgamation of the two companies.

In 1902 a metallurgical innovation of world importance occurred at Mt Lyell when Robert Sticht perfected pyritic smelting. The new low cost method led to the establishment of a smelting industry at Queenstown. Mt Lyell, for many years Australia's leading copper mine, still ranks high on the list of Australian producers and has increased its annual output of copper in recent years.

In 1968, the assayed copper content of Tasmanian mineral production was 16,601 tons, or about 16 per cent of the corresponding Australian total, Queensland being the principal producing State. Over 90 per cent of the Tasmanian total derives from Mt Lyell ores but there is also a copper content in the ores mined at Rosebery and Williamsford.

Zinc

The complex Rosebery ores were discovered near Mt Read in 1894 but it was not until 1925, when the Electrolytic Zinc Company of Australasia commenced smelting the Rosebery ores at Risdon that full-scale development of the field commenced. The Rosebery mines have been in continuous production since 1925, apart from a temporary shut-down in the period 1930-1936 when depressed world zinc prices curbed production.

In 1968, the assayed zinc content of Tasmanian mine production was 48,146 tons, approximately 12 per cent of the corresponding Australian total; N.S.W. was the major producer of zinc bearing ores. (Tasmania is still the leading producer of refined zinc, the recovery process using both local and interstate concentrates. Production constitutes about 65 per cent of the Australian total.)

Lead

The mining fields at Zeehan and Dundas had been established to obtain silver from silver-lead ores; lead was produced as a by-product. Silver-lead mining has long ceased on the Zeehan fields but is still in progress at Tullah, a few miles north-west of Rosebery, where the ore is now processed.

Lead is also a constituent of the complex Rosebery and Williamsford ores and these are now the principal source of lead in the State. In 1968, the assayed lead content of Tasmanian mine production was 14,913 tons, about four per cent of the corresponding Australian total; N.S.W. and Queensland are the principal producers.

Tungsten

Tungstic oxide (WO_3) occurs in two forms: in scheelite (calcium tungstate) and wolfram (iron manganese tungstate). There is a marked distinction between the mining of scheelite and of wolfram. Whereas scheelite in Tasmania is mined for its WO_3 content, wolfram is usually found in association with tin. Production of wolfram began in 1906 at Moina in the north-west but most now comes from mixed tin-wolfram mines in the Avoca area. The tin-wolfram combination is a good basis for operations because producers can stockpile their wolfram concentrates when tungsten prices are unfavourable.

In 1968, the assayed tungstic oxide content of Tasmanian mine production was 1,403 tons; this was virtually the Australian total, Tasmania being the sole regular producer.

Sulphur

There are no known deposits of elemental sulphur in Australia, but its use is of vital importance in the heavy chemical and fertiliser industry, the principal form being as sulphuric acid. The sulphur content of the Mt Lyell and Rosebery ores is used to manufacture this acid. Mt Lyell pyritic ore is concentrated and exported, while the Rosebery zinc concentrates are used to produce sulphuric acid as a by-product at the Risdon zinc plant. In 1968, the assayed sulphur content of Tasmanian mine production was 53,074 tons, approximately 15 per cent of the corresponding Australian total.

Iron Oxide and Iron Ores

Tasmania has large deposits of iron ore, the principal use until recently being for oxidised ore in the local manufacture of cement. However, in 1956, the Tasmanian Department of Mines, in conjunction with the Commonwealth Bureau of Mineral Resources, commenced a series of geological and geo-physical surveys followed by drilling. A large iron ore deposit at the Savage River attracted the attention of Australian-American interests, the project being the conversion of the ore to a slurry and its transfer by pipe-line and pumping to Port Latta, near Stanley, for shipment to Japanese ports in pellet form. This development is described in some detail in the 1969 issue of the *Year Book*. During 1968, the Savage River mine produced 1,832,285 tons of ore which yielded 869,147 tons of dry concentrate. The concentrate was converted into 760,083 tons of pellets at Port Latta.

The Resurgence of the Tasmanian Mining Industry

Introduction

The Tasmanian mining industry experienced during the 1960s a period of growth unknown since the late nineteenth and early twentieth centuries. Mines which appeared to be nearing the end of their economic life established the existence of considerable additional ore bodies and extended their period of mineral production for another decade. Additionally several new ore deposits were located and companies were floated to exploit these deposits. The industry entered the new decade on a buoyant note with most companies undertaking vigorous expansion programmes.

Reasons for Recovery

Many factors have contributed to the resurgence of the Tasmanian industry, the most significant being: (i) the advance of mining technology to a point where previously uneconomic deposits can be profitably developed; (ii) the application of scientific techniques in the search for minerals; (iii) the intense nature of the search; (iv) the development of cheaper transport techniques allowing the development of isolated ore bodies; and (v) the rapid growth in the world demand for minerals.

The following sections describe recent developments in the mining areas in Tasmania and from information supplied by the relevant companies, outlines the future operations of the major mining companies.

Mt Lyell

From its discovery in the 1880's the Mt Lyell mine has been the major copper producer in Tasmania. Mine development has been a continuous process and as the richer ore bodies have been worked out the discovery of lower grade lodes and the development of processes which have enabled the economic exploitation of these poorer deposits, has sustained production at Mt Lyell for over seventy years.

A new phase of the mine's history commenced on 25 July 1968, when a \$30m expansion programme was announced. To be completed over the next four years the plan allows for the development of underground ore bodies; the phasing out of open cut mining by 1973; and the closing of the Queenstown copper smelters in 1970.

The prelude to the announcement had been an intensive exploration programme of the Mt Lyell area which led to a re-appraisal of ore reserves and indicated that resumption of underground mining was both feasible and based on sound economics. An exploration programme costing \$2.5m in the period 1964-1968 accurately outlined and estimated known reserves and during the course of this work, the Cape Horn deposit (1.96 per cent copper) was located.

The following table gives details of estimated ore reserves:

Mt Lyell Mining and Railway Company Limited
Estimated Ore Reserves at 31 December 1968

Name of Ore Body	Estimated Quantity of Ore	Copper Content
	'000 tons	per cent
West Lyell Open Cut	7,508	0.78
West Lyell Underground	26,604	1.46
Lyell Tharsis Open Cut	583	1.43
Crown Lyell No. 2	10	2.48
Crown Lyell No. 3	3,680	1.60
Twelve West	52	1.05
Cape Horn Open Cut	150	1.25
Cape Horn Underground	3,281	1.96
Total	41,868	1.40

The principal ore body, the West Lyell Underground, underlying the existing West Lyell Open Cut, contains 26.6m tons of ore averaging 1.46 per cent copper. This ore body extends to a known depth of 1,250 feet below the bottom of the 400 feet deep West Lyell Open Cut mine. Total estimated

ore available for underground mining is 33.6m tons averaging 1.54 per cent copper. Open cut mining is expected to cease by 1973, when the West Lyell, Lyell Tharsis and Cape Horn open cuts will have been worked out.

Apart from the decision to resume underground mining the other main development at Queenstown is the closure of the Mt Lyell Company's smelting plant; final shut-down being planned for 24 December 1970. The principal factors leading to closure of the Queenstown smelter were: (i) high cost of imported coke; (ii) plant obsolescence; (iii) high capital cost of installing modern smelting facilities. In 1973 the company will re-examine the question of resuming smelting at Queenstown.

Ore is already being transported to Burnie, a north-west coast port, for shipment overseas and interstate. After 1970 about 80 per cent of the ore will be smelted by the Mitsubishi Company in Japan. The balance will be smelted at Port Kembla, New South Wales.

The Mt Lyell Co. is participating in a joint venture with Electrolytic Zinc Company of Australasia Limited to establish a sulphuric acid plant at Burnie on the north-west coast. The plant will utilise pyritic ores from Mt Lyell and the E.Z. Co.'s Rosebery mines. The annual capacity of the plant will exceed 400,000 tons of sulphuric acid.

Renison Bell

Tin was first discovered in the Ring Valley by Renison Bell in 1890. Bell was inspired by the success of 'Philosopher' Smith at Mt Bischoff and prospected southwards from Waratah before discovering the deposits bearing his name. Production from the mine commenced in 1905 but it has been intermittently closed down subject to movements in the price of tin. A large scale expansion programme was announced in 1965. In all \$10m is to be spent to lift the capacity of the concentrating mill to almost 400,000 tons of ore per annum. Extensive drilling in 1955-1957 outlined new ore bodies and indicated that the Renison Bell Field has a longer life than earlier supposed. Drilling analysis suggested that two lodes (Bassett and Federal) warranted further development and this commenced in 1965, when Renison Limited began construction of: (i) a declining adit, to give access to the Federal, Bassett and other nearby ore bodies; (ii) a modern concentrating plant adjacent to the mine entrance. The concentrating plant, commissioned in late 1966, has a daily capacity of 1,000 tons of ore. A close watch must be maintained on the finely crushed ore to prevent setting and even spontaneous combustion in the ore bins.

Mining is both underground and open cut, of which the underground is the more important method. A high degree of mechanisation has been achieved in both mining methods; trackless diesel equipment is used in all aspects of underground mining from drilling for ore to hauling ore to the surface.

During 1968 the company carried out drilling operations to the north of the current development area. This exploration proved highly profitable and resulted in the location of a new ore body, the North Bassett Lode, containing an estimated 4.89m tons of ore with an assayed content of 0.85 per cent tin.

Increased activity at Renison Bell has also proved beneficial to the old silver-lead mining centre of Zeehan, which was rapidly becoming a ghost town. The company decided to house the additional work-force, approximately 250 men, at Zeehan, where new houses, streets, sewerage and water facilities were constructed by Renison Limited.

The following table gives details of estimated ore reserves at the end of the company's 1968 fiscal year:

Renison Bell Limited: Estimated Ore Reserves
(^{'000 tons})

Classification of Ore	Federal Lode	Bassett Lode	North Bassett Lode	Stebbins North Lode	Other	Total
Ready for Mining ..	1,070	..	..	..	150	1,220
Partly Developed ..	790	..	..	..	25	815
Probable (a) ..	1,855	..	..	750	90	2,695
Possible (b) ..	..	6,290	4,890	..	1,000	12,180
Total ..	3,715	6,290	4,890	750	1,265	16,910
Assayed Tin Content (%) ..	0.70	0.83	0.85	1.39	0.75	0.82

(a) Indicated by drilling to extent that development can proceed.

(b) Indicated by limited drilling.

Mount Cleveland

Mount Cleveland, about ten miles to the west of the once famous Mt Bischoff tin mine, is the scene of one of Tasmania's more recent mining developments. Tin was first discovered at Mt Cleveland in 1900 but it was not until 1908 that mining commenced. In 1914 operations ceased and interest in the mine waned until 1961 when the Aberfoyle Tin Development Partnership obtained a licence to investigate the area. Combined geophysical, geochemical and diamond drilling surveys indicated ore reserves approaching 3m tons and averaging 1.02 per cent tin and 0.43 per cent copper.

Cleveland Tin N.L., a subsidiary of Aberfoyle Tin N.L., was then formed to exploit the Mt Cleveland tin and copper prospect, and in October 1966 construction of the concentration mill and town site at Luina commenced. After eighteen months of development the Cleveland mine again became productive and was officially opened on 14 January 1968. During the first six months of operation 79,044 tons of ore, averaging 0.708 per cent tin and 0.290 per cent copper was treated.

The estimated ore reserves at 30 June 1968 were 2.84m tons with an average content of 1.02 per cent tin and 0.44 per cent copper. Recent drilling has revealed a downward continuation of the ore body some 300 feet below the proven reserves.

Employees are housed at the nearby company built township of Luina. At the end of June 1968 married quarters for 64 employees had been provided in addition to bachelor accommodation facilities for a further 120 employees. The town also includes a community club and community store. A sewerage and water reticulation system for the mining township has also been completed.

Rosebery

Large scale development of the Rosebery zinc-lead field dates from 1925 when the Electrolytic Zinc Company of Australasia Ltd commenced processing the complex Rosebery ores. Depressed world zinc prices forced a temporary closure of the mines from 1930 until 1936; however, since 1936 mining at

Rosebery has been continuous. The Electrolytic Zinc Company, in addition to being the largest producer of refined zinc in Australia, is also a major Australian producer of zinc, silver and lead. Mine output comes from three company operated west coast mines: the Hercules mine at Williamsford, some two and a half miles south of Rosebery; the Rosebery mine at Rosebery, located at the foot of Mt Read; and the Farrell mine at Tullah, a small mining township on the Murchison Highway about six miles north-west of Rosebery. The whole zinc concentrate output of the Rosebery complex is refined at the company's electrolytic plant at Risdon, near Hobart.

Exploration work during 1968 was concentrated on several known mineralisation areas lying south-west of Rosebery. Diamond drill-testing was carried out in the Cuni area, about three miles south-west of Renison Bell, and preliminary geophysical and geo-chemical surveys over areas near Trial Harbour and Cuni were undertaken.

At present the Rosebery mine contributes about 90 per cent of the total mine output of approximately 300,000 tons of ore per annum. Completion of a new 22 foot diameter shaft at the Rosebery mine will boost the annual capacity of the three mines to 600,000 tons of ore. The new shaft, planned for completion in 1971, will permit mining to a depth of 2,420 feet.

The following table gives details of estimated ore reserves and their assayed metallic content:

Electrolytic Zinc Company of Australia Limited
Estimated Ore Reserves

Mine	Quantity of Ore	Assayed Metallic Content				
		Zinc	Lead	Copper	Silver	Gold
	'000 tons	per cent	per cent	per cent	oz/ton	dwt/ton
Rosebery and Hercules	8,650	18.6	5.6	0.89	5.1	2.2
Farrell	60	7.3	12.8	..	14.1	..

Savage River

The State's largest and most important recent mining venture is the development of the Savage River iron ore deposits, first discovered in 1877 but neglected for many years because of their low iron content, impurities and inaccessibility. A major step, leading to the establishment of an iron ore mining industry, came in 1956 when the Tasmanian Mines Department, in conjunction with the Commonwealth Bureau of Mineral Resources, commenced geological and geophysical surveys followed by drilling tests. The ore body proved extensive and in 1963 Pickands Mather & Co., a U.S. organisation, began a three year feasibility study of the industrial potential of the Savage River deposits. In 1965 the Savage River Mines industry was formed, jointly financed by Japanese, Australian and United States capital, to exploit the ore reserves. Under the *Iron Ore (Savage River) Act 1965*, the developers were granted a thirty year lease over portion of the Savage River deposits. The Act also entitles the State Government to royalty payments of 15 cents per ton on the first 60m tons of pellets exported.

Development of the Savage River deposits involved: (i) stripping the overburden from the ore body; (ii) construction of a township and concentrator plant at Savage River; (iii) completion of a 53 mile pipeline from

Savage River to Port Latta, near Stanley on the north-west coast; (iv) construction of a pelletising plant at Port Latta and a bulk loading jetty, approximately one mile long. The entire project was completed by late 1967 at a capital cost of \$70m. Ore mined at Savage River is low grade, generally below 40 per cent iron. The ore is crushed to the consistency of face powder and concentrated by magnetic separation. The concentrate is mixed with water to form a slurry and then pumped to Port Latta. At Port Latta the slurry is dewatered and the ore baked with bentonite clay to form marble sized pellets which are 67 per cent iron ore. The pellets, suitable for direct feeding into Japanese steel mills, are fed by conveyor belt into the bulk ore carriers berthed about one mile off-shore.

Mining operations commenced in 1967 and on 26 October 1967 the first slurry passed through the pipeline from Savage River to Port Latta. In April 1968, the first pellet shipment from Port Latta was made.

The ore body being mined is only a part of the total known lode; completion of the thirty year contract will leave large reserves untouched. The Savage River open cut will be taken down to a depth of 850 feet in steps of about 40 feet high. Planned production from the mine is 60m tons of iron ore pellets over the contract period of thirty years.

Approximately 500 persons are employed at the Savage River mining complex. Employees and their families are housed at the company constructed town of Savage River, where \$2m was spent on housing. (For a more detailed description of the Savage River project see the 1969 *Year Book*.)

Grassy, King Island

Scheelite was first mined in 1917 but after three years production ceased. In 1930 mining restarted and apart from a brief interruption in 1959 production has been continuous.

King Island Scheelite (1947) Ltd is Australia's largest producer of tungstic oxide and accounts for well over 75 per cent of the Australian total. During 1967-68, the company carried out extensive drilling tests which indicated that total ore reserves were 2.97m tons with an assayed content of 0.53 per cent tungstic oxide. A further 3.0m tons has been proved by recent drilling. The ore bodies have been proved to a depth of 300 feet below sea level.

Naracoopa, King Island

Naracoopa Rutile Limited, formed in early 1968, is Tasmania's latest large scale mining venture. The company is mining beach sands on the east coast of King Island for the production of rutile, zircon and tin concentrates. Rutile is used in white paint pigments, in titanium metal for aircraft and rockets and in other modern metals. Zircon's main use is in foundry sand production. These two minerals, rutile and zircon, account for most of the mine's production of mineral sands.

Prospecting rights are held over 40,608 acres on King Island's east coast and estimated ore reserves are 80,000 tons of rutile and the same of zircon. At a planned annual production rate of 20,000 tons of rutile and zircon, the company has a minimum mining life of at least eight years. The first shipment of 3,000 tons of rutile was made in mid-1969.

The mining plant, established at a cost of approximately \$0.9m, uses wet and dry deparation methods to recover rutile, zircon, tin and other minerals. Employment at the Naracoopa project is approximately 20 men.

Rossarden

The Aberfoyle mine, at Rossarden, has been operated since 1926 by Aberfoyle N.L., a subsidiary of Aberfoyle Holdings Ltd. The Aberfoyle tin mine, for many years Tasmania's premier tin mine, was one of the foundation companies of the Aberfoyle group. Recently Renison Bell's tin production has surpassed that of the Aberfoyle mine. Ore produced from the Aberfoyle mine contains both tin and tungstic oxide. Production for the year ended 30 June 1968 was 611.01 tons of tin concentrates and 111.66 tons of wolfram concentrates containing 415.45 tons of tin and 83.53 tons of tungstic oxide respectively. The mine is in fact, the Commonwealth's third largest producer of tungstic oxide.

The company has been engaged in a programme of geological mapping and diamond drilling designed to determine the extent of known ore veins and further areas that are worthy of development. Of particular interest are the ore veins of the Lutwyche prospect which have yielded combined tin and tungstic oxide assays up to 2.35 per cent. Present ore reserves at the Aberfoyle mine are 386,000 tons. This amount excludes indicated ore reserves of 340,000 tons located at the Lutwyche prospect. The company is completing drives to give access to these ore bodies.

Storeys Creek

A few miles to the north of the Aberfoyle tin mine is the Storeys Creek mine operated by the Storeys Creek Tin Mining Company N.L., also one of the Aberfoyle group of companies. The company name is somewhat misleading, since the greater part of the mine's output is tungstic oxide; the Storeys Creek mine being the State's second largest producer of this mineral.

Production from the Storey's Creek mine for the year ended 30 June 1968, was 240.13 tons of tungstic oxide in wolfram concentrate and 51.42 tons of tin in tin concentrates. Estimated ore reserves, at 30 June 1968 were 248,950 tons. An extensive diamond drilling programme, both surface and underground, is being carried out to locate new ore veins and give more accurate estimates of known ore reserves.

Storeys Creek Tin Mining Company N.L. also operates the Dorset tin dredge which is located near Gladstone in Tasmania's far north-east. Limited reserves suitable for dredging plus unsatisfactory results during 1968 made the dredge's future somewhat uncertain until drilling located previously unknown alluvial deposits. During 1967-68, 25 acres were dredged for a yield of 74.04 tons of tin.

Fingal

A description of major Tasmanian mining ventures would be incomplete without some mention of the Cornwall Coal Company N.L. which operates Tasmania's largest productive coal mine, the Duncan coal mine at Fingal, where over 80 per cent of the State's coal is produced. The only other Tasmanian coal mines worthy of note are the New Stanhope mine at Avoca and the Sandfly mine at Kaoota, to the south of Hobart.

Decline in Tasmanian coal production has been dramatic; however, contracts to supply the Boyer pulp and paper mills have arrested the fall in output and assured the industry of a limited but stable market. The Cornwall Coal Company anticipates an increase in annual output from approximately 60,000 tons to almost 85,000 tons.

The Cornwall Coal Company holds mining leases over 1,657 acres of coal bearing land from which the expected coal yield is 11.8m tons. The coal is a sub-bituminous non-coking variety. The Cornwall Coal Company has also been engaged in diamond drilling tests at the old Royal George tin mine. Analysis of the drill test results indicated that development of the prospect would be uneconomic and work on the site has ceased.

Mineral Exploration

Introduction

The ore bodies in the areas leased to mines may be large but it is inevitable that they will be exhausted at some time in the future; rather than passively wait for this event, owners of operating mines press on with exploration outside the boundaries of their leases, and in this activity they are joined by exploration companies. In Tasmania, there has been concentration on relatively small areas where geological, geochemical and geophysical surveys have indicated favourable conditions for the occurrence of mineral deposits.

Exploration Areas and Operators

Interest in mineral exploration in Tasmania has been at a high level in recent years. Companies, which have been engaged in exploration for a considerable time are being restricted to areas where investigations have indicated that a more intensive search is justified. This has released areas for exploration by other companies which in some cases employ new investigation techniques.

The area of the State is 26,383 square miles but the Mines Department in 1968 reported that it had issued 69 exploration licences covering an area of 69,000 square miles. This seeming contradiction disappears when account is taken of off-shore areas. The regions of land investigation are principally in the west and north-west of the State whilst the off-shore regions are off the west, north-west, south and north-east coasts; oil exploration to the limits of the continental shelf is included among the off-shore activities.

Companies engaged in mineral exploration are: Mt Lyell Mining and Railway Company Ltd, Renison Limited, Electrolytic Zinc Company of Australasia Ltd, Cleveland Tin N.L., Pickands Mather and Company, Industrial and Mining Investigations, A.C.I. Operations Pty Ltd, Quest Exploration Pty Ltd, Aberfoyle Tin N.L., Broken Hill Pty Company Ltd, McIntyre Mines Aust. Pty Ltd, Comstaff Pty Ltd, Heazlewood Nickel Prospecting Syndicate, King Island Scheelite, Naracoopa Rutilite, Industrial Sands, Mineral Supplies, Storeys Creek Tin Mining Company N.L., Geophoto Services, Endurance Corporation and a number of individuals, some representing mainland mining groups. Exploration for oil is being carried on by: Broken Hill Pty Company Ltd, Esso Exploration and Magellan Petroleum Southern Pty Ltd.

Role of Mines Department

The Department of Mines has continued regional investigations and economic, hydrological and engineering geological work as part of its policy of investigation and exploration of Tasmania's mineral resources.

During 1968 the Mines Department employed its drilling plants in testing alluvial deposits in the north-east, investigating gold reefs at Alberton and Beaconsfield, coal deposits in the Fingal Valley, tin deposits at Waratah and in investigating underground water resources in the Longford and Scottsdale districts and in sand areas on the east coast.

(The above section 'Mineral Exploration' was prepared from information made available by the Mines Department.)

STATISTICS OF MINERAL PRODUCTION

Source of Data

Statistics relating to quantities of minerals produced (including assayed metallic content) are, in the main, obtained from the State Mines Department and are supplemented, where necessary, with data obtained from the annual census of mines and quarries conducted by the Bureau of Census and Statistics, and from the Commonwealth Bureau of Mineral Resources.

Metallic Minerals

The table that follows shows the quantity of metallic minerals produced in Tasmania for a five-year period. In general, the minerals are shown as concentrates except the item reading 'copper ore':

Metallic Minerals—Production

Mineral	Unit	1964	1965	1966	1967	1968
Copper Concentrate ..	tons	49,463	48,740	55,981	55,600	54,064
Copper Ore	tons	10,215	8,262	11,112	8,422	5,056
Copper Precipitate ..	tons	51	13	66	90	123
Copper-Tin Concentrate	tons	..	..	..	..	877
Gold (not in Concentrates)	ounces	106	108	82	160	118
Iron Ore	tons	..	..	..	..	708,399
Iron Oxide	tons	6,808	3,524	2,797	7,866	12,780
Lead Concentrate ..	tons	14,853	13,565	14,462	13,766	13,352
Lead-Copper Concentrate	tons	10,214	10,424	12,083	12,227	12,558
Pyrite Concentrate ..	tons	46,166	46,912	61,006	59,714	42,304
Tin Concentrate ..	tons	1,438	1,493	1,510	2,352	5,154
Tungsten Concentrates—						
Scheelite Concentrate	tons	1,016	1,150	1,307	1,200	1,460
Wolfram Concentrate	tons	380	487	497	435	484
Zinc Concentrate ..	tons	84,791	77,715	83,761	81,751	82,458

Assayed Content

In the following table, the various concentrates have been grouped to show their content in terms of individual metals. The contents stated are as determined by assay and include all pay metals and metals which are a refiner's prize; totals compiled on this basis contain no allowances for losses in smelting and refining and therefore, in general, exceed the quantities actually recoverable. The table refers exclusively to minerals mined in Tasmania and excludes minerals imported for smelting and refining:

Assayed Contents of Metallic Minerals Produced

Mineral	1964	1965	1966	1967	1968
COPPER (Tons)					
Copper Concentrate	13,158	13,376	14,831	15,243	14,510
Copper Ore	342	367	563	406	181
Copper Precipitate	20	4	15	20	26
Copper-Tin Concentrate .. ..	..	..	..	..	169
Lead Concentrate	74	78	90	74	95
Lead-Copper Concentrate	1,018	1,085	1,196	1,250	1,333
Zinc Concentrate	267	258	310	270	287
Total	14,879	15,168	17,005	17,263	16,601

Assayed Contents of Metallic Minerals Produced—continued

Mineral	1964	1965	1966	1967	1968
GOLD (Fine Oz)					
Copper Concentrate	7,714	8,180	8,706	8,970	8,837
Copper Ore	122	132	151	117	48
Lead Concentrate	3,939	3,166	3,339	2,475	3,141
Lead-Copper Concentrate ..	19,271	18,732	21,430	23,169	21,553
Zinc Concentrate	3,233	2,589	2,802	2,637	2,812
Other Sources	97	98	79	151	107
Total	34,376	32,897	36,507	37,519	36,498
IRON (Tons)					
Iron Ore .. ..	..	..	..	..	494,525
LEAD (Tons)					
Lead Concentrate	8,689	7,966	8,447	8,098	7,841
Lead-Copper Concentrate ..	3,832	3,858	4,497	4,603	4,682
Zinc Concentrate	2,827	2,414	2,634	2,431	2,390
Total	15,348	14,238	15,578	15,132	14,913
SILVER ('000 Fine Oz)					
Copper Concentrate	53	50	60	72	82
Copper Ore	9	3	11	10	4
Lead Concentrate	398	344	369	344	362
Lead-Copper Concentrate ..	1,048	1,035	1,108	1,114	1,054
Zinc Concentrate	272	242	286	259	248
Total	1,780	1,674	1,834	1,799	1,749
SULPHUR (Tons)					
Lead Concentrate	3,053	2,768	2,924	2,790	2,678
Lead-Copper Concentrate ..	2,649	2,774	3,160	3,081	3,260
Pyrite Concentrate	22,437	22,893	29,344	28,827	20,536
Zinc Concentrate	27,965	25,539	27,368	26,785	26,600
Total	56,104	53,974	62,796	61,483	53,074
ZINC (Tons)					
Lead Concentrate	2,338	2,303	2,500	2,304	1,730
Lead-Copper Concentrate ..	1,221	1,202	1,391	1,342	1,414
Zinc Concentrate	46,596	42,805	45,960	45,211	45,002
Total	50,155	46,310	49,851	48,857	48,146
TIN (Tons)					
Tin Concentrate.. ..	990	1,027	1,031	1,529	3,103
TUNGSTIC OXIDE (WO ₃) (Tons)					
Scheelite Concentrate	717	822	941	863	1,056
Wolfram Concentrate	276	355	365	320	347
Total	993	1,177	1,306	1,183	1,403

Assayed Contents of Metallic Minerals Produced—*continued*

Mineral	1964	1965	1966	1967	1968
CADMIUM (Tons)					
Zinc Concentrate	77	70	75	73	74
MANGANESE (Tons)					
Zinc Concentrate	243	233	254	243	246

Fuel Minerals (Coal)

The only fuel mineral mined in Tasmania is coal and details of production are shown for a five-year period:

Production of Coal in Tasmania
(⁰⁰⁰ Tons)

Description	1964	1965	1966	1967	1968
Coal, Black—					
Semi-anthracite	2	2	2	2	2
Bituminous	149	100	80	75	89
Total	151	102	83	77	91

As indicated in the historical section of this chapter, imported fuel oils are tending to replace coal in a number of applications, chiefly industrial, and the decline in production of coal is due to the resulting fall in demand.

Non-Metallic (Excluding Fuel) Minerals

The quarrying of limestone is the earliest recorded activity in the field of non-metallic mineral mining in the State, burnt lime being sought as a base for building mortar. Production has gradually increased, there being a steady demand for limestone in the making of cement, in various chemical and metallurgical processes and in the manufacture of calcium carbide; limestone also is used as a source of agricultural lime. Large exports of limestone were made in the period 1918-1947, when B.H.P. Co. Ltd operated quarries at Melrose on the north-west coast.

The next table shows the Tasmanian production of non-metallic minerals for a five-year period:

Non-Metallic (Excluding Fuel) Minerals Production
(Tons)

Mineral	1964	1965	1966	1967	1968
Clays—					
Brick and Shale	170,496	185,623	165,546	153,574	160,104
Kaolin	2,400				
Other	31,488	36,070	72,875	42,208	63,099
Dolomite	923	1,145	2,606	2,143	2,534
Limestone (a)	351,518	338,414	344,734	348,449	495,811
Ochre	69	40	65	97	11
Pebbles	727	920	895	1,237	1,214
Silica (b)	13,606	10,393	5,417	13,016	13,238

(a) Excludes quantities used directly as a building or road construction material.

(b) For glass, chemical, etc. manufacturing.

Construction Materials

In addition to the types of mining and quarrying previously described, there is the quarrying of construction materials (for buildings, roads, etc.) such as crushed and broken stone, gravel, sand, etc. This type of activity also is taken into account when placing a value on the output from mines and quarries, measuring their level of employment, etc.

Mining Industry Statistics

In the earlier sections of this chapter, the data on mining and quarrying have been confined to physical production and metallic content by assay, but other measures such as the level of employment, values of output, etc. are also available. A definition of the field of activity classified as 'mining and quarrying' appears as an introduction to the 'Mining' section of this chapter.

The following table gives details of employment in mines and quarries for a five-year period:

Employment in Mines and Quarries (a)

Particulars	1964	1965	1966	1967	1968
Number of Mines and Quarries	42	46	51	42	44
Persons Employed (b)—					
Working Proprietors ..	16	20	12	6	7
Salaried Employees—					
Above ground ..	288	330	469	614	543
Below ground ..	75	60	77	79	93
Wage Earners—					
Above ground ..	1,449	1,479	1,693	1,876	1,950
Below ground ..	683	685	676	727	770
Total Workers ..	2,511	2,574	2,927	3,302	3,363

(a) Mines and quarries employing four or more persons.

(b) On last full working day of year shown.

In addition to the 42 mines and quarries, as shown in the above table for 1967, a further 135 mines and quarries operated, each employing less than four persons.

The relative insignificance of these small mines and quarries can be judged from the fact that in total they accounted for only seven per cent of the total number of persons employed in all mines and only 3.1 per cent of the total value of output of all mines. The five largest Tasmanian metal mines accounted for 70 per cent of the employment in all mines and 84 per cent of the value of output.

Values of Output and Production

Value of Output is the selling value at the mine or quarry (i.e. exclusive of transport costs from mine or quarry to the point of sale). Value added by reduction of ores, concentrates, etc. to metals is excluded.

Value of Production is the selling value at the mine or quarry *less* the cost of power, fuel and light and the cost of certain materials and stores such as timber, explosives, etc. No allowance is made for depreciation or costs of maintenance.

The next table gives details of value of output, value of production and costs data for mines and quarries employing four or more persons:

Mines and Quarries (a)—Value of Output; Value of Production; Costs (\$'000)

Particulars	1964	1965	1966	1967	1968
Value of Output	24,109	27,929	33,569	33,614	43,814
Less Cost of Power, Fuel and Light used	786	785	844	1,069	1,815
Less Other Costs (mainly materials)	5,965	7,801	7,791	8,308	10,436
Value of Production (b) ..	17,358	19,343	24,933	24,238	31,563
Salaries and Wages Paid (c)—					
Salaries	1,264	1,305	1,832	2,723	2,513
Wages (d)	6,819	7,604	8,045	9,126	10,062
Total Salaries and Wages ..	8,083	8,909	9,877	11,849	12,574

(a) Mines and quarries employing four or more persons.

(b) The cost of labour is *not* deducted in determining the value of production.

(c) Exclusive of drawings by working proprietors.

(d) Net amount after deducting value of explosives sold to own employees.

The previous tables on employment, output, etc. have been restricted to data obtained from mines and quarries employing four or more hands, this size level providing a basis for uniform mining statistics in all Australian States. However, the annual mining census in Tasmania seeks information from all engaged in mining and quarrying and includes operations with less than four persons employed. The following table shows the value of output for all mining and quarrying operations and also the contribution of specific types of activity:

All Mines and Quarries (a)—Value of Output (\$'000)

Particulars	1964	1965	1966	1967	1968
Metal Mining	21,600	25,349	30,187	31,102	41,115
Fuel Mining	649	430	362	322	371
Non-metal (excluding Fuel) Mining (b)	864	744	732	611	690
Total Mining	23,113	26,523	31,281	32,035	42,175
Construction Material Quarrying ..	1,935	2,475	3,345	2,652	2,783
Total Mining & Quarrying ..	25,048	28,998	34,626	34,688	44,958

(a) Includes output of mines and quarries employing less than four persons.

(b) Includes clays, dolomite, silica, limestone, etc.

Smelting and Refining of Metals

The value of output of mining and quarrying is defined as the selling value of the product at the mine or quarry, (e.g. in metal mining, usually the selling value of specific concentrates at the mine). Earlier, reference was made to the fact that Tasmanian manufacturing industry includes the extraction and refining of metals, not only from locally produced ores and concentrates,

but also from those that have been imported; in actual fact, extraction and refining in Tasmania employ more persons than mining and result in greater values, both of output and of production. The following table is compiled from factory statistics to illustrate this point:

Non-Mining Activity—Extracting and Refining Metals
Factory Class IV, Sub-class 5—Values of Output, Production, etc.

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Factories (no.)	4	4	4	4	4
Average Workers (a) .. (no.)	3,444	3,394	3,404	3,565	3,455
Value of Output .. (\$'000)	66,238	81,336	83,049	91,473	83,374
Value of Production (b) .. (\$'000)	24,065	27,185	28,792	36,230	33,137

(a) Average whole year, including working proprietors.

(b) Value of output less recorded costs of manufacture, other than labour.

In the previous table, the principal metals included are: copper (from local ores), zinc and cadmium (from local and imported ores), aluminium (from imported bauxite) and ferro-manganese alloy (from imported ores).

The value of production in the factory table does not duplicate values already recorded in the mining sector since the cost of the basic raw materials—ores or concentrates—is one of the recorded costs of manufacture deducted from the value of output.

The next table gives details of the production of zinc and copper by refinery processes:

Non-Mining Activity—Production of Zinc and Copper
(Tons)

Year	Refined Zinc	Copper (a)	Year	Refined Zinc	Copper (a)
1962-63 ..	136,205	11,694	1965-66 ..	143,911	13,912
1963-64 ..	138,610	11,790	1966-67 ..	143,917	14,627
1964-65 ..	138,779	12,125	1967-68 ..	129,789	14,062

(a) Refined copper to 1964-65; blister copper from 1965-66. In October 1965, the Mt Lyell refinery was closed down and the blister copper was thereafter shipped to Port Kembla (N.S.W.) for refining.

Aluminium Production

The refinery for the production of alumina and refined aluminium is situated at Bell Bay on the River Tamar. The choice of Tasmania was determined by the availability of large supplies of relatively cheap hydro-electric power. Production of alumina commenced in February 1955, and of refined aluminium in September 1955. Published statements indicate that the capacity of the plant, in terms of primary aluminium, was lifted to 35,000 tons in 1962 and to 52,000 tons in 1963; more recent statements indicate that annual capacity is 73,000 tons.

Assistance Provided by Mines Department

The Department of Mines provides financial assistance to mining lessees for the purchase of plant and machinery, for sinking, repairing or de-watering of shafts, for construction of dams and water races, for testing and proving a deposit of any mining product, for developmental work, and for diamond

and other types of drilling. The Department has available for hire percussion and diamond drills for exploration, as well as complete plant for small shaft sinking and tunnelling. Other assistance is rendered to the industry in the form of geological and engineering advice, through ore-dressing research into metallurgical discoveries, and the selection and design of treatment plant.

FISHERIES

Description of Main Fish Varieties

This section is devoted to a discussion of the important species in the Tasmanian fishery. These species are not all scale fish but include elasmobranchs (sharks), molluscs (scallops, oysters, abalone), and crustaceans (crayfish). The Tasmanian fishery involves about 1,100 licensed fishermen in 600 vessels, and in 1967-68 harvested approximately 8,700 tons of fish, molluscs and crustaceans. The catch is composed of about 40 types of which six—crayfish, shark, snoek (barracouta), abalone, scallop and salmon—are of major importance (about 97 per cent of the catch). One, the tuna, may have great potential for development.

The State Government exercises control over the taking of fish through the Fisheries Division (saltwater fisheries) and the Inland Fisheries Commission (freshwater fisheries). Each of the types discussed is numbered according to the code prepared by the Fisheries Division of the Department of Primary Industry on behalf of the Commonwealth/State Fisheries Conference.

The descriptions of the types of fish include their common name and scientific name.

Eels (*Anguilla australis occidentalis*-035)

The commercial freshwater fishery for the short finned eel was established in 1965 and the catch for 1967-68 was 205,000 lb. It is likely that the eel fishery will expand to satisfy local and overseas markets. This activity is regulated by the Inland Fisheries Commission.

Whitebait (*Lovettia sealii*-076)

The catching of whitebait comes under the control of the Inland Fisheries Commission. Commercial fishing began during 1941 and 1942 and reached a peak in 1947 when over a million pounds were caught. The canning of whitebait ceased in the early 1950s and the annual catch declined to a few thousand pounds; however, in 1967-68, it had increased to 56,000 lb.

Flounder and Sole (*Lophonectes gallus*, *Paraplagusia unicolour*, *Pseudorhombus tenuirastrum*; all species-151)

The three species in the local catch are the Crested Flounder (*Lophonectes gallus*), the Deepwater Flounder (*Pseudorhombus tenuirastrum*) and the Lemon-tongued Sole (*Paraplagusia unicolour*).

Cod (*Physiculus barbatus*-201)

The family Gadidae, the true cods, is represented in Tasmania by the Southern Rock Cod (*Physiculus barbatus*). The southern rock cod lives in rocky situations offshore and because of this and its benthonic habits, it is almost always caught on hand-lines. The fish is readily distinguishable by the presence of a fleshy barbel on the lower jaw. Although this group includes the most important commercial fish after the herring in the Northern Hemisphere, it is not a commercially important fish in Tasmania.

Tuna and Mackerel (*Thunnus thynnus maccoyii*-301; *Thunnus alalunga germo*-303; *Katsuwonus pelamis*-315; *Auxis thazard*)

There are four major species of tuna found in Tasmanian waters. They are:

- (i) Southern Blue Fin Tuna (*Thunnus thynnus maccoyii*)—a large chunky fish tapering sharply towards the tail. This tuna may reach nine to 10 feet in length and 1,500 pounds and quite commonly ranges from 500-800 pounds in Australian waters. However, the average commercial fish is about 50 pounds.
- (ii) Albacore (*Thunnus alalunga germo*)—a chunky robust fish tapering sharply to the tail. Size—up to three and a half feet and 60 pounds but averaging 5 to 15 pounds.
- (iii) Striped Tuna or Skipjack (*Katsuwonus pelamis*)—plump, robust, tapering sharply to the tail behind the second dorsal and anal fins. Size—may grow to 25 inches and weigh 12 pounds, but normally five to 10 pounds.
- (iv) Frigate Mackerel or Leadenall (*Auxis thazard*)—elongated and slightly compressed body. The frigate mackerel is the smallest of the tuna group of fishes and seldom grows larger than three pounds.

A large-scale tuna fishery for Tasmania may be possible in the future but its development has been slow due to the large capital investment involved. The method of fishing in Australia is usually by polling or trolling, using artificial lures when they are effective, or live bait of pilchards, etc. The whole of the catch is usually canned.

Barracouta (Snoek) (*Leionura atun*-335)

The barracouta (sometimes referred to as 'couta) belong to a group of fishes which includes Snake Mackerels and should not be confused with the savage Barracuda (*Agriposphyraena barracuda*) of the West Indies. The barracouta can grow to four feet six inches and 10 pounds but averages two and a half to three feet and three to five pounds.

The fish is of major importance to the Tasmanian fishery and occurs in large numbers but is subject to pronounced seasonal fluctuations. It is a fish of good edible quality. Commercial fishermen use mainly 'jigs' or trolling. (A jig is a rod attached to a short line or chain with a barbless hook; when the fish strikes it is jerked on to a shute, frees itself, and slides into the well.)

Mullet (*Mugil cephalus*-351; *Aldrichetta forsteri*-370).

In Tasmania, there are two species of mullet; the Sea Mullet (*Mugil cephalus*) and the Yellow Eye Mullet (*Aldrichetta forsteri*). The mullet is a very common fish in Australian waters but is not important commercially in Tasmania due to its rather variable edible qualities. Most fish are captured commercially by beach seining; anglers find the yellow eye mullet relatively easy to catch but not the sea mullet.

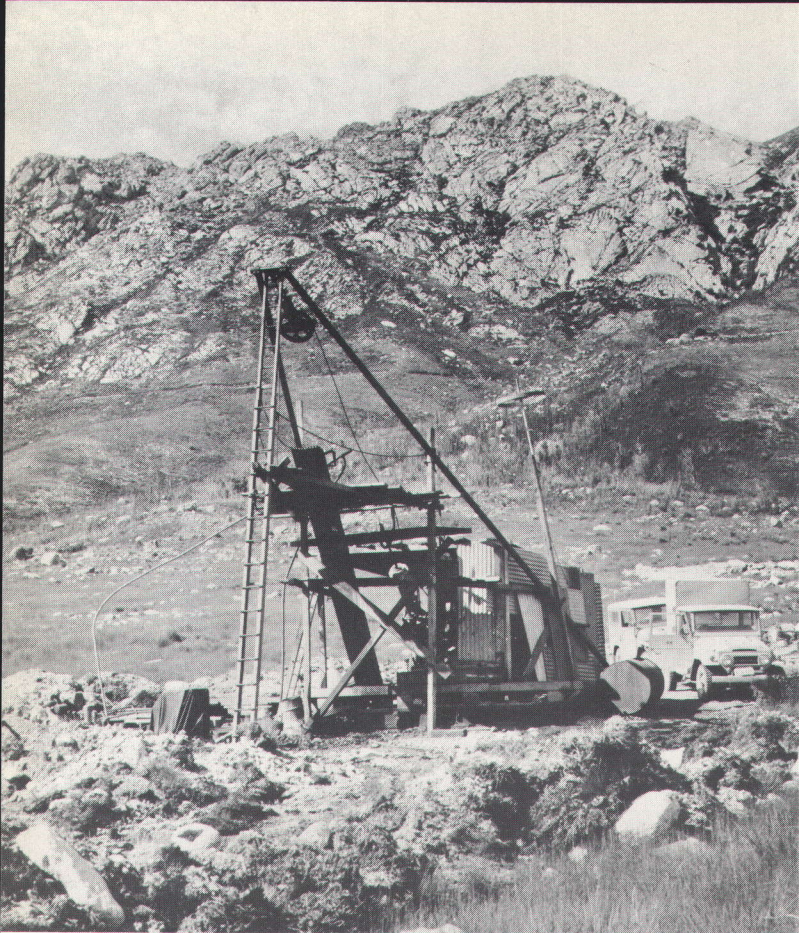
Trevally (*Usacaranx nobilis*-401)

The trevally (snot gall trevalla) is a common school fish around the Tasmanian coast; the fish normally does not exceed 22 inches in length. When freshly caught, the fish is of excellent quality and edible standard, its flesh white, tender and delicately flavoured. However, it does not keep well and should be gutted soon after capture. It is commonly caught by gill or mesh nets set close inshore amongst kelp; it can be caught by line.

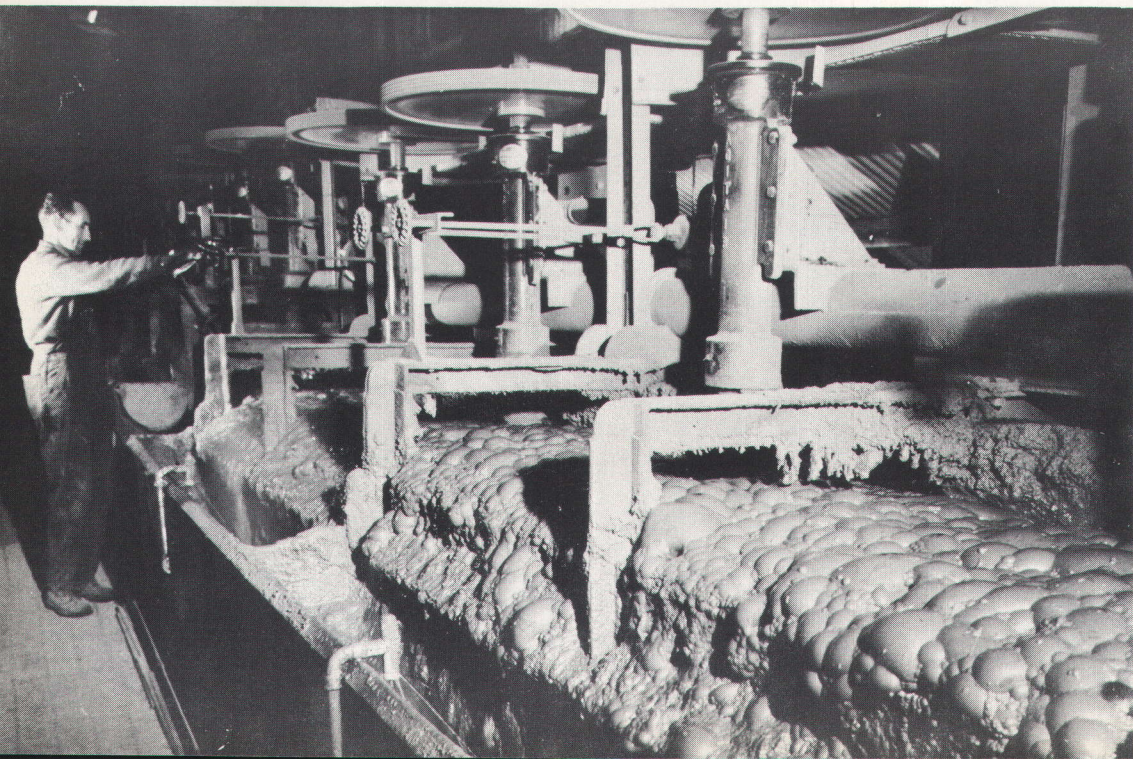


Hard-rock miners drilling a drive face at the Rosebery Mine

(E.Z. Co.)



Exploratory drilling for minerals, western Tasmania (Brian Curtis)



Flotation mill, Rosebery Mine

(E.Z. Co.)

Salmon (*Arripis trutta*-490)

The Australian salmon is not a true salmon and is completely unrelated to the salmon of the Northern Hemisphere. It probably received this name from the early colonists who confused the fish with the true salmon because of a superficial resemblance and its fighting qualities when hooked. It is commonly referred to as the native, colonial or black back salmon. The fish is a major commercial species for Tasmanian fishermen. Most salmon are captured commercially by beach seine nets. For the angler, it is one of the finest small-game fish in Australian waters.

Trumpeter (*Latridopsis forsteri*-536, *Latris lineatus*-535)

This fish is represented in Tasmania by the Bastard or Silver Trumpeter (or simply Trumpeter)—*Latridopsis forsteri*, and the Striped Trumpeter—*Latris lineatus*. Both are found near offshore reefs but the striped trumpeter is now mostly restricted to deep waters. The silver trumpeter is caught in gill nets and the striped by handlines. The striped trumpeter is highly prized and is recognised as one of the best two or three table fish in Australia.

Flathead (*Neoplatycephalus fuscus*-615, *N. richardsoni*-616

N. speculator-617, *Trudis bassensis*-621, *Levipora laevigata*-625)

The Tasmanian species of flathead of commercial value are:

- (i) The Rock Flathead (*Levipora laevigata*)—may grow to 15 inches in length.
- (ii) The Sand Flathead (*Trudis bassensis*)—grows to 25 inches and two and three-quarter pounds, but usually averages 16 to 17 inches and about one and a half pounds. This is the most important commercial species.
- (iii) The Dusky or Mud Flathead (*Neoplatycephalus fuscus*)—may reach four feet and 28 pounds.
- (iv) The Tiger Flathead (*Neoplatycephalus richardsoni*)—similar in size to the sand flathead.
- (v) The King or Deep Sea Flathead (*Neoplatycephalus speculator*)—very closely related to the tiger flathead.

The flathead, in general, is an excellent edible fish with white, tender and well-flavoured flesh. The fish is a bottom-dweller but although it can be caught by trawlers, the Tasmanian industry is based on hand-lines and the fish filleted, frozen and exported to the continental States.

Shark (*Mustelus antarcticus*-651; *Galeorhinus australis*-655)

Tasmania's shark fishery is confined in the main to two fish: the School or Snapper Shark (*Galeorhinus australis*) and the Gummy Shark (*Mustelus antarcticus*). The school shark is reputed to grow to six feet and 170 pounds but there is no authentic record of a fish longer than five feet eight inches. The gummy shark may grow to a length of five to six feet. Although sharks have been fished commercially in Australia for many years, the Tasmanian industry did not begin until the early years of World War II. It has now become established as one of the most important units of the Tasmanian fishery. The fish are caught by the 'long-line' method. Each line consists of a number of 'fleets', each 'fleet' carrying 100 to 200 hooks. The total number of hooks may go as high as 1,800. Each boat carries a number of lines which can be set individually or linked together.

Unlike the scale and bony fish and some other sharks, these two varieties bear their young alive and do not lay eggs. Mating usually takes place from May to June with the young 'pups' born about December. The average litter is 28.

Garfish (*Hemiramphus melanochir*-712)

The Australian garfish belong to the family Hemiramphidae, fish of this family being called 'half-beaks' in the U.S.A. The garfish may reach a length of 18 inches, but usually average about 12 inches. Fishing is concentrated from March to April, with most fish being caught in seine nets from sheltered ocean beaches.

Rainbow Trout (*Salmo gairdneri*-775)

In 1964, the first commercial trout farm was licensed and rainbow trout are raised in holding ponds using water from the Brid River (at Bridport, on Bass Strait). The fish are fed dry pelletised food with raw protein supplement until they are large enough for killing. There are, of course, rainbow and brown trout in Tasmanian lakes and rivers (introduced as exotic species) but these may only be fished for by sportsmen with a licence at times and places regulated by the Inland Fisheries Commission.

Crayfish (*Jasus lalandei*-780)

The crayfish is by far the most important unit in the Tasmanian fishery in terms of monetary return.

The crayfish are caught in traps which are hemispherical, mainly made of cane and bush sticks and called pots. The pots are baited with fish or flesh and 'shot' from dinghies or directly from the boat. The boats range from 20 feet to 70 feet long, most having diesel engines and auxiliary sails. They operate all round the Tasmanian coast, including the Bass Strait Islands, as seasons permit, and the pots are set in from one to 50 fathoms of water.

The crayfish is boiled and either sold locally or exported to New South Wales and Victoria, or overseas to the United States. The whole fish is usually sold in Australia but only the tails, which contain most of the edible meat, are sent to the U.S.A. in uncooked, frozen form.

Scallop (*Pecten meridionalis*-835; *Equichlamys bifrons*-836;
Mimachlamys asperrimus-837)

The Tasmanian scallop industry is based on the Commercial Scallop, *Pecten meridionalis*. There are two other species found, the Queen Scallop, *Equichlamys bifrons*, and the Doughboy Scallop, *Mimachlamys asperrimus*.

The fishery has shown three major phases:

- 1904-1918** An initial period in which fishing (by dredging) was confined to the Derwent estuary.
- 1918-1960** A period of varying but generally heavy commercial exploitation of beds in the D'Entrecasteaux Channel. This was the time when the fishery developed into an important primary industry.
- 1960-1967** The development of the oceanic beds on the east and north-east coasts in deeper water and the decline of the D'Entrecasteaux Channel beds. During the latter part of this period, there has been a drastic fall off in the catch.

Oyster (*Ostrea angasi*-831; *Crassostrea gigas*-828)

There are two types of oyster found in Tasmania—the Mud Oyster, *Ostrea angasi*, which is a native of the State, and the Japanese (or Pacific Oyster), *Crassostrea gigas*, which was first introduced into the State in 1947. Production from an oyster farm in the Tamar estuary commenced in 1967-68.

Abalone (*Notobaliothis ruber*-845; *Schismotis laevigata*-846)

Abalone fishing based mainly on the black lip (or red ear) abalone, *Notobaliothis ruber*, began in 1964 and has assumed a most important role in the Tasmanian fishing industry. The abalone, a marine snail, is found on rocks from just below low water mark to a depth of 100 feet. The shell of the black lip abalone is orange-red and in the form of a low spiral with ridges radiating from the spine; a row of holed protuberances extend from the growing margin of the shell to the spine. Shell diameters exceeding seven inches are known. Of less importance is the green lip abalone, *Schismotis laevigata*, which has a deeper white smooth shell and occurs in the far north of the State. Main abalone fishing grounds extend from South West Cape to Maria Island. Catches are also made along the east and west coasts where dense concentrations have been found. However, inclement weather and large seas restrict exploitation in the latter areas.

Skin divers, who normally operate from a boat, collect abalone by prising them from rocks using curved iron or aluminium bars. The abalone are brought ashore for cleaning where the 'foot' muscle and mantle are separated from the shell. Cleaning is normally performed at the processing factory where abalone are canned or frozen. Most of the finished product is exported overseas to the U.S.A. and Asia.

FISHERIES STATISTICS

Source of Data and Method of Presentation

Statistics presented in this section have been supplied, in the main, by the Fisheries Division of the State Department of Agriculture. In the preparation of fisheries production statistics, the quantities are generally in terms of the form in which the catch is taken from the water. For example, the statistics of fish production are in terms of 'estimated live weight' which is calculated from landed weights by using conversion factors for the various species. These conversion factors allow for the fact that the quantities of fish reported are frequently in a gutted, headed and gutted, or otherwise reduced condition. Crustaceans are reported on a 'whole weight' basis and molluscs (edible) on a 'gross (in-shell) weight' basis.

The actual edible yield varies, depending on types of fish, and methods of preparation. Barracouta yield about 51 per cent of liveweight when filleted, and shark about 60 per cent when headed and gutted. The edible flesh in molluscs represents only a small portion of the in-shell weight. The conversion factor for scallops is $\frac{1}{3}$, and for abalone $\frac{1}{3}$, e.g. 300 lb of abalone in-shell yield approximately 100 lb of flesh.

The catch is generally defined as that landed in Tasmanian ports, regardless of whether it is caught in Tasmanian waters or not, or whether it is caught by Tasmanian fishermen or not. A quantity of shark and crayfish taken by Victoria-based fishermen in Tasmanian waters, but landed in Victoria, is included in the Victorian catch and excluded from Tasmanian figures, the logic being that the catch influences the Victorian economy.

Details of production refer only to recorded commercial production. In view of the importance of amateur fishermen in certain types of fishing, details shown cannot be taken as representing the whole catch. In addition, it is likely that the figures shown understate, to some extent, the full commercial catch since no information is available on fish taken for sale by persons not licensed as professional fishermen.

Persons Engaged in Fisheries

In the following table, which gives details collected in the Censuses of 1961 and 1966 (at 30 June), the numbers of persons whose industry was classified to 'fishing and whaling' are shown together with the numbers engaged in all primary industries and in the total work force; Australian and Tasmanian figures are compared:

Australia and Tasmania—Persons Engaged in Fisheries
Population Censuses, 1961 and 1966

Particulars	Australia		Tasmania	
	1961	1966	1961	1966
Persons engaged in—				
Fishing and whaling ('000)	8.3	8.0	0.6	0.6
All primary industries ('000)	513.3	456.7	20.8	17.2
Total work force ('000)	4,225.1	4,856.4	130.9	147.3
Persons engaged in fishing and whaling as a proportion of—				
All primary industries .. (per cent)	1.6	1.8	2.8	3.4
Total work force (per cent)	0.2	0.2	0.4	0.4

Employment, Boats and Equipment

The boats used for the estuarine fisheries are mostly small vessels, propelled by diesel or petrol motors of low power. The offshore vessels range in length from 30 feet to 100 feet and almost invariably are powered by diesel engines. Refrigeration of the catch at sea is becoming more common, the four main types being ice box, ice cooling, brine tanks and dry refrigeration; almost all boats have wells or deck tanks which serve to keep the catch alive, e.g. crayfish or abalone.

Equipment

In the Tasmanian fisheries, a wide range of equipment is used. The following table sets out the main types of fish, crustaceans and molluscs and the equipment most commonly used:

Fish Equipment Used in Tasmania

Type of Fish	Equipment Used	Type of Fish	Equipment Used
Silver Trumpeter ..	Gill net	Barracouta	Jig and Troll
Shark (edible)	Long-lines	Crayfish	Pots
Australian Salmon ..	Beach seine	Scallops	Dredge

Fish detecting equipment has become increasingly important in recent years and in 1967 58 per cent of all fishing boats carried this apparatus.

A feature of the Tasmanian fisheries is the use of dual, triple or even quadruple types of equipment from a single boat on the one voyage. Examples of possible combinations are as follows:

Dual—beach seine net and crayfish pot; crayfish pot and long line; jig and long line, etc.

Triple—crayfish pot, gill net and long line; crayfish pot, hand line and jig, etc.

Quadruple—beach seine net, crayfish pot, gill net and long line; crayfish pot, dredge, gill net and long line, etc.

Persons Engaged, Boats and Equipment

The following table shows details of persons and boats employed in the taking of fish, crustaceans and edible molluscs. The data are derived from boat registration records of the State Fisheries Division. The term 'number of crew' refers to the usual number of crew on registered fishing vessels and, lacks the precision of the concept 'average number employed' used in statistics of other production sectors. Many of the fishermen operate part-time only, and may normally follow other occupations:

Fisheries—Number and Value of Boats, Number of Crew, etc.

Length of Boat (feet)	1966			1967		
	Boats		Crew	Boats		Crew
	Number	Value	Number	Number	Value	Number
		\$'000		\$'000	\$'000	
Under 20	126	108	189	95	115	152
20 and under 30 ..	140	389	205	147	413	204
30 and under 40 ..	151	958	288	141	952	267
40 and under 50 ..	120	1,509	268	130	1,818	284
50 and under 60 ..	63	1,316	174	58	1,340	162
60 and under 70 ..	10	384	36	8	255	28
70 and under 85 ..	4	194	14	3	220	10
85 and over	4	381	26	3	94	11
Total	618	5,239	1,200	585	5,207	1,118

The next table indicates the high proportion of relatively new boats now operating in the fishing industry and analyses the 585 boats according to age:

Number of Boats Classified According to Length and Age, 1967

Length of Boat (feet)	When Constructed						
	Before 1930	1930 to 1939	1940 to 1949	1950 to 1954	1955 to 1959	1960 to 1964	1965 to 1967
Under 20	1	2	10	10	10	21	41
20 and under 30 ..	4	10	36	32	18	25	22
30 and under 40 ..	18	18	29	14	20	30	12
40 and under 50 ..	20	7	26	9	12	21	35
50 and under 60 ..	6	3	14	2	8	11	14
60 and under 70 ..	1	1	2	..	2	1	1
70 and under 85 ..	2	..	..	..	..	1	..
85 and over	2	..	1	..	..	..	..
Total	54	41	118	67	70	110	125

Production

Fish Catch

The following table shows the production of the main types of fish caught in Tasmania for a five-year period. The fish types appear in the table without any further description to identify the particular species but a specification of the commoner types appears as an introduction to this section.

Fish—Production by Type
(⁰000 lb Estimated Live Weight) (a)

Type	1963-64	1964-65	1965-66	1966-67	1967-68
Mullet	18	152	34	32	20
Tuna	29	52	67	32	54
Shark	816	659	1,088	1,003	1,600
Australian Salmon ..	850	501	432	942	606
Flathead	43	69	74	119	101
Barracouta	1,409	2,018	3,003	2,286	5,984
Whitebait	21	41	71	95	56
Cod	9	18	20	15	10
Flounder	11	14	28	29	29
Trevally	55	24	21	9	8
Trumpeter	21	29	34	52	34
Gatfish	129	44	46	13	25
Other	18	15	73	199	301
Total	3,429	3,637	4,989	4,826	8,829

(a) Estimated live weights are calculated from landed weights by conversion factors since quantities of fish are reported frequently in a gutted, headed and gutted, or otherwise reduced condition, (e.g. barracouta and shark).

Crustaceans and Molluscs

In terms of value, the most important item in the Tasmanian catch is crayfish and the next table shows details of production of this crustacean and also of molluscs:

Crustaceans and Molluscs—Production by Type

Type	1963-64	1964-65	1965-66	1966-67	1967-68
CRUSTACEANS (⁰ 000 lb Whole Weight)					
Crayfish	3,572	3,336	3,939	4,290	4,031
MOLLUSCS (⁰ 000 lb In-shell Weight)					
Oysters	2				<i>n.p.</i>
Scallops	4,260	2,916	868	753	496
Abalone	72	496	1,600	4,407	6,142
Total	4,334	3,412	2,468	5,160	<i>n.p.</i>

Comparison with Other States

In 1967-68, Tasmania ranked third as a producer of crayfish, the two leading States being W.A. with 66 per cent of the Australian total and S.A. with 16 per cent; the Tasmanian catch was 12 per cent of the total.

The comparatively new Tasmanian abalone fishery in 1967-68 accounted for almost 33 per cent of Australian production of 18,712,000 lb of abalone in the shell. Victoria and South Australia ranked first and third with 39 per cent and 22 per cent respectively.

For many years, Tasmania was the only State of the Commonwealth with a commercial scallop fishery; in 1955-56 Tasmania was joined by Queensland, but continued to retain its dominant position in the industry. In 1963, however, Tasmanian fishermen started a Victorian fishery in beds known to exist in Port Phillip Bay and the new site, in its first year (1963-64), produced more than twice the quantity of the Tasmanian fishery. Tasmanian production in 1967-68 was less than two per cent of the Australian total, the Victorian proportion being 96 per cent.

Catch Landed at Fishing Ports

Distribution of Fish Landed

The table that follows shows the proportion of fish and crayfish landed at Tasmanian fishing ports. The information relates to port of landing only, and not to the area in which catch was made.

**Proportion of Total Fish and Crayfish Landed at Each Port, 1967-68
(Per Cent)**

Port	Fish	Crayfish	Port	Fish	Crayfish
Derwent and Channel			Bass Strait & Islands		
Dover	0.5	6.8	Bridport	13.4	5.6
Gordon .. ..	..	..	Currie	0.2	2.5
Hobart	4.1	6.5	Lady Barron ..	0.2	13.4
Kettering ..	12.4	3.3	Port Sorell ..	3.9	0.7
Margate	12.1	5.0	Smithton .. ..	..	1.2
Southport ..	0.1	2.0	Stanley	6.4	8.7
Woodbridge ..	..	..	'Tamar' (a) ..	1.0	0.1
			Wynyard	0.5	0.1
Total ..	29.2	23.6	Total ..	25.6	32.3
East Coast & Penin- sula—			West Coast—		
Bicheno	2.6	5.3			
Coles Bay ..	0.4	0.2			
St Helens ..	2.1	14.3	Strahan	3.2	8.2
Triabunna ..	11.1	8.2			
Dunalley ..	12.9	5.4			
Port Arthur ..	12.9	2.4			
Total ..	42.0	35.8	Total Tasmania	100.0	100.0

(a) Launceston, Beauty Point and other Tamar Ports.

The next table shows the proportion of the total crayfish catch landed each month:

**Proportion of Crayfish Landed In Each Month
(Per Cent)**

Month	1967	1968	Month	1967	1968
January	15.9	17.7	July	5.9	6.2
February	12.9	12.4	August	4.5	2.9
March	8.1	15.8	September (a) ..	0.9	0.4
April	5.8	2.8	October (a)	0.4	0.2
May	2.3	1.5	November	22.1	13.0
June	4.2	3.4	December	16.9	23.7

(a) Closed season in most waters during these months.

Value of Production—Fishing

The table that follows gives details of gross and local values of edible fisheries products. The following definitions apply:

Gross Value of Production is the value placed on recorded production at the wholesale price realised at the principal markets.

Local Value (i.e. gross production valued at the place of production), is ascertained by deducting marketing costs from the gross value. Marketing costs include freight, cost of containers, commission, and other charges incidental thereto.

Fisheries—Gross and Local Value of Production
(£'000)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Gross Value of Production—					
Fish (a)	312	353	491	512	722
Crustaceans (Crayfish) ..	1,580	2,105	2,557	2,430	2,898
Molluscs	311	229	252	714	1,088
Total	2,203	2,686	3,300	3,656	4,707
Less Marketing Costs	477	492	552	631	860
Local Value of Production	1,726	2,194	2,747	3,024	3,847

(a) Includes value of: (i) seaweed harvested for production of alginate; (ii) oysters from the Tamar oyster farm. Separate figures are not available for publication.

In other production sectors, local value is further reduced by deducting the value of materials used to arrive at the net value of production. For the fishing sector, this is not possible since data on materials used in the course of production are not available. (Petrol and diesel fuel are examples of such materials.)

Marketing

In general terms, it can be said that production of fish, crustaceans and molluscs from the Tasmanian fisheries far exceeds the demand generated by the State's relatively small population; it follows, therefore, that the industry is dependent, in large measure, on its ability to find export markets, both interstate and overseas, and this raises the problem of preserving a perishable product. In the past, shark and barracouta, when caught in large quantities, had actually been sold to orchardists as manure simply because there was no other way of disposing of the glut. Cold storage facilities are now generally available and in addition, canneries offer an alternative method of preservation, the principal cannery being located at Margate in the south. The problem of preservation has three aspects: (i) at sea; (ii) on shore; (iii) in transit to market. Of the 585 registered fishing boats in 1967, 119 boats (i.e. 20 per cent) had refrigeration plant of various kinds. In addition, some catches, e.g. crayfish, can be kept alive in boats' wells. Cold storage facilities ashore serve to hold the catch before its despatch to interstate and overseas markets while actual exports are carried by air, by refrigerated trailer on the roll-on roll-off ferries and in the refrigeration chambers of conventional ships.

The following table shows the value of exports and imports of fishery products. The fact that Tasmania has an exportable surplus, yet nevertheless imports some fishery products, is chiefly due to differences in type; the imported varieties include canned sardines, anchovies, oysters, crabs, etc., together with frozen, salted or smoked varieties of European, New Zealand or South African origin.

**Fishery Products—Value of Exports and Imports
(\$'000)**

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
EXPORTS					
Fish (a) —Overseas	7	17	..	1	5
Interstate	363	233	408	486	491
Crayfish —Overseas	326	693	922	584	571
Interstate	684	597	1,235	1,103	922
Molluscs—Overseas	63	159	101	214	588
Interstate	45	22	21	128	130
All Types—Overseas ..	396	869	1,023	799	1,164
Interstate ..	1,092	852	1,664	1,717	1,544
Total	1,488	1,721	2,687	2,516	2,708
IMPORTS					
Fish—					
Fresh and Frozen—Overseas	145	147	196	176	136
Interstate	60	56	68	84	105
Preserved in Tins—Overseas	89	101	164	110	138
Interstate	164	209	308	364	242
Other (b)—Overseas ..	25	7	32	1	6
Interstate ..	11	11	6	11	7
All Types—Overseas ..	259	255	392	287	280
Interstate ..	235	276	382	459	354
Total	494	531	774	746	634

(a) Includes fresh and frozen fish and fish preserved in tins.

(b) Includes smoked and salted fish and potted fish, extracts and caviare.

**Fisheries Division
(Department of Agriculture)**

Under the *Fisheries Act* 1959, provision is made for a Sea Fisheries Advisory Board to advise the Minister on fisheries except in respect of salmon-trout, eels and whitebait which come under the control of the Inland Fisheries Commission. The Board consists of nine members appointed by the Governor as follows: the Director of Agriculture (or his representative); the Commissioner of Police (or his representative); a representative of Societies interested in the science of Zoology; two representatives of processors; and four representatives of professional fishermen.

Following the formation of the first Liberal-Australian Centre Party coalition government the Division of Sea Fisheries became the responsibility of the Minister for Housing and Fisheries. For the purposes of administration the Division remained under the control of the Director of Agriculture.

Research Programme

There are two basic aims associated with the research work undertaken by the Tasmanian Fisheries Division: (i) to increase the efficiency of the Tasmanian fishing industry; (ii) to develop adequate conservation measures that will ensure survival of the various species of fish, molluscs and crustaceans caught. The following gives details of recent research programmes undertaken by the officers of the Fisheries Division.

Abalone: In June 1966 members of the Fisheries Division began an abalone tagging programme. The abalone were tagged, measured and then released at their original home sites. Some of those tagged were placed in wire cages to facilitate recapture. It is hoped that this programme will yield sufficient information to allow accurate estimates of abalone growth and mortality rates to be made. Preliminary results have already indicated that the abalone is largely sedentary and that their movements are restricted to a few yards. This programme will also assist in determining rates and patterns of natural restocking. Completion of the research programme will be carried out at the Taroona Marine Laboratory.

Crayfish: At present research officers are carrying out an investigation into the relationship between the length and depth of the crayfish carapace (the body portion of the crayfish other than the tail and antennae). An immediate application of this work will be to show what size crayfish will not be able to pass through a given size escape hatch. Research into egg-carrying patterns of the southern crayfish is being carried out with the assistance of commercial fishermen. Fisheries Division officers hope to determine whether there is a recognisable time pattern when female crayfish carry eggs in Tasmanian waters.

Scallops: Principal research work has concentrated on: (i) determining reasons for the decline in the commercial scallop population of the D'Entrecasteaux Channel beds; (ii) discovery of new scallop beds; (iii) determining the relationship between the population dynamics of the commercial and doughboy scallops; (iv) determining growth and mortality rates of the commercial scallop. Regular dredge sampling of the D'Entrecasteaux Channel scallop beds is carried out from the Fisheries Division vessel, the *F.R.V. Penghana*.

Pelagic Fish: In May 1968 a sonar searching programme was commenced in an area stretching from Storm Bay to Schouten Island. The aim of the programme is to determine the seasonal abundance of various fish species in different areas. Work has already indicated that during May and June school fish are most abundant in Storm Bay near the Derwent Estuary and in the Mercury Passage.

The F.R.V. Penghana

In 1968 a closed circuit underwater television system was installed in the Fisheries Division's vessel, the *F.R.V. Penghana*. When filming, the camera of the system can be towed on an underwater sledge or held by a diver. The sledge method of mounting the camera is only suitable where the sea bed is smooth and free from seaweed concentrations.

Taroona Marine Laboratory

The Taroona Marine Laboratory is the third marine research laboratory to be constructed in Australia; the West Australian Department of Fisheries and Fauna has a marine research centre at Waterman, near Fremantle and the C.S.I.R.O. controls a marine laboratory at Sydney. The main building of the Taroona complex houses an aquarium room, two research laboratories, a library-conference room, offices, store rooms, a workshop and garage.

Aquarium room: This is the central feature of the research complex and provides the marine biologist with the opportunity to study live animals.

The aquarium room contains a number of moveable fibreglass tanks; water salinity and temperature can be controlled for each individual tank. Most tanks are three feet by two feet and eighteen inches deep; the absence of large fixed tanks permits maximum flexibility and tanks can be arranged to suit the purposes of each experiment.

Water supply: The intake for the pumping system is situated about 1,000 feet off-shore in almost 40 feet of water. This allows the intake pipe to be positioned at a depth that avoids the low salinity surface layer which contains most pollutants and also minimises the intake of mud and sand. Water is pumped to header tanks and then gravity fed to the aquarium tanks. Because non-ferrous metals are highly toxic and iron has a low resistance to corrosion all pipes and fittings are made of glass, rubber or plastic.

Initial experiments: The Fisheries Division research staff intend to study the effect of water temperature upon the reproduction of crayfish, abalone and scallops. Difficulties associated with reproduction, growth rates and ageing are problems that must be solved to allow rational exploitation of the species.

VALUE OF PRODUCTION

PRIMARY AND SECONDARY INDUSTRIES

Introduction

The value of production for Tasmania and the other Australian States is computed in accordance with the decisions reached at the Conferences of Australian Statisticians, and principally at the Conference held in 1935. The values shown in the tables that follow refer only to the production of primary industries and factories and exclude the building and construction industry, those industrial establishments not classified as factories, and certain agricultural and farmyard operations on areas of less than one acre.

Primary Industries

The following primary industries are those for which data are separately compiled in the value of production tables:

Primary, Rural

Agriculture
Pastoral
Dairying
Poultry
Bee-farming

Primary, Non-Rural

Trapping
Forestry
Fishing
Mining and Quarrying

In respect of these primary industries, the following uniform definitions are employed:

- (i) *Gross Value of Production* is the value placed on recorded production at the wholesale prices realised at the principal markets. In cases where primary products are consumed at the place of production, or where they become raw material for a secondary industry, these points of consumption are presumed to be the principal markets. Subsidies and bounties paid by the State and Commonwealth Governments to primary industries are, in general, included in gross value of production.

- (ii) *Local Value* (i.e. gross production valued at the place of production) is ascertained by deducting marketing costs from the gross value. Marketing costs include freight, cost of containers, commission and other charges incidental thereto.
- (iii) *Net Value of Production* represents local values *less* value of materials used in the process of production. Materials used in the process of production include seed, power, petrol and oils, fodder consumed by farm stock, manures, dips, sprays and other costs of a similar nature. No deductions from local values have been made for depreciation, certain maintenance charges, interest, or some other costs normally incurred.

Secondary Industries (Factories)

To place a value upon the production of factories, the following definitions are employed:

- (i) *Value of Output* is the value of goods manufactured and includes the amount received for repair work, work done on commission, etc. The basis is the selling value *at the factory*, exclusive of all delivery charges.
- (ii) *Value of Production* is the value of output *less* the value (at the factory) of the materials used, containers and packing, power, fuel and light used, tools replaced, and materials used in repairs to plant (but not depreciation charges), insurance, pay-roll tax, income tax, advertising, interest on borrowed money, bad debts and other sundry charges.

In examining values for primary and secondary production, it will be seen that *gross value of production* is a concept confined to primary industries; that *local value* for primary industries is broadly analogous in concept with *value of output* for factories; that *net value of production* for primary industries is comparable with *value of production* for factories, since both are derived by deducting the value of materials used in the process of production, a procedure which eliminates possible duplication of values.

Comparing or Combining Industries

In comparing or combining production values for any of the previous industries, it is logically necessary to use only *net value of production* (primary) and *value of production* (secondary); both *gross* and *local* values will be found unsatisfactory because some degree of duplication will be involved. An obvious example of duplication can occur when the raw material for a factory process is the final product of a farm (e.g. the value of hops is contained in the *gross value of agriculture* and also in the *value of output of factories*, specifically of breweries). The primary-secondary relationship not only involves primary products becoming raw materials for factories but also factory products, (e.g. fertilisers) becoming essential materials for primary industries. Less obvious, perhaps, is the fact that one rural industry may supply the 'raw material' for another rural industry (e.g. hay from *agriculture* consumed by livestock in the *pastoral* and *dairying* industries).

In the following chapter, *gross* and *local* values are shown for the various primary industries; the basic reason for publication is not to facilitate comparison and combination of these values for individual industries, or groups of industries, but rather to show how *net value of production* is computed.

In accordance with the previous definitions, net value of production for primary industries is computed by deducting the cost of materials used in the process of production from the local value. Details of such costs are not available for: (i) bee-farming; (ii) trapping; (iii) forestry; (iv) fishing. In the case of these industries, only local value can be computed.

Sources of Information—Value of Production

Primary Production, Rural

The data used are those concerning quantity of primary production (supplied principally by farmers, etc.) together with information collected from various sources on prices realised in the principal markets for different products, the costs of marketing these products and the costs of certain materials used in their production. Price and cost data are obtained from statutory authorities, (e.g. Dairy Produce Equalisation Committee), market reports, special returns collected from wholesalers, brokers, auctioneers, etc., and from overseas and interstate trade statistics.

Primary Production, Non-Rural

(i) *Trapping*—Principal data are derived from export of skins and information on the annual mutton bird catch.

(ii) *Forestry*—Principal value data are available from the annual factory census, since forestry products are the basic raw material for sawmills, newsprint and paper mills, etc.

(iii) *Fishing*—Quantity data are supplied by fishermen and prices are collected from fish wholesalers and agents.

(iv) *Mining and Quarrying*—Principal value data are supplied by mine operators in the annual mining census.

Secondary Production

Factories—Both quantity and value data are supplied by factories in the annual factory census. Further details will be found in Chapter 8, 'Secondary Industry—Manufacturing'.

Period Covered

Secondary: Year ended 30 June.

Primary Rural: Generally the year ended 30 June but includes current season's production harvested after the 30 June e.g. potatoes.

Primary Non-Rural: Mining and quarrying year ended 31 December; other industries year ended 30 June.

GROSS VALUE OF PRODUCTION

Rural Industries

The Rural Industries are defined, for value of production purposes, to comprise: (i) agriculture; (ii) pastoral; (iii) dairying; (iv) poultry; (v) bee-farming. These industries have no relation, however, to any classification of individual rural holdings on an industry basis; a single holding would, in fact, usually produce several products, some attributable to one and some to another such industry, (e.g. wheat and oats which would be counted in agriculture, wool in pastoral and milk in dairying). The industries represent merely a convenient grouping of the aggregate production of individual products.

Agriculture

The importance of two crops, in terms of gross value, hay and turnips (swede and white) which jointly account for approximately 26 per cent of the total gross value of agriculture emphasises the importance of livestock to the rural industries.

The following table shows quantity and value details for the agricultural industry. Also included in the table is the average value per unit.

Gross Value of Production—Agriculture, 1967-68

Crop	Unit of Quantity	Production	Gross Value	
			Per Unit	Total
Cereals for Grain—			\$	\$'000
Barley	bushels	884,222	1.49	1,314
Oats	bushels	1,013,665	1.00	1,009
Wheat	bushels	316,288	1.46	462
Total Cereals for Grain .. ..	..	..	..	(a) 2,789
Hay	tons	309,099	20.68	6,391
Green Fodder .. .. .	..	..	..	1,165
Field Peas—				
Blue	bushels	93,336	2.58	241
Grey and Other	bushels	26,009	3.14	82
Total Field Peas .. .. .	..	..	..	323
Vegetables for Stock Fodder—				
Horse Beans	bushels	9,559	3.20	31
Turnips (Swede and White) .. ..	..	n.a.	n.a.	5,639
Other .. .. .	..	..	..	16
Total Vegetables for Stock Fodder ..	..	..	..	5,685
Grass Seed—				
Clover	cwt	403	46.29	19
Other	cwt	4,970	18.83	94
Total Grass Seed	cwt	5,373	20.89	112
Industrial Crops—				
Hops (Dry Weight)	lb	3,005,000	0.77	2,303
Mustard	lb	122,136	0.11	13
Total Industrial Crops .. .. .	..	..	..	2,316
Vegetables for Human Consumption—				
Beans—French and Runner	'000 lb	8,792	69.71	613
Peas—Green (Ex-shell)	'000 lb	54,005	53.14	2,870
Potatoes	tons	79,058	48.30	3,818
Turnips	tons	4,256	85.66	365
Total Vegetables for Human Consumption .. .. .	..	..	..	(a) 9,461
Orchard Fruit—				
Apples	bushels	7,943,000	2.10	(b) 15,659
Apricots	bushels	12,300	3.23	40
Pears	bushels	511,000	2.08	(b) 1,061
Total Orchard Fruit .. .. .	..	..	..	(a) 17,825

Gross Value of Production—Agriculture, 1967-68—*continued*

Crop	Unit of Quantity	Production	Gross Value	
			Per Unit	Total
			\$	\$'000
Small Fruit—				
Currants	lb	2,160,000	0.13	287
Loganberries	lb	511,000	0.13	66
Raspberries	lb	2,502,000	0.14	352
Total Small Fruit .. .. .	..	..	..	(a) 790
All Other Crops .. .. .	..	..	..	452
Total Crops .. .. .	..	..	..	47,309

(a) Includes other crops not specified in table.

(b) Includes Government devaluation subsidy paid to exporters of apples (\$1,637,000) and pears (\$206,000).

Average Unit Gross Values

In the next table, average unit gross values for the principal crops are shown for a five-year period. The unit values have been calculated for the principal agricultural products, by dividing the total quantity produced into the total gross value of production for each unit. They therefore represent weighted average 'prices' of the product in all markets (including the farm itself where quantities are retained for farm use; they, therefore, indicate trends rather than prices actually paid to farmers.

Average Unit Gross Value of Principal Crops
(\$)

Crop	Unit	1963-64	1964-65	1965-66	1966-67	1967-68
Cereals for Grain—						
Barley	bushels	1.43	1.39	1.32	1.44	1.49
Oats	bushels	0.76	0.92	0.82	0.88	1.00
Wheat	bushels	1.43	1.33	1.38	1.43	1.46
Hay	tons	16.00	12.77	15.52	16.35	20.68
Field Peas—						
Blue	bushels	3.04	3.19	2.59	2.96	2.58
Grey and Other	bushels	2.78	3.06	2.54	2.16	3.14
Vegetables for Stock						
Fodder—						
Horse Beans ..	bushels	2.94	4.01	3.90	3.14	3.20
Grass Seed—						
Clover	cwt	75.78	62.92	45.22	39.87	46.29
Other	cwt	20.61	20.30	15.29	10.97	18.83
Total Grass Seed	cwt	24.22	24.13	17.84	12.53	20.89
Industrial Crops—						
Hops (dry weight) ..	lb	0.65	0.68	0.71	0.75	0.77
Mustard	lb	0.10	0.11	0.14	0.10	0.11

Average Unit Gross Value of Principal Crops—continued
(£)

Crop	Unit	1963-64	1964-65	1965-66	1966-67	1967-68
Vegetables for Human Consumption—						
Peas—Green (a)	'000 lb	52.12	46.77	43.75	48.91	53.14
Potatoes ..	tons	64.88	117.97	37.39	54.56	48.30
Turnips ..	tons	46.60	62.80	76.41	85.57	85.66
Orchard Fruit—						
Apples ..	bushels	2.04	2.16	1.91	2.37	2.10
Pears ..	bushels	2.26	2.64	1.38	2.42	2.08
Small Fruit—						
Currants ..	lb	0.12	0.10	0.09	0.11	0.13
Raspberries ..	lb	0.10	0.10	0.10	0.11	0.14

(a) Ex-shell.

The following table summarises the gross value of production of agriculture for a five-year period:

Gross Value of Production—Agriculture
(\$'000)

Crop	1963-64	1964-65	1965-66	1966-67	1967-68
Cereals for Grain	1,927	1,703	1,965	2,497	2,789
Hay	3,987	4,654	3,991	7,145	6,391
Green Fodder	916	818	963	1,202	1,165
Field Peas	544	595	382	417	323
Vegetables for Stock Fodder ..	4,495	3,824	4,813	4,856	5,685
Grass Seed	178	481	95	147	112
Industrial Crops	1,038	1,440	2,191	1,581	2,316
Vegetables for Human Consumption	7,436	10,820	6,747	9,390	9,461
Orchard Fruit	19,042	15,199	17,874	16,091	17,825
Small Fruit	888	707	749	797	790
All Other Crops	497	633	752	803	452
Total All Crops ..	40,948	40,875	40,523	44,925	47,309

Three items in the previous table illustrate forcibly the duplication in values which can result from combining gross values of production for individual industries. The items are: (i) hay; (ii) green fodder; (iii) vegetables for stock fodder, all being 'raw materials' for the pastoral and dairying industries.

Pastoral, Dairying, Poultry and Bee-farming

For value of production purposes, the pastoral industry is taken to comprise the three products—wool (including wool on skins), cattle (other than culled dairy cows and bobby calves) slaughtered, and sheep and lambs slaughtered. ('Bobby' calves are calves sold as soon as practicable after birth.) Dairying is taken to comprise the three products—milk, dairy cattle (culled cows and bobby calves) slaughtered, and pigs slaughtered. Poultry comprises eggs and poultry slaughtered, and bee-farming honey and bees-wax produced.

The prime source of data on livestock slaughtered is information supplied by slaughtering establishments, supplemented by farmers' annual census returns

giving details of slaughtering on farms. As sufficiently detailed information is not available on the types of cattle slaughtered to enable a precise dissection of total slaughterings to be made between the pastoral and dairying industries, data on the known culling rate in dairy herds are also used for this purpose.

The table that follows gives details of the gross value of production for each of the products of these industries:

Gross Value of Production—Pastoral, Dairying, Poultry and Bee-farming
(£'000)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Pastoral—					
Shorn Wool (including Crutchings)	19,359	17,411	20,399	19,393	14,498
Other Wool (a)	1,993	1,639	2,006	1,590	1,111
Sheep and Lambs Slaughtered (b) (c)	4,662	5,640	6,382	6,418	5,396
Cattle Slaughtered (b) (d)	6,831	8,542	8,563	10,139	9,816
Total	32,844	33,233	37,350	37,540	30,821
Dairying—					
Milk	18,367	19,416	19,100	19,956	19,828
Cattle Slaughtered (d)	1,418	1,662	1,854	1,977	2,017
Pigs Slaughtered (b)	3,687	4,156	4,490	4,833	5,018
Total	23,472	25,234	25,445	26,766	26,862
Poultry—					
Eggs	3,198	3,518	3,724	4,270	4,229
Poultry Slaughtered	567	692	690	814	914
Total	3,765	4,210	4,414	5,083	5,143
Bee-farming—					
Honey	113	122	86	50	118
Beeswax	3	9	7	3	5
Total	116	131	92	53	123

(a) Dead, fellmongered and wool exported on skins.

(b) Includes adjustment for net exports of livestock.

(c) Excluding value of wool on skins.

(d) Culled dairy cows and bobby calves slaughtered are allocated to dairying; all other cattle slaughtered to pastoral.

The next table shows the average unit gross value of livestock slaughtered (other than calves):

Average Unit Gross Value of Livestock Slaughtered
(£)

Livestock	1963-64	1964-65	1965-66	1966-67	1967-68
Cattle (Other than Calves) ..	65.03	78.02	88.86	91.51	87.84
Sheep	4.44	5.95	5.73	5.40	3.57
Lambs	6.77	7.80	7.92	7.39	7.16
Pigs	29.88	30.60	30.41	32.11	34.77

The average unit gross values for the various types of livestock slaughtered shown in the above table, are based on data collected from selected licensed slaughtering establishments. Information collected shows the total number and value of each of the above livestock categories purchased for slaughter.

An adjustment is made to the value of animals slaughtered to allow for the net export of livestock from the State. Otherwise, no allowance is made in the pastoral and dairying industries for: (i) the raising of livestock or their sale, except at the point of slaughter; (ii) changes in livestock inventories.

Primary Industries

The following table brings together gross values of production for all primary industries for a five-year period:

Gross Value of Production—Primary Industries
(\$ million)

Industry	1963-64	1964-65	1965-66	1966-67	1967-68
Agriculture	40.9	40.9	40.5	44.9	47.3
Pastoral	32.8	33.2	37.4	37.5	30.8
Dairying	23.5	25.2	25.4	26.8	26.9
Poultry	3.8	4.2	4.4	5.1	5.1
Bee-farming	0.1	0.1	0.1	0.1	0.1
Total Rural.. .. .	101.1	103.7	107.8	114.4	110.3
Trapping.. .. .	0.5	0.4	0.4	0.5	0.5
Forestry	13.7	15.3	16.0	16.6	17.2
Fishing	2.2	2.7	3.3	3.7	4.7
Mining and Quarrying ..	23.4	28.5	32.8	39.3	38.7
Total Non-Rural	39.8	46.9	52.5	60.1	61.1
Total Primary	140.9	150.6	160.3	174.5	171.4

NET VALUE OF PRODUCTION—ALL RECORDED INDUSTRIES

Definition

In the preliminary section dealing with definitions, it was emphasised that *gross values of production* are unsuitable for making comparisons or for combining individual industries or groups of industries. In fact, it is impossible to make a comparison between gross value of production for primary industries and for factories, since gross value of production is not collected for factories; the primary-secondary comparison (or combination) can only be made on the basis of *net value of production* (primary industries) and *value of production* (factories).

Net Value, 1967-68

The next table shows, in detail, the method whereby gross values (primary industries) are reduced to local values and then further reduced to net values; also, the reduction of value of output (factories) to value of production. It will be noted that the combination of primary and secondary industries is made only in respect of the final column, where the net value of production (primary) is added to the value of production (factories).

Value of Production—All Recorded Industries, 1967-68
(\$ million)

Industry	Gross Production Valued at Principal Market	Less Marketing Costs	Local Value, (i.e. Gross Production Valued at Place of Production)	Less Cost of Materials, Fuel, etc. Used	Net Value of Production
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PRIMARY

Rural—					
Agriculture ..	47.3	11.7	35.6	6.3	29.3
Pastoral	30.8	2.1	28.7	16.2	12.5
Dairying	26.9	1.5	25.4	7.1	18.2
Poultry	5.1	0.1	5.1	2.4	2.7
Bee-farming (a) ..	0.1	..	0.1	n.a.	0.1
Total Rural ..	110.3	15.4	94.8	32.1	62.7
Non-Rural—					
Trapping (a) ..	0.5	..	0.4	n.a.	0.4
Forestry (a) ..	17.2	2.4	14.8	n.a.	14.8
Fishing (a) ..	4.7	0.9	3.8	n.a.	3.8
Mining & Quarry- ing	38.7	4.0	34.7	9.5	25.2
Total Non-Rural	61.1	7.4	53.7	9.5	44.3
Total Primary ..	171.4	22.8	148.6	41.6	107.0

SECONDARY

Industry	Value of Output	Less Cost of Materials, Fuel, etc. Used	Value of Production
Factories	445.1	247.1	198.0

ALL INDUSTRIES

Net Value of Production, Primary and Secondary Industries	305.0
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General Note: Reference is made to value definitions in the introduction to this section.

(a) Gross and local values available, but production costs not available.

Cost of Materials, Fuel, etc. Used

In the previous table, *local value* has been reduced to *net value of production* (primary) and *value of output* to *value of production* (factories); in each case, the process involved deduction of certain costs. Full details of factory costs appear in Chapter 8, 'Secondary Industry—Manufacturing'; the following table has been compiled to show details of those costs taken into account in primary industries.

Primary Industries—Recorded Costs, 1967-68
(\$'000)

Cost Item	Agriculture	Pastoral	Dairying	Poultry	Mining and Quarrying	Total
RURAL						
Seed	1,687	360	154	..	..	2,201
Fertilisers	1,448	2,943	1,261	..	..	5,652
Spraying, Sheep-Dip	1,128	145	31	..	..	1,304
Stock Feed	122	11,918	4,920	2,295	..	19,256
Water for Irrigation	204	80	80	..	..	364
Power, Fuel & Light	1,737	769	690	129	..	3,324
Total Rural ..	6,325	16,215	7,137	2,424	..	32,101
NON-RURAL						
Total (a) ..	..	..	..	..	9,487	9,487
RURAL AND NON-RURAL (b)						
Total Primary	6,325	16,215	7,137	2,424	9,487	41,589

(a) Includes power, fuel and light (\$1,123,000) and cost of repairs, timber, explosives and other expendable stores used in mining and quarrying (\$8,365,000).

(b) Costs not available for bee-farming, trapping, forestry and fishing.

Net Value—Summary

The next table summarises, for a five-year period, the net value of production for all recorded industries.

Net Value of Production—All Recorded Industries
(\$ million)

Industry	1963-64	1964-65	1965-66	1966-67	1967-68
Primary, Rural—					
Agriculture	25.7	27.2	23.1	29.4	29.3
Pastoral	19.6	21.0	22.3	21.6	12.5
Dairying	16.8	19.0	18.0	19.2	18.2
Poultry	1.3	1.6	1.8	2.8	2.7
Bee-farming (a)	0.1	0.1	0.1	..	0.1
Total Rural	63.4	69.0	65.3	72.9	62.7
Primary, Non-Rural—					
Trapping (a)	0.5	0.4	0.3	0.5	0.4
Forestry (a)	11.6	13.3	13.8	14.3	14.8
Fishing (a)	1.7	2.2	2.7	3.0	3.8
Mining and Quarrying ..	14.5	18.2	20.3	25.8	25.2
Total Non-Rural ..	28.3	34.0	37.2	43.7	44.3
Total Primary ..	91.7	103.1	102.5	116.6	107.0
Secondary—					
Factories	152.6	167.3	175.6	194.6	198.0
Total Industries ..	244.2	270.3	278.1	311.1	305.0

(a) Local value of production.

The next table covers the decade ending in 1959-60 and shows the emerging dominance of secondary industry.

Net Value of Production to 1959-60: Primary-Secondary Industry Comparison

Year	Primary		Secondary		Total Net Value
	Net Value	Proportion of Total	Net Value	Proportion of Total	
	\$'000	per cent	\$'000	per cent	\$'000
1950-51	66,947	57.6	49,229	42.4	116,176
1951-52	69,418	53.8	59,588	46.2	129,006
1952-53	69,099	53.1	60,997	46.9	130,096
1953-54	65,427	49.7	66,129	50.3	131,556
1954-55	74,213	49.3	76,228	50.7	150,441
1955-56	87,417	48.8	91,862	51.2	179,280
1956-57	79,181	44.9	97,365	55.1	176,546
1957-58	77,078	42.6	103,660	57.4	180,739
1958-59	70,216	39.3	108,602	60.7	178,818
1959-60	75,808	38.6	120,392	61.4	196,201

Tasmania and Australia Compared

Some indicator other than comparison with previous years is needed. Probably the most significant measure is the comparison between the net values of production for all recorded Tasmanian industries and those for Australia as a whole.

Net Value of Production: Tasmania and Australia

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68 (a)
NET VALUE OF PRODUCTION—ALL RECORDED INDUSTRIES (\$ million)					
Tasmania	244.2	270.3	278.1	311.1	305.0
Australia	78,400.2	79,072.0	79,328.4	710,397.1	10,593.0

TASMANIAN PROPORTION OF AUSTRALIAN TOTAL
(per cent)

Primary, Rural—					
Agriculture	2.8	2.8	2.7	2.4	3.2
Pastoral	1.5	1.7	1.9	1.8	1.2
Dairying	5.1	5.3	5.2	5.2	4.8
Poultry	2.0	3.1	2.8	4.0	4.7
Bee-farming (b)	2.1	2.9	2.4	1.3	2.4
Total Rural	2.4	2.6	2.6	2.6	2.6
Primary, Non-Rural—					
Trapping (b)	3.6	3.1	2.5	4.2	3.8
Forestry (b)	11.3	11.9	12.1	12.8	13.6
Fishing (b)	5.5	5.7	6.6	6.7	7.2
Mining and Quarrying	4.4	4.6	4.6	5.0	4.5
Total Non-Rural	6.0	6.1	6.1	6.4	6.0
Total All Primary	2.9	3.2	3.3	3.3	3.4
Secondary—					
Factories	2.9	2.8	2.8	2.8	2.7
Total Industries	2.9	3.0	3.0	3.0	2.7

(a) Australian figures are preliminary estimates.

(b) Local value of production.

Tasmanian-Australian Comparison

Taking into account Tasmania's proportion of the Australian population (3.2 per cent), and examining the 1967-68 comparison in the previous table, it is immediately apparent which are Tasmania's most important industries *on a national scale*. In order, they appear to be forestry, fishing, dairying, poultry and mining; again *on a national scale*, the non-rural group of primary industries appears to be more significant than the rural group.

Leaving aside the question of Tasmania's contribution to the Australian total, the State's most important activity in terms of net value of production is secondary industry (factories), followed by agriculture, mining, pastoral, dairying and forestry in that order.

Chapter 8

SECONDARY INDUSTRY—MANUFACTURING

FACTORIES

Historical

The evolution of Tasmanian farming is described in continuous annual statistics from 1818 but the early records relating to factories are extremely meagre. While the early colonial statisticians had immediately put on record such fundamental measures as acreages, crop yields and livestock numbers, they were content, in the matter of factories, to merely classify and count the number of establishments. Some concept of early manufacturing activity can be derived from the following table which has been adapted from the *Statistical Returns of Van Diemen's Land, 1824 to 1839*:

Comparative Account of Manufactories and Trades in Van Diemen's Land

Description of Establishment	Number of Establishments		Description of Establishment	Number of Establishments	
	1824	1838		1824	1838
Agricultural Implement Makers .. ..	..	9	Mills, Steam .. ..	..	3
Breweries	3	19	Mills, Water and Wind..	5	51
Candle Makers .. ..	..	4	Potteries .. ..	..	1
Cooperages .. ..	..	9	Printing Offices	1	8
Coachmakers .. ..	..	2	Ropemakers	1	1
Distilleries	1	4	Sailmakers	1	5
Dyers .. ..	..	2	Sawmills	1	2
Engineers .. ..	..	7	Shipwrights .. ..	..	5
Fellmongers	2	4	Snuff Makers .. ..	..	1
Foundries .. ..	..	3	Soap Makers	1	1
Furriers .. ..	..	2	Tanners	6	15
Mast and Block Makers..	..	1	Wool Staplers .. ..	..	3

The grinding of wheat for flour gave rise to the first demand for power, the original solution being water mills and windmills followed by use of the steam engine (the first steam mill commenced in 1831). Later records refer to 'mills, horse-driven', the beast being driven around an endless circle. The relation between early factory activity and the farming and whaling economy in which it grew is indicated by the fact that, in the table, five of the descriptions (fellmongers, etc.) refer to processing of animal products, four (shipwrights, etc.) to the construction and maintenance of ships and two (breweries, etc.) to the making of alcoholic beverages for which there were nearly as many licensed outlets as exist today.

The *Account of Manufactories and Trades*, on a simple establishment basis similar to the last table, was published annually right throughout the 19th century and is at least a guide to the introduction of new industries and new skills to the State.

The presentation of factory statistics, in the private sector, on a simple establishment basis failed to answer a number of questions such as the number of employees, the quantities produced, the value of output, the capital invested, etc., and this lack of information persisted until 1882 when the Government Statistician began publishing quantity, value and employment data for jam factories and breweries; the coverage of industries was then gradually expanded until, by 1911, publication had commenced of annual factory statistics showing most of the basic information sought in current collections.

Some indication of the transformation of Tasmania from an essentially rural economy is given in the following table in which the proportion of the work force engaged in manufacturing activities is compared in the period commencing with 1911:

Employment in Tasmanian Factories Compared with Total Work Force

Particulars	1911	1933	1947	1954	1961	(a) 1966
Work Force (b)—						
Males ..	61,182	69,226	80,201	93,976	101,289	106,557
Females ..	13,343	16,861	20,117	24,232	29,628	40,765
Persons ..	74,525	86,087	100,318	118,208	130,917	147,322
Factory Employment (c)—						
Males ..	8,737	7,147	16,186	20,249	24,811	28,041
Females ..	1,561	2,086	3,751	4,340	5,347	6,274
Persons ..	10,298	9,233	19,937	24,589	30,158	34,315
Factory Employment as Percentage of Work Force—						
Males ..	14.3	10.3	20.2	21.5	24.5	26.3
Females ..	11.7	12.4	18.6	17.9	18.0	15.4
Persons ..	13.8	10.7	19.9	20.8	23.0	23.3

(a) Work force figures in 1966 not strictly comparable with those for previous years; see 'Employment' section of Chapter 10, 'Labour, Prices and Wages'.

(b) Source: censuses of population in years shown; includes employers and self-employed.

(c) Average number of persons engaged, including working proprietors, as reported in the annual factory census for 1911 and those for financial years ending in 1933, 1947, 1954, 1961 and 1966.

Electric Power and Industrialisation

In 1900, the Government Statistician published operational details of Tasmania's chief manufacturing industries; these read in part as follows (with specification of the number of 'hands' employed): Sawmills, 920 hands; Jam Factories, 499; Boot Factories, 364; Brickyards and Potteries, 247; Woollen Mills, 177; Tanneries and Fellmongeries, 131; Flour Mills, 126; Breweries, 97; Butter Factories, 92; Fruit-drying, 76; Soap and Candle Factories, 57; Bark Mills, 33; Bacon Factories, 18. At this point in time, virtually all power was generated by steam engine on the factory site, the alternative sources such as 'gas, oil and electricity' being very little used. A year later the establishment of the Commonwealth of Australia introduced free trade between the States and this deprived Tasmanian industries of the protection which they had previously enjoyed. The free importation of Australian manufactures, chiefly from Victoria, brought about a period of stagnation and inhibited the further development of manufacturing industry within the State; loss of population by migration to other parts of Australia in each decade up to World War II reflected the lack of employment opportunities which an expansion of manufacturing activity would have provided.

If no new factor had been introduced in the years after Federation, the probability is that Tasmania would have maintained a predominantly rural economy, diversified to a limited extent by sawmilling and mining. In these circumstances, employment opportunities would have been severely restricted and the more industrialised continental States would have continued to rapidly drain off the island's population growth attributable to natural increase. The new factor that eventually transformed the State's economy was hydro-electric power but its possibilities could not be exploited without heavy capital expenditure and massive construction works, all of which required time. It is paradoxical, therefore, that the first major hydro-electric construction works were initiated in a period of stagnation immediately prior to World War I, and that the second major construction phase was pushed forward during the 1930s when the State's factory activity was at a very low ebb due to the general economic depression.

The key to the further industrialisation of Tasmania was its abundant supply of water at high level in the central plateau and the State's industrial revolution may be thought as beginning in 1916 when the Waddamana turbines below the Great Lake began operating; from the initial 10,000 horsepower then developed, the hydro-electric system has expanded to today's capacity of nearly 1.02m kW. The availability of cheap electric power resulted in the establishment of new types of industry, some on a very large scale; examples are: electrolytic zinc production, 1917; carbide manufacture, 1918; cement manufacture, 1930; fine paper production, 1938; newsprint production, 1941; aluminium production, 1955; ferro-manganese production, 1962. The introduction of pulp and paper manufacture is a special case to the extent that changes in technology made possible the use of native hardwoods for the first time; the production of a suitable pulp from eucalypts was pioneered in Tasmania before plants were established in other Australian States.

Given that electrical power is cheap and usually abundant, the question arises as to why the industrialisation of the State has not progressed further. The two obvious impediments to the rapid introduction of new enterprises are the small size of the local market and the costs of transportation to the principal markets in the continental States. The weighing of these factors, (i.e. cheaper power against possibly higher transportation costs), has naturally had the effect of attracting industries requiring large quantities of power. Such undertakings are not necessarily large employers of labour so it is possible that industrialisation, measured by capital investment and electrical power consumption, may have progressed more rapidly than industrialisation measured by involvement of the work force in factory activities.

Without this advantage in electrical power, Tasmania would be largely restricted to an economy based on its own primary products—and even these, in many cases, would need to be processed in other Australian States. With it, Tasmania is not only capable of processing its own primary products but also of importing raw materials (e.g. the ores and concentrates used at Risdon and Bell Bay) for its own manufacturing industries.

FACTORY STATISTICS

Definitions in Factory Statistics

The statistics dealing with factories have been compiled from returns collected under the authority of the Commonwealth *Census and Statistics Act* and supplied annually by manufacturers. A return must be supplied for every

factory, which is defined for this purpose as an establishment where four or more persons are employed or where power (other than manual) is used in any manufacturing process.

If a manufacturing business is conducted in conjunction with any other activity, particulars relating to the manufacturing section only are included in the statistics. Where two or more industries are conducted in the same establishment, a separate return is obtained for each industry, if practicable.

Manufacturers are required to state in their returns particulars of the number, wages, etc. of their employees, the value of premises and equipment and of factory stocks, the horsepower of machinery, the value, and, in many cases, the quantities of raw materials and fuel used, and quantities and values of principal articles produced. The returns obtained from manufacturers are not intended to show a complete record of the income and expenditure of factories nor to show the profits or losses of factories collectively or individually.

Employment Definitions

The average number of persons employed is compiled on two different bases: the average during the period of operation, and the average over the whole year. The former is simply the aggregate of the average number of persons employed in each factory during its period of operation (whether the whole or only part of the year). This average is used only for details dealing with the classification according to the number of persons employed. The latter, which is used in all other instances, is calculated by reducing the average number working in the factories to the equivalent number working for a full year.

Value Definitions

The value of factory output is the value of goods manufactured or their value after passing through the particular process of manufacture, and *includes the amount received for repair work*, work done on commission and receipts for other factory work. The basis of the valuation of the output is the selling value of the goods at the factory, exclusive of all delivery costs and charges and excise duties, but inclusive of Government bounty and subsidy payments.

The value of production is the value added to raw materials by the process of manufacture. It is calculated by deducting from the value of factory output the value (at the factory) of those items of cost, other than wages and salaries, specified on the factory statistical collection form, namely materials used, containers and packing, power, fuel and light used, tools replaced, and materials used in repairs to plant (but not depreciation charges); the remainder so derived is the value added to raw materials and represents the amount available for wages, taxation, rent, interest, insurance, etc. and profit.

Avoidance of Duplication in Values: Because of the duplication of materials used (which means that the finished product of one process of manufacture often forms raw material for another), an inaccurate impression would be obtained by using the value of factory output in inter-industry and in year-to-year comparisons. Woollen manufactures will illustrate the point. Greasy wool forms the raw material for the woolscouring industry, the product of which is scoured wool. This is afterwards combed into wool tops which are used in the spinning mills for the manufacture of yarn. In due course, the yarn is woven into cloth, the raw material for the clothing industry. If these processes are carried out separately in different factories, it is evident that the value of the wool would be counted at each of the five stages of manufacture, assuming value of output was used as the basis for comparisons.

Classification of Factories

It should be noted that where a factory, engaged in the production of such goods as would entitle it to a classification in more than one sub-class of industry, is unable to give separate production costs, etc. for such activities, it is classified to its predominant activity. The concept of manufacturing is broadened in many fields to include repair work and some sub-classes of the basic classification which follows shortly are specifically reserved for repairing (e.g. IV-10 'Motor Vehicles—Repairs') while others include both construction and repair work (e.g. IV-7 'Construction and Repair, Tramcars and Railway Rolling Stock').

Classification of Factories Showing Number in Each Class and Sub-Class of Industry
1967-68

Class and Sub-Class						Number of Fac- tories
<i>Class I. Treatment of Non-Metalliferous Mine and Quarry Products</i>						
1.	Coke Works	..	..	..	..	..
2.	Briquetting and Pulverised Coal	..	..	..	..	..
3.	Carbide	..	..	..	..	1
4.	Lime, Plaster of Paris, Asphalt	..	..	..	..	7
5.	Fibrous Plaster and Products	..	..	..	..	9
6.	Marble, Slate, etc...	..	..	..	..	3
7.	Cement, Portland	..	..	..	..	1
8.	Asbestos Cement Sheets and Mouldings	..	..	..	..	1
9.	Other Cement Goods	..	..	..	..	36
10.	Other	..	..	..	..	..
Class Total I						58
<i>Class II. Bricks, Pottery, Glass, etc.</i>						
1.	Bricks and Tiles	..	..	..	..	10
2.	Earthenware, China, Porcelain, Terra Cotta	..	..	..	..	3
3.	Glass (other than Bottles)	..	..	..	..	7
4.	Glass Bottles	..	..	..	..	1
5.	Other	..	..	..	..	..
Class Total II						21

Classification of Factories Showing Number in Each Class and Sub-Class of Industry,
1967-68—continued

Class and Sub-Class	Number of Fac- tories
<i>Class III. Chemicals, Dyes, Explosives, Paints, Oils, Grease</i>	
1. Industrial and Heavy Chemicals and Acids	6
2. Pharmaceutical and Toilet Preparations .. .. .	..
3. Explosives (including Fireworks)	1
4. Whitelead, Paints, Varnishes	4
5. Oils, Vegetable .. .. .	..
6. Oils, Mineral	2
7. Oils, Animal .. .. .	..
8. Boiling Down, Tallow Refining	10
9. Soap and Candles	2
10. Chemical Fertilisers	6
11. Inks, Polishes, etc. .. .. .	..
12. Matches .. .. .	..
13. Other .. .. .	..
Class Total III	31
<i>Class IV. Industrial Metals, Machines, Conveyances</i>	
1. Smelting, Converting, Refining, Rolling of Iron and Steel ..	1
2. Foundries (Ferrous)	3
3. Plant, Equipment and Machinery, incl. Machine Tools ..	39
4. Other Engineering	87
5. Extracting and Refining of Other Metals; Alloys	4
6. Electrical Machinery, Cables and Apparatus	25
Construction and Repair of Vehicles—	
Tramcars and Railway Rolling Stock—	
7. Government and Municipal	4
8. Other	1
Motor Vehicles—	
9. Construction and Assembly	1
10. Repairs	364
11. Motor Bodies	70
12. Horse Drawn Vehicles .. .. .	..
13. Motor Accessories	4
14. Aircraft	2
15. Cycles, Foot and Hand Driven, and Accessories	3
16. Other Conveyances .. .. .	..
Ship and Boat Building and Repairing, Marine Engineering—	
17. Government .. .. .	..
18. Other	13
19. Cutlery and Small Hand Tools	1
20. Agricultural Machines and Implements	11
Non-ferrous Metals—	
21. Rolling and Extrusion .. .. .	..
22. Founding, Casting, etc.	8
24. Sheet Metal Working, Pressing and Stamping	32
25. Pipes, Tubes and Fittings—Ferrous .. .. .	..
26. Wire and Wire Working (incl. Nails)	9
27. Stoves, Ovens and Ranges	1
28. Gas Fittings and Meters .. .. .	..
29. Lead Mills .. .. .	..
30. Sewing Machines	1
31. Arms, Ammunition (excl. Explosives) .. .. .	..
32. Wireless and Amplifying Apparatus	12
33. Other Metal Works	2
Class Total IV	698
<i>Class V. Precious Metals, Jewellery, Plate</i>	
1. Jewellery .. .. .	..
2. Watches and Clocks (incl. Repairs)	14
3. Electroplating (Gold, Silver, Chromium, etc.)	5
Class Total V	19

**Classification of Factories Showing Number in Each Class and Sub-Class of Industry,
1967-68—continued**

Class and Sub-Class	Number of Fac- tories
<i>Class VI. Textiles and Textile Goods (not Clothing except Knitted)</i>	
1. Cotton Ginning .. .. .	..
2. Cotton Spinning and Weaving .. .. .	..
3. Wool: Carding, Spinning, Weaving	6
4. Hosiery and Other Knitted Goods	5
5. Silk, Natural .. .. .	..
6. Rayon, Nylon and Other Synthetic Fibres	3
7. Flax Mills .. .. .	..
8. Rope and Cordage .. .. .	..
9. Canvas Goods, Tents, Tarpaulins, etc.	7
10. Bags and Sacks .. .. .	..
11. Textile Dyeing, Printing and Finishing	1
12. Other	2
Class Total VI	24
<i>Class VII. Skins and Leather (not Clothing or Footwear)</i>	
Furs, Skins, Leather—	
1. Furriers and Fur Dressing .. .. .	..
2. Woolscouring and Fellmongery	1
3. Tanning, Currying and Leather Dressing	1
Saddlery, Harness, Bags, Trunks and Other Goods of Leather and Leather Substitutes—	
4. Saddlery, Harness and Whips	2
5. Machine Belting (Leather or Other) .. .. .	..
6. Bags, Trunks and Other Goods of Leather and Leather Substitutes	1
Class Total VII	5
<i>Class VIII. Clothing (except Knitted)</i>	
1. Tailoring and Ready-made Clothing	13
2. Waterproof and Oilskin Clothing .. .. .	..
3. Dressmaking, Hemstitching	1
4. Millinery .. .. .	..
5. Shirts, Collars, Underclothing .. .. .	..
6. Foundation Garments .. .. .	..
7. Handkerchiefs, Ties, Scarves	1
8. Hats and Caps .. .. .	..
9. Gloves .. .. .	..
10. Boots and Shoes (not Rubber)	2
11. Boot and Shoe Repairing	32
12. Boot and Shoe Accessories .. .. .	..
13. Umbrellas and Walking Sticks .. .. .	..
14. Dyeworks and Cleaning (incl. Renovating and Repairing)	32
15. Other	1
Class Total VIII	82
<i>Class IX. Food, Drink and Tobacco</i>	
1. Flour Milling	5
2. Cereal Foods and Starch	2
3. Animal and Bird Foods	8
4. Chaffcutting and Corncrushing .. .. .	..
5. Bakeries (incl. Cakes and Pastry)	127
6. Biscuits	1
7. Sugar Mills .. .. .	..
8. Sugar Refining .. .. .	..
9. Confectionery (incl. Chocolate and Icing Sugar)	8
10. Jam, Fruit and Vegetable Canning	17
11. Pickles, Sauces, Vinegar	1
12. Bacon Curing	11
13. Butter Factories	12
14. Cheese Factories	7

**Classification of Factories Showing Number in Each Class and Sub-Class of Industry,
1967-68—continued**

Class and Sub-Class	Number of Factories
<i>Class IX. Food, Drink and Tobacco—continued</i>	
15. Condensed and Dried Milk Factories	4
16. Margarine	1
17. Meat and Fish Preserving	15
18. Condiments, Coffee, Spices	3
19. Ice and Refrigerating	30
20. Salt .. .. .	..
21. Aerated Waters, Cordials, etc.	12
22. Breweries	2
23. Distilleries .. .. .	..
24. Winemaking	1
25. Cider and Perry	1
26. Malting	2
27. Bottling .. .. .	..
28. Tobacco, Cigars, Cigarettes, Snuff .. .. .	..
29. Dehydrated Fruit and Vegetables	4
30. Ice Cream	2
31. Sausage Skins	2
33. Other	1
Class Total IX	279
<i>Class X. Sawmills, Joinery Works, Boxes and Cases, Woodturning and Woodcarving</i>	
1. Sawmills	274
2. Plywood Mills (incl. Veneers)	1
3. Bark Mills	1
4. Joinery	105
5. Cooperage	3
6. Boxes and Cases	8
7. Woodturning, Woodcarving, etc.	4
8. Basketware and Wickerware, (incl. Seagrass and Bamboo Furniture)	2
9. Perambulators (incl. Pushers and Strollers) .. .. .	..
10. Wall and Ceiling Boards (not Plaster or Cement)	2
11. Other	3
Class Total X	403
<i>Class XI. Furniture of Wood, Bedding, etc.</i>	
1. Cabinet and Furniture Making (incl. Billiard Tables and Upholstery)	53
2. Bedding and Mattresses (not Wire)	6
3. Furnishing Drapery .. .. .	..
4. Picture Frames .. .. .	..
5. Blinds	6
Class Total XI	65
<i>Class XII. Paper, Stationery, Printing, Bookbinding, etc.</i>	
1. Newspapers and Periodicals	5
2. Printing, Government	2
3. Printing, General, incl. Bookbinding	31
4. Manufactured Stationery .. .. .	..
5. Stereotyping, Electrotyping .. .. .	..
6. Process and Photo Engraving .. .. .	..
7. Cardboard Boxes, Cartons and Containers	3
8. Paper Bags	3
9. Paper Making	4
10. Pencils, Penholders, Chalks, Crayons .. .. .	..
11. Other	2
Class Total XII	50

**Classification of Factories Showing Number in Each Class and Sub-Class of Industry,
1967-68—continued**

Class and Sub-Class						Number of Fac- tories
<i>Class XIII. Rubber</i>						
1. Rubber Goods (incl. Tyres Made)	..	..	..	..	..	19
2. Tyre Retreading and Repairing	..	..	..	..	..	19
Class Total XIII	..	..	..	..	..	19
<i>Class XIV. Musical Instruments</i>						
1. Gramophones and Gramophone Records	..	..	..	..	..	..
2. Pianos, Piano Players, Organs	..	..	..	..	..	..
3. Other	..	..	..	..	..	..
Class Total XIV	..	..	..	..	..	..
<i>Class XV. Miscellaneous Products</i>						
1. Linoleum, Leathercloth, Oilcloth, etc.	..	..	..	..	..	..
2. Bone, Horn, Ivory and Shell	..	..	..	..	..	..
3. Plastic Moulding and Products	..	..	..	..	..	4
4. Brooms and Brushes	..	..	..	..	..	2
5. Optical Instruments and Appliances	..	..	..	..	..	4
6. Surgical and Other Scientific Instruments and Appliances	..	..	..	..	..	2
7. Photographic Material (incl. Developing and Printing)	..	..	..	..	..	1
8. Toys, Games and Sports Requisites	..	..	..	..	..	2
9. Artificial Flowers	..	..	..	..	..	..
10. Other	..	..	..	..	..	5
Class Total XV	..	..	..	..	..	20
<i>Class XVI. Heat, Light and Power</i>						
Electric Light and Power—						
1. Government	..	..	..	..	..	19
2. Local Authority	..	..	..	..	..	..
3. Companies	..	..	..	..	..	2
Gasworks—						
4. Government	..	..	..	..	..	..
5. Local Authority	..	..	..	..	..	..
6. Companies	..	..	..	..	..	2
Class Total XVI	..	..	..	..	..	23
Grand Total—All Classes	..	..	..	..	..	1,797

Summary of Factory Statistics

In the tables that follow, factory statistics, where appropriate, are presented in terms of the class of industry. However, our section entitled 'Individual Industries' is devoted to summary tables for the more important sub-classes of industry for which details are available for publication. (Further details for individual sub-classes appear in the bulletin *Secondary Industries and Building*, a publication of the Tasmanian Office of the Bureau of Census and Statistics.)

The next table has been compiled to show factory development over a long period as measured by number of factories, employment, value of

production, etc. In making comparisons over so long a period, account should be taken of changes in the purchasing power of money.

Development of Factories from 1911—Selected Years

Year	Number of Factories	Average Number of Persons Engaged (a)	Salaries and Wages Paid (b)	Value of—			
				Materials Used, Fuel, etc. (c)	Production (d)	Output	Land, Buildings, Plant and Machinery
	no.	no.	\$ m	\$ m	\$ m	\$ m	\$ m
1911 ..	609	10,298	1.7	4.2	2.9	7.1	4.5
1920 ..	616	10,225	3.0	8.8	5.5	14.3	5.8
1929-30	845	10,820	4.1	10.0	7.1	17.1	19.9
1934-35	926	10,555	3.2	8.1	6.3	14.4	17.5
1939-40	980	14,670	5.4	13.5	12.5	26.0	21.1
1944-45	1,006	19,511	10.0	24.9	17.8	42.7	26.9
1949-50	1,456	23,506	19.3	51.5	38.7	90.2	44.8
1954-55	1,597	25,452	37.7	101.0	76.2	177.2	118.9
1959-60	1,683	29,662	57.6	147.7	120.4	268.1	251.3
1963-64	1,746	31,833	70.6	188.5	152.6	341.1	310.1
1964-65	1,805	32,580	76.5	214.2	167.3	381.5	364.3
1965-66	1,792	34,315	83.0	229.0	175.6	404.6	370.6
1966-67	1,771	34,879	90.8	243.4	194.6	438.0	403.1
1967-68	1,797	35,178	96.2	247.1	198.0	445.1	448.0

(a) Average for whole year after 1927-28; earlier averages relate to the period of operation. Includes working proprietors.

(b) Excludes drawings of working proprietors.

(c) Includes materials used plus cost of power, fuel, light, water and lubricating oils, containers, packing, etc., tools replaced and repairs to plant but excludes depreciation allowance and sundry overhead charges (e.g. rates, land tax, etc.) not specified on the factory form.

(d) Value of output less cost of materials used, fuel, etc. as defined in note (c)

Earlier, reference was made to the role played by hydro-electric power in the development of Tasmania's manufacturing industries. The next table has been compiled to show the sources of power employed to drive machinery in factories, and also the power available in the central electric stations; these series cannot be taken back to 1911 but the start-point, 1938-39, is early enough to illustrate the rapid growth in the application of industrial power.

Engines and Motors Employed in Factories; Generators in Central Electric Stations ('000 Horsepower)

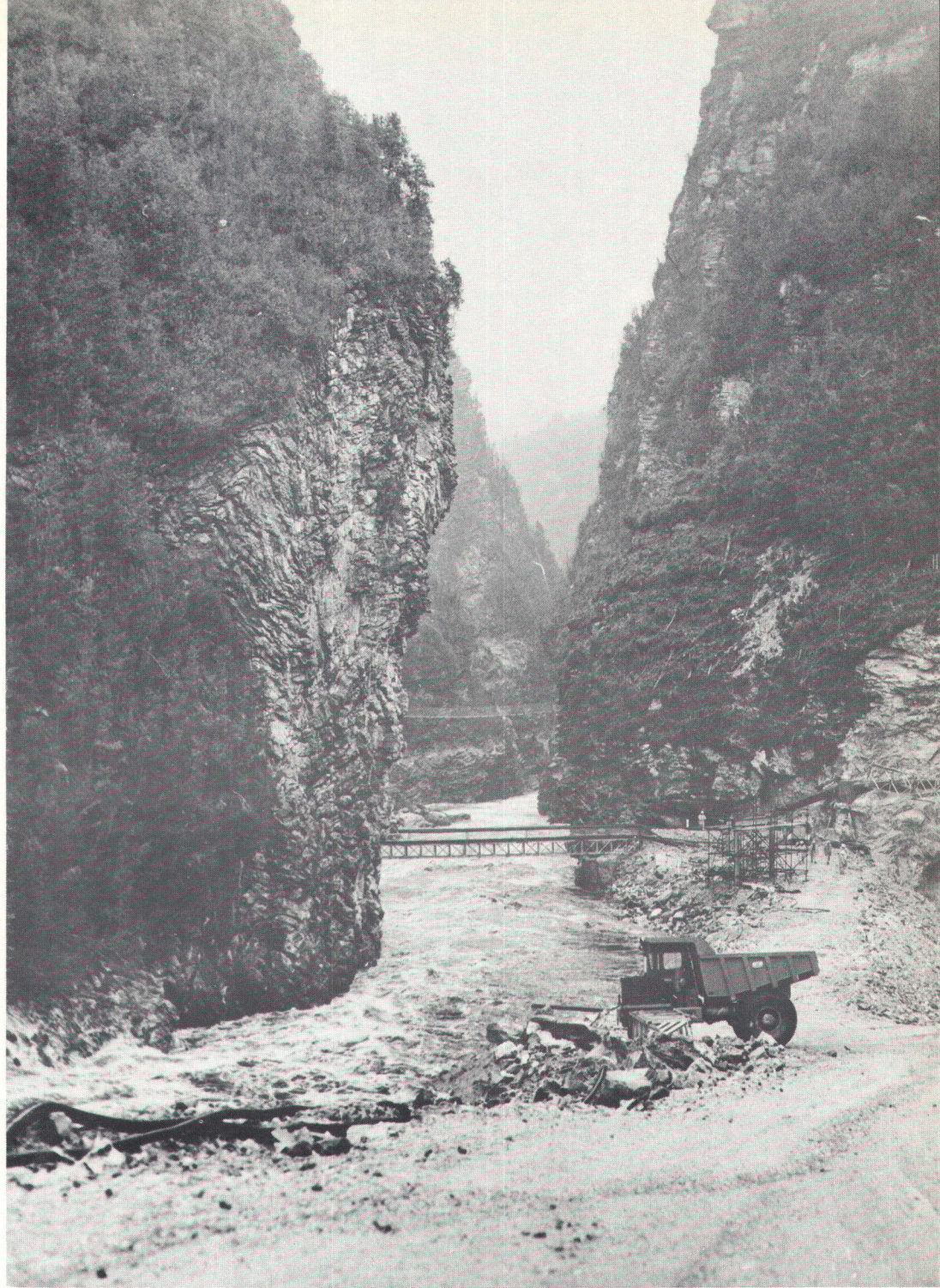
Year	Factories—Rated Horsepower of Engines Ordinarily in Use (a)				Generators in Central Electric Stations (b)		
	Steam	Internal Combustion	Electric (c)	Total without Duplication (d)	Total Installed Capacity	Effective Capacity	Maximum Load
1938-39	4.0	2.5	r 48.2	r 54.8	158.9	126.0	117.0
1949-50	4.6	8.7	131.5	145.0	256.0	267.7	262.5
1959-60	1.2	11.7	251.9	265.1	778.8	771.0	587.1
1963-64	0.6	11.7	302.3	314.6	1,078.0	1,073.0	800.5
1964-65	0.5	13.1	308.5	322.2	1,149.6	1,144.6	828.9
1965-66	0.7	10.2	319.2	330.0	1,150.9	1,145.7	880.7
1966-67	1.0	9.6	329.5	340.1	1,212.2	1,207.0	876.4
1967-68	0.8	19.1	354.0	373.8	1,349.5	1,343.7	959.3

(a) Excluding central electric stations.

(b) The kilowatt measures for the stations have been changed to horsepower equivalents.

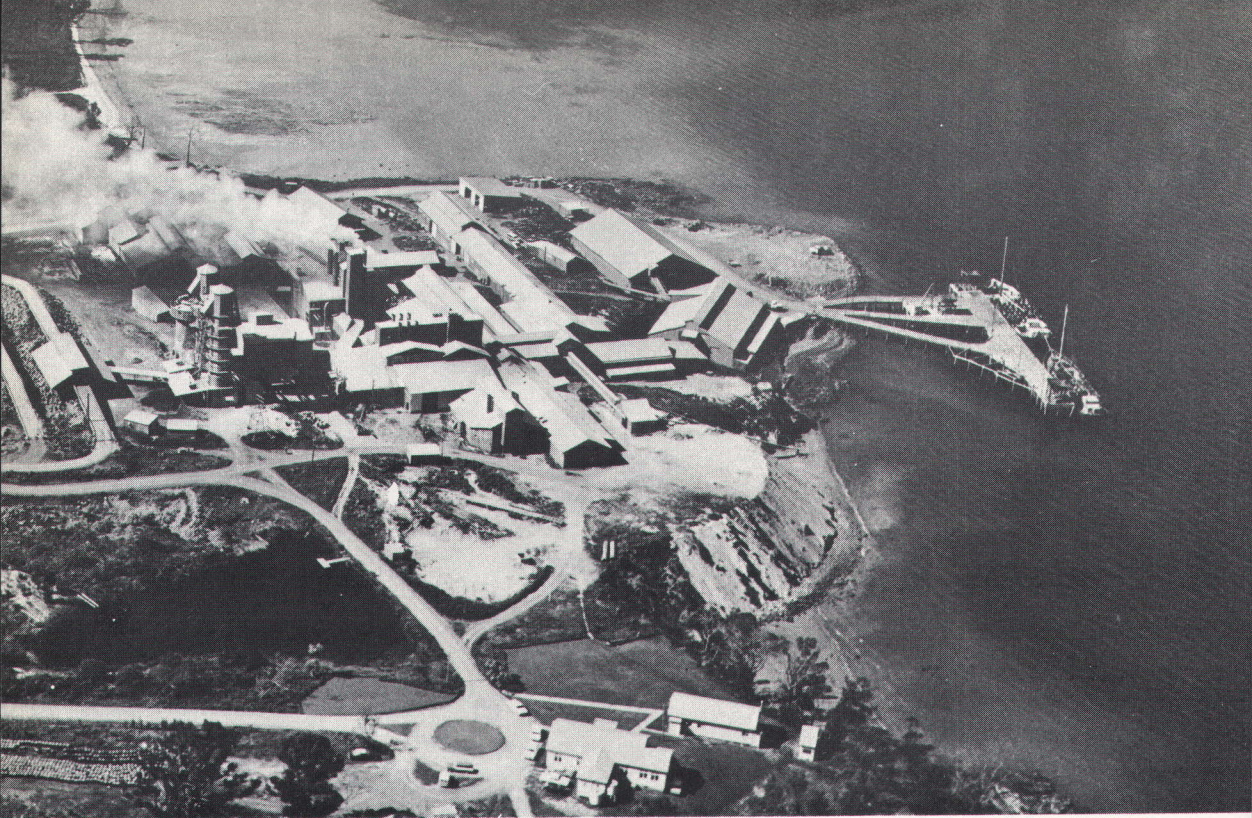
(c) Excludes motors driven by electricity of plant's own generation.

(d) Includes, until 1961-62, small amounts of water power driving factory machinery directly.



Construction site for the Gordon River Dam

(Mercury



Australia's major carbide producer, Australian Commonwealth Carbide Co. Ltd, Electrona

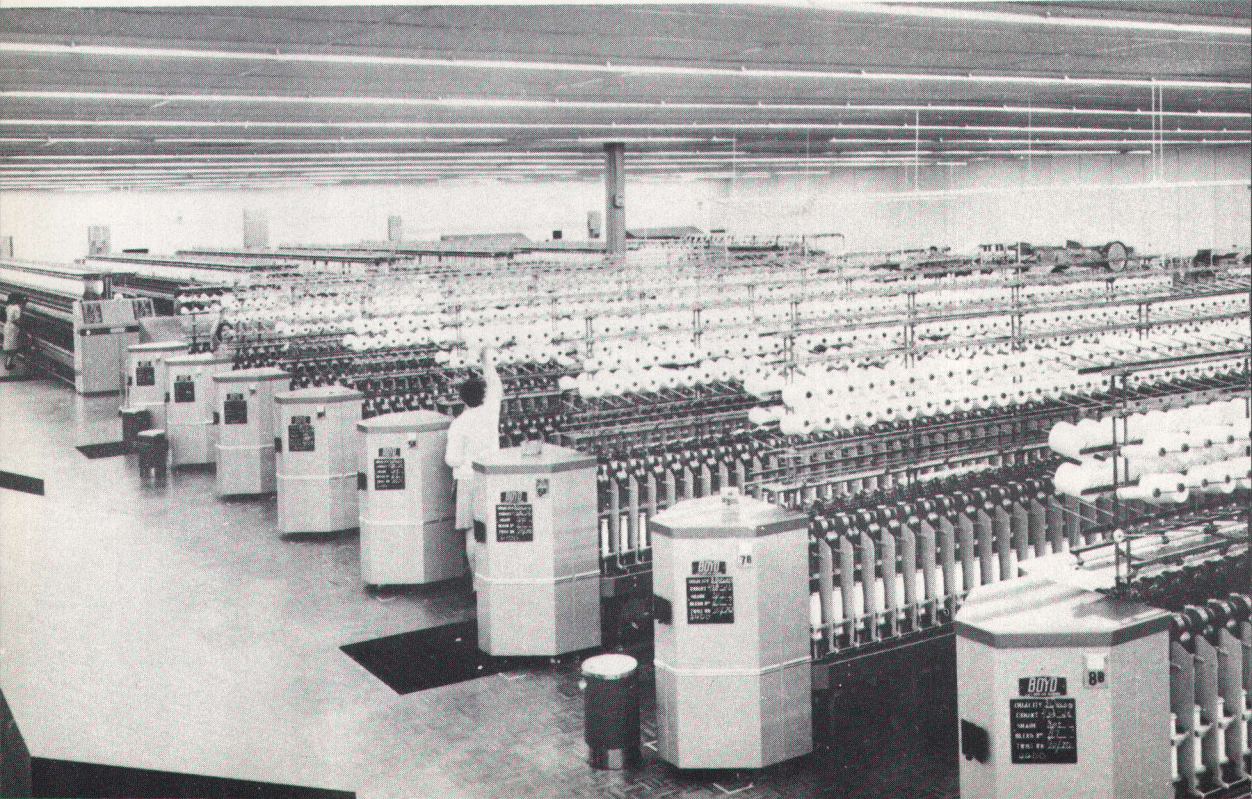
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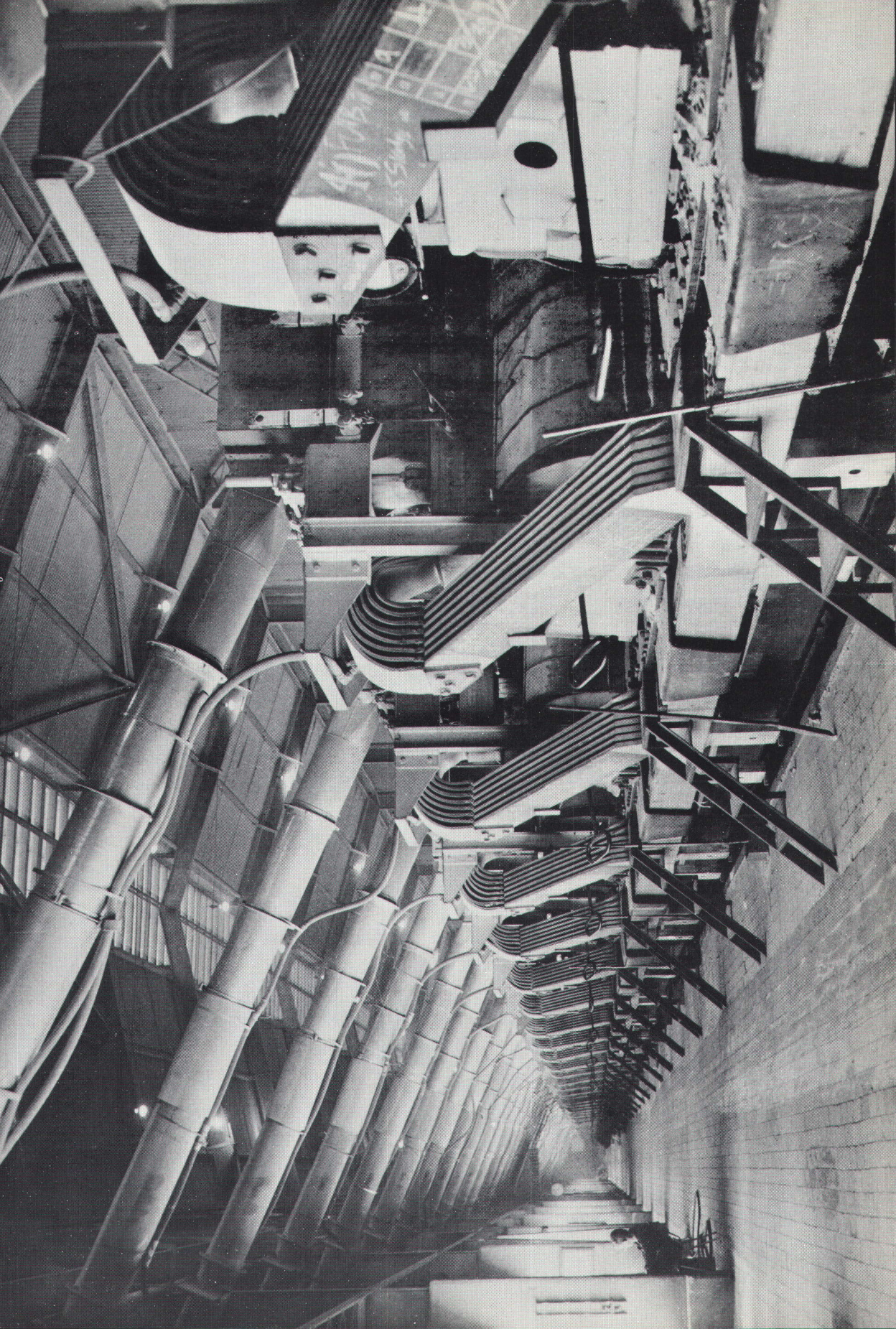
(Directorate of Industrial Development)

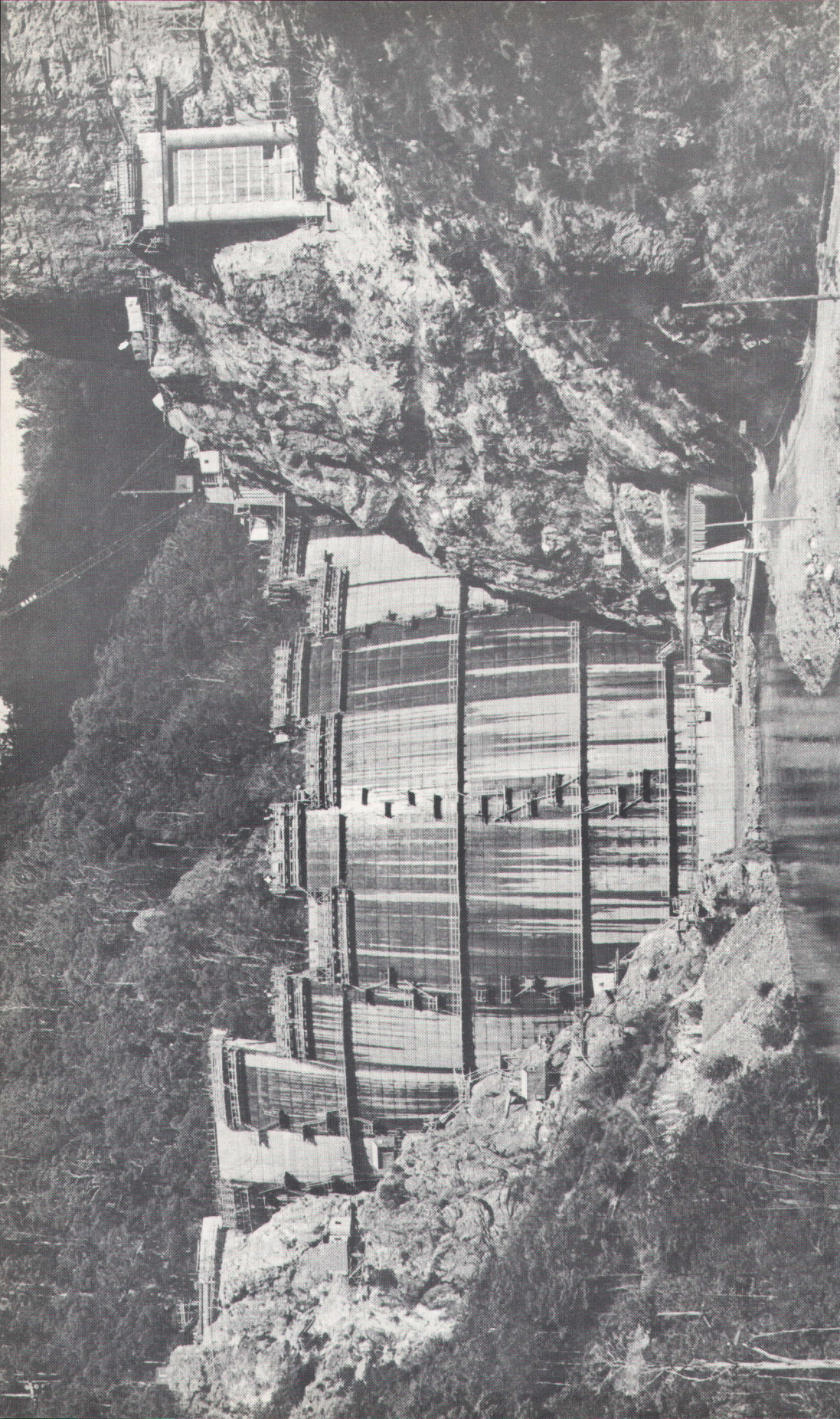
Furnace-room, Comalco (Bell Bay) Ltd, aluminium refinery

Spinning acrylic yarn, Coates Patons, George Town

(Brian Curtis)







Devil's Gate Dam on the Mersey River nearing completion

(H.E.C.)

The effective capacity of the central electric stations is obviously more than adequate to meet the power needs of machines in factories but there is additional demand for power for metallurgical refining (e.g. electric furnaces and electrolytic processes), for traction and for commercial, farming and domestic purposes. In 1967-68, machines in Tasmanian factories were driven by engines and electric motors with a total rating of 373,840 horsepower of which 95 per cent was available from electric motors.

Factories in Tasmania and Other Australian States

A comparison of Tasmanian factory activity with that in other States is shown in the following table. To compare the relative intensity of factory activity in the Australian States, account needs to be taken of their widely different populations and the first column in the table—'Population Relativity'—calls attention to this fact.

Australian States—Factories, 1967-68

State	Population Relativity (a)	Factories	Employment (Average Whole Year including Working Proprietors)	Salaries and Wages Paid (b)	Value of—			
					Materials Used, Fuel, etc. (c)	Production (d)	Output	Land, Buildings, Plant and Machinery
		no.	no.	\$m	\$m	\$m	\$m	\$m
N.S.W. . .	11.5	24,884	531,185	1,498.1	3,965.5	3,131.0	7,096.5	3,828.2
Victoria . .	8.7	18,030	449,945	1,244.2	2,956.5	2,394.8	5,351.3	2,685.3
Queensland	4.5	6,154	120,852	306.0	1,124.4	657.9	1,782.3	946.7
S.A. . .	2.9	6,255	121,417	330.1	844.2	631.9	1,476.1	813.6
W.A. . .	2.4	5,404	67,335	175.1	499.2	388.3	887.4	495.3
Tasmania	1.0	1,797	35,178	96.2	247.1	198.0	445.1	448.1
Total (e)	31.0	62,524	1,325,912	3,649.7	9,636.9	7,401.9	17,038.7	9,217.2

(a) Tasmania's total mean population for 1967-68 is expressed as 1.0; other State populations in proportion to 1.0.

(b) Excludes drawings of working proprietors.

(c) Includes materials used plus cost of power, fuel, light, water and lubricating oils, containers, packing, etc., tools replaced and repairs to plant but excludes depreciation allowance and sundry overhead charges not specified on the factory form.

(d) Value of output less cost of materials used, fuel, etc., as defined in note (c).

(e) Excludes A.C.T. and N.T.

Applying the appropriate population relativity factors to Tasmanian factory figures, it will be seen that, on most indicators, Tasmania is relatively more industrialised than W.A. and Queensland, that its pro-rata value of production approaches that of S.A. and that its pro-rata value of land, buildings, plant and machinery exceeds that of any other State. In regard to the last comparison (land, buildings, plant, etc.), account should be taken of the fact that central electric stations are treated as factories for the purpose of these statistics and, in the case of Tasmania, over 48 per cent of the value of land, buildings, plant and machinery is derived from a single factory class, namely 'XVI—Heat, Light and Power'. Since the other States rely for power largely on thermal generation not generally involving such heavy capital outlays as hydro-electric construction, the results are not unexpected.

Value of Production Comparison

The comparison of manufacturing in Tasmania with that for Australia as a whole produces some interesting results. Taking Tasmania's 'norm' as 3.2 per cent (based on population relativity), it can be established that the

island's principal contribution to Australian totals is in Class X, the sawmilling group, Class XII, the papermaking group, Class XVI, the power group, Class VI the textiles group and Class I, the non-metalliferous mining group. In all other classes, its performance falls below the norm.

The value of production for Tasmanian secondary industries is compared with the Australian value of production over a five year period in the following table:

Factories, Value of Production: Tasmania and Australia Compared

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
TOTAL VALUE OF PRODUCTION (\$m)					
Tasmania	152.6	167.3	175.6	194.6	198.0
Australia	5,270.0	5,897.0	6,280.4	6,888.2	7,430.7

**TASMANIAN COMPONENT AS PROPORTION OF AUSTRALIAN TOTAL
(PER CENT)**

Class— I. Treatment of Non-Metalliferous Mine and Quarry Products ..	3.2	2.9	3.1	2.7	4.0
II. Bricks, Pottery, Glass, etc. ..	1.3	1.2	1.2	1.2	1.2
III. Chemicals, Dyes, etc. . . .	1.6	1.6	1.5	1.4	1.3
IV. Industrial Metals, Machines, etc.	2.3	2.2	2.2	2.4	2.2
V. Precious Metals, Jewellery, Plate	0.7	0.6	0.6	0.4	0.8
VI. Textiles and Textile Goods (not Dress)	4.2	4.8	4.4	4.3	4.1
VII. Skins and Leather (not Clothing or Footwear)	0.4	0.4	0.4	0.5	0.4
VIII. Clothing (except Knitted) ..	0.6	0.7	0.7	0.6	0.6
IX. Food, Drink and Tobacco ..	3.2	3.1	3.0	3.0	2.7
X. Sawmills, Joinery, Boxes, etc.	6.6	6.8	7.2	6.7	6.6
XI. Furniture, Bedding, etc. ..	1.9	1.9	1.8	2.1	2.2
XII. Paper, Stationery, Printing, Binding, etc.	6.8	6.2	6.1	6.0	5.9
XIII. Rubber	0.7	0.7	0.7	0.7	0.7
XIV. Musical Instruments, etc. ..	..	..	..	..	..
XV. Miscellaneous Products ..	0.2	0.3	0.3	0.3	0.2
Total Classes I to XV ..	2.8	2.7	2.6	2.7	2.6
XVI. Heat, Light and Power ..	5.8	6.1	5.9	6.1	5.2
Total All Classes ..	2.9	2.8	2.8	2.8	2.7

A similar table is presented at the end of Chapter 7, 'Primary Industry—Non Rural'; this details all recorded primary industries, as well as the manufacturing industry in total, to give an all-industry Tasmanian-Australian comparison for the same period.

Size Classification of Factories

The size classification of factories is based on the average number of persons employed during the period of operation and *includes working proprietors*. The following table has been compiled to show size changes in the structure of Tasmanian industry since 1928-29:

Number of Factories and Persons Employed by Size of Factory

Year	Size of Factory (i.e. Average Number of Persons Employed)								
	Under 4	4	5 to 10	11 to 20	21 to 50	51 to 100	101 and over	Total	
NUMBER OF FACTORIES									
1928-29	..	187	96	305	112	49	22	14	785
1938-39	..	256	114	362	110	71	17	14	944
1948-49	..	478	142	390	162	106	43	25	1,346
1958-59	..	736	151	400	174	126	46	33	1,666
1967-68	..	728	162	430	225	156	44	52	1,797

PERSONS EMPLOYED (a)								
1928-29 ..	430	384	2,091	1,632	1,558	1,492	3,984	11,571
1938-39 ..	582	456	2,422	1,569	2,252	1,155	6,231	14,667
1948-49 ..	1,062	568	2,633	2,344	3,308	3,033	10,549	23,497
1958-59 ..	1,447	604	2,755	2,589	3,869	3,298	14,278	28,840
1967-68 ..	1,380	648	2,949	3,248	5,004	3,183	19,024	35,436

(a) The average number of persons employed as shown in the above table (35,436 in 1967-68) differs from the average number of persons employed shown in all other tables (35,178 in 1967-68) because the average number of persons employed over *the period of operation* used for size classification exceeds average employment over the *whole year*.

The change in the size structure of Tasmanian factories since 1928-29 is summarised in the next table:

Change in Average Number of Persons Employed
According to Size of Factory, 1928-29 to 1967-68

Particulars	Size of Factory (i.e. Average Number of Persons Employed)							Persons
	Under 4	4	5 to 10	11 to 20	21 to 50	51 to 100	101 and over	
Increase in Number Employed—								
Persons ..	950	264	858	1,616	3,446	1,691	15,040	23,865
As Percent of Total Increase ..	4.0	1.1	3.6	6.8	14.4	7.1	63.0	100.0

As indicated in the previous table, the main characteristic of the period under review has been the marked increase in employment in the largest establishments employing 101 hands and over.

The apparent disproportionate increase in the number of factories employing less than four hands can be misleading. The increase is thought to be due largely to definitional factors; establishments with less than four hands are excluded if using only manual power but included if using other types of power. Thus, over the years, the greater use of fractional horsepower electric motors would have progressively qualified more and more small establishments as 'statistical factories'. (A two-man bakery mixing by hand is excluded; using a powered mixer, it is included.)

The next table has been compiled to indicate in which classes of industry the largest establishments occur:

**Factories—Classification According to Number
of Persons Employed in Each Industry Class, 1967-68**

Class of Industry	Number of Factories Employing on the Average—				
	20 and under	21 to 50	51 to 100	101 and over	Total
I. Treatment of Non-Metalliferous Mine and Quarry Products	50	6	..	2	58
II. Bricks, Pottery, Glass, etc.	15	5	1	..	21
III. Chemicals, Dyes, etc.	27	2	..	2	31
IV. Industrial Metals, Machines, etc. ..	606	57	18	17	698
V. Precious Metals, Jewellery, Plate ..	19	..	..	..	19
VI. Textiles and Textile Goods (not Dress)	12	3	1	8	24
VII. Skins and Leather (not Clothing or Footwear)	4	1	..	..	5
VIII. Clothing (except Knitted)	76	3	3	..	82
IX. Food, Drink and Tobacco	231	33	7	8	279
X. Sawmills, Joinery, Boxes, etc.	367	24	7	5	403
XI. Furniture, Bedding, etc.	54	11	..	..	65
XII. Paper, Stationery, Printing, Binding, etc.	31	5	6	8	50
XIII. Rubber	17	2	..	..	19
XIV. Musical Instruments, etc. .. ..	..	..	..	..	..
XV. Miscellaneous Products	19	1	..	..	20
Total Classes I to XV	1,528	153	43	50	1,774
XVI. Heat, Light and Power	17	3	1	2	23
Total All Classes	1,545	156	44	52	1,797

It will be seen that the largest establishments (101 hands and over) occur, with descending order of frequency in Class IV, industrial metals, etc.; Class XII, paper making, etc.; Class VI, the textile group; Class IX, food processing, etc.; and Class X, sawmilling, etc. As a later table will indicate, over 87 per cent of all factory employment is concentrated in these five classes.

Factories in Statistical Divisions

A general indication of the geographical distribution of factories is given in the following table, the analysis dealing with factory Classes I to XV inclusive. In Tasmania, factory Class XVI, 'Heat, Light and Power', constitutes something of a problem in any geographical distribution because the chief component of the class is the power houses, or 'central electric stations' generating electricity for the State Hydro-Electric Commission. To take a specific case, it is theoretically possible for the basic water storage to be in one statistical division, the generating stations in a second division and the point of delivery, through transmission lines, in seven other divisions. Since the output of energy from the stations is integrated into a State-wide grid, the allocation of value of output, value of production, etc. to various statistical divisions would merely confuse the issue; accordingly, Class XVI, 'Heat, Light and Power', is not dissected according to area and is completely excluded from the table.

Factories: Principal Items by Statistical Divisions and Selected Areas, 1967-68 (a)
Classes I-XV Only

Particulars	Factories (no.)	Employ- ment (no.)	Salaries and Wages Paid (\$'000)	Value (\$'000) of—			
				Materials Used, Fuel, etc.	Produc- tion	Output	Land, Buildings, Plant and Machinery
STATISTICAL DIVISIONS							
Hobart ..	557	13,427	37,209	84,540	68,096	152,637	70,155
North Central..	301	7,124	16,344	31,837	25,976	57,813	22,945
North Western	440	9,097	26,825	76,477	53,922	130,399	72,946
North Eastern..	151	2,223	6,884	26,112	17,482	43,594	49,511
North Midland	90	1,190	2,926	8,753	5,121	13,875	5,920
Midland ..	57	257	597	1,605	1,148	2,754	430
South Eastern..	31	135	278	829	297	1,126	1,160
Southern ..	118	693	1,481	4,685	2,864	7,548	6,159
Western ..	29	602	2,103	10,704	7,688	18,392	1,275
Total Classes I-XV ..	1,774	34,748	94,646	245,542	182,596	428,138	230,501
SELECTED AREAS							
Hobart Metro- politan Area	510	12,210	33,420	76,076	60,076	136,152	60,352
Urban Launce- ston ..	355	8,251	19,097	39,588	30,876	70,464	28,860
Remainder of State ..	909	14,287	42,129	129,879	91,644	221,522	141,289
Total Classes I-XV ..	1,774	34,748	94,646	245,542	182,596	428,138	230,501

(a) Definitions of employment, salaries and wages, materials used, fuel, etc., and value of production have been given in initial summary tables.

As indicated in the previous table, the chief centre of factory activity, measured in terms of value of production, was the Hobart Statistical Division; its contribution to total added value was 37 per cent. Major establishments in the Division engaged in zinc and chemical fertiliser production, paper making, carbide manufacture, confectionery making, fruit processing and various types of metalworking and engineering.

Contributing 30 per cent to the total value of production was the NW. Division, with major industries including paper manufacture, cement production, iron ore pellet production, plywood and building-board making, fruit and vegetable canning and preserving, and some textile making. The North Central Division (City of Launceston) contributed 14 per cent and is the acknowledged textile 'capital' of the State. Next came the NE. Division with 10 per cent, major establishments engaging in aluminium and ferro-manganese production, and food preserving. The principal industry in the Western Division is the smelting of copper; this Division contributes four per cent of the total value of production.

Factories Classified According to Class of Industry

The following table contains a summary of the principal statistics for factories by class of industry in Tasmania:

Principal Items by Class of Industry, 1967-68

Class of Industry	Factories	Employment	Salaries and Wages Paid	Value of—			
				Materials Used, Fuel, etc.	Production	Output	Land, Buildings, Plant and Machinery
	no.	no.	\$m	\$m	\$m	\$m	\$m
I. Treatment of Non-Metalliferous Mine and Quarry Products	58	888	2.73	7.11	8.11	15.22	10.88
II. Bricks, Pottery, Glass, etc. .. .	21	359	1.04	1.14	2.00	3.13	2.76
III. Chemicals, Dyes, Explosives, Paints, Oils, Grease .. .	31	920	3.27	10.43	9.19	19.61	11.23
IV. Industrial Metals, Machines, Conveyances .. .	698	12,155	35.54	80.40	68.57	148.97	95.61
V. Precious Metals, Jewellery, Plate .. .	19	47	0.09	0.08	0.16	0.23	0.20
VI. Textiles and Textile Goods (Not Dress) .. .	24	3,986	8.86	19.86	12.90	32.76	12.39
VII. Skins and Leather (not Clothing or Footwear) .. .	5	48	0.12	0.70	0.17	0.87	0.09
VIII. Clothing (except Knitted) .. .	82	726	1.22	1.13	2.33	3.46	2.41
IX. Food, Drink and Tobacco .. .	279	5,413	13.59	63.50	25.00	88.50	39.80
X. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving .. .	403	3,919	9.65	24.93	17.96	42.89	13.13
XI. Furniture, Bedding, etc. .. .	65	672	1.33	2.74	2.31	5.04	1.91
XII. Paper, Stationery, Printing, Bookbinding, etc. .. .	50	5,314	16.54	32.56	32.65	65.21	38.13
XIII. Rubber .. .	19	139	0.36	0.77	0.80	1.57	1.12
XIV. Musical Instruments .. .	..	..	..	..	..	..	..
XV. Miscellaneous Products .. .	20	162	0.30	0.21	0.45	0.65	0.85
Total Classes I to XV .. .	1,774	34,748	94.65	245.54	182.60	428.14	230.50
XVI. Heat, Light and Power .. .	23	430	1.59	1.52	15.42	16.94	217.55
Total All Classes .. .	1,797	35,178	96.24	247.06	198.02	445.08	448.05

The next table shows the change in the number of factories in Tasmania during recent years:

Number of Factories in Each Class of Industry

Class of Industry	1957-58	1963-64	1964-65	1965-66	1966-67	1967-68
I. Treatment of Non-Metalliferous Mine and Quarry Products .. .	54	58	59	58	57	58
II. Bricks, Pottery, Glass, etc. .. .	21	19	23	23	23	21
III. Chemicals, Dyes, etc. .. .	22	28	29	30	29	31
IV. Industrial Metals, Machines, etc. .. .	537	618	656	676	679	698
V. Precious Metals, Jewellery, Plate .. .	6	19	20	19	19	19
VI. Textiles and Textile Goods (not Dress) .. .	19	20	21	23	23	24
VII. Skins and Leather (not Clothing and Footwear) .. .	8	5	5	5	5	5
VIII. Clothing (except Knitted) .. .	84	87	87	83	81	82
IX. Food, Drink and Tobacco .. .	292	285	289	284	275	279
X. Sawmills, Joinery, Boxes, etc. .. .	460	440	446	425	411	403
XI. Furniture, Bedding, etc. .. .	71	70	66	62	65	65
XII. Paper, Stationery, Printing, Binding, etc. .. .	35	46	49	48	48	50
XIII. Rubber .. .	19	20	19	20	20	19
XIV. Musical Instruments, etc. .. .	..	..	..	..	..	..
XV. Miscellaneous Products .. .	14	14	19	20	19	20
Total Classes I to XV .. .	1,642	1,729	1,788	1,776	1,754	1,774
XVI. Heat, Light and Power .. .	13	17	17	16	17	23
Total All Classes .. .	1,655	1,746	1,805	1,792	1,771	1,797

Employment in Factories

All persons employed in the manufacturing activities of a factory, including proprietors working in their own business and persons working regularly at home (e.g. piece workers in the garment industry) are counted as factory workers while those engaged in selling and distribution, such as salesmen, travellers, carters employed solely in *outward* delivery of manufactured goods, and retailing storemen, are excluded. The grouping of occupations comprises: (i) working proprietors; (ii) managerial and clerical staff including salaried managers and working directors; (iii) chemists, draftsmen, and other laboratory and research staff; (iv) workers in factories (skilled and unskilled); foremen and overseers; carters (excluding outward delivery only), messengers, and persons working regularly at home.

The figures showing average employment in factories represent the equivalent average number of persons employed, including working proprietors, over a full year.

The next table shows average whole-year employment in Tasmanian factories according to class of industry for a five-year period:

Employment—Total Number of Workers According to Class of Industry

Class of Industry	1963-64	1964-65	1965-66	1966-67	1967-68
I. Treatment of Non-Metalliferous Mine and Quarry Products	819	803	824	835	888
II. Bricks, Pottery, Glass, etc.	367	379	369	354	359
III. Chemicals, Dyes, etc.	943	979	1,021	995	920
IV. Industrial Metals, Machines, etc. ..	10,719	10,873	11,463	11,908	12,155
V. Precious Metals, Jewellery, Plate ..	45	41	46	47	47
VI. Textiles and Textile Goods (not Dress)	3,426	3,818	3,933	4,004	3,986
VII. Skins and Leather (not Clothing or Footwear)	47	48	48	47	48
VIII. Clothing (except Knitted)	710	755	746	729	726
IX. Food, Drink, and Tobacco	5,053	4,995	5,358	5,376	5,413
X. Sawmills, Joinery, Boxes, etc.	3,886	4,021	4,200	4,066	3,919
XI. Furniture, Bedding, etc.	527	520	536	614	672
XII. Paper, Stationery, Printing, Binding, etc.	4,683	4,702	5,059	5,168	5,314
XIII. Rubber	129	126	144	151	139
XIV. Musical Instruments, etc. .. ..	..	..	..	..	..
XV. Miscellaneous Products	111	134	151	158	162
Total Classes I to XV	31,465	32,194	33,898	34,452	34,748
XVI. Heat, Light and Power	368	386	417	427	430
Total All Classes	31,833	32,580	34,315	34,879	35,178

The factory class associated with the greatest employment in 1967-68 was Class IV, industrial metals, etc. with 34.6 per cent (the major sub-class of this class is 5, the extraction and refining of metals). The second greatest employment was in Class IX, food processing, with 15.4 per cent; then follow Class XII, the paper making group, with 15.1 per cent; Class VI, the textile group, with 11.3 per cent; and Class X, the sawmilling group, with 11.1 per cent. Nearly 90 per cent of Tasmanian factory employment is concentrated in these five classes which also contain the largest establishments.

The following table shows the number of males and females employed in factories according to occupational groups:

Employment—Occupational Grouping in Factories by Sex

Year	Working Proprietors		Salaried Staff				Wages Staff (c)		Total Workers			Masculinity of Factory Workers (d)
			Managerial, etc. (a)		Technical (b)							
	Males	Fe-males	Males	Fe-males	Males	Fe-males	Males	Fe-males	Males	Fe-males	Persons	
1957-58 ..	973	79	1,923	972	518	66	19,667	3,886	23,081	5,003	28,084	461
1963-64 ..	930	71	2,434	1,146	512	110	22,345	4,285	26,221	5,612	31,833	467
1964-65 ..	976	80	2,482	1,211	536	116	22,774	4,405	26,768	5,812	32,580	461
1965-66 ..	963	75	2,641	1,298	538	120	23,899	4,781	28,041	6,274	34,315	447
1966-67 ..	906	89	2,616	1,315	548	140	24,294	4,971	28,364	6,515	34,879	435
1967-68 ..	887	88	2,841	1,363	571	144	24,251	5,033	28,550	6,628	35,178	431

(a) Managerial and clerical staff, including salaried managers and working directors.

(b) Chemists, draftsmen and other laboratory and research staff.

(c) Foremen, overseers, workers in factories (skilled and unskilled), carters (excluding outward delivery only), messengers and persons working regularly at home.

(d) Number of males per 100 females.

The long-term trend in masculinity of factory workers is illustrated by the following series: 1906, 565; 1911, 559; 1921, 532; 1930-31, 363; 1940-41, 353; 1950-51, 445; 1960-61, 464; 1967-68, 431. The maximum was 591 recorded in 1920 and the minimum, 289 in 1943-44. Very low masculinity figures in the continuous series from 1906 are associated with the depression years in the 1930s and with the war years in the 1940s. A later table shows the classes of industry in which women predominate.

The following table shows the age distribution of factory workers as at the last pay-day in June; the figures exclude working proprietors:

Distribution of Employees According to Age
(Excluding Working Proprietors)

Year	Number of Persons on Factory Payrolls on last Pay-day in June—							
	Males				Females			
	Under 16 years	16 and under 21 years	21 years and over	Total	Under 16 years	16 and under 21 years	21 years and over	Total
1958..	100	2,611	19,203	21,914	113	1,426	3,796	5,335
1964..	123	3,329	21,940	25,392	96	1,587	4,218	5,901
1965..	121	3,441	22,253	25,815	107	1,672	4,166	5,945
1966..	126	3,738	23,279	27,143	87	1,730	4,730	6,547
1967..	141	3,814	23,570	27,525	131	1,763	4,971	6,865
1968..	98	3,784	23,770	27,652	96	1,703	5,010	6,809

It will be observed that the proportion of factory workers under 16 years is extremely low, a reflection of the 16 year compulsory minimum leaving age operative in Tasmanian schools (the 'under 16' workers shown are not breaking the law since a system of exemption allows limited departure from the legal minimum age).

The next table has been compiled to show the considerable variation in the pattern of male and female employment in the different classes of industry:

Employment by Sex in Each Class of Industry, 1967-68

Class of Industry	Average Employment (Whole Year) including Working Proprietors					
	Number			Percentage in Each Class		
	Males	Females	Persons	Males	Females	Persons
I. Treatment of Non-Metalliferous Mine and Quarry Products	849	39	888	2.97	0.59	2.52
II. Bricks, Pottery, Glass, etc.	344	15	359	1.21	0.23	1.02
III. Chemicals, Dyes, etc.	862	58	920	3.02	0.88	2.62
IV. Industrial Metals, Machines, etc.	11,357	798	12,155	39.78	12.04	34.55
V. Precious Metals, Jewellery, Plate.. . . .	44	3	47	0.15	0.05	0.13
VI. Textiles and Textile Goods (Not Dress)	1,772	2,214	3,986	6.21	33.40	11.33
VII. Skins and Leather (not Clothing or Footwear)	46	2	48	0.16	0.03	0.14
VIII. Clothing (except Knitted).. . . .	281	445	726	0.99	6.71	2.06
IX. Food, Drink and Tobacco.. . . .	3,651	1,762	5,413	12.79	26.58	15.39
X. Sawmills, Joinery, Boxes, etc.	3,788	131	3,919	13.27	1.98	11.14
XI. Furniture, Bedding, etc.	548	124	672	1.92	1.87	1.91
XII. Paper, Stationery, Printing, Binding, etc.	4,329	985	5,314	15.16	14.86	15.11
XIII. Rubber	127	12	139	0.44	0.18	0.40
XIV. Musical Instruments, etc. . . . .	..	..	..	..	..	..
XV. Miscellaneous Products	124	38	162	0.43	0.57	0.46
Total Classes I to XV	28,122	6,626	34,748	98.50	99.97	98.78
XVI. Heat, Light and Power	428	2	430	1.50	0.03	1.22
Total All Classes	28,550	6,628	35,178	100.00	100.00	100.00

As demonstrated in the above table, female workers predominate in only two classes of industry in absolute numbers: Class VI, the textiles group and Class VIII, the clothing group. Four factory classes account for 87 per cent of all female workers; in descending order of magnitude, these classes are the textiles group, the food-processing group, the paper-making group and the industrial metals group. The four factory classes accounting for most male employment (81 per cent) are, in descending order: the industrial metals group, the paper-making group, the sawmilling group and the food-processing group. When males and females are combined, the four major classes become the industrial metals group, the food-processing group, the paper-making group and the textiles group.

Salaries, Wages and Other Costs

The table that follows has been compiled to show male and female earnings and also to show separately the amounts paid to 'managerial and clerical staff, including salaried managers and working directors, chemists, draftsmen and other laboratory and research staff'.

Salaries and Wages in Factories (a), 1967-68
(\\$'000)

Class of Industry	Managers, Clerical Staff, Chemists, Draftsmen, etc.		All Other Employees		Total		
	Males	Fe- males	Males	Fe- males	Males	Fe- males	Persons
I. Treatment of Non-Metalliferous Mine and Quarry Products	518	55	2,135	19	2,653	74	2,727
II. Bricks, Pottery, Glass, etc.	109	17	913	5	1,022	22	1,044
III. Chemicals, Dyes, etc. . . .	825	100	2,328	16	3,153	116	3,269
IV. Industrial Metals, Machines, etc.	5,784	781	28,301	671	34,085	1,452	35,538
V. Precious Metals, Jewellery, Plate	4	5	78	..	82	5	88
VI. Textiles and Textile Goods (not Dress)	1,086	401	4,004	3,368	5,090	3,769	8,859
VII. Skins and Leather (Not Clothing or Footwear) ..	32	..	88	1	120	1	121
VIII. Clothing (except Knitted)	122	39	492	570	614	609	1,223
IX. Food, Drink and Tobacco	2,337	720	8,487	2,047	10,824	2,767	13,591
X. Sawmills, Joinery, Boxes, etc.	982	100	8,497	77	9,478	177	9,655
XI. Furniture, Bedding, etc. . .	171	60	995	103	1,167	162	1,329
XII. Paper, Stationery, Printing, Binding, etc.	2,435	442	12,423	1,244	14,858	1,686	16,543
XIII. Rubber	45	14	295	..	341	14	355
XIV. Musical Instruments, etc.	..	..	..	38	50	..	..
XV. Miscellaneous Products ..	43	12	211	..	254	50	304
Total Classes I to XV	14,494	2,746	69,248	8,159	83,742	10,905	94,646
XVI. Heat, Light and Power ..	132	..	1,454	3	1,587	3	1,590
Total All Classes ..	14,626	2,746	70,702	8,162	85,329	10,908	96,236

(a) Excludes drawings of working proprietors.

The ranking of factory classes according to salaries and wages paid in 1967-68 was: Class IV, 37 per cent; Class XII, 17 per cent; Class IX, 14 per cent; Class X, ten per cent; Class VI, nine per cent.

The total amount of wages and salaries paid in Tasmania, together with average amounts paid per employee, are shown in summary form:

Salaries and Wages Paid in Factories (a)

Year	Males		Females		Persons	
	Amount	Per Em- ployee	Amount	Per Em- ployee	Amount	Per Em- ployee
	\$'000	\$	\$'000	\$	\$'000	\$
1957-58	45,033	2,038	5,609	1,140	50,641	1,874
1963-64	63,006	2,492	7,576	1,368	70,582	2,290
1964-65	68,183	2,644	8,332	1,454	76,515	2,427
1965-66	73,932	2,730	9,030	1,457	82,963	2,493
1966-67	80,685	2,939	10,071	1,567	90,756	2,678
1967-68	85,329	3,085	10,908	1,668	96,236	2,814

(a) Excludes drawings of working proprietors.

The relationship between salaries and wages, and other costs is shown in a subsequent section headed 'Relation of Costs to Output and Production'.

Costs of Manufacture (other than Salaries and Wages)

The next table has been compiled to summarise the various costs which are specified in the factory collection (apart from salaries and wages):

'Statistical' Costs of Manufacture Other Than Wages and Salaries (a)
(£'000)

Particulars	1957-58	1963-64	1964-65	1965-66	1966-67	1967-68
Power, Fuel and Light Used ..	9,775	15,768	17,676	18,453	19,026	18,651
Water Used (Not as Power) ..	189	404	448	501	554	546
Lubricating Oils	183	193	203	227	246	287
Repairs and Replacements ..	5,978	7,795	9,407	9,564	11,225	11,883
Wrappers, Containers, Labels, etc.	7,284	9,722	10,644	11,552	11,315	12,606
Total (Excluding Materials Used)	23,409	33,882	38,378	40,296	42,366	43,973
Materials Used	100,582	154,613	175,920	188,678	201,027	203,084
Total 'Statistical' Costs (a) ..	123,991	188,495	214,299	228,974	243,393	247,057

(a) 'Statistical' costs are restricted to those shown in the table and exclude items such as interest, rates and taxes, insurances, depreciation, etc.

As indicated in the above table, the two heaviest costs are those of power, fuel and light, and materials used in the manufacturing process. The following table shows the distribution of these costs and total costs as between the various classes of industry:

'Statistical' Costs of Manufacture in Classes of Industry, 1967-68
(£'000)

Class of Industry	Materials Used	Power, Fuel and Light	Other Costs (a)	Total 'Statistical' Costs
I. Treatment of Non-Metalliferous Mine and Quarry Products	5,362	1,104	643	7,109
II. Bricks, Pottery, Glass, etc.	530	423	182	1,135
III. Chemicals, Dyes, etc.	8,295	1,027	1,104	10,426
IV. Industrial Metals, Machines, etc. ..	65,650	8,974	5,772	80,396
V. Precious Metals, Jewellery, Plate ..	70	5	2	78
VI. Textiles and Textile Goods (not Dress)	18,042	593	1,225	19,860
VII. Skins and Leather (not Clothing or Footwear)	678	9	11	698
VIII. Clothing (except Knitted)	945	81	107	1,132
IX. Food, Drink and Tobacco	51,692	1,603	10,202	63,496
X. Sawmills, Joinery, Boxes, etc.	22,457	887	1,587	24,932
XI. Furniture, Bedding, etc.	2,657	33	47	2,737
XII. Paper, Stationery, Printing, Binding, etc.	25,602	3,584	3,375	32,561
XIII. Rubber	687	42	46	775
XIV. Musical Instruments, etc. .. ..	..	..	..	..
XV. Miscellaneous Products	184	11	12	208
Total Classes I to XV	202,851	18,377	24,315	245,542
XVI. Heat, Light and Power	232	274	1,009	1,515
Total All Classes	203,083	18,651	25,322	247,058

a) Water (not as power), lubricating oils, repairs and replacements, wrappers, containers, labels, etc.

The table below shows the expenditure on power, fuel and light analysed according to type:

Cost of Power, Fuel and Light Used in Factories
(\$'000)

Year	Coal	Coke	Wood	Fuel Oil	Electricity	Gas	Other, including Steam	Total
1957-58 ..	2,354	655	437	1,336	4,634	69	289	9,775
1963-64 ..	1,368	645	158	3,251	9,697	73	576	15,768
1964-65 ..	1,085	578	132	3,634	11,522	76	649	17,676
1965-66 ..	596	654	137	4,073	12,207	76	711	18,453
1966-67 ..	545	727	111	4,167	12,742	94	640	19,026
1967-68 ..	564	686	85	5,191	11,366	92	667	18,651

As suggested by the above table, coal is not being used to the same extent as previously; in 1957-58, 246,525 tons were used, compared with 54,900 tons in 1967-68. By way of contrast, factory fuel oil consumption has increased from 8,181,000 gallons in 1957-58 to 67,314,000 gallons in 1967-68. The present importance of electricity for factories is underlined by the fact that its cost in 1967-68 represented 61 per cent of the total cost of power, fuel and light (in contrast with 1957-58 when it represented only 47 per cent); in the same period, the rated horsepower of electric motors ordinarily in use in factories has increased more than 45 per cent but the major factor in the increased use of electrical power has been in metallurgical refining (electric furnaces and electrolytic recovery).

The next table shows, in summary form, the cost of power, fuel and light used in each class of industry for a five-year period:

Cost of Power, Fuel and Light Used in Each Class of Industry
(\$'000)

Class of Industry	1963-64	1964-65	1965-66	1966-67	1967-68
I. Treatment of Non-Metalliferous Mine and Quarry Products	911	1,046	963	816	1,104
II. Bricks, Pottery, Glass, etc.	337	336	347	355	423
III. Chemicals, Dyes, etc.	1,263	1,591	1,703	1,503	1,027
IV. Industrial Metals, Machines, etc.	7,369	8,414	8,663	9,553	8,974
V. Precious Metals, Jewellery, Plate	4	4	5	6	5
VI. Textiles and Textile Goods (not Dress)	530	542	547	577	593
VII. Skins and Leather (not Clothing or Footwear)	10	8	9	8	9
VIII. Clothing (except Knitted)	79	79	79	78	81
IX. Food, Drink and Tobacco	1,238	1,307	1,399	1,484	1,603
X. Sawmills, Joinery, Boxes, etc.	730	854	881	858	887
XI. Furniture, Bedding, etc.	21	23	23	30	33
XII. Paper, Stationery, Printing, Binding, etc.	3,207	3,402	3,760	3,685	3,584
XIII. Rubber	36	34	36	39	42
XIV. Musical Instruments, etc. .. ..	..	..	..	..	..
XV. Miscellaneous Products	7	9	11	10	11
Total Classes I to XV	15,742	17,650	18,429	19,001	18,377
XVI. Heat, Light and Power	26	25	24	25	274
Total All Classes	15,768	17,676	18,453	19,026	18,651

As indicated in the previous table, the total cost of power, fuel and light has increased \$2,883,000 (18 per cent) in the five-year period to 1967-68, and most of the rise can be accounted for in the industrial metals group, where the cost has increased \$1,605,000 (22 per cent increase).

The largest single cost in manufacturing is that of the materials used and the next table shows, in summary form, this cost in each class of industry for a five-year period:

Cost of Materials Used in Each Class of Industry
('\$000)

Class of Industry	1963-64	1964-65	1965-66	1966-67	1967-68
I. Treatment of Non-Metalliferous Mine and Quarry Products	4,437	3,982	4,940	5,275	5,362
II. Bricks, Pottery, Glass, etc.	351	432	424	455	530
III. Chemicals, Dyes, etc.	5,438	6,366	6,911	7,903	8,295
IV. Industrial Metals, Machines, etc. ..	50,772	61,612	63,576	66,266	65,650
V. Precious Metals, Jewellery, Plate ..	32	34	37	45	70
VI. Textiles and Textile Goods (not Dress)	16,775	17,810	18,215	18,560	18,042
VII. Skins and Leather (not Clothing or Footwear)	630	826	701	857	678
VIII. Clothing (except Knitted)	799	937	979	903	945
IX. Food, Drink and Tobacco	37,127	41,569	45,928	50,962	51,692
X. Sawmills, Joinery, Boxes, etc.	16,805	18,465	20,545	21,739	22,457
XI. Furniture, Bedding, etc.	1,693	1,916	1,984	2,389	2,657
XII. Paper, Stationery, Printing, Binding, etc.	18,902	20,996	23,188	24,507	25,602
XIII. Rubber	475	521	627	753	687
XIV. Musical Instruments, etc. .. ..	..	..	..	..	..
XV. Miscellaneous Products	102	153	330	190	184
Total Classes I to XV	154,338	175,621	188,384	200,804	202,851
XVI. Heat, Light and Power	275	299	294	223	232
Total All Classes	154,613	175,920	188,678	201,027	203,084

The total cost of materials used in manufacturing has risen \$48,471,000 (31 per cent) in the five-year period covered by the table. Class IV, the industrial metals group, has shown the largest increase (\$14,878,000).

Value of Output and Value of Production

Value of factory output by classes of industry for a five-year period is shown in the following table:

Value of Factory Output
(\$ million)

Class of Industry	1963-64	1964-65	1965-66	1966-67	1967-68
I. Treatment of Non-Metalliferous Mine and Quarry Products	10.58	10.38	11.68	11.75	15.22
II. Bricks, Pottery, Glass, etc.	2.26	2.58	2.58	2.68	3.13
III. Chemicals, Dyes, etc.	14.90	16.93	17.88	19.78	19.61
IV. Industrial Metals, Machines, etc. ..	110.66	128.85	134.91	150.04	148.97
V. Precious Metals, Jewellery, Plate ..	0.17	0.17	0.19	0.20	0.23
VI. Textiles and Textile Goods (not Dress)	28.70	32.90	32.35	33.45	32.76
VII. Skins and Leather (not Clothing or Footwear)	0.81	1.01	0.89	1.06	0.87
VIII. Clothing (except Knitted)	2.78	3.13	3.30	3.22	3.46
IX. Food, Drink and Tobacco	68.55	74.59	81.07	88.85	88.50
X. Sawmills, Joinery, Boxes, etc.	32.30	36.44	40.21	41.15	42.89
XI. Furniture, Bedding, etc.	3.24	3.58	3.71	4.54	5.04
XII. Paper, Stationery, Printing, Binding, etc.	50.41	53.72	57.86	61.37	65.21
XIII. Rubber	1.18	1.19	1.30	1.55	1.57
XIV. Musical Instruments, etc. .. ..	..	..	..	..	..
XV. Miscellaneous Products	0.39	0.51	0.77	0.64	0.65
Total Classes I to XV	326.93	365.97	388.71	420.28	428.14
XVI. Heat, Light and Power	14.13	15.58	15.88	17.68	16.94
Total All Classes	341.06	381.55	404.58	437.96	445.08

In the section dealing with the definitions used in factory statistics, it was indicated that value of output is not a satisfactory indicator for making year-to-year comparisons or for making comparisons between classes of industry. To the extent that the finished article from one industry may become a material for use in the manufacturing process of another industry, values of output are likely to be inflated by 'double-counting'. Cardboard boxes and containers, for example, are a finished product of Class XII but they may be used to pack the products of industries in most other classes; similarly, electric power is a final output from Class XVI but is also taken into all other industry classes as a cost of production. For these and other considerations, the better measure for purposes of comparison is undoubtedly value of production, (i.e. value of output less 'statistical' costs but with no deduction of wages and salaries).

The next table shows the value of production in Tasmanian factories for a five-year period:

Value of Factory Production
(\$ million)

Class of Industry	1963-64	1964-65	1965-66	1966-67	1967-68
I. Treatment of Non-Metalliferous Mine and Quarry Products	4.77	4.86	5.21	5.08	8.11
II. Bricks, Pottery, Glass, etc.	1.43	1.64	1.69	1.74	2.00
III. Chemicals, Dyes, etc.	7.15	7.88	8.15	9.17	9.19
IV. Industrial Metals, Machines, etc. ..	49.25	54.50	58.17	68.79	68.57
V. Precious Metals, Jewellery, Plate ..	0.13	0.13	0.14	0.15	0.16
VI. Textiles and Textile Goods (not Dress)	10.50	13.48	12.46	13.11	12.90
VII. Skins and Leather (not Clothing or Footwear)	0.16	0.16	0.17	0.19	0.17
VIII. Clothing (except Knitted)	1.82	2.02	2.13	2.14	2.33
IX. Food, Drink and Tobacco	22.47	23.17	24.42	27.20	25.00
X. Sawmills, Joinery, Boxes, etc. ..	13.58	15.67	17.32	17.08	17.96
XI. Furniture, Bedding, etc.	1.47	1.60	1.66	2.07	2.31
XII. Paper, Stationery, Printing, Binding, etc.	25.72	26.52	28.03	30.15	32.65
XIII. Rubber	0.64	0.59	0.60	0.72	0.80
XIV. Musical Instruments, etc. .. ..	..	..	..	..	..
XV. Miscellaneous Products	0.27	0.33	0.41	0.42	0.45
Total Classes I to XV	139.36	152.56	160.57	178.00	182.60
XVI. Heat, Light and Power	13.21	14.69	15.03	16.57	15.42
Total All Classes	152.57	167.25	175.61	194.57	198.02

The value of production for all factories has risen by 30 per cent in the period covered by the table. Corresponding increases in 'added value' for individual classes are: Class IV, the industrial metals group, 39 per cent; Class VI, the textiles group, 23 per cent; Class IX, the food-processing group, 11 per cent; Class X, the sawmilling group, 32 per cent; Class XII, the paper making group, 27 per cent; and Class XVI, the power group, 17 per cent.

The class of industry showing the greatest percentage increase was Class I, treatment of non-metalliferous mine and quarry products, 70 per cent.

Relation of Costs to Output and Production

The costs data collected from factories are not complete but cover major items such as materials used; power, fuel and light; and lubricants, water and containers, etc. The following table summarises these costs for each class of industry and gives the balance remaining after such costs, together with salaries and wages, have been deducted from the value of output. The balance so

obtained for each industry is the fund available to provide for all other costs and overhead expenses such as rent, interest, insurance, pay-roll tax, income tax, depreciation, etc., as well as drawings by working proprietors and profit.

Factory Costs, Output and Residual Balance, 1967-68
(**\$'000**)

Class of Industry	Specified Costs of Production			Balance between Value of Output and Specified Costs (b)	Value of Output
	Materials Used	Other 'Statistical' Costs (a)	Salaries and Wages		
I. Treatment of Non-Metalliferous Mine and Quarry Products	5,362	1,747	2,727	5,385	15,221
II. Bricks, Pottery, Glass, etc.	530	605	1,044	955	3,134
III. Chemicals, Dyes, etc.	8,295	2,131	3,269	5,920	19,614
IV. Industrial Metals, Machines, etc.	65,650	14,746	35,538	33,036	148,969
V. Precious Metals, Jewellery, Plate	70	8	88	67	233
VI. Textiles and Textile Goods (not Dress)	18,042	1,818	8,859	4,043	32,762
VII. Skins and Leather (not Clothing or Footwear)	678	20	121	52	871
VIII. Clothing (except Knitted)	945	188	1,223	1,110	3,465
IX. Food, Drink and Tobacco	51,692	11,804	13,591	11,412	88,500
X. Sawmills, Joinery, Boxes, etc.	22,457	2,475	9,655	8,307	42,894
XI. Furniture, Bedding, etc.	2,657	80	1,329	978	5,044
XII. Paper, Stationery, Printing, Binding, etc.	25,602	6,959	16,543	16,102	65,207
XIII. Rubber	687	88	355	441	1,571
XIV. Musical Instruments, etc. .. ..	..	..	..	..	..
XV. Miscellaneous Products	184	23	304	141	653
Total Classes I to XV	202,851	42,691	94,646	87,949	428,138
XVI. Heat, Light and Power	232	1,283	1,590	13,833	16,938
Total All Classes	203,084	43,974	96,236	101,782	445,076

(a) Power, fuel, light, water, lubricating oil, repairs and replacements, wrappers, containers, labels, etc.

(b) Balance available for costs and charges not specified on the factory form, and for profit (including drawings by working proprietors).

The *value of production* (value of output less costs other than labour) does not appear in the above table but these details are set out in the table on the preceding page.

There are considerable variations in the proportions which the cost of materials and the expenditure on wages bear to the value of output in the various classes of industry. These are, of course, due to the difference in treatment required to convert the materials to their final form. Class XVI, heat, light and power, obviously constitutes a major deviation from all other classes of industry; the major component in this class is hydro-electric power production characterised by heavy capital expenditure and extremely light operational costs since the basic 'raw material' is water. The comparatively large residual balance attributable to Class XVI is required to meet a heavy burden in interest and depreciation charges associated with the substantial outlay of capital which created the water storages and generating capacity.

In the following table, the previous data on costs and residual balances have been converted to percentages of the value of output for each class of industry:

**Factory Costs and Residual Balance as Proportion of Value of Output, 1967-68
(Per Cent)**

Class of Industry	Specified Costs of Production			Balance between Value of Output and Specified Costs	Value of Output
	Materials Used	Other 'Statistical' Costs	Salaries and Wages		
I. Treatment of Non-Metalliferous Mine and Quarry Products	35.2	11.5	17.9	35.4	100.0
II. Bricks, Pottery, Glass, etc	16.9	19.3	33.3	30.4	100.0
III. Chemicals, Dyes, etc.	42.3	10.9	16.7	30.2	100.0
IV. Industrial Metals, Machines, etc. ..	44.1	9.9	23.9	22.2	100.0
V. Precious Metals, Jewellery, Plate ..	30.2	3.3	37.6	28.9	100.0
VI. Textiles and Textile Goods (not Dress)	55.1	5.6	27.0	12.3	100.0
VII. Skins and Leather (not Clothing or Footwear)	77.9	2.3	13.9	5.9	100.0
VIII. Clothing (except Knitted)	27.3	5.4	35.3	32.0	100.0
IX. Food, Drink and Tobacco	58.4	13.3	15.4	12.9	100.0
X. Sawmills, Joinery, Boxes, etc.	52.4	5.8	22.5	19.4	100.0
XI. Furniture, Bedding, etc.	52.7	1.6	26.4	19.4	100.0
XII. Paper, Stationery, Printing, Binding, etc.	39.3	10.7	25.4	24.7	100.0
XIII. Rubber	43.7	5.6	22.6	28.1	100.0
XIV. Musical Instruments, etc. .. ..	..	..	..	..	..
XV. Miscellaneous Products	28.2	3.6	46.6	21.6	100.0
Total Classes I to XV	47.4	10.0	22.1	20.5	100.0
XVI. Heat, Light and Power	1.4	7.6	9.4	81.7	100.0
Total All Classes	45.6	9.9	21.6	22.9	100.0

The next table has been compiled to summarise total specified costs of production, residual balances and value of output:

Total Factory Costs, Output and Residual Balance

Year	Specified Costs of Production			Balance between Value of Output and Specified Costs (<i>b</i>)	Value of Output
	Materials Used	Other 'Statistical' Costs (<i>a</i>)	Salaries and Wages		
VALUE (\$'000)					
1962-63	131,101	30,786	64,836	77,198	303,920
1963-64	154,613	33,882	70,582	81,988	341,065
1964-65	175,920	38,379	76,515	90,735	381,549
1965-66	188,678	40,296	82,963	92,644	404,581
1966-67	201,027	42,366	90,756	103,815	437,964
1967-68	203,084	43,974	96,236	101,782	445,076

Total Factory Costs, Output and Residual Balance—*continued*

Year	Specified Costs of Production			Balance between Value of Output and Specified Costs (<i>b</i>)	Value of Output		
	Materials Used	Other 'Statistical' Costs (<i>a</i>)	Salaries and Wages				
PROPORTION OF VALUE OF OUTPUT (PER CENT)							
1962-63	43.1	10.1	21.3	25.4	100.0
1963-64	45.4	9.9	20.7	24.0	100.0
1964-65	46.1	10.1	20.0	23.8	100.0
1965-66	46.6	10.0	20.5	22.9	100.0
1966-67	45.9	9.7	20.7	23.7	100.0
1967-68	45.6	9.9	21.6	22.9	100.0

(a) Power, fuel, light, water, lubricating oils, repairs and replacements, wrappers, containers, labels, etc.

(b) Balance available for costs and charges not specified on the factory form and for profit (including drawings by working proprietors).

Land, Buildings, Plant and Machinery

The values recorded in this section are generally the *values shown in the books* of the individual firms after allowance has been made for depreciation, but they include estimates of the capital value of rented premises and plant. The totals shown in the tables consequently do not represent the actual amount of capital invested in industry and are largely influenced by individual accounting methods and policies in use at a given point in time.

Where land and buildings, etc. and plant and machinery, etc. are rented by occupiers of factories, their capital value has been computed by capitalising the rent paid at fifteen years' and ten years' purchase respectively.

The table that follows shows the value of land and buildings used in connection with the various classes of manufacturing industries for a five-year period. Excluding Class XVI which is a special case because of its coverage of hydro-electric power generation, it will be seen that the value of land and buildings is greatest in Class IV (\$37.72m), Class IX (\$20.85m) and Class XII (\$15.22m). An examination of the value of plant and machinery in a subsequent table shows the same classes as the three most prominent, namely Class IV (\$57.90m), Class XII (\$22.91m) and Class IX (\$18.94m). Associated with Class IV are major establishments at George Town, Risdon, Port Latta and Mt Lyell, all concerned with the extraction and refining of metals (aluminium, ferro-manganese alloys, zinc, iron ore pellets and copper). Included in Class XII are major establishments at Burnie, Boyer and Geeveston, producing fine paper, newsprint and paper pulp. Class IX includes the northern and southern breweries, a major confectionery factory and a variety of large food-processing establishments.

A high level of investment in plant and machinery and in land and buildings normally can be correlated with a high level of employment, for particular classes of industry. Class X, the sawmilling group, appears to be an exception to this rule; employment in this class is not significantly lower than for Class IX, the food group, or Class XII, the paper group, but the value of land, plant, etc. is very much less in Class X than in Classes IX or XII.

Value at 30 June of Land and Buildings in Each Class of Industry
(\$ million)

Class of Industry	1963-64	1964-65	1965-66	1966-67	1967-68
I. Treatment of Non-Metalliferous Mine and Quarry Products	1.64	1.78	1.72	1.88	2.13
II. Bricks, Pottery, Glass, etc.	1.03	1.14	1.23	1.29	1.45
III. Chemicals, Dyes, etc.	3.01	3.17	3.56	3.65	3.87
IV. Industrial Metals, Machines, etc. ..	28.95	30.23	31.19	32.88	37.72
V. Precious Metals, Jewellery, Plate ..	0.14	0.17	0.14	0.15	0.15
VI. Textiles and Textile Goods (not Dress)	3.52	4.35	4.55	4.47	4.80
VII. Skins and Leather (not Clothing or Footwear)	0.08	0.07	0.06	0.06	0.06
VIII. Clothing (except Knitted)	1.70	1.85	1.80	1.76	1.78
IX. Food, Drink and Tobacco	16.58	17.74	18.88	20.00	20.85
X. Sawmills, Joinery, Boxes, etc. ..	4.62	5.22	5.81	6.17	6.28
XI. Furniture, Bedding, etc.	0.99	1.10	1.12	1.42	1.53
XII. Paper, Stationery, Printing, Binding, etc.	12.98	13.12	13.72	14.09	15.22
XIII. Rubber	0.87	0.69	0.72	0.79	0.80
XIV. Musical Instruments, etc. .. ..	..	..	..	..	..
XV. Miscellaneous Products	0.25	0.37	0.44	0.42	0.49
Total Classes I to XV	76.36	81.00	84.93	89.04	97.13
XVI. Heat, Light and Power	92.04	128.01	126.99	144.94	166.23
Total All Classes	168.40	209.01	211.92	233.98	263.36

It will be observed that the value of land and buildings associated with Class XVI, heat, light and power, is greater than the corresponding total value for all other factory classes. The chief component of Class XVI—hydro-electric power generation—has involved the creation of extensive dams, storages and flumes and the book value of such installations is included under 'land and buildings'; the actual generating plant, however, is included under 'plant and machinery'.

The next table shows the value of plant and machinery in each class of industry for a five-year period:

Value at 30 June of Plant and Machinery in Each Class of Industry
(\$ million)

Class of Industry	1963-64	1964-65	1965-66	1966-67	1967-68
I. Treatment of Non-Metalliferous Mine and Quarry Products	2.49	2.56	3.95	8.55	8.75
II. Bricks, Pottery, Glass, etc.	0.61	0.69	0.79	0.89	1.32
III. Chemicals, Dyes, etc.	6.66	7.43	7.71	7.48	7.36
IV. Industrial Metals, Machines, etc. ..	39.89	40.59	40.71	45.79	57.90
V. Precious Metals, Jewellery, Plate ..	0.03	0.03	0.03	0.04	0.04
VI. Textiles and Textile Goods (not Dress)	6.65	8.84	8.22	8.07	7.58
VII. Skins and Leather (not Clothing or Footwear)	0.04	0.04	0.04	0.04	0.03
VIII. Clothing (except Knitted)	0.82	0.68	0.63	0.62	0.63
IX. Food, Drink and Tobacco	14.60	15.09	16.62	18.02	18.94
X. Sawmills, Joinery, Boxes, etc. ..	5.97	6.78	7.65	7.50	6.85
XI. Furniture, Bedding, etc.	0.23	0.21	0.25	0.34	0.38
XII. Paper, Stationery, Printing, Binding, etc.	26.07	25.55	25.23	22.95	22.91
XIII. Rubber	0.28	0.26	0.30	0.25	0.32
XIV. Musical Instruments, etc. .. ..	..	..	..	..	..
XV. Miscellaneous Products	0.06	0.23	0.33	0.37	0.36
Total Classes I to XV	104.40	108.99	112.47	120.91	133.37
XVI. Heat, Light and Power	37.25	46.35	46.20	48.25	51.31
Total All Classes	141.65	155.34	158.67	169.16	184.68

Additions, Replacements and Depreciation Allowed

In stating the current book value of land and buildings and of plant and machinery, each factory proprietor is required to complete a reconciliation along the following lines:

	Land and Buildings	Plant and Machinery
	\$	\$
(i) Book value at beginning of year ..		
Plus (ii) Additions and replacements during year		
Less (iii) Depreciation allowed during year ..		
Less (iv) Sales and losses by fire, etc., during year		
(±) (v) Adjustment due to revaluation ..		
(vi) Book value at end of year ..		

If no proprietors used rented land and buildings or rented plant and machinery, then the totals for the items 'additions and replacements' and 'depreciation allowed' would give a complete record of these important capital items in the factory sector. However, factory proprietors who rent premises or plant are simply required to report the annual rental and, to this extent, the totals for additions and replacements, and depreciation allowed, are incomplete since they refer only to land, buildings, plant and machinery *owned* by the factory proprietor. In 1967-68, 7.6 per cent of the value of land and buildings comprised rentals capitalised at 15 years' purchase and 2.6 per cent of the value of plant and machinery comprised rentals capitalised at 10 years' purchase. The following table summarises additions and replacements and depreciation allowed:

Factories—Reported Additions, Replacements and Depreciation Allowed
(\$ million)

Year	Land and Buildings			Plant and Machinery		
	Additions and Replacements (Excluding Rented)	Depreciation (Excluding Rented)	Book Value, 30 June (Including Rented)	Additions and Replacements (Excluding Rented)	Depreciation (Excluding Rented)	Book Value, 30 June (Including Rented)
1957-58 ..	3.54	1.52	118.91	10.61	6.51	93.72
1958-59 ..	4.53	1.66	123.66	8.70	7.19	96.45
1959-60 ..	21.05	1.77	144.02	17.39	7.70	107.31
1960-61 ..	4.33	1.83	147.10	13.69	8.50	112.63
1961-62 ..	13.93	1.86	159.15	19.16	9.01	121.59
1962-63 ..	4.92	1.91	163.92	24.60	10.19	137.93
1963-64 ..	4.77	2.16	168.40	15.04	11.65	141.65
1964-65 ..	41.35	2.22	209.01	24.62	11.78	155.34
1965-66 ..	4.79	2.45	211.92	17.69	12.09	158.67
1966-67 ..	24.53	2.67	233.98	25.30	12.74	169.16
1967-68 ..	31.22	2.86	263.36	30.13	12.31	184.68

Power Equipment in Factories

General

Since 1936-37, statistics of power equipment in factories relate to the 'rated horsepower' of engines ordinarily in use and engines in reserve or idle, omitting obsolete engines. In addition, particulars of the power equipment of central electric stations are collected in greater detail. Since the central electric stations supply part of their power output to factories and since they are themselves classified as factories, it is necessary to make a clear distinction between engines in the stations and engines in all other types of factory, otherwise duplication may occur. In the following tables, central electric stations have been treated separately from other factories.

Rated Horse-power of Engines in Factories Other Than Central Electric Stations

The following table shows the types of engines and motors employed in each class of industry, also the horsepower rating related to each type:

Factories, Excluding Central Electric Stations—

Types and Power Rating of Engines in Each Class of Industry, 1967-68

Class of Industry	Rated Horsepower of Engines and Motors Ordinarily in Use—				Rated HP of Engines in Reserve or Idle (excluding Obsolete Engines)
	Steam	Internal Combustion	Motors Driven by Purchased Electricity	Total (a)	
I. Treatment of Non-Metalliferous Mine and Quarry Products .. .. .	..	3,289	21,691	24,980	1,555
II. Bricks, Pottery, Glass, etc. ..	..	..	3,838	3,838	1,116
III. Chemicals, Dyes, etc. ..	15	2,408	20,541	22,964	4,543
IV. Industrial Metals, Machines, etc. .. .	..	4,041	87,930	91,971	21,922
V. Precious Metals, Jewellery, Plate .. .	6	..	128	134	10
VI. Textiles and Textile Goods (not Dress) .. .	..	392	11,496	11,888	1,404
VII. Skins and Leather (not Clothing or Footwear) ..	..	..	485	485	15
VIII. Clothing (except Knitted) ..	8	..	920	928	56
IX. Food, Drink and Tobacco ..	105	1,130	36,435	37,670	3,548
X. Sawmills, Joinery, Boxes, etc. .. .	634	7,325	50,686	58,645	2,577
XI. Furniture, Bedding, etc. .	..	..	1,966	1,966	37
XII. Paper, Stationery, Printing, Binding, etc. ..	..	506	116,730	117,236	19,710
XIII. Rubber .. .	1	..	572	573	51
XIV. Musical Instruments, etc. ..	..	..	..	..	..
XV. Miscellaneous Products ..	..	..	436	436	6
Total Classes I to XV ..	769	19,091	353,854	373,714	56,550
XVI. Heat, Light and Power ..	6	..	120	126	55
Total All Classes ..	775	19,091	353,974	373,840	56,605

(a) Excludes motors driven by electricity of own generation.

The total rated horsepower of engines and motors ordinarily in use as shown in the previous table is free from duplication since electric motors driven by power from a factory's own generation are excluded. The same freedom from duplication is not possible in relation to the power rating of reserve engines and motors, the figures shown being simply unadjusted totals of reported capacity. In 1967-68, motors ordinarily in use and driven by electricity were rated at 353,974 horsepower using purchased electricity and only 3,206 horsepower using electricity of own generation. As indicated by the previous table, the class with the greatest horsepower rating of electric motors is Class XII, paper making, etc. This does not necessarily imply that Class XII uses most electricity since power is employed industrially for purposes other than the driving of machinery, e.g. for electrolytic processes. In actual fact, Class IV, industrial metals, etc., consumes more electricity than Class XII.

The table that follows summarises the types and power capacity of engines and motors in Tasmanian factories over a ten-year period:

**Factories, Excluding Central Electric Stations—
Types and Power Rating of Engines**

Year	Rated Horsepower of Engines and Motors Ordinarily in Use						Rated HP of Engines in Reserve or Idle (excluding Obsolete Engines) (<i>b</i>)	
	Steam		Internal Combustion	Water	Motors Driven by Electricity			Total without Duplication (<i>a</i>)
	Reciprocating	Turbine			Purchased	Own Generation		
1957-58 ..	1,529	24	9,764	192	238,533	357	250,042	36,268
1963-64 ..	612	..	11,747	..	302,277	281	314,636	46,830
1964-65 ..	547	..	13,112	..	308,521	280	322,180	47,449
1965-66 ..	658	..	10,185	..	319,187	689	330,030	49,419
1966-67 ..	1,010	..	9,625	..	329,461	668	340,096	50,999
1967-68 ..	775	..	19,091	..	353,974	3,206	373,840	56,605

(a) Excludes electric motors driven by power of own generation; includes gas driven engines not specified in table.

(b) Includes all electric motors in reserve.

Central Electric Stations

The generation of hydro-electric power in Tasmania is sufficiently important to warrant detailed treatment in its own right but the Commonwealth uniform definition of factory establishments classifies producers of 'electric light and power' as a sub-class of Class XVI, heat, light and power, and therefore a short account of the central electric stations is included at this point. A more detailed description of government electricity generation will be found in the section, 'Hydro-Electric Power', further on in this chapter.

In 1967-68, the horsepower rating (or installed capacity) of generators in the Tasmanian central electric power stations was 1,348,825 horsepower; of this total, 1,292,870 horsepower was associated with turbines driven by water, 42,225 horsepower with internal combustion engines and 13,730 horsepower with steam turbines. The following table summarises the main power characteristics of the central electric stations (with horsepower equivalents for kilowatt measures):

Central Electric Stations (a)—Power Rating Characteristics of Generators

Description	Unit	1963-64	1964-65	1965-66	1966-67	1967-68
Total Installed Capacity ..	kW	767,990	818,990	819,176	860,710	956,000
	hp	1,078,034	1,149,634	1,150,874	1,212,180	1,348,825
Effective Capacity ..	kW	765,160	816,160	816,290	857,790	953,080
	hp	1,072,970	1,144,570	1,145,740	1,207,030	1,343,680
Maximum Load	kW	576,604	597,044	634,338	631,250	691,658
	hp	800,477	828,870	880,668	876,352	959,310

(a) Not only Hydro-Electric Commission; see the following paragraph.

In 1967-68, there were 21 establishments classed as central electric stations, 19 government and two 'company'. The 1967-68 figures in the above table include: gas turbine stations at Bell Bay and Risdon; a diesel station on King Island; and a steam turbine vessel *George H. Evans* moored at Bell Bay. All other government-generated electricity is derived from hydro-electric stations.

Principal Articles Manufactured

The next table lists the principal articles manufactured in Tasmania, irrespective of the sub-class of industry in which production took place. In several cases, however, where there are only one or two producers or where one producer dominates, it is not possible to publish details for articles that are important and would otherwise appear in the table. To give some indication of changes in production, quantity details are given for 1938-39, 1959-60 and 1967-68. Values also are shown for 1967-68.

Principal Articles Manufactured

Article	Unit of Quantity	1938-39	1959-60	1967-68	
		Quantity		Quantity	Value (\$'000)
Acid, Sulphuric (100 per cent)	ton	14,158	127,038	187,376	n.p.
Aerated Waters	'000 gal	338	1,838	2,646	1,761
Bacon and Ham	'000 lb	1,935	2,562	2,869	n.p.
Bran and Pollard	short ton	8,939	13,201	11,031	545
Bread (2 lb loaf equivalents) ..	'000	11,337	27,175	27,356	5,226
Bricks, Clay	'000	14,541	23,975	26,372	1,213
Butter (a)	ton	4,053	11,744	13,778	11,193
Cadmium, Refined	lb	385,287	567,967	577	n.p.
Cakes, Pastry, Pies .. ..	..	..	..	..	2,281
Cases, Fruit	'000	3,143	4,081	1,892	622
Cheese	ton	1,420	328	4,649	2,525
Copper, Blister	ton	n.a.	n.a.	14,062	n.p.
Electricity, Total Generated ..	m kWh	567	2,532	3,773	n.p.
Fertilisers—					
Sulphate of Ammonia	ton	..	57,601	12,879	n.p.
Superphosphate	ton	30,086	102,613	143,662	n.p.
Plaster Sheets	sq yd	120,678	778,522	443,825	425
Flour	short ton	19,582	30,872	26,408	2,684
Fruits, Canned or Bottled—					
Apples, Solid Pack	'000 lb	2,313	16,584	15,566	1,566
Berry Fruits	'000 lb	918	2,944	800	172

Principal Articles Manufactured—continued

Article	Unit of Quantity	1938-39	1959-60	1967-68	
		Quantity		Quantity	Value (\$'000)
Fruit—					
Dehydrated and Evaporated					
Apples	'000 lb	762	558	779	244
Furniture, Wooden .. .. .	..	..	..	..	2,844
Joinery (Excluding Doors) .. .. .	..	..	..	..	3,801
Bed Bases, Woven Wire	no.	3,386	7,286	8,873	62
Paper, Newsprint	ton	..	88,510	92,648	12,688
Structural Steel Fabricated	ton	n.p.	10,154	11,793	3,712
Tallow	'000 lb	1,694	7,699	10,021	550
Timber Sawn, Peeled or Sliced—					
Hardwood (b)	'000 sup ft	83,499	164,895	171,972	16,449
Softwood (b)	'000 sup ft	1,529	4,764	3,253	432
Timber Dressed—					
Floorboards	'000 sup ft	5,124	29,511	31,478	5,646
Weatherboards	'000 sup ft	1,911	3,743	3,081	573
Other	'000 sup ft	1,165	15,979	25,081	4,917
Tyres, Retreaded and Recapped	no.	10,650	81,820	115,668	n.p.
Zinc, Refined	ton	69,825	117,893	129,789	n.p.

(a) Includes butter equivalent of butter oil.

(b) Includes timber to be further processed.

The articles just listed do not include the following important Tasmanian products: aluminium, automotive engine bearings, carbide, cement, confectionery, welding electrodes, ferro-manganese alloys, hand tools, hard-board, iron ore pellets, particle board, printing, writing and wrapping papers, titanium di-oxide, canned, dehydrated and quick frozen vegetables, wood pulp, woollen manufactures and other textile products. An unusual unlisted product is sodium alginate made from seaweed kelp.

The following table shows the factory output of selected foodstuffs for selected years since 1944-45:

Foodstuffs Produced in Factories—Selected Items

Year	Butter (a)	Cheese	Bacon and Ham	Canned or Bottled Fruit		Aerated Waters
				Berry Fruits	Solid Pack Apple (incl. Pie Apple)	
	tons	tons	tons	'000 lb	'000 lb	'000 gal
1944-45	3,643	1,122	1,122	1,369	9,270	628
1949-50	5,069	418	948	2,478	15,699	992
1954-55	8,334	274	992	1,393	8,194	1,127
1955-56	9,962	331	1,007	1,989	16,974	1,237
1956-57	10,426	333	1,026	2,054	5,406	1,218
1957-58	10,622	326	1,033	2,061	15,881	1,396
1958-59	10,805	345	1,103	3,517	10,011	1,654
1959-60	11,744	328	1,120	2,944	16,002	1,838
1960-61	10,258	348	1,100	2,745	8,100	1,904
1961-62	12,063	605	1,112	2,581	14,785	1,942
1962-63	13,097	643	1,182	2,595	8,803	2,130
1963-64	13,667	1,337	1,166	1,416	17,251	2,186
1964-65	13,903	2,350	1,171	1,672	10,494	2,268
1965-66	14,004	2,942	1,062	706	11,657	2,444
1966-67	14,311	3,762	1,242	994	13,120	2,548
1967-68	13,778	4,649	1,284	800	15,566	2,646

(a) Includes butter equivalent of butter oil.

Individual Industries

The items given for each industry are defined as follows:

- Rating of Engines and Motors .. engines and motors driving factory machinery and ordinarily in use.
- Average Number of Workers .. average whole year, including working proprietors.
- Salaries and Wages Paid .. excludes amounts drawn by working proprietors.
- Other Costs of Manufacture .. cost of power, fuel, light, water, lubricating oils, containers, etc., tools replaced, repairs to plant (but not depreciation charges).
- Value of Production value of output less 'statistical' costs, other than labour, (i.e. less cost of materials and 'other costs of manufacture', as just defined).
- Value of Land, Machinery, etc... at 30 June; includes estimated value for rented premises and machinery.

Selected Individual Industries, 1967-68

Particulars	Unit	I-9	IV-3	IV-4	IV-5	IV-7
		Other Cement Goods	Plant Equipment and Machinery	Engineering	Extracting and Refining Non-ferrous Metals(a)	Railway Rolling Stock—Government
Factories	no.	36	39	87	4	4
Rating of Engines and Motors	hp	2,369	2,821	4,821	53,497	3,106
Average Workers	no.	291	1,332	1,393	3,455	623
Salaries and Wages Paid ..	\$'000	868	3,779	4,079	12,968	1,471
Costs of Materials Used ..	\$'000	4,025	3,424	5,365	38,141	667
Other Costs of Manufacture	\$'000	192	285	428	12,095	73
Value of Output	\$'000	6,589	9,199	12,183	83,374	2,630
Value of Production	\$'000	2,372	5,490	6,389	33,137	1,890
Value of Land and Buildings	\$'000	696	2,733	2,389	13,526	1,386
Value of Plant and Machinery	\$'000	962	1,023	1,271	42,526	754

(a) Includes aluminium, cadmium, copper, ferro-manganese alloy and zinc.

Individual Industries, 1967-68—continued

Particulars	Unit	IV-10	IV-22	IV-24	VI-3	VIII-14
		Motor Vehicle Repairs	Non-ferrous Founding, Casting, etc.	Sheet Metal Working, Pressing, Stamping	Wool Carding, Spinning, Weaving	Dyeworks and Cleaning
Factories	no.	364	8	32	6	32
Rating of Engines and Motors	hp	2,723	452	928	8,164	651
Average Workers	no.	2,178	157	389	2,629	285
Salaries and Wages Paid ..	\$'000	4,707	341	910	5,268	554
Cost of Materials Used ..	\$'000	4,996	576	2,625	9,259	125
Other Costs of Manufacture	\$'000	238	56	90	1,017	125
Value of Output	\$'000	12,906	1,199	4,973	17,045	1,457
Value of Production	\$'000	7,671	567	2,259	6,768	1,207
Value of Land and Buildings	\$'000	6,777	192	1,099	2,378	936
Value of Plant and Machinery	\$'000	913	172	334	3,217	395

Individual Industries, 1967-68—continued

Particulars	Unit	IX-1	IX-5	IX-9	IX-10	IX-12
		Flour Milling	Bakeries (Including Cakes and Pastry)	Confec- tionery	Jam, Fruit, and Vegetable Canning	Bacon Curing
Factories	no.	5	127	8	17	11
Rating of Engines and Motors	hp	1,949	1,338	8,321	8,878	1,367
Average Workers	no.	135	738	1,366	1,225	284
Salaries and Wages Paid ..	\$'000	358	1,384	3,554	3,310	764
Cost of Materials Used ..	\$'000	2,767	3,559	9,830	6,852	4,334
Other Costs of Manufacture	\$'000	236	458	2,692	3,263	369
Value of Output	\$'000	3,870	7,640	18,072	13,848	6,066
Value of Production	\$'000	867	3,623	5,550	3,733	1,363
Value of Land and Buildings	\$'000	659	2,453	3,001	4,056	946
Value of Plant and Machinery	\$'000	627	1,501	4,128	3,219	403

Individual Industries, 1967-68—continued

Particulars	Unit	IX-13	IX-14	IX-15	IX-21	X-1
		Butter Factories	Cheese Factories	C'densed and Dried Milk Factories	Aerated Waters, Cordials, etc.	Sawmills
Factories	no.	12	7	4	12	274
Rating of Engines and Motors	hp	2,637	290	1,641	754	47,093
Average Workers	no.	243	92	211	221	2,801
Salaries and Wages Paid ..	\$'000	699	242	612	549	6,791
Cost of Materials Used ..	\$'000	10,321	2,165	3,460	1,227	17,941
Other Costs of Manufacture	\$'000	468	254	1,270	621	1,667
Value of Output	\$'000	12,118	3,010	6,532	3,222	32,425
Value of Production	\$'000	1,329	592	1,802	1,374	12,818
Value of Land and Buildings	\$'000	931	452	404	656	3,628
Value of Plant and Machinery	\$'000	1,810	1,086	705	492	3,725

Individual Industries, 1967-68—continued

Particulars	Unit	X-4	XI-1	XII-9	XIII-2	XVI-1
		Joinery	Cabinet and Furniture Making	Paper Making (a)	Tyre Retread- ing and Repairing	Electric Light and Power, Govt
Factories	no.	105	53	4	19	19
Rating of Engines and Motors	hp	3,466	1,821	112,994	573	1,333,775
Average Workers	no.	578	568	3,680	139	374
Salaries and Wages Paid ..	\$'000	1,367	1,149	12,246	355	1,412
Cost of Materials Used ..	\$'000	2,186	2,051	19,141	687	..
Other Costs of Manufacture	\$'000	56	65	6,621	88	1,229
Value of Output	\$'000	4,379	4,047	50,639	1,571	16,383
Value of Production	\$'000	2,137	1,932	24,877	797	15,154
Value of Land and Buildings	\$'000	1,019	1,245	10,890	796	165,789
Value of Plant and Machinery	\$'000	360	321	19,889	323	50,127

(a) Includes pulp and paper mills at Boyer, Burnie and Geeveston.

The 25 individual industries appearing in the previous tables are, in effect, a sample only of the data on factories compiled by the Bureau of Census and Statistics in Tasmania; the major reference is the bulletin *Secondary Industries* (annual).

Government Factories

The concept of the factory is not restricted to the private sector of the economy and almost all factory data previously quoted in this chapter have referred to private and government establishments without distinction. Of the 1,797 factories in the 1967-68 collection, 86 were classified as 'government' the term being applied to all levels whether Commonwealth, State, local or semi-government. To give an indication of the various fields of government factory activity, the next table has been compiled showing the number of establishments in the relevant sub-classes:

Number of Government Factories in Sub-Classes, 1967-68

Sub-Class of Industry	Title of Sub-Class	Number of Government Factories
I-4	Lime, Plaster of Paris, Asphalt	2
I-9	Other Cement Goods	3
III-8	Boiling Down, Tallow Refining	2
IV-3	Plant, Equipment and Machinery, including Machine Tools..	12
IV-4	Other Engineering	4
IV-6	Electrical Machinery, Cables and Apparatus	1
IV-7	Construction and Repair, Tramcars and Railway Rolling Stock	4
IV-10	Motor Vehicles—Repairs	21
IV-33	Other Metal Works	1
V-3	Electroplating (Gold, Silver, Chromium, etc.)	1
IX-5	Bakeries (including Cakes and Pastry)	1
IX-19	Ice and Refrigerating	4
IX-33	Other Food Processing	1
X-4	Joinery	2
X-11	Other Woodworking	1
XI-1	Cabinet and Furniture Making	2
XII-2	Printing, Government	2
XV-4	Brooms and Brushes	1
XV-6	Surgical and Other Scientific Instruments and Appliances ..	2
XVI-1	Electric Light and Power, Government	19
Total		86

Some of the authorities maintaining these establishments are the Hydro-Electric Commission, Postmaster-General's Department, the Transport Commission, the Metropolitan Transport Trust, the various marine boards, local government authorities and the Public Works Department.

In the costing of the output of some Government factories, reliance is placed on internal accounting procedures since, in most cases, the product does not find its way to the open market but may appear as a book-entry between sections of the one department. A good example of this occurs in sub-class IV-10 (Motor Vehicles—Repairs), the situation being that various departments and authorities maintain repair workshops for maintenance of their own vehicles.

The following table analyses the principal items of factory statistics, showing the government and non-government components of the totals:

Government and Non-Government Factories, 1967-68

Particulars	Government Factories	Non-Government Factories	Total
Factories (no.)	86	1,711	1,797
Average Employment (a)—			
Males (no.)	2,677	25,873	28,550
Females (no.)	64	6,564	6,628
Salaries and Wages Paid (b)—			
Males (\$'000)	7,791	77,538	85,329
Females (\$'000)	92	10,815	10,908
Cost of Materials Used .. (\$'000)	6,054	197,029	203,084
Other Costs of Manufacture (c) (\$'000)	1,770	42,204	43,974
Value of Production .. (\$'000)	24,237	173,782	198,019
Value of Output (\$'000)	32,062	413,015	445,076
Value at 30 June—			
Land and Buildings .. (\$'000)	(d) 171,056	92,309	263,364
Plant and Machinery .. (\$'000)	53,386	131,297	184,683

(a) Average whole year (including working proprietors).

(b) Excludes amounts drawn by working proprietors.

(c) Comprises cost of power, fuel, light, water, lubricating oils, containers, tools replaced and repairs to plant.

(d) Includes value of dams, flumes, earth works, etc. ancillary to production of electricity from water.

INDUSTRIAL GROWTH SINCE 1945

Source of Data

In normal circumstances, the Bureau of Census and Statistics does not publish information relating to any single enterprise or establishment, and regards any information it collects as strictly confidential. It does, however, publish statistical aggregates where they do not reveal the operations of any single informant.

A description of industrial growth without mentioning individual organisations is not very illuminating; therefore the *State Directorate of Industrial Development and Trade* has prepared the following section and accepts responsibility for the information given.

Primary-Secondary Relativity

Prior to World War II, there were few large manufacturing establishments in Tasmania. The economy of the State was dominated by primary industries which, in 1938-39, accounted for 60 per cent of the net value of production of all recorded industries.

By today's criteria, pre-war operations of manufacturing establishments were on a small scale but some enterprises have since emerged as national leaders in particular fields. Despite the limitations of geographical isolation and a relatively small domestic market, the State has been going through a period of important industrial development since World War II; the cessation of hostilities released a world-wide demand for goods and services, and a number of new Tasmanian factories were established to take advantage of the situation.

Post-war expansion of factory activity has made the State an important supplier of manufactured goods and processed materials; the economy is now dominated by *secondary industry* which accounted for 63 per cent of the net value of production of all recorded industries in 1967-68. The following table which shows the changing primary-secondary relativity since 1938-39, in terms of net value of production indicates some stability in the ratios at present levels.

Net Value of Production: Primary and Secondary Industries Compared

Year	Net Value of Production			Secondary Component as a Proportion of Total
	Primary Industries (a)	Secondary Industries (Factories)	Total	
	\$m	\$m	\$m	per cent
1938-39.. ..	16.3	10.8	27.1	40
1945-46.. ..	24.2	18.4	42.6	43
1950-51.. ..	66.9	49.2	116.2	42
1955-56.. ..	87.4	91.9	179.3	51
1960-61.. ..	73.6	124.9	198.5	63
1967-68.. ..	107.1	198.0	305.1	65

(a) Rural industries and the non-rural group (trapping, forestry, fishing and mining and quarrying).

Tasmania as a Site for Industry

The State has certain advantages which have attracted new industrial enterprises. The principal factors are:

Hydro-Electric Power: This is fully described elsewhere in this chapter and it is therefore sufficient to mention the need of power-intensive industries for cheap bulk electricity (e.g. in metal smelting and refining, heavy chemicals, paper and paper pulp making). The State supply is based on hydro-electric generation, and its capacity is being continuously increased. Rates charged to industrial consumers compare very favourably with those in other Australian systems based principally on thermal generation.

Water Resources: In some parts of the world, water resources are inadequate; shortage of water and the high cost of conservation, re-use and 'purification' have become major problems in the expansion of industry. This is definitely not the situation in Tasmania where water is abundant. The terrain favours the economical construction of high-level storages while run-of-the-river pumping schemes are feasible at many sites.

Industrial Land, Harbours and Shipping: Cheap land, and its proximity to deep-sea ports, are factors influencing the expansion of industry in the four main centres of population: Hobart, Launceston, Burnie and Devonport.

The associated ports are served by overseas ships and by interstate ships using modern roll-on roll-off and containerised cargo techniques.

Legislation and Government Assistance: The *State Industrial Development Act 1954* provided for the establishment of the Industrial Development Branch of the Premier's and Chief Secretary's Department. This organisation was later

attached to the Attorney General's Department and re-named the Directorate of Industrial Development and Trade. A subsequent administrative reorganisation returned the Directorate to the Premier's and Chief Secretary's Department. The Directorate gives advice, information and assistance on a wide range of important industrial matters, and is empowered to provide financial assistance, including loan guarantees, with the object of helping establish new industries or expanding those in operation.

In common with manufacturers in other Australian States, Tasmanian manufacturers may be granted tariff protection by the Commonwealth, the policy being to assist efficient producers to compete with those in other countries.

Major New Factories Since 1945

The following lists some of the major factories established in the post-war years:

Petersville Australia Ltd (Ulverstone and Devonport): Both Gordon Edgell Pty Ltd and International Cannery Pty Ltd operated in the post-war period to make Tasmania a major producer of processed peas; the two companies now operate as subsidiaries of Petersville Australia Ltd.

Stanley-Titan Pty Ltd (Moonah): This company was incorporated in 1963 and is jointly owned by the Stanley Works, United States of America, and the Titan Manufacturing Company Pty Ltd, (a B.H.P. subsidiary). The Australian member of the new company, Titan Manufacturing Company, commenced operations in Hobart making nails and barbed wire in 1943, diversifying to produce wood chisels in 1945. Stanley-Titan Pty Ltd now produce a wide range of hand tools.

Silk and Textile Printers Pty Ltd: Operations commenced in 1947; the processes include the weaving, dyeing, printing and finishing of silk, nylon, terylene, rayon and cotton. The company is now a subsidiary of Universal Textiles (Australia) Limited.

Australian Titan Products Pty Ltd (Burnie): Production of titanium oxide (rutile) pigments began in 1949; plant capacity has risen from an initial 1,800 tons to 25,000 tons per annum.

Murex (Asia) Pty Ltd (Derwent Park): The company was incorporated in 1950 to make arc welding materials; activities have steadily expanded to meet the demand for the company's welding electrodes, machines and accessories.

James Nelson (Aust.) Pty Ltd (Launceston): Established in 1951, the mill began with 150 looms and subsequent additions have brought the total to over 330 looms. Current production is in excess of eight million square yards of synthetic material per annum.

Tootal Ltd (Devonport): First operations in 1952 used piece-goods imported from the U.K. to make textiles. In 1955, capacity was increased to include the weaving, dyeing and finishing of locally produced fabrics.

Comalco Aluminium (Bell Bay) Ltd: The production of aluminium commenced in 1955 at a plant erected with Commonwealth Government funds (with the State Government also participating). The present company was formed in 1960 to buy out the Commonwealth's interest.

Production capacity has grown from 13,000 to 73,000 tons of primary aluminium per annum. The capacity of the alumina (aluminium oxide) plant has recently been doubled and its output of more than 50,000 tons per annum meets about half Comalco's present requirements. A new company, Comalco

Aluminium Powder Pty Ltd, has established a plant at Bell Bay to make aluminium powder and paste. A more detailed account of recent developments undertaken by the company is included elsewhere in this Chapter.

Tasmanian Scottish Carpet Manufacturing Pty Ltd (E. Devonport): The first piece of Tasmanian carpet was woven in 1961. Capacity has now been increased with the introduction of a high speed loom in 1967. The finished product is of the Spool Axminster type.

Kraft Foods Ltd (Scottsdale): In 1961, Kraft Foods Ltd acquired Dewcrisp Products Ltd, manufacturers of dehydrated vegetables and of frozen and canned peas. Capacity was expanded and the making of instant mashed potatoes began in 1964.

Australian Paper Manufacturers Ltd (Port Huon): Production began in 1963 with an initial capacity of 25,000 tons of pelletised wood pulp per annum; capacity has now been lifted to 75,000 tons.

Tasmanian Electro Metallurgical Co. Pty Ltd (Bell Bay): The Broken Hill Co. Pty Ltd established a plant in 1962 to produce high carbon ferro-manganese for the Australian steel industry. An additional furnace was commissioned in 1966 increasing the capacity of the plant to approximately 75,000 tons of ferro alloys per year.

Algimates (Aust.) Co. (Orford): Operations commenced in 1964, the process extracting sodium alginate from sea kelp. Alginate is a colloid agent, used in film forming, jelling, stabilising, suspending and emulsifying processes. Kelp is obtained from the eastern shoreline in specially designed barges.

Iron Ore Pellet Industry (Port Latta): The most important industrial project carried out in recent years commenced operation in 1968. The iron ore pelletising project, including the cost of developing the mine at Savage River and building the pipeline to carry the mineral to Port Latta, cost over \$70m to complete. The production for the first 20 years, which has already been sold, will contribute over \$400m to net export income. Production during the first year of operation amounted to 760,083 tons of pellets.

Ceilcote Pty Ltd (Devonport): This company has established, at a cost of \$265,000 a factory at East Devonport for the production of corrosion-resistant materials.

Other New Products

The previous section described some of the factories which have started large-scale manufacturing activities since 1945. The list is by no means exhaustive; other new products which have been added recently to the range of goods manufactured in Tasmania include: bottles, jars and glass containers; domestic electric appliances; fibreboard shipping containers; mattresses; corrugated and solid fibre containers; multi-wall paper bags; tubes for paper, building and textile industries; hot bitumen and bituminous emulsions; explosives; roofing material; malt products; anhydrous milk fat; casein; long-keeping milk treated by a new ultra-heat process; and corrosion resistant materials and paint.

Expansion of Established Industries

Not all expansion of manufacturing activity originates in new factories and an account of post-war development would be deficient if it ignored the role played by long-established enterprises. Examples follow:

Australian Newsprint Mills Ltd (Boyer): The first paper machine, with a 27,000 ton capacity per annum, began operating in 1941; a second machine, installed after the war, increased capacity to 94,000 tons of newsprint per annum. The recent \$30m expansion programme involved the installation of a

third machine to lift the total capacity to 165,000 tons; the plant with this capacity will be able to supply about 40 per cent of Australia's needs. The Boyer plant is Australia's sole newsprint producer. A more detailed account of recent developments undertaken by A.N.M. is included elsewhere in this Chapter.

Associated Pulp and Paper Mills Ltd (Burnie): Paper manufacturing capacity has increased from an initial 14,000 tons per annum in 1938 to 110,000 tons at present; the company has become Australia's largest manufacturer of fine papers, and has subsidiaries making specialty papers, hard board and particle board and producing sawn timber. At Wesley Vale, seven miles east of Devonport, the company is constructing a new integrated pulp and paper complex, with paper production expected to begin early in 1970. A more detailed account of recent developments undertaken by the company is included elsewhere in this Chapter.

Cadbury Fry Pascall Australia Ltd (Claremont): In 1921, an association of three British confectioners established their Australian plant at Claremont, near Hobart. Today, the plant is the largest cocoa and chocolate factory in Australia. The company is continually expanding production at Claremont and at its milk depots in Northern Tasmania. Following the takeover of *McRobertson Pty Ltd (Ringwood, Victoria)* in 1967, the Cadbury Organisation employs over 3,000 persons.

Electrolytic Zinc Company of Asia Ltd (Risdon): Established in 1916, the factory at Risdon is now one of the largest electrolytic zinc plants in the world. Production facilities have been expanded in recent years and the factory now produces zinc and zinc alloys; cadmium; sulphuric acid; superphosphate; sulphate of ammonia and aluminium sulphate.

Superphosphate production increased from 28,000 tons in 1944-45 to 12,879 tons in 1967-68. In 1956, a sulphate of ammonia plant with a 62,000 ton annual capacity was brought into production and, in 1964, a small plant for making aluminium sulphate began operating.

Production of the company's principal metal—refined zinc—has almost doubled since 1944-45, 1967-68 output standing at 129,789 tons. The zinc plant supplies a large proportion of Australia's total requirements.

Goliath Cement Holdings Ltd (Railton): Production of Portland cement approached 44,000 tons in 1944-45. In 1967, a new dry process plant which cost \$5 million came into operation. With an annual capacity of 300,000 tons this unit supplemented the older plant and raised annual output to 500,000 tons. The economical despatch of the product has been facilitated by the installation of bulk handling facilities both at the Railton works and at the port of Devonport.

Kelsall and Kemp (Tas.) Ltd (Launceston): From a small beginning in 1921, the company has become one of Australia's leading producers of high fashion fabrics. Furniture fabrics have recently been added to its range of products.

Coats Patons (Aust.) Ltd (Launceston): Worsted and woollen hand knitting and machine knitting yarns are spun at this factory which first began yarn making in 1923. The post-war period saw steady expansion, plant development requiring over \$7m in the last ten years. The company established a \$0.75m plant at George Town to produce high quality acrylic yarns for machine knitting. This plant commenced operation at the end of 1967.

RepcO Bearing Company Pty Ltd (Launceston): Established in 1933 to manufacture engine bearings for the Australian domestic automotive spare

parts trade, the company has expanded and secured export markets in overseas countries. Special equipment has been installed recently to produce self-lubricating bushings and shaped parts from metal powders. Repco bearings have been used in the world's major motor races since they are incorporated in Jack Brabham's special motors, which won the World Formula 1 Motor Racing Championship in 1966.

A. Wander (Aust.) Pty Ltd (Quoiba): Established in Tasmania in 1941, the Quoiba unit has become one of the largest 'Ovaltine' factories in the world. Recent additions to the range of products include malt extracts, 'Ovaltine' infant rusks, and pharmaceutical products.

Concrete Industries (Monier) Ltd (Longford): The company, established in 1968, is the first automatic concrete roofing tile plant in Tasmania.

Current or Planned Projects

The expansion of manufacturing activity described in the previous sections would not be complete without some mention of new projects. This section lists some of the major developments that are in either the planning or the construction stage.

Wood Chip Industry: Tasmanian Pulp and Forest Holdings Pty Ltd plan to build a wood chip plant near Triabunna. Initial capital investment by the company will be \$3.4m and 380 persons will be employed. A port will be built at Spring Bay on the East Coast.

A second wood chip plant is to be constructed in the Bell Bay area for Associated Pulp and Paper Mills Limited. The plant will utilise pulpwood supplies and sawmill waste from the Mid-North and North East of the State.

Sulphuric Acid Plant: The E.Z. Co. of A/sia and the Mt Lyell Mining and Railway Company have let contracts for the establishment of a sulphuric acid plant at Burnie. The plant of 420,000 tons annual capacity will cost more than \$14m to establish.

Freighter Industries (Tas.) Pty Ltd: A new plant, expected to cost \$150,000 will be established at Young Town to manufacture transport equipment.

Port Huon Fruit Juices Limited (Hobart): To increase production a new plant worth \$150,000 is to be constructed.

Truline Productions Pty Ltd (Ulverstone): Expansion costing \$27,000 is to be undertaken to meet expanding demand.

Clempar Pty Ltd (Cygnet): A factory specialising in apple products is planned for Cygnet at an estimated cost of \$205,000.

STATE INDUSTRIES

The following account of three of Tasmania's larger industrial enterprises has been prepared from information supplied by the companies: Associated Pulp and Paper Mills Ltd, Burnie; Australian Newsprint Mills Ltd, Boyer; and Comalco Aluminium (Bell Bay) Ltd, George Town.

Associated Pulp and Paper Mills Ltd

History

Associated Pulp and Paper Mills Limited was formed in 1936 and commenced paper production at Burnie in 1938. The principal reasons for selecting Burnie as the plant site were: (i) large accessible timber reserves; and (ii) an adequate water supply from the Emu River. Burnie possessed a further

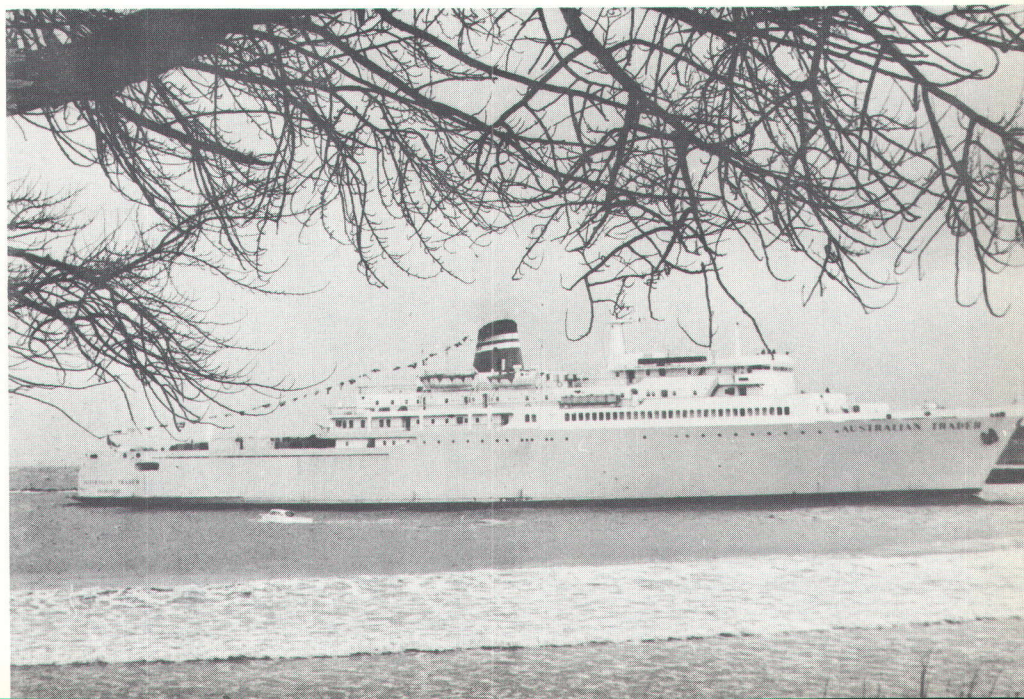


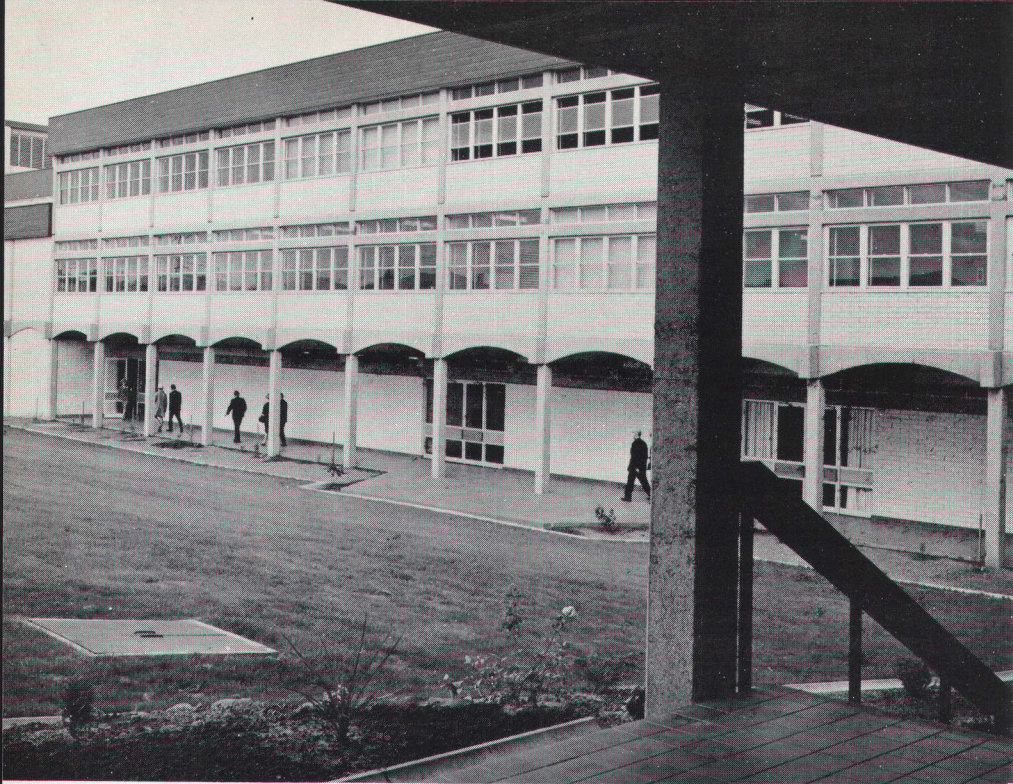
Burnie, with West Park Oval and the suburb of Montello in the right foreground

(Brian Curtis)

The roll-on roll-off ferry 'Australian Trader' entering the Mersey River

(Advocate)





The newly opened Launceston Teachers College, Mowbray

(Education Dept)



Crayfish, a major Tasmanian fishery

(Brian Curtis)

advantage in that it had an established deep-water port. Cheap electric power was also a factor in attracting the company to Tasmania. The annual capacity of the plant has expanded from 14,000 tons of fine writing and printing papers in 1938 to almost 100,000 tons today. The range of products has been widened and food wrapping papers and vegetable parchment are now produced. The company has diversified its operations to include: (i) the production of 'Burnie Board', a type of hardboard; (ii) sawn timber; and (iii) particle board, produced at Wesley Vale.

Forest Reserves

Shortly after formation, the company purchased a large area of freehold forest to the south of Burnie; progressive purchase of forest areas has increased the area of company-owned forest to 250,000 acres in the north-west of the State. The company also has the right to cut a specified amount of pulpwood from Crown land in the State's north-west. A.P.P.M.'s forestry operations include construction of access roads, fire protection, silviculture, and the planning and supervision of cutting operations (the actual felling and haulage operations are performed by contractors). The company is actively engaged in establishing *Pinus Radiata* plantations and by mid-1968 had planted 12,000 acres.

The Burnie Mills

The A.P.P.M. complex at Burnie comprises two highly mechanised sawmills, a hardboard mill, two pulp mills and two paper mills. Subsidiary companies operate other sawmills in the Burnie-Somerset area and one in the Deloraine area. The company operates a particle board mill at Wesley Vale, where paper manufacture will also commence in 1970.

Sawmills: The company's timber utilisation scheme aims at making the optimum use of each class of timber. The best logs are sold to plywood mills, while other high class timber logs are processed by the company's sawmills. The sawmills at A.P.P.M. handle logs up to five feet diameter; logs are mechanically barked and then broken down by bandsaws. The final product is one inch boards of varying width; annual output of sawn boards approaches 10m super feet. The offcuts from the sawmilling operation are used for pulp production.

Hardboard Mill: The Burnie hardboard mill, established in 1950, utilises waste timber from north-west coast sawmills and timber unsuitable for pulp production. The mill's annual production is approximately 55m square feet; most of the 'Burnie Board' is sold on the Australian market, but export markets are being developed in S.E. Asia.

Pulp Mills: A.P.P.M. operates two pulp mills at Burnie. At the main mill logs are reduced to chips and then digested, at high temperatures, with caustic soda; this process avoids destruction of the wood fibres. A.P.P.M. originally treated wood-chips in batches, but now uses a continuous digester imported from Sweden. Chips are fed in at the top of the digester; caustic soda about half-way down the digester; and pulp is discharged continuously at the bottom. A recent innovation, by the company, is to pump fresh water in at the bottom of the digester, so that the water moves upwards against the flow of the chips and the emergent pulp is thus already washed. The pulp is then bleached in a multi-stage bleach plant. Annual output of the main pulp mill is about 45,000 tons of bleached eucalypt pulp. The second semi-chemical pulp mill produces about 11,000 tons of semi-bleached pulp per annum.

Paper Mills: A.P.P.M. operates two paper mills, each containing four paper machines and the second mill also contains a vegetable parchment machine. The paper mills produce printing and writing papers, foodwrapping paper and vegetable parchment. Paper is produced in reel and sheet form; approximately 400 girls are employed to sort and count sheet paper. Aggregate daily paper output of the two mills approaches 300 tons. Many of the papers produced by A.P.P.M. require a proportion of long-fibred softwood pulp and the company imports almost 30,000 tons of this pulp per annum from North America and Scandinavian countries. A second major import item, used in the production of printing and writing papers, is china clay; annual imports from Cornwall (England) approach 10,000 tons.

Other Aspects

The company draws almost 20m gallons of water per day from the Emu River, which flows past the company site into Bass Strait. The generation of steam is a continuous process, output being 125 tons per hour. The company's boilers were originally wood or coal fired but the cost of these fuels forced a changeover to oil. The company also generates some electricity as a by-product of steam-raising operations, but most of the company's power requirements (30,000 horse power) are met by the Hydro-Electric Commission. During the 1967-68 power rationing period, the company imported a generating machine from Sweden and also brought its existing power generating equipment into use; this gave an excess of electric power which was fed into the Hydro-Electric Commission grid.

Most of the company's paper is sold on the mainland, Sydney and Melbourne being the principal markets. A large proportion of the interstate paper exports is shipped on the roll-on, roll-off ferries *Bass Trader* and *Empress of Australia*.

Wesley Vale Pulp and Paper Mill

A.P.P.M. plans to commence production of magazine printings and coated papers at Wesley Vale in 1970; the initial annual capacity will be 40,000 tons of paper. Two types of pulp will be produced at Wesley Vale: (i) semi-chemical pulp from eucalypt timber cut on the company's concession areas and private property; and (ii) refined-mechanical pulp from *Pinus Radiata* thinnings obtained from A.P.P.M. and Forestry Commission pine plantations.

Australian Newsprint Mills Limited

History

Two important events preceded the decision to establish a paper mill at Boyer: (i) in 1934 the successful processing of a consignment of Tasmanian eucalypt timber by a paper mill in British Columbia led to the formation of the Australian Newsprint Mills Limited; and (ii) in 1935 the *Florentine Valley Paper Industry Act* was passed. This Act gave the Company long-term cutting rights over a large area of forest in the upper Derwent area and guaranteed an adequate future supply of pulpwood. Erection of the mill commenced in 1938 and the first paper machine, with an annual capacity of 27,000 tons, came into production in early 1941. In 1948 installation of a second paper machine was commenced; the machine became operative in 1951 and raised rated capacity to 75,000 tons of newsprint a year. Production, with both machines operating well above their rated capacity, reached 97,000 tons by 1967. In 1965, it was decided to proceed with further major expansion including the

installation of a third paper machine, at an overall capital outlay of approximately \$28 million. The third paper machine came into production in January 1969 increasing annual plant capacity initially to 165,000 tons. Ultimately, this is expected to increase to 200,000 tons.

Logging Operations

The total area of the A.N.M.'s concession is approximately 373,000 acres, but only about two-thirds of this area is usable forest. The Company is fully responsible for forest management including firefighting, and carries out reforestation programmes to ensure future pulpwood supplies. The concession area has a network of company-constructed logging roads which radiate from the Maydena Logging Depot. Chainsaws, crawler tractors, mobile log hauling equipment, mobile loaders and heavy-duty log trucks result in rapid and efficient harvesting of timber. From Maydena the logs are railed on the Government line to Boyer, a haul of thirty-six miles.

Production of Pulp

Logs received at Boyer are barked by a hydraulic barker and then reduced to billets four feet long and about seven inches square by mechanical axe splitting and sawing. These billets are processed into ground-wood pulp, or cold soda pulp.

A method of producing groundwood pulp from young regrowth eucalypts and wattles has been devised after 30 years' research. Bundles of cordwood are impregnated with dilute caustic soda under pressure before grinding. Groundwood pulp is produced by mechanical grinding and the present production is 300 tons a day. Cold soda pulp is produced by chipping, treating the chips with a solution of caustic soda, refining and washing. This is a semi-chemical process introduced in 1957 to make use of: (i) poorer quality eucalypt timber not well suited for groundwood pulp; (ii) small quantities of non-eucalypt types, particularly sassafras; and (iii) a limited quantity of waste wood from sawmills. The Company imports chemical pulp from New Zealand which is then bleached with locally made bleach liquor. The final product newsprint, contains 62 per cent groundwood pulp, 20 per cent cold soda pulp and 18 per cent imported chemical pulp.

Technical Aspects

The Company is a large user of electric power, and the Hydro-Electric Commission has installed a sub-station supplying 56,000 hp at the Boyer Mill site. Even more remarkable than the Company's power consumption, is its use of water, some 140m gallons being drawn weekly from the Derwent River; 100m gallons of this water are filtered before use in the mill. The Company operates its own steam generating plant, where four boilers have an aggregate capacity of 245,000 lb of steam per hour at a pressure of 200 pound per square inch. At present 160,000 lb of steam is produced each hour and of this, 137,000 lb is used to dry paper on the three machines. The Company is an important market for Tasmanian coal, using 1,500 tons of coal per week in the boiler plant. Coal is supplemented by 200 tons of wood fuel (waste wood from the milling operations) per week.

The Company produces caustic soda and chlorine (for bleach liquor preparation) at the chlorine caustic soda plant, situated at the mill site. The present daily capacity is ten tons of chlorine and 11½ tons of caustic soda. Annual usage of crude salt, imported from South Australia for the production of chlorine and caustic soda, is 6,600 tons.

The Company maintains a high standard research and development laboratory, where chemists are working constantly on improvements to existing processes and new developments. Since eucalypt differs substantially as a raw material source from softwoods used by paper mills elsewhere in the world, much original research has to be undertaken.

Two paper warehouses at Boyer have a total storage capacity of approximately 6,000 tons. Reels of newsprint are conveyed from the Boyer warehouses by lighters to Pavilion Point, just north of the Tasman Bridge, where the Company has a second warehouse with a capacity of 4,000 tons. The newsprint is then moved by truck to the Hobart wharves for export, Boyer newsprint being used by all principal Australian newspapers.

Employment

The Company employs 1,200 persons at the Boyer Mill, while a further 250 persons are employed at Maydena, principally in logging and reforestation operations.

Comalco Aluminium (Bell Bay) Limited

History

The background of Comalco Aluminium (Bell Bay) Limited is essentially a history of the smelting of aluminium in Australia, as the first metal was produced at Bell Bay in 1955. Since then, the capacity of the plant has been expanded continually in line with the growth in the Australian aluminium industry.

The Second World War resulted in a dramatic increase in the world-wide demand for aluminium products. Because the war interrupted regular supplies of the metal from overseas, the Commonwealth Government resolved in April 1941 that an aluminium smelter should be established as a defence measure.

Extensive investigations began to locate a suitable site for the smelter. These were conditioned by the fact that large quantities of low-cost electricity are required for the smelting operation.

In 1944 an agreement was signed between the Commonwealth and Tasmanian Governments providing for the joint establishment of an aluminium smelter to be built on the Tamar estuary, 30 miles north of Launceston. Construction of the plant commenced in 1945. The Tasmanian Government provided for the construction of a water supply system for the smelter, housing for employees and construction of the Trevallyn Power Station, largely designed to provide power for the smelter.

It was not until 1955 that production commenced. Total investment was \$22.4m and the plant had an initial capacity of 12,000 tons of aluminium a year.

In 1969 the Federal Government sold its shareholding in the Bell Bay plant to a newly formed company, Comalco Industries Pty Limited, which is equally owned by Conzinc Riotinto of Australia Limited and Kaiser Aluminium & Chemical Corporation of Oakland, California. The Tasmanian Government retained a preference shareholding in the company, now called Comalco Aluminium (Bell Bay) Limited.

Since 1961, Comalco has continually expanded the plant. Annual capacity was increased to 32,000 tons in 1962, to 48,000 tons in 1963, and to 54,000 tons in 1965. In 1967 the completion of new smelting furnaces gave the plant a designed capacity of 73,000 tons. There is provision for further expansion to 90,000 tons per annum.

Bell Bay now represents an investment of more than \$50m and in 1968 it produced 64 per cent of Australia's primary aluminium. The plant employs about 1,000 people, most of whom live in George Town. It is the largest single electrical energy consumer in Australia and uses 28 per cent of the Tasmanian Hydro-Electric Commission's power output. Energy consumption at Bell Bay approximates the domestic consumption of south western Western Australia, the most populous area of that state.

Production processes

The Bell Bay plant is unusual in that it combines in the one complex both the production of alumina and the reduction of alumina to aluminium. Usually the two operations are separate for reasons of transport economies; the production of alumina is usually undertaken at the mine site to reduce bulk freight costs.

Production of alumina is the intermediate stage between mining bauxite (the ore of aluminium) and metal production. It takes about 4 tons of bauxite to make 2 tons of alumina, which in turn yields 1 ton of aluminium.

The bauxite for the Bell Bay plant is mined from Comalco's extensive high-grade deposits at Weipa on Cape York Peninsula, Queensland, and shipped by bulk carriers to Bell Bay.

The production of alumina (or aluminium oxide) is a chemical process which begins when the finely ground bauxite is mixed with a caustic soda solution under high temperature and pressure. The alumina content of the bauxite dissolves in the solution which is filtered to remove metallic impurities consisting of iron oxide, titanium and silica. The alumina is recovered from the pure solution by precipitation and the resulting hydrate material is subjected to intense heat in rotary kilns to drive off moisture. A fine white powder, alumina, is left.

The Bell Bay plant produces 60,000 tons of alumina per year. A small portion of this output is sold (mainly to glass manufacturers) but most is used in the smelting operation. Additional alumina for smelting is shipped from Queensland Alumina Limited's refinery at Gladstone, Queensland.

The smelting of alumina to produce aluminium takes place in rows of electric furnaces called reduction cells. These are steel tanks lined with carbon and partially filled with molten cryolite, which dissolves alumina and conducts the electric current. There are 408 reduction cells at Bell Bay and each consumes over 17,000 kilowatts of electricity to produce one ton of aluminium. The current is introduced to the cell through 500 lb carbon blocks immersed in the cryolite. Alumina is fed into the cell and, under the influence of the electric current, oxygen combines with carbon leaving molten aluminium to collect in the bottom of the cell. The aluminium is siphoned off at regular intervals and transferred to large holding furnaces. After purity treatment and composition checks, the metal is poured into moulds to solidify as ingot, extrusion billet or rolling block.

Markets for Bell Bay Aluminium

The main outlet for primary aluminium from Bell Bay is to semi-fabricating plants where the metal is reworked into sheet, plate, foil or extruded shapes. These mill products are sold to final fabricators where finished products are made. Aluminium ingot is also distributed direct to foundry users for casting into a variety of end products.

Primary aluminium export sales are made to South-East Asia, New Zealand, and Europe.

Aluminium is being used in an increasing range of applications and is expanding into markets previously dominated by the traditional metals. The main market is the building and construction industry, which consumes 38 per cent of Australia's aluminium production. Of the balance the electrical industry accounts for 22 per cent, consumer durable goods 12 per cent, transport 11 per cent, containers and packaging nine per cent, machinery, equipment and miscellaneous eight per cent.

Reflecting the development of the industry, the usage of aluminium in Australia in 1967 reached 18 lb per head of population, compared with a per capita consumption of 5 lb in 1955 when the Bell Bay smelter was commissioned.

Comalco Aluminium Powder Pty Limited

In 1968 Comalco Aluminium Powder Pty Limited began producing aluminium powder and paste, major ingredients for commercial explosives and paint.

The \$500,000 plant at Bell Bay has an annual production of several hundred tons of both products and requires a staff of 25 people. The plant can supply the Australian requirements for powder and paste, which until now, have had to be imported.

Comalco Industries Pty Limited holds a 75 per cent equity in the operations with the balance being owned by English Metal Powder Co. Limited of West Drayton, England.

Production processes

Aluminium powder is produced for subsequent treatment in the paste plant or for sale. The powder is made by blowing compressed air at a falling stream of molten aluminium. The blown powder is collected and sieved for use in the preparation of commercial explosives and fireworks and thermal welding processes.

The powder required for the paste plant is ground in ball mills with white spirits and fatty acids to produce a particularly fine material. The ground flake is filtered and fed to a mixer where other chemicals can be added to make a variety of pastes for both oil and plastic paints. The aluminium particles mesh together when the paint is applied, producing a layer of aluminium which gives the surface high reflective and protective properties.

Finished powder and paste products are packaged in drums for shipment.

GOVERNMENT HYDRO-ELECTRIC POWER**Introduction**

Tasmania is unique among Australian States in that its electric power system has been based exclusively on hydro-electric installations, but a thermal station is planned to operate in 1970. Other Australian States rely, in the main,

on thermal plants while hydro-electric power, if available, is used only to supplement the basic supply. The Snowy River Hydro-Electric Scheme which feeds power to the Victorian and N.S.W. grids is not designed to cope with the base load demand in these two States, and its essential function is to provide the extra power necessary to meet peak loads, and also to supply irrigation water to the inland. The Tasmanian system, despite its lower installed capacity, produces more power than the Snowy Scheme.

Thermal power stations of any type are best suited to steady operation on base load. Steam cannot be raised at a moment's notice and having thermal capacity standing by to meet peak demands becomes very expensive. By way of contrast, a water turbine can pick up load very quickly as soon as the valve is opened.

In the Tasmanian situation, water power is required to meet the base load at all times and yet have the extra capacity to cope with peak loads. The Poatina machines, for example, with a head of 2,729 feet and a turbine rating of 346,000 horsepower, have the ability to take up a very big load, up to a maximum of 250,000 kilowatts, in a matter of minutes. The decision to introduce a thermal station into the system has been taken before even half the State's water resources have been exploited. The reason for the decision is discussed in a later section headed 'Construction Policy'; economy in the use of capital is the main consideration.

Concentration on water as a source of power in Tasmania has resulted in a particular pattern of development. Since water is virtually the sole source of electric power, it must be conserved even if rainfall is bountiful. Accordingly certain characteristics can be seen in the massive engineering works undertaken by the Hydro-Electric Commission:

(i) Emphasis on creation of storages; a scheme depending on the 'run of the river' is found at Trevallyn but the decision not to create any substantial storage was forced by consideration for valuable agricultural land up-stream.

(ii) Emphasis on use of the same water over and over again; for example water from Lake St Clair may pass through eight power stations before reaching the tidal waters of the Derwent at New Norfolk. Water from Lake Echo, thirty miles to the east of Lake St Clair, also may pass through eight stations, the lower six being those fed by water from Lake St Clair.

Certain indirect advantages have also accrued to the State through its concentration on hydro-electric power development. The first major undertaking at Waddamana on the Great Lake, opened in 1916, had relied heavily on horses and a wooden railway to get plant to the construction site. Subsequent development, usually in remote areas, led to the making of excellent roads, initially built by the Hydro-Electric Commission for access and construction purposes. Probably the most spectacular of such developments is the Gordon River road, driven west from Maydena to the junction of the Gordon and Serpentine rivers; this is the first major road to penetrate the hitherto uninhabited south-west.

The extensive storages built by the Hydro-Electric Commission on the Derwent drainage system have given engineers the ability to exercise extensive control over the flow, to the point where the scheme can be viewed as equivalent to flood prevention. Although no extensive irrigation systems have yet been based on the controlled flows now available, the fact remains that the storages are there and the irrigation potential exists.

The possibilities of the Derwent catchment area have been fully exploited and the centres of activity have now shifted to the head waters of the north-west rivers, Mersey, Forth and Wilmot, to the Gordon-Serpentine junction in the south-west, and to the Bell Bay thermal station site. The last station in the north-west scheme will not be finished until approximately 1971 but, in the meanwhile, survey is pushing ahead in the river systems of the south-west and west (the Franklin, King, etc.). The future development of hydro-electric power in these areas is full of exciting possibilities for the State. Quite apart from the massive loads of power available from these heavy-rainfall river systems, there is the certainty that an adequate road system will penetrate areas which have traditionally been described as 'uninhabited and virtually unexplored.' The road from Maydena to the Gordon-Serpentine junction, opened for public use in June 1967, is merely the first step in such development.

In the generation of power from water, Tasmania has been the pioneer State of the Commonwealth, as the following historical section shows.

Beginnings

The pioneering of public hydro-electric power in Tasmania was undertaken by the City of Launceston in 1895 when a 579 horse-power generator was installed at Duck Reach, situated on the South Esk two miles from its junction with the River Tamar. The station, with enlarged capacity, ran for sixty years but its function was purely municipal supply.

The scheme which eventually led to the establishment of a State-owned, State-wide supply of electricity was based upon exploitation of the waters of the Central Plateau; the original impetus was given by Complex Ores Ltd which, under an act of 1909, was given the right to generate power from the Great Lake. Complex Ores Ltd assigned its property and undertakings to Hydro-Electric Power and Metallurgical Company Ltd which began construction; in 1914 physical and financial difficulties eventually persuaded this company to sell out to a newly formed State authority, the Hydro-Electric Department, the purchase price being \$624,000.

Construction proceeded despite war-time difficulties, the work requiring a low dam across the Shannon outlet of the Great Lake to increase the lake storage to 500 square mile feet, a diversion canal from the Shannon, and finally pipelines to contain a head of 1,123 feet above Waddamana powerhouse on the left bank of the Ouse. In May 1916, two machines, each of 4,900 horse-power, were brought into operation. Some indication of construction difficulties may be gained from the fact that chaff was a significant part of the capital cost—in the absence of adjacent roads or railways, a horse-drawn wooden tramway gave the only access.

In January 1930, the *Hydro-Electric Commission Act* 1929 came into force; the Hydro-Electric Commission was created to manage the existing works and to control the waters of the State, and in the Commission was vested the sole right of generating, distributing and selling electricity throughout Tasmania. Considering that present capacity of the generating system approaches 1.5 million horsepower, it is interesting to record the system taken over by the Hydro-Electric Commission in 1930. It consisted of a single power station, Waddamana 'A', with an installed turbine capacity of 65,800 horsepower; load on the system was 65,070 horsepower of which 37,000 horsepower was being taken by the Electrolytic Zinc Co.

Subsequent Development

To trace the expansion of turbine capacity from 65,800 horsepower in 1930 to the present day would be confusing if undertaken purely chronologically;

the better course is to show the development of each major section of the generating network. Full details of the present schemes appear in the 1967 *Year Book* and the following section summarises the more important features. The item 'Source' has been written to indicate the main water systems but only a large-scale map will show full details of the rivers, streams and lakes involved. The Hydro-Electric Commission has produced a series of detailed maps of the state's hydro developments. These maps are available from the Commission's Hobart office and at certain power stations which are open for public inspection.

Waddamana-Shannon

Source: Great Lake.

Details: Miena dam built across Shannon outlet of Great Lake; water passed through Shannon station to become input for Waddamana stations.

Operation: First generated power in 1916 (about 7,300 kW) and built to full capacity (107,500 kW) by 1949. In 1964, Shannon and Waddamana 'A' stations were closed down, the 'B' station being retained as spare plant and for emergency peak operation (the *Poatina scheme* with a greater head, 2,729 feet, makes more efficient use of the Great Lake water).

Details of the Waddamana-Shannon scheme in its final form were as follows:

Waddamana-Shannon

Power Station	Head ft	Turbines		Station Capacity
		no.	Rating hp	Generators kW
Waddamana 'A' (a)	1,123	2 7	4,900 8,000	49,000
Shannon (a)	258	2	7,250	10,500
Waddamana 'B' (b)	1,127	4	16,700	48,000
Total .. ..	..	..	..	107,500

(a) Closed down in 1964 when Poatina station commenced operating.

(b) Retained as reserve plant.

Tarraleah-Butlers Gorge

Source: Lake St Clair and Upper Derwent.

Details: Artificial Lake King William formed by Clark Dam at Butlers Gorge; low head station at foot of dam discharges into canals leading to Tarraleah. The discharge from Tarraleah station enters the bed of the Nive. The useful storage in Lake King William now is 0.43m acre feet, Clark Dam having been built 20 feet higher in the period 1964-1966.

Operation: Three generators running at Tarraleah by 1938 and full capacity available in 1951.

Particulars of the scheme are:

Tarraleah-Butlers Gorge

Power Station	Head ft	Turbines		Station Capacity
		no.	Rating hp	Generators kW
Butlers Gorge	184	1	17,100	12,200
Tarraleah	981	6	21,000	90,000
Total .. .. .	..	..	..	102,200

Tungatinah-Lake Echo

Source: The Nive and Ouse Rivers and Lake Echo.

Details: Bradys Lake is fed with water from the Nive and the Ouse, the Ouse diversion passing first through Lake Echo station. From Bradys Lake, the water is led to Tungatinah station and discharged into the bed of the Nive. (The Tarraleah and Tungatinah stations lie almost opposite each other.)

Operation: Tungatinah first produced power in 1953; both stations were fully operational in 1956.

Particulars of the scheme are as follows:

Tungatinah-Lake Echo

Power Station	Head ft	Turbines		Station Capacity
		no.	Rating hp	Generators kW
Lake Echo	568	1	45,000	32,400
Tungatinah	1,005	5	35,000	125,000
Total .. .. .	..	..	..	157,400

Liapootah-Wayatinah

Source: Discharge from Tarraleah and Tungatinah in bed of Nive; Derwent River.

Details: Liapootah station is fed with water from a dam across the Nive. The Liapootah discharge and the waters of the Derwent are impounded by a dam below the confluence of the Derwent and Nive and are then led to Wayatinah station.

Operation: The first power was produced in 1957 and full capacity reached in 1960.

Particulars of the scheme are as follows:

Liapootah-Wayatinah

Power Station	Head ft	Turbines		Station Capacity
		no.	Rating hp	Generators kW
Liapootah	361	3	39,000	83,700
Wayatinah	203	3	20,500	38,250
Total .. .. .	..	..	..	121,950

Catagunya

Source: Discharge from Wayatinah; the Derwent augmented by its tributaries, the Florentine and Black Bobs Rivulet.

Details: Water drawn from storage created by pre-stressed concrete Catagunya dam built across the Derwent.

Operation: The scheme began yielding power in 1962.

Particulars of the scheme are as follows:

Catagunya

Power Station	Head ft	Turbines		Station Capacity
		no.	Rating hp	Generators kW
Catagunya	142	2	33,500	48,000

Lower Derwent

Source: Catagunya discharge and various Derwent tributaries, e.g. Repulse, Broad, Dee, Ouse, Clyde, etc.

Details: Water passes through three stations formed by dams across the Derwent, namely Repulse, Cluny and Meadowbank in that order.

Operation: Meadowbank completed in December 1966 and all stations operating by 1968.

Particulars of the scheme are as follows:

Lower Derwent

Power Station	Head ft	Turbines		Station Capacity
		no.	Rating hp	Generators kW
Repulse	88	1	39,000	28,000
Cluny	56	1	29,200	17,000
Meadowbank	95	1	56,000	40,000
Total .. .. .	..	..	..	85,000

Trevallyn

Source: South Esk (supplemented by discharge into its tributary from Poatina station).

Details: A 'run of the river' scheme with only daily pondage at the tunnel inlet (to store more water would flood agricultural land). Trevallyn station, near Launceston, discharges into the Tamar River.

Operation: Completed in 1955.

Particulars of the scheme are as follows:

Trevallyn				
Power Station	Head ft	Turbines		Station Capacity
		no.	Rating hp	Generators kW
Trevallyn	415	4	28,000	80,000

Great Lake (Poatina)

Source: Great Lake (with supplementary pumping from Arthurs Lakes).

Details: The Great Lake, naturally draining south, is diverted at its north-eastern end by a tunnel and led to the underground Poatina station. The discharge feeds through a tributary into the South Esk and thus becomes input for the Trevallyn station. A new Miena dam across the Shannon has been built to give a useful storage in the Great Lake of 1.71m acre feet (i.e. about half the storage of the Eucumbene in N.S.W.). The storage is supplemented by pumping water from Arthurs Lakes and the small Tods Corner station (1,600 kW) operates on the discharge of this pumped water into the Great Lake.

Operation: First started yielding power in 1964 and five turbines operating by 1966; provision exists to instal a sixth turbine later.

Particulars of the scheme are as follows:

Poatina				
Power Station	Head ft	Turbines		Station Capacity
		no.	Rating hp	Generators kW
Poatina	2,729	(a) 5	69,200	(a)250,000

(a) Five turbines installed; provision exists for a sixth.

With the completion of the Poatina scheme and, in 1968, the Lower Derwent scheme, development of the Derwent catchment was completed. Construction is now concentrated in areas where the cost per unit of potential developed is greater than in the Derwent Valley.

Mersey-Forth (Under Construction)

Source: The Forth, Mersey and Wilmot Rivers.

Details: The major storage unit of the scheme (Lake Rowallan) was completed in mid-1967. Work has been completed on the Lemonthyme and Devil's Gate projects and is well advanced at the Cethana site. When this section of the scheme is completed by the end of 1970 an additional 308,250 kW will be available to energy consumers.

Water flowing from the Forth diversion via the Lemonthyme Tunnel, passes through the 51,000 kW Lemonthyme station and into Lake Cethana. The 320 ft rock-fill dam at Cethana is one of the highest of its type in Australia.

Downstream is situated the Devil's Gate station. The 270 ft high arch dam is sited in a deeply incised gorge-like river valley. Work on this project was completed on schedule despite a temporary set-back following severe flooding in mid-1968.

From the exit tunnel the combined waters of the Mersey, Forth and Wilmot pass into the Paloona storage pond. Paloona, the lowest dam (30 ft above sea level), is to be a barrage-type structure. This project is not scheduled for completion until 1972 owing to its extreme downstream situation. The river valley sites are being developed earlier to control riverflow and to develop the most economic highland sites.

Two subsidiary schemes are located on the edge of the catchment area, diverting water into the Mersey.

The Fisher Scheme, on the north-western edge of the Central Plateau, draws water from Lake MacKenzie. By a combination of canal, flume and tunnel, water is diverted from the lake through the 43,200 kW Fisher Station and into the Mersey River.

On the western edge of the catchment is the Wilmot Scheme. When completed in 1970, the Wilmot River will pass through a tunnel to the 30,600 kW station, some 800 feet below Lake Wilmot, then the water passes into Lake Cethana on the Forth River. These two schemes will provide a sufficient flow to allow economic use by the Forth Valley stations.

Operation: The first power station, Rowallan, came into operation in 1968 whilst Lemonthyme and Devils Gate stations began operating in 1969.

Particulars of the scheme are:

Mersey-Forth (Under Construction)

Power Station and Construction Sequence	Date Completed	Head ft	Turbines		Station Capacity
			no.	Rating hp	Generators kW
(1) Rowallan ..	1968	163	1	14,750	10,450
(2) Lemonthyme ..	1969	521	1	72,400	51,000
(3) Devils Gate ..	1969	226	1	84,450	60,000
(4) Wilmot.. ..	1970	825	1	42,900	30,600
(5) Cethana .. ..	..	324	1	120,650	85,000
(6) Paloona .. ..	..	103	1	40,200	28,000
(7) Fisher .. ..	..	2,115	1	61,650	43,200
Total .. ..	..	..	..	..	308,250

Gordon and Franklin Schemes

Five schemes are currently under investigation or development on rivers in south and west Tasmania:

Upper Gordon: A development in the upper reaches of the Gordon would tap only a small potential (25,000 kW) and consequently no detailed investigation had yet been made.

Middle Gordon: Development of the 240,000 kW scheme has commenced and is described in the next section.

Olga: Potential in the Lower Gordon is estimated at 240,000 kW. A feasibility study is being undertaken and it is expected that the scheme will be based on a high volume flow with a low working head of 400 feet. Problems have been encountered with difficult rock conditions at the dam sites and unless solved may prevent development.

Upper Franklin: This scheme on the northern tributary of the Gordon River should enable the development of 40,000 kW.

Lower Franklin: A significant scheme is likely to be constructed on the Franklin and King Rivers as the combined potential is in the vicinity of 180,000 kW (being slightly less than the *Middle Gordon* development).

The combined capacity of the Gordon, Franklin and King Rivers approximates 550,000 kW or over 25 per cent of the operational Snowy Mountain Scheme Stations. It is anticipated that the development in the area will continue for approximately twenty years.

The Gordon River—Stage One (Under Construction)

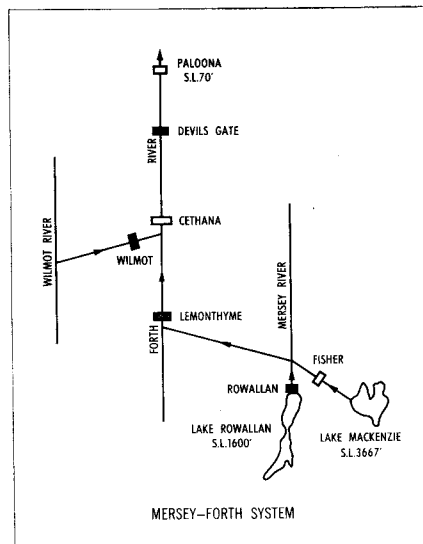
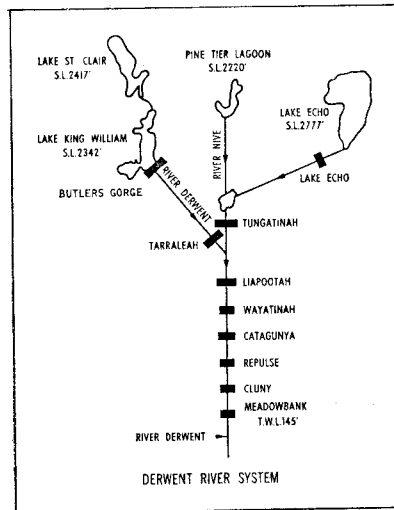
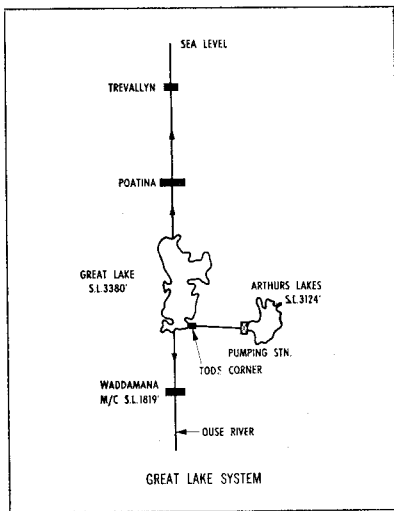
The Gordon is Tasmania's largest river but its development as a power source has only recently become a practical proposition. The river lies in the State's wildest, wettest and most remote terrain and the main problem has been access. A Commonwealth Government grant of \$5m helped finance the construction of a road from Maydena to the junction of the Gordon and Serpentine rivers; the road was made available for public use in June 1967.

The first projected development of power on the Gordon is termed Stage One because later schemes in the west and south-west can utilise the Gordon at other sites, as well as exploiting the waters of the Franklin, Olga and King.

Stage One (the *Middle Gordon* scheme) aims at producing 240,000 kW generator capacity from a 600 foot head of water. The storage will be created by dams across the Serpentine and the Gordon very close to their junction; a third dam is also required at Scotts Peak across the Huon River headwaters. Construction of these three dams will result in the creation of Australia's largest artificial storage with a useful capacity of 10m acre feet. (Comparisons are: Eucumbene, N.S.W., 3.54m acre feet; Great Lake, Tas., 1.71m; Lake King William, Tas., 0.43m.)

The storage will develop as two artificial lakes connected by a short canal near McPartlans Pass. The southern lake (useful capacity, 0.3m acre feet) will be created by dams across the Serpentine and Huon, and the northern lake (useful capacity, 9.6m acre feet) by the dam across the Gordon. The power station will receive its water from the northern lake (approximate height 1,010 feet above sea level) and its discharge will flow into the Gordon.

Such is the immensity of the planned storage that four years will be required for the water to build up to the designed level; 10m acre feet of water discharged on Tasmania's area, 16.9m acres, would flood it to a depth of seven inches. The programme envisages the completion of the dams by 1971 or 1972 and the first output of power in 1975. Estimated cost of Stage One is \$95m. The creation of the southern lake will cause Lake Pedder to disappear under 50 feet of water.



Diagrams to illustrate the Great Lake, Derwent and Mersey-Forth hydro electricity generating systems. The black rectangles represent power stations; open rectangles indicate proposed stations.

Bell Bay Thermal Station (Under Construction)

Tasmania has relied exclusively on hydro-electric power so long that a scheme based on thermal generation seems surprising. A thermal plant using oil is being built at Bell Bay and will have generators with 120,000 kW capacity. The capital cost is estimated at \$20.75m but its output will cost 0.55 cents per unit; by way of contrast, a Gordon Stage One unit is estimated to cost 0.38

cents and a Mersey-Forth unit 0.46 cents (the unit is one kilowatt-hour). The reasons for introducing a thermal plant into a completely hydro-powered network are discussed in a later section, 'Construction Policy'. First output is planned for 1970. The Bell Bay site was chosen because: (i) the town is the centre of an expanding industrial area, (i.e. the demand for electricity will increase); (ii) the site is relatively close to Mainland bulk fuel supplies and near possible natural gas fields in Bass Strait; (iii) a deep water port, tanker berth and land for expansion are available; (iv) proximity to Bell Bay and Launceston ensures an adequate supply of labour; and (v) the generated power can be easily fed into the power grid through an established sub-station.

System Capacity

The previous section has shown details of all schemes, either operating now, under construction or projected. The next table brings this information together and shows how the capacity of the system will grow from 1,015,600 kW (1969) to 1,562,400 kW (1975), assuming that all construction goes according to plan.

Capacity of Present and Planned Power Stations

Power Stations	Water System	Date of Entry Into Service (a)	Station Generator Capacity (kW)	Cumulative Aggregate Capacity of All Stations (kW)
INSTALLED BEFORE 1970				
Waddamana 'B'	Great Lake	1944	48,000	..
Tarraleah	Derwent	1938	90,000	..
Butlers Gorge	Derwent	1951	12,200	..
Tungatinah	Nive/Ouse/ Little Pine	1953	125,000	..
Trevallyn	South Esk (b)	1955	80,000	..
Lake Echo	Little Pine/ Ouse	1956	32,400	..
Wayatinah	Derwent	1957	38,250	..
Liapootah	Derwent	1960	83,700	..
Catagunya	Derwent	1962	48,000	..
Poatina	Great Lake (b)	1964	250,000	..
Tods Corner	Arthurs Lakes	1966	1,600	..
Meadowbank	Derwent	1966	40,000	..
Cluny	Derwent	1967	17,000	..
Repulse	Derwent	1968	28,000	..
Rowallan	Mersey-Forth	1968	10,450	..
Lemonthyme	Mersey-Forth	1969	51,000	..
Devils Gate	Mersey-Forth	1969	60,000	1,015,600
CONSTRUCTION PLANNED OR IN PROGRESS				
Wilmot	Mersey-Forth	1970	30,600	..
Bell Bay Thermal .. ..	..	1970	120,000	1,166,200
Cethana	Mersey-Forth	1971	85,000	..
Paloona	Mersey-Forth	1971	28,000	..
Fisher	Mersey-Forth	1971	43,200	1,322,400
Gordon River Stage (1)	Gordon:Ser- pentine:Huon	1975	240,000	1,562,400

(a) Actual till 1969; planned dates for subsequent years.

(b) Discharge from Poatina enters South Esk via tributaries.

In 1968, emergency generating equipment developing 50,000 kW was acquired but details of this capacity have been excluded from the previous table; its use is restricted to periods when storages are low due to drought. Subsequently the *George H. Evans* generator ship which provided emergency electrical energy supplies during 1968, was sold to a mainland company

Control

The Hydro-Electric Commission is an autonomous statutory authority, responsible almost entirely for the conduct of its own affairs. The 'Minister Administering the Hydro-Electric Commission Act' is answerable to Parliament for the activities of the Commission, but the Commission is not directed by or responsible to the Minister as is a government department. In other words, the Commission is envisaged as a trading or business organisation, and the purpose of the legislation that created it was to remove it from day to day political control. The power exerted by Parliament is mainly financial, not over the ordinary revenue and expenditure of the authority, but over the supply of loan moneys for new capital works. Thus at 30 June 1968, the loan debt of the authority stood at \$309 million of which \$273 million came from State loan funds; the balance was raised by the authority itself on the semi-government loan market, power to raise money in this field having been conferred in 1952. New power development works require the sanction of Parliament before any work may be commenced, and loan funds are allocated through the State Treasury from the sums made available to the State by a Federal body, the Australian Loan Council, which borrows money on behalf of all States.

Two other restrictions on the Commission can be listed: (i) It cannot change its tariff charges for the supply of electricity to consumers except with the approval of the Governor-in-Council. Theoretically this could lead to tariff charges being deliberately kept lower than at an economic level; in practice, this has not happened since the Commission is expected to operate as a bona-fide business organisation and to recoup its operating expenses from adequate charges; and (ii) in certain of its dealings, such as in real estate, the Commission must obtain the approval of the Minister.

The status of the Commission was described thus by the High Court of Australia in a judgment delivered in 1950: 'In the eye of the law the corporation is its own master and is answerable as fully as any other person or corporation. It is not the Crown and has none of the immunities or privileges of the Crown. Its servants are not civil servants and its property is not Crown property.'

Organisation

Under the Commission, with its full time Commissioner and three part-time Commissioners, there are five branches:

(i) *Civil Engineering Branch*. Responsible for: survey of water resources; design and construction of all civil works involved in power development and allied projects.

(ii) *Electrical Engineering Branch*. Responsible for: studies of load growth and system development; design and construction of all electrical engineering works in conjunction with the Civil Engineering Branch.

(iii) *Power Branch*. Responsible for: operation and maintenance of completed power developments; generation and transmission of power in bulk.

(iv) *Retail Supply Branch*. Responsible for: distribution of electricity to consumers; operation and maintenance of the distribution system; inspection of installations and equipment.

(v) *Secretarial*. Responsible for: general administrative business of Commission with sub-sections dealing with accounts, law, personnel, transport, stores and purchasing, medical services, central records and other services.

Construction Policy

Apart from its function of meeting all present demands for electrical power, the Commission has the heavy responsibility of estimating probable future demand and of having the necessary capacity to satisfy it as it occurs. In making estimates of future demand, there are four basic factors to be considered:

(i) Growth of population affecting number of home consumers, light industries, shops, etc.

(ii) Technological change favouring greater use of electrical power in homes, factories, shops and offices.

(iii) Increased demands for power by heavy industrial users now operating e.g. in the metallurgical, chemical and paper pulp industries.

(iv) Possibility of other 'power-intensive' industries setting up plants in the State.

The difficulty of good planning is accentuated by the fact that hydro-electric development consumes capital far more avidly than the creation of equivalent capacity by thermal generation (put another way, thermal plants are cheaper to build but much more expensive to operate). Prudent economic policy dictates that an authority should try to keep just ahead of demand, and not have an unremunerative investment in a large block of idle generating capacity; the margin in hand at any given time is therefore comparatively small. Construction is a continuous process regulated to ensure that future demand will be met and restrictions in supply avoided. The pattern of the Commission's plan for the immediate future can be seen in terms of the following schedule:

By 1970: completion of Bell Bay thermal unit and four stations of the Mersey-Forth scheme in operation.

By 1971: all seven Mersey-Forth stations operating and dam work on Gordon Stage One completed.

By 1975: Gordon station in operation.

The decision to introduce an oil-fed thermal unit at Bell Bay into the system was taken because estimated future power demand required a major addition by 1970, even allowing for four Mersey-Forth stations being in operation by that year. In the period 1969-1970, the Commission will be constructing two major water-power schemes (Mersey-Forth and Gordon Stage One); to meet expected demand in 1970, it could hardly hope to simultaneously undertake a third water-power scheme for, apart from other considerations, the capital cost would be immense.

The alternative is to build a thermal plant and thereby economise on capital outlay. Admittedly the cost per thermally generated kilowatt hour is higher but, considering 120,000 kW *thermal* capacity against 1,166,200 kW *total* system capacity (1970 estimate), average cost per power unit would not

be greatly increased. When the Gordon Stage One becomes operative in 1975, the thermal capacity will constitute only eight per cent of total system capacity (1,562,400 kW) and the higher thermal generating costs will have even less effect.

The estimated cost of developing two hydro schemes and one thermal scheme all at the one time required more finance than could be provided by normal methods; accordingly an approach was made to the Commonwealth Government which agreed to make an advance of \$47m over and above normal loan fund allocations. The advance is short-term and must be repaid in eight years from the time when the completed works begin to earn income.

Generation and Transmission

The system of generation and transmission employed in Tasmania is completely integrated and load control engineers can call upon the capacity of any generator throughout the State. Operation can be viewed in both short term and long term aspects. In the short term, the major consideration is meeting the daily fluctuation in demand (which follows a fairly standard pattern with morning and evening peaks); there is the added responsibility of having stand-by turbines spinning as a precaution against break-down of generators under load.

In the long term, the main consideration is the operation of storages in such a way as to conserve water, to ensure that all water released is exploited to the maximum, and to obtain maximum benefits from rainfall. The more dispersed the Commission's storages become, the greater the opportunity for taking advantage of local rainfall by maximum operation of power stations below the affected catchment since the process of drawing on the storage 'makes room' for drainage from the downpour.

The original high voltage transmission in the State was at 88,000 volts. When Tarraleah came into operation, new lines operated at 110,000 volts; main transmission lines built since 1957 operate at 220,000 volts.

Retail Distribution

In the early days of the Commission's operation, consumers of electrical power received it from three sources: from municipalities with their own generating capacity; from municipalities retailing power bought from the Commission; and from the Commission direct. Gradually uniformity was achieved, municipalities stopped generating and retailing and the one authority became the sole supplier, both of bulk power to industry and retail power to homes, shops, businesses, etc. One effect has been uniformity in tariff charges for retail power so that the farmer on the most remote holding is charged no more than dwellers in the principal cities.

Earlier it was stated that the Commission is supposed to operate as a business organisation and 'pay its way'. This posed something of a problem in the carrying of power to remote locations with few potential consumers—in such cases, the capital cost of the extension would be a heavy burden on the consumer. Special legislation existed to subsidise the Commission when it made 'uneconomic extensions', the State Treasury granting assistance up to 75 per cent of the capital cost, if not exceeding \$600 per consumer. This State subsidy was withdrawn in 1964-65. The operation of this provision undoubtedly contributed to Tasmania's achieving an Australian record figure for distribution of electrical power—it is estimated that over 98 per cent of homes and farms are now connected.

To complete the picture, it is necessary to deal with electricity supply in the main islands off the Tasmanian coast. Bruny Island is connected to the major grid by under-sea cable whilst King Island is supplied from an internal combustion plant operated by the Commission. Flinders Island, at Whitemark, is supplied from a generator operated at the district hospital but there are plans to replace the plant destroyed by fire in 1966.

Growth of Hydro-Electric System

The following table shows the growth of the system in recent years:

Hydro-Electric Commission—Operating Statistics

Year	Total Rating of Alternators	Peak Loading	Average Loading	Average (a) Load Factor
	kW	kW	kW	per cent
1957	485,350	372,200	254,100	68.3
1958	485,350	394,900	266,660	67.5
1959	485,350	403,600	274,150	67.9
1960	569,050	415,400	285,250	68.7
1961	569,050	438,400	297,080	67.8
1962	617,050	461,600	323,790	70.1
1963	617,050	550,300	378,000	68.7
1964	806,550	582,000	405,620	69.7
1965	807,550	593,700	427,580	72.0
1966	849,150	624,100	451,047	72.3
1967	866,150	636,900	445,490	69.9
1968	904,600	628,000	449,079	71.5

(a) Average loading as a percentage of peak loading.

Average Load Factor

The alternator rating (i.e. generator capacity) is necessarily much higher than the peak loading since some generating plant must be held in reserve against the possibility of break-down.

A power system must be designed to meet both the peak loading (the demand component) and the average loading (the energy component). Peak loading tends to represent high demand for relatively short periods, i.e. it has relatively little energy associated with it. The obvious design and operational problem is to create sufficient capacity to meet peak loading and, at the same time, to encourage the use of power so that the highest possible average loading is obtained. 'Off-peak' heating systems are an obvious example of one way in which the average load factor can be maximised; the steady use of power in a continuous industrial production process also has the effect of raising the average loading and lifting the load factor.

All things being equal, the cheapest system, from the consumers' point of view, will be the one with the highest average load factor. By world standards, the average load factors in the previous table indicate a high standard of design and operational efficiency.

Price of Power to Consumers

Hydro-electric power requires heavy initial capital expenditure; actual operating expenses are comparatively low, the major burden on revenue being interest and other associated debt and depreciation charges. Thermal stations do not require such heavy capital outlay but their operating expenses are

considerably higher. In considering the data in the next table, it is to be recalled that Tasmania currently draws its power exclusively from water-driven turbines while the other States rely basically on thermal plants (although the eastern States make limited use of hydro-electric power). The table shows comparative average prices for power in the Commonwealth:

Price of Electric Power—Tasmania and Other States, 1967-68 (a)
(Cents per Kilowatt Hour)

State or Territory	Residential Sales	Commercial Sales	Industrial Sales	Average All Sales (b)
New South Wales	1.94	2.84	1.55	1.90
Victoria	2.04	3.24	1.70	2.07
Queensland	2.09	3.27	1.74	2.18
South Australia	1.67	2.75	1.47	1.82
Western Australia	2.38	2.95	1.78	2.33
Tasmania	1.49	1.91	0.58	0.84
Commonwealth Territories ..	2.15	(c)	(c)	2.39
Commonwealth (Average) ..	1.96	n.a.	n.a.	1.90

(a) Source: 'Statistics of the Electricity Supply Industry in Australia' (published by Electricity Supply Association of Australia).

(b) Includes power for traction, public lighting, etc. not specified in first three columns.

(c) Not recorded separately.

It will be observed that the Tasmanian average is the *lowest* in all types of sale. The Tasmanian householder pays less per unit on the average than his counterpart on the Australian continent but the difference in residential price gives little indication of the economy of hydro-electric generation; this can be best obtained by comparing the prices charged industrial users.

The following table shows the amount of power sold in the Commonwealth:

Sales of Electric Power—Tasmania and Other States, 1967-68 (a)
(Million Kilowatt Hours)

State or Territory	Residential Sales	Commercial Sales	Industrial Sales	Total Sales (b)
New South Wales	5,223	1,983	5,803	13,520
Victoria	3,383	1,412	4,101	9,233
Queensland	1,644	650	1,415	3,762
South Australia	1,220	414	1,358	3,016
Western Australia	627	348	478	1,478
Tasmania	711	127	2,387	3,240
Commonwealth Territories ..	242	(c)	(c)	581
Commonwealth Total	13,050	n.a.	n.a.	34,830

(a) Source: 'Statistics of the Electricity Supply Industry in Australia' (published by the Electricity Supply Association of Australia).

(b) Includes power for traction, public lighting, etc. not specified in first three columns.

(c) Not recorded separately.

It is noteworthy that Tasmania, despite its small population, ranks fourth in total sales and third in industrial sales; no other State sells such a large proportion of total power to industrial users.

Industrial Use of Electric Power

It is possible to obtain some indication of the importance of industrial electrical power in Tasmania from the following table:

Industrial Electrical Energy Consumption (a), 1967-68

Commonwealth Total (Six States)	Tasmanian Consumption	
	Total	Proportion of Six-State Total
million kWh	million kWh	per cent
15,542	2,387	15.36

(a) Source: 'Statistics of the Electricity Supply Association of Australia'.

When the Tasmanian proportion (15.36 per cent) is compared with Tasmania's share of the Australian population (3.2 per cent), the contribution of electrical power to the island's economy is seen in its correct perspective.

Finances of Hydro-Electric Commission

The table that follows shows the Commission's income and expenditure, and also its total loan debt for the last three years:

**Hydro-Electric Commission
Income, Expenditure and Net Loan Debt
(\$'000)**

Particulars	1965-66	1966-67	1967-68
INCOME			
Sales—Bulk Power	9,297	9,952	8,676
Retail Current	16,734	17,976	18,707
Other Income	262	371	243
Total	26,293	28,299	27,626
EXPENDITURE			
Operation, Distribution, Administration ..	9,170	9,589	10,344
Interest on Loans and Reserves	12,797	14,241	15,785
Less Interest Capitalised	— 1,292	— 1,966	— 2,508
Depreciation Provision	3,064	3,196	3,578
Superannuation Contribution	865	922	912
Other Expenditure	967	1,076	495
Net Profit	723	1,242	— 980
Total	26,293	28,299	27,626
NET LOAN DEBT AT 30 JUNE			
Net Loan Indebtedness to State Treasury ..	239,425	255,229	272,856
Other Loans	23,702	25,802	36,107
Total	263,127	281,031	308,963

At 30 June 1968, net loan debt was \$309.0m, the liability to the State Treasury standing at \$278.2m.

Chapter 9

SOCIAL CONDITIONS

HOUSING AND BUILDING

Dwelling Statistics, 1966 Census

General

The following section deals with the number of dwellings in Tasmania at the 1966 Census. For a definition of the Hobart Statistical Division, the Hobart Metropolitan Area and Urban Launceston, see Chapter 5, 'Demography'.

Terms used to describe various classes of dwellings are defined below.

Occupied Dwelling

An occupied dwelling is any habitation occupied by a household group living together as a domestic unit, whether comprising the whole or only part of a building. The term, therefore, has a very wide reference.

Private Dwellings

Private dwellings are further classified into the following five categories:
Private House: These include houses used for dwelling purposes, and shared private houses for which only one Householder's Schedule was received.

Share of Private House: This is a portion of a shared private house occupied separately and for which a separate Householder's Schedule was furnished.

Flat: This is a part of a house or other building which can be completely closed off and which has its own cooking and bathing facilities.

Sheds, Huts, Garages, etc.: Those used for dwelling purposes.

Other Private Dwellings: These include private dwellings such as rooms, apartments, etc. which are parts of buildings but are not self-contained units.

Other Than Private Dwellings

These include hotels; motels; boarding houses; hostels; educational, religious and charitable institutions; hospitals; defence and penal establishments; police and fire stations; residential clubs; staff barracks and quarters, etc.

Unoccupied Dwellings

These include vacant dwellings available for sale or renting; dwellings such as 'week-end', 'holiday-home', 'second home', 'seasonal workers' quarters', which were not occupied on the night of the census; dwellings normally occupied but whose usual occupants were temporarily absent on the night of the census; newly completed dwellings whose owners or tenants had not entered into occupation on the night of the census; dwellings described as 'to be demolished', 'condemned', 'deceased estate' and buildings constructed as dwellings but used for non-dwelling purposes on the night of the census. The total of unoccupied dwellings must not be read as the number of vacant houses and flats available for sale or renting.

Dwellings at 1966 Census

The following table shows the classification of occupied dwellings and the number of unoccupied dwellings at the 1966 Census:

Dwellings at Census 30 June 1966

Description	Hobart Metropolitan Area	Urban Launceston	Rest of State	Total
Occupied Private Dwellings—				
House	27,279	14,692	46,809	88,780
Flat	3,838	1,737	1,461	7,036
Share of House or Flat	241	87	163	491
Shed, Hut, etc.	70	36	776	882
Other	603	197	293	1,093
Total	32,031	16,749	49,502	98,282
Unoccupied Private Dwellings (a)	1,307	808	8,418	10,533
Occupied Non-Private Dwellings—				
Hotels and Motels	80	45	171	296
Boarding House, Guest House, etc.	166	71	109	346
Educational, Religious and Charitable Institutions	34	20	34	88
Hospitals	12	4	32	48
Other (b)	48	29	229	306
Total	340	169	575	1,084

(a) Comprises unoccupied private dwellings, classified as houses, flats, sheds, huts, etc. and 'other'.

(b) Includes dwellings described as 'staff barracks' and 'other'.

Nature of Occupancy

The details contained in the next table relate only to occupied private dwellings classified as houses or flats.

Occupied Private Houses and Flats by Nature of Occupancy at Census 30 June 1966

Nature of Occupancy	Hobart Metropolitan Area	Urban Launceston	Rest of State	Total
Houses—				
Owner (a)	21,589	11,739	33,086	66,414
Tenant—				
Housing Department	2,287	696	1,701	4,684
Other	3,018	2,083	10,252	15,353
Caretaker	139	94	950	1,183
Other (b)	246	80	820	1,146
Total Houses	27,279	14,692	46,809	88,780
Flats—				
Owner (a)	701	304	266	1,271
Tenant—				
Housing Department	372	30	57	459
Other	2,671	1,361	1,069	5,101
Caretaker	52	24	39	115
Other (b)	42	18	30	90
Total Flats	3,838	1,737	1,461	7,036

(a) Owned freehold, on mortgage or under purchase instalment.

(b) Includes those for which nature of occupancy was not stated.

Facilities

At 30 June 1966, 79.2 per cent of occupied private houses had television. The corresponding percentage for occupied private flats was 60.3. In the next table details of the number of occupied private houses and flats served by electricity and gas are given:

**Occupied Private Houses and Flats by Facilities
at Census 30 June 1966**

Facilities	Hobart Metro- politan Area	Urban Launces- ton	Rest of State	Total
HOUSES				
Electricity Only	24,573	10,553	45,279	80,405
Gas Only	9	10	75	94
Electricity and Gas	2,576	4,108	698	7,382
Not Stated Electricity and/or Gas	91	9	187	287
Neither Electricity nor Gas	30	12	570	612
Total	27,279	14,692	46,809	88,780
FLATS				
Electricity Only	3,140	959	1,421	5,520
Gas Only .. .. .	..	5	..	5
Electricity and Gas	662	768	31	1,461
Not Stated Electricity and/or Gas	36	4	7	47
Neither Electricity nor Gas .. .. .	..	1	2	3
Total	3,838	1,737	1,461	7,036

Material of Outer Walls

The next table classifies private houses and flats (occupied and unoccupied) by material of the outer walls:

**Material of Outer Walls of Occupied and Unoccupied
Private Houses and Flats
at Census 30 June 1966 (a)**

Material of Outer Wall	Hobart Metro- politan Area	Urban Launces- ton	Rest of State	Total
PRIVATE HOUSES				
Brick	9,744	5,846	5,455	21,045
Stone or Concrete	1,246	530	2,264	4,040
Wood	16,992	8,635	41,313	66,940
Fibro-Cement	226	213	3,481	3,920
Other	33	42	741	816
Total	28,241	15,266	53,254	96,761
PRIVATE FLATS				
Brick	2,556	814	497	3,867
Stone or Concrete	755	186	160	1,101
Wood	791	857	852	2,500
Fibro-Cement	47	34	86	167
Other	6	2	15	23
Total	4,155	1,893	1,610	7,658

(a) Excludes: (i) share of private house or flat; (ii) private dwellings classified as 'sheds, huts, etc.' and 'other'.

Intercensal Estimates of Houses and Flats

It is not possible to prepare a detailed analysis of dwellings between censuses but intercensal estimates of the number of houses and flats by local government areas are prepared. The base for the estimates is the total number of occupied and unoccupied private houses and flats as recorded at the 1966 Census. The Census figures are then adjusted for: (i) demolitions, destroyed by fire, conversions and transfers of houses and flats; (ii) completion of new houses and flats. Transfer of houses between local government areas is merely a redistribution and does not affect total number of houses for the State. Information about demolitions, conversions and transfers is obtained from local government authorities and the Hydro-Electric Commission. The number of new houses and flats completed is available from the monthly Building Construction collection conducted by the Bureau of Census and Statistics.

Details of the number of houses and flats by local government areas recorded at the 1966 Census and estimated for later years are contained in the following table:

Number of Houses and Flats at 30 June

Local Government Area and Statistical Division	Houses and Flats			
	Census	Estimated (b)		Increase From 1967 to 1968 (c)
	1966 (a)	1967	1968	
Hobart (H)	15,352	15,092	15,447	355
Glenorchy (H)	10,209	10,524	10,931	407
Clarence (H)	8,180	8,348	8,663	315
Brighton (SE) (H)	613	598	616	18
Glamorgan (SE)	493	524	543	19
Green Ponds (SE)	269	269	275	6
Richmond (SE)	510	490	507	17
Sorell (SE) (H)	1,294	1,326	1,399	73
Spring Bay (SE)	550	564	575	11
Bruny (S)	291	292	290	-2
Esperance (S)	1,075	1,076	1,112	36
Huon (S)	1,449	1,417	1,460	43
Kingborough (S) (H)	3,048	2,658	2,930	272
New Norfolk (S) (H)	2,371	2,426	2,516	90
Port Cygnet (S)	756	724	750	26
Tasman (S)	499	518	534	16
Total Hobart Div. (d)	38,918	46,846	48,548	1,702
Total SE. Div. (d)	2,593			
Total S. Div. (d)	5,448			
Launceston	11,209	11,244	11,328	84
Total N. Cent. Div.	11,209	11,244	11,328	84
Burnie	4,745	4,865	5,135	270
Circular Head	1,995	2,061	2,138	77
Deloraine	1,482	1,499	1,519	20
Devonport	4,650	4,869	5,155	286
Kentish	1,424	1,517	1,600	83
King Island	721	721	740	19
Latrobe	1,325	1,366	1,409	43
Penguin	1,230	1,260	1,279	19
Ulverstone	2,881	2,969	3,072	103
Wynyard	2,583	2,672	2,783	111
Total NW. Div.	23,036	23,799	24,830	1,031

Number of Houses and Flats at 30 June—continued

Local Government Area and Statistical Division	Houses and Flats			
	Census	Estimated (b)		Increase From 1967 to 1968 (c)
	1966 (a)	1967	1968	
Beaconsfield	3,284	3,370	3,473	103
Fingal	1,157	1,173	1,179	6
Flinders	345	360	371	11
George Town	1,514	1,583	1,624	41
Lilydale	1,961	2,004	2,060	56
Portland	558	589	625	36
Ringarooma	880	879	883	4
Scottsdale	1,199	1,248	1,269	21
Total NE. Div.	10,898	11,206	11,484	278
Evandale	471	471	473	2
Longford	1,625	1,623	1,573	(e) -50
St Leonards	3,605	3,806	4,051	245
Westbury	1,430	1,461	1,499	38
Total N. Mid. Div.	7,131	7,360	7,595	235
Bothwell	349	345	345	..
Campbell Town	545	544	545	1
Hamilton	1,134	1,146	1,148	2
Oatlands	775	777	780	3
Ross	182	182	184	2
Total Mid. Div.	2,985	2,994	3,002	8
Gormanston	118	118	119	1
Queenstown	1,093	1,116	1,121	5
Strahan	165	167	168	1
Waratah	91	312	392	80
Zeehan	734	748	776	28
Total W. Div.	2,201	2,461	2,576	115
Total Tasmania	104,419	105,910	109,363	3,453

(a) Comprises only those dwellings classified as private (occupied or unoccupied) houses and flats.

(b) Census figures adjusted for houses completed, demolished, destroyed by fire, transferred between local government areas, etc.

(c) A minus sign (—) indicates a decrease.

(d) Letter(s) following local government area name indicate Division(s) in which each is situated: H=Hobart, SE=South Eastern, S=Southern; some local government areas (e.g. Brighton) form part of two Statistical Divisions.

(e) The normal increase in this year has been more than offset by the transfer of Hydro-Electric Commission houses to other Local Government Areas.

Building Statistics

Scope

In the section that follows, building statistics relate exclusively to the erection of new buildings, including major new additions to existing buildings; construction work such as the building of railways, bridges, earthworks, water storages, piers, wharves, etc. is excluded. Minor additions, alterations, renovations and repairs to buildings are also excluded because of the difficulty of obtaining lists of persons who undertake this work.

When a dwelling is attached to a new building, the whole unit, both in regard to number and value, is classified according to the type of new building (e.g. a new shop and dwelling is classified simply as a shop). Figures for flats include 'home units', but not conversions of existing buildings into flats. Number of flats refers to number of new individual dwelling units.

Details obtained from government authorities on their construction programmes and from building contractors refer to all parts of the State. Details for owner-builders cover only those areas subject to building control by local government authorities; thus, some farm buildings are excluded, but this does not affect the figures materially.

Source of Data

The main statistics relate to building approvals and to building operations (commencements, completions, etc.). The data are derived as follows:

Building Approvals: These comprise: (i) approvals by local government authorities for the construction of private buildings; (ii) contracts let and day labour projects commenced by governmental authorities; (iii) private buildings reported by contractors to have been commenced in certain areas of the few rural municipalities where building regulations do not apply to the whole municipality. Details are compiled monthly.

Building Operations: Returns are obtained from (i) building contractors engaged in the erection of new buildings; (ii) owner-builders; (iii) Commonwealth, State, local and semi-government authorities. Statistics are compiled at quarterly intervals.

Definitions

Contract-built: Includes the operations of all building contractors and government authorities which undertake the erection of new buildings.

Owner-built: An 'owner-built' house is one actually erected or being erected by the owner, or under the owner's direction, without the services of a contractor who is responsible for the whole job.

Commenced: A building is regarded as having been commenced when work on the foundations has begun.

Completed: A building is regarded as having been completed when the contractor has fulfilled the terms of the contract.

Both with 'completions' and 'commencements', there is some difficulty in maintaining a uniform classification since the definition of an exact point of time in building operations is involved.

Under Construction: A building is so classified if it is uncompleted at the end of the period, whether or not work on it was actively proceeding at that date.

Values: All values shown exclude the value of land and represent the estimated value of buildings *on completion*. In the case of owner-built dwellings, the owner-builder is required to estimate the value from the cost of the materials and the cost of labour, including his own.

New buildings, including dwellings, with an estimated value on completion of less than \$1,000 are excluded from the tabulations.

Building Approvals

The following table shows details of building approvals; a distinction is made between 'private' and 'government', and the information is dissected to give separate figures for the Hobart Metropolitan Area, Urban Launceston and the remainder of the State. In 1967-68, 47 per cent of the total value of building approvals was attributed to the Hobart Metropolitan Area, 10 per cent to Urban Launceston and 43 per cent to the remainder of the State.

Building Approvals, 1967-68

Particulars	Hobart Metropolitan Area	Urban Launceston	Remainder of State	Total Tasmania
NUMBER				
New Houses—Private	622	307	1,464	2,393
Government	273	87	556	916
Total	895	394	2,020	3,309
VALUE (\$'000)				
New Houses—Private	7,082	3,021	12,109	22,212
Government	1,936	458	5,476	7,870
Other New Buildings (a)—				
Private	9,595	1,766	5,611	16,972
Government	15,427	2,059	7,478	24,964
Alterations and Additions—				
Private	778	383	781	1,942
Government	171	46	235	452
Total Value—Private	17,456	5,170	18,500	41,126
Government	17,534	2,564	13,188	33,286
Total	34,989	7,733	31,690	74,412

(a) Includes flats.

Building Approvals

Particulars	1957-58	1963-64	1964-65	1965-66	1966-67	1967-68
NUMBER						
New Houses—Private	198	2,064	2,062	1,837	2,500	2,393
Government	490	584	607	591	718	916
Total	2,470	2,648	2,669	2,428	3,218	3,309
VALUE (\$'000)						
New Houses—Private	11,604	15,424	16,452	15,229	21,057	22,212
Government	2,884	3,422	3,756	3,854	4,720	7,870
Other New Buildings (a)—						
Private	5,960	7,240	11,490	19,843	16,154	16,972
Government	4,888	6,456	11,058	7,976	12,022	24,964
Alterations and Additions—						
Private	1,124	1,696	1,666	1,614	1,880	1,942
Government	234	282	450	355	179	452
Total Value—Private	18,686	24,360	29,608	36,686	39,091	41,126
Govt	8,006	10,160	15,264	12,185	16,921	33,286
Total	26,692	34,520	44,872	48,870	56,012	74,412

(a) Includes flats.

Construction of New Houses

Although building statistics include the construction of shops, factories, offices, hotels, etc., the erection of new houses is possibly the most interesting field because of its social significance. During World War II, the shortage of materials and manpower virtually brought house construction to a halt, with the result that there was an acute shortage when hostilities ceased; the prosperous state of the economy in the post-war years aggravated the situation by increasing the demand for home ownership.

Government Construction of Houses: The post-war era was notable for the entry of the State Government into the housing field on a large scale; in November 1945, the Commonwealth Government entered into an agreement with the States whereby it would provide finance for, and the State Governments would undertake the building of, housing projects. Under the agreement, Tasmania received \$5,670,000 which it repaid on withdrawing from the scheme in August 1950. The Tasmanian Government nevertheless continued to build houses using the resources available from its own Loan Fund. In 1956, the State Government entered into a new agreement with the Commonwealth, an arrangement renewed with minor modifications in 1961 and 1966. The aggregate advances in Tasmania to 30 June 1968, under the Commonwealth-State Agreements, amounted to \$65,581,000. (Advances under the Commonwealth-State Agreements are additional to State net loan expenditure.)

The following table shows, for Tasmania, the number of new houses completed, and distinguishes between those built for government authorities and those built for private persons:

**Number of New Houses Completed
For Government Authorities and Private Persons**

Year	For Government Authorities	For Private Persons	Total	Year	For Government Authorities	For Private Persons	Total
1952-53	883	2,431	3,314	1960-61	473	2,014	2,487
1953-54	716	1,914	2,630	1961-62	547	1,850	2,397
1954-55	720	1,760	2,480	1962-63	563	1,941	2,504
1955-56	729	1,992	2,721	1963-64	554	1,957	2,511
1956-57	585	2,174	2,759	1964-65	579	2,000	2,579
1957-58	611	1,955	2,566	1965-66	557	1,703	2,260
1958-59	506	2,071	2,577	1966-67	627	2,138	2,765
1959-60	443	2,032	2,475	1967-68	737	2,594	3,331

The proportion of houses built for government authorities has fluctuated between 30 per cent of total houses completed (1950-51) to as low as 18 per cent (1959-60); in 1967-68, the proportion was over 22 per cent. Statistics of houses completed for government authorities do not fully reflect the effect of government policy since the category 'houses built for private persons' includes construction financed, in some cases, by government loans to private persons. Of the \$65,581,000 aggregate advances made in Tasmania to 30 June 1968, under the Commonwealth-State Housing Agreements, 29 per cent represents advances to private persons, either through the mechanism of the Agricultural Bank or the co-operative building societies. Similarly, 'houses built for private persons' includes those built with advances under the Commonwealth's *War Service Homes Act* where the ex-serviceman has obtained the services of a private contractor or operates as an owner-builder.

The principal construction authority in Tasmania is the State Housing Department but 'houses built for government authorities' includes also construction by the Public Works Department for various departments and authorities, group schemes of the Commonwealth War Service Homes Division and farm houses erected under the War Service Land Settlement Scheme.

New Houses Constructed: The next table shows details of number and value of houses commenced, completed and under construction:

Construction of New Houses

Year	Commenced		Completed		Under Construction (a)	
	Number	Value (When Completed)	Number	Value (When Completed)	Number	Value (When Completed)
		\$m		\$ m		\$ m
1951-52	3,584	15.3	3,999	16.3	3,143	14.4
1952-53	2,285	10.6	3,314	15.2	2,114	10.6
1953-54	2,665	13.2	2,630	13.5	2,149	11.3
1954-55	2,867	14.6	2,480	12.8	2,536	13.4
1955-56	2,490	13.6	2,721	14.8	2,305	12.8
1956-57	2,591	14.8	2,759	15.7	2,137	12.2
1957-58	2,378	14.5	2,566	15.6	1,949	11.4
1958-59	2,563	15.5	2,577	15.3	1,935	11.8
1959-60	2,357	14.9	2,475	15.5	1,817	11.3
1960-61	2,248	15.1	2,487	16.3	1,578	10.3
1961-62	2,475	16.3	2,397	15.7	1,656	10.7
1962-63	2,442	16.0	2,504	16.5	1,594	10.3
1963-64	2,550	18.4	2,511	17.3	1,633	11.3
1964-65	2,546	19.5	2,579	19.2	1,600	11.6
1965-66	2,202	17.8	2,260	17.8	1,542	11.6
1966-67	2,952	24.6	2,765	22.1	1,729	14.1
1967-68	3,142	27.5	3,331	28.3	1,538	13.3

(a) At end of year.

In 1966-67 and 1967-68 the increase in commencements and completions was due, in part, to the replacement of many of the 1,200 dwellings destroyed in the bushfires of February 1967.

Material of Outer Walls: The following table shows the number of new houses completed and their classification according to the material used in their outer walls. Until recently, wood has been the predominant material used for outer wall construction but the trend of the last ten years has revealed a growing preference for brick veneer. In 1964-65, for the first time, new houses completed with brick veneer walls exceeded those completed with wooden walls.

Number of New Houses Completed Classified by Material of Outer Walls

Materials of Outer Walls	1957-58	1963-64	1964-65	1965-66	1966-67	1967-68
Brick, Concrete, etc.—						
Solid	299	178	174	128	167	131
Veneer	284	920	1,178	1,126	1,159	1,593
Wood (Weatherboard, etc.) ..	1,884	1,337	1,142	932	1,073	1,395
Fibro-Cement	92	76	78	62	354	207
Other	7	..	7	12	12	5
Total	2,566	2,511	2,579	2,260	2,765	3,331

Construction of New Houses and Flats

In the following table, details are given of completions of new houses and new flats:

New Houses and Flats Completed

Particulars	1957-58	1963-64	1964-65	1965-66	1966-67	1967-68
NUMBER						
New Houses—						
Government Ownership—						
Contract Built	322	271	275	309	360	474
Day Labour	289	283	304	248	267	263
Private Ownership—						
Contract Built	838	1,061	1,200	1,015	1,223	1,705
Owner Built	1,117	896	800	688	915	889
Total New Houses ..	2,566	2,511	2,579	2,260	2,765	3,331
New Flats (Individual Units) (a)	41	164	153	221	185	292
Total New Houses and Flats	2,607	2,675	2,732	2,481	2,950	3,623
VALUE (\$'000)						
New Houses	15,590	17,332	19,216	17,806	22,063	28,305
New Flats (Individual Units) (a)	254	738	844	1,204	1,167	1,773

(a) Individual dwelling units; conversions of existing dwellings to flats are excluded.

Construction of All New Buildings

The previous tables in this section have been concerned with the construction of new houses, or of new houses and flats. In the five years ended 30 June 1968, the value of houses and flats completed has approximated half of the total value of all new buildings completed in each year. The next table shows the value of all new buildings according to type completed; houses and flats are included to allow comparison.

Value of All New Buildings Completed (a)—Classified According to Type (\$'000)

Type of Building	1957-58	1963-64	1964-65	1965-66	1966-67	1967-68
Houses	15,590	17,332	19,216	17,806	22,063	28,305
Flats	253	738	844	1,204	1,167	1,773
Hotels, Guest Houses, etc. ..	216	370	980	264	1,301	934
Shops	808	944	1,216	1,529	835	1,903
Factories	2,128	2,844	2,536	2,218	5,891	9,686
Offices	1,740	2,210	1,246	1,454	2,711	1,409
Other Business Premises ..	1,552	1,866	2,332	2,731	4,338	2,339
Educational	1,186	3,454	2,586	5,113	2,616	4,572
Religious	182	238	308	254	321	178
Health	178	2,060	3,272	4,086	4,103	3,836
Entertainment and Recreation ..	260	886	1,008	666	577	616
Miscellaneous	1,586	1,034	2,200	2,355	2,293	6,332
Total All Buildings ..	25,680	33,976	37,744	39,680	48,218	61,881

(a) Includes estimated value of owner-built houses.

The following table gives details of the total value of all new buildings commenced, completed and under construction. A specification of the items included under 'all new buildings' appears in the previous table.

Value (When Completed) of All New Buildings (a)
(\$ million)

Year	Com- menced	Com- pleted	Under Construc- tion (b)	Year	Com- menced	Com- pleted	Under Construc- tion (b)
1958-59	28.8	26.9	26.1	1963-64	34.7	34.0	29.1
1959-60	36.5	31.6	31.2	1964-65	42.0	37.7	33.5
1960-61	28.3	34.0	25.9	1965-66	43.8	39.7	37.4
1961-62	35.4	33.5	27.8	1966-67	62.1	48.2	51.3
1962-63	34.6	34.1	28.4	1967-68	63.2	61.9	52.5

(a) Includes estimated value of owner-built houses.

(b) At end of period.

The State Housing Department

General

The Housing Department was established in July 1953 as a separate authority to administer that portion of the *Homes Act* 1953 which relates to the purchase and development of land for housing, and the erection of homes for rental and sale. Funds for these purposes are made available under the Commonwealth-State Housing Agreement; the funds form part of the State's annual loan borrowings (but are excluded from the State Public Debt). The Department uses both day-labour and private contractors and has its own factory which incorporates joinery works, timber mill, plumbing and electrical workshops, etc. Most dwellings constructed are three-bedroom timber units usually roofed with corrugated iron. Flats for elderly persons and multi-unit flats have also been constructed.

Department's Construction of Dwellings

During 1967-68, 665 dwellings (houses and individual dwelling units in flats) were completed. The following table shows the aggregate of dwelling units produced by the Housing Department (and by an earlier State housing construction authority) since 1944:

Aggregate of Dwellings Constructed by State Housing Department
From 1944 to 30 June 1968 (a)

Type of Dwelling	One Bedroom	Two Bedroom	Three Bedroom	Total
Single Unit—Timber .. ..	..	562	8,052	8,614
Other Material .. ..	..	..	1,668	1,668
Elderly Persons' Flatettes	108	118	..	226
Maisonettes .. ..	..	12	10	22
Multi-unit Flats (Individual Units) ..	125	157	14	296
Total Dwelling Units	233	849	9,744	10,826

(a) Construction to 30 June 1953 undertaken by Housing Division of State Agricultural Bank; subsequent construction by State Housing Department.

Dwellings for Rental

Flats, maisonettes and elderly persons' homes are for rental only. Although generally houses are allotted on a purchase-contract basis, they may under certain circumstances be rented. The weekly rental of a newly erected three-

bedroom timber house in the Hobart metropolitan area approximated \$14.75 in the June quarter 1969. In certain necessitous cases, rental rebates are allowed. Rebates on rentals of elderly persons' flatettes are graduated according to the incomes of the occupiers. Under the current rental rebate formula, a married couple whose only income is the age pension pay \$3.85, while a single person solely dependent on the pension pays \$2.00 a week. (These rates were current in June 1969.)

Dwellings for Sale

Sales are made on a no-deposit purchase-contract basis with repayments over a maximum term of 53 years, but buyers are encouraged to pay a deposit if they are in a position to do so. When the agreed purchase price and other charges have been paid, ownership of the property is transferred from the Department to the purchaser. Purchase contracts are sometimes surrendered to the Department; when this happens, any equity which may have been established in the property is forfeited. Purchasers may sell their homes in certain circumstances. The aggregate number of purchase contracts less surrenders entered into by 30 June 1968 was 7,220. The sale price, excluding land, of a new three-bedroom house in the Hobart metropolitan area was approximately \$7,900 in the June quarter 1969. Elsewhere prices tend to be slightly lower.

The weekly repayment instalment for a dwelling is less than the weekly rent of a similar dwelling, because a purchaser is responsible for maintenance.

Amounts outstanding in respect of loans made by the Housing Department by way of purchase contracts are shown in the following table:

Housing Department—Purchase Contracts At 30 June

Particulars	1964	1965	1966	1967	1968
Loans Outstanding—					
Number	4,835	5,354	5,781	6,163	6,631
Value (\$'000)	30,206	34,098	37,452	40,583	44,708

The interest rate on contracts signed after 1 May 1965 was 4½ per cent, immediately prior to which the rate was four per cent. To be eligible for purchase contract terms, an applicant must be married or about to be married, or have dependants for whom it is necessary to provide a home. Date of application, number of dependants, income and existing accommodation are considered in determining an applicant's priority.

Agricultural Bank of Tasmania—Advances to Homebuilders

Housing Function

The Agricultural Bank, as an approved institution under the Commonwealth-State Housing Agreement, receives part of Commonwealth housing funds for advances to home builders. Prior to the commencement of the agreement (1956), the Bank borrowed from the State Loan Fund and from private institutions. To be eligible for a loan, an applicant must be married or about to be married or have dependants for whom it is necessary to provide a home, and be over the age of 21 years; he must also own a block of land. The maximum amount of an advance is \$9,000 for all types of houses, provided that the total advance does not exceed 90 per cent of the Bank's valuation of land and dwelling cost. Advances are repayable by equated instalments over a period of up to 31 years. Advances made since 20 August 1969 have been at 6 per cent, immediately prior to which the rate was 5½ per cent.

The following table shows details for recent years:

Agricultural Bank—Advances for Housing (a)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Advances Approved—					
Number	302	304	214	279	219
Value (\$'000)	2,090	2,108	1,479	2,159	1,737
Advances Outstanding (b) (\$'000)	11,244	12,746	14,086	14,930	16,172

(a) Excludes advances to building societies.

(b) At end of period.

The Agricultural Bank also acts as agent for the State in the transmission of advances under the Commonwealth-State Housing Agreement to the co-operative building societies; details of such advances and of the building societies appear in Chapter 11, 'Finance'.

Following the bushfire disaster of February 1967, the Bank was required to administer a separate scheme providing finance for home owners who wanted to build homes to their own design. Advances at 30 June 1968 totalled \$272,338.

General **The Commonwealth Department of Housing**

The Department has four main functions: (i) to assist certain ex-servicemen obtain housing with finance made available on a term of up to 45 years at an interest rate of $3\frac{3}{4}$ per cent; (ii) to administer the Homes Savings Grant Scheme; (iii) to advise the Federal Minister on the Commonwealth-State Housing Agreements; and (iv) to advise on the administration of the Housing Loans Insurance Scheme. A further function is to provide and manage self-contained furnished accommodation for migrant families, tenancy being limited to six months.

War Service Homes Loans

Broadly, to be eligible for a loan, an ex-serviceman must have dependants, and must have volunteered for or had overseas service. Also he must not be the owner of a home at the time of seeking a loan. The following table shows details of War Service Homes activities in the provision of finance for Tasmanian housing. Transfers of loans (and of course houses) between borrowers are not shown as expenditure, nor are details given of additional loans advanced for alterations, etc. to homes already subject to War Service Homes finance.

War Service Homes Operations: Homes Financed in Tasmania

Year	Loans Approved (a)	Homes Financed			Expenditure
		Homes Purchased (b)	Homes Built	Mortgages Discharged (c)	
	no.	no.	no.	no.	\$'000
1963-64	237	114	60	48	1,584
1964-65	232	133	59	24	1,486
1965-66	252	167	35	24	1,562
1966-67	184	107	25	37	1,170
1967-68	187	108	15	47	1,195

(a) Loans approved are not necessarily paid out in the same year. A transfer from one borrower and a resale to another is included as a loan approved, but not included elsewhere.

(b) New or old existing properties, not previously subject to War Service Homes finance.

(c) Mortgages, raised by individuals to build homes, discharged by the Division on satisfactory completion of the home.

Homes Savings Grant Scheme

The scheme was introduced by the Commonwealth Government in 1964 to encourage young people to save for their first marital home ('young' means under 36 years at the time of signing the contract).

The maximum grant (a gift) is \$500; the actual amount is assessed on the amount saved and the time and rate of saving up to the signing of a contract to build or buy a home. The following table details grants made since inception of the scheme:

Home Savings Grants in Tasmania

Year	Grants Approved for—			Grants Made—	
	Home Purchase	Contractor Construction	Owner Construction	Number	Value
	no.	no.	no.		\$'000
1964-65	396	306	134	813	364
1965-66	341	240	174	760	325
1966-67	395	172	117	684	273
1967-68	458	205	121	784	305

Housing Loans Insurance Scheme

The Housing Loans Insurance Corporation was established under the provisions of the *Housing Loans Insurance Act* 1965 of Federal Parliament. The main purpose of the H.L.I.C. is to assist people to obtain as a single loan and at a reasonable interest rate, the money they need and can afford to borrow to obtain a home suited to their requirements. In Tasmania during 1967-68, 620 loans were insured for a total value of \$5,347,000; in the previous year 1966-67 some 366 loans amounting to \$3,022,000 were insured.

EDUCATION IN TASMANIA**Introduction**

This section deals with: (i) education in government and non-government schools; (ii) technical education; (iii) adult education; (iv) university education; and (v) Commonwealth activity in education.

The task of Tasmanian educational authorities, as in other Australian States in the post-war period, has been to provide more schools, more teachers and better facilities; the principal factors exerting pressure have been: (i) a rapidly growing school population; (ii) a change in attitude resulting in increased demand for secondary and tertiary education; (iii) community acceptance of the need for better education in general.

A notable recent change was the 1967 amendment of the *Education Act* 1932; this allowed the State Government to begin making grants to independent (non-government) schools and brought to an end a period of 82 years in which the State accepted no financial responsibility for this type of education.

Schools, Government and Non-Government

Attendance

Tasmania became, in 1869, the first colony in the British Empire to make it compulsory for a parent to educate his child. In 1898 school attendance was made obligatory between the ages of 7 and 13, and in 1912, between 6 and 14. In 1946, Tasmania became the only Australian State to make it compulsory for children to attend school until their sixteenth birthday, and government and non-government systems of education were then reorganised to provide a three, four or five-year post-primary course. (The pre-war system of secondary education had comprised two stages, a three-year course followed by a two-year course; with a leaving age of 14, and with *selective entry* to government high schools, the proportion of pre-war pupils taking secondary education was very low.)

The following table shows the dual nature of educational responsibility in Tasmania and gives the numbers of pupils in both government and non-government schools, in primary and secondary grades:

Government and Non-Government Schools					
Total Pupils Enrolled at 1 August According to Grade of Education					
Particulars	1964	1965	1966	1967	1968
Government Schools—					
Primary Grades	47,931	48,501	48,759	49,827	50,603
Secondary Grades	22,061	22,378	22,962	23,659	24,765
Special	651	736	740	779	741
Total	70,643	71,615	72,461	74,265	76,109
Non-Government Schools—					
Primary Grades	8,548	8,634	8,621	8,633	8,675
Secondary Grades	5,837	6,054	6,122	6,280	6,272
Special (a) .. ..	..	..	..	..	27
Total	14,385	14,688	14,743	14,913	14,974
Total All Schools ..	85,028	86,303	87,204	89,178	91,083

(a) Prior to 1968 non-government 'Special School' pupils were included under primary and secondary grades.

The State (or Government) School System

Introduction

The present system had its genesis in the *Education Act 1885*, a department being established and a Director of Education appointed responsible to a Minister. Under the Act, aid to non-government schools was abolished and only in 1967 was this principle re-introduced (with a system of capitation subsidies).

Education is compulsory between the ages of 6 and 16 years although, in some cases, special exemptions may be obtained. Virtually all schools are co-educational. Education is secular and free; parents buy their children's books, paints, instruments, etc. Pupil's transport is either provided by the Department or subsidised where daily travel costs exceed eight cents. The arrangement of transport has been important in the organisation of area, district and high schools where educational facilities are concentrated and centralised, thereby eliminating the smaller country schools.

Present Organisation

Under the Director-General operate three Directors designated (i) primary; (ii) secondary; and (iii) technical. Superintendents are responsible for specific activities and districts; supervisors assist in administration and provide services to schools. Specialist sections deal with curriculum, teaching aids, science equipment, speech education, music, physical education, guidance and welfare, school libraries, educational planning and research, etc.

Enrolment

The following table shows enrolments in government schools over a five-year period:

Government Schools									
Total Number of Pupils at 1 August According to Sex									
Pupils					1964	1965	1966	1967	1968
Boys	..	..	..	..	36,879	37,306	37,742	38,592	39,624
Girls	..	..	..	..	33,764	34,309	34,719	35,673	36,485
Total	..	..	..		70,643	71,615	72,461	74,265	76,109

Finance

The following table gives a summary of government expenditure on education over a five-year period. The principal source of the money expended from State Trust Funds is the Commonwealth Government, the State acting as agent for the Commonwealth.

Expenditure on Education from Consolidated Revenue, Loan Fund and Trust Funds
(£'000)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
From Consolidated Revenue—					
Primary, Secondary and Technical Education—					
Education Department ..	14,054	15,566	16,800	18,826	20,522
Capitation Grants, Non-Government Schools ..	..	..	..	..	200
Other (Schools Board, Pre-Schools, etc.) ..	54	56	56	63	69
Adult Education ..	111	119	127	122	145
University of Tasmania ..	924	1,360	1,332	1,438	1,638
Other Educational Grants ..	1	1	1	1	1
Total ..	15,145	17,102	18,316	20,450	22,575
From Loan Fund—					
School Buildings, University and Adult Education ..	4,759	4,456	4,655	4,901	5,354
From Trust Funds ..	1,005	1,551	2,164	1,715	1,621

The Commonwealth Government has made some contributions to the State loan and trust funds specified in the previous table. The Commonwealth's role in education is described later in this chapter under the heading, 'Commonwealth Department of Education and Science.'

The following table gives a dissection of expenditure on education from State Consolidated Revenue:

Expenditure on the Education Department (a) and Non-Government Schools from Consolidated Revenue Fund, 1967-68

Particulars	\$'000
Salaries, Wages and Allowances for Administrative Staff	753
Salaries, Wages and Allowances for Teaching Staff	15,605
Payroll Tax	409
Maintenance of Schools and Other Properties	440
Lighting, Heating, Water and Sanitary Charges	360
Conveyance and Fares of Scholars	1,683
Materials and Equipment (including Schools Library Service)	644
Capitation Grants to Non-Government Schools	200
Grants for Pre-School Child Development	12
Other (including Office Requisites, Rents, Rates, Travelling Expenses, Furniture, Allowances, Free Supplies to Scholars, etc.)	616
Total Expenditure	20,722

(a) Includes all Technical Education.

Age of Pupils in Each Class

The following table summarises the system of government schooling in Tasmania, showing the average ages of pupils in each class according to the type of school available, and the final examinations which determine the types of course followed:

Government Schools

Average Age of Pupils, Primary and Secondary, in each Class and Certificates Issued

Primary Schools (including Primary Classes of District and Area Schools)			Secondary Schools (including High Schools and Secondary Classes of District and Area Schools)			
Grade	Mean Age at 1.8.68		Class	Mean Age at 1.8.68		Certificate Issued
	Years	Months		Years	Months	
Pre-School ..	4	11	1 ..	12	10	..
Kindergarten	5	7	2 ..	13	11	..
1 ..	6	7	3 ..	14	10	(a) Sec. Schools
2 ..	7	9	4 ..	15	10	(a) Schools Board
3 ..	8	8	5 (b)	16	8	} Matriculation
4 ..	9	8	6 (b)	17	9	
5 ..	10	9				
6 ..	11	9				

(a) The Secondary Schools Certificate marks the final stage of a self-contained course, and is not a part of the Schools Board Certificate course.

(b) Classes 5 and 6 indicate pupils in their first or second year at matriculation level.

Number of Primary Schools

The following table shows the number of schools providing primary and pre-school education in the State.

Number of Government Schools Providing Primary Education at 1 August

Type of School	1964	1965	1966	1967	1968
Pre-School	56	56	56	59	58
Primary School	139	141	138	137	136
Area (a)	35	35	35	35	35
District (a)	7	6	6	7	7
Primary with Secondary Classes (a)	15	14	14	13	10
Special School	14	14	15	16	15

(a) These figures are also included in a later table on numbers of secondary schools.

Pre-School Centres

Pre-schools are established on the initiative of groups of parents, the Department providing the cost of the building but eventually recovering half its outlay from the parents. The Department trains and pays the teachers who control their own programmes; it subsidises or meets most other costs. Pre-school teachers were originally sent for training at Kew in Victoria but, from 1966, courses have been provided at the Hobart Teachers College.

Children from 3½ to 6 years may attend pre-schools which are considered valuable in personality development and therefore encouraged by the Department. The following table shows the number of teachers and enrolled pupils at the centres:

Pre-Schools—Teachers and Pupils at 1 August

Particulars	1964	1965	1966	1967	1968
Teachers—					
Full-time	54	55	51	57	66
Part-time	7	..	11	12	4
Pupils	2,424	2,431	2,447	2,632	2,862

The high pupil-teacher ratio in the previous table is reduced in practice by attendance of pupils in half-days or on occasional days. Classes do not exceed 25 pupils.

State Primary Schools

State Infants Schools and Infants Classes: Infants schools, and infants classes in all primary schools, cater for children for one, two or three years, depending on facilities available, age at entry, and pre-school experience. Kindergarten classes are provided at some primary schools for children below the age of six who may not have been able to attend pre-school centres.

The following table shows the number of boys and girls in kindergartens and infants classes:

Enrolments in Government Infants Schools and Infants Grades at 1 August 1968

Pupils	Kindergarten	Grade 1	Grade 2	Total
Boys	1,240	4,985	3,966	10,191
Girls	1,141	4,337	3,789	9,267
Total	2,381	9,322	7,755	19,458

Primary Classes: The majority of government primary schools have six grades only, without kindergartens attached; a few have secondary grades as well. In general, parents may select the school they prefer for their children without restriction. In some areas, zoning directs children to attend a particular primary school.

Thirty-five area schools and seven district schools have primary grades, and draw many pupils from outlying localities previously served by one or two-teacher schools. Free transport has made this possible and has led to a reduction in the total number of primary schools.

Primary Curriculum: The primary school curriculum has undergone considerable changes in recent years, both in teaching methods and subject matter. The subjects are English (including reading, spelling, oral and written work), history, geography, arithmetic, science, art, music, handiwork, religious and moral education, and health and physical education.

Pupil Grouping: Promotion within the schools is generally by age at the beginning of the school year, with accelerated progress or repetition of classes at the headmaster's discretion; grouping is by ability, where numbers allow, with each child being able to work with his equals in each subject, regardless of chronological age. *Differential teaching* adapts the school programme to meet the widely varying needs and abilities of pupils. The skill subjects of reading, writing, spelling and arithmetic are particularly suited to this method of teaching, testing and grading. One school has experimented widely with *non-grading*, a method of organisation which allows pupils in certain subjects to work at their own level of competence. A few other schools have adopted this organisation in one or two subjects only.

Primary Pupils: The following table shows the age and number of pupils receiving primary education in Tasmanian government schools:

Age and Number of Pupils Receiving Government Primary Education (a) at 1 August

Age Last Birthday (Years)				1964	1965	1966	1967	1968
Under 7	..	..	..	12,945	13,256	12,984	13,282	13,368
7	..	..	..	6,626	6,901	7,081	7,153	7,442
8	..	..	..	6,975	6,744	6,926	7,060	7,395
9	..	..	..	6,531	6,766	6,568	6,946	7,098
10	..	..	..	6,326	6,515	6,874	6,682	6,807
11	..	..	..	5,962	5,912	5,953	6,340	6,222
12	..	..	..	2,266	2,105	2,084	2,124	2,088
13	..	..	..	257	271	266	219	170
14	..	..	..	32	22	22	19	12
15 and Over	..	..	..	11	9	1	2	1
Total—Boys				24,838	25,063	25,295	25,827	26,295
Girls				23,093	23,438	23,464	24,000	24,308
Pupils				47,931	48,501	48,759	49,827	50,603

(a) Includes pupils in pre-schools, infants schools and infants grades.

Special Schools and Special Classes

The Department has special schools, and also special classes in ordinary schools, for children who are physically handicapped, mentally retarded, or otherwise unable to profit from ordinary class teaching. Instruction varies according to the handicap; where it is physical, the main need is to maintain normal or near-normal individual programmes. Many pupils eventually can be transferred to ordinary schools into the grade appropriate for their age.

Schools and classes for slow learners and mentally retarded children follow the curricula for pre-schools and primary schools, and no attempt is made to reach examination standards. The teaching of activities and basic skills is the main concern in these classes, which are to be found in some primary and high schools.

State Secondary Schools

The following table shows the number of government secondary schools in the State:

Number of Government Schools Providing Secondary Education at 1 August

Type of School	1964	1965	1966	1967	1968
Primary with Secondary Classes					
(a)	15	14	14	13	10
Area (a)	35	35	35	35	35
District (a)	7	6	6	7	7
High	27	29	29	28	27
Matriculation Colleges (b) ..	..	1	1	2	3

(a) These figures are included in a previous table on numbers of primary schools.

(b) In 1965 Hobart High School became Hobart Matriculation College. Matriculation colleges are located in Hobart (2), and Launceston.

Almost all children attend secondary classes, starting at an age varying from $11\frac{1}{2}$ to 13 years. If a choice has to be made between a high and an area school, a transfer committee considers the matter, taking note of performance in grade VI. High schools are non-selective, comprehensive and, with two exceptions, co-educational.

The differences between the types of secondary school are related mainly to the level of the final examination or certificate available to students. The levels under the recently re-organised system are: School Certificate endorsed preliminary (three year course); School Certificate (four year course); Higher School Certificate (five or six year course). The School and Higher School certificates replace the Secondary Schools, Schools Board and Matriculation certificates which were last awarded in 1968.

The essence of the new system is: (i) all assessment and certification to come under a single authority, a newly constituted Schools Board of Tasmania; (ii) two certificates only to be issued; and (iii) the new certificates to record achievement in *subjects* and not to be *group* certificates as in the old system. The new certificates are:

The School Certificate: awarded in subjects for three and four year courses; basis of award to be internal assessment and recommendation by schools.

The Higher School Certificate: awarded in subjects studied in fifth or sixth secondary year; basis of award to be external examination conducted by the Board (not the University as for matriculation in the past). The University is still free to determine what constitutes qualification for university entrance and can nominate the subjects and the levels of achievement at the Higher School Certificate examination necessary for entry; the scope of the examination can also be enlarged to cover subjects not designed primarily for purposes of university entrance.

A more detailed account of the new examinations and procedures adopted for awarding the School and Higher School certificates is contained in a later section: *Examinations*.

The following table shows the age and number of students in Tasmanian government secondary schools:

Age and Number of Pupils Receiving Government Secondary Education at 1 August

Age Last Birthday (Years)	1964	1965	1966	1967	1968
11	387	329	359	433	365
12	3,561	3,868	3,853	4,119	4,536
13	5,442	5,702	5,718	5,753	6,140
14	5,748	5,786	5,927	6,111	5,968
15	4,236	4,213	4,336	4,586	4,664
16	1,918	1,734	1,852	1,744	2,070
17	659	580	702	681	774
18 and Over	110	166	215	232	248
Total—Boys	11,651	11,812	11,995	12,294	12,875
Girls	10,410	10,566	10,967	11,365	11,890
Pupils	22,061	22,378	22,962	23,659	24,765

The next table shows the number of secondary pupils by sex and class in all government schools and classes:

Secondary Pupils in Government Schools by Classes at 1 August 1968

Pupils	Post-Primary Class						Total
	1	2	3	4	5	6	
Boys ..	3,691	3,297	2,970	1,912	557	448	12,875
Girls ..	3,421	3,125	2,963	1,635	486	260	11,890
Total	7,112	6,422	5,933	3,547	1,043	708	24,765

Area Schools

These cater for children following mainly non-academic courses leading to preliminary awards in subjects of the School Certificate after three years by internal assessment. There is a bias towards agriculture, technical subjects and home arts, the aim being to provide training for the environment in which the child is likely to find himself on leaving school. The English course is framed to help children write and speak fluently and mathematics is concerned largely with practical examples. There has been an amount of experimental work in these schools, especially in programmed learning, mainly in mathematics.

Subjects for the School Certificate are available to pupils in some primary schools with secondary classes, in all area and district schools, and in all high schools.

Government Matriculation Colleges

In 1965, the Hobart High School became the Hobart Matriculation College, no junior students having been enrolled after 1960. The Launceston High School reached this stage in 1967. At these colleges, students are exclusively concerned with Higher School certificate subjects, undertaken as a one-year or two-year course. In 1969 the Higher School Certificate, awarded in individual subjects, replaced the matriculation group certificate. A third college began in

the Hobart area in 1968, but the elimination of junior students will not be completed until 1970. Students may also matriculate from high schools at Burnie and Devonport. Subsidised transport and hostels assist many students attempting matriculation.

The advantage claimed for matriculation colleges is that they concentrate, in the one centre, teachers who are specialists in this field; further, the students benefit to the extent that the colleges are an intermediate step between the disciplined high school and the university.

Correspondence School

This school offers a wide variety of courses at the primary and post-primary levels, and provides instruction for adults as well as children. Valuable assistance is given to pupils in secondary classes of some primary schools and area schools to assist them achieve School Certificate standard.

The courses available include all primary and most secondary subjects; mathematics, English literature and history at the Higher School Certificate stage; Higher School Certificate level III English for junior temporary assistant teachers; English for New Australians; and courses for adults with special problems such as illiteracy.

Teachers and Teacher Training

There is a variety of courses available to trainee teachers in this State. The University of Tasmania awards the Diploma of Education after one year of a post-graduate course, or the Certificate of Education after a two-year undergraduate course. The Hobart and Launceston teachers colleges provide two-year and three-year courses for primary and infants teachers; three-year commercial course and a four-year mathematics and science course are provided for secondary school teachers at the Hobart Teachers College. A two-year course in physical education and a three-year course in music are provided at the University; and courses are available at the Launceston Teachers College (home arts), the Hobart School of Art, and at the Victorian School of Speech Therapy, the Hobart Technical College, etc. Beginning with 1965 entrants, an increasing proportion of teachers college students are following a three-year course; by 1970, all courses are to be of three years' duration.

The following table shows the number of teachers in Tasmanian government schools:

Number of Government School Teachers at 1 August 1968 (a)

Type of School	Full-time (b)			Part-time		
	Males	Females	Persons	Males	Females	Persons
Pre-School .. .. .	..	66	66	..	4	4
Special	17	67	84	2	10	12
Primary	250	1,059	1,309	..	143	143
Primary with Secondary Classes ..	13	26	39	2	8	10
Area	153	291	444	4	28	32
District	63	84	147	..	4	4
High (c)	744	550	1,294	18	61	79
Teachers Colleges	34	20	54	47	6	53
Technical Colleges	143	24	167	489	180	669
School of Art	8	1	9	13	14	27
Conservatorium of Music ..	5	..	5	11	4	15
Total	1,430	2,188	3,618	586	462	1,048

(a) Excludes teachers in non-teaching positions (e.g. curriculum branch staff, guidance officers, and speech education, music and teaching aids centres, etc.).

(b) Includes 43 teachers on leave without pay.

(c) Includes matriculation colleges.

In the primary schools in 1968, 81 per cent of the teachers were women, and the available men usually taught grades V and VI. All subjects are taught by each teacher in these schools, but itinerant teachers, when available, take physical education, music and speech classes on a circuit basis with each teacher being responsible for the teaching of the subject in several schools. In the post-primary schools, most teachers are specialists attached to subject departments within each school. In area and district schools, one teacher may take several subjects, and agriculture, cooking and technical subjects are handled by resident or itinerant specialists as available.

The following table shows the number of teachers and teachers-in-training in Tasmania:

Full-time Teaching Staff in Government Schools (a) and Teachers-in-Training at 1 August

Type of Teacher	1964	1965	1966	1967	1968
Head Teachers—					
Males	224	238	236	240	229
Females	17	13	7	9	13
Other Teachers—					
Males	974	1,056	1,063	1,055	1,020
Females	1,885	1,942	1,991	2,115	2,170
Monitors (b)—					
Females	23	17	10	11	..
Total Teachers—Males (a)	1,198	1,294	1,299	1,295	1,249
Females (a)	1,925	1,972	2,008	2,135	2,183
Probationary Students (c)—					
Males	67	21	..	..	..
Females	96	26	..	..	..
Teachers-in-Training—					
Males	225	258	299	321	344
Females	529	600	614	679	712

(a) Includes teachers in non-teaching positions (e.g. curriculum branch staff, guidance officers, etc.) but excludes those engaged in teacher training and technical education, and part-time teachers.

(b) Appointment of monitors ceased in 1967.

(c) The appointment of probationary students ceased in 1965.

Teachers Colleges, etc.: The institutions where teachers-in-training are studying are shown in the next table:

Teachers-in-Training at 1 August

Institution Attended	1964	1965	1966	1967	1968
MALES					
Hobart Teachers College	22	32	30	23	36
Launceston Teachers College	15	9	23	28	28
University of Tasmania	173	195	227	244	250
School of Art	6	11	12	13	12
Tasmanian Conservatorium of Music .. .. .	..	2	5	5	8
Other Institutions	9	9	2	8	10
Total	225	258	299	321	344

Teachers-in-Training at 1 August—continued

Institution Attended	1964	1965	1966	1967	1968
FEMALES					
Hobart Teachers College	137	153	133	154	172
Launceston Teachers College	164	150	159	170	186
University of Tasmania	180	233	264	308	312
School of Art	28	28	21	16	17
Tasmanian Conservatorium of Music .. .. .	..	11	14	17	14
Other Institutions	20	25	23	14	11
Total	529	600	614	679	712

Independent (or Non-Government) Schools

Introduction

Non-government schools have long played a valuable part in Tasmanian education. Policies are framed by headmasters in conjunction with their senior staffs and with the approval of their governing bodies or church. There can be freedom to experiment and to develop breadth in courses if desired, and this is shown by the number of subjects available to students.

Registration

Non-government schools and teachers have to conform with the regulations of the *Teachers' and Schools' Registration Board*. This Board consists of nine members who hear and determine all applications for registration and keep a record of all teachers and schools not administered by the Education Department. Every school is graded and teachers are registered in one or more classifications or as special subject teachers. 'Provisional' teachers are those gaining qualifications so they can be registered. The Board may prescribe the mode of classifying teachers, the course of study and training required, the examinations to be passed, and the recognition of overseas qualifications. To secure registration, schools must provide for proper access, drainage, light, ventilation and sanitary conveniences, and inspections may be made by officers appointed by the Board. A daily register of attendance has to be kept.

State Assistance to Non-Government Schools and Pupils

The *Education Act* 1932 was amended in 1967 to provide for direct payments to non-government schools, the amount being calculated on a capitation basis; the subsidies provided are \$10 per annum per primary pupil and \$20 per annum per secondary pupil. The principle of giving no aid to non-government schools was first incorporated in the *Education Act* 1885 and persisted for 82 years. The 1968-69 appropriation was \$209,000.

Apart from these subsidies, benefits include matriculation allowances; secondary scholarships; free or subsidised transport; use of the facilities of the Department's Curriculum, Teaching Aids, Speech Education and Guidance Branches; attendance at trade and domestic science classes if room is available, and attendance by teachers at Departmental schools of method. Equipment can be purchased at favourable rates through the Supply and Tender Department.

Enrolment at Independent Schools

Most non-government school pupils are in schools controlled by religious denominations as the next table shows:

Non-Government Schools
Number of Pupils and Number of Schools at 1 August

Particulars	Church of England	Meth- odist	Pres- byterian	Catholic (a)	Seventh Day Ad- ventist	Friends (Quaker)	Other Schools	All Schools
NUMBER OF PUPILS								
1964 .. Boys	944	11	268	4,933	86	481	103	6,826
Girls	883	353	323	5,364	74	478	84	7,559
1965 .. Boys	980	7	303	5,040	74	490	149	7,043
Girls	863	336	324	5,465	70	482	105	7,645
1966 .. Boys	1,004	10	273	5,063	63	520	150	7,083
Girls	839	323	314	5,529	65	474	116	7,660
1967 .. Boys	1,050	6	314	5,105	70	536	155	7,236
Girls	840	312	324	5,578	55	449	119	7,677
1968 .. Boys	1,029	4	335	5,061	74	520	224	7,247
Girls	860	313	303	5,539	70	434	208	7,727
NUMBER OF SCHOOLS								
1968	4	1	2	50	4	1	4	66

(a) Includes one 'Special School'.

Of the 31 schools in 1968 which catered for secondary pupils, 19 had matriculation classes, but only one was co-educational. They have a tradition of comprehensive type schooling, but increased applications for entry have imposed some element of selectivity such as an entrance examination. Preference is usually given to children of past pupils or brothers or sisters of current pupils.

The following tables give details of pupils enrolled at non-government schools; 27 pupils (all girls) enrolled at the one *special school* in 1968 have been excluded. For years prior to 1968 these pupils were included with primary and secondary grade pupils; the number of pupils (all girls) involved was: 1964, 25; 1965, 17; 1966, 30; 1967, 19.

Most independent school pupils are to be found in primary classes, and most of these are in Catholic schools. The following table shows the ages and numbers of all pupils in non-government primary classes and sub-primary classes:

Age and Number of Pupils Receiving Non-Government Primary Education at 1 August

Age Last Birthday (Years)	1964	1965	1966	1967	1968 (a)
Under 7	1,872	1,962	1,905	2,182	2,293
7	1,255	1,246	1,191	1,229	1,201
8	1,106	1,180	1,189	1,182	1,184
9	1,155	1,212	1,202	1,172	1,201
10	1,110	1,115	1,214	1,214	1,217
11	1,140	1,142	1,104	1,176	1,112
12	639	567	556	399	394
13	219	177	210	60	62
14	48	30	37	13	9
15 and Over	4	3	13	6	2
Total—Boys	4,131	4,232	4,159	4,194	4,161
Girls	4,417	4,402	4,462	4,439	4,514
Pupils	8,548	8,634	8,621	8,633	8,675

(a) Excludes the primary grade elements of 27 special school pupils.

The following table shows the age of pupils in the independent schools at secondary level:

**Age and Number of Pupils Receiving
Non-Government Secondary Education at 1 August**

Age Last Birthday (Years)		1964	1965	1966	1967	1968(a)
11	.. .. .	78	100	95	129	160
12	.. .. .	741	804	887	915	1,039
13	.. .. .	1,143	1,226	1,253	1,306	1,256
14	.. .. .	1,334	1,273	1,317	1,385	1,275
15	.. .. .	1,115	1,280	1,196	1,216	1,252
16	.. .. .	862	838	871	835	792
17	.. .. .	404	406	394	404	387
18 and Over	.. .. .	160	127	109	90	111
Total—Boys		2,695	2,811	2,924	3,042	3,086
Girls		3,142	3,243	3,198	3,238	3,186
Pupils		5,837	6,054	6,122	6,280	6,272

(a) Excludes the secondary grade elements of 27 special school pupils.

The following table shows the number of secondary pupils by sex and class in all non-government schools:

Secondary Pupils in Non-Government Schools by Classes at 1 August 1968

Pupils	Post-Primary Class						Total
	1	2	3	4	5	6	
Boys ..	727	627	586	658	278	210	3,086
Girls ..	733	714	707	629	260	143	3,186
Total	1,460	1,341	1,293	1,287	538	353	6,272

Other Education Matters

Various functions of the Education Department are described in the following section; some are applicable to both government and non-government schools.

Equipment: The Department maintains an active interest in the development of teaching methods and of teaching aids. The Teaching Aids Centre gives assistance to schools by the provision of a library of 16 mm films, film strips and coloured slides. Records are distributed on loan, and are mainly used for music appreciation, poetry and languages. Printed aids, in the form mainly of charts and booklets, are provided (e.g. charts for cursive writing and booklets for the Cuisenaire system). Audio-visual aids (tape recorders, film projectors, centralised radio systems, strip and sound projectors, television receivers, etc.) are bought by the Centre and re-sold to the schools with a \$ for \$ subsidy given by the Department. Repair and maintenance of this equipment is done free of charge by the Centre. Specialised electronic equipment has been developed and produced, e.g. auditory training equipment for the schools for the deaf. A talks studio with recording equipment and tape duplicating facilities operates to prepare language laboratory programmes and the recording of schools broadcasts.

Libraries: These have been built up in most schools, with Departmental subsidies matching local funds up to levels determined by the size of the school. A new Central Library Service Branch offers bibliographic and technical advice to schools on library development. The branch in conjunction with the Curriculum Branch, exercises control over comprehensive book and resource material displays.

Television and Radio Programmes: Receivers are found in all schools; lessons are frequently co-ordinated with the scheduled programmes arranged by liaison between the Department and the Australian Broadcasting Commission.

Road Safety Officers: Transport Commission officers visit the schools regularly to give lectures and practical demonstrations. Special efforts have been made to increase the safety of child cyclists, and warnings have also been given on firearms, explosives, dangerous drugs, etc. Driver education courses are given in two schools, a type of training likely to be extended to others.

Parents and Friends Associations: While a major function of these bodies is fund-raising for the provision of subsidised equipment and library books, they also act as a valuable forum for discussion on education.

Migrant Education: This is arranged by the Department at certain schools or by combined radio-correspondence lessons, the aim being the teaching of English. The cost of migrant education is reimbursed by the Commonwealth Government.

The School Milk Scheme: Free milk is available to all children under 13 years attending government and non-government primary and infants schools, pre-school centres, creches, child-minding centres, and orphanages. One-third of a pint of milk is supplied daily, and the cost is borne by the Commonwealth. In 1968, the cost of milk supplied was \$480,500.

Bursaries: A system of bursaries exists to assist pupils in post-primary government and non-government schools. Junior bursaries, which may be held for four years, are awarded to pupils under the age of 13 who live in areas where the required type of secondary education is not available. Senior bursaries are awarded on the results of a competitive examination for pupils under 17.

There were 119 junior and 10 senior bursaries held during 1968, at a cost to the Bursaries Board of \$17,140. Twenty-three junior bursaries were awarded for 1969. The Bursaries Board fund is made up of moneys from the Government and private donations.

Matriculation allowances are also paid to all pupils in fifth and sixth years of post-primary education if parents' income does not exceed \$50 per week (subject to variation if there are additional children).

Technical Education

Government technical colleges operate at Hobart, Launceston, Devonport and Burnie and provide professional, technician and trade courses. Part-time students attend classes, providing largely trade work for apprentices, at Queenstown, Rosebery and Smithton. Students are charged fees but apprentices receive free training. A Tasmanian College of Advanced Education is being built at Mt Nelson in Hobart, the 170 acre site having 130 acres suitable for erection of the proposed buildings. Construction of the first stage commenced in June 1969.

Included in the tables that follow are details for the School of Art, established in 1963, and the Conservatorium of Music, established in 1964. The heading 'technical' therefore has very wide application and includes some courses which are cultural and aesthetic rather than purely vocational.

Courses

Professional courses provide the theoretical background for the award of a diploma issued by the Education Department. The following table shows the professional courses available, enrolments, and the number who completed courses:

Technical Colleges
Number of Students Taking Diploma and Post-Diploma Courses

Type of Course	1966		1967		1968	
	Total Enrolled (a)	Completed Course	Total Enrolled (a)	Completed Course	Total Enrolled (a)	Completed Course
Accountancy ..	467	2	356	3	304	3
Architecture ..	58	6	59	3	70	7
Art ..	165	31	142	13	111	20
Bankers Institute ..	22	..	16	..	33	..
Building ..	..	..	..	..	..	..
Chemistry ..	75	3	72	8	68	7
Engineering—						
Civil ..	80	12	73	5	64	5
Electrical ..	78	13	60	11	89	10
Mechanical ..	50	6	48	1	37	7
Electronics ..	..	..	..	..	2	..
Insurance Institute	17	..	6	..	20	..
Library Association	41	2	48	6	54	..
Management ..	76	12	29	5	37	5
Medical Laboratory						
Technology ..	..	..	22	..	41	3
Metallurgy ..	16	1	23	3	29	1
Music ..	27	4	41	8	44	10
Pharmacy (b) ..	22	3	35	3	39	6
Radiography ..	..	..	12	4	44	..
Quantity Surveying	4	1	5	1	5	..
Technical Teaching	..	..	5	..	..	..
Town Planning ..	10	..	9	..	8	5
Valuation ..	29	5	25	3	25	..
Total ..	1,237	101	1,086	77	1,124	89

(a) Aggregate enrolment for year.

(b) See next paragraph for definition.

Pharmacy: The figures in the above table are incomplete since the course demands a preliminary year at the University and a final year of practical training. On this revised basis, course enrolments were: 57 (1966); 63 (1967); 70 (1968); in 1968 those completing the whole course numbered fourteen.

Technician Courses: These do not aim to reach the standard of the professional courses, nor are they directed towards acquiring skill in a trade. They are intermediate between the two and are designed to meet the needs of industry in which there is a growing demand for technicians. On successful completion of a course, a certificate is awarded by the Education Department. Commerce, draughtsmanship, health inspection, hotel management, shorthand-typing, and merchandising are examples of the large number of courses available. They are also called *certificate courses*.

Trade Courses: These are designed to complement trade experience and to lead the apprentice to skill in his craft. From 1965, apprentices have been required to attend one full day per week for three years; this has eliminated many evening classes. A certificate of trade proficiency is issued by the Department and courses are available in most trades. Post-trade or journeymen courses are also provided.

The following table shows the number of students who received certificates on successful completion of technician or trade courses, and of preparatory and qualifying courses:

Number of Technician and Trade Students who Completed Courses

Course	1964	1965	1966	1967	1968
Technician and Trade Certificates	768	1,022	978	913	1,057
Preparatory and Qualifying Examinations (a)	285	337	482	452	516

(a) These courses prepare students for Schools Board, Matriculation and public service entry examinations.

Technical Correspondence Courses: These are administered through the Hobart Technical College and are given when attendance at technical classes is not practicable. In 1968, 252 apprentices and others made use of these courses.

Technical Education—Miscellaneous

Fees: In 1968, fees were approximately \$60 per year for professional part-time courses, \$120 for full-time courses and \$24 for certificate and trade courses. Apprentices receive training without charge.

Enrolments: In 1968, part-time enrolments comprised 93 per cent of the total technical college enrolment of 8,050. The full-time students attended accountancy, art, pharmacy or day commercial classes. Fifty three per cent of the total enrolment was at the Hobart College and 26 per cent at the Launceston College. Fourteen per cent were attempting diploma or post-diploma courses; 32 per cent certificate or post-certificate courses; 43 per cent trade or post-trade courses; and 11 per cent miscellaneous subjects. Seventy three per cent were males and 27 per cent females.

College Councils: These are appointed locally and represent local trades and industries, professions and municipal councils. They supervise and act as advisory bodies.

Examinations: These are conducted by the Education Department in November each year and supplementary examinations are held in December. Papers are set and marked, or assessments carried out, by outside examiners. In 1967, first-year apprentice examinations were conducted internally; this was extended to second-year level in 1968.

Technical Teachers, Students and Expenditure

The following table shows the numbers of schools, teachers and students engaged in senior technical education, and the yearly expenditure; (details for the School of Art and the Conservatorium of Music are included):

Technical Education—Teachers, Students and Expenditure

Particulars	1964	1965	1966	1967	1968
Schools, Colleges, etc. .. (no.)	11	12	11	10	9
Teachers—Full-time .. (no.)	110	146	154	173	167
Part-time .. (no.)	498	442	591	614	669
Students—Aggregate (a) (no.)	7,692	7,916	7,962	8,200	8,296
Expenditure (b) .. (\$'000)	717	797	954	1,044	1,375

(a) Gross number enrolled during the year.

(b) Excludes capital expenditure on new buildings, etc.

Examinations (pre-1969)

This section deals with certificates and examinations affecting pupils of government and non-government secondary schools. The heading 'pre-1969' has been used because a new system came into operation in 1969. The post 1969 situation is examined in detail in the next section.

The Schools Board Certificate

This was awarded after a four-year secondary academic course. Subjects could be taken at various levels and a wide choice was available, to cater for different levels of ability or interest. Compulsory basic subjects were complemented by optional subjects to permit concentration on interests, without undue specialisation at this stage. Examinations were internal (in accredited schools) or external (set by the Schools Board of Tasmania). The Certificate was issued endorsed 'A' or 'B', or unendorsed. The 'A' certificate required a pass in English among other subjects; the 'B' certificate was less restricted in specification of required subjects. Some 3,880 sat for the Certificate in 1968 and 67.93 per cent gained the Schools Board Certificate endorsed 'A'.

The Matriculation Examination

This was taken at the end of the fifth or sixth secondary year and individual subjects were attempted at the advanced or ordinary level. Examinations were conducted by the University of Tasmania in December. A candidate could matriculate at the one examination or, if he chose, at two examinations held in consecutive years. Supplementary examinations were also held in February. At least three subjects at advanced level and two at ordinary level, in certain groupings, were required. Study of subjects outside his specific specialist field of interest was compulsory for a candidate.

Although it was a five-year secondary course, students were encouraged to aim to matriculate after six years' study, and to regard the fifth year examination either as a trial effort or as the first stage of the complete course. At the 1968 examination 1,504 candidates attempted Matriculation and 64.29 per cent passed.

Examination Results

The following table shows the number of students attempting the Schools Board and Matriculation examinations, and the percentages who passed. In 1969 the School and Higher School Certificates replaced the Schools Board and Matriculation certificates which were last awarded in 1968.

**Schools Board and Matriculation Examination Results
Government and Non-Government Schools**

Particulars	1964	1965	1966	1967	1968
Schools Board Certificate—					
Total Examined	4,182	4,433	4,713	4,885	5,313
Attempted Certificate	3,368	3,478	3,618	3,749	3,880
Gained Certificate (a)	1,800	1,830	2,153	2,329	2,636
Pass Rate (b) (%)	53.44	52.62	59.51	62.12	67.93
Matriculation Examination—					
Secondary Schools Students—					
Total Examined	1,561	1,804	2,021	2,228	2,607
Attempted Matriculation	968	1,008	1,163	1,234	1,504
Matriculated	563	551	661	684	967
Pass Rate (b) (%)	58.16	54.66	56.83	55.43	64.29
Non-Secondary School Students—					
Matriculated	44	18	26	23	34

(a) Refers to Schools Board Certificate endorsed 'A'.

(b) Successful proportion of those attempting to obtain the full qualification.

Examinations (from 1969)

Introduction

The Schools Board of Tasmania was constituted on 31 October 1944, by the *Education Act*, 1944, to devise and govern new systems of awarding school certificates.

In 1946 the school leaving age in Tasmania was raised to sixteen years and the Board instituted a four-year course of academic secondary education leading to the Schools Board Certificate. The Intermediate Examination, which had been conducted by the University at third year secondary school level until 1938, had been replaced by similar examinations conducted by the State Education Department and the Associated Public Schools. These were replaced by the Schools Board Certificate, studied at fourth year level, in 1946.

This Schools Board Certificate demanded a level of achievement in basic and optional subjects after a four-year course of general education. Secondary schools were allowed the choice between an accrediting system or an external examination.

In 1959, the order to accommodate the changing system of secondary education in this State, the By-Laws were amended (to take effect in 1960) to provide a wider range of certification at the fourth-year secondary level. This consisted of a basic certificate awarded to any person who completed an approved course and obtained at least one point in the examination. This certificate could be endorsed 'B' for those who gained at least seven points, or endorsed 'A' for those who gained at least seven points, including at least one point in English and passes in two two-point basic subjects.

As a result of the proposals of the Schools Board and the Radford Report the Schools Board was re-constituted with a membership of twenty-one on 1 September 1966, to allow the Board to become in 1969 the sole examining and certifying body at the secondary level.

An important change of considerable significance to employers and to the prerequisites they demand of applicants for employment is that concerned with the new type of certificate introduced in 1969. There are only two such certificates issued, known as the School Certificate and the Higher School Certificate. These replaced all previous certificates: the Schools Board Certificate

with endorsements A or B or unendorsed, the Secondary Schools Board Certificate of the Education Department and the matriculation certificate of the University of Tasmania are no longer issued. The previous certificates were generally speaking *group* certificates demanding in varying degrees of detail certain compulsory subjects or groups of subjects as a prerequisite to the award of the certificate. The essential difference is that both of the new certificates are *subject* certificates requiring no compulsory subjects or groups of subjects to be studied.

The Higher School Certificate is issued on the basis of an external examination conducted in December each year, but for the School Certificate there are no external examinations and awards are determined by internal assessment with a wide variety of methods of evaluation. A system of regional moderation has been implemented by the Schools Board to ensure comparability of standards between schools. (*See the later section outlining the organisation of Moderation procedures.*) Final results of the School Certificate are notified to candidates in December by the Principal of the school attended by the candidate. Each candidate receives a printed result slip showing the level of study and the award given in each subject. The formal certificate is issued by the Schools Board of Tasmania in the new year.

The School Certificate

The subjects for this certificate may be taken at various levels and a wide choice is available to cater for different levels of ability and interests. A preliminary award (P) may be granted after the third year of secondary education to those candidates who leave school at this stage. The full award is granted to successful candidates when they have completed four years of study in the subject.

The following table sets out the range of subject levels together with approximate former equivalent standards and awards made at each level:

School Certificate

Subject Level	Standard Approximates to:	Level of Achievement Awarded (a)
1(P)	Secondary Schools Board 1968: three year syllabus ..	Credit, Pass, Lower Pass
I	Level 1(P) with a fourth year added	
II	Schools Board 1968: one point syllabus	
III	Schools Board 1968: two point syllabus	

(a) A failure is not recorded on the certificate.

In comparison, the Schools Board Certificate was studied at fourth year high school and subjects were at two levels: (i) one point, the level of subject achievement being credit or pass; (ii) two point, the level of subject achievement being credit, pass or lower pass.

The Higher School Certificate

This is taken at the end of the fifth or sixth year of secondary education. Individual subjects may be attempted at Level II or Level III.

Higher School Certificate

Subject Level	Standard Approximates to:	Level of Achievement Awarded (a)
II	1968 Matriculation syllabus: Ordinary level	Credit, Pass
III	1968 Matriculation syllabus: Advanced level	Credit, Pass, Lower Pass

(a) A failure is not recorded on the certificate.

The former Matriculation Certificate was studied at fifth or sixth year secondary school. The levels of subject study were: (i) ordinary level, the level of subject achievement being ordinary level pass; (ii) advanced level, the level of subject achievement being credit, advanced level pass or ordinary level pass.

Some Level III subjects in 1970 and eventually all Level III subjects will be studied in two divisions—Division 1 and Division 2. A student must study both divisions to qualify for a full Level III award. Students who study only one division will be given an award at Level III (p), where (p) signifies either a preliminary or part study of the syllabus. Students may sit for examination in both divisions in the one year or in separate years.

Requirements for matriculation will be determined by the University of Tasmania from the results of Level II and Level III subjects of the Higher School Certificate examinations conducted by the Schools Board of Tasmania.

State Organisation of Moderation Procedures

The Schools Board of Tasmania is the body responsible for awarding the new secondary school awards (the School and Higher School Certificates) discussed in the previous section. The Schools Board is also responsible for ensuring development of satisfactory moderation procedures and the maintenance of subject standards. To this end the State is divided into eight *moderation regions*. The organisational structure of these regions is outlined in the following section. Moderation is the method used to assess the candidate's performance; it is synonymous with and replaces the term *accrediting* which was in use before 1969.

Committee for Moderation of Standards: This body determines subject standards and reviews moderation procedures. Members of the committee include representatives from the Schools Board, superintendents of high schools and representatives from independent schools and the teachers' union—the Teachers' Federation.

Regional Council: The council reviews operations of the scheme for moderation of standards and recommends variations to the scheme to the Schools Board. The chairman is appointed by the Schools Board from members of the Committee for Moderation of Standards; other members include secondary school superintendents and school principals in the region.

Moderation Advisory Committee: The committee plans details of moderation procedures and investigates problems in particular subject fields. The chairman of the Committee for Moderation of Standards is also the chairman of this body; other members include the members of the Committee for Moderation of Standards and the chief moderators.

State Moderation Committee: The committee promotes the flow of ideas on moderation between regions and identifies and resolves problems connected with particular subjects. The chief moderator in each subject is chairman and the remaining members are the regional moderators (eight) in each subject.

Regional Moderation Committee: The committee is responsible for the application of moderation procedures within the region. Chairmanship is vested in the regional moderator; other members are subject moderators from each school in the region.

As well as the various committees there are a number of positions, mostly filled by teachers, which are basic to the successful operation of the new system. The following briefly outlines the functions associated with each position.

Chief Moderator: Appointed by the Schools Board and responsible for the co-ordination of moderation procedures between regions in each subject field.

Regional Moderator: Appointed by the Schools Board on the recommendation of the Regional Executive Committee. A regional moderator is appointed in each subject field. The duties associated with this position include: (i) maintaining contact between subject moderators within the region and ensuring satisfactory subject standards; (ii) informing subject moderators of current developments in their subject and in the field of assessment.

School Moderator: This position will normally be held by the school principal. The school moderator's duties include: (i) appointing school subject moderators; (ii) determining the results of each School Certificate candidate in his school and submitting award recommendations to the Schools Board; (iii) communicating result sheets (showing percentage scores of students on test materials) to the Schools Board for distribution to the Regional Moderation Committees; (iv) informing the Regional Executive Committee of names of teachers willing to accept nomination for the position of regional moderator.

Subject Moderator: Appointed by the school principal. The duties include: (i) supervising all details of assessment in his subject for the award of the School Certificate; (ii) informing the Regional Moderation Committee of proposed assessment plans.

Adult Education

Origin and Organisation

Adult education in Tasmania can be traced back to 1914 when the tutorial class movement began in Hobart with three classes and one part-time tutor. The movement spread to the north and north-west, the principal supporters being the Workers' Educational Association and the University, aided by government grants. The *Adult Education Act* 1948 established a board of nine members, three representing the Education Minister, and six representing (i) University; (ii) Library Board; (iii) Workers' Educational Association; (iv) Arts Council; (v) Broadcasting Commission; (vi) Education Department.

The Board has a director and nine professional officers. There are two permanent centres in Hobart, one with a 300-seat auditorium; there are also adult education or community centres in Launceston, Devonport and Burnie, as well as a residential college, for short courses, at Campbell Town (known as 'The Grange').

Operations

Courses: Most classes consist of 10 weekly meetings but there has been a trend to longer ones. In 1968, there were over 649 classes, interesting some 8,028 students and requiring 283 part-time tutors; most classes are held in the evenings. Subjects range from yoga to driving but most popular appear to be art, cookery, homecrafts, languages, literature and music.

Lectures: These cover a wide field and are given, in some cases, by visitors from other States or overseas. Each year the Sir John Morris Memorial Lecture is delivered by an Australian who has achieved world stature in his particular field.

Residential School: The Grange Residential College, leased from the National Trust, was opened in 1964 for short-term courses. Built in 1847, this elegant country house can provide sleeping facilities for 27 and, in its first two and a half years of use, has been the centre for courses, weekend schools, summer schools and conferences attracting 2,500 students.

Drama: This is fostered by providing producers, equipment and advisory services. The Board's drama officer and other experienced tutors assist amateur groups with rehearsals and productions. The Board, on occasions, co-operates in major projects outside the normal scope of amateur groups.

Art and Music: Open-air art exhibitions are held in Hobart and Launceston and special indoor showings of Tasmanian and Australian works are organised; travelling exhibitions are also arranged. Music appreciation is fostered by: open-air concerts; concerts of recorded music; lunch-hour recitals; and State tours by individual performers and groups.

Remote Areas: The Board encourages the formation of discussion groups in isolated areas, providing a recorded lecture service with slides as illustration. Critical notes on books maintain services in more remote areas.

The following table shows the annual expenditure from Consolidated Revenue on adult education:

Expenditure on Adult Education
(\$'000)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Adult Education (excluding Loan Fund Expenditure)	111	119	127	122	145

Advanced Education in Tasmania

Origins of Advanced Education

The pace and complexity of society has accelerated since the beginning of the twentieth century and will continue to do so at an increasing rate. To meet the demands of a dynamic society a new type of educated person is required.

In Europe, during the nineteenth century the evolution of mechanics institutes and technical colleges filled the gap between secondary school and university. The mechanics institute movement reached its peak in Australia during the 1870s, while the technical school is an early twentieth century development. The improvement in higher education is continued in the advanced education movement which is designed to meet the needs of society in the second half of the twentieth century.

It is envisaged that the colleges of advanced education will provide tertiary education and training with a vocational emphasis, as distinct from the academic education provided by universities. In some states advanced education is being developed from existing technological institutions, but in Tasmania and the Australian Capital Territory separate colleges are being established.

Finance

The colleges are to receive financial support from the Commonwealth Government on the basis of \$1 for every State \$1 spent on capital works and \$1 for every State \$1.85 spent on recurrent expenses. For the triennium 1970-72 Tasmanian colleges will receive from all sources, \$5,500,000 for capital purposes and \$3,500,000 for recurrent expenditure.

Establishment

Following a national seminar on planning for Colleges of Advanced Education held in Hobart at the end of 1967 the educational specifications and a master plan for the Mt Nelson college were prepared. In June 1969 the contract was let for the Resource Materials Centre (stage one of the project). Work will begin on the Engineering and Applied Science buildings during the 1970-72 triennium (stage two of the project).

When completed the college will provide facilities for the Tasmanian School of Art, School of Dental Nursing, Conservatorium of Music, Hobart Teacher's College and professional level courses currently presented by the Hobart Technical College. Diploma level courses at the Launceston and Burnie Technical Colleges also come within the system.

Advanced Education Council

The passing of the Tasmanian *Advanced Education Act* 1968 opened the way for the establishment of the college of advanced education. The act provided for a Council of Advanced Education to administer education at the professional level other than in the University of Tasmania. The Council is made up of a Chairman, Vice Chairman and nine other members. In addition, the Registrar of the College of Advanced Education acts as Secretary to the Council.

University of Tasmania

History

The University of Tasmania was founded in 1890, and was the fourth to be established in Australia. When teaching began in 1893 with three lecturers and six students it occupied four acres of land on the Queen's Domain at Hobart.

Growth of the University was slow for the first half century, despite the State's progressive policy in education generally. The Faculties of Arts, Science and Law were originally established, with Commerce added in 1919 and Engineering in 1922. At the outbreak of World War II, the teaching staff in many departments consisted of one full-time professor or lecturer, possibly with part-time assistants.

After the war, the influx of ex-servicemen filled all Australian universities to capacity and student enrolments in Tasmania rose to 740 in 1947. Financial assistance from both State and Commonwealth Governments enabled the staff to be almost doubled between 1945 and 1950 and energetic research schools developed. A Faculty of Education was established with responsibility

for some of the State's teacher training. New chairs in such subjects as psychology, geology, botany, zoology and political science were created. In 1957 came the Murray Report on the Australian Universities, leading to a significantly increased flow of Commonwealth money into Australian universities generally. It also led to the decision to found Faculties of Agricultural Science and Medicine in Tasmania.

New Site and Post-war Enrolments

The present site at Sandy Bay was chosen in 1944. Army-type huts were erected to accommodate temporarily the rapidly growing science departments. The first permanent building was occupied in 1957 and rapid development has followed, with Commonwealth assistance in financing the building programme.

The following table shows the number of teaching staff and students in selected years:

University Teaching Staff and Students Enrolled

Particulars	1945	1963	1964	1965	1966	1967	1968
Teaching Staff (Full-time)							
Professors	12	19	19	20	25	26	28
Others	31	108	112	125	134	138	141
Total Staff ..	43	127	131	145	159	164	169
Individual Students Enrolled	503	1,691	1,863	2,083	2,346	2,443	2,592

The next table shows the teaching staff and courses in which students were enrolled:

University Staff and Enrolments, 1968

Teaching Staff (Full-Time)		Gross Student Enrolments (a)			
Particulars	Number	Course	New Enrolments, 1968	Total Enrolments	
				Males	Females
Professors	28	Masters' and Doctors' Degrees	34	127	21
Associate Professors and Readers	20	Bachelor Degrees—			
Senior Lecturers and Lecturers	93	Arts	271	440	495
Assistant Lecturers ..	15	Law	37	116	20
Demonstrators, Tutors and Teaching Fellows	13	Economics	66	218	24
		Medicine	22	77	23
		Science	114	308	90
		Engineering	46	159	..
		Agricultural Science ..	26	64	7
		Non-Degree Courses—			
		Education	n.a.	97	135
		Public Administration ..	n.a.	24	..
		Other (b)	n.a.	111	88
Total	169	Total	n.a.	1,741	903

(a) Students enrolled in more than one course are shown in each course for which enrolled. The number of individual students enrolled was 2,592.

(b) See following paragraph for analysis.

Of the 199 enrolments classified as 'other' nine were students taking a master degree preliminary course and the remaining 190 enrolments were for single subjects, etc.

The governing body of the university is the Council, consisting of four members appointed by the teaching staff, four by the graduates through Convocation, one by the undergraduates, two by the two Houses of Parliament, four by the Governor, and three by the Governor on the recommendation of the Council. The Director of Education is an ex-officio member. The Chancellor is chairman, as he is constitutionally and ceremonially the senior member of the University. The chief executive officer is the Vice-Chancellor.

Degrees Conferred

The following table shows degrees conferred:

University of Tasmania—Degrees Conferred (a)

Degree (b)			1963	1964	1965	1966	1967	1968
M.A.	..	.. Males	2	2	4	2	2	..
		Females	..	..	..	1	1	1
B.A.	..	.. Males	40	42	53	64	56	65
		Females	37	50	61	56	87	104
M.Sc.	..	.. Males	4	..	1	1	3	3
		Females	1	..	..	..	..	..
B.Sc.	..	.. Males	48	44	49	63	50	63
		Females	6	10	8	12	8	12
LL.B.	..	.. Males	6	13	11	10	17	18
		Females	1	1	..	2	1	1
B.Ec./B.Com.	..	.. Males	21	11	15	19	26	33
		Females	1	..	1	3	..	2
B.E.	..	.. Males	20	18	21	13	17	22
		Females	..	..	..	2	..	..
B.Agr.Sc.	..	.. Males	..	..	..	..	5	7
		Females	..	..	..	..	..	1
Other	..	.. Males	5	8	7	11	6	14
		Females	..	..	1	..	..	1
Total	..	.. Males	146	138	161	183	182	225
		Females	46	61	71	76	97	122

(a) Excluding honorary degrees.

(b) Bachelor degrees include bachelor degrees with honours.

Finance

The following table shows the income and expenditure of the University of Tasmania:

University Income and Expenditure (a), 1968

Income	\$'000	Expenditure	\$'000
State Government Grant ..	1,759	Teaching and Research ..	3,189
Commonwealth Govt Grant ..	1,612	Administration and General ..	404
Other Grants and Donations ..	226	Libraries ..	316
Student Fees ..	631	Building and Grounds—Main-	
Halls of Residence ..	92	tenance ..	353
Other ..	134	Other ..	186
Total ..	4,454	Total ..	4,448

(a) This statement refers only to current income and expenditure. In 1967-68, the State Loan Fund recorded expenditure of \$750,000 on the University and \$43,000 on Jane Franklin Hall.

The next table summarises income and expenditure over a five-year period:

University Income and Expenditure—Summary
(£'000)

Particulars	1964	1965	1966	1967	1968
Income—					
Government Grants (a) ..	2,077	2,275	2,626	2,841	3,371
Other	511	660	679	899	1,083
Total	2,589	2,935	3,305	3,740	4,454
Expenditure—					
Total (b)	2,349	3,092	3,274	3,763	4,448

(a) State and Commonwealth.

(b) Excludes expenditure on new buildings and other capital works.

Residential Colleges

There are five residential colleges in the University. Christ College was affiliated with the University in 1933, moved to new premises at Dynnyrne from the Domain in 1962 and provides accommodation for 103 students. It still caters for a few Anglican theological students. Hytten Hall was opened in 1959 and accommodated 120 students. Extensions have raised this figure to 190 students. St John Fisher College was opened in 1962, accommodates 46 students and is under the direction of the Catholic Church. Jane Franklin Hall was founded by the Tasmanian Council of Churches in 1950 as a hall of residence providing accommodation for 85 female students. Ena Waite was opened in 1968 and accommodates 30 female students.

Buildings

By 1967, the Faculties of Arts, Commerce, Education, Science and Engineering were mainly housed in permanent buildings, and others have been completed for the Library, the Union, and the administrative staff. Projects finished in 1968 included: the Medical Science, Agricultural Science and Mathematics buildings; extensions to Hytten Hall and the Union refectory, where space for an additional 400 dining seats was provided. In late 1968 work commenced on extensions to the University Library, the planned completion date being February 1970; in early 1969 a Horticultural Research building was completed and the new Medical Science Clinical Building, adjacent to the Royal Hobart Hospital, is scheduled for completion in December 1969.

Future Plans

Major building plans include extensions and alterations to the Geology Physics and Life Science buildings and an animal house to be constructed as an extension to the Medical Sciences buildings.

Commonwealth Department of Education and Science

The Commonwealth Role in Education

Traditionally education has been a concern of the States; however, in 1945 a Commonwealth Office of Education was established and a branch was opened in Hobart. The principal functions of the Tasmanian branch were: migrant education; and administration of Commonwealth University Scholarships. The Hobart office was closed in 1951, and its functions were transferred to the State, which acted as an agent for the Commonwealth. In 1964 the growing commitment of the Commonwealth Government in education led to the re-opening of its office in Hobart.

Since 1964-65, the Commonwealth has directly financed certain educational activities once exclusively State responsibilities and educational grants have been made under Section 96 of the Constitution. In addition to aid given to students under five Commonwealth scholarship schemes, grants are also made for universities, technical training facilities, the provision of science laboratories and apparatus, and for teachers colleges. Research projects, mainly in universities, also benefit by grants from the Commonwealth Government.

The Commonwealth grants to universities and colleges of advanced education are made in accordance with Commonwealth-State matching formulae, involving agreed expenditure by the States. The Commonwealth acts alone in the matter of grants for: (i) the construction of teachers colleges, provided that 10 per cent of available places are filled by students not bonded to State education departments; (ii) technical training facilities; (iii) science facilities; (iv) school library facilities; (v) pre-school teacher training facilities.

The following table shows the amounts paid by the Commonwealth Government for education in Tasmania over a three year period:

Total Commonwealth Payments for Education in Tasmania
('\$000)

Particulars	1966-67	1967-68	1968-69
Payments made for—			
University	1,422	1,827	2,217
Colleges of Advanced Education ..	59	138	291
Student Assistance—Benefits paid to			
Students	558	634	708
Teachers Colleges .. .. .	..	360	960
Technical Training	334	334	275
Science Facilities	331	420	409
Research	63	158	194
School Libraries .. .. .	..	..	72
Pre-School Teachers Colleges ..	..	..	100
Total	2,767	3,871	5,226

University of Tasmania

In the triennium 1970-72, proposed Commonwealth payments to the University of Tasmania are to total \$6.9m, consisting of \$1.8m for capital costs and \$5.1m for recurrent expenditure.

Colleges of Advanced Education

Proposed Commonwealth payments for the period 1970-72 are to total \$3.98m, made up of \$2.75m for capital costs and \$1.23m for recurrent expenditure. The major Tasmanian project is the construction of a College of Advanced Education at Mt Nelson. During 1967 the Commonwealth and Tasmanian Governments brought a team of U.S. consultants to the State to plan the educational specifications for the College.

Technical Training Facilities

Commonwealth grants are made to extend and improve facilities for training apprentices and technicians. Since 1964-65 annual grants of \$334,000 have been made to Tasmania.

The application of these grants on projects in Tasmania, in the four years ended 30 June 1968, has been: Burnie Technical College, \$70,284; Hobart Technical College, \$1,067,425; and Launceston Technical College, \$199,091. In the three-year period ending 1970-71 grants will be \$325,400 per annum.

Science Facilities

Commonwealth grants have been made since July 1964 to assist in the construction and equipping of science teaching facilities in government and non-government schools. A sum of \$331,000 annually was allocated between government and non-government schools in proportion to the number of secondary school enrolments in each (\$241,800 and \$89,200).

The total planned distribution for the three years ended 30 June 1971 is to be: government schools, \$706,500; and non-government schools, \$520,000 (the earlier distribution formula has been varied to give greater assistance to non-government schools).

Teachers Colleges

The Commonwealth Government provided \$1.5m for the construction of a new teachers college at Launceston, which was opened by the Federal Minister for Education and Science in October 1969.

Research Projects

In May 1965 the Australian Research Grants Committee was established to advise the Commonwealth Government on the granting of money for research projects. In 1966, the Commonwealth and State Governments each allocated \$2m (a total of \$4m) for Australian research projects. Because the States decided not to make further contributions, the Commonwealth will make \$3m available annually in the 1967-1969 triennium.

Research grants awarded to the University of Tasmania are as follows: 1966, \$238,438; 1967, \$148,552; 1968, \$225,503; 1969, \$163,086.

Secondary School Libraries

In August 1968 the Commonwealth announced a programme which provides \$27m over three years for the development of Australian secondary school libraries. The funds are available for: (i) the erection, alteration or extension of library buildings; and (ii) the provision of furniture, equipment and basic stock of books and materials. The proposed annual allocation for Tasmania for each year of the triennium 1969 to 1971 is \$290,900 comprising: (i) government schools \$216,200; (ii) Catholic schools \$43,200; (iii) other non-government schools \$31,500.

In addition to the capital programme the following steps, designed to improve the standard of school libraries, will be undertaken: (i) colleges of advanced education will be encouraged to conduct school librarian courses; (ii) Commonwealth Advanced Education scholarships will be made available for these courses; (iii) in co-operation with State Education departments and library authorities the Commonwealth will sponsor short specialist librarian courses for teachers. A special sum of \$50,000 was provided in the 1968-69 Budget for this purpose.

Pre-School Teachers Colleges

Unmatched capital grants totalling \$2.5m over the three-year period 1 July 1968 to 30 June 1971 will be provided for the expansion of existing facilities and the training of extra pre-school teachers.

Curriculum Development

The Ministers for Education in Victoria, South Australia and Tasmania requested Commonwealth participation in the 'Junior Science Project'. Under the project the curriculum is divided into small units which are relatively self contained. In this way the course is easily adaptable for use in several states and any state may select units which best fit its needs. The Commonwealth agreed to the States' request and will contribute \$750,000 towards an estimated total cost of \$1,200,000 over a five-year period commencing in 1968-69. The three States will meet the balance of the project's cost either in cash or by the provision of resources.

Commonwealth Scholarship Schemes

The Commonwealth Government makes payments to students under the following five Commonwealth Scholarship Schemes:

Commonwealth University Scholarship Scheme: This scheme provides assistance to students taking approved degree courses at an Australian University. Selection is based upon results obtained in the matriculation examination or in an approved degree course. In Tasmania, approximately 200 awards are made each year. Benefits include the payment of all compulsory fees and, subject to a means test, a maximum living allowance of \$559 per annum for a student living with his parents, or \$904.80 for a student living away from home.

Commonwealth Advanced Education Scholarship Scheme: Under this scheme assistance is provided to those taking approved tertiary level courses in Australia. Selection is based on results obtained in the matriculation examination, in an approved course or in some cases on other criteria determined by individual institutions. Approximately 40 awards are made each year in Tasmania. Benefits are the same as those payable under the Commonwealth University Scholarship Scheme. Under both schemes, a guidance service is provided by the Commonwealth Department of Education and Science.

Commonwealth Technical Scholarship Scheme: An annual quota of 80 scholarships is available to Tasmanian students to assist them with approved full-time or part-time courses, mainly at certificate or technical level and in approved full-time diploma courses in Art, Music and Agriculture. Full-time students are paid a maximum of \$400 per annum, and a minimum of \$250. Part-time students receive \$100 per annum plus payment of compulsory fees.

Commonwealth Secondary Scholarship Scheme: Each year approximately 320 Tasmanian secondary school students are awarded a two-year scholarship to assist them with study for the matriculation examination. Each scholarship is worth a maximum of \$400 per annum and a minimum of \$250. Components of the scholarship are: living allowance \$200; book allowance, \$50; and tuition fees of \$150 (if paid).

Commonwealth Post-Graduate Awards: Awards are made annually to enable students to undertake post-graduate studies at an Australian university. Selection is made by each University and the award, subject to annual renewal, may be held for a maximum of: (i) four years in the case of a doctorate degree candidate; (ii) two years in the case of a master's degree scholar. Award holders receive a living allowance of \$2,350 per annum and provision is made for assistance with travel, establishment and thesis costs. Married male scholars receive a dependant's allowance for wife and children.

Expenditure: The following table shows Commonwealth expenditure on Scholarship Schemes in Tasmania since 1964-65:

Expenditure: Scholarship Schemes
(\$'000)

Type of Scholarship	1964-65	1965-66	1966-67	1967-68	1968-69 <i>p</i>
University	<i>n.a.</i>	204	289	349	411
Advanced Education .. .. .	..	6	15	19	20
Technical	3	6	12	25	29
Secondary	129	180	184	178	171
Post-Graduate	30	39	58	63	89
Total	<i>n.a.</i>	435	558	634	720

Students in Commonwealth Scholarship Schemes: The next table shows the number of students holding each type of Commonwealth Scholarship in Tasmania at 30 June:

Number of Students at 30 June: Commonwealth Scholarship Schemes

Particulars	1965	1966	1967	1968	1969
University	374	414	503	566	630
Advanced Education .. .. .	..	40	66	92	107
Technical	26	32	62	122	130
Secondary	579	583	572	564	547
Post-Graduate	15	21	32	32	31

International Scholarship Schemes

Students come to Australia to study under a variety of schemes, e.g. the Colombo Plan, Special Commonwealth African Assistance Plan, the Australian International Award Scheme, the Australian South Pacific Technical Assistance Programme, SEATO, UNESCO, Commonwealth Co-operation in Education, etc.

In Tasmania the number of sponsored students receiving training in educational institutions has increased rapidly since 1960. Training is arranged, usually on a full-time basis, with the University of Tasmania, the Tasmanian Education Department, non-government schools, government departments, and industry. In addition to long-term sponsored students, short-term visitors have also been brought to the State for periods of up to one year, for specialised experience in educational, industrial, commercial, technical, or scientific fields. From 1965 to June 1969, 189 short-term visitors of this type came to Tasmania.

The Department of Education and Science arranges reception, accommodation, travel and payment of allowances for all sponsored students and also makes arrangements for their training. Professional guidance on academic matters is provided by education officers for all overseas students, both sponsored and private. The Hobart office also acts on behalf of the Department of External Affairs for all welfare matters concerning overseas students.

Sponsored Training Statistics: The majority of full-time sponsored students, as the next table shows, come to Tasmania under the Colombo plan:

Number of Full-Time Sponsored Students

Scheme	1960	1965	1966	1967	1968	1969
Colombo Plan ..	5	78	(a) 104	(a) 101	(a) 104	(a) 79
Other .. ..	..	3	4	4	15	23
Total ..	5	81	108	105	119	102

(a) Colombo Plan figures, from 1966 onwards, include ten students in non-government schools. All other trainees were, or are, at the University of Tasmania.

Enrolment: In 1969, 101 full-time *sponsored* students were enrolled at the University of Tasmania, and one student was studying for matriculation. The most popular bachelor degree courses, for sponsored students, in 1969 were: Engineering, 32; Science, 23; Arts, 18; Agricultural Science, 15.

Other Scholarship Schemes

The Department of Education and Science plays a role in the administration of the following scholarship schemes: Queen Elizabeth II Fellowships; ANZAC Fellowships; Australian Agricultural Council Scholarships; Australian-American Educational Foundation Awards; Confederation of British Industry Scholarships; and various scholarships offered to Australians by overseas governments.

SOCIAL WELFARE

Commonwealth Department of Social Services

In Australia, the major role in the field of social welfare is played by the Commonwealth Government and benefits are uniform throughout the States. In this chapter, the rates of benefits are specified and the conditions governing them are stated in broad outline. The role played by the Tasmanian Government is described in a later section headed 'State Department of Social Welfare'.

The following table shows expenditure in Tasmania from the National Welfare Fund on benefits under the Federal *Social Services Act*. The most noticeable fluctuations occur in expenditure on unemployment benefits.

**Commonwealth Social Welfare Services Payments
(\$'000)**

Benefit or Service	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68
Age and Invalid Pensions	11,717	12,343	13,184	13,439	14,574	15,414
Child Endowment (a)	5,045	6,113	6,306	6,318	6,912	6,612
Rehabilitation Service	39	44	60	54	60	58
Funeral Benefits	24	25	26	33	39	39
Maternity Allowances	277	272	251	243	243	254
Widows' Pensions	1,084	1,467	1,699	1,791	1,983	2,125
Unemployment Benefits	783	750	583	275	228	264
Sickness Benefits	203	215	201	174	190	165
Special Benefits	44	52	52	57	47	42
Total	19,216	21,281	22,363	22,384	24,276	24,973

(a) In 1963-64 and 1966-67, five twelve-weekly payments were credited directly to bank accounts instead of the usual four.

Commonwealth activity in social services began in 1909 with the passage of the Federal *Invalid and Old Age Pensions Act*. This and the *Maternity Allowances Act* were administered by the Department of the Treasury until 1941 when the Department of Social Services commenced to function as a separate organisation. Later, the functions of the Department were widened with the passing of the *Child Endowment Act*, the *Widows' Pensions Act* and the *Unemployment and Sickness Benefits Act*. A referendum held in 1946 empowered the Commonwealth to legislate for the provision of certain social services formerly provided by the States. In 1947, a consolidated *Social Services Act* was passed. The Department also administers the *Aged Persons Homes Act* and the *Sheltered Employment (Assistance) Act* and co-operates with the Commonwealth Department of Health in the administration of the *National Health Act*.

Budget of August 1969

In the section that follows, a description is given of the various pensions, benefits, etc. The rates and conditions are varied from time to time by amending legislation; those shown are those announced in the Federal Budget of August 1969 (the Federal Treasurer outlines social service proposals in his budget and these are implemented in later Acts).

Age and Invalid Pensions

Generally pensions are payable to persons who have been resident in Australia, New Zealand or the United Kingdom for 10 years in the case of age pensioners, and five years in the case of invalid pensioners. (Reciprocity agreements exist with New Zealand and the United Kingdom.)

The qualifying ages for age pensions are 65 years for men and 60 years for women; invalid pensions are payable to persons over 16 years of age who are permanently incapacitated for work. Additional allowances are payable for dependants under certain conditions.

For age and invalid pensions, the same means test on income and property operates. 'Means' can consist entirely of income, entirely of property, or any combination of them. The calculation of income excludes the pension itself, income from property, gifts from family, benefits from hospital and medical insurance schemes, child endowment, etc.; the property component excludes home, furniture, personal effects, the first \$400 of property and \$1,500 surrender value of life policies, and the capital value of any life interest, annuity or contingent interest, etc. Blind persons, however, may receive the maximum rate of pension free of means test.

The next table shows the pension rates and the limits of the sliding scale used to progressively reduce them when means as assessed exceed the allowable minima:

Age and Invalid Pension Rates, Budget of August 1969
(\$)

Particulars	Yearly Amounts		Weekly Equivalents	
	Maximum Rate Pension	Means as Assessed: Sliding Scale Limits (a)	Maximum Rate Pension	Means as Assessed: Sliding Scale Limits (a)
Single Pensioner ..	780	520-2,080	15.00	10.00-40.00
Married Pensioners	1,378	884-3,640	26.50	17.00-70.00

(a) Lower limit and below, no reduction in pension; if upper limit exceeded, pension ceases.

The sliding scale operates as follows: the amount by which means as assessed exceed the permissible minima in the table is deducted from the maximum rate pension. Property taken into account in calculating means as assessed is taken at 10 per cent to give an annual value. A single pensioner can therefore own property, in addition to exempt property, up to \$5,600 without reduction of pension (10 per cent of [$\$5,600$ less $\$400$] = $\$520$), and up to \$21,200 before pension ceases (10 per cent of [$\$21,200$ less $\$400$] = $\$2,080$). With married pensioners, the corresponding lower and upper property limits are \$9,640 and \$37,200.

Supplementary (rental) assistance of up to \$2 a week is payable to age or invalid pensioners who pay rent and whose *means as assessed* do not exceed \$52. This assistance is reduced by the amount of means in excess of \$52.

Free medical service and medicine are provided for pensioners and their dependants, and a concessional telephone rental equal to two-thirds of the amount otherwise payable is available to blind people, pensioners who live alone, and to certain others. Radio and television licences at a reduced rate are also available to these pensioners. Persons who became pensioners for the first time because of the introduction of the 'tapered' means test will not be eligible for membership of the Pensioner Medical Service or entitled to other subsidiary fringe benefits.

On the death of one of a married pensioner couple, the survivor receives six fortnightly instalments at the old rate before suffering reduction to the single rate (introduced in 1968 Budget).

A wife's allowance of \$364 a year (\$7 a week) may be paid, subject to the means test, to a non-pensioner wife. The rate of additional payments for children of pensioners is \$2.50 per week for the first child and \$3.50 for the second and for each subsequent child. A guardian's allowance of \$208 a year (\$4 a week) is payable, subject to means test, to widowers and other unmarried pensioners with one or more children; the allowance is increased to \$312 (\$6 per week) where the child is under 6 years or is an invalid child requiring full-time care.

Pensions are paid fortnightly in advance by cheque posted to the pensioner's address.

Widows' Pensions

These were introduced by the Curtin Government in 1942. They were payable to widows who had been resident in this country, New Zealand or the United Kingdom for five years before claiming a pension. There is no residential qualification where the woman and her husband were living permanently in Australia before he died. The classes of widows are as follows: (i) a Class A widow has one or more dependent or student children in her care; (ii) a Class B widow is at least 50 years of age, or 45 years when her Class A pension ceases (because she no longer has a child in her care); (iii) a Class C widow is under 50, without children, and in necessitous circumstances in the 26 weeks following her husband's death. The term 'widow' includes a deserted wife, a divorcee and a woman whose husband has been imprisoned for at least six months or is a patient in a mental hospital. Certain 'dependent females' may also qualify for pension.

The maximum rates of widows' pensions are as follows:

Class A—\$1,092 a year (\$21 a week) plus \$2.50 weekly for the first child and \$3.50 for the second and each subsequent child. Class B—\$689 a year (\$13.25 a week); Class C—\$13.25 a week.

There is no specific means test for Class C pensioners, the decision on 'necessitous circumstances' being at the discretion of the Director of Social Services; if the widow is expecting a child, payment continues until the birth, when she may qualify for a Class A pension. A means test on income and property for A and B class pensioners operates. Widow pensioners are also eligible for the pensioner medical service, supplementary (rental) assistance of \$2 per week where rent is paid and the widows' means as assessed do not exceed \$52, concessional radio and television licence fees and telephone rentals.

In 1968, a widows' vocational training scheme was introduced (where participation in the work force was inhibited by the pensioner's lack of skill or training).

The following table shows, for Tasmania, the number and sex of persons receiving age, invalid and widows' pensions, and the amounts paid out in pensions and allowances:

Age, Invalid and Widow Pensioners and Payments

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68
Age and Invalid Pensions—						
Number of Age Pensioners (a)—						
Males	5,572	5,779	5,799	5,809	5,964	6,178
Females	12,188	13,024	13,093	13,372	13,626	14,233
Persons	17,760	18,803	18,892	19,181	19,590	20,411
Number of Invalid Pensioners (a)						
Males	1,844	1,966	2,055	2,027	2,086	2,065
Females	1,499	1,397	1,477	1,417	1,444	1,483
Persons	3,343	3,363	3,532	3,444	3,530	3,548
Amount of Pensions Paid (\$'000)	11,717	12,343	13,184	13,439	14,574	15,414
Widows' Pensions—						
Number of Pensioners (a)	1,977	2,109	2,248	2,327	2,432	2,588
Amount of Pensions Paid (\$'000)	1,084	1,467	1,699	1,791	1,983	2,125

(a) At 30 June.

Unemployment, Sickness and Special Benefits

Legislation for these benefits was introduced in 1944 by the Curtin Government and payments began in 1945. The minimum age is 16 years, the maximum 65 (male) and 60 (female). There are no nationality restrictions, but if a claimant has not been resident in Australia for one year before making the claim, the Department must be satisfied that he intends to live here permanently. Benefits are not payable to people qualified to receive invalid, age, widows' or service pensions, or tuberculosis allowances.

To receive unemployment benefit, a person must be out of work (but not through being a direct participant in a strike); must be capable of undertaking and willing to undertake suitable work; and have taken reasonable steps to obtain employment. Registration with the Commonwealth Employment Service is necessary; payment is at the discretion of the Department of Social Services.

Sickness benefit may be paid to a person temporarily unable to work because of sickness or accident, and who has suffered a loss of income because of this.

A special benefit may be granted to a person not qualified for a pension or an unemployment or sickness benefit if, because of age, physical or mental disability, domestic circumstances, or for other valid reasons, he is unable to earn a sufficient livelihood for himself and his dependants.

The maximum rate of unemployment, sickness and special benefit payable is \$10 weekly for an adult or married minor, plus \$7 for a dependent spouse (or unpaid housekeeper if one or more children are maintained), and \$2.50 for the first child under 16 years and \$3.50 a week for the second and each subsequent child; unmarried minors receive either \$4.50 or \$6 a week, according to age. A means test operates which allows a maximum income of \$4 a week, or \$2 in the case of minors. If the claimant's income from other sources (with exclusions such as child endowment, war pension and reimbursements from registered health or benefit organisations) exceeds the maximum, the benefit is reduced by the amount of the excess. The spouse's income can cause reduction or elimination of additional dependant's benefit.

The following table shows, for Tasmania, the unemployment, sickness and special benefits granted, and the expenditure on each (together with weekly averages of those in receipt of each type of benefit):

**Commonwealth Unemployment, Sickness and Special Benefits
Beneficiaries and Payments**

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68
Unemployment Benefits—						
Claims Granted .. (no.)	7,141	6,720	5,255	2,742	3,166	3,746
Persons on Benefit—						
At 30 June .. (no.)	1,777	1,399	926	433	526	635
Weekly Average .. (no.)	1,497	1,435	1,117	516	433	506
Benefits Paid (\$'000)	783	750	583	275	228	264
Sickness Benefits—						
Claims Granted .. (no.)	2,099	2,167	2,238	2,040	2,147	1,952
Persons on Benefit—						
At 30 June .. (no.)	303	289	272	298	267	291
Weekly Average .. (no.)	301	300	287	263	281	259
Benefits Paid (\$'000)	203	215	201	174	190	165
Special Benefits—						
Claims Granted .. (no.)	111	135	122	122	160	99
Persons on Benefit—						
At 30 June .. (no.)	103	129	120	115	102	87
Weekly Average .. (no.)	102	118	116	121	104	89
Benefits Paid (\$'000)	44	52	52	57	47	42
Total Benefits—						
Total Claims Granted .. (no.)	9,351	9,022	7,615	4,904	5,473	5,797
Persons on Benefit—						
At 30 June .. (no.)	2,183	1,817	1,318	846	895	1,013
Weekly Average .. (no.)	1,900	1,853	1,520	900	818	854
Total Benefits Paid .. (\$'000)	1,030	1,017	837	506	464	471

Maternity Allowances

Maternity allowances were introduced by the Fisher Government in 1912. There is no means test and any mother is entitled to a maternity allowance if she gives birth to a child in Australia and if she resides or intends to remain in Australia. It may also be paid in certain other cases, e.g. a birth on a ship proceeding to Australia. Payment is a *single grant* of \$30 where there are no other children; \$32 where there are one or two other children and \$35 where there are three or more children in the mother's care. The amount is increased by \$10 for each additional child in a multiple birth; \$20 of the allowance may be paid four weeks before the birth, and the balance soon after.

The following table shows payments in Tasmania:

Maternity Allowances

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68
Claims Paid During Year (no.)	8,560	8,437	7,821	7,578	7,606	7,939
Amount Paid During Year (\$'000)	277	272	251	243	243	254

Child Endowment

Child endowment was introduced by the Menzies Government in 1941, and is paid to persons or institutions having the care, custody and control of children under 16 years, or student children under 21. One year's residence in Australia is required if the mother and child were not born here, but this requirement is waived if the Department is satisfied they intend to remain here permanently.

There is no means test and weekly rates are 50 cents for the first child, \$1 for the second, \$1.50 for the third, \$1.75 for the fourth, \$2 for the fifth and so on. The rate for all student children and for children being cared for by institutions is \$1.50. Endowment is paid in arrears and either credited to a bank account each twelve weeks, sent by cheque or cashed by order at a post office each 28 days. For student children, payment is made only by cheque each 12 weeks.

The following table shows statistics of child endowment in Tasmania:

Child Endowment

Children (including Students) Endowed and Payments

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68
Endowed Children and Students						
(a)—						
Children in Endowed Families (no.)	127,261	126,413	126,526	126,870	127,688	127,849
Children in Approved Institutions (no.)	403	483	521	401	499	432
Students (no.)	..	3,026	3,623	3,933	4,015	4,163
Total Endowed .. (no.)	127,664	129,922	130,670	131,204	132,202	132,444
Amount Paid During Year (b) (\$'000)	5,045	6,113	6,306	6,318	6,912	6,612

(a) Number at 30 June. Children, those under 16 years; students, 16 but under 21 years.

(b) In 1963-64 and 1966-67, five twelve-weekly payments were credited directly to bank accounts instead of the usual four.

Funeral Benefits

These were introduced by the Curtin Government in 1943 and provide for a payment of \$20 to the person meeting funeral costs, following the death of an invalid or age pensioner, or of a tuberculosis sufferer otherwise qualified to receive a pension. The amount is increased up to \$40 where the claimant is himself a pensioner, or if the payment is in respect of the pensioner claimant's wife or child.

Pensioner Health Benefits and Tuberculosis Allowances

The pensioner medical service and tuberculosis allowances are described in this chapter under the heading 'Health'.

Commonwealth Rehabilitation Service

In 1941, the Curtin Government introduced provisions for the vocational training of invalid pensioners. In 1948, the Chifley Government provided for the rehabilitation of invalid pensioners and of unemployment and sickness benefit recipients. The Menzies Government in 1955 extended eligibility to persons receiving tuberculosis allowances and to children of 14 and 15 years who otherwise might qualify for an invalid pension at 16. In 1958, widow pensioners and people receiving special benefit were granted eligibility.

The Service aims to fit handicapped people for employment by supplying medical and hospital treatment, surgical aids and appliances, and where necessary, arranging special education and training courses in industry, public service, etc. Vocational counsellors arrange employment with suitable employers and follow up progress. During training, rehabilitees receive the invalid pension plus an \$8 per fortnight training allowance.

Rehabilitation training is given if the disability is a substantial handicap to engaging in full employment and if there are reasonable prospects of the person working within three years of starting treatment or training. Disabled people who do not qualify for free service may pay for rehabilitation themselves, or may be sponsored by private or government organisations. In Tasmania, the Department's rehabilitation centre is located in Hobart.

The following table shows the numbers accepted for rehabilitation and placed in employment in Tasmania:

Operation of Commonwealth Rehabilitation Service

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68
Persons—						
Accepted for Rehabilitation (no.)	79	102	80	100	90	89
Placed in Employment.. (no.)	74	82	75	86	77	81
Expenditure (a) (\$'000)	39	44	60	54	60	58

(a) Excludes capital expenditure on sites and buildings, and administrative costs of the Rehabilitation Service.

Homes for the Aged

Under the *Aged Persons Homes Act* 1954, the Menzies Government provided for subsidies, on a \$ for \$ basis, to approved organisations intending to build or acquire homes for aged persons. In 1957 the cost of land was allowed as part of the capital cost, and the Commonwealth contribution was increased to \$2 for \$1. The aim is the provision of conditions approaching ordinary domestic life. ('Homes' in this context does not refer to houses built under the Commonwealth-State Housing Agreement.) Nine grants were made in 1967-68 totalling \$316,000, bringing the number of grants to 72 and expenditure in Tasmania to \$2.35m since the inception of the scheme.

Personal Care Subsidy

A subsidy of \$5 per week is payable in respect of a person of 80 years or more who resides in hostel-type accommodation in an aged person's home eligible under the *Aged Persons Homes Act* 1954.

Sheltered Workshops

The Commonwealth *Sheltered Employment (Assistance) Act* 1967 incorporated the *Disabled Persons Act* 1963. The Act's object is to foster and encourage the development of sheltered workshops for disabled people who, on medical

grounds qualify, or who may later qualify, as invalid pensioners; to provide such persons with work experience, and the opportunity to earn to the limit of their capabilities for work done, the hope being that some may graduate to normal employment in the future.

Assistance is given by a \$2 for \$1 subsidy towards: (i) the capital cost of erection or addition to workshops; (ii) the accommodation of people engaged in sheltered employment; (iii) the rental for up to three years of premises used to provide sheltered employment; (iv) the cost of workshop equipment.

During 1967-68 two equipment grants totalling \$1,175 were made; total expenditure in Tasmania, since inception of the scheme to 30 June 1968, was \$52,459.

In addition, under a 1967 amendment to the *Social Services Act*, a sheltered employment allowance may be paid and the means test is relaxed to provide an incentive to earn.

State Department of Social Welfare

Expenditure

Activities of this State Government Department are grouped under Child Welfare and Relief. The following table shows expenditure over a five-year period:

Department of Social Welfare—Expenditure
(\$'000)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Administration and General ..	183	196	213	250	303
Relief Division	152	167	157	167	189
Child Welfare Division..	161	177	178	210	222
Ashley Home for Boys..	82	82	88	93	105
Grants to Organisations ..	78	110	94	78	85
Total	657	732	730	798	904

In 1967-68, the major expenses were: under Relief Division, fuel allowances for eligible pensioners, \$78,000 and relief and maintenance, \$102,000; under Child Welfare Division, maintenance of boarded-out children, \$103,000 and contributions towards maintenance of children in approved institutions, \$78,000; and under Grants to Organisations, Tasmanian Institute for Blind and Deaf, \$70,000, including supplement to wages of blind employees, \$25,000.

Relief Division

The functions of this Division are to investigate applications for assistance from needy mothers with dependent children and to give cash relief where necessary; to issue fuel allowances (subject to a means test) to aged and invalid pensioners; and to help pay for funerals, transport, furniture removals and artificial limbs, spectacles, etc. for persons in indigent circumstances. Special grants are made to deserted wives (and sometimes deserted husbands) left with children, wives with husbands in gaol, to certain persons awaiting receipt of Commonwealth benefits or pensions, and to relatives supporting deserted children.

Child Welfare Division

The work of this Division includes the investigation of complaints that children are neglected or inadequately controlled; the supervision of neglected children in their own homes to avert the need for more drastic action; the

investigation of cases to appear in Children's Courts; the supervision of children under order of the Court; the placement and supervision of children declared by the Court to be wards of the State; the control of the Department's receiving and other homes; the recovering of maintenance costs, where possible, from parents of children who are a charge on the Department; the licensing and supervision of children's boarding homes and day nurseries; the supervision of child migrants; welfare of children referred by Courts in divorce actions.

Domestic aid can be provided where because of illness, a mother is unable to undertake her normal duties, or where lack of domestic help would cause hardship. Housekeeper help was supplied on 8 occasions in 1967-68 at a net cost of \$3,000. Where it is not possible to provide domestic assistance temporary accommodation can be provided at Rochbank Hostel or other suitable residences.

Adoption of Children: Women child welfare officers investigate applications by prospective adoptive parents and interview mothers wishing to place their children for adoption. Applications for adoption of children are heard by a magistrate. There were 301 orders for adoption made in 1967-68.

Children's Court Statistics

In Tasmania, a child cannot be prosecuted without his case having first been referred to a welfare officer for investigation and a recommendation having been made. In 1967-68, 105 children originally referred to welfare officers with a view to proceedings were not brought before Children's Courts; the following table shows the ages and sex of children *reported* in that year (but not necessarily involved in Children's Court proceedings):

Children in Police Reports (a), 1967-68
Classified by Age and Sex

Sex	Age (in Years)										Total
	Under 8	8	9	10	11	12	13	14	15	16	
Boys	36	18	42	67	56	76	149	244	300	580	1,619
Girls	28	5	3	5	8	18	31	32	27	47	205
Total .. .	64	23	45	72	64	94	180	276	327	627	1,824 (b)

(a) Police reports made to district child welfare officers with a view to prosecution. A child reported twice, or more than twice, will appear twice or more in the table.

(b) Includes 51 boys and one girl who were 17 when the police reports were filed but were sixteen at time when the offences were committed.

Children's courts are established to hear cases involving persons under the age of 17 years. If proceedings are instituted, a child's parent has the right to be heard and to examine and cross examine witnesses, or to be represented by counsel; also a parent can be compelled to attend the hearing if this imposes no unreasonable inconvenience. For the powers of children's courts, see a later section under 'Courts Having Jurisdiction in Tasmania'.

The offences for which children were reported over a five-year period are shown in the following table. Where a report concerned multiple offences the apparently more serious one has been listed.

Children in Police Reports (a)
Classified by Offence

Offence Alleged	1963-64	1964-65	1965-66	1966-67	1967-68
Damage to Property	132	94	109	97	135
Breaking, Entering and Stealing	245	211	249	224	346
Stealing	243	262	296	343	404
Receiving	17	7	29	18	24
Illegal Use of Vehicle	59	61	75	109	125
Offences Involving Fraud ..	12	6	8	8	9
Sex Offences	15	12	16	16	21
Other Offences Against the Person	21	18	9	7	24
Offences Against Decency ..	8	13	10	11	24
Relatively Serious Offences (b)	752	684	801	833	1,112
Disorderly Conduct	27	29	51	63	48
Traffic Offences	134	83	105	128	162
Breaches of Licensing Laws ..	107	96	176	224	311
Breaches of By-Laws	52	18	24	26	27
Firearm Offences	44	43	27	31	46
Other Offences	364	269	383	472	594
Appearing as Uncontrolled ..	34	38	28	33	19
Appearing as Neglected	70	79	42	65	89
Breaches of Supervision	6	6	3	10	10
Complaints under Child Welfare Act	110	123	73	108	118
Total	1,226	1,076	1,257	1,413	1,824

(a) See note (a), previous table.

(b) In previous *Year Books*, 'Disorderly Conduct' was included as a Relatively Serious Offence.

In the previous tables, a child may appear more than once if more than one report has been made. The following table shows the number of children found guilty of an offence or against whom a complaint has been proven; the basis for inclusion is different from that in the two earlier tables: (i) a child found guilty at two or more appearances is only counted once; (ii) a child found guilty of more than one offence is classified under the more serious.

Individual (a) Children: Findings of Guilty or Complaint Proven, 1967-68

Sex	Relatively Serious Offences (b)	Other Offences (b)	Complaints under Child Welfare Act (b)	Total
Boys	546	360	30	936
Girls	53	31	34	118
Total	599	391	64	1,054

(a) See paragraph before table for definition of 'individual'.

(b) See previous table for classification of offences and complaints.

Wards of the State and Supervised Children

Children are made wards of the State either on application of a parent or relative (e.g. in the case of both parent's death or desertion) or by a Court order. Children may remain wards until they reach the age of eighteen and in

some cases wardship can be extended to the age of twenty-one. Often wards, while under the supervision of a welfare officer, are returned to their home and in such cases wardship is frequently terminated; as it is with those who successfully take up employment.

Wards are placed in: (i) foster homes (mostly ordinary family homes); and (ii) children's homes (private and Departmental). The Department makes payments, based on the child's age, for wards in foster homes and contributes to non-departmental institutions for the maintenance of State wards.

At 30 June 1968 there were 1,087 children under State control or supervision. Two hundred and sixty of these children were under the legal supervision of child welfare officers as a result of Court imposed supervision orders and 827 children were wards of the State. The next table shows the location of the wards at 30 June and admissions to and discharges from wardship during the year.

**Wards of the State: Location, Admissions and Discharges
(Number)**

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Location at 30 June—					
In Departmental Homes	82	93	82	87	112
In Other Children's Homes	172	183	190	191	179
In Foster Homes	271	296	261	277	282
With Parents or Relatives	165	126	139	137	176
In Private Lodgings	67	59	64	60	54
Other (a)	13	14	35	32	24
Total	770	771	(b) 771	784	827
Children Made Wards During the Year—					
By Courts—Delinquent	46	68	43	58	60
Neglected	52	35	33	32	40
On Parents' or Guardians' Request—					
Uncontrollable	2	2	2	1	9
Other, incl. Deserted	40	32	24	45	56
Total	140	137	102	136	165
Children Ceasing to be Wards During the Year—					
Adopted	21	29	15	18	20
Supervision Not Needed, Age, etc. ..	130	107	115	105	102
Total	151	136	130	123	122

(a) Children in hospitals, other government institutions, missing, etc.

(b) Not strictly comparable with previous year's figure; series revised.

The next table shows government expenditure on wards of the State.

**Wards of the State: Government Expenditure
(\$'000)**

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Expenditure on Departmental Homes ..	105	105	108	134	145
Maintenance of Children—					
In Foster Homes	84	92	93	98	103
In Non-Departmental Homes	52	62	61	71	78
Total Expenditure	241	259	262	303	326

Departmental Homes: State receiving homes which provide temporary accommodation for children are maintained at Hobart, Launceston and Wynyard. Also, in Hobart, a hostel provides accommodation for older boys who have left school and need to be established in employment.

Ashley Home for Boys, Deloraine, provides care and training for older wards who, because of maladjustment or delinquency, require special institutional control. Wybra Hall (Mangalore) fulfills a somewhat similar function with the special adaptations necessary to cater for younger boys between the ages of nine and fourteen years, as does West Winds at Woodbridge.

Weeroona Girls' Training Centre (Latrobe) provides for those adolescent girls in the care of the Department who require special institutional supervision and training. Girls of school age attend schools in the district and others receive correspondence school education. Older girls are trained in various aspects of domestic work.

Non-Departmental Homes: Other children's homes in which wards are placed are Kennerley Boys' Home, Salvation Army Boys' Home, Salvation Army Girls' Home, Aikenhead House, Bethany Boys' Hostel, Mt St Canice Convent and Hillcrest, all in Hobart; Savio College and Yalambee Hostel, Glenorchy; Clarendon Home, Kingston; Girls Home, and Northern Tasmanian Home for Boys, Launceston, and Roland Boys' Home, Sheffield.

REPATRIATION SERVICES AND PENSIONS

General

The Repatriation Department was established as a Commission under Federal legislation in 1920. The term 'repatriation' does not adequately describe the Department which is responsible for: (i) the payment of war and service pensions to eligible ex-servicemen and women and their dependants; (ii) the provision of medical treatment to ex-servicemen and women for injuries and illnesses caused or aggravated by their war service; (iii) the provision of medical treatment to widows and dependants of deceased ex-servicemen whose deaths are due to war service; and (iv) the provision of medical treatment in certain circumstances to ex-servicemen and women who are suffering from injuries and illnesses not caused or aggravated by war service.

Benefits are provided in respect of service in the 1914-18 and 1939-45 Wars, in the Korea and Malaya operations, with the British Commonwealth Far East Strategic Reserve, and the Special Overseas Forces; more recently, benefits have been extended to ex-servicemen from the Vietnam theatre of operations.

Medical Services

To discharge these functions in Tasmania, the Repatriation Department maintains a branch office, a repatriation general hospital and an artificial limb and appliance centre in Hobart. Facilities exist at the Repatriation General Hospital for medical treatment of hospitalised patients, and specialist services for out-patients. Generally, treatment for out-patients throughout the State is provided by doctors the Department has appointed as Local Medical Officers. People entitled to treatment can select a doctor from the panel of L.M.Os, and receive treatment at the Department's expense. Payment for treatment in hospitals other than the Repatriation General Hospital is met by the Department in certain circumstances.

Repatriation Pensions—General

War pensions are payable, without general application of a means test, for war-caused or war-aggravated disabilities. *Service* pensions are payable, in the main, to certain ex-servicemen 60 years and over (and ex-servicewomen 55 years and over) subject to a means test; no disability need be claimed.

War Pensions

Eligibility and Rates

War and dependants' pensions may be granted to persons, or in respect of persons, who come within the following categories and who suffered death or disability: (i) arising from any occurrence before discharge, on overseas war service or on service in Australia within certain areas; (ii) attributable directly to service where the member served only in Australia; (iii) from pulmonary tuberculosis where the member served in any theatre of war; (iv) from aggravation of a condition existing at enlistment where camp service exceeded six months.

Those who receive war pensions are also eligible for free medical and hospital treatment for their pensionable disabilities. With certain categories of pensioners, the eligibility for free treatment is widened to cover all disabilities. It is also possible for an ex-serviceman to qualify for free treatment for a disability without necessarily being granted a pension. The rates current after the 1969 Federal Budget are as follows:

(i) *Special Rate (TPI)*: paid to totally and permanently incapacitated exservicemen (including those blinded as a result of war service). The weekly rate is \$36.00 plus \$4.05 wife's allowance and \$1.3750 for each child under 16.

(ii) *Intermediate Rate*: paid where the incapacity prevents engagement in continuous employment. The rate is \$26.50 with dependant's pensions the same as for the special rate.

(iii) *General Rate*: paid to those who can still work, although their earning power may be reduced. The maximum (100 per cent) rate is \$12 weekly but pensions may be as low as 10 per cent of the maximum, according to disability. Dependant's allowances in respect of a pensioner receiving the 100 per cent rate are the same as for the special rate, or scaled down proportionately where he receives a lower percentage.

(iv) *War Widows' Pension*: paid to widows of ex-servicemen who died as a result of war service, and to their children under 16. The weekly rates are: widow, \$15.00; first child, \$5.40; second and each subsequent child, \$4.25. A domestic allowance of \$7.50 may be paid to a widow over 50 years, and to younger widows in special circumstances.

(v) *Medical Sustainance*: paid to raise the pension of an ex-serviceman to the 100 per cent rate while treatment for a war-caused disability prevents him from following his usual occupation. If undergoing in-patient treatment, or convalescing immediately afterwards, the ex-serviceman may receive an allowance sufficient to bring his pension up to the *Special Rate*.

(vi) *Special Compensation Allowance*: introduced after 1968 Budget; a payment varying from \$3.00 to \$5.00 per week is paid to certain pensioners in receipt of 75 to 100 per cent of the General Rate pension.

War Pension Payments

The following table shows, for Tasmania, the number of pensions in respect of ex-servicemen and their dependants, together with expenditure on war pensions:

War Pensions—Pensioners and Payments

Year	Number of Pensions Current at 30 June				Expenditure During Year (c)
	Incapacitated Ex-Servicemen	Dependants of—		Total (b)	
		Incapacitated Ex-Servicemen	Deceased Ex-Servicemen (a)		
1962-63	8,620	17,763	1,831	28,214	\$'000 5,668
1963-64	8,659	17,366	1,879	27,913	6,158
1964-65	8,627	16,506	1,968	27,109	6,214
1965-66	8,623	15,831	1,984	26,446	6,919
1966-67	8,573	15,018	2,031	25,629	6,654
1967-68	8,610	14,324	2,013	25,015	6,790

(a) Includes war widows' pensions.

(b) Includes miscellaneous pensions not specified under the 'ex-servicemen' details, e.g. Seamen's War Pensions and Allowances.

(c) Includes widows' allowances.

At 30 June 1968, the proportion of ex-servicemen in Tasmania receiving war pension in respect of service in the 1914-18 War was 15.3 per cent; the 1939-45 War, 82.4 per cent; the Korea and Malaya operations, 1.9 per cent, and other operations, 0.4 per cent.

Service Pensions*Eligibility and Rates*

Service and dependant's pensions may be granted to persons (or in respect of persons) who come within the following categories, and satisfy a means test: (i) men aged 60 or over who served in a theatre of war, or women 55 years and over who served abroad; (ii) men and women who are totally unemployable with similar service particulars; (iii) sufferers from pulmonary tuberculosis not qualifying for a war pension on this ground. The conditions governing the means test are the same as for old age pensions, described earlier in this chapter.

The weekly rates current after the 1969 Federal Budget are: maximum, single ex-serviceman, \$15.00; married, \$13.25; in certain circumstances, wife under 60 years, \$7.00 (at 60 years, the wife may qualify for \$12.50 old age pension). The rate for dependent children is \$2.50 for the first child and \$0.25 for each other child up to and including the fourth. If an ex-serviceman has children whom he is maintaining, *his* service pension may be increased by \$3.50 per week in respect of each dependent child (except the first). A guardian's allowance of \$4.00 weekly is payable where the service pensioner has the care, custody and control of children, e.g. where he is a widower; where the child is under 6 years or is an invalid requiring full-time care an allowance of \$6 per week is paid.

Service Pension Payments

The following table shows, for Tasmania, the number of service pensions in respect of ex-servicemen and their dependants, and expenditure on pension payments:

Service Pensions—Pensioners and Payments

Year	Number of Pensions Current at 30 June				Expenditure During Year
	Ex-Servicemen	Dependants of—		Total	
		Living Pensioners	Deceased Pensioners		
1962-63	1,687	898		2,585	\$'000 838
1963-64	1,739	777	144	2,660	874
1964-65	1,737	776	145	2,658	904
1965-66	1,709	827	101	2,637	964
1966-67	1,694	833	111	2,638	935
1967-68	1,689	898	107	2,694	1,014

Soldiers' Children Education Scheme*Eligible Children*

Educational assistance is granted to ex-servicemen's children in particular circumstances: (i) if the parent has died from causes attributed to war service, or was receiving war pension for specific serious disabilities at the time of death; (ii) if the parent, as a result of war service, is blinded, totally and permanently incapacitated or receiving the special rate pension for pulmonary tuberculosis.

Benefits

For children under 12 years, the scheme pays the cost of school requisites and fees. At secondary level, fortnightly maximum payments are: under 14 years, \$4.35; 14 but under 16, \$6.60; 16 years and over, \$14.55 if both parents living and \$17.40 if only one parent living. At tertiary level, those living at home may receive \$21.50 per fortnight and those living away from home, \$34.80. For tertiary and professional courses, students may receive grants to pay for text books and equipment, fees and fares. The means test used to determine whether the maximum shall be paid does not relate to the parents' income but takes into account grants the student is receiving from scholarships, cadetships, etc.

HEALTH**State Health Services—General***Organisation, Department of Health Services*

The State Department of Health Services is under the jurisdiction of the Minister for Health, with the Director General of Health Services as the permanent head. The Headquarters of the Department controls two Divisions, each under a director, namely Public Health and Tuberculosis. Four specialised services are also part of the Department, the State Health Laboratory under the control of the Director of Pathology; the Government Analyst and Chemist Laboratory, under the control of the Government Analyst; Geriatric Services; and Cardio-Vascular Services; each of the latter two services operates under a director. The balance of the Department's responsibilities are functions of Headquarters.

Legislation in 1967 provided for the establishment of a Mental Health Services Commission, thereby removing responsibility for psychiatric services from the Director General. The Commission began to operate as a separate authority from July 1968 and is directly responsible to the Minister.

Expenditure

Expenditure from Consolidated Revenue for a five-year period is as follows:

Department of Health Services—Expenditure from Consolidated Revenue (\$'000)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Administration, Head Office	185	212	212	235	252
Hospital and Medical Services—					
Administration	135	170	183	184	213
Grants to Hospitals	4,546	5,233	5,842	6,390	6,619
Medical Services—Country Districts ..	83	77	126	137	149
District Nursing Service	163	161	168	184	189
Dental Health Service	130	144	236	330	459
State Laboratory—Pathology .. ..	..	4	5	6	4
National Fitness Section	30	38	42	44	54
Nurses' Registration Board	4	4	4	4	5
Government Analyst and Chemist ..	45	43	51	53	65
St John's Park Hospital	783	847	944	1,052	1,191
Public Health—					
Administration and Inspectors	121	149	148	159	184
School Health Service	81	94	110	115	143
Child Health Service	119	126	134	148	161
Mothercraft Home	61	65	73	78	86
Tuberculosis Division—					
Administration	143	155	157	168	174
Chest Hospitals	305	305	295	313	325
Psychiatric Services—					
Administration	84	106	112	111	168
Mental Health Hospitals	1,331	1,503	1,689	1,903	2,167
Miscellaneous Grants and Expenses ..	212	258	286	(a) 322	(a) 452
Total	8,561	9,694	10,816	11,937	13,058

(a) Includes Royal Commission on fluoridation of water supplies: 1966-67, \$15,000; 1967-68, \$22,000.

Headquarters Division

General

The responsibility of the Headquarters of the Department of Health Services includes: the public hospital services and the licensing of private hospitals and other medical establishments under the *Hospitals Act* 1918; the District Medical Service; the School Dental Service; the Tourist and District Nursing Service; legislation concerned with health and allied matters; the Nurses' Registration Board and the Dental Mechanics' Registration Board; some specialist medical services; the State Drug Advisory Committee; liaison with the Health Departments of other States and the Commonwealth (the Director General is a member of the National Health and Medical Research Council); liaison with professional, medical, dental and nursing associations. The Director General is the controlling authority under the Hospital Employees' Award, the Medical Officers' Award and the Nurses' (Public Hospitals) Award. Headquarters also controls and maintains Crown property occupied by the various sections of the Department and deals with the appointment and salaries of staff who are not officers of the Public Service.

School Dental Health Service

This service, available free to children attending school, aims to examine and treat every child each six months, but staff shortages have prevented this from happening in the past. At the end of April 1969, 24 permanent clinics were operating at urban centres throughout the State while nineteen mobile units provided services in most country districts.

An orthodontic service is based on Hobart; mobile and permanent clinics give a State-wide therapeutic service.

Dental Nursing: Adopting the New Zealand system, Tasmania became the first Australian State to develop a School of Dental Nursing. Ten first-year and ten second-year State students are being trained, together with some students on behalf of the Commonwealth Government (these are to be employed in A.C.T. after graduation). The first State class graduated in January 1968 after a two-year course, and the graduates have been appointed to clinics. The School with a residential hostel attached is located in Hobart, has a principal and a matron, and will itself eventually treat 90 patients a day. It is expected that a total of approximately 30 dental nurses will work in the districts; a recognised dental nursing certificate will be needed for a nurse to be appointed to a field position.

Fluoridation

In 1953, Beaconsfield became the first municipality to add fluoride to its water supply; fluoridation was extended to the Launceston water supply in 1961; and in 1964, Hobart became the first Australian capital city to add sodium fluoride to its water supply. The whole question of fluoridation was considered by a Royal Commission which reported favourably in 1968 and recommended its extension throughout the State. Following the Royal Commission's report, the State Government passed the *Fluoridation Act* 1968 setting up a Fluoridation Committee which has the power to recommend fluoridation of any public water supply.

District Medical Service

In 1937 the Government undertook to help the more remote municipalities to obtain medical services; at present, participating municipalities levy a rate under the *Local Government Act* 1962 as amended, and meet between one half and one third of the cost of the scheme.

The scheme provides a general practitioner service free to all residents of the municipality for consultations and home visits. A surgery is usually attached to the district medical officer's house, and branch surgeries are sometimes located elsewhere within the district. Attention out-of-hours is charged for in accordance with a set scale, as are insurance medical examinations, compensation treatment and attention to visitors to the State.

As well as general practice, activities include the dispensing of drugs if no chemist is available; duties as Medical Officer of Health (under the *Public Health Act*) if a municipal council requests it; in some cases, duty as superintendent, if there is a district hospital within the municipality; attention to district nursing centres; and post mortem examinations.

Nursing

Nursing training is under the control of the Nurses' Registration Board. Of the State's nursing training schools, eight are general, six midwifery, two psychiatric, two child health, one tuberculosis and one geriatric.

Tourist Nursing Service

This service is based on the fact that trained nursing sisters from outside Tasmania like to visit the State and have a working holiday. These 'tourist nurses' are employed for short periods in hospitals or district nursing centres. Not more than two months' service at any one time is required of a sister in any one place but she may stay longer.

State Drug Advisory Committee

This advises on the nature, strength and variety of drugs to be supplied to public hospitals by the medical store of the Supply and Tender Department. It is not concerned with administration but helps the store to avoid stocking drugs with different brands but similar properties, and stocking drugs not likely to be required.

General

Division of Public Health

The Division of Public Health has responsibility for the preventive medical services of the State. The Director is responsible for the operation of the *Public Health Act* 1957 as amended and the control of medical officers of health and other health officers employed by the Department and municipalities throughout the State. A major responsibility is public immunisation programmes, conducted through the municipalities; preparations distributed include the Salk and Sabin anti-poliomyelitis vaccine and the Triple Antigen vaccine (against whooping cough, tetanus and diphtheria). The Division is responsible for the Nutrition Advisory Service; industrial hygiene; environmental sanitation; pure food and pure drug quality control; the public health aspects of the building regulations. Other major functions are discussed separately in the following sections.

Child Health Service

Child health nurses attached to child health centres advise mothers on the care and upbringing of their babies and younger children. In 1968 there were 95 centres and 13 travelling units. Voluntary child health committees working for the centres raise money for furnishings and equipment in buildings erected by the Department. The functions of the centres include examination of babies, maintenance of individual histories, and advice on diets, feeding techniques and hygiene. Phenistix tests are carried out for the detection of phenylketonuria, a rare complaint which results in mental deficiency if not treated in infancy. New-born babies are visited in their homes by the sisters; details of births and addresses are supplied by the hospitals.

The Mothercraft Home: This Home, located in Hobart, provides training for qualified nursing sisters who want to gain child health nursing certificates, and for women who want to become mothercraft nurses. It accommodates children under two years who need care or who cannot be looked after at home, and mothers learning to look after children or having feeding problems. When space is available, children under two years can be boarded in the Home for short periods.

School Health Service

This is available free to children under 16 years at both State and non-government schools. The aim is for an annual inspection at each school by a medical officer, but staff shortages have limited this to examinations at school entry, next at 11, and finally at 15 years. Children requiring review or examination for any condition causing concern are also examined by school doctors.

Doctors particularly look for conditions likely to affect a child in a school situation. Parents can make appointments for their children to be examined at centres in Hobart, Launceston, Devonport and Burnie.

School nursing sisters visit schools regularly to supervise the health and hygiene of pupils. They maintain medical records, perform cleanliness inspections, test sight and hearing, assist at medical examinations and follow-up defects notified. They contribute to health education, research projects and may organise immunisation sessions at their schools.

Infectious Diseases

Certain diseases are notifiable under the *Public Health Act*, the aim being to prevent or check their spread. New regulations (November 1967) deleted scarlet fever, rubella and infantile diarrhoea from the list and added serum hepatitis, food poisoning in two or more associated cases, ornithosis, salmonella infections and shigella infections.

Special conditions apply to venereal diseases. Persons suffering from them must not marry until cured, or engage in the manufacture or distribution of foodstuffs, and are liable to arrest and detention if failing to continue treatment until cured.

Quarantine provisions and tuberculosis are dealt with in later sections.

The following table shows the incidence of infectious diseases in Tasmania for a five-year period:

**Infectious Diseases Notified to Department of Health Services
Number of Cases**

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Ankylostomiasis .. .. .	..	..	..	1	..
Bacillic Dysentery	9	1	1	5	..
Brucellosis	1	..	1	..	..
Diphtheria .. .. .	..	3	1	..	..
Encephalitis	1	..	..	1	..
Filariasis	1	..	..	..	..
Food Poisoning in Two or More Associated Cases .. .. .	..	..	..	..	4
Glandular Fever	34	11	..	..	..
Gonorrhoea	173	200	200	190	209
Hydatids	16	21	7	13	17
Infantile Diarrhoea and Enteritis	15	21	29	24	15
Infectious Hepatitis	997	293	172	276	569
Malaria	1	..	3	6	..
Meningitis	8	14	4	6	1
Nephritis	2	6	12	5	1
Ornithosis .. .. .	..	..	..	..	1
Poliomyelitis .. .. .	..	..	3	..	..
Puerperal Fever .. .. .	..	..	..	1	..
Puerperal Pyrexia .. .. .	..	..	..	1	..
Rheumatic Fever	33	26	27	27	5
Rubella	28	107	448	219	55
Salmonella Infections .. .. .	..	..	..	..	1
Scarlet Fever	149	867	1,207	206	39
Serum Hepatitis .. .. .	..	..	..	..	1
Shigella Infections .. .. .	..	..	..	..	15
Syphilis	10	7	2	7	9
Tuberculosis	105	81	66	61	54
Typhoid Fever (inc. Paratyphoid)	3	6	..	3	..
Total	1,562	1,653	2,183	1,052	996

Health Education

The Health Education Council is composed of representatives of the Division of Public Health, the Education Department, the Mental Health Services Commission, the Adult Education Board and several other interested persons. The Council's aim is the education of the public by distribution of information on health matters.

National Fitness Section

This is concerned with putting into effect the Tasmanian National Fitness Council's policy, which is the promotion of community health and personal fitness; this involves the promotion and extension of physical recreation and amateur sport, fitness and training programmes, co-ordination of youth work, and assistance to existing youth and recreation groups. The main cost is met by the State Government (\$53,779 in 1967-68) and a small grant is made by the Commonwealth Government. Close contact is maintained with local government authorities and community organisations interested in the various aspects of community fitness and recreation. Assistance is given in the development of indoor recreation centres, camping facilities and programmes, amateur sports, outdoor activities such as canoeing, mountain and bush expeditions and adventure activities generally. Sports coaching classes are conducted for a wide range of age groups. Executive services are provided for the Duke of Edinburgh Award Scheme and for the Youth Council of Tasmania.

Mental Health Services Commission

Introduction

Significant advances have been made in the field of clinical psychiatry and in the treatment of mental illness during the past three decades. The development of psychotropic drugs, new therapeutic techniques and improved methods of clinical practice has revolutionised the mental hospital from an institution for the incarceration of lunatics to a modern hospital geared to the care and rehabilitation of the unfortunate sufferers of psychiatric disorders.

To keep pace with these scientific and therapeutic developments the management of mental hospitals and psychiatric services must be kept under close scrutiny. In January 1966 an interdepartmental committee was set up to investigate the management of psychiatric services in Tasmania.

Psychiatric Services

The investigation was made with particular reference to the management of the Lachlan Park Hospital (since renamed the Royal Derwent Hospital). The committee recommended that the mental hospital should be controlled by a board of management in the same manner as an ordinary public hospital. In addition the committee indicated the necessity for a mental health authority to co-ordinate psychiatric services throughout the State.

Provisions of the Mental Services Bill

The *Mental Health Services Act* 1967 was presented to State Parliament in June of that year. The Bill had an uneventful passage through both Houses being subjected to only minor amendments by the Upper House.

The main provisions of the *Mental Health Services Act* 1967 are: (i) closer integration of administrative, professional, academic and community efforts directed to the better education, prevention and treatment of mental illness; (ii) establishment of the Mental Health Services Commission comprising Medical, Clinical and Administrative Commissioners: the Medical Commissioner being the holder of the post of Director of Psychiatric Services and the Clinical

Commissioner the Professor of Psychiatry at the University of Tasmania; (iii) creation of a Mental Health Services Advisory Committee; (iv) establishment of a Board of Management for Lachlan Park Hospital; (v) bringing Millbrook Rise under the management of Lachlan Park Hospital; (vi) creation of a close working relationship between the State Mental Health Services and the Professorial Psychiatric Unit of the Medical Faculty of the University of Tasmania; and (vii) incorporation of all personnel engaged in treating mental illness into one comprehensive service.

Mental Health Commission

In accordance with section 26(1), on the commencement of the Act, the Director of Psychiatric Services, was automatically appointed as Medical Commissioner. An Administrative Commissioner was appointed on 1 December 1967, and the Professor of Psychiatry at the University of Tasmania became the Clinical Commissioner late in December 1968.

Development of Services

From 1 July 1968, the Commission became fully separated from the Department of Health Services as a statutory authority in its own right. Its pattern of development will place emphasis on taking adult and child psychiatry into the community in an attempt to treat the large majority of sufferers of mental illness as close as possible to their own domestic environment. Its consultative services and facilities are spread on a regional basis, acute psychiatric units having been established at Launceston, Wynyard and more recently, at Devonport. Psychiatrists at these centres are being assisted by psychologists and mental health specialists. These regional services are being closely integrated within general hospital complexes, thus establishing links with other medical disciplines. Links have been established with the Tasmanian University Department of Psychiatry and it is anticipated that the Professorial Psychiatric Unit at the Royal Hobart Hospital, which will ultimately become a centre for research, will be ready for occupation early in 1970.

Royal Derwent Hospital

The following table shows the number of patients who were admitted, discharged or died:

Royal Derwent Hospital
Number of Patients Admitted and Discharged, and Deaths, 1967-68

Particulars	Males	Females	Total
Patients at Beginning of Year	453	447	900
Patients Admitted—			
Admitted, First Time	235	183	418
Re-admitted	259	230	489
Returned from Leave	95	69	164
Total	589	482	1,071
Patients—			
Discharged from Hospital	466	362	828
Proceeded on Leave	119	69	188
Died	28	33	61
Total	613	464	1,077
Patients at End of Year	429	465	894

The following table shows the diagnosis of mental illness of patients in the Lachlan Park Hospital:

Royal Derwent Hospital
Diagnosis of Mental Disorder of Patients, 1967-68

Mental Disorder	Patients Admitted (a) 1967-68			Patients at 30 June 1968		
	Males	Females	Total	Males	Females	Total
Senile and Pre-Senile Dementia ..	23	38	61	15	64	79
Alcoholic Psychosis ..	13	6	19	8	3	11
Psychosis with Intracranial Infection ..	..	2	2	1	2	3
Psychosis with other Cerebral Condition ..	16	4	20	18	13	31
Schizophrenia ..	65	84	149	147	94	241
Affective Psychoses ..	16	40	56	16	23	39
Paranoid States ..	8	11	19	13	11	24
Other Psychoses ..	..	2	2	..	..	..
Unspecified Psychoses ..	..	..	..	1	..	1
Neuroses ..	36	81	117	4	12	16
Personality Disorders ..	47	37	84	22	26	48
Sexual Deviation ..	9	..	9	1	..	1
Alcoholism ..	164	21	185	13	2	15
Drug Dependence ..	..	23	23	..	5	5
Transient Situational Disturbances ..	1	1	2	..	..	..
Physical Disorders of Presumably Psychogenic Origin ..	..	1	1	..	..	..
Behaviour Disorders of Childhood ..	4	3	7	4	2	6
Mental Disorder not Specified as Psychotic Associated with Physical Conditions ..	3	6	9	6	7	13
Mental Retardation—Borderline ..	18	6	24	11	9	20
Mild ..	18	7	25	15	20	35
Moderate ..	22	16	38	56	54	110
Severe ..	12	20	32	41	78	119
Profound ..	9	2	11	23	34	57
Unspecified ..	10	2	12	14	6	20
Total ..	494	413	907	429	465	894

(a) Excludes those returned from leave.

Other Institutions

Millbrook Rise is a small neurosis hospital at New Norfolk for voluntary patients. It charges fees and provides intensive psychiatric and nursing treatment for patients with severe neuroses and early psychoses. In 1967-68, there were 135 admissions, the principal mental disorders being: neuroses, 96; affective psychoses, 8; schizophrenia, 14; personality disorders, 14.

'Karingal' at St John's Park, New Town, houses some mentally deficient patients under the care of the Guardianship Board, constituted under the *Mental Health Act 1963*. (This Board has replaced the former Mental Deficiency Board.)

Extra-Mural Psychiatric Services: Psychiatrists provide consultant services to the general and district hospitals of the State. Psychiatric social workers and welfare officers supervise mentally defective patients and give after-care to people discharged from psychiatric hospitals.

Psychiatrists based on Launceston and Wynyard provide regional services to the north-west and north-east of the State. A new 16-bed acute psychiatric unit was opened in September 1967 as part of the Spencer Hospital at Wynyard.

Division of Tuberculosis

The Division is concerned with diagnosis, treatment and after-care. Under an arrangement with the Commonwealth, the Tasmanian Government conducts a campaign against T.B. The State is reimbursed by the Commonwealth Government for approved capital and maintenance expenditure, in carrying out the physical work of the campaign.

An allowance is paid by the Commonwealth Department of Social Services to T.B. sufferers to encourage them to give up work, to minimise the spread of the disease, and to promote better treatment. The allowance is subject to a means test on income (but not on property) and provides \$14 a week for a single person in hospital and \$18.25 weekly whilst at home; married sufferers at home or in hospital are paid \$29.75 per week plus \$2.50 for the first dependent child and \$3.50 for each subsequent child.

Tubercular patients are treated at the Tasmanian Chest Hospital (New Town). The X-ray campaign has led to a reduction in demand for in-patient treatment and to generally shorter periods in hospital.

The following table shows the confirmed diagnosis of tuberculosis cases notified in Tasmania over a five-year period.

New Cases Notified to Tuberculosis Division
Classification by Diagnosis and by Sex

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Pulmonary Males	61	48	34	36	31
Females	18	18	23	13	12
Tuberculous Pleural Effusion .. Males	5	1	..	..	1
Females	3	2	1	..	..
Primary Tuberculosis Males	1	1	..	1	..
Females	2	..	..	1	..
Non-Pulmonary Cases Males	5	5	1	3	2
Females	10	6	7	4	2
All New Cases Males	72	55	35	40	34
Females	33	26	31	18	14
Persons	105	81	66	58	48

State Controlled Hospitals

General

In Tasmania, there are private hospitals and also hospitals for which the State Government accepts the major financial responsibility; in the case of the latter group, control is either direct or exercised through hospital boards. (Each board consists of seven members of whom five are appointed by the Minister for Health.)

Institutions controlled by the State (either directly or through boards) include four general hospitals, 15 district hospitals, 13 district nursing hospitals with bed accommodation, one mental hospital, two maternity hospitals, one chest hospital and three hospitals for the aged. (The Department of Health Services directly administers the chest hospital, mental hospital, district nursing hospitals and one hospital for the aged.) These institutions could all legitimately be described as 'public'. However, in the tables in this section, the term 'public' is applied only to the general and district hospitals, the other types of institution being specified separately.

General Hospitals (Public)

Hospitals providing all facilities and specialised treatment are the Royal Hobart, Launceston General, Mersey General (at Latrobe) and North Western

General (at Burnie). The Queen Alexandra (Hobart) and the Queen Victoria (Launceston) are obstetric and gynaecological hospitals.

Specialist treatment is available at general hospitals in obstetrics, gynaecology, orthopaedics, urogenital surgery, plastic and reconstructive surgery, neuro-surgery and neurology, radiology, pathology, radiotherapy, psychiatry and ophthalmology; skin diseases and venereal diseases are also treated and clinics operate in thoracic medicine and surgery. An emergency obstetrical service, with specialists based on Hobart and Launceston, provides a free service to the smaller public hospitals, district nursing hospitals, and district medical officers outside the two cities.

The Peacock and Lady Clark Homes and Clare House are annexes of the Royal Hobart Hospital, the first two admitting patients for convalescence and physiotherapy respectively as an extension of treatment, and the last treating nervous diseases and alcoholism.

Fees

The daily general ward fees charged in the State-controlled hospitals are not much lower than those in private hospitals. However, the former fees are all-inclusive, (i.e. covering medical attendance, surgery, pathology, etc.) while the latter cover only accommodation and general nursing. Under the 'personal patient' scheme, a patient in the Hobart and Launceston general hospitals may have his own doctor, if he is an honorary doctor at the hospital, for the payment of an additional fee. Voluntary insurance with hospital fund organisations and Commonwealth hospital benefits enable most patients to meet the fees charged.

District Hospitals (Public)

These do not provide the full range of services available in the general hospitals, and do not have resident medical officers. They are located at Beaconsfield, Campbell Town, Currie, Franklin, Longford, New Norfolk, Ouse, Queenstown, Rosebery, Scottsdale, Smithton, St Marys, Ulverstone, Whitemark, Wynyard and Zeehan.

Hospitals for Aged and Invalids

The State Government administers three hospitals caring for the aged and for invalids. In the table that follows, the average daily number of inmates is dissected between 'general' and 'hospital'; 'general' refers to inmates who are not receiving treatment in the hospital sections of the hospitals.

Government Hospitals for the Aged, 1967-68

Home	Average Daily Number of Inmates			Beds Available		
	For General Care	For Hospital Treatment	Total	For General Care	For Hospital Treatment	Total
Cosgrove Park (a) ..	108	134	242	140	134	274
St John's Park ..	154	298	452	236	313	549
Spencer (b) ..	8	21	29	10	25	35
Total ..	270	453	723	386	472	858

(a) Cosgrove Park is administered as part of the Launceston General Hospital.

(b) This is a geriatric wing of the Spencer Hospital, Wynyard.

Finances of State Controlled Hospitals

The following table gives a financial summary of the operation of State controlled hospitals and hospitals for the aged ('public' hospitals in the table include general and district hospitals):

State Controlled Hospitals and Hospitals for the Aged—Receipts and Payments (a)
1967-68
(£'000)

Particulars	Hospitals (excluding Mental)				Mental Hospital	Hospitals for the Aged
	Public (b)	Chest	Maternity (c)	Total		
Receipts—						
Government Aid—						
State Government	5,826	268	409	6,503	2,062	1,196
Commonwealth						
Hospital Benefits	796	..	7	803	..	336
Fees	2,907	..	418	3,325	98	139
Donations and Other	25	2	1	28	7	9
Total ..	9,554	271	835	10,659	2,167	1,680
Payments—						
Salaries and Wages	6,580	234	573	7,386	1,526	1,207
Repairs, Maintenance and Provisions	2,520	32	232	2,784	445	429
Miscellaneous ..	538	5	37	579	196	44
Total ..	9,638	271	841	10,750	2,167	1,681

(a) Excludes expenditure from State Loan Fund.

(b) Includes maternity wards in public hospitals.

(c) Excludes maternity wards in public hospitals.

Staff and Patients in State Controlled Hospitals

The following table gives a summary of the main statistics relating to staff and patients in State controlled hospitals and hospitals for the aged.

State Controlled Hospitals and Hospitals for the Aged, 1967-68
Staff, Accommodation and In-Patients

Particulars	Hospitals (excluding Mental)				Mental Hospital	Hospitals for the Aged
	Public (a)	Chest (b)	Maternity (c)	Total		
Hospitals and Homes .. (no.)	19	1	2	22	1	3
Nursing Staff .. (Males)	31	7	..	38	145	116
(Females)	1,397	26	169	1,592	134	152
Beds Available (Patients) .. (no.)	1,820	55	210	2,085	900	858
In Patients—						
Admissions During Year (Males)	17,398	60	..	17,458	589	252
(Females)	20,228	23	3,853	24,104	482	133
Daily Average Number of Patients During Year (Males)	540	20	..	560	455	380
(Females)	604	8	98	721	463	343
(Persons)	1,144	28	98	1,281	918	723
In-Patient Costs—						
Total (£'000)	(d) 8,529	271	(d) 837	(d) 9,636	2,077	1,681
Daily Average Per Patient (\$)	19.73	33.12	23.39	20.61	6.46	6.37

(a) Includes maternity wards in public hospitals.

(b) The Northern Chest Hospital was closed on 31 December 1967.

(c) Excludes maternity wards in public hospitals.

(d) The figure in the previous receipts and payments table is greater since it includes out-patient costs.

District Nursing Hospitals

From 1 July 1968 the district nursing hospitals (formerly known as district nursing centres) were placed under the control of public hospital boards. Each district nursing hospital is operated as an annex of a parent hospital. Parent hospitals are: Royal Hobart, Launceston General, North-Western General, Mersey General, Campbell Town, St Marys District, North-Eastern Soldiers' Memorial Hospital (Scottsdale), King Island, Flinders District, Smithton District and Lyell District.

The following table gives a summary of the work performed by the Centres over a five-year period:

District Nursing Service—Operating Statistics

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Centres	25	25	25	24	24
Beds Available in Centres	49	49	49	53	54
Visits to Centres	37,205	39,406	40,749	39,868	38,402
Visits to Patients	9,684	12,626	13,257	11,747	9,650
In-Patient Bed-Days	3,698	2,923	2,856	3,105	3,271
Births	302	272	257	259	295
Child Health Visits	9,707	9,892	7,479	8,543	8,756
School Visits	88	110	116	88	51

Private Hospitals

These are operated by church and other private organisations. They are licensed to receive surgical, medical, maternity or psychiatric cases. Of the seven medical-surgical private hospitals, Calvary and St John's (Hobart) and St Luke's and St Vincent's (Launceston) are the largest.

Nursing homes, operated by private bodies, are institutions which do not conform to private hospital specifications with regard to equipment, construction and staffing, as laid down under the *Hospitals Act*. They are licensed to treat general cases within limits as specified in the licence. Rest homes are licensed usually to admit old people who require minimal medical care. At 30 June 1968, there were 40 private institutions concerned with aged people who were ambulant, convalescent, or suffering from geriatric illnesses. Nazareth House (St Leonards), St Ann's Rest Home (Hobart), Meercroft Home (Devonport) and Freemasons' Homes of Southern Tasmania (Lindisfarne) are the biggest of these, 19 of which have accommodation for 20 or more patients. Two other private hospitals cater for incurable or chronic illnesses, two for general convalescence and two for retarded children.

State Health Laboratory

The State Health Laboratory is under the control of the Director of Pathology. Apart from providing certain pathological services to the Royal Hobart Hospital, other hospitals and to doctors, the laboratory provides special bacteriological and cytological services.

The Laboratory is located at the Royal Hobart Hospital; prior to 1965 special tests had to be done in Melbourne, but equipment installed in that year now enables all work to be done in Tasmania. Magnifications of 100,000 can be gained with the electron microscope and photographs in colour taken of the magnified images; this is particularly useful in medical teaching and in diagnosis. Specimens from suspected T.B. sufferers, discovered in the compulsory chest X-ray programme, are examined and uterine and other cancers

can be discovered by the Papanicolaou smear test. Tasmania was the first Australian State to introduce this test on a large scale; early diagnosis by this simple and effective method, particularly in women who show no symptoms, usually makes possible the cure of this type of cancer. Mass screening of newborn babies is done to correct errors of inborn metabolism, especially phenylketonuria. Other work includes analysis of food, water and milk samples.

Government Analyst and Chemist Laboratory

This laboratory analyses a wide variety of foods, drugs and other substances and undertakes work for government departments and the public. Its work includes food and agricultural chemistry, forensic chemistry and toxicology, analyses for industrial hygiene purposes, water and corrosion problems, and other matters.

Other Health Matters

Children's Health Institutions

These are medical institutions run by the State or subsidised by public funds. They provide treatment and supervision along with general education. The Sight Saving School, School for the Deaf, School for the Blind, Talire (for retarded children) and Wingfield (for orthopaedic patients) are government institutions for children with particular defects.

Ambulance Services

The Ambulance Commission of Tasmania co-ordinates services throughout the State and is responsible to the Minister for seeing they operate effectively. Ambulance Boards, centred on Hobart, Launceston, Devonport and Burnie, control services in the adjacent municipalities. A few municipalities, however, operate services outside the Ambulance Board. The total Government grant to ambulance services, both under Board and independent control, was \$74,000 in 1968-69.

Ambulance services under control of the four Boards provide free transport for ratepayers, occupiers and pensioners. In addition to receiving Government subsidies, their income is derived from fees (payable by visitors) and municipal grants (in 1967-68, from a rate of 0.2083 cents in the \$).

The Ambulance Commission has adopted the training standards of the Victorian Ambulance Officers' Training School.

Royal Flying Doctor Service

This was established in Tasmania in 1960 and has as its purpose the provision of medical and dental services to persons in isolated areas. If the illness or injury is serious, a doctor flies to the patient and if necessary brings him back to a hospital. The ambulance services receive the calls, make arrangements to charter aircraft and supply medical equipment. The Commonwealth and State Governments make an annual grant towards operational expenses.

Blood Transfusion Service

Prior to 1954, the Australian Red Cross Society, which operates the Service, was assisted only by the State Government; since then, a grant equal to 30 per cent of operating expenses has been made by the Commonwealth Government and 60 per cent by the State. The combined grant in 1968-69 was \$63,390.

Municipal Health Functions

Municipal councils and city corporations possess wide powers and responsibilities in public health. They organise triple antigen immunisation campaigns against diphtheria, whooping cough and tetanus, and vaccinations against poliomyelitis and smallpox. (These are available without charge to children under 17 years.) They control the condemnation of sub-standard dwellings, the effective disposal of sewerage and drainage, the provision of garbage and night soil services, the construction of reservoirs and the reticulation of water. A Medical Officer of Health, often appointed by two councils, is responsible, among other things, for enquiring into the causes, origins and distribution of diseases; for investigating influences affecting the public health of the district; for directing and supervising the municipal health inspectors in the execution of the *Public Health Act*, for inspection of local certificates of notification of infectious disease and direction of control of such disease; for reporting the existence of any nuisance and inspection of any animal, carcass, provisions or food for sale for human consumption; and for inspecting any premises where milk or milk products are produced or stored and for reporting on the health of inmates or animals on the premises.

Commonwealth Department of Health

General

The Department is concerned in Tasmania with the maintenance of a quarantine service involving supervision of persons, animals, plants and goods from overseas; the provision of hospital, nursing home, handicapped children's medical and pharmaceutical benefits; the payment of grants for free milk to school children; the pensioner medical service; tuberculosis allowances; home nursing, mental institution and other subsidies; the control and maintenance of health laboratories at Hobart and Launceston; the Acoustic Laboratories in Hobart and Launceston; co-operation with the State Department of Health Services, in planning and taking measures to improve public health, including the anti-tuberculosis and anti-poliomyelitis campaigns, and National Fitness; the conduct of certain medical examinations; and the supervision of radio and television advertising and talks on medical matters.

Commonwealth National Health Payments

The following table shows the total Commonwealth payments for health benefits and services in Tasmania:

Commonwealth National Health Payments (a)
(£'000)

Benefit or Service	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68
Hospital and Nursing Home Benefits	1,321	1,703	1,811	1,991	2,050	2,318
Medical Benefits	634	686	1,000	1,140	1,195	1,443
Free Milk Scheme	376	391	380	398	442	503
Medical Benefits for Pensioners ..	234	253	256	386	406	460
Pharmaceutical Benefits	1,454	1,234	1,706	2,098	2,071	2,049
Pharmaceutical Benefits for Pensioners	506	527	578	637	802	850
Tuberculosis Campaign (b) ..	442	442	437	422	404	401
Miscellaneous	56	65	66	82	104	101
Total	5,023	5,301	6,235	7,154	7,474	8,125

(a) Payments from National Welfare Fund and minor items of expenditure from Consolidated Revenue Fund.

(b) Includes allowances to persons and reimbursements to State Government for approved expenditure.

Pensioner Medical Service

Free general practitioner medical treatment is available for most age, invalid, widow and service pensioners and their dependants (the exclusion relates to those admitted to pension by liberalisation of the means test in April 1967 and October 1969). Entitlement cards for these benefits are issued by the Social Services Department (or by the Repatriation Department in respect of service pensioners).

Commonwealth Acoustic Laboratory

The main function of the Laboratory is the provision and maintenance of hearing aids, without charge, to deaf school and pre-school children, and to those whose hearing loss was discovered after leaving school, but who are still under 21 years of age. It also provides and maintains hearing aids on behalf of the Repatriation and other Commonwealth departments and assists the Education Department in measuring deafness by providing and maintaining portable audiometers. A 1967 amendment to the Federal *National Health Act* provided that the laboratory should supply eligible pensioners with hearing aids on hire (for a single payment of \$10) and give the necessary technical services for fitting, re-adjusting, maintaining, etc.

Quarantine

Quarantine, as administered by the Commonwealth, guards against the importation from overseas of human, animal and plant infection. The administration of safeguards against infection from interstate travel and trade is left to the States unless Commonwealth action is necessary for the protection of a State.

National Health Benefits

General: A basic principle in the provision of medical and hospital benefits is Commonwealth support for voluntary insurance against the costs involved. Registered health insurance organisations collect contributions from members and refund a proportion of hospital or doctors' charges. They also act as paying agents for Commonwealth medical and hospital benefits, non-contributors to organisations receiving from the Commonwealth a reduced rate of hospital benefit and no medical benefit. Membership may be had in, and benefits received from, more than one organisation, but Commonwealth benefit is paid only once in respect of each claim.

A Special Account system provides an assured rate of benefit to contributors who would otherwise have been excluded because of organisations' rules relating to pre-existing ailments, chronic illnesses and maximum organisation benefits; payments made by organisations under this provision are re-imbursed by the Commonwealth.

Medical Benefits: These benefits are given for medical services detailed in the Schedule to the Commonwealth *National Health Act*. Combined Commonwealth and organisation benefits must not exceed 90 per cent of the fee charged for the service. For the most common form of service, consultation at a general practitioner's surgery, a contributor receives a Commonwealth benefit of 80 cents. On the 1 February 1969 organisation benefits were increased. The maximum benefit is \$1.20, although lower benefits are paid by some organisations.

Hospital Benefits: These benefits are paid for all patients by the Commonwealth at a minimum rate of \$0.80 a day, but if a person contributes to an organisation, the Commonwealth benefit increases to \$2. The highest combined organisation and Commonwealth benefit in Tasmania is \$15.50 a day (organisation benefits are not uniform) and the maximum rate of family contribution is \$1.15 a week.

Nursing Home Benefits: The Commonwealth pays a benefit of \$2 per day direct to the homes for each patient and a further \$3 a day for patients classified as requiring intensive care. The institutions need to be approved as nursing homes under the *National Health Act*. Patients do not have to be insured with a hospital benefits organisation and there is no time limit on the payment of benefits.

Handicapped Children's Benefit: A benefit of \$1.50 per day is paid for each handicapped child (to 16 years) in approved institutions.

Hospital and Medical Benefit Payments: Commonwealth hospital benefit payments are made on a hospital-bed-day basis as follows: insured patients, \$2; uninsured, \$0.80; pensioner patients, \$5; and nursing home patients, \$2. The following tables show payments by the Commonwealth, and also by the health insurance organisations (referred to as 'fund benefits') in Tasmania, together with details of the number of such organisations and their membership:

Hospital Insurance: Members and Benefits

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Registered Organisations (a) (no.)	10	10	10	r 9	9
Members (a) ('000)	116	114	120	114	118
Hospital Benefits Paid—					
Commonwealth Benefits—	\$'000	\$'000	\$'000	\$'000	\$'000
Insured Patients (b) ..	657	677	670	670	688
Uninsured Patients (c) ..	58	50	50	46	47
Pensioner Patients (c) ..	376	420	515	572	783
Nursing Home Patients (c)	612	664	756	761	800
Total	1,703	1,811	1,991	2,050	2,318
Fund Benefits	1,492	1,854	2,087	2,290	2,925

(a) At end of year.

(b) Includes Special Account deficits.

(c) Paid direct to hospitals by Commonwealth.

Medical Insurance: Members and Benefits

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Registered Organisations (a) (no.)	10	10	10	r 9	9
Members (a) ('000)	107	108	114	110	115
Medical Services During Year ('000)	719	771	802	818	962
	\$'000	\$'000	\$'000	\$'000	\$'000
Medical Benefits Paid—					
Commonwealth Benefits ..	686	1,000	1,140	1,195	1,446
Fund Benefits	1,082	1,150	r 1,256	r 1,336	1,436

(a) At end of year.

Pharmaceutical Benefits: Under this scheme, drugs and medicines for patients, who are required to pay a flat charge of 50 cents, can be prescribed by a medical practitioner or by a hospital. Not all drugs and medicines can be supplied under this scheme, but the Health Department's list of approved pharmaceutical preparations is extensive. Under this scheme basic rate pensioners receive free, their pharmaceutical requirements.

Commonwealth-Assisted Health Organisations

National Heart Foundation of Australia

This was established to promote research in cardiovascular disease, to rehabilitate heart sufferers and to foster the dissemination of information about heart diseases. The State Division deals especially with rehabilitation and education. The State Government recognised the importance of this work by creating a Cardio-Vascular Services section within its own Department of Health Services in 1967.

Lady Gowrie Child Centre

This pre-school demonstration centre in Hobart was established by the Commonwealth in 1940. Its specialised function is demonstration and research and its programme is carried out under the supervision of the Federal Pre-School Officer in Canberra. It is concerned with a study of the factors promoting or retarding physical and mental health in young children and in demonstrating an educational health programme based on the developing needs of children aged three to six years. The Centre is used for observation by students of medicine, psychology, education, domestic science and nursing.

Other Organisations

Other organisations associated with public health and receiving Commonwealth grants are the Red Cross Blood Transfusion Service, the Royal Flying Doctor Service and the Tasmanian National Fitness Council; these have been dealt with in an earlier section.

LAW, ORDER AND PUBLIC SAFETY

Law in Tasmania

History

The origin and evolution of Tasmanian law, and the origin of the various courts, are described in the 1967 *Year Book*.

Juries

Tasmanian legislation regulating juries seems to have been first passed in 1830 although, for many years before that date, the introduction of the British system of trial by jury in civil and criminal cases had been persistently urged in the colony. The *Hobart Town Gazette* shows that juries had been employed in the colony for the trial of criminal cases from the establishment of the Supreme Court in 1824. Juries remain as the tribunal for trying indictable criminal cases and there is a limited right to a jury in civil cases, although in 1935 they were abolished for the purpose of trying motor-accident cases.

Although the Tasmanian jury system was based on the English system, it has since 1934 embodied the principle of allowing *majority* decisions in certain circumstances instead of requiring the *unanimous* decisions once characteristic of jury usage in England and most other countries.

Civil cases have a seven-member jury and, if after three hours' deliberation a 7-0 decision cannot be reached, a 5-2 decision is accepted. If the minimum 5-2 decision cannot be reached after four hours, the jury may be discharged.

In criminal cases, similar principles apply except that a 10-2 decision is accepted in lieu of 12-0 after stipulated periods of deliberation. In the case of crimes punishable with death, 12-0 is necessary to convict, but 10-2 can bring in a verdict of not guilty, or not guilty of the capital crime, but guilty of a lesser crime. (*Capital punishment was abolished in 1968.*)

Description of Courts Having Jurisdiction in Tasmania

Courts of Petty Sessions

For particular municipalities in the State, there is a Court of Petty Sessions. The Court is constituted by a legally qualified police magistrate or by two or more lay justices sitting in Petty Session. In major centres of population, a Court sits regularly and, in smaller centres, a Court sits less frequently or is convened as occasion requires. A police magistrate has power to do alone whatever may be done by a Court of Petty Sessions and any other act which may be done by two or more justices in Petty Session. The prefix 'police' is traditional but the magistrate has no connection with the police force.

A Court of Petty Sessions has jurisdiction over all summary offences and also over certain indictable offences at the option of the defendant. Under the *Justices Act 1963*, a defendant may choose summary trial in the Court of Petty Sessions when charged with the following crimes: (a) Escape or rescue; facilitating escape of a prisoner or harbouring an offender; assisting escape of a criminal lunatic; rescuing goods legally seized; making a false declaration (or statement). (b) Stealing; killing an animal with intent to steal; unlawfully branding an animal; obtaining goods by a false pretence; cheating; fraud in respect of payment for work; receiving stolen property. (In all these cases the value of the property concerned must exceed \$20 but not \$400. If the value does not exceed \$20 the defendant will be tried summarily. If it exceeds \$400 he will be committed for trial in the Supreme Court.) (c) Breaking a building other than a dwelling-house. (It is necessary for the defendant to be committed to the Supreme Court for trial where it is alleged that in the commission of the offence: property to the value of more than \$400 has been stolen; violence has been used or offered to any person in or about the building; the person had in his possession a gun, pistol, dagger, cosh, or other offensive weapon; explosives were used; or the defendant intended to commit a crime other than stealing.) (d) Forgery; uttering. (The complaint must be for an offence in respect of a cheque for not more than \$400.)

The following table shows the number of cases tried in the lower courts over a five-year period. (Minor traffic offences settled without court appearance are excluded.)

Cases Tried in Lower Courts

Offence	1964	1965	1966	1967	1968
Offences Against the Person .. Males	455	754	640	779	786
.. Females	9	13	20	25	14
Offences Against Property (a) .. Males	2,471	3,588	3,558	3,604	3,937
.. Females	117	294	352	342	441
Offences Against the Currency .. Males	92	361	171	116	151
.. Females	4	9	100	73	72
Offences Against Good Order .. Males	1,494	1,985	1,957	1,804	1,819
.. Females	89	46	106	76	100
Offences Against Traffic Regulations .. Males	20,596	24,135	23,626	23,067	20,450
.. Females	971	1,188	1,479	1,391	1,264
All Other Offences (b) .. Males	4,981	7,082	9,197	10,098	8,906
.. Females	423	489	764	481	734
Total Offences .. Males	30,089	37,905	39,149	39,468	36,049
.. Females	1,613	2,039	2,821	2,388	2,625

(a) The increase in these offences may be partly due to amendments to the *Justices Act 1963*, which empowered lower courts to determine many cases which formerly would have been taken to the Supreme Court.

(b) Includes offences mainly against liquor, education, neglected children, revenue, and gambling suppression laws, desertion of wives and children, perjury and subornation, and conspiracy.

The following table shows cases tried and their results. (Minor traffic offences settled without court appearance are excluded.)

Lower Courts, 1968

Offence	Cases Tried	Results of Trials				
		Convictions	Committed to Higher Courts	Ad-journed Since Die	Dismissed or With-drawn(a)	Re-manded
MALES						
Offences Against the Person ..	786	497	81	82	109	17
Offences Against Property ..	3,937	2,712	533	396	268	28
Offences Against the Currency ..	151	114	25	5	5	2
Offences Against Good Order ..	1,819	1,393	2	207	208	9
Offences Against Traffic Regulations	20,450	16,695	4	1,706	2,034	11
All Other Offences (b)	8,906	6,774	5	822	1,303	2
Total	36,049	28,185	650	3,218	3,927	69
FEMALES						
Offences Against the Person ..	14	5	2	3	3	1
Offences Against Property ..	441	307	12	66	53	3
Offences Against the Currency ..	72	15	52	3	2	..
Offences Against Good Order ..	100	80	..	11	9	..
Offences Against Traffic Regulations	1,264	974	..	159	131	..
All Other Offences (b)	734	534	..	64	136	..
Total	2,625	1,915	66	306	334	4
PERSONS						
Total	38,674	30,100	716	3,524	4,261	73

(a) 'Dismissed' is equivalent to 'not guilty' in the higher courts.

(b) Includes offences mainly against liquor, education, neglected children, revenue, and gambling suppression laws, desertion of wives and children, perjury and subornation, and conspiracy.

Courts of Requests

These are constituted as courts with civil jurisdiction for particular municipalities in accordance with the authority given by the *Local Courts Act* 1896. Courts are held before a commissioner, who is a legally qualified practitioner of the Supreme Court and usually a police magistrate. The Attorney General and Commission fix the dates on which these courts sit.

Every Court has jurisdiction throughout the State but a plaintiff may lose costs if he brings his action in a Court other than the Court nearest to which the cause of action arose.

The jurisdiction of a Court of Requests, which is a court of record, covers all personal actions where the debt or damage claimed does not exceed the maximum amount fixed under the Act. Since 1 November 1966 the sum of \$1,500 has been fixed as the maximum jurisdiction for a Court of Requests in respect of a debt or liquidated sum, and \$1,000 in any other case.

The commissioner alone determines all questions of fact as well as of law and his decision is the judgement of the Court, unless a jury is required. In any action either party may require a jury as of right and there is power for the commissioner to order that an action be tried by a jury, even though neither party has required it.

Law and equity are administered concurrently in the Court and the general principles of practice in the Supreme Court are adopted and applied in cases not expressly provided for in the Act or Rules.

Courts of General Sessions

A Court of General Sessions with civil jurisdiction is constituted under the *Local Courts Act* 1896 for particular municipalities of the State. The cities are excluded, civil actions there being dealt with by Courts of Requests. A Court of General Sessions is constituted by a chairman (elected by the justices for the municipality) and at least one other justice. All questions are decided by a majority of the justices present and, if they are equally divided in opinion, the chairman has both a deliberative and casting vote. If there is business requiring its attention the Court sits at times fixed by the Attorney General.

A Court of General Sessions has jurisdiction to deal with civil proceedings of a minor nature and the limit of the Court's jurisdiction has been fixed at the sum of \$100.

Litigation in Civil Courts

The following table shows the number of complaints entered and writs issued in the lower and higher Tasmanian courts over a three-year period:

Litigation in Civil Courts

Particulars	1966		1967		1968	
	Number	Amount	Number	Amount	Number	Amount
Lower Courts—		\$'000		\$'000		\$'000
Complaints Entered	39,539	2,693	38,276	2,991	40,919	3,492
Verdicts for Plaintiff	17,383	1,196	17,165	1,314	17,857	1,524
Higher Courts—						
Writs Issued	1,759	n.a.	(a) 917	n.a.	1,135	n.a.

(a) The lower courts were given increased jurisdiction from 1 November 1966.

The Supreme Court of Tasmania

The Supreme Court of Tasmania is constituted by the Chief Justice and four Puisne Judges. Regular sittings of the Court are held at Hobart, Launceston and Burnie, although the Court is empowered to sit and act at any time and at any place for the exercise of any part of the jurisdiction and business of the Court.

The Court has jurisdiction over all causes, both civil and criminal, except those reserved to the High Court of Australia under the Commonwealth Constitution. It also exercises federal jurisdiction in matters such as matrimonial causes, bankruptcy, etc. Its civil jurisdiction extends to all causes of action, whatever the amount involved may be, and its criminal jurisdiction includes the trial of all indictable offences. In civil cases the Court has power to call in the aid of one or more assessors specially qualified to assist in the trial of the action, but is not bound by the opinion or advice of any such assessor.

There is an appeal to the Supreme Court of Tasmania from all inferior courts, and from many statutory tribunals.

Law and equity are administered concurrently in the Court which is enjoined to grant, either absolutely or on such terms and conditions as seem just, all such remedies as any of the parties may be entitled to so that, as far as possible, all matters in controversy between the parties may be completely and finally determined, and a multiplicity of legal proceedings avoided. The Judges, on the recommendation of the Rules Committee, are empowered to make rules regulating the practice and procedure of all proceedings in the Court.

The jurisdiction of the Court is usually exercised by a Judge of the Court and from his decision there is an appeal to the Full Court of the Supreme Court of Tasmania. A Full Court consists of two or more Judges of the Court. The Full Court is also a Court of Criminal Appeal under the Criminal Code. The latter is a Court to which appeals may be brought by the Crown or by an accused person where an indictable offence is involved. In some cases, there is an appeal as of right but, in other cases, special leave is required.

The following table shows the number of cases tried in the higher courts, and the number of convictions:

Supreme Court Actions, 1968

Offence	Cases Tried		Convictions	
	Males	Females	Males	Females
Offences Against the Person—				
Murder	4	..	4	..
Attempted Murder .. .. .	..	..	..	..
Manslaughter (including Offences arising from Traffic Accidents)	4	1	3	1
Robbery with Violence	4	..	4	..
Wounding and Grievous Bodily Harm	6	..	5	..
Aggravated Assault	2	..	2	..
Common Assault	2	..	2	..
Abduction	4	..	4	..
Abortion and Attempts to Procure .. .. .	..	..	..	..
Rape	4	..	4	..
Indecent Assault	6	..	6	..
Defilement and Unlawful Carnal Knowledge	26	..	26	..
Unnatural Carnal Knowledge	1	..	1	..
Indecent Practices between Male Persons	3	..	3	..
Incest	3	..	3	..
Dangerous Driving	9	..	7	..
Other Offences against the Person	1	..	1	..
Offences Against Property—				
Burglary or Housebreaking	55	..	55	..
Break a Building other than a Dwelling	52	..	47	..
Stealing from the Person	25	3	18	2
Embezzlement and Stealing by Servants	6	..	5	..
Receiving	6	..	5	..
Obtaining Goods by False Pretences	9	1	8	1
Arson	8	..	8	..
Injury to Property	2	..	1	..
Forgery and Offences Against the Currency—				
Forgery and Uttering Offences	8	4	8	3
Offences Against Good Order—				
Escape from Custody	1	..	1	..

Supreme Court Actions, 1968—*continued*

Offence	Cases Tried		Convictions	
	Males	Females	Males	Females
All Other Offences—				
Perjury and Subornation	2	..	1	..
Not Elsewhere Specified	4	..	4	..
Total (a)	257	9	236	7

(a) There are fewer Supreme Court cases tried than the number committed from the lower courts would lead one to expect. This is because: (i) *complaints* often embrace several *offences* in the lower courts; (ii) some cases are not proceeded with. Higher court cases often proceed under different offences' titles from those under which the lower court committals were made.

The following table shows the number of convictions in the higher courts over a five-year period:

Supreme Court Cases—Convictions

Offence	1964	1965	1966	1967	1968
Offences Against the Person	48	64	68	111	75
Offences Against Property (a)	111	97	133	137	147
Forgery and Offences Against the Currency	10	6	1	4	8
Offences Against Good Order	3	1	2	..	1
All Other Offences .. .. .	..	2	..	2	5
Total (a)	172	170	204	254	236

(a) A 1963 amendment to the Justice Act provides that if the amount involved in an offence against property was less than \$400, the defendant could elect to be tried in a magistrate's court.

The High Court of Australia

This Court was created by the Commonwealth Constitution and it has both original and appellate jurisdiction. It is constituted by the Chief Justice of Australia and six other Justices.

There is an appeal as of right to the High Court from the Supreme Court of the State in any civil matter where the sum involved amounts to at least \$3,000 or where the decision under appeal affects the status of any person under the laws relating to aliens, marriage, divorce, bankruptcy or insolvency. In other cases (including criminal cases) there is an appeal to the High Court if leave or special leave is granted.

Sittings of the High Court of Australia are held in each capital city and one sitting is held in Hobart each year if the volume of business warrants it. Tasmanian cases otherwise are usually heard either in Melbourne or Sydney.

Privy Council

An appeal lies direct from the Supreme Court to the Privy Council in a civil action where the amount involved is not less than \$2,000 and in other cases an appeal may be heard by special leave. Special leave may also be obtained to appeal to the Privy Council from a decision of the High Court of Australia. However, as from 1 September 1968 the High Court of Australia became the final court of appeal in all cases involving Commonwealth law (i.e. in litigation involving Commonwealth matters instituted after 31 August, there will be no right of appeal to the Privy Council).

Tribunals

There are many tribunals which are not true courts and the powers and functions of these depend upon the detailed provisions of the particular statute under which they operate. Certain specialised courts have been created by statute. For example, there is the Wardens' Court constituted under the *Mining Act 1929* and the Licensing Court constituted under the *Licensing Act 1932*.

Coroner's Courts

Coroners are appointed by the Governor and have jurisdiction throughout the State. Under the *Coroner's Act 1957*, a coroner may hold an inquest: (a) concerning the manner of death of any person who has died a violent or unnatural death, who died suddenly, or who died in a prison, hospital or mental institution; at the direction of the Attorney General, he may also be required to hold an inquest concerning any death; (b) concerning the cause of any fire if the Attorney General has directed, or has approved a request by the owner or insurer of the property; or at the request of the Fire Brigades Commission or the Rural Fires Board.

The coroner usually acts alone in holding an inquest, but in the case of a death, either the Attorney General or the relatives of the deceased may request that a four or six man jury be empanelled. The inquest may be dispensed with and post mortem by a doctor substituted, unless the circumstances of death make an inquest mandatory under the Act.

The duty of the court is to determine who the deceased was, and the circumstances by which he came to his death. Medical practitioners and other persons may be summoned to give evidence. Viewing of the body is not essential but in the case of the death of an infant in a nursing home, the coroner may also enquire generally into the conditions and running of the institution. On the evidence submitted at the inquest, the coroner can order a person to be committed to the Supreme Court and can grant bail. In the case of murder, a coroner can issue a warrant for apprehension.

Children's Courts

A 'child' in this jurisdiction is one under the age of 17 years and no proceedings can be instituted without the consent of the Director of Social Welfare. The Court, before finally disposing of the case, must receive a report from a child welfare officer, unless the Court considers the offence trivial or the Director decides not to provide one. A child's parent has the right to be heard and to examine and cross examine witnesses, or to be represented by counsel; also a parent can be compelled to attend the hearing if this imposes no unreasonable inconvenience.

In summary proceedings, the Court normally enters a conviction against a child only if it imposes a sentence of imprisonment but there may be special circumstances in some cases which persuade it to record a conviction.

Children under 16 years cannot be sentenced to imprisonment and children of 16 years cannot be sentenced for more than two years, in aggregate. Minimum penalties imposed by statute do not apply to children; for those under 14 years the maximum fine is \$20, and for those over 14 years, \$50. The Court may impose a supervision order to bring the child under the guidance of a child welfare officer or, if over 15 years, of a probation officer (welfare

officers *may* supervise children over 15 years if the Court so directs). Alternatively, the Court may declare the child a ward of the State, placing him under the control of the Director of Social Welfare until his 18th birthday, unless sooner released; it may also direct that a ward be committed to an institution.

Neglected or uncontrolled children are in the Court's jurisdiction; it may make a supervision order, impose wardship or bind the parents over to provide proper care and control, and comply with other directions. If parents have contributed to a child's offence, by failing to control the child, they may also be charged, convicted, fined, ordered to pay for damage and obliged to enter into a recognisance for the good behaviour of the child for up to 12 months.

Unlike a Children's Court, the Supreme Court is in no way inhibited in imposing a penalty on a child; in addition to its ordinary sentencing powers, it may make supervision or wardship orders, and commit a child to an institution. If a child is sentenced to imprisonment, the responsible Minister may direct that the sentence be served in a place other than a gaol.

Statistics of offences for which children were reported appear in this chapter under 'Department of Social Welfare'.

Bankruptcy

On 4 March 1968, the Federal *Bankruptcy Act* 1966-1968 (repealing the Act of 1924-1965) came into operation, the Federal Court of Bankruptcy still exercising jurisdiction only in N.S.W. and Victoria and the Supreme Court of Tasmania still exercising Federal jurisdiction within this State.

Under the new legislation, a person unable to meet his debts may voluntarily present to the Registrar in Bankruptcy a petition against himself and become a bankrupt under section 25; if the Registrar rejects the petition and refers it to the Court, he may be directed to accept it. A creditor may apply to the court for compulsory sequestration of a debtor's estate where the debt is not less than \$500. Where a debtor becomes bankrupt:

- (i) his property, not being after-acquired property, vests immediately in the Official Receiver in Bankruptcy;
- (ii) his after-acquired property vests in the Official Receiver in Bankruptcy, or if a private trustee has subsequently been appointed, then in that trustee.

A debtor may avoid sequestration, in some circumstances, by authorising a registered trustee to call a meeting of his creditors and take over the control of his property; or by authorising a solicitor to call a meeting of his creditors (Part X). The debtor's property is controlled by the trustee until the creditors resolve otherwise, or the Court orders otherwise, or a deed of assignment or arrangement is executed, or a composition is accepted, or the debtor dies or becomes bankrupt.

A person becoming bankrupt after the commencement of the new Act is discharged from bankruptcy after the expiration of five years (section 149) unless discharged earlier by the Court. Undischarged bankrupts at 4 March 1968 are discharged three years later (4 March, 1971) or five years from the date of the sequestration order, whichever is the later (unless discharged earlier by the Court). The Registrar, trustee or creditor may lodge an objection to this type of discharge, and if it is not withdrawn the debtor may apply to the Court for discharge under section 150.

The following table shows the number of bankruptcies and private arrangements together with the assets and liabilities of debtors:

Tasmania—Bankruptcy Proceedings (a)

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
Bankruptcies and Orders for Administration of Deceased Debtors' Estates—					
Number	92	103	69	71	100
Liabilities .. ..(\$'000)	340	810	297	299	602
Assets .. ..(\$'000)	163	202	165	101	247
Deeds of Assignment, Arrangement, Compositions and Schemes—					
Number	5	4	1	4	8
Liabilities .. ..(\$'000)	69	174	7	70	553
Assets .. ..(\$'000)	30	32	10	98	287
Total—					
Number	97	107	70	75	108
Liabilities .. ..(\$'000)	409	984	304	369	1,155
Assets .. ..(\$'000)	193	234	175	199	534

(a) Under legislation described in the 1968 *Year Book* (1964—4/3/68) and under legislation described herein (4/3/68-30/6/69).

Trade Practices Tribunal

The Commonwealth Parliament passed the *Trade Practices Act* 1965 'to preserve competition in Australian trade and commerce to the extent required by the public interest'; due to constitutional limitation of Commonwealth power, provision was made in the Act for co-operation between the Commonwealth and the States, the provision being that each State could adopt complementary legislation, if it so desired. In this way, practices in both interstate and intrastate trade would be subject to scrutiny. No State has so far enacted complementary legislation. However, Tasmania, by its *Commonwealth Powers (Trade Practices) Act* 1966, chose to make a constitutional reference to the Commonwealth, enabling the Commonwealth to extend the application in Tasmania of the Commonwealth Act; an amendment to the Commonwealth Act for such extension was made in 1967.

The Commonwealth Act deals with agreements and practices where an element of restriction is involved and defines which are 'examinable'. It establishes a Register of Trade Agreements to be kept by a Commissioner and obliges parties making examinable agreements to register them (certain agreements relating only to services are exempt). The Commissioner, on the basis of registered information, or of information from any other source, may consider an examinable agreement or a particular practice to contain restrictions *contrary to the public interest*, in which case he may institute proceedings before a Trade Practices Tribunal. It is the task of the Tribunal to determine whether the restrictions are contrary to the public interest; if this is the finding of the Tribunal, it has the power to make an order ending the practice, or restraining all or any of the parties from giving effect to, or enforcing or purporting to enforce, the restrictive agreement.

Where the Tribunal has made a determination regarding an agreement or practice, a party to the proceedings may apply to a Review Division of the Tribunal for an order directing that the determination be reconsidered. Part IX

of the Act makes it an offence to engage in collusive tendering or collusive bidding. Amendments in 1966 to the Commonwealth Act made provision among other things, for the control of the operations of shipping conferences. The Commonwealth Act operated from 1 September 1967.

The first proceedings of the Trade Practices Tribunal were commenced by the Commissioner on 29 January 1969 against Tasmanian Breweries Ltd for alleged monopolisation. On 6 May 1969 the Tribunal's power to deal with the case was challenged in the High Court. The case came before the High Court in November 1969; the Court reserved its decision and was to give a ruling early in 1970.

The Licensing Court

Prior to 1953 there were forty-nine licensing courts. The Licensing Courts had the right to hear and determine applications for the granting of hotel and club licences; to enforce the provisions of the Act with regard to the forfeiture of licences; to grant provisional hotel licences; and to hear objections against the granting of club licences. They each consisted of a police magistrate as chairman and two justices of the peace.

With a view to obtaining uniformity of standards and to improving accommodation throughout the State, amendments in 1952 were made to the *Licensing Act* 1932. These made provision for the appointment of a Licensing Court to consist of a police magistrate as chairman and two Government nominees. The Act also empowered the Court to determine the minimum standards of service, management, accommodation, structure and equipment which should apply to hotels, and also the qualifications required by persons holding or applying for licences. Since then the standard of hotels throughout Tasmania has continually improved.

The following table shows the total bedroom accommodation available to the public during recent years:

Standard of Accommodation—Hotels (a)

Date	Total Number of Bedrooms	Number of Bedrooms Furnished With—	
		Private Bath, Showers, Toilets and Hand-basins	Handbasins with Hot and Cold Running Water
31 Dec.—1957 ..	3,763	182	1,557
30 June—1962 ..	3,672	576	n.a.
1966 ..	3,814	758	2,999
1967 ..	3,599	937	2,164
1968 ..	r 3,552	955	r 2,142
1969 ..	3,525	1,073	2,020

(a) Includes licensed motels.

Every hotel in Tasmania is visited annually by a member of the Court and the Court's inspectors and the public health inspector make a thorough examination of each hotel prior to the annual sittings at which renewals of licences are considered. Reports are furnished for the information of the Court and the Tourist Department. An officer of the Fire Brigades Commission also carries out an annual inspection to ensure that each hotel complies with the requirements of the Commission.

The following table shows the licences and club registrations operative:

Licensed Hotels, Clubs and Other Licensed Dealers

At 30 June	Hotels and Motels	Public Houses (a)	Railway Refreshment Rooms	Wholesale Licences	Registered Clubs	Total
1965	270	5	2	28	130	435
1966	266	5	1	29	131	432
1967	265	5	1	29	134	(b) 435
1968	265	2	1	29	138	(b) 436
1969	261	2	1	29	145	(b) 439

(a) These licensed premises do not provide accommodation.

(b) Includes one Wine Licence (manufacturer's) not specified in table.

The Ogilvie ministry introduced 10 am to 10 pm bar trading hours before World War II and, in the post-war period, Tasmania's 10 pm closing contrasted with 6 pm closing in S.A., Victoria and N.S.W. However, N.S.W. in the 1950s and, more recently, Victoria liberalised their drinking laws so that S.A. was the only State with 6 pm closing in 1967 (when amending legislation was passed in that State).

In 1967, the Tasmanian *Licensing Act* was amended to allow 11.30 pm closing on Friday and Saturday nights for those hotels which desire to observe these hours and which obtain the necessary permits; 10 pm closing is now the rule for other nights (excluding Sunday) with provision nevertheless to obtain extension permits for special functions. The permitted age for drinking on licensed premises has been lowered from 21 to 20 years; restaurants complying with defined conditions can now obtain licences to sell liquor (previously diners could take their own liquor to certain restaurants, but not buy it on the premises); licensed restaurants can open till 11.30 pm six nights a week. The type of accommodation, kitchen specifications, etc. for licensed restaurants have to be of a very high order. Eleven licences had been issued by June 1969.

The following table shows the estimated consumption of alcoholic liquor in Tasmania over a five-year period:

Estimated Consumption of Beer, Wine and Spirits

Year	Beer		Wine		Spirits	
	Total	Per Head of Mean Population	Total (a)	Per Head of Mean Population	Total	Per Head of Mean Population
	'000 gallons	gallons	'000 gallons	gallons	'000 proof gallons	proof gallons
1963-64	6,609	18.05	427	1.17	140	0.38
1964-65	n.p.	n.p.	r 446	r 1.22	143	0.39
1965-66	n.p.	n.p.	r 472	r 1.28	147	0.39
1966-67	n.p.	n.p.	r 496	r 1.33	154	0.41
1967-68	n.p.	n.p.	r 513	r 1.35	154	0.41
1968-69	n.p.	n.p.	551	1.43	154	0.40

(a) Wholesale sales of resident distributors.

Comparative Australian consumption figures per head for 1967-68 were: beer, 25.7 gallons; wine, 1.7 gallons; spirits, 0.4 proof gallons.

Prisons

General

The establishment, regulation and conduct of prisons and the custody of prisoners in Tasmania are provided for under the *Prison Act* 1868 and 1908. Under the Act, a Controller of Prisons is appointed by the Governor and is responsible for the management of the main prison as well as the custody of prisoners.

Two justices are appointed each year to act as Visiting Justices. They visit the prison at least once per month to examine the treatment, behaviour and condition of prisoners, and the condition of the prison. They hear complaints with regard to offences committed in the gaol, and have power to punish offenders either by solitary confinement or by extending the term of imprisonment.

The main prison in Tasmania is at Risdon near Hobart, and has, as an outstation, the Prison Farm at Hayes in the Derwent Valley. The prison at Launceston is limited in function, receiving only persons on remand or sentenced for periods not exceeding seven days.

The following table shows Prisons Department expenditure from Consolidated Revenue:

**Prisons Department—Expenditure From Consolidated Revenue
(\$'000)**

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Total Expenditure	500	539	587	683	781
Net Receipts (a)	8	16	18	18	(b) 42
Net Expenditure	492	523	569	664	739

(a) From prison industry and gaol farm activities described later in the text.

(b) Includes \$29,000 paid to the Prisons Department from a special State fire insurance trust fund towards the cost of fire damage.

Prisoners Received and Discharged

In the following table giving details of prisoners received into and discharged from Tasmanian prisons, no distinction is made between those on remand and those convicted and sentenced to imprisonment. (Figures for H.M. Prison, Risdon, include those held in custody at the Hayes prison farm.)

Prisoners Received and Discharged, 1967-68

Particulars	H.M. Prison, Risdon		H.M. Prison, Launceston		Total	
	Males	Females	Males	Females	Males	Females
In Custody 30.6.67	299	5	1	..	300	5
Received 1967-68 ..	(a) 862	(a) 40	(b) 166	(b) 8	(c) 1,028	(c) 48
Discharged 1967-68	852	40	166	8	1,018	48
In Custody 30.6.68	309	5	1	..	310	5

(a) Includes transfers from H.M. Prison, Launceston: males 316; females 6.

(b) Excludes transfers to H.M. Prison, Risdon: males 316; females 6.

(c) *Net* receipts, i.e. transfers from Launceston to Risdon counted as Risdon receipts only.

Age of Prisoners

Young offenders account for a high and rising proportion of receivals, as in other countries. The proportion of male prisoners under 25 years *received* was 55 per cent in 1963-64; 59 per cent in 1964-65; this age group comprised 55 per cent of all *convicted* male prisoners in 1965-66; 57 per cent in 1966-67 and 58 per cent in 1967-68. The following table shows the age of convicted prisoners received:

Ages of Convicted Prisoners Received at Risdon Gaol, 1967-68

Sex	Age Group (in Years)								Total
	Under 18	18 and 19	20-24	25-29	30-39	40-49	50-59	60 and Over	
Males ..	74	145	189	82	88	90	26	7	701
Females ..	1	6	1	4	7	3	1	..	23
Total ..	75	151	190	86	95	93	27	7	724

Prisoners' Offences

Just over forty-one per cent of the offences for which people were gaoled in 1967-68 involved 'stealing' and 'breaking and entering'. The following table shows the offences for which convicted prisoners were received:

Offences for Which Convicted Prisoners Were Received at H.M. Prison, Risdon, 1967-68

Offence	Offences by—			
	Males	Females	Persons	
			Number	Proportion of Total
Stealing	477	9	486	per cent
Breaking and Entering .. .	232	1	233	28.0
Unlawful Use, Motor Vehicle .. .	96	1	97	13.4
Vagrancy .. .	74	6	80	5.6
False Pretences .. .	158	..	158	4.6
Housebreaking .. .	33	1	34	9.1
Breach of Bond .. .	32	1	33	2.0
Breach of Traffic Act .. .	22	..	22	2.0
Driving while Licence Suspended .. .	27	..	27	1.3
Driving without Licence .. .	27	..	27	1.6
Assault .. .	49	..	49	1.6
Failure to Pay Fine .. .	66	2	68	2.8
Damage to Property .. .	15	1	16	3.9
Assaulting Police Officer .. .	32	..	32	0.9
Receiving .. .	17	..	17	1.8
Indecent Assault .. .	16	..	16	1.0
Forgery .. .	14	..	14	0.9
Uttering .. .	12	..	12	0.8
Resisting Arrest .. .	20	..	20	0.7
All Other .. .	292	5	297	1.2
Total (a) .. .	1,711	27	1,738	17.1

(a) The number of offences exceeds the number of prisoners received since some prisoners were convicted of multiple offences.

The next table classifies convicted prisoners according to the number of their previous convictions:

Convicted Prisoners Received in H.M. Prison, Risdon, Classified According to Number of Previous Convictions (a), 1967-68

Particulars	Number of Previous Convictions				Total
	None	One	Two	Three or More	
Prisoners—					
Number Received	135	66	44	479	724
Proportion of Total (%) ..	18.6	9.1	6.1	66.2	100.0

(a) Previous convictions may not necessarily have involved imprisonment.

Parole and Remission of Sentences

Under the *Prison Act*, the Governor of the State may commute the death sentence to a term of imprisonment. The death sentence has not been carried out in Tasmania since 1946 (in 1968 *capital punishment was abolished*).

Good conduct remissions of up to 25 per cent of sentence for prisoners sentenced to over three months may be granted by the Governor of the State on the Controller's recommendation. Prisoners may also be paroled on licence for the balance of their sentences.

The Indeterminate Sentences Board is appointed by the Governor of the State to review cases of prisoners serving indeterminate sentences (i.e. those where no fixed sentence is specified and the duration is dependent on the prisoner's conduct, etc.). Such prisoners may be released on a two-year licence and are subject to any conditions the Board may recommend, e.g. the supervision of a probation officer.

The following summary table shows the number of prisoners under the supervision of the Indeterminate Sentences Board:

Prisoners with Indeterminate Sentences at H.M. Prison, Risdon

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Prisoners—					
Received During Year ..	25	18	16	11	15
Discharged During Year ..	25	24	13	12	19
In Custody at 30 June ..	16	10	13	12	8

Capital Punishment

The death sentence has not been carried out in Tasmania since 1946, but judges have pronounced the sentence from time to time; in October 1968, the Attorney-General introduced a bill to abolish capital punishment and this was passed by the Parliament in December of that year.

Risdon Gaol

The Risdon Gaol, with provision for 324 prisoners, was opened in November 1960, when male prisoners were transferred from the old Hobart Gaol. Subsequently, the Female Prison, the first entirely separate gaol for women to be built in the State, was opened in June 1963, also at Risdon. The

following table shows the daily average and highest number of prisoners in each year at Risdon Gaol over a five-year period:

Number of Prisoners at H.M. Prison, Risdon (a)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Prisoners—					
Maximum Number	260	273	276	340	352
Daily Average	238	236	239	292	323

(a) Includes Hayes Prison Farm with accommodation for 60 prisoners.

The Risdon Gaol incorporates workshops which serve as a basis for vocational and trade training in such subjects as woodworking, tailoring, sheet metal working, bootmaking and breadmaking. Educational services include instruction during working hours for illiterate and semi-literate prisoners; tuition, on two evenings weekly, in general academic subjects to Secondary Schools Certificate standard; correspondence courses in University, Matriculation, Schools Board and various technical and commercial subjects; tuition in English for migrants; and training three nights weekly in art and allied subjects. A classification committee interviews all prisoners on admission and decides on each individual's training programme.

Groups meet regularly for wood carving, art, pottery, toy making, chess and dramatics. Feature and documentary films are screened monthly, and concert parties visit the prison regularly. A comprehensive sports programme is conducted, including athletics, gymnastics, and competitions in cricket, volley ball and basketball.

The State Library of Tasmania helps with the prison library and library officers advise the prisoners on book selection each weekend; 5,000 volumes are immediately available, and a request programme operates. Over 650 books are borrowed from the library weekly.

Prison industries produce articles for government departments and institutions. The following table shows the receipts for prison industries over a five-year period. A new laundry installed in 1963 contributes to receipts from sales and services but the amounts are not a true indication of value to the government, as laundry is processed at a nominal figure for hospitals and other government institutions.

Gaol Suspense Account (Prison Industries)
(£)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Receipts (a)	58,881	66,818	73,246	89,604	70,094
Paid to Consolidated Revenue..	6,827	10,944	13,291	11,136	4,998

(a) Maintenance, material and capital charges are met from receipts, the balance being paid to Consolidated Revenue.

Hayes Prison Farm

The Prison Farm at Hayes ('Kilderry') is an outstation of the Risdon Prison. It aims to prepare men for a normal way of life through the operation of the honour system. Up to 60 prisoners who are regarded as being worthy of trust, regardless of their age, length of sentence or type of offence, are held here.

The following table shows the receipts from sale of farm produce and the amounts paid to Consolidated Revenue over a five-year period:

**Gaol Farm Suspense Account
(\$)**

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Receipts (a)	34,429	54,742	62,590	63,170	60,480
Paid to Consolidated Revenue . .	1,385	4,992	4,227	7,341	8,033

(a) Maintenance, material and capital charges are met from receipts, the balance being paid to Consolidated Revenue.

The 1,400 acre property has been developed into a model farm with a great diversity of farming activities. These include 65 acres for vegetables; a registered stud of Friesian cattle and Herefords; about 2,000 sheep for wool and fat lambs; a registered herd of Berkshire pigs; poultry; cropping of wheat, oats, lucerne and hay; breeding of children's ponies; hot house cultivation; and an experimental shrub and tree nursery, etc. An additional 310 acres of land was purchased near New Norfolk in May 1969. This property, about one mile north of the Hayes prison farm will function as an annex to the Hayes property. All prison requirements of milk and butter are met and the surplus is supplied to the Royal Derwent Hospital. Building construction activities and machinery maintenance workshops also provide employment, but that range of prison industries is more limited than at Risdon. Similar educational and recreational facilities are provided.

Adult Probation Service

The Service deals with the problems of re-settlement and re-employment of discharged prisoners. There is a counselling and guidance service so that ex-prisoners may be placed in occupations suited to their talents.

The Hobart and District Civic Rehabilitation Council, the Prisoners Aid Society, the City Mission, the Society of St Vincent de Paul, chaplains of the various Churches, and other voluntary aid organisations, give material and moral assistance to serving and discharged prisoners.

The Tasmanian Police Force

History

The evolution of the Tasmanian Police Force is described in the 1967 and 1968 *Year Books*.

The Present Force

Organisation: The Police Department is headed by the Commissioner who is responsible to the Minister for Police. There are four administrative divisions, i.e. Southern, Northern, North-Western and Central, each under the control of a superintendent; and two branches, the Criminal Investigation Branch and the Traffic Branch, each with a superintendent in charge.

Recruitment and Training: Recruits undergo an intensive twelve-week course of instruction which aims to present well informed and efficient police officers to the public. Not only must recruits be successful in the initial examinations, but they must also pass a retention exam if they wish to remain in the service. Officers must qualify by examination before promotion to each rank up to inspector. The Department has sponsored some officers' university courses; men are also sent to police colleges in Sydney and Melbourne.

Criminal Investigation: The Criminal Investigation Branch comprises approximately 130 police officers of whom about 100 are engaged in the active investigation of crime. The Branch also controls the Information Bureau (see *Fingerprinting* and *Laboratory* below) and communications.

Traffic Duties: The Department enforces the traffic regulations for the Transport Department. Traffic control occupies a large part of police time.

Search and Rescue: A search and rescue squad, based in Hobart, equipped for bush and sea search and rescue, cliff rescue, and resuscitation is ready to leave at short notice. The squad is supported by walking clubs and other people in various parts of the State.

Other Duties: Inspection of licensed premises, supervision of gaming, conducting special interviews and inquiries for government departments, and the service of notices and summonses are important police functions.

Radio: Radio is used extensively; since 1954 there has been a direct link-up with the continental States. An intrastate system operates between Hobart, Launceston, Burnie, Queenstown, Oatlands and Deloraine. Mobile radio is installed in all police cars and boats. A teleprinter allows direct contact with Interpol, an international police agency, and other States.

Fingerprinting: This is an important aid to criminal investigation. Each year some 2,000 sets of prints are received, checked with the Central Fingerprint Bureau in Sydney and classified. Over 100,000 sets are kept on file.

Laboratory: A modern laboratory equipped with a comparison microscope and other investigation facilities is used by Information Bureau experts for ballistic examination, inspection of documents, file marks, etc. and other evidence of criminal activity. Extensive use is made of photography.

Present Strength of Force

The following table shows the number of police and expenditure:

Police Force—Number and Cost

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Police Officers (a) .. (no.)	598	633	678	699	703
Persons Per Police Officer (a) .. (no.)	609	581	548	538	543
Cost (Total Expenditure of Police Department) .. \$'000	2,527	2,675	2,727	3,109	3,541
Cost Per Head of Mean Population (\$)	6.97	7.30	7.38	8.31	9.33

(a) At 30 June.

Civil Defence and Emergency Services

Introduction

In 1962, after discussions with the Commonwealth, the State Government agreed to participate in the establishment of a Tasmanian civil defence organisation as a part of an Australia wide civil defence service, designed to meet a war-time situation. However, the State Government decided to adapt the service to deal with natural disasters as well as war-time conditions.

Structure

Responsibility for establishing the service was divided between Commonwealth, State and local governments. Local government authorities are responsible for: (i) appointing local controllers who have the task of raising volunteer forces; (ii) sponsoring local volunteer groups. Participation by local government authorities is voluntary and at 1 July 1969, 39 municipalities had joined the scheme in Tasmania. Participating municipalities do not have to provide financial assistance but provide an area suitable for training purposes and facilities for storing equipment.

During peace-time, control of the State Civil Defence and Emergency Services is vested in the Chief Secretary as the Minister responsible for Emergency Service. The Director of Civil Defence and Emergency Services is responsible for the administration of the Service and for implementing government civil defence policy. In the case of war or attack by a foreign power the Civil Defence Service may be given statutory powers. At a time of natural disaster the organisation may be called into operation by a decision of State Cabinet and the Commissioner of Police assumes control of the State Service.

During the floods of May 1969 the Longford council called on the local civil defence unit to supervise and assist with removal and rescue operations.

Administrative Structure

Civil Defence administration in Tasmania is organised on a four tier basis: (i) municipal divisions; (ii) regions; (iii) areas and (iv) State headquarters. Each municipality constitutes a municipal division of which 39 are currently operational. The 'municipal divisions' are allocated on a geographical basis between nine 'regions' which in turn are attached to one of three 'areas'. At the apex of the structure is the State headquarters located in Hobart.

At present regional commands are bypassed and a direct link exists between the 'area' and the 'municipal division'.

Each area is administered by a full-time area co-ordinating officer who assists volunteer municipal controllers.

Recruitment and Training

By July 1969 approximately 1,000 persons had volunteered for service in the 39 municipal divisions.

Training is mainly undertaken at the municipal level while instruction courses for controllers, staff officers, instructors and heads of services are conducted at the Australian Civil Defence School located at Mt Macedon, Victoria.

Equipment and Finance

Protective clothing and operational equipment for the units of the various services up to the value of \$20,000 per annum are provided by the Commonwealth Directorate of Civil Defence. State appropriation for civil defence expenditure during 1968-69 was \$87,425.

Fire Prevention and Fire Fighting

Introduction

The area of Tasmania is 26,383 sq. miles (the equivalent of a square with 162-mile sides). Seventy per cent of the State's population is, in Census terms, *urban*, i.e. living in cities or towns with 1,000 or more inhabitants. The responsibility for fire prevention and fire fighting in the cities and main towns rests with local fire brigades under the general control of a central body, the Fire Brigades Commission of Tasmania.

The balance of the State's population (30 per cent) is, again in census terms, *rural*, i.e. living in townships with less than 1,000 inhabitants or in isolated locations such as farms, milling and logging settlements, mining camps, etc. This rural population is spread over a large area and the type of fire brigade organisation appropriate to concentrated, urban settlements cannot be employed; factors of distance, time and finance combine to demand a different mode of approach. The Tasmanian answer has been to set up local rural fire organisations and to co-ordinate their activities through a central body, the Rural Fires Board.

Following the disastrous bushfires of February 1967, the organisation of both types of fire-fighting body was closely examined and certain changes made with a view to securing better co-ordination and increased protection. The changes are described in the sections that follow.

A third relevant authority is the Forestry Commission which is responsible for the fire protection of State Forests and other forested Crown land; the Commission also fights fires on private land if their spread endangers the forests on Crown land.

Fire Brigades Commission of Tasmania

The Commission, established under the *Fire Brigades Act* 1945 as amended, is composed of two representatives of the Minister (the Chief Secretary), three representatives of insurance companies, one representative of city and municipal councils and one representative appointed by the Rural Fires Board. All urban brigades are under the control of a Chief Officer. The system of financing the fire brigades is shown below:

Fire Brigades: Principal Sources of Revenue, 1967-68

Contributions Received by Fire Brigades Commission From:	Receipts (\$)	Distribution Made by Fire Brigades Commission To:	Payments (\$)
State Government	182,155	Fire Brigade Boards	728,620
City and Municipal Councils ..	182,155		
Insurance Companies	364,310		
Total	728,620	Total	728,620

The number of contributing local government authorities in 1967-68 was 31, although the number of fire brigade boards was only 23 (some boards take responsibility for areas lying in more than one municipality, e.g. the Hobart Board with sub-stations in Glenorchy, Clarence and Kingborough). The present contribution formula requires 55 per cent from the insurance companies, and 22½ per cent each from the Government and the local government authorities; the Commission prepares an annual estimate of expenditure so that the level of contributions may be fixed in advance. The loan debt of all fire brigade boards at 30 June 1968 was \$426,652.

At 30 June 1968, the 23 fire brigade boards maintained 36 stations (including sub-stations) and employed 203 permanent firemen (Hobart 137, Launceston 54, Burnie 6, Devonport 6); other firemen, numbering 384, were paid on a part-time basis. In addition, one Hobart sub-station, Fern Tree, situated in forested mountain country, had a volunteer strength of 40. Including the Fern Tree volunteers, the total firemen (officers and men) in the Brigades numbered 627. The number of firemen employed has increased following a reduction of working hours from 56 to 40 hours in October 1967.

Rural Fires Board

Following the fire disaster of February 1967, an expert committee made recommendations to the Government with respect to future measures on fire prevention and suppression. The report proposed considerable changes in rural fire control and practically all of these were embodied in 1967 amendments to the *Rural Fires Act* 1950. The earlier constitution of the Rural Fires Board is described in the 1968 *Year Book*.

The new Act brings the separate urban and rural fire services and the State Emergency Organisation together under the Chief Secretary. The newly-constituted Rural Fires Board, under a chairman appointed by the Governor, consists of sixteen members representing: Forestry Commission (two members); Police; Fire Brigades Commission; pulp and paper making industry management; sawmilling industry management; Hydro-Electric Commission; Fire and Accident Underwriters' Association; Tasmanian Farmers' Federation; Tasmanian Farmers', Stockowners' and Orchardists' Association; Municipal Association (two members); Australian Workers' Union; Timber Workers' Union; and rural fire brigades.

Under the amended Act, the municipal councils are made responsible for the control of permits for fire use in restricted periods through permit officers (who are not necessarily employees of the councils). Fire use is controlled during only two periods, that is, during *fire danger periods*, when permits are required, and on days of *acute fire danger* when no fires are permitted. These periods are introduced and removed as the seasonal conditions dictate in various parts of the State. The Act requires each municipal council to form a municipal fire committee for the purpose of promoting the formation of rural fire brigades and advising the Board and the council on matters of fire restriction, hazard reduction, the provision of funds for purchase of equipment to be used by rural fire brigades and any other fire control matters. For approved equipment purchases for use by rural fire brigades, the Government contributes a subsidy equal to the sum provided by the municipal council. Areas with particular fire problems and sparse population may be declared as *special fire areas* and be the subject of separate schemes.

The paid staff of the Board consists of the State Fire Control Officer, the Secretary, a clerk and five Regional Fire Officers. There were 224 rural fire brigades at June 1969. These brigades are composed entirely of registered volunteers, involving 4,900 people. The Board's budget in 1968-69 was \$265,000 comprising: \$119,000 for administrative and field operational expenditure; \$101,000 paid in subsidies for equipment; \$15,000 for mapping and survey investigation and fire fighting in *special areas*; \$30,000 for fire fighting equipment, fire hazard reduction and preparation of access roads in the Hobart special fire area. Half the administrative expenditure of the Board is met by insurance companies insuring rural properties, and half by the Government.

Forestry Commission

The Commission is responsible for the protection of the 2.5m acres of State Forests and of other forested Crown land. Close liaison is maintained with the Rural Fires Board as two members of the 16 man Board are representatives from the Forestry Commission.

In its role as a fire prevention authority the Commission fought 230 fires at a cost of \$61,032 during 1967-68.

Chapter 10

LABOUR, PRICES AND WAGES

EMPLOYMENT

Historical

Although employment statistics are accepted as a vital economic indicator, Tasmanian records for the first ninety years give no dissection of the population such that the total number of wage and salary earners can be accurately ascertained. The first census to provide the necessary analysis was that of 1891, the categories used on that occasion and in subsequent censuses being broadly comparable. The composition of the work force is shown in the following table for each census from 1901 to 1961:

Elements of Work Force in Censuses of 1901-1961

Census Year	Employer	Self-Employed	Employee	Helper not Receiving Wage or Salary	'Not at Work' (a)	Total in Work Force	Total Population
1901—Males ..	6,213	9,100	36,063	4,098	1,810	57,284	89,624
Females	462	2,434	10,229	2,071	356	15,552	82,851
Persons	6,675	11,534	46,292	6,169	2,166	72,836	172,475
1911—Males ..	8,477	6,742	40,555	3,916	1,492	61,182	97,591
Females	642	1,249	10,715	411	326	13,343	93,620
Persons	9,119	7,991	51,270	4,327	1,818	74,525	191,211
1921—Males ..	4,445	13,309	42,763	1,875	3,606	65,998	107,743
Females	347	1,593	11,484	67	510	14,001	106,037
Persons	4,792	14,902	54,247	1,942	4,116	79,999	213,780
1933—Males ..	7,277	11,887	38,084	1,752	10,226	69,226	115,097
Females	798	1,423	13,082	116	1,442	16,861	112,502
Persons	8,075	13,310	51,166	1,868	11,668	86,087	227,599
1947—Males ..	6,718	12,522	58,097	997	1,867	80,201	129,244
Females	659	1,198	17,693	86	481	20,117	127,834
Persons	7,377	13,720	75,790	1,083	2,348	100,318	257,078
1954—Males ..	6,886	12,616	72,481	778	1,215	93,976	157,129
Females	788	1,329	21,590	246	279	24,232	151,623
Persons	7,674	13,945	94,071	1,024	1,494	118,208	308,752
1961—Males ..	7,108	11,619	78,863	505	3,194	101,289	177,628
Females	1,113	1,572	25,853	194	896	29,628	172,712
Persons	8,221	13,191	104,716	699	4,090	130,917	350,340

(a) Includes those who stated they were usually engaged in work, but were not actively seeking a job at the time of the census by reason of sickness, accident, etc., or because they were on strike, changing jobs, temporarily laid off, etc. It also includes persons able and willing to work but unable to secure employment, as well as casual and seasonal workers not actively engaged in a job at the time of a census.

Work Force and Employment

It is essential to distinguish between 'work force' and 'employees' since *employment* statistics in this chapter relate mainly to wage and salary earners. Wage and salary earners, however, *are only one component of the work force* which also comprises employers, self-employed persons, unpaid helpers and unemployed persons. The category 'not at work' shown in the preceding table was first established in the 1947 Census and the comparison with earlier years is approximate only. For further details, see subsequent section headed 'Unemployment'. Data from the 1966 Census could not be included in the table because of a new method of collecting information in that year; the 1966 data are shown in the next section.

Work Force, 1966 Census

In the 1966 Census, a new set of questions (based on activity in the week before the Census) was asked to establish who should be included in the work force. The composition was as follows:

Elements of Work Force, 1966 Census

Sex	Employer	Self-Employed	Employee	Unpaid Helper	Un-employed	Total in Work Force	Total Population
Males	8,245	9,162	87,572	432	1,146	106,557	187,390
Females	1,759	1,644	35,451	940	971	40,765	184,045
Persons	10,004	10,806	123,023	1,372	2,117	147,322	371,435

The essential difference between the pre-1966 approach to work force and the 1966 approach was this: in pre-1966 censuses, people were invited to classify themselves (e.g. as unemployed, employee, etc.); in the 1966 Census, people were invited to describe their *activity* in a specific week and the Statistician, using pre-determined definitions, classified them on the basis of their answers.

Briefly, the new questions asked whether the person: (i) Had a job or business of any kind last week (even if temporarily absent from it)? (ii) Did any work at all last week for payment or profit? (Unpaid helpers who worked were to answer *yes*.) (iii) Was temporarily laid off by his employer without pay for the whole of last week? (iv) Looked for work last week? (Ways of 'looking for work' were specified on the Census form.)

The 1966 work force includes all persons answering *yes* to any one of these four questions. The effect of the new definition is to include additional persons in the work force. This applies particularly to those working part-time (sometimes for only a few hours a week), some of whom in 1961 may not have considered themselves as '... engaged in an industry, business, profession, trade or service.' The main difference in classification between the 1901-1961 table and the 1966 table is the substitution of the category 'unemployed' for the former category 'not at work'.

The total of persons recorded as unemployed in 1966 was compiled from persons answering *no* to questions (i), (ii) and (iii) and *yes* to question (iv).

Monthly Series of Employment Statistics

In this chapter, it is intended to show employment details as from June 1958. The series is based on comprehensive data (referred to as 'benchmarks') derived from the Censuses of June 1954 and June 1961. Figures for periods

between and subsequent to the two benchmark points of time are estimates obtained from three main sources, namely: (a) current pay-roll tax returns; (b) current returns from government bodies; (c) some other direct current records of employment (e.g. for hospitals), supplemented by estimates of the change in the number of wage and salary earners not covered by the foregoing collections. (The pre-1954 series used, as a benchmark, the Census of 1947.)

The benchmark figures are derived from particulars recorded for individuals on population census schedules, whereas the estimated monthly figures are derived mainly from reports supplied by employers, relating to enterprises or establishments. These two sources differ, in some cases, in scope and in reporting of industry; however, the industry dissection of the benchmark total has been adjusted, as nearly as may be, to an enterprise or establishment reporting basis. The industry classification used throughout the series is that of the Census of June 1961.

Pay-roll tax returns are lodged at present by all employers paying more than \$400 a week in wages (other than certain Commonwealth Government bodies, religious and benevolent institutions, public hospitals and other similar organisations specifically exempted under the *Pay-roll Tax Assessment Act 1941-1968*). At 30 June 1954 this Act required employers paying wages of more than \$160 a week to lodge returns. The exemption limit was raised to \$240 a week from 1 September 1954 and to the present level of \$400 a week as from 1 September 1957.

It should be noted employees in rural industry and in private domestic service are not included in the estimates because of the inadequacy of current data. The terms 'Employment', 'Number Employed', 'Employees' and 'Wage Earners' used throughout are synonymous with, and relate to, 'Wage and Salary Earners' on pay-rolls or in employment in the latter part of each month, as distinct from numbers of employees actually working on a specific date. They include some persons working part-time.

Figures for current months are subject to revision. As they become available, particulars of employment obtained from other Bureau collections, such as the annual factory census and the censuses and sample surveys of retail establishments, are used to check and, where necessary, to revise estimates in relevant sections. Now that the results of the Census of 30 June 1966 are available it will be possible, with 1961 and 1966 benchmarks, to revise the series.

The following table gives estimated totals for employees in Tasmania at June and December of each year:

Wage and Salary Earners in Civilian Employment, June and December
(Excluding Employees in Rural Industry and Private
Domestic Service, and Defence Forces)
(^{'000})

Year	June			December		
	Males	Females	Persons	Males	Females	Persons
1958	69.5	22.9	92.4	70.0	22.7	92.7
1959	70.4	23.2	93.6	71.8	23.7	95.5
1960	72.6	24.5	97.1	74.1	25.1	99.2
1961	73.2	24.9	98.1	73.6	24.8	98.4
1962	73.6	25.5	99.1	75.0	25.4	100.4
1963	74.9	25.5	100.4	76.9	26.7	103.6
1964	77.4	27.1	104.5	77.9	27.7	105.6
1965	78.4	28.1	106.5	80.4	29.5	109.9
1966	81.1	29.8	110.9	82.6	r 30.5	r 113.1
1967	82.7	30.9	113.6	83.7	31.4	115.1
1968	84.3	31.9	116.2	85.8	32.0	117.8

The detailed study of employment trends requires examination of monthly figures, so the next table has been compiled to show totals of employees for each month:

**Wage and Salary Earners in Civilian Employment, Monthly Estimates
(Excluding Employees in Rural Industry and Private Domestic Service, and Defence Forces)
(*000)**

Month	Males			Females			Persons		
	1966	1967	1968	1966	1967	1968	1966	1967	1968
January ..	80.3	82.7	84.0	29.4	30.3	31.5	109.7	113.0	115.5
February ..	80.8	82.8	84.3	29.4	30.5	31.6	110.2	113.3	115.9
March ..	81.3	83.1	84.2	29.8	31.0	32.1	111.1	114.1	116.3
April ..	81.3	83.2	84.5	29.9	31.2	32.2	111.2	114.4	116.7
May ..	81.5	83.0	84.8	29.9	31.2	32.1	111.4	114.2	116.9
June ..	81.1	82.7	84.3	29.8	30.9	31.9	110.9	113.6	116.2
July ..	80.7	82.3	84.1	29.7	30.5	31.5	110.4	112.8	115.6
August ..	81.1	82.3	84.2	29.6	30.4	31.3	110.7	112.7	115.5
September ..	81.0	82.4	84.2	29.5	30.4	31.3	110.5	112.8	115.5
October ..	81.3	82.1	84.5	29.8	30.5	31.0	111.1	112.6	115.5
November ..	82.0	82.5	84.8	29.9	30.8	31.1	111.9	113.3	115.9
December ..	82.6	83.7	85.8	30.5	31.4	32.0	113.1	115.1	117.8

Civilian Employees of Government Bodies

In Tasmania, as in other Australian States, a relatively high proportion of wage and salary earners is employed by government bodies operating at four levels: Commonwealth, State, Local and Semi-Government (with the complication that semi-government authorities may have been created by either the Commonwealth or the State). For the purposes of these statistics, government employees include persons working on government services such as railways, tramways, banks, post offices, power and light, air transport, education (including universities), broadcasting, television, police, public works, government factories, departmental hospitals and institutions, etc., as well as those engaged in administrative services.

The following table shows the number of government employees in Tasmania according to the level of government:

**Civilian Employees of Government Bodies at 30 June
(*000)**

Year and Sex	Level of Government			Total
	Commonwealth Government (a)	State Government (a)	Local Government	
1966—Males ..	4.9	17.9	2.2	25.0
Females	1.5	4.8	0.2	6.5
Persons	6.4	22.7	2.4	31.5
1967—Males ..	4.9	18.0	2.3	25.3
Females	1.5	5.0	0.2	6.8
Persons	6.4	23.1	2.5	32.1
1968—Males ..	5.0	18.6	2.3	25.9
Females	1.5	5.3	0.3	7.1
Persons	6.5	23.9	2.6	33.0

(a) Includes semi-government bodies.

The next table shows employees according to private and government sectors:

Total Civilian Employees of Private Employers and Government Bodies at 30 June ('000)

Year	Males Employed By		Females Employed By		Persons Employed By	
	Private Employers	Govt Bodies	Private Employers	Govt Bodies	Private Employers	Govt Bodies
1958	47.4	22.1	17.8	5.1	65.2	27.2
1959	48.1	22.3	18.0	5.2	66.1	27.5
1960	50.3	22.3	19.1	5.4	69.4	27.7
1961	51.3	21.9	19.4	5.5	70.7	27.4
1962	51.2	22.4	20.0	5.5	71.2	27.9
1963	51.7	23.2	19.6	5.9	71.3	29.1
1964	53.6	23.9	21.0	6.0	74.6	29.9
1965	54.1	24.4	21.7	6.3	75.8	30.7
1966	56.1	25.0	23.3	6.5	79.4	31.5
1967	57.3	25.3	24.1	6.8	81.4	32.1
1968	58.4	25.9	24.8	7.1	83.2	33.0

Industrial Classification of Employees

In the following table, wage and salary earners in civilian employment are classified according to industry:

Wage and Salary Earners in Civilian Employment: Industry Groups and Sub-Groups, June 1968

(Excluding Employees in Rural Industry and Private Domestic Service, and Defence Forces)
(‘000)

Industry Group and Sub-Group	Males	Females	Persons
Forestry, Fishing and Trapping	1.0	..	1.0
Mining and Quarrying	3.8	0.1	3.9
Manufacturing	26.7	6.9	33.5
Electricity, Gas, Water and Sanitary Services	3.5	0.3	3.8
Building and Construction	10.8	0.2	11.0
Transport and Storage—			
Road Transport and Storage	2.4	0.2	2.6
Shipping and Stevedoring	2.3	0.1	2.4
Rail and Air Transport	1.8	0.1	1.9
Total	6.4	0.4	6.8
Communication	3.0	0.8	3.8
Finance and Property—			
Banking	1.4	0.8	2.2
Other	1.5	1.1	2.6
Total	2.9	1.9	4.8
Commerce—			
Retail Trade	7.0	5.9	12.9
Wholesale and Other Commerce	5.7	0.9	6.6
Total	12.7	6.8	19.5
Public Authority Activities (n.e.i.)	4.8	1.6	6.3
Other Industries—			
Health, Hospitals, etc.	1.5	4.8	6.3
Education	2.7	3.9	6.6
Amusement, Hotels, Personal Service, etc.	2.2	2.9	5.1
Other (a)	2.4	1.3	3.6
Total	8.7	12.9	21.6
Grand Total	84.3	31.9	116.2

(a) Comprises Law, Order and Public Safety; Religion and Social Welfare; Other Community and Business Services.

The analysis of wage and salary earners by industry groups clearly indicates 'manufacturing' as the predominant activity. Unfortunately, employees in rural industry are excluded from the series so it is not possible to compare employment in primary, secondary and tertiary industries on the basis of the data appearing in the table. ('Employment on Rural Holdings' is described in Chapter 6 but the seasonal character of this work makes it difficult to estimate the level of rural employment in any given month.) Attention is drawn to the relatively minor level of employment in 'Public Authority Activities (n.e.i.)'; the civilian employees of government bodies shown in a previous table have been classified according to their appropriate industry group (e.g. transport, communication, health, education, etc.) and only those not included in a specified group appear in this item.

Industrial Classification of the Work Force and of Employees

The Census of 30 June 1966 provides an analysis of the total *work force* (including those engaged in rural industry); the percentage in each broad category was as follows: *primary production* (fishing, hunting, rural industries, forestry), 11.69; *mining and quarrying*, 2.29; *manufacturing*, 23.05; *electricity, gas, water and sanitary services*, 2.72; *building and construction*, 9.70; *transport and storage*, 6.01; *communication*, 2.64; *finance and property*, 3.10; *commerce* (wholesale and retail), 15.59; *public authority (n.e.i.) and defence services*, 3.73; *community and business services (including professional)* (e.g. schools, hospitals, etc.), 11.87; *amusement, hotels and other accommodation, cafes, personal service, etc.*, 5.62; *industry not stated*, 1.99; *total*, 100.00.

As previously explained, wage and salary earners are only one part of the work force but the analysis in the previous paragraph indicates the importance of tertiary industry in today's community. If the *primary* group is combined with *mining and quarrying*, only 14 per cent of the work force was engaged in the extraction of raw materials; a further 23 per cent was engaged in manufacturing. In other words, less than 40 per cent of the work force was engaged in primary and secondary industries as defined for statistical purposes.

The next table specifies the main industrial groups and shows the industrial classification of *civilian employees* at annual intervals:

Wage and Salary Earners in Civilian Employment: Main Industry Groups

(Excluding Employees in Rural Industry and Private Domestic Service, and Defence Forces)
(^{'000})

June	Mining and Quarrying	Manufacturing (a)	Building and Construction	Transport, Storage and Communication	Retail Trade	Wholesale Trade, etc; Finance, Property	Public Authority (n.e.i.); Community Services, etc. (b)	Amusement, Hotels, Personal Service, etc.
MALES								
1963	3.2	23.5	9.9	9.1	6.5	7.7	9.2	1.8
1964	3.1	24.1	10.1	9.3	6.8	8.3	9.5	1.9
1965	3.1	24.5	10.1	9.2	6.9	8.3	10.0	1.9
1966	3.1	25.5	10.7	9.4	6.8	8.5	10.6	2.0
1967	3.2	26.2	11.1	9.3	6.6	8.6	10.9	2.1
1968	3.8	26.7	10.8	9.4	7.0	8.6	11.3	2.2

Wage and Salary Earners in Civilian Employment: Main Industry Groups

(Excluding Employees in Rural Industry and Private Domestic Service, and Defence Forces)—continued

('000)

June	Mining and Quarrying	Manufacturing (a)	Building and Construction	Transport, Storage and Communication	Retail Trade	Wholesale Trade, etc; Finance, Property	Public Authority (n.e.i.); Community Services, etc. (b)	Amusement, Hotels, Personal Service, etc.
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FEMALES

1963	0.1	5.2	0.1	1.1	5.0	2.2	9.3	2.2
1964	0.1	5.8	0.2	1.1	5.2	2.3	9.6	2.5
1965	0.1	5.9	0.2	1.2	5.4	2.4	10.0	2.6
1966	0.1	6.6	0.2	1.2	5.7	2.6	10.5	2.7
1967	0.1	6.9	0.2	1.2	5.7	2.6	11.0	2.9
1968	0.1	6.9	0.2	1.2	5.9	2.8	11.6	2.9

PERSONS

1963	3.3	28.7	10.1	10.2	11.5	9.9	18.5	4.0
1964	3.2	29.9	10.3	10.4	12.0	10.6	19.1	4.4
1965	3.2	30.4	10.3	10.4	12.3	10.7	20.0	4.5
1966	3.2	32.1	10.9	10.7	12.5	11.1	21.1	4.7
1967	3.3	33.1	11.3	10.6	12.4	11.1	22.0	5.0
1968	3.9	33.5	11.0	10.6	12.9	11.4	22.8	5.1

(a) Includes employees engaged in selling and distribution, etc. as well as those occupied directly in manufacturing activities.

(b) Includes Law and Order, Religion and Social Welfare, Health Services, Education and Other Community and Business Services.

UNEMPLOYMENT

Historical

The total of persons 'unemployed' has been recorded by the Bureau of Census and Statistics at the dates of successive population censuses. The measurement of unemployment is complicated by definitional problems since persons normally in the work force, but not having a job at the time of a census, may be in this position for reasons other than those associated with scarcity of employment. The following table records data from the Censuses of 1921 and 1933:

Work Force and Unemployment, Censuses of 1921 and 1933

Particulars	Census, 4 April 1921			Census, 30 June 1933		
	Males	Females	Persons	Males	Females	Persons
Work Force (a) ..	65,998	14,001	79,999	69,226	16,861	86,087
'Unemployed' ..	3,606	510	4,116	10,226	1,442	(b) 11,668
'Unemployed' as Percentage of Work Force ..	5.5	3.6	5.1	14.8	8.6	13.6

(a) Comprises employers, self-employed, employees, helpers and unemployed.

(b) Excludes 4,944 persons (4,193 males) employed part-time, including those on sustenance or relief work. Such persons were classified as employees.

Those describing themselves as unemployed were further invited to state the cause. The result from the Census of 1933 is quoted below:

Causes of Unemployment, Census of 30 June 1933

Cause of Unemployment	Number			Proportion of Total (Per cent)		
	Males	Females	Persons	Males	Females	Persons
Scarcity of Employment	8,883	1,002	9,885	86.9	69.5	84.7
All Other Causes (a)	1,343	440	1,783	13.1	30.5	15.3
Total ..	10,226	1,442	11,668	100.0	100.0	100.0

(a) Includes sickness, accident, industrial dispute, voluntarily idle and cause not stated.

From the 1947 Census onwards, the enquiry was broadened to include all persons (usually engaged in industry, business, trade, profession or service) who were out of a job and 'not at work' at the time of the census for whatever reason, including reasons not normally associated with unemployment.

'Not at Work'

In the next table, a summary is made of data from the Censuses of 1947, 1954 and 1961, the principal comparison being the respective levels of the work force and of those classified 'Not at Work'.

As previously defined, 'Not at Work' includes those who stated that they were usually engaged in work but were not actively seeking a job at the time of the census by reason of sickness, accident, etc. or because they were on strike, changing jobs or temporarily laid off, etc. It includes also persons able and willing to work but unable to secure employment, as well as casual and seasonal workers not actually in a job at the time of the census. The numbers shown as 'Not at Work', therefore, do not represent the number of unemployed available for work and unable to obtain it.

The term 'Not at Work' does not apply to those who had a job but happened to be absent from it at census date due to sickness or leave.

Work Force and Persons 'Not at Work'
Censuses of 30 June 1947, 1954 and 1961

Year and Sex	Work Force (a)	Persons 'Not at Work'	
		Number	Proportion of Work Force (Percent)
1947—Males	80,201	1,867	2.3
Females	20,117	481	2.4
Persons	100,318	2,348	2.3
1954—Males	93,976	1,215	1.3
Females	24,232	279	1.2
Persons	118,208	1,494	1.3
1961—Males	101,289	3,194	3.2
Females	29,628	896	3.0
Persons	130,917	4,090	3.1

(a) Comprises employers, self-employed, employees, helpers and those 'not at work'.

'Unemployed' (1966)

In the 1966 Census, the following new question was asked: Did the person look for work last week? Answer *yes* or *no*. (*Note: 'Looking for work' means (i) being registered with the Commonwealth Employment Service, or (ii) approaching prospective employers, or (iii) placing or answering advertisements, or (iv) writing letters of application, or (v) awaiting the result of recent applications.*)

After the exclusion of persons who were already employed, but who were seeking alternative employment, the following data were obtained from this new approach:

Work Force and Unemployed Persons, 1966 Census

30 June	Work Force	Unemployed	
		Number	Proportion of Work Force (Percent)
Males	106,557	1,146	1.1
Females	40,765	971	2.4
Persons	147,322	2,117	1.4

It should be noted that 'not at work' in the 1947-1961 table is different in concept from the 'unemployed' category in the 1966 table.

Registrations With Commonwealth Employment Service

The Commonwealth Employment Service (C.E.S.) was established by Federal legislation under Section 47 of the *Re-establishment and Employment Act 1945*, and under the *Social Services Legislation Declaratory Act 1947*. The principal function of this service is to provide facilities in relation to employment for the benefit of persons seeking to change or obtain employment, or seeking to engage labour, and to provide facilities to assist in bringing about a high and stable level of employment throughout the Commonwealth.

The C.E.S. functions within the Employment Division of the Department of Labour and National Service on a decentralised basis. The central office is in Melbourne and there is a regional office in Hobart with district employment offices in Hobart, Launceston, Devonport and Burnie, and agencies at Smithton and Huonville.

All applicants for unemployment benefits provided under the Commonwealth *Social Services Act 1947-1968* must register at a district employment office or agency of the C.E.S. which is responsible for certifying whether or not suitable employment is available. Claims for unemployment benefits are paid by the Department of Social Services; country residents remote from an employment office or agency may claim by mail.

The establishment of the C.E.S. created two new methods of measuring fluctuations in unemployment:

- (1) the number of persons registered for employment with the C.E.S. at the end of each month; and
- (2) the number of persons receiving unemployment benefit from the Department of Social Services at the end of each month.

'Registered for Employment'

In the following table, the persons shown are those who claimed, when registering with the C.E.S., *that they were not employed* and who were recorded

on the last Friday in the month as unplaced. The count includes those referred to employers and those who may have obtained employment without notifying the C.E.S.; persons receiving unemployment benefit are included.

**Persons Registered for Employment With Commonwealth Employment Service
At June and December of Each Year (a)**

Year	On Register, June (a)			On Register, December (a)		
	Males	Females	Persons	Males	Females	Persons
1959	1,373	736	2,109	1,108	726	1,834
1960	1,389	815	2,204	1,581	1,371	2,952
1961	2,328	885	3,213	3,136	2,150	5,286
1962	2,476	1,133	3,609	2,956	2,356	5,312
1963	2,112	1,315	3,427	2,713	2,210	4,923
1964	1,812	1,156	2,968	1,860	1,598	3,458
1965	1,260	975	2,235	1,426	1,350	2,776
1966	849	846	1,695	1,447	1,260	2,707
1967	1,157	959	2,116	1,716	1,348	3,064
1968	1,145	943	2,088	1,786	1,314	3,100
1969	1,305	815	2,120			

(a) Recorded as unplaced on the Friday nearest the last day of the month.

In interpreting the level of registration, account should be taken of the fact that registration is a *voluntary act*. Thus, whilst an increase in registrations may normally be taken to indicate an increase in unemployment, theoretically, at least, it could merely indicate wider use of the facilities offered by the C.E.S.

The table that follows has been compiled to show the number registered for employment at the end of each month. The monthly figures are subject to pronounced seasonal influences, the most obvious being the effect of school-leavers on registrations in December and January.

**Persons Registered for Employment With Commonwealth Employment Service
At End of Each Month**

Month (a)	1967			1968			1969		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
January ..	1,570	1,452	3,022	1,679	1,494	3,173	1,934	1,405	3,339
February ..	1,456	1,408	2,864	1,114	1,276	2,390	1,397	1,231	2,628
March ..	913	1,107	2,020	714	921	1,635	1,057	1,103	2,160
April ..	807	952	1,759	733	981	1,714	1,092	865	1,957
May ..	1,059	883	1,942	1,017	905	1,922	1,247	809	2,056
June ..	1,157	959	2,116	1,145	943	2,088	1,305	815	2,120
July ..	1,347	869	2,216	1,117	816	1,933	1,407	821	2,228
August ..	1,260	893	2,153	1,195	826	2,021	1,388	782	2,170
September ..	1,214	882	2,096	1,066	826	1,892	1,326	775	2,101
October ..	933	805	1,738	1,058	758	1,816	1,041	761	1,802
November ..	961	1,000	1,961	1,825	1,522	3,347			
December ..	1,716	1,348	3,064	1,786	1,314	3,100			

(a) At Friday nearest last day of month.

Persons Receiving Unemployment Benefit

It is possible for a person to register as unemployed but make no claim for unemployment benefit. On the other hand, a person claiming unemployment benefit is required to register for employment. The next table gives details of persons receiving unemployment benefit each month:

Monthly Number of Persons Receiving Unemployment Benefit (a)

Month (a)	1962	1963	1964	1965	1966	1967	1968	1969
January ..	1,385	1,186	1,191	876	404	452	536	648
February ..	1,225	1,093	1,159	828	312	388	474	543
March ..	913	964	885	542	217	334	361	332
April ..	1,093	1,106	907	538	219	315	396	410
May ..	1,199	1,272	1,171	728	311	380	456	499
June ..	1,778	1,777	1,399	926	433	526	635	600
July ..	1,937	1,995	1,702	937	512	597	642	714
August ..	2,018	1,948	1,732	813	494	620	667	681
September ..	1,827	1,939	1,595	763	470	533	615	628
October ..	1,588	1,669	1,395	557	453	419	565	549
November ..	1,580	1,447	1,115	484	404	432	575	
December ..	1,432	1,173	1,060	465	434	536	658	

(a) Number at the last Saturday of month. Source: Department of Social Services.

The number of males and females in receipt of unemployment benefit is shown for June of each year:

Persons Receiving Unemployment Benefit (a) At June.

Particulars	1961	1962	1963	1964	1965	1966	1967	1968
Males ..	1,060	1,343	1,123	905	517	224	325	334
Females ..	276	435	654	494	409	209	201	301
Persons..	1,336	1,778	1,777	1,399	926	433	526	635

(a) Number at the last Saturday of June in each year. Source: Department of Social Services.

Comparison of Unemployment Data

The following table shows those classified as 'Not at Work' at the Census of 1961, those unemployed at the Census of 1966 and also other measures of unemployment:

Unemployed Persons, Persons Registered for Employment and Persons Receiving Unemployment Benefit, 1961 and 1966

Particulars	June 1961			June 1966		
	Males	Females	Persons	Males	Females	Persons
CENSUS OF 30 JUNE						
Unable to Secure Employment (a)	2,085	507	2,592	1,146	971	2,117
Temporarily Laid Off	376	81	457	}	n.a.	n.a.
Illness	398	156	554			
Accident	106	10	116			
Industrial Dispute.. ..	4	1	5			
Other	225	141	366			
Total 'Not at Work'	3,194	896	4,090	n.a.	n.a.	n.a.

DEPARTMENT OF LABOUR AND NATIONAL SERVICE

Registered for Employment (b) ..	2,328	885	3,213	849	846	1,695
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DEPARTMENT OF SOCIAL SERVICES

Receiving Unemployment Benefit (c)	1,060	276	1,336	224	209	433
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(a) Figures for 1966 correspond with 'unemployed'.

(b) At Friday nearest last day of June.

(c) At last Saturday of June.

The comparison for 1954 was as follows: (i) 'unable to secure employment' (Census): males, 329; females, 74; persons, 403; (ii) registered for employment: males, 438; females, 117; persons, 555; (iii) receiving unemployment benefit: males, 96; females, 13; persons, 109.

INDUSTRIAL LEGISLATION AND CONDITIONS

Apprenticeship

Apprenticeship Commission: The *Apprentices Act* 1942 set up a statutory authority, the Commission, to: (i) encourage, regulate and control training in proclaimed trades; (ii) assist youths towards successful trade courses; and (iii) provide properly trained craftsmen for industry. The Commission, which meets each month, consists of two representatives of trades unions, two of employers' organisations and the President, all members being appointed for a three years' term. To keep the Commission up-to-date with the latest developments, Trade Advisory Committees have been formed for particular industries, with employers and employees each represented.

Apprentices are trained at work and at technical classes, and supervisors report on the effectiveness of the training; supervisors also give on-the-spot advice to employers and apprentices where their mutual obligations are concerned and refer matters that cannot be settled in this way to the Commission for decision.

Apprenticeships: An applicant must be at least 15 years of age and must have the educational qualifications deemed necessary for apprenticeship in the chosen trade; the Commission has the right to decide if an employer is suitable for training apprentices and no apprenticeship may be commenced without its consent.

The apprentice serves a probationary period before a contract (indentures) is made with the employer, and registered with the Commission. The Commission determines disputes about the contracting parties' rights, duties and liabilities and no apprenticeship may be terminated, suspended or assigned other than by its authority; when an apprenticeship has been completed, the employer and the Commission certify to this effect. Where apprentices are required to undertake technical training, either at technical classes or by correspondence, instruction is mandatory. Apprentices attend technical classes for eight hours per week during working hours without loss of pay. The progress apprentices make is conveyed to the Commission by employers' annual reports and technical colleges' terminal reports; unsatisfactory reports are investigated.

Apprentices are encouraged in the following ways: (i) by payment of *efficiency allowances* for annual examinations passed successfully in the allotted time; (ii) by *certificates of efficiency* for apprentices successfully completing the mandatory trade course of technical instruction; (iii) by reducing the apprenticeship term by one year, in some cases, where the qualifying trade course is completed in the allotted time; (iv) by the award of bursaries.

Four bursaries (two \$300, two \$150) are awarded each year to outstanding apprentices, and a fifth bursary (\$450) is awarded to 'The Apprentice of the Year'. These bursaries are given to assist the most promising apprentices secure wider trade experience with another employer as part of the apprenticeship training, either in Tasmania, or another State. Arrangements are made by the Commission to suit the bursary holders' wishes.

Numbers of Apprentices: The following table shows the number of apprentices in Tasmania and also details of new apprenticeships registered and apprenticeships completed:

Numbers of Apprentices

Details	1964-65	1965-66	1966-67	1967-68
Number at 30 June (a)—				
Indentured Apprentices	2,952	3,046	3,268	3,325
Apprentices on Probation	444	466	364	452
Total	3,396	3,512	3,632	3,777
During Year—				
New Apprenticeships Registered	791	902	1,049	927
Apprenticeships Completed	548	628	645	704

(a) Distributed in proclaimed trades; approximately 130 had been proclaimed at 30 June 1968.

Industrial Accidents

Source of Statistics: Industrial accident statistics in Tasmania are compiled from returns submitted under the *Workers' Compensation Act* by insurance companies, self-insurers and State Government departments. Among workers excluded from coverage are employees of the Commonwealth, police officers and self-employed persons. (See 'Workers' Compensation' later in this chapter.)

Definition: An industrial accident is defined as a work injury causing either death, or absence of the injured person from work for one day or more. For statistical purposes, an accident causing injury to more than one person is counted as more than one accident.

Accidents: In 1966-67, there were 8,853 industrial accidents of which 37 were fatal; 8,181 involved males and 672 involved females. The total time lost from non-fatal accidents amounted to 17,138 weeks of five days (or approximately 350 'worker years').

The most common accident factors in the case of males were: manual handling, 36.8 per cent; persons falling, slipping, stepping or striking against objects, 23.7 per cent; falling objects, earth and flying objects, 15.0 per cent.

Claims and Premiums: In 1967-68, insurers under the *Workers' Compensation Act* paid \$3.11m in premiums. Insurance companies paid out \$2.10m in claims.

Industrial Safety and Accident Prevention

Responsibility: The Department of Labour and Industry is concerned with industrial safety and accident prevention, and discharges this function with the knowledge that there are over 8,000 accidents involving lost time each year among the population covered by the *Workers' Compensation Act*.

Cause of Industrial Accidents: Two major factors are held to underly most industrial accidents, namely (i) unsafe working conditions; (ii) unsafe actions; in some accidents, both factors may be operative.

Prevention: Prevention obviously has a two-fold aspect: (i) inspection programmes aimed at pin-pointing unsafe working conditions; (ii) education and training designed to eliminate unsafe actions.

Training: The problem of training is basically one of educating supervisors and foremen since an attitude of 'safety consciousness' has to start with management. Formal training in industrial safety and accident prevention can

be had at Hobart and Launceston Technical Colleges in two-year four-subject courses. Informal training is arranged by the Department of Labour and Industry, the two-day courses available being based on the concept of 'training within industry'. Single lectures on industrial and farm safety are also available and the Department makes arrangements to provide lecturers on request.

Safety Officers: It is expected that large undertakings will have their own specialists concerned with safety matters. However, government safety officers are available to industries which may use their services for a short period. Their function is purely advisory and they assist organisations which wish to stress safety or to reduce their accident rates.

Research Facilities: The Department carries out a safety research programme. A comprehensive classification of safety data and information is maintained from local, interstate and overseas sources.

Workers' Compensation

Legislation: Workers' compensation legislation in Tasmania was first introduced in 1910 but it was not until 1927 that the Parliament introduced the principle of compulsory insurance against the risk of personal injury being caused to workers in the course of their employment. The machinery for compulsory insurance and compensation is embodied in the *Workers' Compensation Act 1927*, as amended.

Purpose and Limitations: The principle of the Act is provision for compensation on the death or disablement of a worker, if occasioned by personal injury caused in the course of employment. In 1966, the Act was amended to extend compensation cover for injuries sustained by a worker travelling in either direction between his residence and place of employment. The Act provides that this cover to and from work applies only for reasonably direct journeys, except for breaks or deviations connected with the worker's employment. Self-inflicted injuries are excluded and certain limitations are applied where serious or wilful misconduct is involved.

Monetary benefits have fixed limits. Over and above weekly payments during incapacity and any lump sum entitlement for scheduled injuries, all reasonable costs of medical, hospital, nursing and ambulance services, and in the event of death, the reasonable costs of burial or cremation, are paid up to a maximum of \$2,500.

Non-Contributory Basis: The Act is non-contributory, i.e. the worker does not pay into any fund for the provision of benefits. The employer is obliged to insure with an approved insurance company against the liability to compensation, except in certain cases where he is allowed to carry his own risk.

In any case where an employer has no paid up insurance policy, where the employer cannot be found or where the employer or his insurance company has become insolvent, the worker may claim against a 'nominal insurer' as if he were the employer.

Amounts paid by the 'nominal insurer' are provided by all insurance companies carrying on Workers' Compensation business in the State. Each company is required to contribute to these types of claim in proportion to the premium income derived from policies effected under the Act during the preceding year.

Compensation on Death: Where death results from an injury, the compensation payable to dependants wholly dependent on the worker's earnings is 284 times the current Hobart base rate, plus seven times the current Hobart base rate for each worker's child under 16 years at the date of injury. Partial dependants are entitled to proportionate amounts. ('Current', in this context, means the base rate at the time of injury.)

Base Rate means an amount 40 cents below the minimum weekly wage payable to an unskilled adult male employed at Hobart under the Federal Metal Trades Award (in November 1968, the minimum was \$39.50).

Weekly Payments During Incapacity: When the worker is totally incapacitated, the following weekly payments apply: (i) in respect of the worker—70 per cent of the base rate; (ii) in respect of a dependent wife—17 per cent of the base rate; (iii) in respect of a dependent child under 16 (or a full-time student under 21)—nine per cent of the base rate. The application of these formulae, however, is subject to restrictions set out in the next section headed 'Maximum Limits of Weekly Payments'.

When a worker is partially incapacitated, he receives the rates appropriate to total incapacity reduced by application of the following factor:

Loss of Weekly Earnings

Average Weekly Earnings. ('Average weekly earnings', in this context, refers to his earnings before the date when the injury was sustained.)

Maximum Limits of Weekly Payments: The worker's average weekly earnings before injury are taken into account in fixing maximum weekly compensation payments, the formulae being as follows (with B as base rate):

- (i) worker's average weekly earnings not greater than $B \times 1.20$; maximum payment not to exceed 85 per cent of his average weekly earnings;
- (ii) worker's average weekly earnings between $B \times 1.20$ and $B \times 1.36$; maximum payment not to exceed the base rate plus two per cent;
- (iii) worker's average weekly earnings greater than $B \times 1.36$; maximum payment not to exceed 75 per cent of his average weekly earnings.

In cases of the partial or total incapacity of any worker, the total liability of an employer in making weekly compensation payments is limited to 284 times the current Hobart base rate.

Lump Sum Payments: In addition to weekly incapacity payments, lump sum payments are made in respect of the loss of members of the body or of bodily powers or functions. In the Act, specific injuries are listed and the single amount payable is related to the current Hobart base rate (specified as B in the following examples): (i) loss of both feet, $B \times 284$; (ii) loss of leg, $B \times 138$; (iii) loss of thumb, $B \times 51$; (iv) loss of great toe, $B \times 35$, etc. Where more than one of these injuries are suffered in the same accident, a maximum payment equal to $B \times 532$ may be paid.

Factory Legislation and Inspection

Legislation: Working conditions in factories in Tasmania are covered under the *Factories, Shops and Offices Act* 1965 as amended which makes provision with respect to the health, welfare, safety, and working conditions of persons employed in factories, shops, and offices and the sanitation of factories, shops, and offices, and, until 1968, matters such as trading hours of shops, etc. Factories are designated in two classes: (a) premises in which four or more persons including the occupier are employed ('occupier' in this context may mean the employer, manager, foreman, agent or other person apparently in charge); (b) a small factory where less than four are employed.

Registration Fees: All factories are required to register with the Department of Labour and Industry; fees date from 1 January each year. Fees for registration range from \$2 for small factories, up to \$40 for factories employing one hundred persons, and \$20 for each additional hundred.

New Factories: The *Local Government Act* requires that plans and specifications for proposed new factory buildings be submitted to the Department of Labour and Industry before being approved by the local government authority. This ensures compliance of the proposed factory buildings with regulations in regard to natural lighting, ventilation, fire exits, fire protection, stairs, access ladders, platforms, sanitary conveniences, washing facilities, change and meal rooms and general safety.

Application for Registration: Following application to the Secretary for Labour for registration of premises to be used as a factory, an inspection is made. If the premises are suitable without alteration, a certificate of registration is issued. If alterations are required, a permit to occupy may be issued for a limited time, whilst renovations, to comply with the Act's requirements, are made. Once the factory is operating, a further inspection is made to study processes and working conditions. Any unsafe situations and practices are drawn to the attention of management.

Inspection: After the initial registration, routine inspections are made at least once a year by officers of the Department, to remedy or prevent unsafe conditions or unsafe practices which may have developed. Particular attention is given to overcrowding, ventilation, natural and artificial lighting, conditions of floors, etc. Access ladders and platforms are checked for compliance with prescribed standards. If contamination of the atmosphere by dust or toxic fumes is present, means of removal are studied. Safe handling and storage of dangerous substances; the provision of fire protection, fire exits, escapes and exit drills; adequacy of sanitary conveniences, washing, change and meal rooms; the provision of safety equipment, etc. require periodic checking.

Accident Reports: Where accidents involving the use of machinery incapacitate workers for seven days or more, factory management is required to notify the Department. These accidents are investigated in an endeavour to eliminate recurrences. See 'Industrial Safety and Accident Prevention' in this chapter.

Construction Sites: Regulations also apply to working conditions on construction works and provide for suitable sanitary, washing and general amenities, in addition to general safety precautions. Where persons are required to work on any construction works at a height of not less than 20 feet above the ground or at a depth of not less than five feet below ground level, the provision of safety helmets is compulsory.

The Inspection of Machinery

Legislation: Generally, the *Inspection of Machinery Act* 1960 as amended applies to all machinery of one or more horsepower used in manufacturing or industrial processes. Machines not covered by the Act may be made subject to the Act by proclamation. The Act specifically includes boilers, pressure vessels, lifts and cranes. The Department of Labour and Industry is responsible for application of the Act which is administered by a chief inspector and district inspectors at Hobart, Launceston and Burnie.

Machinery Inspection: An owner (defined in the Act as a person, not necessarily the owner, who has the control of or is in charge of machinery) acquiring machinery as defined in the Act is required to notify the nearest district

inspector to obtain a certificate of safety. Inspection may reveal the need for additional safeguards before permission can be given to operate the machine; alternatively the owner may be given a set period in which to comply.

All machinery subject to the Act is inspected annually, and all safeguards checked for efficient working and adherence to safety standards. Defects are pointed out to the management and, where necessary, formal notice may be served. If the inspection is satisfactory or, alternatively, when the defects are remedied, the certificate of safety is renewed. In addition to routine inspections, special investigations may arise from accidents, union representations or modifications to machinery already certified.

Lifts Inspection: Lifts, cranes and hoists, from an inspection point of view, are treated as machinery but there is the additional requirement that design approval must be obtained before construction begins; tests, including beam deflections under load, are made on completion. The standards set are those specified by the Standards Association of Australia.

Boilers Inspection: Before boilers or pressure vessels are installed, the design must be approved by the Chief Inspector and conform with specified Australian or overseas standards. Inspections are made on installation and thereafter annually, unless a special investigation is required arising from plant modification, accidents or from employers' or employees' requests. The operator of pressure plant must hold a certificate of competency.

Shop Trading Hours

Introduction

The first *Tasmanian Shops Act* 1911 regulated hours of trading, introduced a five and a half day shopping week and limited working hours for females and children. Amendments to the *Shops Act* 1925 (made in 1937) had the effect of introducing a five-day shopping week into the City of Hobart and the Municipality of Glenorchy; in the rest of the State, the five and a half day shopping week continued.

Extension of Saturday Closing

The *Factories, Shops and Offices Act* 1958, as amended in 1965, extended Saturday shop-closing to those areas of the municipalities of Clarence and Kingborough within six miles radius of Hobart G.P.O. This enlargement of the area of Saturday closing operated from 1 January 1966 and was to expire on 31 December 1967 unless new legislation continued it. Due to a deadlock between the two houses of the Tasmanian Parliament in December 1967, the only legislation upon which agreement could be reached was for the continued rostering of petrol stations and, as from 1 January 1968, all restrictions on shop trading hours ceased.

Pre-1968 Position

Under the Act still operating in 1967, trading was allowed for shops *not subject to special provisions* from 6 am to 6 pm Mondays to Thursdays, 6 am to 9 pm on Fridays throughout the State, and, outside the Hobart zone, on Saturday mornings from 6 am until noon.

In practice, most of the larger establishments were open only 45 hours a week; in Hobart from 9 am to 6 pm five days a week; in Launceston, 9 am to 5.30 pm five days a week and from 9 am to 11.30 am on Saturdays. Supermarkets throughout the State tended to remain open until 9 pm on Friday evenings.

Special hours of trading were prescribed for small shops (upper limit, a shopkeeper and two other persons); chemists; eating houses; newsvendors; butchers; and shops selling exempted goods. In some cases, unrestricted trading was allowed, e.g. cafes selling only exempted goods, and small shops.

Position in 1968

Despite the lapse of all restrictions from 1 January 1968, there has been little evidence of shopkeepers varying their trading hours; nor, in the Hobart zone, is there any sign of a return to general Saturday morning trading. The Saturday closing tradition in most of the zone dates from 1937, and the explanation appears to be that Hobartians, as shopkeepers, shop assistants and customers, have come to accept it as the normal pattern.

In January 1968, the Retail Grocers Wages Board met to hear an employees' application for increased penalty rates (e.g. treble time for Saturday and Sunday work), the grounds being that legislation governing trading hours was no longer in force and that it was the responsibility of the Wages Board to protect employees who might be required to work extraordinary hours.

The Chairman, giving a ruling in February, said: 'I am not satisfied that the current omission from the statutes of long standing legislation designed for the purpose of governing the trading hours of shops should be remedied by the insertion in Industrial Codes of provisions which would have the effect of prohibiting labour to be employed during prescribed hours. I am satisfied that if the claims were adopted, it would have such an effect.'

Whilst the employees failed to obtain the quantum of penalty rates specified in their claim, some upward variations were embodied in the new determination, the most important being a double time provision for all Saturday work in the Hobart zone (as compared with a $1\frac{1}{2}$ time formula for Saturday morning work in Launceston). Other Wages Boards concerned with retailing later made similar determinations.

Petrol Filling Stations

Ordinary permitted hours are 6.30 am to 7.30 pm on week days (with an extra two hours on Friday evening) and 12.30 pm closing on Saturdays and public holidays. However, a system operates to give the public an opportunity to buy petrol outside these hours and on Sundays at rostered filling stations.

PRICES

Retail Prices and Price Indexes

General

The description of price indexes that follows is, in the main, an abridgement of the text appearing in the *Labour Report* of the Commonwealth Bureau of Census and Statistics; this report is a basic document in any serious study of official price indexes. A full statement appears in the 1967 *Year Book*.

Collection of Retail Price Information

Retail prices of food and groceries and average rentals of houses for years extending back to the year 1901 were collected by the Commonwealth Statistician. As far back as 1856, the average retail prices of provisions at Hobart were published in the *Statistics of Tasmania*.

Retail prices of a more extensive range of commodities (including clothing) and certain services in common demand have been ascertained at frequent and regular intervals by the Commonwealth Statistician since 1923. Comparable information is available for the month of November in each year from 1914 to 1922 for each of the six capital cities.

Retail Price Index Numbers from 1901

The index numbers that follow are presented as a continuous series, but they give only a broad indication of long-term trends in retail price levels. They are derived by linking a number of indexes that differ greatly in scope. The successive indexes used are: 1901-1914, the 'A' Series; from 1914 to 1946-47, the 'C' Series; from 1946-47 to 1948-49, a composite of Consumer Price Index Housing Group (partly estimated) and 'C' Series excluding rent; and from 1948-49, the Consumer Price Index. It should be noted that this long-term series is for the six capital cities combined, *not for Hobart alone.*

Retail Price Index Numbers from 1901
Six State Capital Cities Combined
(Base—Year 1911 = 100)

Year	Index Number	Year	Index Number	Year	Index Number	Year	Index Number
1901 ..	88	1921 (a) ..	168	1937 ..	145	1953 ..	383
1906 ..	90	1922 (a) ..	162	1938 ..	149	1954 ..	386
1907 ..	90	1923 ..	166	1939 ..	153	1955 ..	394
1908 ..	95	1924 ..	164	1940 ..	159	1956 ..	419
1909 ..	95	1925 ..	165	1941 ..	167	1957 ..	429
1910 ..	97	1926 ..	168	1942 ..	181	1958 ..	435
1911 ..	100	1927 ..	166	1943 ..	188	1959 ..	443
1912 ..	110	1928 ..	167	1944 ..	187	1960 ..	459
1913 ..	110	1929 ..	171	1945 ..	187	1961 ..	471
1914 (a) ..	114	1930 ..	162	1946 ..	190	1962 ..	469
1915 (a) ..	130	1931 ..	145	1947 ..	198	1963 ..	472
1916 (a) ..	132	1932 ..	138	1948 ..	218	1964 ..	483
1917 (a) ..	141	1933 ..	133	1949 ..	240	1965 ..	502
1918 (a) ..	150	1934 ..	136	1950 ..	262	1966 ..	517
1919 (a) ..	170	1935 ..	138	1951 ..	313	1967 ..	534
1920 (a) ..	193	1936 ..	141	1952 ..	367	1968 ..	548

(a) November; remaining figures are average for year.

Consumer Price Index

Introduction: The Consumer Price Index was first compiled in 1960, retrospective to the September quarter 1948. It replaced both the 'C' Series Retail Price Index and the Interim Retail Price Index in official statistical publications of the Bureau. The title 'Consumer Price Index' is used for purposes of convenience and does not imply that the new index differs in definition or purpose from previous retail price indexes. A longer but more completely descriptive title would be 'Consumer Series Retail Price Index Numbers'. For practical purposes, the terms 'retail prices' and 'consumer prices' are synonymous. The Consumer Price Index is designed to measure quarterly variations in retail prices of goods and services representing a high proportion of the expenditure of wage earner households in the aggregate.

Investigations revealed that the incidence and frequency of changes in the pattern of household expenditure since 1950 were such as to render it necessary to construct not one, but a *series of new indexes* introducing additional items and changes in weighting patterns at short intervals between 1949 and 1960. For this period, to obtain a continuously representative measure of retail price change, these now necessarily replace the types of indexes with a constant list of items and a constant set of weights which were kept unchanged for extensive periods. The Consumer Price Index therefore consists of a sequence of short-term retail price indexes chain linked at June quarter 1952, June quarter 1956, March quarter 1960, December quarter 1963, and December quarter 1968 into one series. The reference base year, (formerly was 1952-53=100) was changed at the March quarter 1969 to 1966-67=100. Index

numbers on the new base are convertible to index numbers on the old base by application of a ratio based on the relationship of the relevant series in 1952-53 and 1966-67.

Origin: The list of component items and the weighting pattern of the 'C' Series Retail Price Index, first adopted in 1921, were slightly revised by the Statisticians' Conference in 1936, but otherwise continued almost unchanged until the index was discontinued in 1960.

The period 1939 to 1948 was marked by war-time controls, price control, and rationing; with the cessation of these controls, there was a rapid rise in prices and a new sequence of changes in consumption and in the pattern of wage-earner expenditure. Thus, in the immediate post-war period, it was virtually impossible to establish a system of weighting that would adequately reflect the changing pattern of household expenditure, or be more continuously representative of current conditions, than that employed in the existing 'C' Series Index. Accordingly, the 'C' Series Index continued to be compiled on its pre-war basis without significant change in procedures.

The Interim Index was a transitional index designed to measure retail price variations on the 'C' Series model in terms of post-war consumption weights, as emerging in the late 1950s. It embraced a wider range of commodities and services than did the 'C' Series Index, but it did not take into account successive major changes in the pattern of expenditure and modes of living that occurred between 1950 and 1960. These changes could not, in fact, be detected and measured promptly, and incorporated into an index concurrently with their happening. In this period, home owning largely replaced house renting, the use of the motor car greatly increased and partly replaced use of public transport, and various items of electrical household equipment and television came into widespread use. The impact of these (and other) changes in usage upon the pattern of household expenditure was heightened by disparate movements in prices. Together they rendered nugatory the attempt to meet the situation by devising a single Interim Retail Price Index. As studies progressed and new data became available, it was clear that no single list of items and no single set of fixed weights would be adequately representative as a basis for measuring retail price changes at all times throughout the post-war period. In consequence, the situation was met by compiling the Consumer Price Index, constructed as a chain of linked indexes with significant changes in composition and weighting effected at short intervals (1952, 1956, 1960, 1963, 1968).

Purpose, Scope and Composition: The Consumer Price Index is a quarterly measure of variations in retail prices of goods and services representing a high proportion of the expenditure of wage-earner households. The weighting pattern relates to estimated aggregates of wage-earner household expenditures and not to estimated expenditures of an 'average' or individual household of specified size, type, or of mode of living. In this way it is possible to give appropriate representation to owner-occupied houses, as well as rented houses, and to include motor cars, television sets and other major expenditures which relate to some households and not to others.

Consumer (retail) price indexes are sometimes loosely called 'cost of living indexes' and are thought to measure changes in the 'cost of living'. Neither the Consumer Price Index, nor any other retail price index, measures changes in the cost of living that result directly from changes in the mode or level of living. Changes of that kind are matters for consideration apart from price indexes. However, the change in prices of goods and services is a very important part of the change in the cost of living and this part is measured by consumer (retail) price indexes.

A comprehensive view of the present composition and weighting of the Consumer Price Index is given in the following table. The weights shown are those comprised in the index for the six State capital cities combined. Broadly, they are based on the estimated pattern of consumption for the period 1962-63 to 1966-67 valued at relevant prices of December quarter 1968. The weighting indicates the relative influence given to the various components in measuring the degree of price change in the index from December quarter 1968 (i.e. from the beginning of the current linked series).

Consumer Price Index

Composition and Weighting Pattern at December Quarter 1968 for the Six State Capital Cities Combined

Group, Section, etc.	Percentage Weight	
	Section, etc.	Group
Food—		31.3
Cereal Products—Bread, flour, biscuits, rice and breakfast foods	4.1	
Dairy Produce—Milk, cheese, butter and eggs	6.0	
Potatoes, Onions, Preserved Fruit and Vegetables—Potatoes and onions, canned and dried fruits, and canned and frozen vegetables	2.7	
Soft Drink, Ice Cream and Confectionery	4.3	
Other (except Meat)—Sugar, jam, margarine, tea, coffee, baby foods, and sundry canned and other foods	3.3	
Meat—Butchers' (Beef, mutton, lamb and pork)	8.4	
Processed (Bacon, smallgoods and canned meat) including Poultry	2.5	
Clothing and Drapery—		14.1
Men's Clothing	3.6	
Women's Clothing	5.0	
Boy's Clothing	0.6	
Girl's Clothing	0.8	
Piecegoods, etc.—Wool, cotton and rayon cloth, nursery squares and knitting wool	0.8	
Footwear—Men's, women's and children's	2.5	
Household Drapery—Bedclothes, towels, tablecloths, etc. ..	0.8	
Housing—		14.2
Rent—Privately owned houses	2.1	
Government owned houses	0.9	
Privately owned flats	3.1	
Home Ownership—House Price	3.4	
Rates	2.7	
Repairs and Maintenance	2.0	
Household Supplies and Equipment—		12.5
Fuel and Light—Electricity	2.4	
Gas	1.0	
Other (Firewood, heating oil, briquettes and kerosene)	0.6	
Household Appliances—Refrigerator, washing machine, stove, radio set, television set, vacuum cleaner, electric iron, etc.)	2.6	
Other Household Articles—		
Furniture and Floor Coverings	1.9	
Kitchen and Other Utensils, Gardening and Small Tools ..	0.7	
Household Sundries (Household soaps, etc.)	1.0	
Personal Requisites (Toilet soap, cosmetics, etc.)	1.2	
Proprietary Medicines	0.9	
School Requisites	0.2	

Consumer Price Index

Composition and Weighting Pattern at December Quarter 1968 for the Six State Capital Cities Combined—*continued*

Group, Section, etc.	Percentage Weight	
	Section, etc.	Group
Miscellaneous—		27.9
Transport—Fares—Train	1.0	
Tram and bus	1.5	
Private Motoring—Car purchase	3.4	
Car operation	5.8	
Tobacco and Cigarettes	3.6	
Beer	3.7	
Services—Health (Dentist, doctor, hospital)	3.3	
Hairdressing (Haircut, wave, etc.)	0.7	
Drycleaning	0.5	
Shoe repairs	0.2	
Postal and telephone services	1.1	
Other—Radio and television operation	1.1	
Cinema admission	0.8	
Newspapers and weekly magazines	1.2	
Total	100.0	100.0

Six Capital City Index: The Six Capital City Consumer Price Index is derived as the weighted average of the indexes for the individual cities, the basis of weighting being their populations as recorded at the latest Census (30 June 1954, 1961, 1966 and so on as data become available).

Comparison of the Six Linked Series: The Consumer Price Index is a chain of 'fixed weight aggregative' indexes, with significant changes in composition and weighting effected at the linking dates; the principal changes were:

- (a) June quarter 1952—introduction of private motoring; changed proportions for modes of house occupancy; change in weights of fuel and fares.
- (b) June quarter 1956—changed proportions in modes of house occupancy; changed weights for fuel, fares and private motoring.
- (c) March quarter 1960—introduction of television.
- (d) December quarter 1963—changed weights for fuel, light, fares and motoring; revised housing weights.
- (e) December quarter 1968—changed weights for all items; introduction of poultry, rented privately owned flats, heating oil, briquettes and health services (by dentists, doctors, hospitals and health insurance funds).

The consumption pattern of the index for the various periods was based broadly as follows: June quarter 1949 to June quarter 1952, on 1948-49 weights; June quarter 1952 to June quarter 1956, on 1952-53 weights; June quarter 1956 to December quarter 1963, on 1956-57 weights; December quarter 1963 to December quarter 1968, on 1961-62 weights; period from December quarter 1968 on 1962-63 to 1966-67 weights.

The next table has been compiled to show the percentage contribution to the total index of each of the major groups, first at the beginning of each series, and then at the quarter in which the linking transition was made. The

data are for the six capital cities weighted average, and are not completely identical with those employed in calculating the Hobart index; nevertheless the table illustrates the linking mechanism in broad outline:

Consumer Price Index—Analysis of Weighting in Six Linked Series

Linked Series	Percentage Contribution to Total Index (Weighted Average, Six Capital Cities)					
	Food Group	Clothing and Drapery Group	Housing Group	Household Supplies and Equipment Group	Miscellaneous Group	Total
First—						
June Qtr 1949	31.3	22.8	11.4	13.1	21.4	100.0
June Qtr 1952 (a)	35.7	23.0	9.2	12.2	19.9	100.0
Second—						
June Qtr 1952 (b)	33.6	21.6	9.4	11.7	23.7	100.0
June Qtr 1956 (a)	34.3	20.0	10.5	10.9	24.3	100.0
Third—						
June Qtr 1956 (b)	33.7	19.7	10.5	11.6	24.5	100.0
March Qtr 1960 (a)	33.0	19.5	11.0	11.5	25.0	100.0
Fourth—						
March Qtr 1960 (b)	32.1	19.0	10.7	13.2	25.0	100.0
Dec. Qtr 1963 (a)	31.6	18.8	12.0	12.6	25.0	100.0
Fifth—						
Dec. Qtr 1963 (b)	32.1	16.9	12.6	14.5	23.9	100.0
Dec. Qtr 1968 (a)	32.8	15.8	13.2	13.1	25.1	100.0
Sixth—						
Dec. Qtr 1968 (b)	31.3	14.1	14.2	12.5	27.9	100.0

(a) Change in proportions due to disparate price movements during short period shown.

(b) Change in proportions due to deliberate changes in composition or weighting.

The sets of weights used for the successive periods covered by the index have been derived from analyses of statistics of production and consumption, the Population Censuses of 1947, 1954, 1961 and 1966, the Censuses of Retail Establishments of 1948-49, 1952-53, 1956-57 and 1961-62 and the continuing Survey of Retail Establishments, from information supplied by manufacturing, commercial and other relevant sources, and from special purpose surveys.

Consumer Price Index, Hobart

The Consumer Price Index for Hobart is compiled to the base 1966-67 = 100.0, the number 100 being the base value for each of the five major groups (Food, Clothing and Drapery, Housing, etc.) and also for the 'All Group' index.

The following table has been compiled to show group index movements for Hobart on a quarterly basis:

Consumer Price Index—Quarterly Group Index Numbers, Hobart (a)
(Base of Each Index: Year 1966-67=100.0)

Quarter	Food	Clothing and Drapery	Housing	Household Supplies and Equipment	Miscellan- eous	All Groups
1964-65—Sept. ..	92.0	96.5	92.2	97.6	90.8	93.3
Dec. ..	93.8	96.8	94.5	97.5	92.0	94.5
March ..	94.4	97.2	95.3	97.5	92.3	94.9
June ..	95.9	97.5	95.9	97.9	92.8	95.8
1965-66—Sept. ..	98.5	97.4	96.4	98.5	93.9	97.0
Dec. ..	99.7	97.7	97.2	98.2	97.6	98.3
March ..	97.9	98.0	97.2	98.3	97.5	97.8
June ..	99.4	98.9	97.7	99.4	97.7	98.7
1966-67—Sept. ..	98.5	98.9	98.1	99.6	98.3	98.6
Dec. ..	98.8	99.9	99.8	99.7	99.0	99.2
March ..	100.7	100.1	100.6	99.9	101.2	100.6
June ..	102.1	101.2	101.5	100.8	101.5	101.5
1967-68—Sept. ..	108.6	101.5	101.7	101.2	103.2	104.3
Dec. ..	107.5	102.3	103.7	103.4	104.7	105.0
March ..	105.9	102.5	104.1	103.3	104.8	104.6
June ..	105.1	103.1	104.7	103.7	105.3	104.6
1968-69—Sept. ..	105.1	103.5	105.5	104.1	106.3	105.0
Dec. ..	105.3	104.5	108.4	104.1	107.3	105.8
March ..	105.1	104.7	109.4	104.7	109.0	106.5
June ..	105.8	105.3	110.1	105.2	109.4	107.0

(a) Figures after decimal point have limited significance. They are inserted to avoid the distortions that would occur in rounding.

The following table shows the 'All Group' index numbers for Hobart quarter by quarter, and also as averages for financial years:

Consumer Price Index—All Groups Index Numbers, Hobart (a)
(Base of Index: Year 1966-67=100.0)

Year	Quarter Ending—				Average for Year
	September	December	March	June	
1956-57	82.3	83.0	82.7	83.2	82.8
1957-58	82.7	82.8	82.9	83.1	82.9
1958-59	83.4	84.1	84.4	84.5	84.1
1959-60	84.8	85.1	85.6	86.8	85.6
1960-61	89.1	90.0	90.9	91.3	90.3
1961-62	91.4	90.9	90.3	90.3	90.7
1962-63	90.4	90.8	90.7	90.8	90.7
1963-64	91.2	91.4	91.9	92.2	91.7
1964-65	93.3	94.5	94.9	95.8	94.6
1965-66	97.0	98.3	97.8	98.7	98.0
1966-67	98.6	99.2	100.6	101.5	100.0
1967-68	104.3	105.0	104.6	104.6	104.6
1968-69	105.0	105.8	106.5	107.0	106.1

(a) Figures after decimal point have limited significance. They are inserted to avoid the distortions that would occur in rounding.

The next table shows, as averages for financial years, the group indexes for Hobart.

Consumer Price Index—Annual Group Index Numbers, Hobart (a)
(Base of Each Index: Year 1966-67=100.0)

Year	Food	Clothing and Drapery	Housing	Household Supplies and Equipment	Miscellaneous	All Groups
1956-57	82.9	88.2	69.7	90.3	81.7	82.8
1957-58	80.5	90.4	71.8	91.0	82.3	82.9
1958-59	81.7	91.3	73.8	91.6	83.5	84.1
1959-60	82.8	92.0	77.6	92.9	85.0	85.6
1960-61	92.4	93.5	81.9	94.9	87.0	90.3
1961-62	90.2	94.7	85.6	97.5	87.5	90.7
1962-63	88.9	95.2	88.2	97.1	87.6	90.7
1963-64	90.1	95.7	90.9	97.1	88.4	91.7
1964-65	94.0	97.0	94.5	97.6	92.0	94.6
1965-66	98.8	98.0	97.1	98.6	96.7	98.0
1966-67	100.0	100.0	100.0	100.0	100.0	100.0
1967-68	106.8	102.4	103.6	102.9	104.5	104.6
1968-69	105.3	104.5	108.4	104.5	108.0	106.1

(a) Figures after decimal point have limited significance. They are inserted to avoid the distortions that would occur in rounding.

Average Prices of Foodstuffs, Hobart

The next table has been compiled to show the average retail price of certain foodstuffs in Hobart since 1950. The list, while representative of foodstuffs commonly consumed, is not exhaustive; for a description of foodstuffs in the Consumer Price Index regimen, see the earlier table 'Consumer Price Index, Composition and Weighting Pattern'.

Average Retail Prices (a): Hobart
Certain Items of Foodstuffs
(Cents)

Article	Unit (a)	1950	1955	1960	1965	1967	1968
Bread (delivered) ..	2 lb	6.6	12.0	14.2	15.8	18.1	19.1
Flour (plain)	"	4.7	9.5	11.8	13.7	15.1	16.3
Tea	$\frac{1}{2}$ lb	15.2	36.6	34.2	32.9	33.2	33.0
Sugar (b)	1 lb	4.2	7.5	9.3	9.5	10.4	11.1
Jam (plum)	$1\frac{1}{2}$ lb	12.0	23.5	28.7	27.3	27.7	28.4
Potatoes	7 lb	17.7	41.2	34.5	69.2	49.2	48.5
Butter (factory) ..	1 lb	22.0	43.4	46.9	49.6	52.0	52.0
Eggs (c)	doz	33.5	55.8	56.7	61.0	67.8	62.2
Bacon (rashers) (d) ..	1 lb	32.6	57.4	68.3	89.2	99.7	102.3
Milk, bottled, delivered	qt	9.5	16.5	17.3	17.8	19.8	20.0
Beef—							
Sirloin	1 lb	17.9	33.7	44.3	53.3	61.7	65.1
Rump Steak	"	22.8	47.4	65.9	79.4	87.9	90.5
Corned Silverside ..	"	16.9	34.0	44.2	51.6	60.2	63.0
Mutton—							
Leg	"	11.8	23.8	24.9	29.8	32.4	28.2
Loin Chops	"	11.5	18.9	19.0	25.2	28.2	25.8
Pork—Leg	"	26.9	41.8	53.9	61.8	65.9	67.8

(a) The table units are not necessarily those for which the original price data were obtained (see notes (b) and (d)). In such cases, prices have been calculated for the table unit.

(b) Prices obtained for one pound prior to 1966; for four pound packets from 1966.

(c) 'Large' prior to 1964; 'two ounce' eggs from 1964.

(d) Prices obtained for one pound prior to 1966; for half a pound from 1966.

Wholesale Price Indexes*General*

The following wholesale price indexes of basic materials have been compiled by the Bureau:

1. Melbourne Wholesale Price Index (now obsolete).
2. Wholesale Price (Basic Materials and Foodstuffs) Index. (This superseded the Melbourne Wholesale Price Index and has been compiled since 1928 but is now unrepresentative of current conditions.)
3. Wholesale Price Index of Materials used in Building other than House Building. (Has largely superseded the Building Materials group of the preceding index.)

Two further indexes relating to materials used in house building and in manufacturing industry respectively are in course of preparation and these together with the third index listed above will constitute a representative replacement for the Wholesale Prices (Basic Materials and Foodstuffs) Index.

Melbourne Wholesale Price Index

The first wholesale price index compiled by the Bureau was the Melbourne Wholesale Price Index, originally computed in 1912, with weights for basic materials and food appropriate to usage in 1910.

The Melbourne Wholesale Price Index—now obsolete—was continued up to the year 1961 and is of historic interest since the series was taken back in time to 1861, but still using the weights appropriate to 1910. Details of this index, from 1861 to 1961, were published in the Bureau's *Labour Report*, No. 49 (1961).

Wholesale Price (Basic Materials and Foodstuffs) Index

This index—the Wholesale Price (Basic Materials and Foodstuffs) Index—extends back to the year 1928 and is compiled monthly. While retail price indexes have been compiled for individual capitals and towns, this wholesale price index is derived almost exclusively from Melbourne sources. Nevertheless, the series is of value as indicative of the trend of wholesale prices in Australian markets generally. The commodities in the current index are priced in their primary or basic form wherever possible. The prices used have in the main, been obtained directly from manufacturers and merchants. The weighting system adopted is based on estimates of the average annual consumption of included commodities in Australia from 1928-29 to 1934-35. The validity of the weighting and the representativeness of the index have become increasingly affected by changes in usage and in industrial structure. New series of wholesale price index numbers relating to materials used and articles produced by defined areas of the economy are being developed. The first of these indexes, the Wholesale Price Index of Materials used in Building other than House Building became available during April 1969 (see next section). Work continues on the preparation of two further measures, relating to materials used in house building and in manufacturing industry respectively. Taken together, these first three series will, to a considerable extent, constitute a currently representative replacement for the Wholesale Price (Basic Materials and Foodstuffs) Index, which in the meantime will continue to be published in the form in which 1968-69 details are shown in the table below. This is to meet the needs of those who, for special purposes, require the particular indexes included.

The following table gives the index numbers and shows details for each commodity group. The data have been compiled as averages for financial years but the series is also maintained on a monthly basis.

Wholesale Price (Basic Materials and Foodstuffs) Index Numbers
(Base of Each Index—Average of Three Years Ended June 1939=100)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69
Basic Materials—							
Metals and Coal ..	388	383	391	390	396	397	p407
Oils, Fats and Waxes ..	209	207	207	218	220	225	
Textiles	432	484	427	432	419	392	n.a.
Chemicals	317	286	286	325	381	397	
Rubber and Hides ..	262	221	242	306	281	222	537
Building Materials ..	439	473	503	507	511	514	
Total (a)	336	339	345	355	362	361	p370
Foodstuffs and Tobacco	342	352	364	385	401	411	405
Total All Groups (a)	340	346	355	371	383	388	p389

(a) Weighted average.

Wholesale Price Index of Materials Used in Building Other Than House Building

General: This is a new price index related to the construction of buildings. It is the first of two such measures, the second of which will be a companion index referring to prices of materials used in house building. This index is the first of a series of indexes which will be prepared as circumstances permit and which will relate to materials used and articles produced by other important and defined areas (or 'sectors') of the economy. To a considerable extent it provides an up-to-date replacement for the Building Materials group of the Wholesale Price (Basic Materials and Foodstuffs) Index.

Scope and Composition: The index measures changes in prices of selected materials used in the construction of buildings other than houses and 'low-rise' flats (in general, those up to three storeys).

Its composition is in accordance with the materials usage in actual building projects which were selected as representative for the purpose.

The completed values of these types of selected buildings constituted approximately 86 per cent of the completed values of all new buildings other than houses and low-rise flats in the years 1964-65 to 1966-67 inclusive. Not directly represented are buildings for entertainment and recreation purposes, buildings for religious purposes, and the Building Statistics category 'Miscellaneous' buildings.

The index includes 72 items, combined in eleven groups, in addition to an 'All Groups' index. Some items carry the weights of similar items not directly priced. Items are described in terms of fixed specifications with the aim of recording price changes for representative materials of constant quality. The groups and respective percentage weights of the index are shown in the next table.

Base Period: The reference base of the index is the year 1966-67=100.00. The index is a fixed-weights index and is calculated by the method known as 'the weighted arithmetic mean of price relatives'.

Wholesale Price Index of Materials Used in Building Other Than House Building
Composition and Weighting Pattern: Year 1966-67=100.00

Group	Percentage Weight of Group
Concrete Mix, Cement, Sand, etc.	10.41
Cement Products	3.64
Bricks, Stone, etc.	5.28
Timber, Board and Joinery	11.90
Steel and Iron Products	30.58
Aluminium Products	6.01
Other Metal Products	2.59
Plumbing Fixtures	1.19
Miscellaneous Materials	7.09
Electrical Installation Materials	8.61
Mechanical Services Components	12.70
Total	100.00

Items and Weights: The items and weights used in the index were derived from reported values of each material used in selected representative buildings constructed in or about 1966-67. The selection took account of building use-type and construction characteristics (e.g. type of frame, wall, floor, etc.) within use-types. Information of the former was obtained from building statistics, and of the latter from an ad hoc survey of approximately 800 buildings.

Satisfactory analyses were received for 83 buildings, whose aggregate value was equivalent to approximately ten per cent of the value of building (other than house building) completed during 1966-67. The data from these analyses were combined to obtain a single list of materials and values relating to the sum of all building use-types directly represented in the index. Within each use-type the data were combined in accordance with the estimated relative importance of buildings of different value sizes. The data for the different use-types were then combined in accordance with their relative proportions by value in building commencements in Australia over the three years ended June, 1967. The final step was to combine the hundreds of different varieties, etc., of materials into index items and to determine groupings thereof. Special treatment was given to the trades Mechanical Services and Electrical Services.

A single weighting pattern, relating to the whole of Australia, is applied (with minor exceptions) to local price measures in calculating indexes for each State metropolitan area. The index for the six State metropolitan areas combined is a weighted average of individual city indexes. The relative weighting of the metropolitan areas is in proportion to the estimated value on completion of building other than house building commenced in the separate States during the three years ended June 1967.

Prices: Price series used relate to specified standards of each commodity and are obtained in all State metropolitan areas from representative suppliers of materials used in building. In the main they are collected as at the mid-point of the month to which the index refers, or as near thereto as practicable. The indicator used for the group Electrical Installation Materials was, until

February 1969, a separate quarterly wholesale price index, prices for which were obtained each February, May, August and November. For intervening months the last observed level was used. The index has been compiled on a monthly basis from February 1969.

There are some exceptions to the use of local prices in the indexes for each metropolitan area. In a few cases where suitable price series are not currently available for an item in a given city, imputation is necessary. For each metropolitan area, the whole of the group Electrical Installation Materials and the majority of the items in the group Mechanical Services Components are based on Sydney and Melbourne price series.

Index Numbers: The index has been compiled for each month from July 1966, and for the financial years from 1966-67.

The separate city indexes measure price movements within each metropolitan area individually. They enable comparisons to be drawn between metropolitan areas as to differences in degree of price movement from period to period, but not as to differences in price level.

The following table compares movements in the index numbers for each of the six Capital Cities and the six Capitals combined since the beginning of 1966-67:

Wholesale Price Index of Materials Used in Building Other Than House Building

All Groups Index Numbers—Six State Capital Cities (a)

(Base of Each Index: Year 1966-67=100.0)

Period	State Capital Cities						Weighted Average of Six State Capital Cities
	Sydney	Mel- bourne	Brisbane	Adelaide	Perth	Hobart	
1966-67 ..	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1967-68 ..	102.6	101.7	102.2	101.8	102.0	102.3	102.2
1968-69 ^p ..	106.5	105.0	105.1	105.0	104.7	105.1	105.6
1968-69—							
July ..	104.1	102.9	103.2	103.4	103.1	103.8	103.5
August ..	104.2	102.9	103.0	103.3	103.2	103.7	103.5
September ..	104.6	103.2	103.1	103.4	103.5	103.8	103.8
October ..	104.9	103.9	103.5	103.7	103.8	104.0	104.2
November ..	105.6	104.6	104.3	104.2	104.4	104.5	104.9
December ..	106.5	104.8	105.5	104.6	104.5	104.7	105.5
January ..	106.8	105.2	105.9	105.1	104.8	105.1	105.9
February ..	107.5	105.8	106.5	105.8	105.5	105.5	106.5
March ..	107.9	106.0	104.9	106.4	105.7	106.1	106.6
April ..	108.3	106.4	106.7	106.5	105.8	106.1	107.2
May ..	108.8	106.6	107.5	106.9	106.0	106.6	107.6
June ..	109.2	107.1	107.6	107.1	106.4	106.9	107.9

(a) Figures are shown to one decimal place to avoid distortions that would occur in rounding off the index numbers to the nearest whole number.

Index numbers for the Hobart metropolitan area for each group of items are given in the following table:

Wholesale Price Index of Materials Used in Building Other Than House Building
Group Index Numbers, Hobart (a)
(Base of Each Index: Year 1966-67=100.0)
(Selected Months)

Period	Concrete Mix, Cement, Sand, etc.	Cement Products	Bricks, Stone, etc.	Timber, Board and Joinery	Steel and Iron Products	Aluminium Products
1966-67	100.0	100.0	100.0	100.0	100.0	100.0
1967-68	104.8	100.4	103.1	101.7	102.5	100.8
1968-69	108.0	103.8	108.5	103.8	105.5	99.6
1966-67—						
September ..	99.3	100.1	97.1	100.2	99.9	99.6
December ..	100.8	100.1	101.4	100.3	100.0	100.0
March ..	100.8	100.1	101.4	100.7	100.5	100.0
June ..	101.0	100.1	101.4	100.7	100.6	100.7
1967-68—						
September ..	104.1	100.1	101.4	101.3	101.3	100.7
December ..	104.2	100.1	101.9	101.7	101.4	100.9
March ..	104.2	100.1	104.5	102.3	103.9	100.9
June ..	107.0	101.9	108.2	102.4	104.2	101.1
1968-69—						
September ..	107.0	103.7	108.4	102.5	104.2	99.5
December ..	107.6	103.7	108.6	104.2	104.9	99.5
March ..	108.8	103.7	108.6	104.7	107.0	99.5
June ..	108.8	106.4	108.7	105.7	107.1	100.3

Wholesale Price Index of Materials Used in Building Other Than House Building
(Selected Months)—continued

Period	Other Metal Products	Plumbing Fixtures	Miscellaneous Materials	Electrical Installation Materials (b)	Mechanical Services Components (b)	All Groups
1966-67	100.0	100.0	100.0	100.0	100.0	100.0
1967-68	105.9	103.2	101.7	100.9	101.4	102.3
1968-69	105.1	105.5	103.0	102.1	107.7	105.1
1966-67—						
September ..	94.8	99.9	99.7	100.7	100.4	99.7
December ..	104.1	100.0	99.7	101.4	100.5	100.5
March ..	104.1	100.2	99.9	101.6	99.8	100.6
June ..	96.1	100.2	101.2	97.5	99.5	100.2
1967-68—						
September ..	96.6	103.7	101.3	97.6	99.9	100.9
December ..	110.9	103.7	101.8	102.2	100.4	101.9
March ..	116.3	103.7	101.8	104.0	102.7	103.5
June ..	101.1	103.7	102.4	100.9	104.8	103.8
1968-69—						
September ..	101.1	103.7	103.0	99.0	106.0	103.8
December ..	101.1	104.6	103.0	100.2	108.1	104.7
March ..	102.1	108.3	103.2	104.6	108.7	106.1
June ..	112.3	108.3	103.2	107.2	109.3	106.9

(a) Figures are shown to one decimal place to avoid distortions that would occur in rounding off the index numbers to the nearest whole number.

(b) The whole of the group Electrical Installation Materials and the majority of items in the group Mechanical Services Components are based on Melbourne and Sydney price series.

Australian Export Price Index

The current export price index was first published in October 1962, but index numbers were compiled back to July 1959. The reference base of the index is the year 1959-60=100. This index has fixed-weights, its purpose being to provide comparisons monthly, over a limited number of years, of the level of export prices of the selected items, making no allowance for variations in quantities exported. The index numbers are thus measures of price change only. The price series used in the index relate to specific standards for each commodity and in most cases are combinations of prices for a number of representative grades, types, etc. For some commodities price movement in the predominant market, or markets, are used, while for other commodities average realisations in all export markets are used. As nearly as possible, prices used are on the basis f.o.b. at the main Australian ports of export. The index is compiled by the method known as 'weighted average of price relatives'.

Export Price Index Numbers: Australia
(Base of Each Index: Year 1959-60=100)
(Selected Months)

Period	Wool	Meats	Dairy Pro- duce	Cereals	Dried and Canned Fruits	Sugar	Hides and Tallow	Metals and Coal	Gold	All Groups
1959-60	100	100	100	100	100	100	100	100	100	100
1960-61	92	104	82	99	99	101	92	97	100	95
1961-62	97	100	81	106	95	91	84	91	100	96
1962-63	104	101	88	107	90	107	72	89	100	101
1963-64	120	105	93	107	98	175	73	101	100	114
1964-65	102	110	94	107	100	100	91	123	101	105
1965-66	107	120	86	107	102	84	107	122	101	107
1966-67	103	124	84	114	101	67	89	117	101	105
1967-68	95	125	79	109	95	67	67	120	104	100
1968-69	99	p131	72	104	p97	p72	73	123	117	p102
1968-69- Sept.	98	128	73	107	95	95	66	120	111	102
Dec.	100	p127	72	105	96	54	70	121	112	p102
March	98	p128	72	102	p98	p66	79	123	122	p101
June	96	p144	72	101	p98	p78	86	130	121	p103

WAGES

Basic Wage in Tasmania

General

The concept of a 'basic' or 'living' wage was common to rates of wages determined by industrial authorities in Australia before an award of the Commonwealth Conciliation and Arbitration Commission in June 1967 introduced a new industrial concept, *the total wage*. Initially the pre-1967 concept was interpreted as the 'minimum' or 'basic wage' necessary to maintain an average employee and his family in a reasonable state of comfort. However, it was later generally accepted 'that the wage should be fixed at the highest amount which the economy can sustain and that the dominant factor is the capacity of the community to carry the resultant wage levels' (*Commonwealth Arbitration Report*, Vol. 77).

In Tasmania, some workers are members of industrial organisations (trade unions) which have interstate affiliations and which fall within the jurisdiction of the Commonwealth Conciliation and Arbitration Commission; other workers are members of trade unions which are without interstate affiliations and which fall within the jurisdiction of State Wages Boards. Thus, at any point in time, it was possible to have two basic wages operative in Tasmania, one fixed by a Commonwealth authority and the other fixed by a State authority. This, however, is a simplification—in theory, at least, each State Wages Board was at liberty to determine an individual basic wage for the trade covered by its jurisdiction. It follows, again in theory, that there could have been seventy different basic wages in operation since there were approximately seventy active Wages Boards. In actual fact, machinery exists to avoid such a situation arising and the operation of this machinery is described in a subsequent section headed 'State Wages Boards'. The pre-1967 situation may be summarised as follows: the basic wage fixed by the Commonwealth Conciliation and Arbitration Commission in the Federal Metal Trades Award had eventual application not only to most Tasmanian workers under Federal awards but also to most workers under the jurisdiction of State Wages Boards.

Commonwealth Basic Wage

Under the *Commonwealth Conciliation and Arbitration Act* 1904-1964, the Commonwealth Conciliation and Arbitration Commission (previously the Commonwealth Court of Conciliation and Arbitration) could, for the purpose of preventing or settling an industrial dispute extending beyond the limits of any State, make an order or award 'altering the basic wage (that is to say, that wage or part of the wage, which is just and reasonable for an adult male [female] without regard to any circumstances pertaining to the work upon which, or the industry in which he [she] is employed) or the principles upon which it is computed'. From this quotation, it may be deduced that margins and other 'secondary' components over and above the basic wage were fixed by consideration of 'circumstances pertaining to the work upon which, or the industry in which the worker is employed'.

Summary of Commonwealth Judgments

Pre-1953 A detailed summary of decisions of the Commonwealth Court of Conciliation and Arbitration in the period 1907-1953 appears in the *1968 Year Book*. The first definition and determination of the basic wage was made by Mr Justice Higgins in 1907.

- 1953** In September, the Court ruled automatic quarterly adjustments of the basic wage should cease.
- 1956** In May, the Court rejected the principle of automatic quarterly adjustments but increased the male basic wage by \$1.
- 1957** In April, the Commission again rejected the principle of automatic quarterly adjustment and again increased the male basic wage \$1. It supported the principle of annual reviews.
- 1958** In May, an increase of 50 cents was made but automatic quarterly adjustments were again refused.
- 1959** In June, the Commission, by majority decision, decided on an increase of \$1.50; also, by majority decision, it rejected the principle of automatic quarterly adjustments.
- 1960** In April, the Commission decided to grant no increase.

- 1961** In July, the Commission increased the basic wage by \$1.20, rejecting both employers' claims for a 42 hour week and unions' claims for automatic quarterly adjustment. It also ruled that, in February 1962, 'the only issue in regard to the basic wage should be why the money wages fixed as a result of our decision should not be adjusted in accordance with any change in the Consumer Price Index'.
- 1962** At the February hearing (as prescribed in the 1961 judgment), the Commission considered the movement in the Consumer Price Index. The index being virtually stationary in the year under review, the Commission granted no increase.
- 1963** In February, the Commission again rejected claims for an increase.
- 1964** In June, the Commission was divided on the amount of the appropriate increase and the award of \$2 was made on the casting vote of the President. It rejected the application of employers for deletion from the Commission's awards, generally, of the basic wage provisions and for the insertion in those awards of a wage expressed as a total wage. The outcome of similar employers' applications made in 1965, 1966 and 1967 is dealt with in a subsequent section headed *Total Wage Concept*.
- 1965** On 29 June, the Commission refused to increase the basic wage but it varied margins by the $1\frac{1}{2}$ per cent formula, i.e. the total of current *basic wage and margin* was to be increased by $1\frac{1}{2}$ per cent and the resulting increment credited to the margin.
- 1966** The Commission increased the basic wage \$2 with effect from 11 July.
- 1967** End of basic wage in Commonwealth awards. (See subsequent section headed '*Total Wage Concept*').

Basic Wage Rates from 1923

The following table has been compiled to show the Commonwealth basic wage rates operating in Australian capital cities before the decision of 5 June 1967.

Commonwealth Basic Wage—Weekly Rates, Adult Males
(£)

Date Operative (a)	Sydney	Mel- bourne	Brisbane	Adelaide	Perth	Hobart	Six Capital Cities
August 1953 ..	24.30	23.50	21.80	23.10	23.60	24.20	23.60
June 1956 ..	25.30	24.50	22.80	24.10	24.60	25.20	24.60
15 May 1957 ..	26.30	25.50	23.80	25.10	25.60	26.20	25.60
21 May 1958 ..	26.80	26.00	24.30	25.60	26.10	26.70	26.10
11 June 1959 ..	28.30	27.50	25.80	27.10	27.60	28.20	27.60
7 July 1961 ..	29.50	28.70	27.00	28.30	28.80	29.40	28.80
19 June 1964 ..	31.50	30.70	29.00	30.30	30.80	31.40	30.80
11 July 1966 ..	33.50	32.70	31.00	32.30	32.80	33.40	32.80

(a) Rates operative from the beginning of the first pay-period commencing in the month shown or commencing on or after the date shown.

The next table shows the basic weekly wage rates prescribed for adult males under periodical decisions of the Commonwealth Court of Conciliation and Arbitration (and later of the Commonwealth Conciliation and Arbitration Commission).

The final year of the table—1967—is noted as 'abolition of the basic wage'. The Commission awarded wage increases in June 1967 and October 1968 but embodied them in the new concept of a total wage. The rates generally are operative from the first pay-period commencing in the month shown or commencing on or after the date shown, and are those applicable to Hobart.

**Commonwealth Basic Wage Rate From 1923—Hobart
Adult Males (\$)**

Date Operative	Weekly Rate	Date Operative	Weekly Rate	Date Operative	Weekly Rate
1923—Feb. ..	8.15	1933—Feb. ..	6.34	1947—Feb. ..	10.40
May ..	8.30	May ..	6.48	Aug. ..	10.50
Aug. ..	8.75	Aug. ..	6.38	Nov. ..	10.70
Nov. ..	8.90	Nov. ..	6.39	1948—Feb. ..	11.00
1924—Feb. ..	8.95	1934—Feb. ..	6.48	May ..	11.20
Aug. ..	8.85	May ..	(a) 6.70	Aug. ..	11.50
Nov. ..	8.80	1935—March ..	6.90	Nov. ..	11.80
1925—Feb. ..	8.70	1937—July ..	(a) 7.20	1949—Feb. ..	12.10
Nov. ..	8.55	Sept. ..	7.30	May ..	12.40
1926—Feb. ..	8.60	Oct. ..	(a) 7.50	Aug. ..	12.70
May ..	8.90	1938—March ..	7.60	Nov. ..	12.80
Nov. ..	8.85	1939—June ..	7.70	1950—Feb. ..	13.10
1927—Feb. ..	8.70	1940—Feb. ..	7.80	Aug. ..	13.50
May ..	8.65	Aug. ..	8.00	Nov. ..	13.90
Aug. ..	8.55	Nov. ..	8.10	Dec. ..	(a) 16.00
Nov. ..	8.50	1941—Feb. ..	8.30	1951—Feb. ..	16.50
1928—Feb. ..	8.40	May ..	8.40	May ..	17.30
May ..	8.25	Aug. ..	8.50	Aug. ..	18.70
Aug. ..	8.30	1942—Feb. ..	8.70	Nov. ..	19.90
Nov. ..	8.25	May ..	8.80	1952—Feb. ..	20.80
1929—Feb. ..	8.30	Aug. ..	9.10	May ..	21.40
May ..	8.60	Nov. ..	9.20	Aug. ..	22.20
Aug. ..	8.55	1943—Feb. ..	9.40	Nov. ..	23.00
Nov. ..	8.60	Aug. ..	9.50	1953—Feb. ..	23.20
1930—Feb. ..	8.65	1944—Feb. ..	9.40	May ..	23.90
May ..	8.40	Aug. ..	9.30	Aug. ..	(a) 24.20
Nov. ..	8.20	Nov. ..	9.40	1956—June ..	(a) 25.20
1931—Feb. ..	(a) 7.02	1945—May ..	9.30	1957—15 May	(a) 26.20
May ..	6.88	Nov. ..	9.40	1958—21 May	(a) 26.70
Aug. ..	6.71	1946—Feb. ..	9.50	1959—11 June	(a) 28.20
Nov. ..	6.43	Aug. ..	9.60	1961—7 July	(a) 29.40
1932—Feb. ..	6.48	Nov. ..	9.70	1964—19 June	(a) 31.40
May ..	6.52	Dec. ..	(a) 10.30	1966—11 July	(a) 33.40
Aug. ..	6.57			1967—5 June	(b)
Nov. ..	6.43				

(a) Rate declared subsequent to an enquiry.

(b) Abolition of Federal basic wage; see later section headed 'Total Wage Concept'.

Commonwealth Basic Wage Rates for Females

The following table summarises the Commonwealth basic wage applicable to females from 1939. Prior to 1950, female basic wage rates had been approximately 54 to 56 per cent of male rates but the Court of Conciliation and Arbitration in its judgment in December of that year fixed the relativity at 75 per cent.

**Commonwealth Basic Wage Rate, Hobart—Adult Females
(\$)**

Date Operative (a)	Weekly Rate	Date Operative (a)	Weekly Rate	Date Operative (a)	Weekly Rate
Sept. 1939 ..	4.20	May 1952 ..	16.05	15 May 1957 ..	19.65
Nov. 1947 ..	5.80	Aug. 1952 ..	16.65	21 May 1958 ..	20.00
Nov. 1948 ..	6.35	Nov. 1952 ..	17.25	11 June 1959 ..	21.15
Nov. 1949 ..	6.90	Feb. 1953 ..	17.40	7 July 1961 ..	22.05
Nov. 1950 ..	7.50	May 1953 ..	17.90	19 June 1964 ..	23.55
Dec. 1950 (b) ..	12.00	Aug. 1953 ..	18.15	11 July 1966 ..	25.05
Nov. 1951 ..	14.90	June 1956 ..	18.90	5 June 1967 ..	(c)

(a) Rates operative from the beginning of the first pay-period commencing in the month shown or commencing on or after the date shown.

(b) Female rate increased to 75 per cent of male rate.

(c) Abolition of Federal basic wage; see later section headed 'Equal Pay Legislation'.

State Basic Wage

It is something of a contradiction to speak of a Tasmanian State basic wage, since no provision exists in industrial legislation for the declaration of a State rate. Prior to February 1956, most Wages Boards adopted Commonwealth basic wage rates. However, from February 1956 to May 1958 there was a divergence between Commonwealth and State rates as shown in the following table:

**Basic Wage, Hobart—Adult Males and Females (Weekly Rates)
Divergence Between Commonwealth and State Awards (1956-1958)
(\$)**

Month of Operation (a)	Commonwealth Awards		State Wages Boards' Awards	
	Males	Females	Males	Females
Aug. 1953	24.20	18.15	24.20	18.15
Feb. 1956	24.20	18.15	25.90	19.42
May 1956	24.20	18.15	26.80	20.10
June 1956	25.20	18.90	26.80	20.10
Aug. 1956	25.20	18.90	27.20	20.40
May 1957	26.20	19.65	27.20	20.40
May 1958	26.70	20.00	27.20	20.40
June 1959	28.20	21.15	28.20	21.15

(a) Operative as from the beginning of the first pay period in the month shown.

In February, May and August 1956, most State Wages Boards reverted to the system of automatic quarterly adjustments abandoned by the Commonwealth Court in September 1953. In June 1959, most Wages Boards brought their basic wage into line with that awarded by the Commonwealth Commission and have followed its judgments since that date.

The next table shows State basic wages in those States which have retained the basic wage concept:

**State Basic Wages—Weekly Rates
(\$)**

State or Locality	Date of Operation (a)	June 1969	
		Males	Females
New South Wales (Sydney) ..	25 October 1968	35.85	27.45
Queensland (Brisbane) ..	28 October 1968	35.55	27.25
South Australia (Adelaide) ..	28 October 1968	34.65	26.55
Western Australia (Perth) ..	22 Nov. 1968	35.45	27.08
Tasmania (Hobart)	25 October 1968	35.75	27.40

(a) Rates are operative from the beginning of the first pay-period commencing after the date shown, or during the month shown.

The following describes how each State dealt with the abolition of the basic wage in Commonwealth awards.

N.S.W.: Adult male and female award rates were increased by \$1 per week, called 'July economic loading' and operative from 1 July 1967 to 1 January 1968, when the loading was absorbed in the basic wage; the male and

female basic wages were then \$34.50 and \$26.10 respectively. From 25 October 1968 the State basic wage for males and females was increased by \$1.35 per week (following a \$1.35 increase in the Commonwealth 'Total Wage') to \$35.85 and \$27.45 respectively.

Victoria: The State basic wage in Melbourne was last varied to operate from July 1966 (\$32.70 male and \$24.50 female). Male and female rates in most Wages Boards' determinations were increased by \$1 from 1 July 1967, and by \$1.35 from 25 October 1968, but basic wages and margins were deleted from determinations and wage rates were expressed as total wages.

Queensland: A fixed loading of \$1 per week was added to award rates for both adult males and females operative from 3 July 1967 to 28 October 1968 when the loading was absorbed into the basic wage. From 28 October 1968 the basic wage for males and females was increased by \$1.35 per week to \$35.55 and \$27.25 respectively.

S.A.: The 'living wages' for adult males and adult females were increased by \$1 per week from 3 July 1967 and by \$1.35 per week from 28 October 1968 to \$34.65 and \$26.55 respectively.

W.A.: A special loading \$0.60 per week was added to award rates for adult males and females operative from 1 July 1967; the loading was increased to \$1.95 operative from 28 October to 22 November when the loading was absorbed into the basic wage. The basic wage for males and females became \$35.45 and \$27.08 respectively.

Tasmania: The Chairman of State Wages Boards announced on 4 July 1967 that a male and female adult basic wage increase of \$1 would be incorporated in Wages Boards' determinations. The basic wage for adult males and females was increased by \$1.35 per week, operative from 25 October 1968, to \$35.75 and \$27.40 respectively.

Wage Margins in Tasmania

General

Wage margins have been defined as 'minimum amounts awarded above the basic wage to particular classifications of employees for the features attaching to their work which justify payments above the basic wage, whether these features are the skill or experience required for the performance of that work, its particularly laborious nature, or the disabilities attached to its performance' (*Commonwealth Arbitration Report*, Vol. 80).

Marginal rates of wages were determined both by Commonwealth and State industrial tribunals (in Tasmania, by State Wages Boards) before an award of the Commonwealth Conciliation and Arbitration Commission in June 1967 introduced a new industrial concept, *the total wage*, in Commonwealth awards. In the Commonwealth jurisdiction, prior to 1954, the Commonwealth Court of Conciliation and Arbitration had not made any general determination in respect of wage margins, but general principles of marginal rate fixation had been enunciated by the Court in the Engineers' Case of 1924, the Merchant Service Guild Case of 1942 and the Printing Trades Case of 1947. Major determinations affecting margins were made in the Commonwealth jurisdiction in 1954, 1959, 1963 and 1965 (the 1965 hearing resulted in a determination affecting margins generally even though conceived originally by the claimant trade unions as concerned purely with basic wage issues). The decisions of the Commonwealth Court (and later of the Commonwealth Conciliation and Arbitration Commission) have generally been followed by State industrial tribunals in the determination of margins in State awards. The Tasmanian

State Wages Boards have undoubtedly been influenced in their margins determinations by those made in the Commonwealth jurisdiction, although an independent policy has sometimes been pursued (e.g. special 15 per cent marginal increases for certain tradesmen in the State sphere in 1963, as opposed to 10 per cent increases granted in the Commonwealth jurisdiction).

Summary of Major Judgments (Commonwealth)

- 1954 In November, the Commonwealth Court made an order re-assessing the margin structure in the Metal Trades Award by, in general, raising the current amount of the margin to $2\frac{1}{2}$ times the amount of the margin that had been current in 1937. However, in cases in which the result of the calculation produced an amount less than the existing margin, the existing margin was to remain unaltered. In effect, this decision increased the margin of a fitter from \$5.20 weekly to \$7.50, increased similarly margins of other skilled occupations, and made no increase in margins of what may generally be described as the unskilled or only slightly skilled occupations under the Metal Trades Award.

The ' $2\frac{1}{2}$ times Metal Trades formula' was generally adopted in Commonwealth awards and also became a basis for calculating marginal adjustments for trades within the jurisdiction of State Wages Boards in Tasmania.

- 1959 In November, the Commission made an order re-assessing the marginal structure in the Metal Trades Award, Part I, by increasing the existing margins by 28 per cent, the amount of the increase being taken to the nearest 5 cents. The effect of this decision was to increase the margin of the fitter from \$7.50 to \$9.60 per week.

The Commission emphasised that the decision related only to the Metal Trades Award but acknowledged that on occasions in the past, margins fixed in the Metal Trades Award, and in particular the margin of the fitter, had been used as standards for other awards. The use of the 28 per cent formula as a guide in other disputes would be a matter for the parties as far as conciliation was concerned and, if arbitration was necessary, for the Commission itself.

The 28 per cent formula, despite the fact that it had not been designed for general application, was in fact subsequently embodied in most Commonwealth tradesmen's awards and also had wide application in determinations of State Wages Boards in Tasmania.

- 1963 In April, the Commission made an order increasing margins for adult males in the Metal Trades Award by ten per cent, operative from the first pay-period commencing on and after 22 April. The Commission emphasised that the decision would relate to the Metal Trades Award only, although it was realised that the margin of the fitter had been used as a standard for other awards. In the present case, the Commission stated it was not intended that the decision should be applied automatically outside the metal trades. The use of any changes in margins granted by the Commission, as a guide in other disputes, would be a matter for the parties as far as conciliation was concerned and, if arbitration was necessary, for the Commission. In Tasmania, the 10 per cent formula had fairly general application in most Federal awards; however, for workers under the jurisdiction of State Wages Boards, the Commonwealth formula was varied, the more highly skilled receiving a 15 per cent increase in margins.

- 1965 The Commission, on 29 June, delivered judgment, refusing a basic wage increase but ordering a margin increase based on the $1\frac{1}{2}$ per cent formula (i.e. total wage to be increased by $1\frac{1}{2}$ per cent and the increment to be credited to the marginal component).
- 1966 In July, the Commission deferred a decision on margins but ordered a Commissioner to investigate the Metal Trades' marginal structure from the work-value aspect. In December, it delivered judgment on an *interim* margins claim, using incremental formulae based on 1.0, 1.5, 2.0 and 2.5 per cent of total wage.
- 1967 End of margins *as such* in Commonwealth awards. (See later section headed 'Total Wage Concept'.)

Metal Trades Work Value Award

Decision of December 1967

The margins cases of 1954, 1959 and 1963, although argued originally for Metal Trades employees, had nevertheless been used as a precedent for higher rates for most workers. This was to be expected, since the argument largely concerned the state of the national economy, and the Commission itself now uses the term *economic cases* to describe such hearings.

In 1966, the Commission dealt with a Metal Trades margins case, again argued principally on general economic grounds. In July, its decision was to grant no immediate marginal increases, but to start an investigation of Metal Trades margins from the *work value* aspect. In essence, this involved comparing the rates for each classification within the award, one with another, and also with rates outside the award; its aim was to put a value on the type of work performed by Metal Trades workers in individual classifications. Later in the same year (December), the Commission dealt with a Metal Trades *interim economic case* by stipulating incremental formulae based on 1.0, 1.5, 2.0 and 2.5 per cent of total wage, and this decision was eventually applied to most workers under Federal and State awards and determinations.

The work value investigation was lengthy and the Commission was unable to give its decision before 11 December 1967. It awarded substantial increases to some classifications specified in the Metal Trades award (e.g. fitter's rate advanced by \$7.40); it gave no specific direction on over-award payments but suggested that they might be absorbed to some extent in the new award rates. Unlike Metal Trades awards resulting from *economic cases*, this award did not create a precedent capable of general application, and tradesmen in other fields were warned that they would need to argue *work value cases* for the individual classifications in their particular industries.

Over-award Payments

Before the award of December 1967, many Metal Trades employers were paying rates higher than the minima fixed by the Commission. After the award, their problem was whether to increase existing payments by the exact increment determined by the Commission, or whether to reduce over-award payments (known as 'absorption'). The industrial disputes that followed were concerned not so much with the new minimum wages but rather with maximum wages (and on these the Commission had given no ruling). Three months after the award, the employers appealed to the Full Bench of the Commission and put forward the following alternatives: (i) cancellation of the new rates; (ii) a ruling as to absorption; (iii) the assessment of the new rates as maximum rates; or, (iv) lower rates without the assumption of absorption.

Decision of February 1968

On 21 February, the Full Bench gave its decision, the chief clause reading: 'We have decided that 70 per cent of the prescribed increases . . . of the award shall be payable in accordance with the decision of December 11 and that 30 per cent shall be deferred.' However, December increases of less than \$1.60 were not to be varied, and no December increases greater than \$1.60 were to be reduced below this amount.

On the absorption issue, the Bench ruled: 'We reject the employers' application to include in the award a specific provision permitting absorption, but we recognise the possibility of the odd case where some absorption is inescapable. Subject to this, the rates which follow are based on an assessment which . . . is divorced from assumptions that absorption should and would take place'.

The Full Bench was unwilling to vary the December increases: 'We all agree that the work value decision of the commission as to its amounts should stand. There can be no question of substitution of different amounts than those prescribed by the majority'. As to the deferred 30 per cent part of the increase, the matter could be reviewed in August: 'We are all of the view that the bench, which will deal with the economic case anticipated to commence on August 6 this year, should also decide when the deferred portion of the increases shall be payable'.

The Full Bench again emphasised the difference between *economic cases* and *work value cases*: 'We all agree that this is not a case in which increases in wage rates in the metal trades award set a pattern for wages in other awards. It will be for those who constitute benches dealing with work value cases in other awards to arrive at their decisions without being bound to follow what has happened in the metal trades award'.

Decision of August 1968

In August 1968, the Commonwealth Arbitration Commission decided that the 30 per cent segment deferred in its February award should be paid in the first pay period on or after 21 August. In the case of the fitter, this involved an increase of \$2.20, and fully restored the quantum of increase granted late in 1967, i.e. \$7.40.

The restoration to 100 per cent was announced a fortnight before the opening of the national wage case on 20 August.

Decision of Tasmanian Wages Board, March 1968

Test Case: On 5 February 1968, the Electrical Engineers' Wages Board met to hear claims based on the Metal Trades work value decision given in the Federal jurisdiction on 11 December 1967. This Board's deliberations were adjourned and a wider conference was convened so the matter under review could be treated as a test case for all Metal Trades classifications in the State jurisdiction.

The essence of the claim was: (i) electrical tradesmen with \$13.90 margins should receive a \$7.40 increase (fitters in the Federal jurisdiction had received a \$7.40 increase in the December decision); (ii) the minimum margin in the determination should not be less than \$7.20.

Argument: The employers argued that acceptance of the claim as it stood would perpetuate a differential between Tasmanian and Federal rates; there might have been justification for a differential in the past but this had disappeared because the December Federal rates had been established by a work value

enquiry. The Federal rates should be accepted unless an independent work value enquiry were held in the State jurisdiction.

Determination: The Chairman's recommendation, given on 14 March 1968, was to vary the determination as follows: (i) increase by \$5.80 the margin paid battery fitters, electrical fitters, electrical mechanics, linesmen, shift electricians, refrigeration mechanics, radio mechanics; (ii) increase less skilled classifications by smaller amounts, e.g. \$0.25 for an electrical fitter's assistant; (iii) increase apprentices' rates.

Rejecting the claim for the full \$7.40, the Chairman said: 'This proposition does not justly accept the fact that the differential between the Federal and State prescriptions of margins for tradesmen has been clearly stated as an interim adjustment against the long awaited re-assessment of the tradesman's margin in the Federal Metal Trades Award. In my view, the maintenance of the previous differential can no longer be justified'.

The determination in the test case was later used as a basis for variation of rates in determinations of a number of Wages Boards, including Plumbers'; Automotive Industry; Marine Boards; Emu Bay Railway; Mechanical Engineers and Founders; Electrolytic Zinc, etc.

It will be noted that the quantum of increase claimed (\$7.40) was reduced to \$5.20 in the Federal award of February 1968; so, in actual fact, the State test case did not have the effect of reducing the differential between Tasmanian and Federal rates.

The differential between the two jurisdictions is shown in the following table:

Tasmanian and Federal Jurisdictions: Key Tradesmen's Margins

Date of Award or Determination (a)	Federal Award: Margin of Fitter	Tasmanian Deter- mination: Margin of Electrical Fitter
Prior to Award of 11 December 1967 ..	\$ 12.30	\$ 13.90
Award of 11 December 1967	19.70	..
Award of 21 February 1968	17.50	..
Determination of 14 March 1968 .. ..	..	19.70
Increase	5.20	5.80

(a) Date of giving decision, not the effective date for payment of new rate.

General

Total Wage Concept

In the period 1953-1963, Metal Trades cases with nation-wide implications came before the Commonwealth Court (later the Commission). These were of two kinds: (i) for basic wage variation (each year from 1956 to 1963); (ii) related to margins (1954, 1959 and 1963). Basic wage increases were granted in 1956, 1957, 1958, 1959 and 1961, but refused in 1960, 1962 and 1963.

1964 The employers made a claim for the deletion from the Metal Trades award of the basic wage provisions and for the substitution of a total wage concept. On 9 June, the Commission ruled: 'The members of the bench are unanimous in the opinion that the application of the employers for the deletion from the Commission's awards generally of the basic wage provisions and for the insertion in those awards of a wage expressed as a total wage should be rejected'. The Commission was divided on the amount of the basic wage increase and awarded \$2 on the casting vote of the President.

- 1965 The Commission considered two claims: (i) from the employers, for the fixation of a total wage, and (ii) from the unions, for an increase in the basic wage. On 29 June, the Commission rejected the claim for acceptance of the total wage principle as such but awarded an increase in margins, such increase to be calculated as follows: 1.5 per cent of total wage (total wage being defined as basic wage plus margin). The increase calculated in accordance with this formula was to be added to the margins component of award wages.
- 1966 (i) The Commission again had a claim from the employers for fixation of a total wage, while the unions presented claims affecting both the basic wage and margins. Without rejecting the concept of a total wage, the Commission increased the basic wage by \$2 with effect from 11 June 1966 but deferred making any decision on margins; instead, it arranged for a Commissioner to make a detailed enquiry into the margins prescribed in the Metal Trades award, the object being to obtain data which would assist in fixation of new rates based on work value considerations. It also ordered that the *minimum wage* paid under the Metal Trades award should include a margin of \$3.75 above the appropriate basic wage (e.g. in Tasmania, basic wage \$33.40 plus \$3.75 giving minimum of \$37.15); the minimum wage in this award was nevertheless expressed as a total wage. (ii) Later in the year, the unions made a claim for an interim margins increase, the investigation by the Commissioner into work value aspects not having been completed. The claim was based on general economic grounds, i.e. erosion of purchasing power and increased productivity. In December, the Commission awarded margin increases in accordance with the following formula:

Commonwealth Interim Margins Award, 1966

Margins in Current Awards	Percentage Increase Awarded
Under \$5.00	1.0 per cent of total wage
\$5.00 but less than \$7.50	1.5 per cent of total wage
\$7.50 but less than \$11.20	2.0 per cent of total wage
\$11.20 or more	2.5 per cent of total wage

The increase, calculated in accordance with the formula in the table, was to be treated in the same manner as the 1965 increase, i.e. added to current margins.

- 1967 The Commission heard a claim from the employers for fixation of a total wage, and a claim from the unions for increases in the basic wage and in margins. On 5 June, it gave its decision, and abolished the concept of the basic wage. Part of the finding read:

'The Commission's basic wage has become important in three specific ways. It has guaranteed a minimum wage to workers under its awards, its variation has been the means of giving general wage increases on economic grounds, and the secondary wage structure has been built on it. It has played a significant part in improving wage standards. Since the famous decision of Higgins J. some 60 years ago, the basic wage has served the workers of Australia well. It has been the keystone of our wages system and has a special quality.'

'But in our view the time has come to overhaul our time-honoured system because a course is now open which is more consonant with modern requirements and which at the same time will give better protection to employees. *We should now express wages as total wages and retain the minimum concept introduced by the Commission in July 1966.*'

The Commission awarded \$1 increases in total wage for both males and females, disregarding the 75 per cent relativity previously maintained in the male and female basic wage. This was a deliberate step, the Commission stressing the need for investigation and debate in the formulation of a policy aimed at gradually adjusting female total wages where adult males and females do equal work.

The Commission said that in future annual reviews, awards could be expressed in any one of four possible ways: (i) a flat amount added to the total wage (as in 1967); (ii) a flat percentage applied to the total wage (as in 1965); (iii) varying percentages applied to varying levels of total wage (as in December 1966); (iv) an entirely new formula. With regard to (iv), the Commission stated: 'We will not attempt to tie the hands of future benches in this regard.'

To summarise, the 1967 award meant the end of separate awards for the basic wage and for margins; the Commission's annual review, in future, will be concerned with the total wage and the case for an increase in the total wage will be argued on general economic grounds, principally erosion of purchasing power and increased productivity. While margins cases, as such, can no longer be argued, provision still exists in the arbitration system for a re-assessment of work value for individual occupations; however, when rates are revised as a result of work value cases, the new rates will be expressed as total wages and not as margins variations.

In the July 1966 award, the *minimum total wage* for a male adult employed under the Metal Trades award in Hobart was fixed at \$37.15 (i.e. \$3.75 above the Hobart Federal basic wage \$33.40). As a result of the June 1967 determination, this *minimum total wage* rose to \$38.15.

- 1968 The National Wage Case commenced on 20 August 1968. The applicant metal trades unions, mounting the test claim as usual, asked for restoration of the basic wage concept (and therefore of the margin concept). In July 1966, the Sydney basic wage in Federal awards had been fixed at \$33.50 and in June 1967, the concept of a Federal basic wage was abolished; in their August 1968 case, the applicant unions asked for the Sydney basic wage to be fixed at \$44.60.

As an alternative, if the Commission again insisted on retaining the total wage concept, the applicant unions asked for an increase of \$7.30 in all wages, including the standard minimum rate of \$38.25 (Sydney) or \$38.15 (Hobart.)

The award of the Commission was handed down on 4 October 1968. The Commission (i) rejected the claim for restoration of the basic wage; (ii) increased adult male and female award rates by \$1.35 per week. The effect in Hobart was to make the standard minimum rate \$39.50.

Total Wage Concept in Tasmania

The Commonwealth award of June 1967 was followed by a test case argued before the Chairman of the State Wages Boards. The employers asked for adoption of the total wage concept. The unions opposed this and argued for a \$7.30 increase in the basic wage; if a lesser amount were determined, then a *minimum total wage* of \$40.70 should nevertheless be fixed.

The decision in the test case (Electrical Trades) was that both male and female rates should be increased by \$1; the increase, however, should be regarded as *raising the basic wage* which would be retained for the present in State determinations. In the National Wage Case of October 1968, the *total wage concept* was again upheld but State Wages Boards did not follow the Federal lead; the basic wage is still retained in State determinations, expressed as \$35.75 (male) and \$27.40 (female).

Equal Pay Legislation

Introduction

The concept of 'equal pay' has achieved partial recognition in some Australian States because there exist occupations in which men and women perform work which is identical (e.g. teaching, medical practice, etc.); such identity has given birth to industrial claims based on the principle of 'equal pay for equal work'. The logic of such occupational situations was ignored in the past and it was only in 1950 that the Commonwealth Court of Conciliation and Arbitration fixed the female basic wage at 75 per cent of the male rate (it had previously been as low as 54 or 56 per cent). With regard to margins, there has been no universal rule but, in the Commonwealth Public Service, for example, certain female employees receive the same margin as males, but only the female basic wage.

N.S.W. Legislation (1959)

The first acceptance of the principle of equal pay for equal work came in N.S.W. in 1959, the Industrial Arbitration Act being amended to provide equal pay for males and females under certain circumstances. If the Industrial Commission or a Conciliation Committee was satisfied that male and female employees under an award were performing identical work, it was to prescribe the same margin for males and females. The basic wage was to be adjusted to equal the male rate in annual five per cent increments spread over the period 1959-1963.

Tasmanian Legislation (1966)

The N.S.W. legislation applied to employees in both the private and public sectors (excluding those in Commonwealth employment or under Commonwealth awards). In Tasmania, the approach to the problem was different in that the Parliament in 1966 passed legislation affecting only employees in the public sector. The *Public Service (Equal Pay) Act* 1966 applies to those employed by the State Government or employed by State authorities, e.g. the teaching service, the police force, the railway service, etc. The Act requires that wage-fixing authorities must first be satisfied in any application, that certain female employees are performing 'work of the same or a like nature and of equal value'. If this is established, then the authority is required to fix the same margins for all employees, irrespective of sex. This does still not give equal pay due to the lesser female basic wage. Accordingly the Act provides for annual five per cent increments in the female basic wage (80 per cent of the male basic wage from January 1968, 85 per cent from January 1969 and so on with equality reached in 1972).

The wage-fixing authorities specified in the Act include Wages Boards, the Public Service Tribunal, the Public Service Commissioner and any other person or body required to act as such by law. In actual practice, the majority of claims for an award variation will be made to the Public Service Tribunal, the principal wage-fixing authority for employees in the public sector.

National Wage Case, 1967

In awarding the \$1 increase to both males and females, the Commonwealth Conciliation and Arbitration Commission departed from the principle of maintaining a 75 per cent ratio between the male and female basic wage. This was done deliberately and the Commission's pronouncement in June 1967 referred to the eventual possibility of equal pay for equal work.

Whilst the basic wage continues to be prescribed in Tasmanian State awards, the provisions of the *Public Service (Equal Pay) Act* remain effective. If the total wage concept is adopted in State awards before 1972, it will be necessary to amend the Act and write new provisions so that those entitled to equal pay may receive it in accordance with the original programme.

Teachers' Case, 1968

In June 1968, the Public Service Tribunal gave a ruling affecting Tasmanian women teachers employed by the State Government; it held that they were doing work of the same or a like nature and of equal value. In general, women teachers were already receiving the same margins as men so the effect of the Tribunal's decision was to increase the base rate component of their salary to 80 per cent of the male base rate, with effect from 23 May 1968. (A teacher's salary in June 1968 had three components: (i) base rate, \$33.40 male or \$25.05 female per week; (ii) \$1 per week loading, male and female; (iii) margin. The female base rate, \$25.05, was 75 per cent of the male base rate, \$33.40.) In accordance with the Act, the base rate for females will be steadily advanced until it equals the male rate in 1972.

State Employees Receiving Equal Pay

Since the May 1968 Teachers' determination, equal pay has been extended into many professional areas for State Government employees. In September 1968 Scientific Officers were granted equal pay; the occupational categories accorded equal pay have been broadened and now include architects, lawyers, doctors, draughtswomen, psychologists, pharmacists, dentists and some types of technical and nursing staff.

National Equal Pay Case 1969

Introduction

Two benches of the Conciliation and Arbitration Commission handed down a joint decision on the National Equal Pay Case on 19 June 1969. The decision was important because, for the first time, the concept of 'equal pay for equal work' was accepted in principle by the Commission. However, equal pay is not to be granted automatically; equality of work must be proved before an increase will be granted to female workers.

Claims and Argument

The *Union* representatives asked for the insertion of an amount of money into the award and determinations which would eliminate the difference between the former male and female basic wages. The union advocate explained that the principle of equal pay for equal work was general trade union policy,

and asked the commission to treat this as a test case. The Unions' arguments were based on the economic status and importance of women in our expanding post-war economy. Reference was made to a number of international conventions, in particular those of the International Labour Organisation and the United Nations in support of the case.

Representatives of *women's organisations* emphasised the status of women in the community and the desirability to end discrimination against women in all forms. Reference was also made to the University of Melbourne's 1966 'Poverty Survey' which documented the struggle of certain groups of women to achieve a proper standard of living.

The Commonwealth Government opposed the unions' claims on economic grounds and because it felt that conclusions based on overseas situations were not applicable to the Australian situation. However, the Commonwealth supported the principles to be found in the equal pay Acts of New South Wales, South Australia, Western Australia and Tasmania.

The Commonwealth Public Service Board and representatives of the various *Commonwealth Instrumentalities* also supported the principles of the State Acts.

Private employers' representatives opposed the granting of equal pay and emphasised that increases of the magnitude asked for would unbalance the economy. They also submitted that the current inequality of male and female wages is based on family responsibilities, and that such differentials in the wage structure were proper exceptions to the International Labour Organisation Conventions' about equal pay for equal work. It was also argued that the unions' claim should be dismissed on the ground that no case had been made out for abolishing the social differential between male and female wages. The employers supported this concept of the basic wage as a social wage, since the male carried most of social responsibilities.

Commission's Findings

The four broad issues which emerged from the submission are discussed below:

(1) *The History of Wage Fixation in the Federal System:* The Commission considered that although there was still a relic of the concept of the family wage in most of the present total wages, it no longer had the conceptual or economic significance which it once had, and was no real bar to a consideration of equal pay for equal work.

(2) *The Attitude of Australian Governments:* The Commission viewed the fact that N.S.W., S.A., W.A. and Tasmania had passed virtually identical legislation on equal pay as significant for two reasons: (i) because the existence of this legislation demonstrates, by implication, that the community supports the concept of equal pay for equal work; and (ii) because the Commission thought it undesirable to adopt an approach which was different from that applied by the laws of those States.

The Commission also viewed the support of the states' legislation by the Commonwealth Government, the Commonwealth Public Service Board, and the Commonwealth Instrumentalities as significant.

(3) *The International Material:* The Commission viewed the recommendations of the International Labour Organisation as representative of international thinking on the question of equal pay for equal work, but observed that their meaning in the Australian scene was by no means clear.

(4) *The Economic Effect:* The Commission considered that if gradual implementation of equal pay were adopted in line with the relevant State legislation (i.e. in progressive steps from 1969 to 1972) no significant economic problems would arise from the decision.

Conclusions

The Commission accepted the concept of 'equal pay for equal work', implying the elimination of discrimination based on sex alone, and viewed the case as a question of principle, as the granting of the claim was intended to be no more than a first step towards the application of a principle, and the equality of the work must be first determined before an increase to females could be awarded.

It must be decided to implement the principle of equal pay for equal work to the extent that the principles of the State Acts were to be introduced into the cases before them.

Principles to be applied

The Commission stated that it would be necessary for a separate examination to be made of each determination and award in respect of the awarding of equal pay, and suggested that the following principles should be applied in deciding these applications:

- (i) the male and female employees concerned must be adults and should be working under the terms of the same determination or award;
- (ii) it should be established that certain work covered by the determination or award is performed by both males and females;
- (iii) the work performed by both the males and the females under such determination or award should be of the same or a like nature and of equal value, but mere similarity in name of male and female classifications may not be enough to establish that males and females do work of a like nature;
- (iv) for the purpose of determining whether the female employees are performing work of the same or a like nature and of equal value as the male employees the Arbitrator or the Commissioner, as the case may be, should in addition to any other relevant matters, take into consideration whether the female employees are performing the same work or work of a like nature as male employees and doing the same range and volume of work as male employees and under the same conditions;
- (v) consideration should be restricted to work performed under the determination or award concerned;
- (vi) in cases where males and females are doing work of the same or a like nature and of equal value, there may be no appropriate classifications for that work. In such a case appropriate classifications should be established for the work which is performed by both males and females and rates of pay established for that work. The classifications should not be of a generic nature covering a wide variety of work;

- (vii) in considering whether males and females are performing work of the same or like nature and of equal value, consideration should not be restricted to the situation in one establishment but should extend to the general situation under the determination or award concerned, unless the award or determination applies to only one establishment;
- (viii) the expression of 'equal value' should not be construed as meaning 'of equal value to the employer' but as of equal value or at least of equal value from the point of view of wage or salary assessment;
- (ix) notwithstanding the above, equal pay should not be provided by application of the above principles where the work in question is essentially or usually performed by females but is work upon which male employees may also be employed.

Where the Arbitrator or the Commissioner is satisfied that equal pay should be awarded, the Commission considered that the implementations of such a decision should be on a progressive basis over four years as follows (provided that no female rates should be reduced by operation of this formula):

Equal Pay Case Decision, 19 June 1969

Date of Operation				Amount of Female Rate	
Beginning of first pay period to commence on or after—					
1 October 1969	..	..	85%	} of the male rate at that date	
1 January 1970	..	..	90%		
1 January 1971	..	..	95%		
1 January 1972	..	..	100%		

Weekly Wage Rates in Tasmania

Definitions

In this section, 'weekly wage rates' is used as a short title for '*weighted average minimum* weekly wage rates'. The rates are those applicable to adult males and adult females, and are those fixed in *awards*.

The minimum wage is the lowest rate payable for a particular occupation, and for most occupations it comprises the basic wage and 'secondary' wage payments, i.e. additional amounts such as margins for skill, etc. and loadings of various kinds. In the majority of cases such rates are prescribed in awards or determinations of Commonwealth or State industrial authorities or in agreements registered with them. Some rates are prescribed in unregistered agreements between employers and employees. The decision of the Arbitration Commission (June 1967) to end the basic wage does not affect the compilation, the basic data being still minimum award wages for individual occupations. The position in 1968 was that the basic wage was retained in the awards of certain States (including Tasmania) but no longer prescribed in the awards of other States or of the Commonwealth.

Weighting: To arrive at a weighted average rate for a particular field (e.g. rate for occupations in Tasmania covered by Commonwealth awards), certain data are required. The basic initial information is the award rate applying to each occupation and its relative significance (broadly, the numbers in each occupation).

The calculation of average minimum rates is based on the occupational structure existing in 1954. Weights for each industry and each occupation were derived from two sample surveys made by the Bureau in that year. The first was the Survey of Awards in April 1954 which showed the number of employees covered by individual awards, determinations and agreements, and provided employee weights *for each industry* as well as a basis for the Survey of Award Occupations made in November 1954. This second survey showed the number of employees in each occupation within selected awards, etc. in the various industries, thereby providing weights *for each occupation*.

The individual minimum wage rates combined to give the averages shown in the tables are those for representative occupations within each industry. They have been derived entirely from representative awards, determinations and agreements in force at the end of each period commencing with March 1939 for adult males, and March 1951 for adult females. In Australian figures for adult male rates, 2,313 individual award occupations are included; for adult female rates, 515; a lesser number is used in determining Tasmanian rates. By use of the industry and occupation weights derived from the surveys of 1954, rates for these occupations were combined to give weighted averages for each industry group for each State and for Australia. Because of coverage difficulties, the rural industry is not included.

Since the aim is to measure movements in prescribed minimum rates of 'wages' as distinct from 'salaries', those awards, etc. which relate solely or mainly to salary-earners are excluded.

Weighted averages of the components of the total minimum weekly wage rate, i.e. basic wage, margin and loading, are calculated separately for adult male employees covered by Commonwealth awards, etc., and for those covered by State awards, etc.

'Commonwealth Awards, etc.': These include awards of, or agreements registered with, the Commonwealth Conciliation and Arbitration Commission, and determinations of the Commonwealth Public Service Arbitrator.

'State Awards, etc.': These include awards or determinations of, or agreements registered with, State industrial tribunals, together with certain unregistered agreements, where these are dominant in the particular industries to which they refer. (In Tasmania, the principal tribunals are the State Wages Boards.)

'Basic Wage Rates': These are weighted averages of the weekly rates prescribed in awards, etc. for the occupations included in the calculation. For industries other than mining, metropolitan basic wage rates have generally been used. However, there are a number of occupations for which basic wage rates other than the metropolitan rate are prescribed. In all such cases, the basic wage rate actually paid is used in the tables. As a result, the weighted average basic wage shown in this section differs from the Hobart basic wage appearing elsewhere.

'Margins': These are minimum amounts, in addition to the basic wage, awarded to particular classifications of employees for special features such as skill, experience, arduousness or other like factors.

'Loadings': These include industry loadings and other general loadings prescribed in awards, etc. for the occupations included in the calculation. Loadings that are not applicable to all workers in a specified award occupation (for example, those payable because of length of service; working in wet, dirty or confined spaces, etc.) are not included in the calculation.

Male and Female Rates

The following table summarises weekly wage rates for adult males and adult females in Tasmania from 1951 onwards. The averages include Commonwealth and State awards, etc. and are for all industry groups combined:

Weighted Average Minimum Weekly Wage Rates (a)
Adult Males and Adult Females—All Groups
(\$)

End of December—	Adult Rate		End of December—	Adult Rate	
	Male	Female		Male	Female
1953	28.33	19.72	1961.. ..	36.27	24.82
1954	28.77	19.76	1962.. ..	36.48	24.83
1955	29.36	20.00	1963.. ..	37.29	25.21
1956	31.39	21.52	1964.. ..	39.69	27.04
1957	31.85	21.90	1965.. ..	40.73	27.94
1958	32.36	22.12	1966.. ..	43.23	29.80
1959	34.71	23.42	1967.. ..	45.31	31.62
1960	35.15	23.88	1968.. ..	48.96	33.45

(a) Weighted average minimum weekly rates payable for a full week's work (excluding overtime), as prescribed in awards, determinations, etc.

Limitation: The wage rates shown in the tables in this section should not be regarded as actual current averages, but rather as indexes expressed in money terms, indicative of trends. The wage rates do not measure the relative level of minimum wages as between States.

Minimum weekly wage rates for adult males should not be compared with 'average weekly earnings per employed male unit' appearing in a later section of this chapter; the latter includes not only the earnings of adult wage-earners but also those of salaried employees, junior wage-earners and part-time and casual employees.

Rates in Industry Groups

In the next table, details are shown of Tasmanian weighted average minimum weekly wage rates payable for a full week's work (but excluding overtime) for adult males and females as prescribed in awards, determinations, etc. of the various industry groups; also the same information converted to index numbers with the Australian weighted average minimum weekly wage rate for 1954 equated with 100. It should be noted that the figures shown in this table are statistical averages and should not be confused with the *minimum wage* prescribed by the Commonwealth Conciliation and Arbitration Commission.

**Weighted Average Minimum Weekly Wage Rates and Index Numbers
Adult Males and Adult Females—Industry Groups, 31 December 1968**

Industry Group	Adult Males		Adult Females	
	Rates of Wage (\$)	Index Numbers (a)	Rates of Wage (\$)	Index Numbers (a)
Mining and Quarrying	52.53	186.0	..	..
Manufacturing—				
Engineering, Metals, Vehicles, etc. ..	50.63	179.3	33.00	165.8
Textiles, Clothing and Footwear ..	43.95	155.6	31.33	157.4
Food, Drink and Tobacco	46.50	164.7	31.66	159.0
Sawmilling, Furniture, etc.	46.15	163.4	31.60	158.7
Paper, Printing, etc.	49.03	173.6	33.63	168.9
Other Manufacturing	46.88	166.0	..	..
All Manufacturing Groups	48.19	170.6	31.85	160.0
Building and Construction	49.82	176.4	..	..
Railway Services	48.41	171.4	33.67	169.1
Road and Air Transport	47.93	169.7	..	..
Shipping and Stevedoring	46.65	165.2	..	..
Communication	57.48	203.5	39.63	199.1
Wholesale and Retail Trade	48.15	170.5	34.16	171.6
Public Authority (n.e.i.) and Community and Business Services	52.22	184.9	37.52	188.5
Amusement, Hotels, Personal Service, etc. ..	44.68	158.2	32.56	163.5
All Industry Groups	48.96	173.4	33.45	168.0

(a) Base of index numbers: weighted average minimum weekly wage rate, Australia, 1954=100.0.

Minimum Wage

In the 1967 and 1968 *Year Book*, the tables in this section were headed 'Minimum Weekly Wage Rates' but, in the 1969 volume, the title was changed to 'Weekly Wage Rates' to avoid any confusion with a wage defined by the Commonwealth Conciliation and Arbitration Commission in June 1966. The Commission increased the basic wage by \$2 but also ordered that the *minimum wage* paid under the Metal Trades award should include a margin of \$3.75 above the appropriate basic wage (e.g. in Tasmania, basic wage \$33.40 plus \$3.75 giving minimum of \$37.15 in July 1966). The 'weekly wage rates' in the tables are statistical weighted averages and have no connection whatsoever with the *minimum wage* as defined and varied by the Arbitration Commission.

Index Numbers

In the previous table, the minimum average weekly wage rates have also been expressed as index numbers. It should be emphasised that the rates themselves are not actual current averages but are rather indexes expressed in money terms; as such they are indicative of trends rather than of levels.

The following table shows, in summary form, the index numbers for adult male and adult female weighted average minimum weekly wage rates in Tasmania from 1960:

**Weighted Average Minimum Weekly Wage Rates—Index Numbers, All Groups
Adult Males and Adult Females**

End of December—	Index Numbers (a)		End of—	Index Numbers (a)	
	Male	Female		Male	Female
1962	129.2	124.7	December—1967 ..	r 160.4	158.8
1963	132.0	126.6	March —1968 ..	165.1	159.4
1964	140.5	135.8	June —1968 ..	165.9	160.0
1965	144.2	140.4	September—1968 ..	167.6	160.5
1966	153.1	149.7	December—1968 ..	173.4	168.0

(a) Base of index numbers: weighted average weekly wage rate, Australia, 1954=100.0.

Components of Weekly Wage Rates (Male)

The next table shows for Tasmania the adult male weighted average minimum weekly rate, according to its Commonwealth and State award elements, for *Tasmania*. The State award element is shown in its component parts (basic wage, margin and loading). However, adoption of the total wage concept in June 1967 precludes a similar dissection of Commonwealth awards (Commonwealth awards prior to June 1967 are also shown in total only).

**Weighted Average Minimum Weekly Wage Rates Each December (a)
Components of Wage Rate, All Groups—Adult Males
(\$)**

Particulars	1963	1964	1965	1966	1967	1968
Commonwealth Awards ..	36.79	39.14	40.21	42.71	r 44.58	48.46
State Awards, etc.—						
Basic Wage ..	29.48	31.39	31.39	33.39	34.40	35.75
Margin ..	7.64	7.94	8.86	r 9.13	10.15	12.01
Loading ..	0.96	1.21	1.27	1.61	1.88	1.97
Total ..	38.08	40.54	41.52	r 44.14	r 46.43	49.73
All Awards ..	37.29	39.69	40.73	r 43.27	r 45.31	48.96

(a) For a full week's work (excluding overtime) as prescribed in awards, determinations, etc.

Australian Rates

In the next table, rates and index numbers are shown for each Australian State:

**Australia—Weighted Average Minimum Weekly Wage Rates (a)—All Groups
Adult Males**

End of December	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Australia
RATES OF WAGE (\$)							
1964	40.27	39.47	39.22	38.69	38.82	39.69	39.65
1965	41.08	40.34	41.66	39.48	40.49	40.73	40.76
1966	43.27	42.78	43.56	41.75	43.37	43.23	43.04
1967	r 45.24	44.59	r 45.55	r 43.78	r 45.08	r 45.31	r 44.96
1968	49.19	48.71	48.86	47.94	47.59	48.91	48.78

**Australia—Weighted Average Minimum Weekly Wage Rates (a)—All Groups
Adult Males—continued**

End of December—	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Australia
INDEX NUMBERS (b)							
1964	142.6	139.8	138.9	137.0	137.5	140.5	140.4
1965	145.5	142.8	147.5	139.8	143.4	144.2	144.3
1966	153.2	151.5	154.2	147.8	153.6	153.1	152.4
1967	r 160.2	157.9	r 161.3	155.0	r 159.6	r 160.4	r 159.2
1968	174.2	172.5	173.0	169.8	168.5	173.2	172.7

(a) For a full week's work (excluding overtime), as prescribed in awards, determinations, etc.

(b) Base of index numbers: weighted average minimum weekly wage rate, Australia, 1954=100.0.

Hourly Wage Rates in Tasmania

General

Hourly wage rates is the short title for 'weighted average minimum hourly rates payable'. The concept is completely analogous to that embodied in weighted average minimum weekly wage rates and the calculation is similarly based on rates prescribed in awards or determinations of Commonwealth and State industrial authorities or in agreements registered with them.

Definitions

Hours of Work: In the fixation of weekly wage rates, most industrial tribunals prescribe the number of hours constituting a full week's work for the wage rates specified. The hours of work so prescribed form the basis of the compilation of the weighted averages of hourly rates.

Rural industry is excluded from the calculation of weighted average minimum weekly wage rates. Rural industry, and in addition the shipping and stevedoring industry, are excluded from the calculation of weighted average minimum hourly wage rates; the shipping and stevedoring group is excluded since definite particulars for the computation of hourly wage rates are not available.

The 40-hour week has operated in Australia generally from 1 January 1948 (N.S.W., from 1 July 1947). Nevertheless the number of hours constituting a full week's work (excluding overtime) differs between occupations and/or States. The weighted average standard hours of work (excluding overtime) prescribed in awards, determinations and agreements for a full working week, in respect of adult male workers in all industry groups except rural, and shipping and stevedoring, at 30 June 1967, were: N.S.W., 39.95; Victoria, 39.97; Queensland, 39.98; S.A., 39.96; W.A., 39.89; Tasmania, 39.97; Australia, 39.96. Corresponding figures for adult female workers at 30 June 1967, were: N.S.W., 39.53; Victoria, 39.81; Queensland, 39.70; S.A., 39.77; W.A., 39.78; Tasmania, 39.63; Australia, 39.67.

Weekly Wage Rate Definitions: Apart from exclusion of the shipping and stevedoring industry, the definitions in the section headed 'weekly wage rates' apply with equal force to the calculation of hourly wage rates.

Summary of Details

The following table shows, for Tasmania, weighted average minimum hourly wage rates for adult male and adult female workers in all industries (except rural, and shipping and stevedoring) since 1939:

**Weighted Average Minimum Hourly Wage Rates, All Groups
Adult Males and Adult Females**

End of—	Males (a)	Females (b)	End of—	Males (a)	Females (b)
RATE OF WAGE (\$)					
December—1939 ..	0.2095	<i>n.a.</i>	December—1965 ..	1.0211	0.7052
1945 ..	0.2642	<i>n.a.</i>	1966 ..	1.0842	0.7520
1950 ..	0.4952	<i>n.a.</i>	1967 ..	<i>r</i> 1.1365	0.7979
1955 ..	0.7371	0.5056	March —1968 ..	1.1704	0.8010
1960 ..	0.8808	0.6037	June —1968 ..	1.1760	0.8039
1962 ..	0.9142	0.6277	September—1968 ..	1.1874	0.8064
1963 ..	0.9340	0.6361	December—1968 ..	1.2284	0.8442
1964 ..	0.9946	0.6822	March —1969 ..	1.2325	0.8472

INDEX NUMBERS (c)

December—1939 ..	29.6	<i>n.a.</i>	December—1965 ..	144.3	140.6
1945 ..	37.3	<i>n.a.</i>	1966 ..	153.2	149.9
1950 ..	70.0	<i>n.a.</i>	1967 ..	<i>r</i> 160.6	159.0
1955 ..	104.2	100.8	March —1968 ..	165.4	159.7
1960 ..	124.5	120.3	June —1968 ..	166.2	160.2
1962 ..	129.2	125.1	September—1968 ..	167.8	160.7
1963 ..	132.0	126.8	December—1968 ..	173.6	168.3
1964 ..	140.6	136.0	March —1968 ..	174.2	168.9

(a) All industry groups except rural, and shipping and stevedoring.

(b) All industry groups except rural, mining and quarrying, and building and construction.

(c) Base of index numbers: weighted average hourly wage rate, Australia, 1954=100.0.

Average Weekly Earnings in Tasmania

Source of Data

The figures in the following section are derived from particulars of employment and of wages and salaries recorded on pay-roll tax returns, from other direct collections and from estimates of the unrecorded balance. (In general, businesses with pay-rolls of less than \$1,734 per month are exempt from pay-roll tax and do not need to supply monthly details of employment and of wages and salaries.) Pay of members of the defence forces is not included.

Definitions

'Employed Male Unit': This is a special unit devised to overcome the difficulty that particulars of wages and salaries are not available separately for males and females. (The basic data available are the number of males, the

number of females and the total pay-roll only.) The number of females is converted to a *lesser equivalent number* of males by taking into account the approximate ratio of female to male earnings; a divisor for deriving average 'male' earnings is then obtained by adding the actual number of males to the calculated number of 'male equivalents'. The divisor so obtained consists of 'employed male units'. As it is not possible to estimate the ratio of male to female earnings in the several States, the same ratio is used for each State. Because the actual ratio may vary between States, precise comparisons between average earnings in different States cannot be made on the basis of the figures.

Components of Pay-roll: Pay-roll includes, in addition to wages at award rates, the earnings of salaried employees, over-time earnings, over-award and bonus payments, and payments made in advance or retrospectively, (e.g. advances of annual leave pay). Included also are the wages and salaries, not only of adults, but also of juniors; the earnings may relate to full-time, part-time or casual workers.

Invalid Comparison: Average earnings per employed male unit cannot be compared with male weighted average minimum weekly wage rates shown in the previous section. Weighted average minimum weekly wage rates relate to award rates for adult male wage earners in non-rural industry for a full week's work, at the end of each month or year; the average weekly earnings per employed male unit are derived from the pay-roll concept shown in the previous paragraph, and obviously cover a wider field of earnings and of wage and salary earners.

Seasonal Influence: Quarterly figures are affected by seasonal influences. Comparisons as to trends are generally best made by relating complete years or corresponding periods of incomplete years. However, from December quarter 1963, comparisons with corresponding quarters of earlier years are affected by additional prepayments arising from three weeks' leave.

Annual and Quarterly Details

The following table shows, for Tasmania, average weekly earnings per employed male unit; the figures are arranged both as quarterly and annual averages.

Average Weekly Earnings Per Employed Male Unit (a)
(£)

Year	Average for Quarter Ending—				Average for Year
	September	December	March	June	
1958-59	37.90	41.20	37.60	40.30	39.20
1959-60	40.20	42.30	40.70	44.50	41.90
1960-61	41.90	44.20	42.50	44.70	43.30
1961-62	43.00	45.80	44.50	47.80	45.30
1962-63	44.90	45.90	44.50	48.30	45.90
1963-64	46.40	50.70	46.50	49.90	48.40
1964-65	49.60	51.90	49.70	52.70	51.00
1965-66	50.50	56.40	53.10	55.20	53.80
1966-67	54.90	59.50	55.50	59.50	57.40
1967-68	58.80	63.30	58.90	62.90	61.10
1968-69	60.50	66.90	62.20	66.50	63.80

(a) For definitions, see earlier section headed 'Definitions'.

Australian Details

The next table shows average weekly earnings per employed male unit for each Australian State. The calculation of the number of 'employed male units' depends on use of a common ratio of male to female earnings for all States; because the actual ratio may vary between States, *precise* comparisons between average earnings in different States cannot be made on the basis of the figures shown.

Australia—Average Weekly Earnings Per Employed Male Unit (a)
(3)

Period	N.S.W. (b)	Vic.	Qld.	S.A. (c)	W.A.	Tas.	Australia
1955-56 ..	37.90	37.80	33.00	35.90	33.90	35.60	36.70
1960-61 ..	48.10	47.20	41.60	43.40	41.60	43.30	46.00
1965-66 ..	58.60	59.20	52.50	53.80	54.10	53.80	57.00
1967-68 ..	66.00	66.80	58.80	60.40	62.50	61.00	64.30
Dec. Qtr 1967..	67.40	r 69.20	r 61.40	61.60	63.80	r 63.30	r 66.20
Dec. Qtr 1968..	74.30	73.30	64.70	65.90	68.50	66.90	71.30

(a) For definitions, see section headed 'Definitions'.

(b) Includes the Australian Capital Territory.

(c) Includes the Northern Territory.

Surveys of Weekly Earnings and Hours

General

Sample surveys in respect of most employers in the private sector subject to pay-roll tax have been conducted by the Bureau as at the last pay period in October. The results of the surveys are based on returns from stratified random samples of private employers subject to pay-roll tax; for Australia as a whole, the 1968 survey was based on the returns of 4,250 employers whose employees numbered 1,621,000 males and 713,000 females. The 1965 survey is not included in the following table since it was conducted for a special purpose and is not strictly comparable with those for other years.

Definitions

Weekly Earnings: gross earnings before taxation and other deductions have been made; includes *overtime earnings*, ordinary time earnings, shift allowances, penalty rates, commission and similar payments; and that part of paid annual leave, paid sick leave, long service leave and paid holidays taken during the specified pay-period. It includes one week's proportion of payments made other than on a weekly basis, e.g. salary paid fortnightly or monthly. Retro-spective payments are excluded.

Juniors: those under 21 years of age not paid adult rates (but 'adults' may include those under 21 years receiving adult rates).

Full-time Employees: employees who ordinarily work 30 hours or more a week and who received pay for the last pay-period in October.

Results of Surveys

The next table shows, for Tasmania: (i) average weekly earnings; (ii) average weekly hours paid for; (iii) average hourly earnings. The year 1965 has been excluded from the table (see comment under 'General').

Average Earnings and Hours, Private Employment (a)—All Industry Groups (b)

Particulars	October (c)				
	1963	1964	1966	1967	1968
Average Weekly Earnings—	\$	\$	\$	\$	\$
Adult Males	48.90	52.40	60.10	62.20	65.50
Junior Males	22.70	24.40	27.80	30.90	32.40
Adult Females	29.10	30.60	33.70	35.70	37.90
Junior Females	18.40	19.40	22.00	23.80	24.50
Average Weekly Hours Paid for—	hrs	hrs	hrs	hrs	hrs
Adult Males	41.4	41.7	42.6	42.0	42.0
Junior Males	40.2	40.1	40.7	40.4	40.7
Adult Females	39.2	39.0	39.1	38.8	38.9
Junior Females	39.1	39.7	39.5	38.9	39.2
Average Hourly Earnings—	\$	\$	\$	\$	\$
Adult Males	1.18	1.26	1.41	1.48	1.56
Junior Males	0.56	0.61	0.68	0.77	0.80
Adult Females	0.74	0.78	0.86	0.92	0.97
Junior Females	0.47	0.49	0.56	0.61	0.62

(a) Private employees only. Excludes managerial, executive, professional and higher supervisory staff. Full-time employees only included.

(b) Excludes rural industry, and private domestic services.

(c) Last pay period in October.

The following table analyses total earnings, for Tasmania, to show their overtime component in October 1967:

Average Weekly Overtime and Ordinary Time Earnings (a), Private Employment (b)—October 1968 (\$)

Particulars	Average Weekly Overtime Earnings (a)	Average Weekly Ordinary Time Earnings (a)	Average Weekly Total Earnings (a)
Adult Males—			
Manufacturing—			
Founding, Engineering, Vehicles, etc.	6.50	65.60	72.10
Other	6.80	55.80	62.60
Total	6.70	58.60	65.30
Non-manufacturing	6.90	58.70	65.60
All Industry Groups ..	6.80	58.70	65.50
Junior Males—All Industry Groups ..	2.10	30.30	32.40
Females—All Industry Groups—			
Adult	1.10	36.80	37.90
Junior	0.50	24.00	24.50

(a) Averages for all employees represented in the survey.

(b) See previous table for definitions.

Minimum Wage Rates, Hobart (Selected Occupations)

The following table shows minimum wage rates for selected occupations as prescribed by Federal and State awards, agreements and various determinations (both registered and unregistered) operative at 31 December 1967 and 1968. Unless specified, rates shown in the following table are for a 40-hour week. Increases reflect: (i) \$1.35 increase granted in October 1968; (ii) various margin adjustments.

Selected Minimum Wage Rates, Adult Males and Females: Hobart
(£)

Industry and Occupation	31 December		Increase in Rates During Year
	1967	1968	
ADULT MALES			
Primary Production—			
Farming (General), General hand (a)	38.15	40.45	2.30
Grazing, Shearer (per 100 flock sheep) (b)	20.05	20.52	..
Mining and Quarrying—			
Coal Mining (c), Miner (machine)	51.05	57.40	6.35
Quarrying, Labourer	40.10	41.45	1.35
Engineering, Metals, Vehicles, etc.—			
Engineering—Fitter and Turner	46.70	55.45	8.75
Toolmaker	49.00	60.40	11.40
Textiles, Clothing and Footwear—			
Clothing Trades (Readymade), Tailor	45.70	47.05	1.35
Footwear, Maker	38.70	41.05	2.35
Textiles (Knitting), Knitter	40.30	42.50	2.20
Textiles (Woollen), Weaver	38.90	40.75	1.85
Food, Drink and Tobacco—			
Aerated Water and Cordials, General hand	38.80	40.15	1.35
Bacon Curing, Boner	50.05	57.20	7.15
Bread Baking, Doughmaker	50.20	51.55	1.35
Brewing, General hand	46.22	47.65	1.43
Butter, Cheese and Milk Processing, Butter maker	46.15	47.50	1.35
Confectionery, Confectioner (Group 1)	45.30	48.90	3.60
Jam, Fruit and Vegetable Preserving, General hand	38.25	40.35	2.10
Meat Industry—Labourer (beef, mutton)	43.70	46.70	3.00
Slaughterman (mutton)	54.75	59.45	4.70
Sawmilling, Furniture, etc.—			
Sawmilling and Timber yards—Machinist (A grade)	46.70	53.25	6.55
Sawyer (Circular)	41.95	44.95	3.00
Paper, Printing, etc.—			
Printing (General)—Bookbinder	46.70	55.45	8.75
Machine compositor	50.10	60.40	10.30
Printing (Newspapers)—Machine compositor (day work)	66.30	68.15	1.85
Machine compositor (night work) (d)	73.00	74.85	1.85
Other Manufacturing—			
Brickmaking, Drawer	42.25	43.60	1.35
Electricity Generation and Supply, Electrical fitter	53.00	60.35	7.35
Building and Construction—			
Building (e)—Bricklayer, roof tiler	58.27	64.71	6.44
Builder's labourer skilled	50.03	52.47	2.44
Builder's labourer unskilled	47.00	49.22	2.22
Carpenter	58.70	65.14	6.44
Electrician (installation)	51.80	58.95	7.15
Plasterer	58.16	64.56	6.40
Painter	58.27	64.71	6.44
Plumber	53.70	60.95	7.25
Railway Services—			
Traffic—Locomotive engine driver	56.80	62.15	5.35
Porter	40.40	41.95	1.55
Road and Air Transport—			
Road Transport, Motor truck driver (over 25 cwt under 3 ton)	44.50	45.85	1.35
Tramways and buses, Bus driver (one man operator)	50.40	55.85	5.45
Shipping and Stevedoring—			
Shipping (cargo vessels), Able seaman (f) (g)	43.35	46.70	3.35
Stevedoring, Wharf labourer (per hour) (h)	1.42	1.52	0.10

Selected Minimum Wage Rates, Adult Males and Females: Hobart—continued
(£)

Industry and Occupation	31 December		Increase in Rates During Year
	1967	1968	
ADULT MALES			
Communication—			
Post Office, Postman	43.40	47.10	3.70
Wholesale and Retail Trade—			
Butchers, General hand	48.30	55.45	7.15
Petrol Service Stations, Attendant	37.80	40.45	2.65
Retail Stores, Shop assistant (grocery)	39.40	40.75	1.35
Wool Stores, Wool classer	50.05	52.70	2.65
Public Administration, Community and Business Services—			
Hospitals, Orderly	41.10	42.45	1.35
Other Services—Graduate engineer	69.50	70.85	1.35
Graduate scientist	63.71	65.06	1.35
Amusements, Hotels, Personal Services, etc.—			
Hairdressing, Hairdresser (men's)	45.30	50.90	5.60
Hotels (i), Barman	41.70	43.55	1.85
Restaurants (i), Cook (single)	40.10	41.45	1.35
Watchmen, Cleaners, etc., Office cleaner (day)	41.00	42.35	1.35
ADULT FEMALE			
Textiles, Clothing and Footwear—			
Dry Cleaning, Presser	43.50	44.85	1.35
Order Dressmaking, Machinist	32.10	33.45	1.35
Readymade Dressmaking, Table hand or machinist	31.20	32.55	1.35
Textiles (Knitting), Machinist	29.15	31.50	2.35
Textiles (Woollen), Weaver	29.70	31.80	2.10
Food, Drink and Tobacco—			
Confectionery, General hand	29.40	31.75	2.35
Jam, Fruit and Vegetable Preserving, General hand	28.95	30.85	1.90
Transport and Communication—			
Post Office, Telephonist (j)	33.38	37.12	3.74
Wholesale and Retail Trade—			
Retail Stores—Shop assistant (confectionery)	30.25	31.63	1.35
Shop assistant (drapery)	39.40	40.75	1.35
Public Administration and Community and Business Services—			
Commonwealth Public Service, Typist (k)	38.20	39.55	1.35
Hospitals, Nurse (Registered)	46.90	48.25	1.35
Amusements, Hotels, Personal Service, etc.—			
Cleaners, Office cleaner (day)	32.65	34.00	1.35
Hairdressing, Hairdresser	34.88	39.30	4.42
Hotels (i), Barmaid	33.40	39.15	5.75
Restaurants (i), Waitress	28.65	30.00	1.35
Theatres, Usher, ticket-usher, etc. (j)	31.50	32.85	1.35

(a) 44-hour week.

(b) Rates shown are 'not found rates'. Shearers' hours of work are 40 per week.

(c) In addition to the rate shown, an attendance allowance is payable for each full fortnightly pay period worked.

(d) 38-hour week.

(e) Rates shown are weekly equivalents of hourly rates. They include allowances for excess fares, travelling time, sick leave, statutory holidays, following the job, etc.

(f) Includes an allowance valued at \$5.47 per week for keep and accommodation.

(g) Rates shown are for 40 hours of work; seamen are required to work 8 hours per day.

(h) Rates shown are for casual wharf labourers on other than special cargo work.

(i) Weekly cash payments where board and lodging are not provided.

(j) 36-hour week.

(k) 36½-hour week.

WAGE-FIXING AUTHORITIES

Tasmanian State Wages Boards

History

The evolution of the Tasmanian Wages Boards system is described in the 1968 *Year Book*; the following section briefly summarises the system.

Constitution

A wages board is set up for the common trade, industry or profession of each employers' group (e.g. Builders and Painters, embracing employers of bricklayers, carpenters, painters, glaziers and builders' labourers). On each board, of which there are about 70, the employers and the employees have equal representation; one board (Electrolytic Zinc) has eight representatives for each while, at the other extreme, the Fuel Merchants Board has only one representative for each. The *Wages Boards Act* 1920 was amended in 1961 to provide for a full-time government-appointed Chairman.

Members of Boards

Board members (both for employers and employees) are selected and appointed by the Minister for a three-year term. He may re-appoint the same members unless an objection is lodged, in which case fresh nominations are called for and the Minister must make a selection. If a further objection is lodged, the matter is decided by an election, the State Chief Electoral Officer usually being asked to conduct the ballot.

Legal practitioners are disqualified as members of boards and there are restrictions on the ratio of specialists who can be appointed (i.e. officers of trade unions and employers' organisations must not constitute the whole representation on any board).

Role of Chairman

The Chairman's chief power at meetings of boards derives from the fact that he has a casting vote; he wields no arbitral power but is enjoined, when there is equal division between the representative members to do all things ('whether by adjourning... by making suggestions, consulting with members... or otherwise') needful to obtain agreement of the board, before deciding the matter at issue on his casting vote. From the meeting's recorded decisions, the Chairman drafts a statement of the amended wage-rates, allowances and conditions; this is known as a *determination* and upon its gazettal it becomes law.

Test Cases

On occasion, issues are raised which obviously have very wide implications, e.g. general margins claims, claims for increased annual leave, etc. The meeting of the particular wages board raising the issue may be adjourned and a wider conference convened at which all major employer and employee groups are represented. The question can then be argued as one affecting a number of boards, or often all boards, but the final outcome is a determination affecting the particular wages board which raised the issue. This determination then sets the pattern for the variation of determinations of other wages boards. An amendment of the Act in 1966 provides for the variation of any wages board's determination by written application of *all* representative members, if the Chairman approves; this obviates the need for many formal meetings and also allows the outcome of test cases to be speedily adopted in the determinations of all boards.

Powers of Boards

Every board *must* determine minimum rates of wages, and the ordinary hours of work for employees. It *must* determine which adult employees are tradesmen, and specify, where the proportion of junior workers is limited, the class of work they can do. There was previously a 14-day limit on retrospectivity of determinations but the Act was amended in 1967; dependent on the Chairman's decision, determinations now become effective from the date on which the first meeting was called by the Minister, or any earlier date on which a party applied to the Minister to convene a meeting.

Other working conditions e.g. penalty rates, disability allowances, etc. *may* be the subject of wages boards' determinations. The permissive powers of the boards are contained in the Act which was amended in 1967 to permit determinations affecting bereavement leave, free protective clothing and free uniforms.

Industrial Disputes

Under the Act, the Minister may call a compulsory conference for the purpose of preventing or settling industrial disputes. Those summoned may include not only the direct participants, but also other persons concerned in industrial matters which bear on the dispute or, even more broadly, any persons at all whose attendance may facilitate a settlement. By an amendment of the Act in 1960, the conference Chairman has the power to make a written order directing certain action to be taken, if he considers it will prevent or settle the dispute; recipients of such orders are bound to comply, the penalty for ignoring an order being \$200.

The compulsory conference is presided over by a person directed by the Minister but, in practice, the Chairman of Wages Boards is given this conciliation role if his other duties permit.

The Tasmanian Public Service Tribunal

Establishment: The *Public Service Tribunal Act* 1958, together with the regulations made thereunder came into operation on 1 December 1959, and by this Act provision was made for the setting up of a single wage-fixing authority for the employees of government and semi-government instrumentalities.

Function: Briefly, the Act provides for the establishment of the Public Service Tribunal, and vests in it the power and functions of making principal awards for the purpose of determining the salaries and specified conditions of service of employees in the public service, the teaching service, the police force, public hospitals, and in various statutory authorities and State instrumentalities as prescribed. These functions include the making of determinations in respect of hours of work, qualifications required for advancement to higher grades, and rates of relieving, travelling, mileage, proficiency, lodging and meal allowances.

Members: The Tribunal is composed of a full-time chairman, and four part-time members, one being the Government nominee, and the others being the elected representatives of the police force, the teaching service and the general service respectively. For each hearing the Tribunal consists of the Chairman, the Government nominee, and the appropriate elected member, according to the group affected by the claim being heard. In September 1968, an amendment to the Act was proclaimed, resulting in the appointment of a full-time Deputy-Chairman (thus allowing two simultaneous hearings).

'Authorities' and 'Organisations': The Act provides for employer authorities and for the formation of employee organisations, known respectively as 'Controlling Authorities' and 'Service Organisations'. These, together with the Chief Secretary as Minister administering the Act on behalf of the Government, constitute the parties entitled to be represented and appear before the Tribunal in its proceedings. At present, there are 16 controlling authorities prescribed, and 25 service organisations registered under the Act, and since the individual employee has no right to instigate proceedings, all approaches to the Tribunal must be through his controlling authority or service organisation.

Lodging of Claims: Awards of the Tribunal are current for a statutory period of three years, and thereafter continue in force until revoked by a subsequent principal award. However, claims to amend an award may be made within this term on the several grounds prescribed by the Act, which include the correction of defects or anomalies, variations in Federal awards and awards of other States, and by an award amending application agreed to by both parties. In this way, a considerable degree of flexibility is introduced and parties are allowed access to the Tribunal in the event of changed circumstances during the term of an award. In 1968, the Act was amended to allow the making of consent awards.

Obligation Imposed on Tribunal: In the exercise of its functions, the Tribunal is required to have regard to: (a) the necessity for promoting the efficiency of employees in the public service; (b) the latest awards of the Commonwealth Conciliation and Arbitration Commission; (c) the rates of remuneration, direct and indirect, and the working conditions generally, prevailing in industry; (d) any changes in the cost of living; and (e) awards affecting the public services of other Australian States and the Commonwealth, if the Tribunal considers them relevant.

Classification: In making awards, the Tribunal is empowered to determine, '... scales of salaries for grades, divisions and occupational groups of employees, and for sub-divisions of those grades, divisions and occupational groups', but the power to classify employees within these scales remains with the controlling authorities. Within two months of such a classification being made, a service organisation, any member of which is affected thereby, may apply to the Tribunal to have the classification varied or disallowed, and in dealing with such an application, the Tribunal may, if it so determines, classify or grade the holder of an individual position within the terms of the appropriate award. It has no power, except where a new position is created, or where an appeal against a classification by a controlling authority is upheld, to determine the salary to be paid the holder of a particular office, or to make a classification or grading in respect thereof.

Total Wage Decision, 1967: The total wage decision of the Commonwealth Conciliation and Arbitration Commission in June was followed shortly afterwards by an award of the Tribunal. The same quantum of increase (\$1 male and female) was adopted but not incorporated as part of the base rate; service salaries therefore had three components: (i) base rate; (ii) margin; (iii) a \$1 loading. The base rate (\$33.40 males and \$25.05 females) was \$1 below the basic wage fixed by State Wages Boards.

Total Wage Decision, 1968: The Tribunal retained the service base rate of \$33.40 (males) and \$25.05 (females) but increased the loading from \$1.00 to \$2.35 per week. This decision had the same effect as the determination of State Wages Boards lifting the basic wage to \$35.75 (males) and \$27.40 (females).

Equal Pay Decision: In June 1968, the Tribunal gave its decision in the women teachers' equal pay case. (This is dealt with in an earlier section of the chapter.) The Tribunal has since approved equal pay in respect of other occupations within the State Public Service e.g. scientific officers, medical and legal practitioners, psychologists, librarians, architects, engineering draughts-women, psychiatric and geriatric nurses and, in a few cases, clerks.

Industrial Disputes

The following table measures the effect of industrial disputes on the Tasmanian economy in terms of working days lost and the estimated loss in wages. The disputes described are those involving a stoppage of 10 *man-days* or more (80 men stopping for one hour is the equivalent of 10 *man-days*).

Industrial Disputes (a)

Year	Number of Disputes	Workers Involved	Working Days Lost	Estimated Loss in Wages (\$)
1961	14	4,661	4,622	38,200
1962	18	5,126	3,993	35,000
1963	11	5,019	2,933	27,000
1964	8	1,898	1,939	18,000
1965	17	5,131	3,894	41,400
1966	14	2,541	3,119	34,800
1967	29	6,207	7,290	82,300
1968	28	7,767	13,037	(b)149,000

(a) Involving a stoppage of ten *man-days* or more.

(b) The estimated Tasmanian loss was 1.22 per cent of the Australian total in 1968.

Chapter 11

FINANCE

PUBLIC FINANCE

Commonwealth and State

Change in Relationship

Before Tasmania became an original State of the Commonwealth, the responsibility for raising revenue and borrowing loan moneys had rested with the Tasmanian Government. Due to developments since Federation, the present reality is that Tasmania, in common with other Australian States, has limited ability to raise the money required for revenue and capital purposes; the Commonwealth Government, in the same period, has become almost the exclusive channel for loan funds for State purposes, and supplements State revenue by massive grants from its own funds. The emergence of the Commonwealth as the dominating influence in the financial transactions of the State Governments can be traced to three events:

- (1) under the Constitution, the States surrendered the right to levy customs and excise duties, such revenue sources passing exclusively to the Commonwealth;
- (2) under the *Financial Agreement Act 1927*, the Commonwealth became the borrowing agent for the States;
- (3) during World War II, under the Uniform Tax Scheme, the Commonwealth became the sole authority levying taxes upon the income of persons and companies, a war-time measure which has continued to this day.

The result of these changed relationships can be summarised as follows:
(i) the Commonwealth Government, as the channel for loan funds for State purposes, exercises a substantial degree of control over public investment;
(ii) to carry out functions for which their revenue is entirely inadequate, the States have become heavily dependent on the Commonwealth Government for general and specific grants; the Commonwealth Government is therefore placed in a position to exercise a substantial degree of control over the ordinary public expenditure of the States.

Principal Activities of the States

The Federal Constitution lists the matters regarding which the Commonwealth Parliament has power to legislate. Some of these powers are given exclusively to the Commonwealth (e.g. defence, customs and excise) but, in many matters, the Commonwealth and State Governments have concurrent powers, Commonwealth law prevailing where there is conflict. Matters other than those listed in the Constitution remain the concern of the States. Principal government activity at State level embraces education, health and welfare services, the development of internal resources, land settlement, soil con-

servation, maintenance of law and order and the provision of public utility services such as roads, electricity, public transport and water supply. Such activities are either undertaken by State Departments or by statutory and local government bodies created under State legislation. The most obvious form of revenue for the discharge of these functions is State taxation but the Commonwealth exercises a practical monopoly over the more lucrative tax sources (e.g. customs and excise, income tax, sales tax, pay-roll tax, etc.). A responsibility therefore rests on the Commonwealth to supplement State revenues.

Financial Assistance Grants

The (Federal) *States Grants (Income Tax Reimbursement) Act* 1942 provided for grants to the States as compensation for vacating the field of income tax. Similar grants, referred to as Tax Reimbursement Grants, continued until 1958-59 but the passage of the (Federal) *States Grants Act* 1959 resulted in a changed formula for calculation of the grant. The essential features of the formula were as follows:

- (i) The base year grant (1959-60) for Tasmania was fixed at \$21,826,000.
- (ii) The grant for following years was calculated by applying three factors: (i) percentage increase in State population; (ii) percentage variation in Australian average wages per person employed; (iii) a constant betterment factor of 1.1 applied to the percentage wage variation.

As from 1965-66, a new formula was announced for application over a five-year period. The betterment factor was raised to 1.2 per cent and was to become a *direct multiplier* (previously the betterment factor had been applied to the percentage wage variation).

The calculation of the grant for 1967-68 illustrates the application of the new formula: (i) grant (1966-67), \$34,772,852; (ii) percentage increase in Tasmanian population in year 1967, 1.5306; (iii) percentage increase in average wages per Australian employed (1967-68 over 1966-67), 6.2676479 per cent; (iv) betterment factor, 1.2 per cent.

$$\begin{aligned}\text{Calculated grant (1967-68)} &= \\ \$34,772,852 \times 1.015306 \times 1.062676479 \times 1.012 \\ &= \$37,968,098.\end{aligned}$$

The following shows the amounts received as Financial Assistance Grants:

Financial Assistance Grants (a)—Receipts by Tasmania
(£)

Year	Amount	Year	Amount	Year	Amount
	\$		\$		\$
1950-51 ..	5,217,170	1956-57 ..	12,048,712	1962-63 ..	26,616,104
1951-52 ..	7,999,974	1957-58 ..	13,435,384	1963-64 ..	27,626,296
1952-53 ..	9,069,516	1958-59 ..	14,539,428	1964-65 ..	29,297,286
1953-54 ..	9,663,204	1959-60 ..	21,826,000	1965-66 ..	32,130,632
1954-55 ..	10,152,662	1960-61 ..	23,960,360	1966-67 (b) ..	34,772,852
1955-56 ..	10,704,450	1961-62 ..	25,671,238	1967-68 ..	37,968,098

(a) Referred to as Tax Reimbursement Grants from 1942-43 to 1958-59. (Formula grants plus supplementary grants.)

(b) Includes \$210,335 special supplementary grant.

The introduction of the new financial assistance grant formula in 1959 had one notable effect—it allowed S.A. to cease being a claimant State for annual allocations of the Special Grant (*Section 96*) and resulted in the claimant States being reduced to two, Tasmania and W.A. However, from 1 July

1968 W.A. ceased at its own request to be a claimant state for receipt of special grants. The operation of Special Grants and their allocation is discussed in the next section.

Special Grants (Section 96 of the Constitution)

Section 96 of the Constitution reads: 'During a period of ten years after the establishment of the Commonwealth and thereafter until the Parliament otherwise provides, the Parliament may grant financial assistance to any State on such terms and conditions as the Parliament thinks fit'.

The Commonwealth Grants Commission was established in 1933 and consists of three members on a part-time basis assisted by a full-time staff. In its third report (1936) it fixed upon the principle of financial need, which was expressed in the following terms: 'Special grants are justified when a State through financial stress from any cause is unable efficiently to discharge its functions as a member of the federation and should be determined by the amount of help found necessary to make it possible for that State by reasonable effort to function at a standard not appreciably below that of other States'. In arriving at its recommendations, the Commission each year makes a detailed comparison of the budget results of the claimant States with those of the non-claimant States.

Prior to the passage of the (Federal) *States Grants Act* 1959, the claimant States had been Tasmania, W.A. and S.A. The new formula evolved under the *States Grants Act* 1959 had been devised partly in reaction to a claim by Victoria and Queensland to be also considered as claimant States; in effect, the new scale of increased grants under this legislation resulted in the number of claimant States falling to two, W.A. and Tasmania. The Grants Commission could then have used the accounts of the four non-claimant States to reach a basis for comparison; it finally decided to adopt a two-State standard, based on the budgets of N.S.W. and Victoria. The withdrawal of W.A. as a claimant state from 1968-69 created a new position and the Commission has indicated that it will apply a weighted average of all non-claimant States for the year of review 1970-71 when determining the Special Grant for Tasmania. The following table shows Tasmanian receipts:

**Special Grant (Section 96)—Receipts by Tasmania
(\$'000)**

Year	Advance Grant	Adjustment Assessed (a)	Adjustment Applied (b)	Actual Receipt (c)
1958-59 ..	8,828	+ 1,818	— 28	8,800
1959-60 ..	5,194	+ 1,950	+ 1,606	6,800
1960-61 ..	6,800	+ 282	+ 1,818	8,618
1961-62 ..	8,200	+ 556	+ 1,950	10,150
1962-63 ..	9,800	+ 982	+ 282	10,082
1963-64 ..	10,200	+ 1,332	+ 556	10,756
1964-65 ..	13,618	+ 1,166	+ 982	14,600
1965-66 ..	16,400	+ 889	+ 1,332	17,732
1966-67 ..	19,500	— 1,190	+ 1,166	20,666
1967-68 ..	19,000	..	+ 889	19,889
1968-69 ..	18,000	..	— 1,190	16,810

(a) Assessment is shown against the year for which accounts have been examined by the Grants Commission, although its effect does not become apparent until two years later.

(b) The two-year delay in application is due to the Grants Commission's obligation to analyse the accounts of claimant and non-claimant States before announcing the adjustments.

(c) Advance grant plus or minus the adjustment applied.

Since 1949-50, the Special Grant has been in two parts. One part is in the nature of an advance grant to meet the estimated financial needs of the State during the current financial year. The other part is an adjustment (positive or negative), the magnitude of which will depend on whether the advance grant made two years earlier proved greater or less than the amount of financial assistance deemed justified by the Grants Commission. The Special Grant for 1968-69 was \$18,000,000 subject to a negative adjustment of \$1,190,000 on 1966-67 accounts.

The negative adjustment applied in 1968-69 meant that the Grants Commission considered its 1966-67 advance grant too high in the light of its critical examination, not only of the 1966-67 accounts of Tasmania, but also those of the standard States (N.S.W. and Victoria). The accounting principles followed by the Grants Commission are necessarily complicated and can be examined in the Annual Reports of that authority. It is sufficient to say that the existence of the Special Grant has exercised considerable influence on the financial policy of successive Tasmanian Governments. Two principles employed by the Grants Commission will serve to illustrate the nature of this influence:

- (1) if State taxation in a claimant State is below average rates and average exemption scales in the standard States, an unfavourable adjustment will result;
- (2) if State social service expenditure in a claimant State is above comparable per-capita expenditure in the standard States (after allowing for certain difficulties encountered in the claimant State), an unfavourable adjustment will result.

Claimant States must endeavour to raise revenue from taxation at least at the rates and exemption scales adopted by the standard States and must not exceed the per capita expenditure of the standard States in certain fields. Departure from these standards can result in adverse Grant adjustments.

The treatment of Special Grant adjustments in Tasmanian accounts is as follows:

- (1) if a favourable adjustment is made, an equal amount is paid into a suspense account (Accumulated Revenue Account) and the Consolidated Revenue Fund records only the advance grant;
- (2) if an unfavourable adjustment is made, an equal amount is transferred from the suspense account (Accumulated Revenue Account) to the Consolidated Revenue Fund. Thus the Consolidated Revenue Fund again shows as a receipt the amount of the advance grant and not, as might be expected, the advance grant *less* the unfavourable adjustment.

In effect, the State Treasury carries forward in the Accumulated Revenue Account unadjusted budget surpluses and deficits until the Grants Commission announces a favourable or unfavourable adjustment; action can then be taken to charge the net adjusted deficit against the Loan Fund.

Payments Under the Financial Agreement (1927)

Under the Financial Agreement which was entered into by the Commonwealth and the States in 1927, the Commonwealth contributes towards interest and sinking fund payments in respect of States' debts existing at 30 June 1927, and towards sinking fund payments in respect of States' debts incurred after that date for purposes other than the funding of revenue deficits.

The Commonwealth contribution towards payment of interest on the Tasmanian State debt is a constant annual sum of \$533,718 and will be continued until 1985.

The sinking fund contributions made by the Commonwealth under the Agreement in respect of States' debts vary according to the date and nature of the borrowings. On States' debts existing at 30 June 1927 the Commonwealth is making sinking fund contributions at the rate of 0.125 per cent per annum until 1985 and in respect of cash loans raised for the States since that date, the Commonwealth makes sinking fund payments for 53 years at the rate of 0.25 per cent per annum. Each State is obliged to make sinking fund payments for corresponding periods at the rate of 0.25 per cent per annum of its debt, regardless of the date on which the debt was incurred. The only exception is in relation to debt incurred for the purpose of funding revenue deficits. In these instances, the Commonwealth makes no sinking fund contributions and the States are obliged to make contributions to the sinking fund of not less than four per cent per annum. However, in respect of Treasury Bills issued to cover State revenue deficits accruing between July 1927 and June 1935, special arrangements were made under which the Commonwealth contributes 0.25 per cent per annum until June 1983, on the amount outstanding.

Recent Commonwealth sinking fund contributions in respect of the Tasmanian public debt are as follows: 1957-58, \$654,010; 1958-59, \$699,718; 1959-60, \$776,022; 1960-61, \$828,754; 1961-62, \$896,130; 1962-63, \$971,608; 1963-64, \$1,061,736; 1964-65, \$1,129,472; 1965-66, \$1,211,657; 1966-67, \$1,293,414; 1967-68, \$1,398,212.

The acceptance of some Commonwealth liability for interest and sinking fund payments on States' debts was only one part of a more extensive agreement setting up an Australian Loan Council and a National Debt Sinking Fund. The raising of loan money for the States under the Agreement is described later in this chapter.

Commonwealth Aid for Roads

The Federal *Main Roads Development Act* 1923 provided for annual Commonwealth contributions to the States, the basis of distribution being a formula weighted 40 per cent according to State area and 60 per cent according to State population. This basis was explicitly expressed in the *Federal Aid Roads Act* 1926 and continued to operate until 1959-60.

A new formula for distribution was embodied in the *Commonwealth Aid Roads Act* 1959 when the Commonwealth undertook to provide a total sum of \$500,000,000 over a five year period. Of this amount, \$440,000,000 represented basic grants, and the remaining sum of up to \$60,000,000 was, subject to certain annual limits, payable to the States on the basis of \$1 for each \$1 allocated by the State Governments from their own resources for expenditure on roads over and above the amounts allocated by them for roads expenditure in 1958-59.

The amounts being made available by the Commonwealth were distributed between the States in each year in the proportion of *five per cent of the total* for Tasmania, and the balance shared between the other five States on the basis of one third according to Census population, one third according to area and one third according to vehicles registered at 31 December preceding the year concerned. It will be observed that Tasmania, with less than one per cent of the area of the Commonwealth, was specifically exempted from the operation of the formula applied to the other States.

The *Commonwealth Aid Road Act* 1964 contained provision for a second five-year plan but the total distribution over this period was raised to an amount of \$750,000,000. A third five-year plan, based upon a distribution of \$1,252,050,000, is embodied in the *Commonwealth Aid Road Act* 1969. Of this amount, \$1,200,000,000, is divided between the States according to a new formula which includes characteristics of the old formula and a scheduling formula suggested in a Bureau of Roads Report. The remaining \$52,050,000 is distributed thus: W.A., \$40,800,000; S.A. \$9,000,000; Tasmania, \$2,250,000. The 1969 Act specifies that 50.06 per cent of the Commonwealth grant to a State is to be spent on urban roads; 15.56 per cent on main trunk roads; 32.88 per cent on other rural roads; 1.5 per cent on planning and research. To qualify for a specified part of the total grant each State, during the next five years, will be required to increase its expenditure on roads from its own resources above a base year level at the same rate as the number of motor vehicles on register in the State increases.

The new method of allocating road grants, outlined above, is operative from 1 July 1969.

Details of Tasmanian receipts of Commonwealth contributions in respect of road expenditure are shown in the following table:

Commonwealth Aid for Roads—Receipts by Tasmania
(\$'000)

Year	Amount	Year	Amount	Year	Amount
1950-51 ..	1,356	1956-57 ..	3,126	1962-63 ..	5,400
1951-52 ..	1,466	1957-58 ..	3,466	1963-64 ..	5,800
1952-53 ..	1,510	1958-59 ..	3,624	1964-65 ..	6,500
1953-54 ..	1,646	1959-60 ..	(a) 4,366	1965-66 ..	7,000
1954-55 ..	2,334	1960-61 ..	4,600	1966-67 ..	7,500
1955-56 ..	2,652	1961-62 ..	5,000	1967-68 ..	8,000

(a) Payment under the *Commonwealth Aid Roads Act* was \$4,200,000 and the balance represents a final adjustment of Commonwealth commitments under previous legislation.

Uniform Income Taxation

In December 1955, the Victorian Government took out a writ in the High Court challenging the validity of the uniform tax legislation, the Commonwealth having been the sole collector of income tax since World War II. In particular, Victoria disputed: (i) the power of the Commonwealth to make tax reimbursement grants conditional upon the States' not levying income tax; (ii) the Commonwealth's power to provide an absolute priority for payment of Commonwealth income tax over income taxes levied by the States. In November 1956, the New South Wales Government intervened to support Victoria's challenge.

Following a challenge by Victoria to the principle of uniform income taxation, the High Court in August 1957 ruled unanimously, that the condition attaching to tax reimbursement grants, that a State should not levy income tax, was valid. This meant that any State wishing to levy income tax would be obliged to negotiate a special agreement with the Commonwealth; to tax on incomes without such agreement would place the State's tax reimbursement grant in jeopardy. In 1964, the Victorian Premier proposed a *State* income tax which would be collected with existing Commonwealth machinery; the Commonwealth was not willing to provide these facilities. To date, no special arrangement has been negotiated by any State.

Summary of Commonwealth Payments

In the previous sections, the main forms of Commonwealth assistance have been described; the following table shows the total payments to Tasmania from the Commonwealth Consolidated Revenue Fund:

Commonwealth Consolidated Revenue Fund—Payments To or For Tasmania
 (\$'000)

Item	1965-66	1966-67	1967-68
Financial Assistance Grants	32,131	34,773	37,968
Special Grants (Section 96)	17,732	20,666	19,889
Financial Agreement Payments—			
Interest on State Debts	534	534	534
Sinking Fund on State Debts	1,212	1,293	1,398
Universities—Capital and Maintenance	1,171	1,422	1,827
Colleges of Advanced Education .. .. .	..	59	190
Teachers' Colleges .. .. .	..	..	360
Technical Training	334	334	334
Science Laboratories (Schools)	331	331	420
Research Grants	77	63	158
Tuberculosis Hospitals—Capital and Maintenance	350	337	307
Blood Transfusion Services	13	24	13
Mental Health Institutions	529	823	358
Commonwealth Aid for Roads	7,000	7,500	8,000
Gordon River Road	1,840	1,596	200
Farming Extension Services	74	158	147
Softwood Forestry .. .. .	..	..	520
Hydro Electricity .. .. .	..	..	5,300
Water Resources Investigation	16	18	20
Natural Disaster Payments .. .. .	..	2,500	7,650
Miscellaneous	13	40	14
Total (a)	63,357	72,471	85,607

(a) This total cannot be identified *as such* in State accounts since part is taken into Consolidated Revenue, part into Loan Fund, and the balance into Trust and Special Funds.

Operative from 1 February 1968, new Victorian stamp duty legislation had the effect of taxing virtually all receipts of businesses and professional persons; also wage and salary receipts in excess of \$20 a week; and other receipts of individuals. The tax on wages and salaries, one cent per \$10, was low but appeared to be a tax on income.

The reaction of the Commonwealth Government prior to 1 February was as follows: (i) in its role as employer, it refused to collect the tax on wages and salaries; (ii) the Prime Minister asked the Victorian Premier 'to exempt from receipts duty wages and salaries and comparable payments to individuals such as superannuation, pensions or retiring allowances'. The reason for this request was stated: 'There is no doubt in our minds that, in this respect, the new tax will operate to multiply taxes on income. On this ground we must regard the tax in its present form as being inconsistent with the principle of uniform income tax and the conditions under which the Commonwealth continues to provide general revenue assistance to the States'.

Despite these indications of the Commonwealth's attitude, the Victorian Government took no action to exempt wages, salaries and comparable payments, and the new legislation took effect from 1 February 1968.

In June 1968, at the Premiers' Conference, the Prime Minister repeated the Commonwealth's objection to the Victorian tax on income and warned that if it were still being imposed in 1970, the year of review for the Financial

Assistance Agreement, it would be taken into account in fixing the Commonwealth grant to Victoria. He also indicated that the Commonwealth would be forced to take action if the level of the Victorian tax were raised above its present level in the period 1968-1970.

Financial Agreement Between Commonwealth and States

The original Financial Agreement was made on 12 December 1927, but Tasmania did not become a party to it until 1 July 1928. The basic intention of the agreement was a co-ordinated approach to the loan market, the establishment of sound sinking fund arrangements and the sharing of State debt charges by the Commonwealth. The main provisions are summarised as follows:

- (1) The Commonwealth assumed certain liabilities in respect of the States' debts (see previous section on interest and sinking fund payments made by the Commonwealth in respect of Tasmanian State Debt—'Payments under the Financial Agreement').
- (2) The Australian Loan Council was set up to co-ordinate the public borrowings of the Commonwealth and the States. It consists of the Prime Minister (or his nominee) as Chairman, and the State Premiers (or their nominees). Each financial year, the Commonwealth and the States submit, to the Loan Council, programmes setting out the amounts they desire to raise by loan during the next year. Revenue deficits to be funded are included in the borrowing programmes but borrowing by the Commonwealth for defence purposes is excluded from the terms of the agreement.

If the Loan Council decides that the total amount of the loan programmes for the year cannot be borrowed at reasonable rates and conditions, it then decides the amount which shall be borrowed and may, by unanimous decision, allocate that amount between the Commonwealth and the States. In default of a unanimous decision, the Commonwealth is entitled to one-fifth of the total amount to be borrowed and each State to a proportion of the remainder equal to the ratio of its net loan expenditure in the preceding five years to the net loan expenditure of all States during the same period.

Subject to the decisions of the Loan Council, the Commonwealth arranges all borrowings, including those for conversions, renewals and redemptions. However, the Commonwealth or a State may borrow for 'temporary purposes' by way of overdraft or fixed deposit, subject to limits fixed by the Loan Council. In addition, the Commonwealth may borrow within the Commonwealth, or a State within its own territory, from authorities, bodies, institutions, or from the public by counter sales of securities, subject to Loan Council approval. Commonwealth securities are issued for money borrowed in this way and amounts so borrowed are treated as part of the borrowing programme for the year.

- (3) The Agreement involved setting up a National Debt Commission to administer one consolidated sinking fund in respect of the debt of the Commonwealth and the States. Sinking fund moneys are used to redeem unconverted securities at maturity, and to re-purchase securities on the stock market.

- (4) It was realised at the inception of the Loan Council that, in the interests of co-ordinated borrowing, the Council should be advised of borrowings of large amounts by semi-government authorities (such loan raisings do not form part of State or Commonwealth debt and therefore are not within the scope of the original agreement). A set of rules evolved in 1936 is regarded as the 'Gentlemen's Agreement' and makes provision for the submission to the Council of annual loan programmes in respect of semi-government authorities (in conjunction with the loan programmes of the Governments concerned) and for the fixing of the terms of individual semi-government loans coming within the scope of the annual programme. (For 1968-69, borrowings approved by the Loan Council for Tasmanian semi-government and local government authorities amounted to \$12,930,000.)

It should be emphasised that the Australian Loan Council does not itself raise money for Tasmanian semi-government and local government authorities; its concern is to assess the total impact of government borrowing for the year and then to fix ceilings for semi-government and local government authorities in the interests of a co-ordinated programme.

Money made available from the Commonwealth Loan Fund to the State of Tasmania is recorded in two State funds, namely:

- (i) the Loan Fund, to which are paid the receipts of new cash borrowings but not allocations under the Commonwealth and State Housing Agreement;
- (ii) the Trust and Special Funds, to which are paid the allocations for housing made under the Agreement.

The following table shows Loan Council borrowing programmes undertaken on behalf of the State of Tasmania:

Tasmania—New Cash Borrowings Authorised by Australian Loan Council (a)
(\$'000)

Year	Amount	Year	Amount	Year	Amount
1951-52 ..	30,200	1957-58 ..	24,200	1963-64 ..	32,020
1952-53 ..	26,124	1958-59 ..	25,180	1964-65 ..	34,136
1953-54 ..	28,900	1959-60 ..	27,080	1965-66 ..	34,834
1954-55 ..	25,920	1960-61 ..	28,388	1966-67 ..	37,580
1955-56 ..	26,800	1961-62 ..	28,996	1967-68 ..	40,610
1956-57 ..	22,800	1962-63 ..	30,708	1968-69 ..	42,120

(a) For State works programmes; amounts credited to State Loan Fund.

The above table does not include allocations under the Commonwealth and State Housing Agreements, such borrowings being also part of the Loan Council's programme. The following table shows allocations to Tasmania for housing purposes:

Tasmania—Allocations Under Commonwealth and State Housing Agreements (a)
(\\$'000)

Year	Amount	Year	Amount	Year	Amount
1954-55 ..	(b)	1959-60 ..	3,900	1964-65 ..	6,400
1955-56 ..	(b)	1960-61 ..	4,000	1965-66 ..	7,448
1956-57 ..	4,000	1961-62 ..	5,856	1966-67 ..	7,500
1957-58 ..	4,000	1962-63 ..	5,200	1967-68 ..	6,700
1958-59 ..	4,400	1963-64 ..	6,000	1968-69 ..	7,500

(a) For housing; credited to State Trust Funds.

(b) Tasmania's housing requirements from 1951-52 to 1955-56 were financed from the State Loan Fund.

Tasmanian Public Account

The State Public Account includes the Consolidated Revenue Fund, the Trust and Special Funds, and the Loan Fund. Ordinary revenues from taxation and other sources are paid into the Consolidated Revenue Fund from which the main expenditures are for public debt charges, education, development of State resources, health and hospitals, general administration, subsidies to State business undertakings, law and order, and certain welfare activities. The Trust and Special Funds cover special transactions outside the ordinary operations of departmental expenditure, such as funds from the Commonwealth for specific purposes and moneys held for expenditure by the State at some future time. The Loan Fund receives its funds from public borrowings and the main expenditure is on State public works and on advances to State business undertakings.

A summary of transactions on the Tasmanian Public Account for a three-year period is given in the following table:

Public Account—Summary of Transactions
(\\$'000)

Particulars	1965-66	1966-67	1967-68
Cash and Investments at Beginning of Year	4,390	2,490	8,848
Receipts—			
Consolidated Revenue Fund	83,564	92,676	100,563
Special Grant Adjustment	1,332	1,166	889
Loan Raisings	34,879	37,624	40,671
Other Payments to Loan Fund	2,837	3,526	3,925
Net Increase, Trust and Special Funds	463	4,470	— 1,613
Total	123,076	139,461	144,434
Expenditure—			
Consolidated Revenue Fund	85,585	93,248	102,413
Loan Fund—Public Works and Purposes	39,346	39,811	44,861
Discount	45	44	61
Total	124,977	133,103	147,335
Cash and Investments at End of Year	2,490	8,848	5,947

The State Public Account is a complete record of the government's operation of three specific funds, i.e. Consolidated Revenue, the Trust and Special Funds, and the Loan Fund. It is by no means a complete record of

government activity, since statutory authorities and semi-government authorities carry on financial operations which are not recorded in the State Public Account. Examples of such authorities are the Hydro-Electric Commission, the Transport Commission, the Agricultural Bank, etc. In a later section of this chapter, there appears the heading 'Exclusions from Consolidated Revenue' and this lists the relationship between the finances of the principal authorities and the Consolidated Revenue Fund; the general principle is that the gross receipts and gross expenditure of the authorities are excluded from the Consolidated Revenue Fund.

In the following table are shown the balances credited to each fund constituting the Public Account and the form in which the balances are held:

Public Account—Summary of Balances
(\$'000)

As at 30 June	Balance				Location			
	Accumulated Revenue Account	Loan Fund	Trust and Special Funds	Total	Cash in Treasury or Bank	Advanced to Departments	Govt and Other Securities (a)	Total
1964..	Dr 2,168	2,609	4,152	4,593	3,132	729	732	4,593
1965..	Dr 2,804	3,429	3,765	4,390	3,133	747	510	4,390
1966..	Dr 3,493	1,755	4,228	2,490	1,213	738	538	2,490
1967..	Dr 2,593	2,743	8,698	8,848	6,413	750	1,684	8,848
1968..	Dr 2,423	1,285	7,085	5,947	4,602	763	582	5,947

(a) Includes fixed deposits.

In the previous table, the 'Accumulated Revenue Account' is a suspense account recording accumulated surpluses and deficits in the Consolidated Revenue Fund and also the funding of deficits. Details of the account are as follows:

Accumulated Revenue Account—Summary of Transactions
(\$'000)

Year	Opening Balance	Transactions			Closing Balance
		Budget Result, Consolidated Revenue	Special Grant Adjustment (a)	Deficits Charged to Loan Fund	
1964-65	Dr 2,168	— 1,618	+ 982	..	Dr 2,804
1965-66	Dr 2,804	— 2,021	+ 1,332	..	Dr 3,493
1966-67	Dr 3,493	— 572	+ 1,166	+ 306	Dr 2,593
1967-68	Dr 2,593	— 1,851	+ 889	+ 1,132	Dr 2,423

(a) It is Tasmanian Treasury practice to record Special Grant adjustments in the Accumulated Revenue Account and to include, in published Consolidated Revenue receipts, only the advance grant.

In the following section dealing with Consolidated Revenue, Treasury practice has been followed in eliminating Special Grant adjustments from Consolidated Revenue total receipts.

Consolidated Revenue Fund

General

The financial transactions of the State of Tasmania are recorded under (a) Consolidated Revenue, (b) Trust Funds, and (c) Loan Fund.

Payments from Consolidated Revenue are made only on the basis of authority found in: (i) the annual Appropriation Act of the Parliament; (ii) Acts of the Parliament made in previous years and under which certain annual payments are classified as 'reserved by law'; (iii) the *Public Account Act* 1957 (as amended in 1962) and the *Audit Act* 1918.

The third category of authority listed above is designed to give the Treasurer and the Government some flexibility in public expenditure since the Appropriation Act cannot be expected to anticipate, to the nearest dollar, the expenses that are likely to be incurred for each and every item. The relevant sections of the amended *Public Account Act* are 5A and 5B which provide that, in relation to Consolidated Revenue, the Treasurer may authorise transfers between votes within certain subdivisions of the appropriation and, on the authority of the Governor, supplement certain appropriations and provide funds to meet expenditure for which no other provision exists. Transfers, as described under 5A, are a matter for the Treasurer but additional expenditure, as described under 5B, needs ratification by Parliament before the close of the following financial year. Regulations 20 and 21 of the second schedule of the *Audit Act* provide for expenditure by the Treasurer to meet emergencies for which no vote exists; the Governor must first authorise such expenditure and the Auditor General investigate the circumstances before payment can be made.

Exclusions from Consolidated Revenue

It should be observed that the Consolidated Revenue Fund does not include the complete revenue and expenditure in respect of all activities undertaken or authorised by the State Government: (i) some moneys are paid into State Trust Funds and some payments are made from such funds, e.g. the Commonwealth Aid Roads Grant is paid into the State Highway Trust Fund; (ii) the gross receipts and payments of a number of State business undertakings and State authorities are excluded from the Consolidated Revenue Fund, their relation to the fund being as follows:

- (a) In Tasmania, the railways (in common with Government shipping and road transport services) are administered by the Transport Commission and, since 1939-40, only the *net* losses of this authority have been met from the Consolidated Revenue Fund to which is credited the Commission's annual payment of debt charges (interest and sinking fund contributions) on advances made by the Government.
- (b) Omnibus services in Hobart, Launceston and Burnie are operated by the Metropolitan Transport Trust. The *net* annual loss of the authority is a charge against Consolidated Revenue which is credited with annual payment of debt charges made by the Trust on Government advances.
- (c) The gross receipts and expenditure of the Hydro-Electric Commission are excluded from the Consolidated Revenue Fund which is credited with annual payment of debt charges by the Commission. Net profit or loss on the Commission's activities is carried forward in the authority's own suspense account *and has no effect on Consolidated Revenue*.

- (d) Also excluded from the Consolidated Revenue Fund are the gross receipts and payments of: regional water supplies, Government Printing Office, Government Insurance Office, Public Trustee, State housing authorities, Closer Settlement, Rural Credits and other activities of the Agricultural Bank, etc.; in accordance with various Acts, it is usual for the net profits or losses of the previous year to be paid to or from the Consolidated Revenue Fund for the current year. Debt charges on government money loaned to the authorities are paid to Consolidated Revenue.

Consolidated Revenue Fund, Summary

The following table shows the Consolidated Revenue and Expenditure of Tasmania, the surplus or deficit, and the aggregate deficit at the end of each year. It also calls attention to the Special Grant adjustments and shows how these Commonwealth payments modify the original budget result.

Consolidated Revenue Fund—Surpluses and Deficits
(£'000)

Year	Revenue			Expenditure	Budget Result		Aggregate Net Deficit at End of Year
	Before Adjustment	Special Grant Adjustment	After Adjustment		Before Adjustment	After Adjustment	
1958-59	43,702	+1,818	45,520	45,518	-1,816	+2	11,106
1959-60	48,592	+1,950	50,542	50,656	-2,064	-114	11,220
1960-61	53,772	+282	54,054	54,166	-394	-112	11,332
1961-62	60,636	+556	61,192	61,352	-716	-160	11,492
1962-63	63,036	+982	64,018	64,020	-983	-1	11,493
1963-64	67,836	+1,332	69,167	69,020	-1,185	+147	11,346
1964-65	74,846	+1,166	76,012	76,465	-1,618	-452	11,799
1965-66	83,564	+889	84,453	85,585	-2,021	-1,132	12,931
1966-67	92,676	(a)	(a)	93,248	-572	(a)	(a)13,503
1967-68	100,563	(b)	(b)	102,413	-1,851	(b)	(b)15,354

(a) Negative adjustment of \$1,190,000 will be applied in 1968-69.

(b) Adjustments not yet determined but will be taken into account in 1969-70.

Deficit Funding

In the previous table, the original budget result is treated as provisional because the Grant Commission's adjustment is used to amend the original surplus or deficit and also the aggregate deficit. The Tasmanian Government refrains from immediately charging revenue deficits against the Loan Fund since the precise amount of the final deficit is not known until the Commission's adjustment is taken into account two years later. Whilst the aggregate of all deficits at 30 June 1968 was \$15,354,000, the sum of \$12,931,000 has been charged against the loan fund as 'revenue deficits funded': thus the *unfunded* aggregate deficit is only \$2,423,000 carried as a *debit* balance in the accumulated revenue account.

Consolidated Revenue—Receipts

The principal sources of revenue in this fund, in order of importance, are the grants and other financial assistance received from the Commonwealth Government; debt charges received from semi-government authorities in respect of State advances; and State taxation.

The following table shows Tasmanian Consolidated Revenue receipts for a three-year period:

**Consolidated Revenue Fund—Receipts
(\$'000)**

Item	1965-66	1966-67	1967-68
Commonwealth Grants—			
Financial Agreement	534	534	534
Financial Assistance	32,131	34,773	37,968
Special	17,732	20,666	19,889
Total	50,396	55,973	58,391
Debt Charge Recoveries (a)—			
Interest	13,854	15,479	16,835
Sinking Fund	1,828	1,977	2,130
Total	15,683	17,456	18,965
State Taxation	11,934	13,289	15,195
Lands and Forests—			
Forestry	1,500	1,557	1,603
Other Rents, Sales, etc.	259	279	369
Total	1,759	1,836	1,972
Business Undertakings	290	246	368
Departmental Revenue, Fees, Rents, etc. ..	3,401	3,795	5,240
Victorian Lotteries Agreement	152	141	138
Commonwealth National Welfare Fund	1,281	1,106	1,182
Actual Receipts	84,896	93,842	101,452
Transfer, Accumulated Revenue Account (b) ..	— 1,332	— 1,166	— 889
Grand Total	83,564	92,676	100,563

(a) Mainly on advances made to semi-government bodies.

(b) Special Grant adjustments.

The relative importance of the various components of the Consolidated Revenue Fund can be assessed by expressing them on a per capita basis, using the State mean population for the relevant financial year:

**Consolidated Revenue Fund—Receipts Per Head of Population
(\$)**

Item	1965-66	1966-67	1967-68
Commonwealth Grants	136.4	149.7	153.9
Debt Charge Recoveries	42.5	46.7	50.0
State Taxation	32.3	35.5	40.1
Lands and Forests	4.8	4.9	5.2
Business Undertakings	0.8	0.7	1.0
Departmental Revenue, Fees, Rents, etc. ..	9.2	10.1	13.8
Victorian Lotteries Agreement	0.4	0.4	0.4
Commonwealth National Welfare Fund	3.5	3.0	3.1
Transfer, Accumulated Revenue Account ..	—3.6	—3.1	—2.3
Total	226.2	248.0	265.1

Debt Charge Recoveries

After Commonwealth Grants, debt charge recoveries is the next important item in Consolidated Revenue. The following table shows details of the payments of interest and sinking fund made by various authorities on advances which have been made to them by the State Government; since the advances have been made primarily from State loan borrowings, the Government has accepted an annual liability for debt charges (in respect of these authorities) approximately equal to the recoveries shown.

Debt Charge Recoveries—Consolidated Revenue Fund
(*\$'000*)

Source of Recovery	Interest			Sinking Fund Contributions		
	1965-66	1966-67	1967-68	1965-66	1966-67	1967-68
Transport Commission	953	1,003	1,050	150	159	159
Metropolitan Transport Trust ..	127	131	132	19	19	19
Hydro-Electric Commission ..	10,436	11,552	12,562	1,437	1,556	1,688
Regional Water Supplies ..	639	734	821	85	92	102
Government Printing Office ..	19	22	22	3	3	3
King Island Abattoirs ..	17	17	17	3	3	3
Tasmanian Grain Elevators ..	42	45	43	8	9	9
Aluminium Industry Agreement	131	145	131	..	..	..
Closer Settlement	49	61	64	..	..	..
Returned Soldiers Settlement ..	20	20	19	..	..	..
Homes Act Advances	65	61	53	..	..	..
Homes Construction (Housing Department)	835	829	820	122	135	144
State Advances, Primary Producers	173	185	192	..	..	..
Loans to Local Bodies	57	61	61	..	..	..
Tourist Accommodation Loans ..	63	77	83	..	..	..
Loans to Industry	131	137	198	..	..	..
Iron Ore (Savage River) Agree- ment Act .. ..	..	46	170	..	..	..
Forestry Commission .. ..	..	257	286	..	..	..
Flood Relief Act 1960	7	8	8	..	..	..
Other	91	88	103	..	..	2
Total	13,854	15,479	16,835	1,828	1,977	2,130

State Taxation

In Tasmania, the chief State taxes, in order of importance, are Motor Tax; Stamp Duties (on cheques, legal documents, etc.); Probate and Succession Duties; and Land Tax.

Not all State taxation is paid into the Consolidated Revenue Fund, some portion of total Motor Taxes and total Racing Taxes being reserved for special purposes as shown in the following table:

State Taxation Collections Paid to Special Funds
(*\$'000*)

Particulars	1965-66	1966-67	1967-68
Motor Taxation—			
Retained by Transport Commission	<i>r</i> 962	<i>r</i> 1,094	1,125
Racing Taxation—			
Paid to Racing Clubs and Racing Commission	408	442	513
Total	<i>r</i> 1,371	<i>r</i> 1,536	1,639

The following table gives a summary of State taxation taken into Consolidated Revenue for a three-year period:

**State Taxation Collections Paid Into Consolidated Revenue
(\$'000)**

Tax or Licence	1965-66	1966-67	1967-68
Probate and Succession Duties	2,005	2,149	2,525
Stamp Duties (excluding Bookmakers' Tickets) <i>r</i>	2,826	<i>r</i> 3,202	3,675
Land Tax	2,029	2,108	2,271
Liquor Tax and Licences	739	887	950
Racing Taxes (including Bookmakers' Tickets)	633	686	807
Motor Taxes <i>r</i>	3,527	<i>r</i> 4,031	4,860
Entertainment Tax (a) .. .. .	..	..	72
Other Licences	26	31	35
Total (b)	<i>r</i> 11,784	<i>r</i> 13,094	15,195

(a) Levying of this tax ceased on 28 September 1963; re-introduced in 1967-68.

(b) Excluded are the following amounts received from the Victorian Government under the Victorian Lotteries Agreement: 1965-66, \$152,338; 1966-67, \$140,995; 1967-68, \$138,372.

The following summarises total taxation collected by the State:

**Total State Taxation Collections (a)
(\$'000)**

Particulars	<i>r</i> 1965-66	<i>r</i> 1966-67	1967-68
Paid into Consolidated Revenue	11,784	13,094	15,195
Paid into Special Funds	1,371	1,536	1,639
Total	13,154	14,630	16,834

(a) Taxation is described more fully in a subsequent section, 'Taxation in Tasmania'.

Consolidated Revenue Fund—Expenditure

In the following table, a summary is given of the principal items of Consolidated Revenue Fund expenditure classified according to function. Groups are arranged in descending order of magnitude of their totals:

**Consolidated Revenue Fund—Expenditure
(\$'000)**

Classification by Function	1965-66	1966-67	1967-68
Public Debt Charges—			
Interest	22,360	24,069	26,085
National Debt Sinking Fund	3,649	3,904	4,175
State Sinking Fund	4	1	1
Other (Loan Management Charges, etc.)	294	251	323
Total	26,307	28,226	30,583
Education, Science, Art and Research—			
Primary, Secondary and Technical Education ..	16,854	18,867	21,175
University	1,332	1,438	1,637
Other Education (including Adult Education) ..	134	147	162
Libraries, Museums, Art Galleries, Orchestras, etc. ..	647	768	806
Total	18,967	21,220	23,780

Consolidated Revenue Fund—Expenditure—continued
(*\$'000*)

Classification by Function	1965-66	1966-67	1967-68
Development and Maintenance of State Resources—			
Land Settlement and Survey	2,714	2,846	2,939
Agricultural and Pastoral	3,346	2,709	2,955
Mining	467	524	606
Forestry	1,525	1,528	1,588
Fisheries and Game	110	71	97
Roads and Bridges	3,446	4,023	4,484
Shipping Services	73	86	76
Tourist Activities	602	680	805
Other	178	248	306
Total	12,460	12,716	13,856
Promotion of Public Health and Recreation—			
Mental Hospitals	1,690	1,904	2,192
Other Hospitals	5,854	6,396	6,657
Child Health Service	204	227	248
Medical Inspection, School Children	347	445	599
Public Health Administration and Services	1,759	1,877	2,128
Gardens, Parks, Sporting Clubs, etc.	174	183	190
Total	10,027	11,032	12,013
Legislature and General Administration—			
Legislature—			
Governor	127	126	126
Parliament and Ministers	601	619	733
Electoral	57	70	58
Financial Administration—			
Treasury	508	329	400
Pensions and Superannuation	1,070	982	1,132
Auditor General	267	300	347
Administration and Services, n.e.i.	3,895	4,712	6,008
Total	6,526	7,139	8,805
Maintenance of Law, Order and Public Safety—			
Administration of Justice, Courts, etc.	856	969	1,087
Police	2,727	3,179	3,612
Prisons	588	683	781
Reformatories	108	124	132
Public Safety (Fire Brigades, etc.)	192	198	268
Total	4,470	5,153	5,880
Business Undertakings—			
Transport Commission—Losses, Subsidies	3,156	2,860	3,153
Metropolitan Transport Trust—Subsidy	760	975	875
Water Supplies—Subsidy and Administration	617	654	699
Electricity—Subsidies	11	18	14
Housing—Subsidies and Losses	49	47	46
Other	100	121	91
Total	4,693	4,675	4,878
Welfare—			
Relief of Destitute, Aged and Incapacitated	1,376	(a) 2,253	1,677
Child Welfare (Children of the State, etc.)	158	184	199
Other Services and Administration	249	292	336
Total	1,783	2,728	2,212
Regulation of Trade and Industry—			
Factories, Shops and Labour Legislation, etc.	351	360	407
Grand Total	85,585	93,248	102,413

(a) Increase mainly due to fire disaster of 7 February 1967.

Source of Data

The classification of expenditure by function is derived from an analysis of published accounts. In some cases, the functional analysis simply repeats a total specified in the Treasurer's Financial Statement, (e.g. Auditor General's Department, Mines Department, Police Department, etc.). In other cases, individual minor items have been classified to function and then combined to produce the sub-group totals.

Public Debt Charges

This is the largest item of expenditure but a high proportion is recovered from semi-government authorities. The effect of these recoveries is illustrated in the following table:

**Public Debt Charges—Net Burden on Consolidated Revenue
(\$'000)**

Particulars	Interest			Sinking Fund Contribution		
	1965-66	1966-67	1967-68	1965-66	1966-67	1967-68
Public Debt Charges— Expenditure, Consoli- dated Revenue ..	(a)22,654	(a)24,320	(a)26,408	(b) 3,649	(b) 3,904	(b) 4,175
Recovered from Semi- Government Bodies, etc.	13,854	15,479	16,835	1,828	1,977	2,130
Net Burden on Consolidated Revenue (c) .. .	8,799	8,841	9,573	1,821	1,927	2,045

(a) Includes loan management charges.

(b) Contribution payable under the Financial Agreement to the National Debt Sinking Fund.

(c) In respect of non-revenue producing assets such as schools, roads, etc.

Administration and Services, n.e.i.

The salaries and expenses of departments not associated with any listed function have been included in the item 'Administration and Services, n.e.i.' (e.g. Public Service Commissioner's Department, Public Works Department, Premier's and Chief Secretary's Department, etc.). Also included in this item are the upkeep of public buildings and other expenditure which cannot be allocated to a listed function.

Business Undertakings

Unlike the Consolidated Revenue Funds of some Australian States, the Tasmanian Fund excludes the gross receipts and expenditure of State business undertakings such as railways, bus services, water supply, etc. The principal charges in 1967-68 under this item were incurred in respect of the Transport Commission and consisted of: (i) re-imbursement of net loss 1966-67, (\$882,002) and (ii) proceeds of State Land Tax paid to Commission (\$2,271,081). Another major item was a contribution of \$875,000 to the Metropolitan Transport Trust which experienced a net trading loss of \$964,086 in 1967-68.

Roads and Bridges

The chief expenditure under this item in 1967-68 was a transfer of \$4,395,946 to the State Highway Trust Fund, such sum representing revenue received from motor tax, vehicle registrations, drivers' licences and public vehicle fees and charges, less \$1,125,596 retained by the Transport Commission to meet the cost of vehicle registration and traffic control.

State Trust and Special Funds

Revenues of the State are payable to Consolidated Revenue with the exception of certain revenues which have been set aside by various Acts of Parliament for specific purposes and which are payable into special funds or accounts at the State Treasury. The volume of these transactions is high, \$116,355,302 being received in 1967-68, \$117,968,641 being expended and the balance in the funds changing from \$8,698,370 (1 July 1967) to \$7,085,031 (30 June 1968).

It should be noted that many accounts in the Trust and Special Funds indicate Treasury transactions which are merely supplementary to those recorded under Consolidated Revenue and Loan Funds; the following examples are given:

State Trust and Special Funds—Selected Accounts, 1967-68 (\$'000)

Account	Receipts	Expenditure
Commonwealth Tax Deductions Suspense Account (a)	6,129.5	6,129.5
Pay-roll Tax Suspense (b)	1,019.9	1,019.9
Hydro-Electric Commission Suspense Account (c) ..	1,712.5	1,774.4

- (a) Wages and salaries included under Consolidated Revenue and Loan Fund expenditure are shown at gross value; however, the deductions applicable to wage and salary earners on Government pay-rolls are passed, via this account, to the Commonwealth.
- (b) Expenditure under Consolidated Revenue and Loan Fund includes pay-roll tax; however, pay-roll tax applicable to Government pay-rolls is passed, via this account, to the Commonwealth.
- (c) The Treasury acts as agent for meeting overseas liabilities incurred by the Hydro-Electric Commission; these liabilities, being mainly incurred in the acquisition of plant and equipment, are largely accounted for in Loan Fund expenditure.

Many accounts are concerned with Government activities financed by the Commonwealth, the State acting as trustee or agent in the transactions; examples are given:

State Trust and Special Funds—Selected Accounts, 1967-68 (\$'000)

Account	Receipts	Expenditure
Tasmanian University (Commonwealth Grants) Account (a)	1,170.0	1,170.0
Commonwealth Free Milk Scheme Account (b) ..	511.1	470.6
Home Builders Fund (c)	3,358.0	3,253.0

- (a) Treasury passes Commonwealth grants to University of Tasmania.
- (b) Education Department administers free milk scheme for school children on behalf of Commonwealth.
- (c) Agricultural Bank administers loans to home builders, the source of funds being the Commonwealth.

In the case of some accounts, there is provision for crediting the Trust and Special Funds with contributions from Consolidated Revenue, an important example being the State Highways Trust Fund:

**State Trust and Special Funds—State Highways Trust Fund, 1967-68
(\$'000)**

Item	Receipts	Expenditure
Commonwealth Contribution	8,000.0	..
Grant from Consolidated Revenue	4,395.9	..
Roads, Bridges, Jetties and Ferries	473.3	12,881.8
Self-Balancing Entries (Contra)	1,221.3	1,221.3
Fund Entries	14,090.5	14,103.1

The Forestry Fund Account records transactions under legislation requiring revenue from forestry to be paid to Consolidated Revenue, and for Consolidated Revenue to expend an equal amount on forestry in the following year:

**State Trust and Special Funds—Forestry Fund Account, 1967-68
(\$'000)**

Item	Receipts	Expenditure
Grant from Consolidated Revenue (a)	1,556.7	..
Expenditure on Forestry .. .. .	..	1,562.3
Self-Balancing Entries (Contra)	414.3	414.3
Fund Entries	1,971.0	1,976.6

(a) Consolidated Revenue recorded Forestry receipts of \$1,556,696 in 1966-67; this sum therefore became the 1967-68 contribution from Consolidated Revenue.

Some of the funds held in trust are not owned by the State Government, examples being: Prisoners' Earnings Deposit Account; Tasmanian Sanatorium Donations Account; St John's Park Inmates Trust Account. Other funds are held on behalf of semi-government authorities, such as the Hydro-Electric Commission, the Agricultural Bank, the Transport Commission, etc.

Since the number of individual accounts in the State Trust and Special Funds exceeds 130, a description or analysis of each account is beyond the scope of the Year Book. The annual report of the Auditor-General is a useful source in any investigations of transactions in the Trust and Special Funds.

State Loan Fund

The *Public Account Act* 1962 has, *inter alia*, the following provisions relating to the Loan Fund: (i) the Governor, on Treasury advice, may make transfers between block votes as long as the total authorised amount is not exceeded; (ii) a sum of up to \$400,000 may be spent for purposes not previously authorised; (iii) for purposes previously authorised, an additional sum of up to \$1,000,000 may be spent; (iv) in instances of expenditure outside the provisions of a specific Loan Fund Appropriation Act, the ratification of such action is to be sought from Parliament before the close of the following financial year. The Act also provides that the unexpended balances of votes at the close of the financial year lapse (in contrast with previous practice when such balances were carried forward from year to year).

Expenditure from the Loan Fund is devoted to two main purposes: (i) the making of advances to State semi-government authorities; (ii) the carrying out of the State's own works programme. Such funds, whether lent

to other authorities for their works programmes or spent directly by the State, result in the creation of new capital assets, a large proportion of which are revenue earning and therefore capable of re-imbursing the State for the debt charges which it has incurred. (The previous section on Consolidated Revenue Expenditure shows the *gross* and *net* expenditure on annual debt charges.)

In addition to money from loan raisings, the Loan Fund records other receipts such as repayment of advances and Commonwealth capital grants; it is usual, therefore, to record loan expenditure on both gross and net bases. The annual net loan expenditure is, in effect, the disbursement of the new borrowings for the year, augmented or diminished by the net movement in the Loan Fund balance. The following table shows the calculation of net loan expenditure from two viewpoints: (i) as a residue from gross loan expenditure; (ii) as the algebraic sum of new loan raisings and the net movement in the Loan Fund balance:

State Loan Fund—Calculation of Net Loan Expenditure
(\$'000)

Particulars	1965-66	1966-67	1967-68
(i) Gross Loan Expenditure ..	39,411	40,161	46,054
Less Repayments	2,092	1,837	2,334
Less Commonwealth Grants ..	745	1,689	1,591
Net Loan Expenditure ..	36,573	36,636	42,128
(ii) Net Borrowings	34,899	37,622	40,651
Decrease, Loan Fund Balance ..	1,675	— 988	1,458
Other (a) .. .. .	..	2	19
Net Loan Expenditure ..	36,573	36,636	42,128

(a) Discount and capital appreciation items.

The following table shows gross and net loan expenditure annually:

Loan Fund—Gross and Net Loan Expenditure
(\$'000)

Year	Loan Expenditure		Year	Loan Expenditure	
	Gross	Net		Gross	Net
1950-51	30,802	27,464	1959-60 ..	29,130	26,442
1951-52	34,048	30,298	1960-61 ..	33,866	30,612
1952-53	40,152	26,136	1961-62 ..	32,520	30,088
1953-54	31,816	27,544	1962-63 ..	33,332	30,510
1954-55	35,310	29,378	1963-64 ..	35,354	32,905
1955-56	35,212	27,048	1964-65 ..	35,816	33,352
1956-57	23,544	22,038	1965-66 ..	39,411	36,573
1957-58	23,390	21,666	1966-67 ..	40,161	36,636
1958-59	27,610	25,112	1967-68 ..	46,054	42,128

In the remainder of this section, tables will deal with *net* loan expenditure only since this is directly related to aggregate net loan expenditure and to the State Public Debt.

The following table shows *net* loan expenditure according to purpose for three years and the aggregate net loan expenditure to 30 June 1968:

**Loan Fund—Net Loan Expenditure, Annual and Aggregate
(\$'000)**

Purpose	Annual Net Expenditure			Aggregate Net Expenditure to 30 June 1968
	1965-66	1966-67	1967-68	
Business Undertakings—				
Hydro-Electric Development	16,500	18,000	20,000	293,919
Railways, Bus Services, and Transport	805	300	821	36,910
Water Supply Schemes	1,036	1,513	2,547	19,520
Other	224	165	32	2,729
Total	18,564	19,978	23,401	353,079
Loans and Advances—				
Homes Advances and Construction (a)	— 274	— 278	— 475	27,217
State Advances (Primary Producers)	357	71	174	4,319
Closer Settlement	207	63	155	1,545
Returned Soldiers' Settlement (b) .. ..	..	— 29	— 33	451
Aluminium Industry Agreements	— 167	— 167	— 167	5,160
Assistance to Iron Ore Industry .. ..	..	1,500	2,500	4,000
Assistance to Industries	343	1,513	964	5,474
Tourist Accommodation Loans	199	174	— 6	1,764
Loans to Local Bodies	119	— 64	— 12	1,530
Total	783	2,783	3,100	51,459
State Works and Purposes—				
Roads, Bridges and Harbours	4,422	1,893	1,288	58,774
School and University Buildings	4,438	4,026	4,106	54,964
Hospital Buildings	5,153	3,585	4,024	42,773
Other Public Buildings	415	1,379	2,496	16,960
Forestry	1,322	1,563	1,179	16,990
Other	1,468	1,189	1,437	18,234
Total	17,217	13,634	14,530	208,695
Financial—				
Loan Flotation and Conversion Expenses	9	— 65	— 34	5,068
Capital Losses Funded .. ..	..	..	..	2,961
Revenue Deficits Funded .. ..	..	306	1,132	12,931
Total	9	241	1,098	20,960
Grand Total	36,573	36,636	42,128	634,192

(a) Expenditure under the Commonwealth-State Housing agreement is excluded. Net advances under the agreement were \$6,301,710 in 1967-68 and net aggregate advances to 30 June 1968 were \$63,562,116.

(b) Expenditure for War Service Land Settlement from Commonwealth funds is excluded. Net advances amounted to \$452,868 in 1967-68 and net aggregate advances to 30 June 1968 were \$43,926,724.

The headings in the previous table have the following significance: expenditure classified under *Business Undertakings* and *Loans and Advances* is, in effect, a form of investment by the State. Such investment has two effects: (i) the *net* burden on Consolidated Revenue in respect of annual debt charges is not increased, since the Treasury obtains interest and sinking fund payments from the various authorities and enterprises to which money has been advanced; (ii) in some cases, the advances are recoverable and are credited to the Loan

Fund as repayments (e.g. aluminium industry loans). Expenditure under *State Works and Purposes* results in the creation of physical assets (e.g. bridges, schools, etc.) but the associated annual debt charges are not recovered directly and lead to an increase in the net burden on Consolidated Revenue. Expenditure under *Financial* is not associated with the creation of any assets but it too increases the net burden on Consolidated Revenue in respect of annual debt charges. In each of the last three years, more than half of the annual net loan expenditure has been invested by the State in loans to other authorities and enterprises.

In the case of some State business undertakings, the capital indebtedness of the authority may not correspond closely with the associated aggregate net expenditure recorded in the Loan Fund, the principal example being the Transport Commission; the capital indebtedness of the railways was reduced by \$8,756,000 as from 1 July 1936 by transfer of the annual debt charges on this sum as a burden on Consolidated Revenue. Under the heading *Financial* appears an item 'Capital Losses Funded'; the principal component of the aggregate to 30 June 1968 was \$2,357,954 representing losses on returned soldiers' settlement schemes initiated after the First World War.

Aggregate net loan expenditure records the expenditure of loan borrowings from the commencement of the State Public Debt and the table indicates that the main liability is now for the following purposes (in descending order of magnitude): (i) hydro-electric development; (ii) roads, bridges and harbours; (iii) education buildings; (iv) hospitals; (v) railways, bus services, etc.; (vi) housing.

The relationship between aggregate net loan expenditure, total loans raised and the State Public Debt is established in the following table:

Aggregate Net Loan Expenditure and State Public Debt (a) at 30 June
(\$'000)

Particulars	1966	1967	1968
Aggregate Net Loan Expenditure	555,428	592,064	634,192
Unexpended Balance, Loan Fund.. .. .	1,755	2,743	1,285
Grand Total Loans Raised	557,182	594,806	635,477
Less Aggregate Redemptions From Sinking Funds ..	56,313	60,893	65,892
Less Liability for Exchange on Overseas Redemption	9,212	8,996	8,692
State Public Debt (a)	491,658	524,918	560,893

(a) Overseas component at exchange rates prevailing on 1 July 1927.

State Public Debt

The State Public Debt is calculated on two bases: (i) With overseas debt calculated at 'mint par of exchange', i.e. at the exchange rates prevailing on 1 July 1927. 'Mint par debt' is the official debt for the purpose of determining sinking fund contributions payable under the Financial Agreement, 1927. (ii) With overseas debt calculated at current rates of exchange. The following table shows the State Public Debt calculated on both bases:

State Public Debt at 30 June 1968—At Mint Par of Exchange and at Current Rates of Exchange

Place in Which Debt Repayable	\$Aust. at Mint Par of Exchange		\$Aust. at Current Rates of Exch.	
	Conversion Rate of \$A (a)	Debt (\$'000)	Conversion Rate of \$A (b)	Debt (\$'000)
Australia .. ..	..	546,539	..	546,539
London	£0.5 sterling	8,382	£0.46667 sterling	8,980
New York	U.S. \$2.43325	4,913	U.S. \$1.1200	10,674
Canada	C. \$2.43325	393	C. \$1.2108	790
Switzerland	S. Francs 12.61965	293	S. Francs 4.8978	756
Netherlands	Guilders 6.053925	372	Guilders 4.0544	556
Total .. ..	..	560,893	..	568,296

(a) Exchange rates at 1 July 1927 (rates for £A 0.5).

(b) Exchange rates at 30 June 1968 for \$A.

The most significant changes between the 1927 rates of exchange and those current today occurred in three stages: (i) 1930, when the Australian pound was devalued 20 per cent in relation to sterling; (ii) 1949, when the Australian pound was devalued by 30.5 per cent parallel to a similar devaluation in sterling; (iii) 1967, when the pound sterling was devalued 14.3 per cent.

The growth of the public debt, expressed at mint par of exchange, is shown in the following table:

State Public Debt—Place of Flotation and Nominal Interest Payable (\$'000)

At 30 June	Debt Redeemable In—						Total Debt	Nominal Interest (a)
	London	New York	Switzerland	Canada	Netherlands	Australia		
1957..	12,972	692	..	..	..	251,504	265,168	10,430
1958..	12,932	1,308	..	..	..	271,882	286,122	11,504
1959..	14,732	1,918	..	..	..	291,000	307,650	12,540
1960..	14,682	2,482	..	..	..	313,880	331,044	13,806
1961..	14,662	3,056	293	505	..	336,042	354,559	15,362
1962..	14,652	3,572	293	505	399	359,830	379,252	16,658
1963..	16,092	4,846	293	505	399	382,458	404,594	18,012
1964..	17,724	4,684	293	486	399	408,724	432,311	19,259
1965..	17,544	4,430	293	473	399	439,163	462,302	21,707
1966..	13,733	5,743	293	444	399	471,045	491,658	23,987
1967..	13,643	5,284	293	419	399	504,880	524,918	25,940
1968..	8,382	4,913	293	393	372	546,539	560,893	27,778

(a) Interest has been calculated on the face value of individual loans outstanding at 30 June; no allowance has been made for variations in exchange rates since 1 July 1927.

A notable feature of the public debt of the State is that approximately 97 per cent of indebtedness (at 'mint par of exchange' rates) is now domiciled in Australia. There has been a gradual change from the situation which existed a century ago when nearly all loans were financed in London. In 1870, the State's public debt (\$2,537,400) was wholly redeemable in London and even in 1900, less than 10 per cent of the State debt was redeemable in Australia.

Public Debt Transactions

The following table shows particulars of loans raised and redeemed annually during the most recent three-year period (expressed at mint par of exchange) and also the transactions for the current year expressed at current rates of exchange. It will be observed that redemption of loans falling due in any particular year is achieved, in the main, by conversion (i.e. by renewal of the original loans on new terms and conditions):

State Public Debt—Conversion and Redemption
(**\$'000**)

Particulars	At Mint Par of Exchange			At Current Rates
	1965-66	1966-67	1967-68	1967-68
Loans Raised—				
For Additional Borrowings	33,020	37,694	40,651	40,651
For Conversion Purposes	53,214	38,648	44,963	44,963
For Redemption, Maturing Loans ..	9,472	2,517	12,772	12,772
Total Raisings	95,707	78,858	98,387	98,387
Deduct—				
Loans Redeemed—				
By Conversion	53,214	38,648	44,963	44,963
From New Cash Raisings	8,649	2,299	12,372	12,458
From National Debt Sinking Fund ..	4,487	4,652	5,076	5,839
<i>Net Increase in Public Debt</i>	29,355	33,260	35,975	35,126
Debt at End of Year ..	491,658	524,918	560,893	568,296

The following table shows the due dates of loans outstanding *at current exchange rates* (i.e. at the rates prevailing at 30 June 1968) and also the country in which the loans will fall due.

Due Dates of Loans at 30 June 1968
(**\$'000**)

Maturing During	Amount Maturing				Total
	In Australia	In London	In New York	Elsewhere Overseas	
1968-69	37,993	..	..	..	37,993
1969-70	57,614	1,216	..	..	58,830
1970-71	48,389	..	249	..	48,638
1971-72	23,458	..	391	..	23,849
1972-73	30,226	..	911	..	31,137
1973-74	17,713	..	..	..	17,713
1974-75	26,455	2,124	..	..	28,579
1975-76	31,656	180	..	756	32,592
1976-77 to 1979-80	56,031	3,493	1,602	..	61,126
1980-81 to 1983-84	57,922	1,967	4,186	1,347	65,422
1984-85 to 1989-90	131,354	..	3,336	..	134,690
2001-02 to 2003-04	27,727	..	..	..	27,727
Total ..	546,539	8,980	10,674	2,103	568,296

The following table shows the rates of interest which were payable on the State Debt and the portions of the debt at each rate in Australia, London, New York and elsewhere overseas respectively (*at current exchange rates*):

Rates of Interest on Public Debt at 30 June 1968
(\$'000)

Rate of Interest (Per Cent)	Amount Maturing				Total
	In Australia	In London	In New York	Elsewhere Overseas	
1.00	519	..	..	..	519
3.25 .. ..	..	3,340	..	..	3,340
4.00	912	..	..	..	912
4.125	14,400	..	..	..	14,400
4.1875	1,812	..	..	..	1,812
4.25	25,194	..	..	..	25,194
4.3125	850	..	..	..	850
4.40	3,254	..	..	..	3,254
4.4375	2,092	..	..	..	2,092
4.50	91,608	..	249	756	92,613
4.60	1,868	..	..	..	1,868
4.625	2,954	..	..	..	2,954
4.75	37,941	..	911	..	38,852
4.80	18,032	..	..	..	18,032
5.00	213,317	..	1,110	556	214,983
5.25	114,424	..	1,803	..	116,227
5.375	17,362	..	..	..	17,362
5.50 .. ..	..	5,291	3,266	..	8,557
5.75 .. ..	..	..	3,336	790	4,126
6.00 .. ..	..	349	..	..	349
Total ..	546,539	8,980	10,674	2,102	568,296

The next table summarises the transactions of the National Debt Commission in relation to the Tasmanian Public Debt:

National Debt Commission—Transactions in Respect of Tasmanian Public Debt
(\$'000)

Particulars	1965-66	1966-67	1967-68
Balance at Beginning of Period	330	159	348
Contributions—			
From Commonwealth Government	1,212	1,293	1,398
From State Government	3,641	3,892	4,162
Interest Received (Net)	6	2	12
Funds Available	5,189	5,347	5,921
<i>Deduct</i>			
Redemptions and Re-purchases (a)—			
At Mint Par of Exchange	4,487	4,652	5,076
Exchange Adjustment	543	347	764
Balance at End of Period	159	348	81

(a) The sum of the two specified items represents the cost at current rates of exchange.

The National Debt Commission was established as part of the 1927 Financial Agreement and its function is to administer one consolidated sinking fund in respect of the debt of the Commonwealth and States. Sinking fund

moneys are used to redeem unconverted securities at maturity, and to repurchase securities on the stock market. The obligations of the States and the Commonwealth in contributing to the consolidated sinking fund are set out earlier in this chapter in a section headed 'Payments under the Financial Agreement (1927)'; although the Commission operates a consolidated fund, it is possible to obtain statements for its operations with respect to each State's public debt.

Taxation in Tasmania

Introduction

As citizens of the Commonwealth, Tasmanians are subject to taxes levied both by the State and the Commonwealth. The relative magnitude and severity of the two forms of taxation are compared in the following table:

Taxation, State of Tasmania and Commonwealth, 1967-68 (a)

Tax	Amount (\$'000)		Per Head of Population (\$)	
	Tasmania (b)	Common- wealth (c)	Tasmania (d)	Common- wealth (d)
Income .. .. .	..	3,037,574	..	254.69
Customs and Excise .. .. .	..	1,167,461	..	97.89
Sales .. .. .	..	416,728	..	34.94
Pay-roll .. .. .	..	184,416	..	15.46
Probate and Succession Duties ..	2,525	54,717	6.65	4.59
Motor	5,986	..	15.78	..
Stamp Duties	3,675	..	9.70	..
Land	2,271	..	5.99	..
Racing	1,320	..	3.48	..
Liquor	950	..	2.50	..
Entertainment	72	..	0.19	..
All Other	35	54,150	0.09	4.55
Total	16,834	4,915,046	44.37	412.11

(a) Collections from all sources of taxation, including amounts paid to special funds.

(b) State taxation collected by Tasmanian Government.

(c) Commonwealth Government taxation for Australia.

(d) Based on respective *mean* populations.

Assuming that Tasmanians contributed to Commonwealth taxation in strict proportion to the relative mean populations of the State and the Commonwealth, it would be theoretically correct to add the two per capita figures (\$44.37 and \$412.11) and arrive at a figure of \$456.48 as the total per capita taxation of the Tasmanian and Commonwealth Governments within the State. An alternative way of examining the problem is to refer to total Commonwealth taxes collected in Tasmania but this measure is unsatisfactory for a number of reasons, the chief defects being:

- (i) Commonwealth income tax and estate duty are recorded not only in the six States but also in a *Central Office* collecting from individuals and companies with specified interstate income or assets. Central Office collections of income tax amount to approximately one-third of the Australian total and, to this extent, reduce the collections credited to the six States.
- (ii) Goods shipped to Tasmania will, in some cases, already have been taxed in another State in respect of customs, excise or sales taxes. Even though other States are credited with the collection of

these three taxes, the fact remains that Tasmanians bear their incidence in the form of increased commodity prices. The amount of tax collected in other Australian States on goods shipped to Tasmania is not known.

Estimated Incidence

The following table shows actual collections of Commonwealth taxes in the State and also their estimated incidence:

**Taxation—Collected by Commonwealth in Tasmania and
Estimated Incidence in Tasmania
(\$'000)**

Tax	1965-66	1966-67	1967-68
Collected in Tasmania—			
Income Tax (a)	53,189	61,070	65,705
Estate Duty (a)	682	519	802
Wool Tax	395	378	278
Export Charges	174	119	142
Pay-roll Tax	4,182	4,897	5,176
Gift Duty	122	116	113
Stevedoring Industry Charge	465	503	840
Butter Fat Levy	122	136	136
Other Levies	47	71	69
Sales Tax	7,839	9,962	10,762
Customs	2,413	3,041	3,231
Excise	19,139	20,987	21,980
Total Collected in Tasmania	88,768	101,801	109,233
Collected Elsewhere in Australia (b)—			
Sales Tax	3,391	1,464	1,698
Customs	5,809	5,218	6,105
Excise	3,678	3,223	3,593
Estimated Incidence (a)	101,645	111,707	120,629

(a) Excludes Central Office collections.

(b) Estimated; goods on which these taxes were paid are assumed to have been sold in Tasmania.

In estimating the collection, in other Australian States, of the main taxes affecting Tasmanians, account was taken of the latest retail sales figures which show Tasmanian *per head* sales to be 94 per cent of the corresponding Australian figure. Accordingly the *per head* incidence of customs, excise and sales taxes in Tasmania was taken to be 94 per cent of the Australian *per head* collection figure for each tax. It will be apparent that the estimated incidence still falls far short of a realistic figure due to the unknown Tasmanian contribution to Central Office collections of income tax and estate duty.

Commonwealth Income Tax

Uniform taxation on incomes throughout Australia was adopted in 1942 when the Commonwealth Government became the sole authority levying this tax.

With the introduction of Social Services Contribution from 1 July 1946, the levy of taxation on the incomes of individuals was divided into two separate taxes: (i) Income Tax; (ii) Social Services Contribution. Both taxes were based upon the same definitions of assessable income and both were assessed and collected concurrently. Company income was not subject to

Social Services Contribution except with regard to the undistributed income of private companies. The two taxes were later merged into a single levy known as 'Income Tax and Social Services Contribution' and this title referred to the tax imposed on the incomes of both individuals and companies. It first applied to the tax imposed on incomes derived by individuals during the year ended 30 June 1951, and by companies during the year ended 30 June 1950. The term now in use is simply 'Income Tax'.

Certain types of income are exempt from tax in Australia. These include income from gold and uranium mining; war, invalid, age, and widows' pensions; child endowment; and unemployment and sickness benefits.

Expenses incurred in earning income and losses incurred in previous years are allowable deductions in calculating taxable income.

For the income year 1968-69, Income Tax was payable on the incomes of individuals and commenced at a taxable income of \$417. However, certain limitations applied to the tax payable by aged persons, over 65 years of age in the case of a male and over 60 years in the case of a female. Concessional deductions were allowed to taxpayers on account of dependants, certain medical and dental expenses, life insurance premiums (up to \$1,200), super annuation contributions, medical or hospital benefits fund payments, education expenses (up to \$300 per dependant), etc. and were subtracted from income to calculate taxable income. Dependants included spouse, parents, parents-in-law, children under sixteen years of age, student children under 21 years of age, invalid child, brother or sister over 16 years of age, or daughter-housekeeper for widow or widower. A concessional deduction might be allowed for a housekeeper having the care of children under 16 years of age or of an invalid relative where the taxpayer did not contribute to the maintenance of a spouse or daughter-housekeeper. The amount of concessional deduction allowable in respect of each type of dependant and housekeeper was:

spouse, \$312; parent or parent-in-law, \$312; children under 16 years: one child, \$208, other children, \$156; student child, 16 to 21 years, \$208 each; invalid relative not less than 16 years, \$208 each; housekeeper or daughter-housekeeper, \$312.

The following table shows the rates of Income Tax for individuals for the income year 1968-69:

Australia—Rates of Income Tax for Individuals, Income Year 1968-69
($\$$)

Selected Total Taxable Income			Tax Payable	Selected Total Taxable Income			Tax Payable
417	..	..	0.51	3,200	..	..	518.34
500	..	..	9.63	3,400	..	..	579.02
600	..	..	15.88	3,600	..	..	639.70
700	..	..	24.29	3,800	..	..	705.50
800	..	..	32.69	4,000	..	..	771.31
1,000	..	..	54.83	4,800	..	..	1,061.59
1,200	..	..	80.46	5,600	..	..	1,375.65
1,400	..	..	109.57	6,400	..	..	1,713.49
1,600	..	..	142.16	7,200	..	..	2,072.65
1,800	..	..	178.24	8,000	..	..	2,452.31
2,000	..	..	217.81	8,800	..	..	2,851.65
2,200	..	..	262.09	10,000	..	..	3,487.56
2,400	..	..	306.37	12,000	..	..	4,615.06
2,600	..	..	356.80	16,000	..	..	6,988.96
2,800	..	..	407.23	20,000	..	..	9,465.36
3,000	..	..	462.78	32,000 (a)	..	..	17,251.26

(a) Income in excess of \$32,000 was taxed at the rate of 68.37 cents for each dollar of excess

There has been little variation in the rates of income tax on individuals since 1954-55, the chief change relating to a general five per cent rebate of tax operative in the years 1959-60, 1961-62, 1962-63 and 1963-64. For the year 1964-65, the rebate was withdrawn and from 1965-66 a 2½ per cent levy was added. The other major change was the lift in the minimum taxable income from the previous \$210 to \$417 in 1963-64. In general then, the rates of income tax for the 1968-69 income year are those for 1954-55 increased by only 2½ per cent. The yield from income tax in this period has shown steep annual increases, not because of rate variations, but because taxable incomes have been rising and the number of taxpayers has shown some increase.

A system operates whereby the majority of taxpayers have regular deductions made from their salaries or wages, i.e. the 'pay-as-you-earn' principle. The amounts deducted are regulated so that the employee will have paid the approximate amount of his taxation by the end of the income year when he makes a return in which he may claim the refund of any overpayment of taxation instalments.

The following table shows the number of taxpayers, taxable income and Income Tax assessed during the year 1967-68 (Income Year: 1966-67).

Tasmania, Income Tax—Income Year 1966-67
Individuals—Residents and Non-Residents

Grade of Actual Income	Taxpayers	Taxable Income			Net Income Tax Assessed
		Salaries and Wages	Other	Total	
\$	no.	\$'000	\$'000	\$'000	\$'000
417- 599 ..	4,621	1,940	329	2,269	45
600- 799 ..	5,542	3,067	535	3,603	115
800- 999 ..	6,268	4,411	729	5,141	226
1,000- 1,199 ..	7,476	6,276	1,104	7,380	406
1,200- 1,399 ..	7,347	7,037	1,406	8,443	552
1,400- 1,599 ..	7,928	8,888	1,583	10,471	791
1,600- 1,799 ..	8,092	10,303	1,736	12,040	1,019
1,800- 1,999 ..	7,339	9,897	1,896	11,793	1,082
2,000- 2,199 ..	8,381	12,134	2,118	14,251	1,384
2,200- 2,399 ..	8,801	13,606	2,235	15,841	1,631
2,400- 2,599 ..	9,204	15,366	2,359	17,724	1,933
2,600- 2,799 ..	9,242	16,513	2,343	18,855	2,164
2,800- 2,999 ..	8,183	15,468	2,527	17,995	2,189
3,000- 3,999 ..	27,033	58,888	10,905	69,794	9,682
4,000- 5,999 ..	16,362	44,499	14,157	58,656	10,504
6,000- 7,999 ..	3,582	11,351	7,796	19,147	4,494
8,000- 9,999 ..	1,269	4,010	5,227	9,237	2,634
10,000-19,999 ..	1,293	3,992	10,637	14,629	5,382
20,000-29,999 ..	138	442	2,502	2,945	1,403
30,000 and over ..	31	63	1,588	1,651	976
Total ..	148,132	248,152	73,713	321,865	48,611

The following definitions apply to the table:

- (i) Actual Income: Gross income *including exempt income* less expenses incurred in earning that income.
- (ii) Individuals: *Excluding companies*. Residents assessed both in Tasmania and at Central Office, also non-residents assessed in Tasmania.
- (iii) Taxable Income: Actual income *less* exempt income and *less* allowable deductions.

Companies (Income Tax)

The tax payable by companies for the financial year 1968-69 is based on income derived during the year ended 30 June 1968 or substituted accounting period. (In the case of tax on individuals, financial year and income year are usually synonymous).

The following table shows the rates of tax and contribution payable by companies for the 1968-69 financial year:

Rates of Income Tax Contribution
Companies—Financial Year 1968-69

Scale			Taxable Income	
			Up to \$10,000	Balance
			cents per \$	cents per \$
A	..	..	30.0	40.0
B	..	..	35.0	45.0
C	..	..	40.0	45.0
D	..	..	35.0	35.0

The following shows the application of the above scales to the various types of company:

Private: (A) except that 50 cents in the \$ was payable on the undistributed amount.

Co-operative: (B).

Life Assurance: If purely mutual (A). Other Life Assurance (if resident), mutual income (A); other income (C) except that maximum other income subject to 40.0 cent rate is \$10,000 less mutual income; if non-resident, mutual income (A), dividend income (B), other income (C) except that maximum dividend income subject to 35.0 cent rate is \$10,000 less mutual income, and maximum other income subject to 40.0 cent rate is \$10,000 less the sum of dividend and mutual income.

Non-Profit: Friendly Society Dispensary (D); other (B).

Other Companies: Resident (C); non-resident—dividend income (B), other income (C) except that maximum other income subject to 40.0 cent rate is \$10,000 less dividend income.

State Taxation

In the section on Consolidated Revenue, taxes collected by the Tasmanian Government were shown in summarised form.

The next table gives full details of State taxation. It should be noted that certain taxes are reserved for special purposes. Examples are: (i) Land Tax—although this item is recorded as a Consolidated Revenue receipt, it is

passed to the Transport Commission; (ii) Motor Taxation—the component specified as ‘for Consolidated Revenue’ is passed to the State Highway Trust Fund; (iii) Racing and Gaming Taxes—part of the ‘paid to special funds’ item is passed to the racing clubs and the remainder spent on administration of racing.

Tax Collections by the Tasmanian Government (a)
(*\$'000*)

Tax	1965-66	1966-67	1967-68
Deceased Persons' Estates Duties	2,005	2,149	2,525
Entertainments Tax .. .. .	..	..	72
Stamp Duties (excluding Bookmakers' Tickets)—			
Cheques	509	568	581
Bills of Exchange and Lading	4	2	2
Hire-Purchase Agreements	413	471	484
Legal Documents, etc.	978	1,090	1,247
Adhesive Revenue Stamps	392	447	566
Insurances	r 530	r 625	746
Marketable Securities .. .. .	..	..	49
Racing and Gaming Taxes—			
Paid to Consolidated Revenue	633	685	807
Paid to Special Funds	408	442	513
Land Tax	2,029	2,108	2,271
Motor Taxation—			
Paid to Consolidated Revenue	r 3,527	r 4,031	4,860
Paid to Special Funds	r 962	r 1,094	1,126
Liquor Tax and Related Licences—			
Tax	638	749	830
Publicans' Licences, etc.	30	39	23
Wholesale Licences	67	95	93
Registration of Clubs	4	4	4
Sundry Licences—			
Animals' and Birds' Protection Act	14	20	23
Auctioneers and Estate Agents	7	7	7
Other (including Firearms Act)	5	5	5
Total	13,154	14,630	16,834

(a) Collections from all sources of taxation, including amounts paid to special funds.

State Land Tax

The rates of land tax assessed on urban unimproved land values for the year 1967-68 are shown in the following table:

Rates of State Land Tax—Urban Land, 1967-68
(*\$*)

Taxable Value (Selected Values) (a)	Tax Payable	Taxable Value (Selected Values) (a)	Tax Payable
500	1	15,000	105
1,000	2	25,000	225
2,000	5	50,000	575
4,000	13	100,000	1,575
6,000	23	150,000	2,825
10,000	55	200,000	4,235

(a) Tax on unspecified values may be calculated by simple proportion, e.g. tax on \$5,750 equals \$13 *plus* 1,750/2,000 (\$23 *less* \$13) i.e. \$21.75. Land values exceeding \$150,000 were further taxed at 3 cents in the \$ on the excess.

The rates of land tax assessed on rural land values for the year 1967-68 are shown in the following table:

Rates of State Land Tax—Rural Land, 1967-68

Unimproved Value (\$)	Taxable Value	Tax Rate
1-10,000	Nil	Nil
10,001-15,000	Three times the unimproved value less \$30,000	As for Urban land
15,001 and over	Unimproved value	As for Urban land

The following table summarises the value of urban, rural and composite properties and the tax assessed on each:

State Land Tax—Value of Properties and Tax Assessed (\$'000)

Year	Gross Unimproved Value				Tax Assessed			
	Urban	Rural	Compo- site (a)	Total	Urban	Rural	Compo- site (a)	Total
1963-64	174,826	80,092	16,712	271,630	1,319	113	178	1,610
1964-65	182,497	90,412	17,612	290,520	1,367	118	188	1,672
1965-66	200,514	99,253	17,969	317,735	1,686	142	214	2,043
1966-67	211,334	98,382	19,428	329,145	1,709	158	241	2,109
1967-68	221,645	108,474	21,544	351,664	1,773	238	280	2,291

(a) Properties made up of both urban and rural land.

State Deceased Persons' Estates Duties

The legislation dealing with State Deceased Persons' Estates Duties is contained in Acts No. 42 of 1957 and No. 62 of 1962. The following table gives details of assessments for 1967-68:

**State Deceased Persons' Estates Duties
Number of Estates, Net Value and Tax Assessed, 1967-68**

Grade of Dutiable Value	Estates		Net Value as Assessed	Total Duty Assessed (a)	Average Duty	
	Number Examined	Number Taxable			Per Estate Examined	Per Taxable Estate
\$	no.	no.	\$'000	\$'000	\$	\$
1- 500 ..	149	10	20	..	2.1	31.1
501- 1,000 ..	83	8	64	1	9.5	98.1
1,001- 1,500 ..	84	24	107	2	24.2	84.6
1,501- 2,000 ..	79	15	139	2	27.3	143.5
2,001- 3,000 ..	142	38	351	6	44.5	166.1
3,001- 4,000 ..	133	41	451	10	72.1	234.0
4,001- 5,000 ..	102	68	453	9	89.4	134.1
5,001- 6,000 ..	114	75	616	16	143.7	218.4
6,001- 8,000 ..	173	131	1,166	44	254.0	335.4
8,001- 10,000 ..	127	85	1,087	44	343.6	513.4
10,001- 15,000 ..	182	143	2,074	110	601.9	766.1
15,001- 20,000 ..	102	102	1,616	119	1,165.6	1,165.6
20,001- 30,000 ..	115	115	2,520	212	1,841.6	1,841.6
30,001- 40,000 ..	54	54	1,594	146	2,711.0	2,711.0
40,001- 50,000 ..	35	35	1,178	125	3,578.8	3,578.8
50,001-100,000 ..	85	85	4,888	684	8,048.2	8,048.2
100,001 and over	46	46	5,532	1,282	27,860.8	27,860.8
Adjustments ..	..	..	..	— 158	..	..
Total ..	1,805	1,075	23,856	2,654	..	..

(a) Rates of duty and levels of exemption vary according to the class of beneficiary and the type of asset contained in the estate.

Motor Taxation

The chief components of motor taxation are: (i) motor tax assessed on a power-weight formula; (ii) vehicle registration fees; (iii) drivers' and riders' licences; (iv) other registration fees mainly related to public vehicles.

Details of motor taxation collections are shown in the following table:

State Motor Taxation
(\$'000)

Particulars	1965-66	1966-67	1967-68
Registration Fees	529	562	584
Motor Tax	2,994	3,457	4,074
Less Refunds of Motor Tax	— 25	— 33	— 33
Licences—Drivers and Riders	381	486	495
Public Vehicle Licensing, Fees, etc.	357	388	401
Stamp Duty on Third Party Insurance	252	265	275
Stamp Duty on Vehicle Registration .. .. .	..	..	189
Total	4,489	5,125	5,986
Paid into Consolidated Revenue	3,527	4,031	4,860
Retained by Transport Commission	962	1,094	1,126

The principle applicable to motor taxation is that it must be devoted to expenditure on roads. Most of the taxation shown in the previous table is passed, via Consolidated Revenue, to the State Highway Trust Fund but a proportion is paid to the Transport Commission; details of this dissection appear in the earlier table 'Tax Collections by the Tasmanian Government'.

Racing Taxation

Under the *Racing and Gaming Act 1952*, licensed bookmakers pay a turnover commission of $2\frac{1}{2}$ per cent if fielding at a Tasmanian course or taking bets on Tasmanian events at off-course premises.

Betting on races outside Tasmania made at off-course premises are taxed at $2\frac{1}{2}$ per cent and this levy, together with totalisator tax (5 per cent city and $2\frac{1}{2}$ per cent country), is payable to Consolidated Revenue once charges have been met.

Details of Racing Taxation are:

State Racing Taxation—Collection and Distribution
(\$'000)

Particulars	1965-66	1966-67	1967-68
Totalisator Tax (a)	55	56	59
Bookmakers' Commission and Licences (a)	820	895	1,070
Stamp Duty on Bookmakers' Tickets (b)	166	176	192
Total	1,041	1,127	1,320
Paid into Consolidated Revenue (b)	633	685	807
Adjustment (c)	4	15	2
Racing Commission Expenses (a)	34	37	40
Stipendiary Stewards' Expenses (a)	12	11	11
Racing Clubs' Commission (a)	318	340	420
Racing Assistance Fund (a)	40	40	40

(a) Accounting year ended 31 July.

(b) Financial year ended 30 June.

(c) For different accounting periods; see notes (a) and (b).

The two charges made on the betting turn-over tax are: (i) the administrative costs of the Racing Commission, with an annual maximum of \$40,000; (ii) a contribution to the racing assistance fund, again with an annual maximum of \$40,000.

The turnovers on which commissions were levied are as follows:

Betting—Bookmakers' Turnover and Totalisator Investments
('\$000)

Particulars	1965-66	1966-67	1967-68
Licensed Bookmakers' Turnover	32,137	35,091	42,090
Totalisator Investments	1,149	1,174	1,277
Total Betting Turnover	33,286	36,265	43,367

State Taxation on Lotteries

From 1942 (when the Commonwealth Government became the sole collector of income tax), lotteries conducted from Hobart by Tattersalls (George Adams Estate) were Tasmania's chief source of revenue from State taxation. On 14 July 1954, the promoters transferred their operations to Victoria. A new organisation—Tasmanian Lotteries—was granted a licence and operated until 30 September 1961, when the proprietor surrendered the licence. No operator is now licensed.

The following records the contributions made to Consolidated Revenue by lotteries taxation from 1949-50:

Taxation and Stamp Duties Imposed on Lotteries—Paid to Consolidated Revenue
('\$000)

Year	Taxation and Stamp Duties	Year	Taxation and Stamp Duties	Year	Taxation and Stamp Duties
1949-50 ..	2,152	1953-54 ..	3,032	1957-58 ..	740
1950-51 ..	2,430	1954-55 ..	1,152	1958-59 ..	432
1951-52 ..	2,634	1955-56 ..	2,114	1959-60 ..	278
1952-53 ..	2,952	1956-57 ..	1,930	1960-61 ..	60

In September 1960 the *Racing and Gaming Act* 1952 was amended to permit agreements with other States for the sale of their lottery tickets in Tasmania. Under an agreement with the Victorian Government, Tattersalls were allowed to sell tickets through accredited Tasmanian representatives; the Victorian Government was to pay quarterly to the Tasmanian Government 15½ per cent of the value of subscriptions made as a result of this concession. The amounts received under the agreement have been: 1961-62, \$137,914; 1962-63, \$134,476; 1963-64, \$145,394; 1964-65, \$146,500; 1965-66, \$152,338; 1966-67, \$140,995; 1967-68, \$138,372. For the purpose of Public Finance Statistics, these amounts are classified not as 'taxation' but as 'payments from other States'. The logic is that taxation on lottery turnover is imposed and collected by the Victorian Government, not by the Tasmanian Government.

PRIVATE FINANCE

Decimal Currency

A summary of the change-over to decimal currency and the currency itself is included below; for an account of the forms of currency used in Tasmania from 1803 to 1966 see the 1968 *Year Book*.

Decimal Currency

Australian currency, until 1966, was based on the pound (£) divided into 20 shillings (s) each of 12 pence (d). The penny was further divided into halfpennies.

On 14 February 1966 a decimal currency system was introduced, based on the dollar equal to 10 shillings. The dollar is divided into 100 cents.

Decimal Coinage

Coins are in the denomination of 50 cents, 20 cents, 10 cents and 5 cents (cupro-nickel); and 2 cents and 1 cent (bronze).

The original 50 cent coin was withdrawn from circulation because of confusion caused through its similarity to the 20 cent coin, and because the value of its silver content (80 per cent silver, 20 per cent copper) is now greater than its face value. The Commonwealth Government has minted a twelve sided cupro-nickel 50 cent piece to replace the circular coin. The new coin which was released in September 1969, has the same design as the old coin.

Decimal Notes

The *Reserve Bank Act* 1965 authorizes the Bank to issue Australian notes in denomination of \$1, \$2, \$5, \$10, \$20, \$50, or of any other denomination that the Treasurer determines. On 14 February 1966 \$1, \$2, \$10 and \$20 notes were issued. Five dollar notes were issued on 29 May 1967. Although the decimal notes were completely new in design the colours were arranged to establish at a glance the relationship between the new and the old.

Legal Tender

£.s.d. notes and coins have retained their values in terms of dollars and cents and have remained legal tender for payment of amounts expressed in \$ currency. Since 1 August 1967 all contracts and agreements, payments, sales and other monetary transactions have to be made out in terms of \$ currency; contracts made after 1 August 1967 are unenforceable if in £.s.d.

A more detailed account of the decimal currency changeover appears in earlier *Year Books*.

Overseas Exchange Rates

The next table shows overseas exchange rates. Two quotations, for the sake of uniformity, have been inverted; they are: N.Z. (\$A1.245 for \$N.Z. 1 to 1966-67 and \$A1.002 for \$N.Z. 1 in December 1967); (ii) U.K. (\$A2.51 for £Stg 1 to 1966-67 and \$A2.151 for £Stg 1 in December 1967). Australia changed to dollar currency in 1966 and N.Z. in 1967 some of the rates are conversions from quotations for £A and £N.Z.

Overseas Exchange Rates (a)

Country	Basis of Quotation	1965-66	1966-67	1967-68	March 1969
New Zealand (b) ..	Dollars to \$A1 (b)	0.803	0.803	0.910	0.998
United Kingdom (b) ..	Pound Stg to \$A1 (b)	0.398	0.398	0.436	0.467
Belgium	Francs to \$A1	55.07	55.10	54.99	55.56
Canada	Dollars to \$A1	1.20	1.20	1.20	1.20
Ceylon	Rupees to \$A1	5.27	5.27	5.99	6.57
China (Mainland) (c) ..	New Yuan to \$A1	2.74	2.74	2.74	2.72
France	Francs to \$A1	5.44	5.46	5.45	5.49
Germany (West) ..	Deutsche Marks to \$A1	4.45	4.41	4.43	4.44
Hong Kong	Dollars to \$A1	6.37	6.37	6.61	6.77
India	Rupees to \$A1	5.47	8.33	8.33	8.33
Italy	Lire to \$A1	692.00	691.00	690.00	694.20
Japan	Yen to \$A1	401.02	400.98	400.95	395.90
Malaysia	Dollars to \$A1	3.399	3.399	3.382	3.376
Netherlands	Guilders to \$A1	4.00	4.00	3.99	4.01
Pakistan	Rupees to \$A1	5.28	5.28	5.28	5.29
Singapore	Dollars to \$A1	3.40	3.40	3.40	3.38
South Africa	Rands to \$A1	0.795	0.795	0.795	0.795
Switzerland	Francs to \$A1	4.80	4.79	4.81	4.76
U.S.A.	Dollars to \$A1	1.11	1.11	1.11	1.11
U.S.S.R. (c)	Roubles to \$A1	1.004	1.004	1.004	1.004

(a) Average telegraphic transfer selling rates at Sydney.

(b) Usual basis of quotation: (i) \$A to \$N.Z. 1; (ii) \$A to £1 Stg. Value quoted is an inversion.

(c) Rates of exchange used in converting import values to Australian currency for purposes of calculating customs duty.

Banking

Types of Bank

Banks in Tasmania can be classified by ownership as follows: (i) Government—the Reserve Bank of Australia, the Commonwealth Development Bank of Australia, the Commonwealth Trading Bank of Australia, and the Commonwealth Savings Bank; (ii) Private—the private trading banks and the private savings banks; (iii) Trustee—the Hobart and the Launceston Savings Banks. The Agricultural Bank is *not* a bank for the purpose of these statistics.

For statistical purposes, such a classification is not helpful since banks, both government and private, may be engaged in the same type of activity. Hence, the classification in actual use is one which groups banks according to their type of activity, not according to their ownership. The major banking statistics for the State are presented in two distinct series under the following headings: (i) all cheque-paying banks; (ii) all savings banks.

Cheque-Paying Banks

The following institutions in Tasmania are classified as 'cheque-paying banks': Commonwealth Trading Bank of Australia; Australia and New Zealand Bank Ltd; Bank of New South Wales; Commercial Bank of Australia Ltd; Commercial Banking Company of Sydney Ltd; English, Scottish and Australian Bank Ltd; and National Bank of Australasia Ltd. In 1969 the E. S. & A. Bank Ltd and the A.N.Z. Bank Ltd merged to operate as the one banking group.

Savings Banks

In the 1950s, only three savings banks operated branches in Tasmania: Hobart Savings Bank, Launceston Savings Bank and Commonwealth

Savings Bank. (The trustee savings banks date from early colonial days, that at Launceston opening in 1835, and at Hobart in 1845.) In recent years, private trading banks have opened savings bank subsidiaries in the State, the relevant dates being A.N.Z., September 1959; Bank of N.S.W., September 1961; E. S. & A., October 1961; National, May 1962; Commercial (of Australia), July 1962; Commercial (of Sydney), March 1963. In effect, all those banks which previously operated in Tasmania purely as cheque-paying banks now provide savings bank facilities for depositors. Following the 1969 merger of the E.S. & A. and A.N.Z. banks there are now eight separate enterprises operating savings bank business within the State.

Banking Legislation

Under Section 51 of the Commonwealth Constitution, the Commonwealth Parliament has power to legislate with respect to 'banking, other than State banking; also State banking extending beyond the limits of the State concerned, the incorporation of banks, and the issue of paper money'. The principal Commonwealth Acts at present in force relating to banking are as follows:

The Reserve Bank Act 1959-1966: Provision for the constitution and management of the Reserve Bank of Australia and the management of the Australian note issue. (Central banking functions had previously been vested in the Commonwealth Bank of Australia.)

The Banking Act 1959-1967: Objects are (i) to provide a legal framework uniform throughout Australia for regulating the banking system; (ii) to safeguard depositors of the banks from loss; (iii) to provide for the co-ordination of banking policy under the direction of the Reserve Bank; (iv) to control the volume of credit in circulation and bank interest rates; (v) to mobilise and to provide machinery for the control of foreign exchange and the gold resources of the Australian economy.

The Commonwealth Bank Acts 1959-1966: These Acts created the Commonwealth Banking Corporation as the controlling body for the newly-constituted Commonwealth Trading Bank of Australia, Commonwealth Savings Bank of Australia and Commonwealth Development Bank of Australia. The Corporation and its constituent banks are subject to the same banking controls as are the private trading banks. (The Commonwealth Bank, established in 1911, had performed a number of diverse roles, e.g. as a trading bank, a savings bank and a central bank. The effect of the new legislation was to isolate the individual functions and to constitute a separate establishment for each.)

Transactions of Cheque-Paying Banks

The accompanying table summarises the principal statistics relating to all cheque-paying banks in Tasmania for a five-year period. The following definitions apply:

- (i) Deposits—an item among banks' liabilities. The figure is the average, for the year, of *balances* read at weekly intervals.
- (ii) Loans, Advances and Bills Discounted, etc.—an item among banks' assets. The figure is the average, for the year, of *balances* read at weekly intervals.
- (iii) Debits to Customers' Accounts—in general, mainly the total of all cheques drawn by customers during a given period. The figure is the weekly average of such entries for the year.

**All Cheque-Paying Banks
(Including Commonwealth Trading Bank)**

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
	no.	no.	no.	no.	no.
Branches in Tasmania at End of Year	101	100	101	105	105
Weekly Averages—	\$'000	\$'000	\$'000	\$'000	\$'000
Deposits—					
Commonwealth and State Governments	580	754	1,719	1,953	2,502
Other—					
Fixed	29,483	34,970	39,427	42,096	46,585
Current—Interest Bearing	5,481	5,919	6,977	7,788	8,018
Current—Not Bearing Interest	59,059	60,867	63,969	65,975	67,369
Total	94,603	102,507	112,091	117,811	124,473
Loans, Advances and Bills Discounted (a)	54,124	55,214	60,460	69,297	72,394
Debits to Customers' Accounts (b)	41,340	43,105	47,103	51,222	55,728

(a) Excludes loans to authorised dealers in the short-term money market.

(b) Excludes debits to Australian Governments' accounts at Hobart branches. In addition to the seven cheque-paying banks' transactions, those of the Rural Credits Department of the Reserve Bank and the Commonwealth Development Bank are included in this item.

Fixed Deposit Rates

The next table shows the maximum interest rates received by customers of trading banks in respect of fixed deposits for specified periods:

**Trading Banks—Maximum Fixed Deposit Rates
(Per Cent Per Annum)**

Date From Which Operative	Deposits for—		
	Three Months and under Twelve	Twelve Months and under Eighteen (a)	Eighteen Months and under Twenty-four (b)
17 November 1960	4.00	4.50	..
1 July 1961 .. .. .	..	4.25	..
13 April 1962	3.75	4.00	..
1 April 1963	3.25	3.50	..
8 April 1964	(c) 3.75	4.00	..
29 September 1964 .. .. .	..	4.00	4.25
10 March 1965	(c) 4.25	4.50	4.50
17 August 1966	(c) 4.00	4.25	..
27 June 1968	(c) 4.25	4.50	4.75
1 August 1969	4.50	4.70	5.00

(a) Maximum periods for fixed deposits: 12 months to 9 September 1962; 12 to 15 months 10 September 1962 to 28 September 1964; 12 to 18 months 29 September 1964 to 26 June 1968; from 27 June 1968 12 and *under* 18 months.

(b) From 29 September 1964 banks could accept fixed deposits for periods *over* 18 and *up to* 24 months, from 27 June 1968 18 and *under* 24 months.

(c) From 8 April 1964, fixed deposits exceeding \$100,000 for periods from one to three months could be accepted at the rates shown.

From 1 August 1969 separate interest rates applied to fixed deposits of \$100,000 and over. Rates on such deposits are: 30 days but *less* than 3 months, 4.5 per cent; 3 months but *less* than six, 4.8 per cent; 6 months but *less* than 12, 4.9 per cent; 12 months but *less* than 24, 5.0 per cent.

The above rates (as from 1 August 1969) were still in force in December 1969, the maximum overdraft rate being 7.75 per cent.

Transactions of Savings Banks

The following table summarises the principal statistics relating to savings banks in Tasmania. Deposits are compiled on a basis different from that used in the case of cheque-paying banks. 'Deposits lodged' is the total inflow of deposits during the year, and 'depositors' balances' is a single liability reading taken at the end of the year.

All Savings Banks

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
Number at End of Year—	no.	no.	no.	no.	no.
Branches in Tasmania ..	147	147	148	151	151
Operative Accounts ..	379,243	394,664	413,413	432,112	452,280
Deposits Lodged during Year..	\$'000 142,382	\$'000 153,444	\$'000 189,026	\$'000 203,850	\$'000 217,531
Interest Added during Year ..	4,108	4,710	5,300	5,857	6,529
Excess of Deposits over Withdrawals	6,858	7,955	13,405	4,864	5,687
Depositors' Balances—End of Year	135,736	148,401	167,106	177,827	190,043
Per Head of Population—	\$	\$	\$	\$	\$
Depositors' Balances—End of Year.. ..	369	400	444	467	490

Savings Bank Interest Rates

The next table shows maximum rates of interest applying to operations of the Hobart Savings Bank, firstly as received by depositors, and secondly, as charged to borrowers with home mortgages.

**Hobart Savings Bank—Maximum Interest Rates
(Per Cent Per Annum)**

Date of Change In Rate	On Savings Accounts (a)	On Home Mortgages	Date of Change in Rate	On Savings Accounts (a)	On Home Mortgages
1 Jan. 1961 ..	3.50	5.75	1 June 1964 ..	3.50	..
1 July 1961 ..	3.75	..	1 April 1965 ..	3.75	5.75
1 Aug. 1962 ..	..	6.00	1 June 1966 ..	..	6.00
1 April 1963 ..	3.25	..	1 Aug. 1968 ..	4.00	6.25
1 May 1963 ..	..	5.50			

(a) Interest on fixed deposits is as for cheque-paying banks.

Insurance

Definitions

The data on insurance that follow are divided into two parts: (i) life insurance; (ii) insurance other than life, i.e. fire, marine and general insurance. No distinction is made between insurance and assurance, the former term being used in all contexts.

Legislation

Section 51 of the Commonwealth Constitution confers the necessary powers on the Commonwealth Parliament to legislate with respect to 'insurance other than State insurance; also State insurance extending beyond the limits of the State concerned'. The principal Commonwealth legislation affecting current insurance business is as follows:

Insurance Act 1932-1966: Insurance businesses are required to lodge a deposit with the Commonwealth Treasurer, interest on the invested deposit being paid to the depositor. Deposits remain as a security against liability to policy holders, and are available to satisfy judgments obtained in respect of policies. The following insurance business is exempted from these provisions: staff superannuation schemes; schemes of religious organisations solely for insurance of their property; friendly society, union and association schemes involving superannuation or insurance benefits to employees. Deposits with a State made prior to the legislation could remain with the State and reduce the amount needed for deposit with the Commonwealth. The passing of the *Life Insurance Act 1945-1965* had the effect of adding life insurance business to the list of activities exempted from the provisions of the *Insurance Act 1932-1966*.

Life Insurance Act 1945-1965: Objects are: (i) to replace all State legislation on the subject of life insurance, except that relating to operations of a State insurance office within a specific State, and to provide uniform legislation for the whole of Australia; (ii) to appoint an Insurance Commissioner to exercise active supervision of the activities of life insurance companies, with a view to securing the greatest possible protection of policy holders; (iii) to set up adequate machinery for dealing with any company that fails to maintain a required minimum standard of solvency.

Life Insurance

Since 1947, returns lodged under the *Life Insurance Act 1945-1965* have been used to compile life insurance statistics. In Tasmania, the Government Insurance Office does not transact life business so the tables that follow refer to the operations of enterprises exclusively in the private sector. The transactions in the next table are concerned with Tasmania as the State of issue of the policies, not necessarily as the State of risk. The following summarises the principal statistics relating to life insurance business carried on in Tasmania:

Life Insurance Transactions (Excluding Annuities)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
ORDINARY BUSINESS					
New Policies Issued—					
Number	13,179	12,340	12,336	14,024	14,974
Sum Insured (\$'000)	43,498	47,907	52,110	62,517	76,251
Annual Premiums .. (\$'000)	1,040	1,131	1,201	1,408	1,749
Policies Discontinued or					
Reduced—					
Number	9,556	9,304	9,588	9,059	9,409
Sum Insured (\$'000)	20,282	21,434	23,126	23,624	27,722
Annual Premiums .. (\$'000)	522	542	547	587	622

Life Insurance Transactions—*continued*

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
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INDUSTRIAL BUSINESS (a)

New Policies Issued—					
Number	3,479	3,077	3,058	3,418	3,190
Sum Insured .. ..(\$'000)	2,614	2,684	2,801	3,570	3,212
Annual Premiums ..(\$'000)	108	103	110	139	126
Policies Discontinued or Reduced—					
Number	6,884	6,530	6,610	5,659	4,662
Sum Insured .. ..(\$'000)	1,918	2,042	2,091	2,063	2,199
Annual Premiums ..(\$'000)	88	88	92	89	92

SUPERANNUATION BUSINESS

New Policies Issued—					
Number	2,536	2,271	2,252	2,857	2,542
Sum Insured .. ..(\$'000)	11,392	17,677	19,734	19,446	28,599
Annual Premiums ..(\$'000)	338	502	613	636	909
Policies Discontinued or Reduced—					
Number	2,720	2,888	2,048	2,671	2,371
Sum Insured .. ..(\$'000)	7,010	9,102	9,258	11,188	10,778
Annual Premiums ..(\$'000)	194	274	270	317	332

TOTAL BUSINESS

New Policies Issued—					
Number	19,194	17,688	17,646	20,299	20,706
Sum Insured .. ..(\$'000)	57,504	68,265	74,645	85,533	108,062
Annual Premiums ..(\$'000)	1,486	1,736	1,924	2,182	2,784
Policies Discontinued or Reduced—					
Number	19,160	18,722	18,246	17,389	16,442
Sum Insured .. ..(\$'000)	29,210	32,579	34,476	36,875	40,699
Annual Premiums ..(\$'000)	804	905	908	993	1,046

NEW LOANS PAID OVER (EXCLUDING ADVANCES OF PREMIUMS)

On Mortgage of Real Estate (\$'000)	3,026	3,131	3,783	2,455	2,732
On Companies' Policies (\$'000)	924	929	990	1,132	1,274
On Other Securities (\$'000)	4	12	8	408	13
Total Loans Granted (\$'000)	3,954	4,070	4,782	3,995	4,019

(a) Industrial business refers, in the main, to policies on which the premiums are collected as regular instalments by agents on commission.

Statistics in the following table are based on information contained in returns submitted by life insurance companies and relate to financial years ending within the calendar year shown.

Life Insurance—Policies in Force (a)

Particulars	1963	1964	1965	1966	r1967
Policies (no.)	214,646	213,462	213,016	213,039	217,285
Sum Insured (\$'000)	360,388	396,251	430,664	476,931	532,683
Annual Premiums .. (\$'000)	10,308	11,162	12,025	13,222	14,536
Claims, Surrenders, etc. (\$'000)	4,482	5,036	5,412	6,087	7,090

(a) At close of financial years, observed by individual companies, which end within the calendar year shown; 1967 figure is total in December.

(b) Payable on policies in force at close of financial years.

Fire, Marine and General Insurance

Information for insurance, other than life, is compiled from returns provided by insurance companies transacting marine and general insurance business in Tasmania (including the Tasmanian Government Insurance Office). Statistics that follow are for financial years of companies ending within the period shown.

Definitions: The following definitions apply:

- (i) Premiums represent the full amount receivable in respect of policies issued and renewed in the year, less returns, rebates and bonuses paid or credited to policy-holders during the year. They are not adjusted to provide for premiums unearned at the end of the year and consequently the amounts differ from 'earned premium income' appropriate to the year. When business is increasing, as shown in the statistics, premiums receivable are greater than 'earned premium income' appropriate to the year. The converse applies when business is declining.
- (ii) Claims include payments made during year, *plus* estimated amount of outstanding claims at end of year, *less* estimated amount of outstanding claims at beginning of year.
- (iii) Contributions to fire brigades, commission and agents' charges, and expenses of management are those amounts actually paid during the year.
- (iv) Taxation represents payments made during the year, including income tax, pay-roll tax, licence fees, stamp duty (where paid by the Company), etc. Income tax paid during the year is based on the income of earlier years.

Fire, Marine and General Insurance
(\$'000)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Premiums (Less Returns, Rebates and Bonuses)	12,248	13,567	14,703	r 15,879	17,413
Interest, Dividends, Rents ..	230	264	309	345	385
Total Revenue ..	12,478	13,831	15,011	r 16,225	17,799
Claims (Less Amounts Recoverable)	6,664	7,854	9,153	16,158	16,890
Other Expenditure	4,610	5,185	5,331	5,914	(a) 6,407
Total Expenditure ..	11,274	13,039	14,484	22,071	23,297

(a) Contribution to Fire Brigades, \$297,500; commission and agents' charges, \$1,863,500; expenses of management, \$3,497,000; taxation, \$749,000.

The figures relate to selected items of statistics and are not construable as 'Profit and Loss' statements or 'Revenue Accounts'. In cases where the business is underwritten in one State and the risk is situated in another, the business is included in the State in which the policy was issued.

Types of Insurance: The next table shows premiums and claims according to the class of insurance business transacted in 1967-68. ('Premiums' and 'claims' have been compiled in accordance with the definitions introducing the section.)

Premiums and Claims for Each Type of Insurance, 1967-68
(£'000)

Class of Business	Premiums	Claims	Class of Business	Premiums	Claims
Fire	3,020	5,880	Contractors' all Risks	14	7
Householders' Comprehensive	1,436	1,429	Public Risk, Third Party	337	113
Sprinkler Leakage	4	2	General Property	74	23
Loss of Profits	376	500	Plate Glass	80	50
Hailstone	2	..	Boiler	31	18
Fruit Crop	48	70	Livestock	27	10
Marine	668	661	Burglary	202	130
Motor Vehicles and Motor Cycles	5,273	3,621	Guarantee	28	55
Compulsory Third Party (Road Accidents)	1,685	1,726	'Pluvius'	17	3
Workers' Compensation	3,106	2,099	Aviation	24	9
Seamen's Compensation	n.p.	n.p.	All Risks	107	70
Personal Accident	668	331	Television	3	1
			Other (a)	185	82
			Total	17,413	16,890

(a) Includes 'Seamen's Compensation'.

Ratio of Claims to Gross Premiums: The following table shows, as a percentage, the ratio of claims to premiums for the more important classes of business over a five-year period:

Fire, Marine and General Insurance
Ratio of Claims to Premiums (a)
(Per Cent)

Class of Business	1963-64	1964-65	1965-66	(b) 1966-67	(b) 1967-68
Fire	30.6	33.1	36.4	191.9	194.7
Householders' Comprehensive	21.5	25.4	25.3	199.8	99.5
Loss of Profits	(c) 1.7	31.4	35.0	188.5	133.0
Marine	66.0	41.3	44.8	44.7	98.9
Motor Vehicles (Excluding Motor Cycles)	72.3	68.4	62.8	r 68.1	68.7
Compulsory Third Party (Road Accidents)	75.1	85.3	95.0	98.8	102.4
Workers' Compensation	49.2	53.7	59.1	72.9	67.6
Personal Accident	48.1	44.2	45.6	38.0	49.5
Public Risk, Third Party	38.2	67.7	42.4	30.0	33.4
Plate Glass	50.9	57.2	56.1	55.5	61.9
Burglary	70.7	65.2	54.7	53.7	64.3
All Classes	54.4	57.9	62.3	101.5	97.0

(a) See beginning of section for definition of claims and premiums.

(b) The fire disaster of 7 February 1967 affected some ratios.

(c) Lower claims experienced and substantial recoveries made during this accounting period.

February Bushfires 1967

The effect of the 1967 February fires is reflected, in part in the 1966-67 figures; however, the reporting companies observe different financial years and '1966-67' in the table refers to returns for financial years which ended at any point within 1966-67. Some companies have financial years ending earlier than 30 June (in a number of cases earlier than February). Accordingly the balance of the effect appears in the 1967-68 figures.

Finance Companies

'Finance companies' for the purpose of compiling statistics are defined as incorporated companies which are engaged mainly in providing business and the general public with credit facilities of the following types: hire purchase and other instalment credit for retail sales, wholesale hire purchase, other consumer and commercial loans, and factoring.

(Note: The transactions of finance companies in the field of instalment credit for retail sales are also included in the figures for 'all businesses' in the statistics of instalment credit for retail sales. The category 'non-retail finance businesses' in that series does not correspond to 'finance companies' as defined here.)

Companies which are engaged both in financing activities and other activities come within the scope of these statistics provided that the major portion of their assets consists of financial assets arising from activities of the types listed above, and/or a major proportion of their income is derived from such assets. Companies are excluded if: (i) the major proportion of their balances outstanding consists of agreements written for the purpose of financing their own sales; or (ii) they are engaged mainly in financing, in any way, the operations of related companies.

Definitions

Instalment Credit for Retail Sales: This category covers all types of instalment credit schemes of finance companies which relate primarily to the financing of retail sales of goods. Instalment credit relates to repayment made by regular predetermined instalments, and includes hire purchase, time payment, budget account and personal loan schemes. In these statistics the term 'retail sales' relates to sales: (i) principally to the final consumer of new and second-hand goods generally used for household and personal purposes (as in the Bureau's censuses of retail establishments) and (ii) to the final purchaser for other purposes (e.g. plant and machinery, tractors). The amount financed in this category is classified according to the following types of commodities: (i) *motor vehicles, etc.*: motor cars and motor cycles, commercial vehicles, tractors, caravans, trailers, motor parts and accessories, etc. (new and used compiled separately); (ii) *plant and machinery*: farm machinery and implements, earth-moving equipment, aircraft, industrial plant and machinery, business machinery and equipment (including commercial refrigeration equipment), etc.; (iii) *household and personal goods*: furniture, furnishings and floor coverings, domestic refrigerators, electrical goods, radios, television sets, musical instruments, bicycles, motor mowers, clothing, etc.

Wholesale Hire Purchases: This category relates mainly to the financing of motor vehicle dealers' stocks held under bailment or floor plan schemes but also includes finance in respect of other trading stock.

Other Consumer and Commercial Loans: This term covers: (i) personal loans other than those in the categories of mortgage loans and instalment credit for retail sales; (ii) mortgage loans; (iii) commercial loans i.e. all loans and advances to businesses not included elsewhere in these statistics.

Factoring: This term is used by finance companies in various senses, but in these statistics, relates to loans on the security of 'trade' debts and purchases of 'trade' debts. ('Trade' debts are those owing to businesses for goods or services supplied to other businesses for use in their business or for resale.)

Amount Financed: Amount financed is the actual amount of cash provided. It excludes interest, insurance, hiring and other charges, and initial deposits. For purchases of existing finance agreements and trade debts purchased, it represents the amount of cash paid to the seller.

Balances Outstanding: Balances outstanding are the amounts owing on all finance agreements as shown in the books of the companies at the end of the relevant period. Accounting practice with respect to inclusion in balances outstanding, of unmatured charges, interest and insurance, differs between finance companies and between types of finance agreements. Because of this details of balances outstanding are given separately for those contracts including and for those excluding, such charges.

Collections and Other Liquidations: Collections are cash collections of capital repayments, hiring charges, interest and insurance. Other liquidations are any reductions in balances outstanding other than by cash collections; they include bad debts written off and rebates for early payments.

Collections and Other Liquidations and Balances Outstanding by Type of Agreement (\$m)

Year	Contracts including Charges			Contracts excluding Charges				Total all Contracts
	Instalment Credit for Retail Sales	Other Consumer and Commercial Loans	Total	Whole-sale Hire Purchase	Other Consumer and Commercial Loans	Factor-ing	Total	

COLLECTIONS AND OTHER LIQUIDATIONS OF BALANCES

1964-65	..	25.7	1.6	27.3	6.2	0.1	6.2	33.5
1965-66	..	27.2	1.4	28.7	9.5	0.5	10.0	38.7
1966-67	..	28.6	1.6	30.2	20.8	0.3	21.1	51.3
1967-68	..	30.1	1.5	31.5	23.9	0.1	24.0	55.5

BALANCES OUTSTANDING AT END OF YEAR

1964-65	..	32.0	2.5	34.5	1.3	0.2	1.5	36.0
1965-66	..	33.8	2.3	36.1	2.3	0.3	2.6	38.6
1966-67	..	35.5	2.1	37.6	2.9	0.3	3.2	40.8
1967-68	..	39.9	1.7	41.6	4.3	0.5	4.8	46.4

**Finance Companies—Amount Financed by Type of Agreement
(\$m)**

Year	Instalment Credit for Retail Sales	Wholesale Hire Purchase	Other Consumer and Com- mercial Loans			Factoring	Total all Contracts
			Personal Loans	Mortgage Loans	Commer- cial Loans		
1964-65	20.5	6.5	0.3	0.3	0.4		27.9
1965-66	21.4	10.4	0.4	0.4	0.7		33.2
1966-67	22.7	21.4	0.4	0.5	0.5		45.4
1967-68	26.2	25.2	0.5	0.1	0.5		52.6

In the following table amount financed in respect of instalment credit for retail sales agreements is further classified by type of commodity.

**Instalment Credit for Retail Sales—Finance Companies
Amount Financed, Collections and Other Liquidations, and Balances Outstanding
(\$m)**

Year	Amount financed during year					Collections and other Liquidations during year			Bal- ances Out- stand- ing at end of year
	Motor Vehicles etc.		Plant and Mach- inery	House- hold and Per- sonal Goods	Total	Cash Collec- tions	Other Liquid- ations	Total	
	New	Used							
1964-65	6.7	9.2	1.7	2.8	20.5	24.5	1.2	25.7	32.0
1965-66	7.4	9.3	2.1	2.5	21.4	26.0	1.2	27.2	33.8
1966-67	7.9	10.3	2.1	2.4	22.7	27.7	0.9	28.6	35.5
1967-68	9.5	11.4	2.8	2.6	26.2	29.3	0.8	30.1	39.9

Business Equipment and Plant on Lease: The table below shows the value of capital goods (business equipment and plant) leased by financed companies:

**Finance Companies—Business Equipment and Plant on Lease
(\$m)**

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
Initial Capital Cost of Goods Leased during Period	<i>n.a.</i>	<i>n.a.</i>	2.1	2.6	2.5
Balances Outstanding (Capital Costs less Depreciation)	0.8	1.9	2.9	4.7	5.0

Instalment Credit for Retail Sales in Tasmania

General

The collection of data on instalment credit transactions began as a series dealing simply with the hire purchase operations of non-retail finance businesses; it was then expanded to cover the hire purchase operations of retail businesses.

The final stage in the evolution of the current series was reached when a concept of instalment credit, considerably broader than just hire purchase, was introduced.

Information relating to instalment credit for retail sales in Tasmania is given in the following tables. Monthly and quarterly statistics as well as annual series are prepared from returns collected both from retail businesses and non-retail finance businesses.

The statistics cover operations of all types of instalment credit schemes which relate primarily to the financing of retail sales of goods, whether the credit is advanced by a retail business or by a non-retail finance business. In general, the term 'instalment credit' is defined as relating to schemes in which repayment is made by regular pre-determined instalments. Types of schemes covered include hire purchase, time payment, budget account, and personal loan schemes which relate primarily to financing of retail sales of goods. In these statistics, the term 'retail sales' relates not only to retail sales by retail establishments coming within the scope of the Censuses of Retail Establishments conducted periodically by the Bureau, but includes also other sales of goods to final purchasers (e.g. plant and machinery).

Figures for amounts financed *exclude* interest, hiring charges, insurance, etc. Figures for balances outstanding and collections *include* interest, hiring charges, insurance, etc. Details are not available of these charges or of other items (e.g. rebates allowed for early payment, late payment charges, bad debts written off) which affect the reconciliation of the three main instalment credit series: amounts financed, collections and balances outstanding.

Statistics of amount financed are classified by type of goods, defined as follows: (i) *Motor vehicles, etc.*—motor cars and motor cycles, commercial vehicles, tractors, caravans, trailers, motor parts and accessories, etc.; (ii) *Plant and machinery*—farm machinery and implements, earth-moving equipment, aircraft, industrial plant and machinery, business machinery and equipment, etc.; and (iii) *Household and personal goods*—furniture, furnishing and floor coverings, domestic refrigerators, electrical goods, radios, television, musical instruments, bicycles, motor mowers, clothing, etc.

Instalment Credit for Retail Sales (a)
(Hire Purchase and Other Instalment Credit)
(\$'000)

Particulars	1964-65 <i>r</i>	1965-66 <i>r</i>	1966-67 <i>r</i>	1967-68 <i>r</i>	1968-69
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FINANCED BY RETAIL BUSINESSES

Amount Financed During Period (b)—					
Motor Vehicles, etc. (c)—New Used	363 193	291 109	299 123	299 131	452 369
Total Vehicles ..	588	400	422	430	821
Plant and Machinery ..	5,102	4,807	4,776	4,859	5,498
Household and Personal Goods ..					
Total All Goods ..	5,660	5,207	5,198	5,289	6,319
Balances Outstanding at End of Period (d) ..	8,531	7,645	7,050	6,457	6,825

Instalment Credit for Retail Sales (a)
(Hire Purchase and Other Instalment Credit)—continued
(\$'000)

Particulars	1964-65 <i>r</i>	1965-66 <i>r</i>	1966-67 <i>r</i>	1967-68 <i>r</i>	1968-69
FINANCED BY NON-RETAIL FINANCE BUSINESSES					
Amount Financed During Period (b)—					
Motor Vehicles, etc. (c)—New	8,198	8,516	8,419	10,330	9,906
Used	9,268	9,501	10,606	11,579	12,041
Total Vehicles ..	17,466	18,017	19,025	21,909	21,947
Plant and Machinery ..	2,232	2,686	2,604	3,117	3,882
Household and Personal					
Goods	3,956	3,633	3,780	4,082	4,394
Total All Goods ..	23,654	24,336	25,409	29,108	30,223
Balances Outstanding at End of Period (d)	35,722	37,495	38,777	43,070	45,332

FINANCED BY ALL BUSINESSES

Amount Financed During Period (b)—					
Motor Vehicles, etc. (c)—New	8,561	8,807	8,718	10,629	10,358
Used	9,463	9,610	10,729	11,710	12,410
Total Vehicles ..	18,024	18,417	19,447	22,339	22,768
Plant and Machinery ..					
Household and Personal	11,290	11,126	11,160	12,058	13,774
Goods					
Total All Goods ..	29,314	29,543	30,607	34,397	36,542
Balances Outstanding at End of Period (d)	44,253	45,140	45,827	49,527	52,157

(a) Includes time payment; budget account; and personal loan schemes relating primarily to the financing of retail sales.

(b) Excludes hiring charges, interest and insurance.

(c) Types of goods included are defined under 'Finance Companies'.

(d) Includes hiring charges, interest and insurance.

Friendly Societies

Scope

The details that follow refer to 'Ordinary' Societies, not to 'Special' Societies. Ordinary Societies are those which provide customary sick and funeral benefits and are subject to actuarial valuation. Special Societies restrict their membership to employees of industrial parent organisations and are not subject to actuarial valuation.

Membership

Friendly Societies were a form of social organisation to help members meet the costs of sickness, burial, etc. at a time when government social services were either meagre or non-existent. Membership reached a maximum (over

22,000 in male lodges) in the pre-depression years but has since steadily declined. From the 1950s, there has been rapid development of various Government-encouraged insurance schemes to assist families with hospital and other expenses associated with sickness; such schemes have evolved, in general, outside the framework of the Friendly Society movement.

The principal benefits provided by Friendly Societies are sick pay, medical attendance and medicine, and funeral benefits (sums payable on death). As certain benefits are granted to members' wives and children the number of persons who may receive direct benefit is greater than the total membership which is under 5,000.

The most striking long-term characteristics of Friendly Societies in Tasmania are the decline in their membership (from 9,193 in 1958 to 4,936 in 1967) and the increase in the average age of members (from 36.7 years in 1920 to 63.3 years in 1967 in male branches). The following table shows the percentage age distribution since 1920:

Friendly Societies—Percentage Distribution in Each Age Group and Total Membership of Male Lodges

Particulars	1920	1930	1940	1950	1960	1967
PROPORTION OF TOTAL MEMBERSHIP IN EACH AGE GROUP (PER CENT)						
Age Group (Years)—						
16-19	7.79	6.60	2.87	1.48	0.15	0.08
20-29	26.42	23.08	16.87	10.29	1.89	0.93
30-49	47.85	43.37	39.71	37.73	26.11	12.92
50-69	16.54	23.56	32.91	38.28	47.76	52.14
70 and over ..	1.40	3.39	7.64	12.22	24.09	33.93
Total	100.00	100.00	100.00	100.00	100.00	100.00
TOTAL MEMBERSHIP (NUMBER)						
Male Members ..	20,605	22,168	18,854	14,677	7,571	4,843

The next table shows the decline in the membership and number of societies during the 1960s.

Societies, Lodges and Membership (Number)

Particulars	1962	1963	1964	1965	1966	1967
Societies	11	11	8	8	8	8
Lodges—Male ..	114	110	108	107	107	106
Female	9	9	6	6	6	6
Benefit Members ..	6,816	6,364	5,778	5,481	5,181	4,936
Financial Members	6,666	6,156	5,723	5,429	5,128	4,827

Revenue and Expenditure

The following table shows the net revenue and expenditure (excluding interfund transfers and transfers between districts and lodges) of Friendly Societies for the financial years of the societies, which ended in 1967.

Friendly Societies—Net Revenue and Expenditure, 1967
(\$)

Revenue			Expenditure		
Particulars	Total	Per Financial Member	Particulars	Total	Per Financial Member
Members' Contributions (a)	39,925	8.27	Medical Attendance and Medicine	3,042	0.63
Interest, Rent and Dividends	74,408	15.41	Sick Pay	18,487	3.83
All Other Income	16,696	3.46	Funeral Benefits	44,365	9.19
			Administration	27,057	5.61
			Other	50,337	10.43
Total	131,029	27.15	Total	143,288	29.68

(a) Includes levies.

The details in the above table exclude transactions involving Friendly Societies as agents for Hospital or Medical Benefits Insurance Schemes are eliminated.

Accumulated Capital

Accumulated capital of ordinary societies at the end of their financial years falling within the calendar year 1967 amounted to \$1,397,305 and the capital per financial member was \$289.48. The rate of return (interest, dividends and rents) earned by the funds was approximately 5.3 per cent in 1967. The following table shows the growth of the capital of Friendly Societies since 1920, together with the capital per financial member:

Friendly Societies' Accumulated Capital
(\$)

Year (a)	Capital		Year (a)	Capital	
	Total	Per Financial Member		Total	Per Financial Member
1920	549,194	26.23	1950	1,231,486	82.41
1930	819,372	36.62	1960	1,390,122	182.62
1940	989,328	50.91	1967	1,397,305	289.48

(a) At close of the financial years, observed by societies, which ended during calendar year shown.

Registered Building Societies

Types of Registered Society

There are two distinct types of building society registered under Tasmanian law, specifically (i) permanent, and (ii) terminating (or co-operative).

Permanent Societies: These societies are both savings and deposit receiving institutions which advance funds for home building against the security of first mortgages. Those who invest by taking shares or by making deposits are in a separate category from those who borrow to build a home—in other words, applicants for loans need not be members of, or depositors with, the society.

Terminating Societies: These societies are those which, by their rules, are to terminate at a fixed date, or when a result specified in their rules is attained. Societies issue members one class of share, and require equated monthly instalments towards share capital from members; when a member borrows to

build (and only a member may borrow), he is required to pay additional equated monthly instalments, such addition constituting interest only. The regular instalments in respect of share capital are calculated to amount, with interest, to the nominal amount of the member's shares over the life of the society (say 26 or 30 years). If the member takes out shares with a nominal value of \$6,000, then his borrowing ceiling is set at \$6,000—in other words, the member takes out, in nominal share capital, the amount which he wishes to borrow for home-building. In effect, the member is contributing to a sinking fund for the liquidation of his loan. The terminating societies are termed 'co-operative'.

The following summarises the transactions of the permanent building societies in Tasmania:

Permanent Building Societies

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
	no.	no.	no.	no.	no.
Operating Societies	5	5	4	4	4
Investing Shareholders	6,720	7,100	7,570	8,460	8,800
Borrowers	4,206	4,647	4,705	r 5,000	5,360
	\$'000	\$'000	\$'000	\$'000	\$'000
Loans Advanced during Year ..	4,758	5,640	4,323	5,338	8,098
Redemptions of Loans in Year ..	2,192	2,556	2,647	3,032	5,178
Deposits during Year (a) ..	7,068	7,113	7,800	8,910	11,651
Deposits withdrawn during Year	4,791	6,031	7,014	7,527	10,261
Liabilities—					
Paid-up Capital and Subscriptions	5,838	6,668	7,722	9,155	10,831
Accumulated Profits, Reserves	696	771	869	959	784
Deposits	8,314	9,396	10,168	11,550	13,627
Other	182	937	756	359	1,498
Total	15,030	17,772	19,514	22,024	26,740
Assets—					
Loans on Mortgage	13,425	16,489	18,157	20,463	24,918
Other	1,606	1,283	1,357	1,561	1,822
Total	15,030	17,772	19,514	22,024	26,740

(a) Includes interest credited to depositors' accounts.

The next table summarises the transactions of the co-operative housing societies in Tasmania:

Co-operative Housing Societies

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
	no.	no.	no.	no.	no.
Operative Societies	42	49	53	60	69
Shareholders	1,011	1,182	1,281	1,417	1,634
Borrowers	868	948	1,059	1,193	1,298
	\$'000	\$'000	\$'000	\$'000	\$'000
Loans Advanced during Year ..	963	805	1,102	1,000	1,355
Redemption of Loans	92	143	251	271	404
Loans from Government ..	611	378	799	r 693	1,277
Repayment to Government ..	103	130	215	r 277	393

Co-operative Housing Societies—continued

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
	\$'000	\$'000	\$'000	\$'000	\$'000
Liabilities—					
Share Subscriptions	263	342	433	525	630
Reserves	66	98	150	198	249
Loans due to Government ..	2,957	3,204	r 3,764	4,183	5,067
Loans due to Other Lenders (a)	1,514	1,838	r 1,984	2,112	2,330
Other	11	20	(b) 58	(b) 72	(b) 96
Total	4,810	5,502	6,390	7,089	8,370
Assets—					
Loans on Mortgage	4,703	5,364	6,201	6,930	8,178
Other	108	138	189	160	192
Total	4,810	5,502	6,390	7,089	8,370

(a) Includes bank overdrafts for day to day running of societies.

(b) Includes accrued interest on loans; such interest was previously included in the two 'Loans' items immediately above.

In the previous table, 'Loans from Government' and 'Loans Due to Government' refer principally to loan money made available under the Commonwealth-State Housing Agreement. Such funds are advanced to the societies through the Agricultural Bank which acts as agent for the Commonwealth Government in this field. The limit of an individual loan was raised from \$8,000 to \$9,000 in August 1969.

Co-operative Societies

The next table summarises the financial transactions of societies registered under Tasmanian law as co-operative industrial societies; excluded are co-operative credit societies which are dealt with in a subsequent section. The table which summarises their operations uses the term 'operating' to describe transactions concerned with the processing and sale of goods, and 'non-operating' to describe earnings from commissions, discounts, services, etc.

Co-operative Societies

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
	no.	no.	no.	no.	no.
Societies	15	14	14	15	16
Members	4,616	4,269	4,399	5,252	5,575
	\$'000	\$'000	\$'000	\$'000	\$'000
Sales	7,077	6,538	6,980	9,533	10,142
Less Cost of Goods	6,001	5,516	5,885	8,073	8,429
Gross Surplus	1,076	1,022	1,096	1,459	1,714
Less Operating Expenses ..	506	433	440	770	977
Operating Surplus	570	589	656	689	737
Add Non-Operating Receipts ..	836	906	907	1,066	1,068
Less Non-Operating Expenses—					
Interest	88	92	104	116	125
Salaries, Administra- tion, etc.	340	334	353	282	319
Other	893	888	922	1,060	1,117
Net Surplus	85	181	184	298	244
Dividends Paid	85	47	44	52	18

The next table gives a statement of the assets and liabilities of the co-operative societies:

Co-operative Societies—Assets and Liabilities at End of Year
(\$'000)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Liabilities—					
Paid-up Capital	1,129	1,107	1,119	1,196	1,219
Accumulated Profits	147	306	458	522	496
Reserve Funds	163	167	352	427	521
Loans and Bank Overdraft ..	1,283	1,580	1,927	2,095	2,182
Sundry Creditors	824	1,106	925	1,446	1,553
Other	644	105	136	175	288
Total Liabilities	4,191	4,371	4,917	5,860	6,258
Assets—					
Fixed	1,389	1,410	1,541	1,957	2,025
Stock on Hand	734	774	831	937	996
Sundry Debtors	1,522	1,754	2,073	2,478	2,736
Other	547	434	473	487	501
Total Assets	4,191	4,371	4,917	5,860	6,258

Co-operative Credit Societies

Description

The co-operative credit societies are commonly referred to as 'credit unions' and are registered under the *Co-operative Industrial Societies Act* 1928 as amended. In Tasmania, most credit unions have been established by trade unions (e.g. those serving teachers, State and Commonwealth public servants, hospital employees, etc.) and by members of church groups. Members contribute capital by taking out shares and making deposits; loans are made to members, repayment being by regular instalments.

Transactions

The following table shows the societies' annual transactions and selected assets and liabilities:

Co-operative Credit Societies

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
	no.	no.	no.	no.	no.
Operating Societies	12	13	13	16	18
Shareholders	2,715	3,631	4,622	5,738	8,594
	\$'000	\$'000	\$'000	\$'000	\$'000
Loans Made	598	1,026	1,068	r 1,525	2,195
Principal Repaid	(a) 358	(a) 703	(a) 866	r 1,054	1,454
Deposits During Year (b) ..	452	767	994	r 1,475	2,059
Deposits Withdrawn During Year	180	409	660	r 974	1,362
Liabilities (at End of Period)—					
Paid-up Capital	25	30	40	49	71
Reserves, Accumulated Profits	5	11	20	27	38
Deposits	582	941	1,274	1,775	2,472
Other	31	46	80	r 108	134
Total Liabilities	644	1,028	1,414	r 1,959	2,715

Co-operative Credit Societies—continued

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
	no.	no.	no.	no.	no.
Assets (At End of Period)—					
Loans	587	983	1,290	r 1,760	2,501
Cash and Current Deposits..	55	40	68	132	94
Other	2	5	56	68	120
Total Assets	644	1,028	1,414	r 1,959	2,715

(a) Includes interest payments on loans.

(b) Includes interest credited.

Pensions and Superannuation Schemes

Private Schemes

Surveys on an Australia-wide basis have revealed superannuation and/or retiring allowance schemes for employees in the private sector as follows: (i) schemes operated through life insurance offices, friendly societies and other organisations such as unit trusts; (ii) superannuation, pension and retiring allowance funds constituted by businesses; (iii) direct payments of pensions and/or retiring allowances by the employer.

Because of the restricted nature of the surveys, details are not available on a State basis. Australian totals, however, revealed that businesses whose monthly pay-roll exceeded \$1,720 in 1962-63, had 242,000 employees covered by schemes operated through life insurance offices, and 297,000 employees covered by superannuation, pension and retiring allowance funds. Only one per cent of businesses surveyed in that year made direct pension or retiring allowance payments and no information is available on the number of persons covered by such schemes. It was also found that 52 per cent of all businesses operated pension or retiring allowance schemes of one or more of the types described in the previous paragraph. Since 1963-64, annual surveys of selected large private pension schemes have been conducted.

Government, Local Government and Semi-Government Schemes

The levels of government operating in Tasmania are: (i) Commonwealth; (ii) State; (iii) Local; (iv) Semi-government authority. In the section that follows, any pension or superannuation scheme affecting employees of the Commonwealth Government or its instrumentalities is excluded; the principal fund so excluded is the Commonwealth Superannuation Fund for which State details are not available.

The inclusion of government superannuation and pension schemes as part of 'Private Finance' derives its logic from the fact that the funds involved do not belong to any government but are actually trust moneys held on behalf of contributors. Employees of the State Government contribute to separately constituted funds to which the State Government also makes contributions. Employees of local government and semi-government authorities are covered either by separately constituted funds or through schemes operated through life insurance offices.

The first pension and gratuity scheme for State public servants, introduced in 1860, was non-contributory and short-lived, being repealed in 1863. A contributory provident fund was established in 1900 under the *Civil Service Act* but this scheme was also short-lived and made way for a contributory but State-subsidised scheme established under the *Public Service Superannuation Fund Act* 1905; a year before, a distinct fund had been established with similar

principles to serve the teaching service. The *Superannuation Act* 1938 established a new fund to serve both public servants and teachers but pensions continued to be paid from the two funds established in 1904 and 1905 respectively; it was not until 1 July 1968 that the residual assets and pension liabilities of these older funds were transferred to the State Superannuation Fund Board. The assets transferred from the 1904 teachers' fund were \$52,990 and from the 1905 public servants' fund, \$17,103.

Separately Constituted Funds: In the table that follows, the operations of the following schemes have been combined and summarised: (i) State Superannuation Fund; (ii) State Teachers' Superannuation Fund; (iii) Police Provident Fund; (iv) Metropolitan Transport Trust—Retiring Allowance and Staff Pension Funds; (v) Marine Boards' independent schemes; (vi) University of Tasmania—Staff Superannuation, Invalidity Pension and Supplementary Pension Schemes; (vii) Hobart Corporation Retiring Allowance Funds; (viii) Milk Board of Tasmania Superannuation Fund.

Government, Local Government and Semi-Government Pension and Superannuation Schemes Operated Through Separately Constituted Funds

Particulars	1963-64 r	1964-65 r	1965-66 r	1966-67	1967-68
Income—	\$'000	\$'000	\$'000	\$'000	\$'000
Contributions—					
Employees	1,468	1,425	1,488	1,582	1,763
Employing Authorities ..	1,285	1,481	1,604	1,694	1,959
Interest, Dividends and Rent	870	962	1,078	1,177	1,307
Other Income	32	56	21	361	59
Total	3,656	3,924	4,193	4,815	5,088
Expenditure—					
Pensions	1,423	1,611	1,946	2,008	2,290
Lump Sum Payments—					
On Retirement	117	83	128	122	194
On Resignation	286	305	394	350	399
Other Expenditure	14	13	19	52	114
Total	1,840	2,012	2,487	2,532	2,998
Total Assets (At End of Period)	16,865	18,765	20,474	22,736	24,829
Funds in Operation	no. 12	no. 12	no. 12	no. 13	no. 14
Contributors (At End of Period)	10,842	11,056	11,533	11,963	12,829

State Superannuation Fund: In the previous table, the principal fund included is the State Superannuation Fund to which contribute all permanent full-time employees of the Public Service, Teaching Service, Transport Commission, Hydro-Electric Commission and all hospitals subsidised by the State Government. (The Teachers' Superannuation Fund is now almost wound up and teachers contribute to the State Superannuation Fund.) At 30 June 1967 there were 10,651 contributors to the State Superannuation Fund, the number of pensioners being 2,458. At 30 June 1968, the corresponding figures were 11,490 contributors and 2,567 pensioners comprising 1,459 ex-employees and 1,108 widows and children. The accumulated funds (total assets less liabilities) of the State Superannuation Fund were \$20,717,000 at 30 June 1968.

The following summarises the main provisions of the Superannuation Act: (i) Male and female officers may contribute on the basis of retirement at

age 65 and 60 respectively; (ii) the amount (units) of pension for which an officer may contribute is regulated by salary; (iii) a pension according to the number of units is payable to a contributor who attains the maximum age for retirement; (iv) a contributor may elect to convert *part* of his pension into a lump sum payment and receive the remainder on a fortnightly basis; (v) the widow of a deceased contributor or pensioner is entitled to two-thirds of the rate of a full pension; and (vi) a pension of \$91 is payable in respect of each child of a deceased contributor.

Police Provident Fund: The Police Provident Fund, also included in the previous table, had accumulated funds of \$2,501,000 at 30 June 1968. This is now a *closed fund*. By an amendment of the *Superannuation Act* 1938 made in 1963, it was provided that police officers appointed after 31 December 1963 were required to become contributors to the State Superannuation Fund. Police officers appointed prior to 1 January 1964 could continue as contributors to the Police Provident Fund or exercise an option, prior to 1 April 1964, to become contributors to the State Superannuation Fund.

Schemes Operated Through Life Insurance Offices: A number of local government and semi-government authorities in Tasmania operate pension and superannuation schemes for their employees, not through separately constituted funds, but through life insurance offices. The next table combines and summarises the operations of such schemes, the following being the main authorities concerned: (i) Semi-government—marine boards, fire brigades, Metropolitan Transport Trust (Launceston and Burnie), University of Tasmania, ambulances, Society for Blind and Deaf, Museum and Art Gallery, Botanical Gardens; (ii) Local Government—the cities and municipalities. It will be observed that some authorities e.g. University, Metropolitan Transport Trust, etc. operate schemes on both bases, i.e. some through separately constituted funds, and others through life insurance offices.

Local and Semi-Government Pension and Superannuation Schemes Operated Through Life Insurance Offices

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Income—	\$'000	\$'000	\$'000	\$'000	\$'000
Contributions—					
Employees	218	240	227	302	353
Employing Authorities ..	305	341	356	449	503
Surrenders	57	70	64	127	91
Death Claims	27	44	23	34	79
Matured Policies	61	48	35	77	63
Other Income	31	32	31	5	15
Total	700	776	736	993	1,104
Expenditure—					
Premiums paid to Insurance Companies	453	518	521	750	855
Benefits—					
On Death or Retirement ..	114	119	76	118	143
On Resignation or Dismissal	54	75	64	114	80
Other Expenditure	7	13	12	9	9
Total	628	725	673	992	1,087
Funds in Operation	no. 24	no. 24	no. 21	no. 20	no. 20
Contributors (At End of Period)	r 1,792	r 1,850	r 1,915	r 2,098	2,200

Miners' Pension Fund

The Fund was established to provide for pensions to miners upon retirement or when incapacitated by injury, etc. and, in certain circumstances, to widows and dependants. Contributions to the fund are made by the State Government, mine owners and miners. Details are as follows:

Miners' Pension Fund

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
	\$'000	\$'000	\$'000	\$'000	\$'000
Income—					
Contributions—					
Employees	5	4	2	2	2
State Government ..	30	30	30	30	30
Mine Owners	19	14	9	8	9
Interest, Dividends and Rent	16	15	14	12	11
Other Income .. ..	..	1	..	..	..
Total	70	64	55	53	52
Expenditure—					
Pensions	72	73	71	71	67
Lump Sum Payments ..	19	..	..	..	..
Other Expenditure ..	2	11	5	3	2
Total	93	84	76	74	70
Assets (At End of Period) ..	292	270	243	222	205
Contributors (At End of Period)	no. 110	no. 55	no. 61	no. 52	no. 58

At the end of June 1968 there were 92 retired miners and 63 widows and children receiving pension payments from this fund.

Until 1962-63, the State Government contributed an amount to match that of the mine owners, the employers' share being related to coal production. After actuarial investigation, it was decided to strengthen the Fund and an amount of \$30,000 was stipulated in amending legislation as the Government's maximum annual contribution. The maximum has since been paid.

The Parliamentary Pension and Superannuation Scheme

The Tasmanian Parliament, in common with the parliaments of the other States and the Commonwealth, operates a superannuation scheme for the benefit of members who retire or are defeated after having served a minimum qualifying period. Basic rate pensions for Tasmanian members are payable after 15 years' service, lesser rate pensions being calculated pro-rata to length of service expressed as a fraction of 15 years; if the fraction is less than $\frac{8}{15}$ (i.e. service less than eight years) then the member merely receives a refund of his contributions. The basic rate of full pension was the Hobart basic wage (as varied from time to time), but a member, by increasing his subscription from \$312 per annum to \$624, might contract to receive double the basic rate; provision also existed for subscription scales yielding $1\frac{1}{3}$ and $1\frac{2}{3}$ of the Hobart basic wage.

The abolition of the basic wage in June 1967 by the Commonwealth Conciliation and Arbitration Commission was not allowed to interfere with the scheme just described; the Tasmanian Parliament met this situation by making an Act to define what the basic wage should be for 1967-68 in any

interpretation of the *Parliamentary Retiring Allowances Act*. In 1968, the Act was further amended to substitute a new formula for basic rate calculations. The formula is \$12.50 weekly *plus* 34.5 per cent of Australian average weekly earnings per employed male unit in each year ended March (as revealed by pay-roll tax returns). The formula, when applied in 1968, gave a close approximation to the basic wage current in State Wages Boards' determinations (\$34.40). In 1969 the formula gave a basic rate of \$37.45 compared with the current State Wages Boards' basic wage determination of \$35.75. The basic rate, calculated in this way, replaces the basic wage specified in the original Act.

The Parliamentary Salaries Tribunal, reporting in 1967, said 'members generally seem satisfied with the present provisions of the Act. There is, however, one matter on which practically all are agreed. That is where a member is defeated in his electorate before the effluxion of time for him to qualify for a pension, the amount he has contributed to the fund, instead of being returned to him *simpliciter*, should have added to it an amount equal to savings bank interest on the amounts from time to time standing to his credit in the fund. But should he be re-elected to Parliament, he should refund the total amount paid to him on his defeat'. The Tribunal made no recommendation but simply drew attention to this opinion.

Transactions of the fund (Parliamentary Retiring Allowances Trust) are shown in the following table:

State Parliamentary Pension and Superannuation Scheme
('\$000)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Income—					
Members' Contribution (a) ..	33	34	35	37	40
Government Contribution ..	4	3	3	3	3
Interest	3	4	4	3	2
Total	40	41	41	43	45
Expenditure—					
Pension Payments (b) ..	28	44	45	48	50
Other (incl. Refunds) ..	7	..	..	4	..
Total	35	44	45	52	50
Total Assets (At End of Period)	72	69	63	54	49
Less Liabilities	3	3	1	1	2
Accumulated Funds	69	66	62	53	48

(a) Number of contributors throughout period, 54 (House of Assembly, 35; Legislative Council, 19). Contribution for basic rate pension compulsory.

(b) Number of pensioners at 30 June 1968: ex-members, 14; widows of ex-members, 10.

The fund and scheme just described is administered by a trust, consisting of the President of the Legislative Council, the Speaker of the House of Assembly and the Under Treasurer, all *ex officio*; the trust has the power to appoint its own secretary and has chosen for this office the manager of the Treasury's Superannuation Branch.

For the ordinary member, the scheme is purely contributory and is not State-subsidised; however, provision exists for the payment of an additional pension at the rate of \$3,000 yearly to any person who has held the office of premier for not less than 15 years, this amount to be recouped from Consolidated Revenue (a premier with this qualification retired in 1958).

The Hobart Stock Exchange **(Incorporating the Launceston Stock Exchange)**

History

The Launceston Stock Exchange was established in 1881, the annual subscription being £3 with an entrance fee of £75; election to membership was by ballot.

Founded on 17 November 1891 the Hobart Stock Exchange set its annual subscription at £5; the entrance fee being £210. Admission was by a ballot of members the candidate being excluded if more than one black ball in five was cast against him.

The two exchanges operated independently for seventy-seven years until amalgamation in August 1968.

Operations

Currently the Hobart Stock Exchange has twenty members and is governed by a Chairman and five other committee members.

Basically the Exchange provides facilities for the buying and selling of stocks, bonds, loan securities, etc., by the brokers who constitute its membership. Trading is conducted on the post trading system which is used by all Associated Stock Exchanges in Australia.

The Hobart Stock Exchange acts as the home exchange for thirty-three companies (twenty-nine industrial and four mining companies).

Chapter 12

TRADE, TRANSPORT AND COMMUNICATIONS OVERSEAS AND INTERSTATE TRADE

Historical

The *Statistical Returns of Van Diemen's Land, From 1924 to 1839* contain an import-export table for the period 1824-1838; the following is an extract:

**'Value of Imports into, and Exports from, Van Diemen's Land
During the Years 1824 and 1825'**
(£) (a)

Country	Imports		Exports	
	1824	1825	1824	1825
Great Britain	50,000	59,935	10,000	9,224
British Colonies	10,000	18,416	4,500	14,613
Foreign States	2,000	9,810	..	..
Total	62,000	88,161	14,500	23,837

(a) Unit is sterling currency.

There is, in fact, a continuous series of total trade statistics dating from 1824 to 1909. Until the foundation of the Commonwealth in 1901, trade with other parts of Australia was recorded as originating from or being destined for 'British Colonies'; in other words, all Tasmanian sea trade was regarded as overseas. From Federation to 1909, statistics were collected and compiled by the newly formed Commonwealth Customs Department for *all* sea trade, but since 1910 only direct *overseas* trade has been recorded by the Customs. In an island State, it became apparent that statistics of overseas trade alone were inadequate to record economic activity and, from 1922-23, the Government Statistician collected and published details of interstate trade; the collection of these data, now undertaken by the State Office of the Bureau of Census and Statistics, is carried out independently of the Customs Department and depends primarily on documents made available by Tasmanian Marine Boards and Harbour Trusts. In brief, there is a *total* trade series (1824-1909), an *overseas* trade series (1910 to 1921-22) and a *total* trade series (1922-23 to today).

In the immediate post-war period, there was a marked expansion of commercial aviation; the freight being carried was a component of interstate trade and steps were taken to record it, the first published figures appearing for 1949-50. Thus, the total trade of Tasmania is now recorded in three sections: (1) By Sea, Overseas; (2) By Sea, Interstate; (3) By Air, Interstate.

Value of Trade from 1824

Due to considerable and persistent changes in the purchasing power of money, it is extremely difficult to satisfactorily interpret any long-term statistical series expressed in money terms. The following table is therefore of interest historically but subject to all the disabilities associated with long-term money series (including devaluations of Australian currency in 1930 and 1949):

Total Value of Trade by Sea and Air—Historical Summary
(£'000)

Year	Value of Imports				Value of Exports			
	By Sea		By Air	Total	By Sea		By Air	Total
	Overseas	Interstate	Interstate		Overseas	Interstate	Interstate	
1824 ..	<i>n.a.</i>	<i>n.a.</i>	..	124	<i>n.a.</i>	<i>n.a.</i>	..	30
1860 ..	1,686	450	..	2,136	1,544	380	..	1,924
1880 ..	738	2,000	..	2,738	1,568	1,456	..	3,024
1900 ..	1,402	2,746	..	4,148	3,078	2,144	..	5,222
1910 ..	1,662	(a)	..	<i>n.a.</i>	1,040	(a)	..	<i>n.a.</i>
1919-20	1,626	(a)	..	<i>n.a.</i>	4,022	(a)	..	<i>n.a.</i>
1929-30	3,668	16,028	..	19,696	4,978	13,198	..	18,176
1939-40	3,188	21,780	..	24,968	4,852	20,954	..	25,806
1949-50	18,704	51,218	(b) 10,670	80,592	29,936	42,672	(b) 3,996	76,604
1959-60	27,606	130,014	19,210	176,830	47,730	137,530	20,818	206,078
1967-68	(c) 45,024	220,065	20,590	285,679	76,888	233,694	26,941	337,523
				(c)				

(a) Collection discontinued for period 1910 to 1921-22.

(b) First collected in 1949-50.

(c) From 1965-66 the value of outside packages is included in the value of overseas imports; the value of outside packages included in 1967-68 was \$650,000.

Note on Currency

The pre-Federation details were recorded in sterling; subsequent details were recorded in £A which had parity with sterling until 1930 when devaluation made £A1.25 equal to the £ sterling. In 1949, the £ sterling was devalued by 30.5 per cent and the £A was correspondingly devalued to preserve the 1930-1949 relativity. In 1966, Australia changed to dollar currency, with \$A equal to £A0.5. In late 1967, the £ sterling was devalued from an equivalency of \$A2.51 to \$A2.151. In the tables in this section, recorded figures have been converted to \$A by simply doubling the originals, *irrespective of their year of occurrence* and no account has been taken of changes in exchange rates.

Definition of Overseas and Interstate

Tasmanian goods destined for other countries may pass from Tasmanian ports direct or by transshipment through other Australian ports. Similarly, overseas goods may reach Tasmania direct or by transshipment through other Australian ports. The following sets out the classifications used:

Classification of Imports and Exports

Particulars	Route of Goods to and from Other Countries	Classification of Transaction	Classification by Place of Origin or Destination
Tasmanian Exports ..	(1) Shipped Direct from Tasmanian ports	Overseas	Country of Destination
	(2) Discharged in other Australian ports before shipment overseas	Interstate	Australian State where discharged
Tasmanian Imports ..	(1) Shipped Direct to Tasmanian Ports	Overseas	Country of Origin
	(2) Discharged in other Australian ports before shipment to Tasmania	Interstate	Australian State from which shipment made

By way of example, a new Japanese car transhipped in Melbourne and discharged in Tasmania is classified as an item of interstate trade and Victoria, not Japan, is classified as the place of origin. (Victorian overseas imports will include the entry of the vehicle from Japan.)

Effect of Motor Vehicles on Total Value of Imports and Exports

Import and export details of motor cars and commercial vehicles include tourists' vehicles entering and leaving the State. The inauguration of the vehicular ferry service by the *Princess of Tasmania* in October 1959 resulted in a sharp increase in the transport of vehicles as suggested in the following table:

**Motor Cars and Commercial Vehicles (a)—Value of Imports and Exports
(\$'000)**

Particulars	1959-60	1963-64	1964-65	1965-66	1966-67	1967-68
Imports	29,148	39,496	38,699	42,179	45,014	49,053
Exports	13,100	17,050	18,299	19,753	19,265	21,359

(a) As well as new and used vehicles, includes business and tourists' vehicles moving to and from the State.

Since Tasmanians do not carry out motor vehicle assembly on any extensive scale (and certainly not for export), it follows that total import and export values for 1967-68 are both inflated by approximately \$21 million worth of vehicles, principally tourist, which entered and left the State. If vehicle exports are offset against imports, the net import figure will still include some used as well as new vehicles.

Source of Trade Statistics

Overseas trade statistics are compiled from documents obtained under the Federal *Customs Act* 1901-1968 and are supplied to the Commonwealth Bureau of Census and Statistics by the Department of Customs and Excise. *Interstate sea* trade statistics are compiled from trade warrants required under the authority of the *Marine Act* 1921 and made available to the Tasmanian branch of the Bureau by the various Marine Boards and Harbour Trusts. Statistics of *inter-state air* trade are compiled from returns furnished direct to the Tasmanian Office of the Bureau by all those who use this medium for the transportation of goods in commercial or industrial operations.

Values

The cost of importing goods into any country will theoretically contain four elements:

- (1) The 'original' price at door of factory, warehouse, etc.
- (2) The cost of delivering goods to the ship 'free on board'.
- (3) Sea freight and associated charges between ports.
- (4) Delivery cost from port to buyer.

Trade statistics base values on the first two elements but exclude the third and fourth, as set out in the following definitions:

The basis of value for overseas imports is 'transaction value, actual (*f.o.b.*)' or 'domestic value (*f.o.b.*)' if higher. Overseas exports are valued *f.o.b.* at the Australian port of shipment as follows: (i) for goods sold before export—the price at which the goods were sold, or (ii) for goods shipped on consign-

ment—the current price offering for similar goods of Australian origin in the principal markets of the country to which the goods were despatched. Interstate imports and exports are valued *f.o.b.* at the port of shipment.

Tasmanian Ports

Although there are nine port authorities (known as marine boards or harbour trusts) in Tasmania, overseas trade is restricted to the ports of Hobart, Launceston, Burnie, Devonport and Stanley. (Exports of iron ore from Port Latta, which falls within the jurisdiction of the Circular Head Marine Board, are credited to Stanley.) The names of ports in subsequent tables refer to the towns in which the controlling marine boards are located. Thus 'Hobart' includes Port Huon; 'Launceston' includes Bell Bay and Beauty Point, etc.; and 'Stanley' includes Port Latta.

Total Trade of Tasmania

The following table shows Tasmanian total trade and its components in recent years:

Total Trade
(\$'000)

Year	Imports				Exports			
	By Sea		By Air	Total Imports	By Sea		By Air	Total Exports
	Overseas	Interstate	Interstate		Overseas	Interstate	Interstate	
1957-58	25,466	113,636	19,122	158,224	44,506	109,652	18,354	172,512
1958-59	26,374	121,138	19,718	167,230	43,932	114,424	17,584	175,940
1959-60	27,606	130,014	19,210	176,830	47,730	137,530	20,818	206,078
1960-61	37,208	141,086	19,356	197,650	42,588	143,036	21,944	207,568
1961-62	26,788	141,776	18,000	186,564	57,196	140,794	23,298	221,288
1962-63	35,746	150,620	18,158	204,524	66,792	146,454	21,602	234,848
1963-64	35,032	167,964	19,840	222,836	78,318	173,590	23,424	275,332
1964-65	35,717	170,963	20,819	227,499	87,315	193,371	25,770	306,456
1965-66	(a)43,585	192,732	21,123	257,441	92,007	212,785	25,575	330,367
1966-67	(a)51,376	209,456	20,311	281,143	88,834	224,975	25,680	339,490
1967-68	(a)45,024	220,065	20,590	285,679	76,888	233,694	26,941	337,523

(a) From 1965-66 value of outside packages is included in the value of overseas imports. Amounts included are: 1965-66, \$527,000; 1966-67, \$682,000; 1967-68, \$650,000.

It will be observed that interstate trade is the major element both in imports and exports. The next table shows the balance of trade (excess of exports over imports):

Balance of Trade (Sea and Air)

Year	Balance of Trade (Excess of Exports)		Year	Balance of Trade (Excess of Exports)	
	Total (\$'000)	Per Head of Mean Population (\$)		Total (\$'000)	Per Head of Mean Population (\$)
1956-57	18,198	56.05	1962-63	30,324	84.66
1957-58	14,288	43.03	1963-64	52,496	144.71
1958-59	8,710	25.72	1964-65	78,957	215.51
1959-60	29,248	85.00	1965-66	72,926	197.31
1960-61	9,918	28.33	1966-67	58,347	156.04
1961-62	34,724	98.32	1967-68	51,844	136.66

Overseas Trade by Sea

From the earliest days, the United Kingdom was Tasmania's main overseas market and source of overseas imports; even today, the United Kingdom is the principal country in the State's overseas trade. In the last fifteen years trade with foreign countries has begun to assume greater importance, as shown in the following table:

Total Value of Trade by Sea With Overseas Countries (a)
(\$'000)

Year	Value of Imports From—				Value of Exports To—			
	United Kingdom	United States of America	Japan	Other Overseas Countries	United Kingdom	United States of America	Japan	Other Overseas Countries
1952-53	13,339	1,355	250	11,687	28,440	4,573	761	9,923
1953-54	12,029	961	68	13,039	17,996	3,897	603	12,971
1954-55	13,050	2,405	499	14,305	16,600	5,915	645	14,363
1955-56	10,978	1,864	674	11,368	18,110	4,373	1,219	16,906
1956-57	11,368	2,497	415	13,484	17,780	3,870	2,016	21,337
1957-58	10,779	1,638	532	12,517	18,688	3,988	2,796	19,034
1958-59	8,686	1,626	512	15,550	20,090	4,018	2,102	17,722
1959-60	8,272	2,520	382	16,432	19,880	4,106	2,694	21,050
1960-61	12,960	4,252	1,150	18,846	14,422	3,850	3,344	20,972
1961-62	8,998	2,548	784	14,458	20,536	5,600	4,372	26,688
1962-63	8,840	5,708	1,604	19,594	22,590	6,910	3,968	33,324
1963-64	7,738	5,932	2,770	18,592	25,816	8,498	4,786	39,218
1964-65	7,777	7,954	3,593	16,393	30,872	12,707	4,760	38,976
1965-66	9,935	8,014	5,673	19,963	26,067	14,398	7,970	43,572
1966-67	8,886	10,735	7,385	24,370	20,913	15,737	10,291	41,893
1967-68	13,357	6,835	5,374	19,458	20,219	9,566	9,005	38,098

(a) From 1965-66 the value of outside packages is included in the value of overseas imports.

Principal Overseas Exports

Certain Tasmanian commodities are of great importance in the State's overseas trade. Examples are given below:

Tasmanian Overseas Exports of Selected Commodities
(\$'000)

Country of Consignment	1963-64	1964-65	1965-66	1966-67	1967-68
APPLES (FRESH OR PRESERVED BY COLD PROCESS)					
Denmark.. ..	12	..	14	354	468
Finland	98	103	259	141	110
Germany, West ..	4,812	2,564	5,367	1,936	2,736
Hong Kong	396	558	441	300	435
Ireland	132	86	189	84	143
Malaysia	440	(a) 444	(a) 249	99	75
Philippines	214	218	260	281	342
Singapore	322	(a)	(a) 242	588	511
Sweden	1,030	718	1,239	740	948
United Kingdom ..	8,368	7,549	8,764	5,550	6,549
Other Countries..	1,590	523	1,632	311	333
'For Orders' (b) ..	136	..	41	71	..
Total	17,550	12,763	18,697	10,455	12,650

Tasmanian Overseas Exports of Selected Commodities—continued
(\$'000)

Country of Consignment	1963-64	1964-65	1965-66	1966-67	1967-68
REFINED ZINC					
China (Formosa)	492	247	410	600	451
Hong Kong	928	746	669	477	364
India	2,542	6,837	2,488	3,914	4,210
Italy	1,224	707	750	1,084	382
Netherlands	152	223	1,445	1,728	1,179
New Zealand	112	407	227	453	66
Pakistan	24	166	38	600	..
Philippines	908	1,225	1,486	716	1,609
Thailand	1,658	2,087	1,877	3,053	2,123
United Kingdom	4,488	7,800	5,758	3,342	1,642
U.S.A.	108	273	3,375	2,985	1,072
Other Countries	2,738	1,263	1,818	912	602
Total	15,374	21,981	20,341	19,864	13,698

(a) Singapore included with Malaysia from 1 July 1964 to 30 September 1965.

(b) Country of consignment not determined at time of export.

Trade with Selected Countries

The principal countries of origin for overseas imports shipped direct to Tasmania in 1967-68 are shown, followed by the value in \$ million: U.K., 13.4; U.S.A., 6.8; Japan, 5.4; N.Z., 3.3; Sweden, 3.0; Canada, 2.5; West Germany, 2.2. The principal countries of destination for overseas exports shipped direct from Tasmania (value in \$ million) were: U.K., 20.2; U.S.A., 9.6; Japan, 9.0; India, 4.4; Thailand, 4.4; West Germany, 3.4; France, 2.4; Philippines, 2.3; Italy, 2.3.

The next table shows the trade of Tasmania with selected overseas countries; countries selected are those for which imports or exports approached or exceeded \$500,000 in any one of the three years under review. It should be noted that some goods are received from, or sent to, overseas countries by transshipment through other Australian States; no data are available on such transactions.

Trade With Overseas Countries
(\$'000)

Country of Origin or Destination	Imports (a)			Exports		
	1965-66	1966-67	1967-68	1965-66	1966-67	1967-68
Belgium-Luxembourg	291	96	159	1,402	339	1,985
Burma .. ..	..	..	..	400	783	300
Canada	2,227	1,903	2,507	177	371	230
China—Formosa ..	4	3	5	495	781	572
Mainland ..	579	525	342	386	806	..
Czechoslovakia ..	36	41	50	432	305	10
Finland	758	559	251	264	141	110
France	376	404	412	3,904	3,067	2,417
Germany, West ..	2,008	2,004	2,187	6,644	2,743	3,357
Ghana	n.p.	n.p.	n.p.	22	..	..
Hong Kong	337	417	353	2,384	1,918	2,122
India	213	134	238	2,581	4,313	4,417
Iran	709	419	..	..	13	..
Italy	679	1,057	798	3,187	3,578	2,259
Japan	5,673	7,385	5,374	7,970	10,291	9,005
Kenya	7	1	1	310	382	387

Trade With Overseas Countries—continued
(\$'000)

Country of Origin or Destination	Imports (a)			Exports		
	1965-66	1966-67	1967-68	1965-66	1966-67	1967-68
Malaysia	(b) 4	8	5	(b) 2,680	1,713	1,893
Mexico .. ..	..	..	2	582	998	715
Netherlands ..	631	896	598	2,721	2,106	1,880
New Hebrides ..	489	..	..	..	..	..
New Zealand ..	3,125	3,713	3,254	1,795	2,720	1,795
Norway	599	367	394	150	93	119
Papua and New Guinea	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>	195	89	129
Philippines ..	12	2	1	2,238	1,461	2,340
Poland	16	6	8	1,137	1,158	326
Singapore	(b)	2	18	(b) 1,857	1,906	2,066
South Africa ..	444	187	271	102	531	451
Sweden	1,968	2,093	3,042	1,300	868	1,052
Switzerland ..	452	594	297	52	32	26
Thailand	11	2	37	3,844	5,437	4,397
United Kingdom ..	9,935	8,886	13,357	26,067	20,913	20,219
U.S.A.	8,014	10,735	6,835	14,398	15,737	9,566
Yugoslavia ..	..	..	..	509	619	271
Other	3,988	8,937	4,228	1,718	2,545	2,472
'For Orders' (c) ..	..	..	..	104	77	..
Total	43,585	51,376	45,024	92,007	88,834	76,888

(a) Value of outside packages included; 1965-66, \$527,000; 1966-67, \$682,000; 1967-68, \$650,000.

(b) Singapore included with Malaysia from 1 July 1964 to 30 September 1965.

(c) Country of consignment not determined at the time of export.

Tasmanian and Australian Overseas Trade

Before comparing the values of the overseas trade of Tasmania and Australia, it has been necessary to take into account the value of outside packages, containers, crates, etc. in which goods are ordinarily imported from overseas. Such values have been omitted from all import tables in this chapter up to 1964-65 (except in the following comparative table), but they are normally included in trade statistics published by the Commonwealth Statistician. As from 1965-66, the value of outside packages is included in all Tasmanian import tables, now that a new commodity classification is in use. Export values in this chapter include the value of outside packages.

Value of Overseas Trade—Tasmania and Australia

Particulars		1963-64	1964-65	1965-66	1966-67	1967-68
IMPORTS						
Australia—	Total .. (\$'000)	2,372,658	2,904,703	2,939,492	3,045,341	3,264,473
	Per Head (\$)	214.54	257.54	255.59	260.09	273.71
Tasmania (a)—	Total .. (\$'000)	35,513	36,138	43,585	51,376	45,024
	Per Head (\$)	97.90	98.64	117.92	137.40	118.67

Value of Overseas Trade—Tasmania and Australia—*continued*

Particulars		1963-64	1964-65	1965-66	1966-67	1967-68
EXPORTS						
Australia—	Total .. (\$'000)	2,782,460	2,651,449	2,720,953	3,023,925	3,044,675
	Per Head (\$)	251.59	235.09	236.59	258.26	255.28
Tasmania—	Total .. (\$'000)	78,318	87,315	92,007	88,834	76,888
	Per Head (\$)	215.90	238.33	248.94	237.58	202.66

(a) Value of outside packages included: 1962-63, \$618,000; 1963-64, \$481,000; 1964-65, \$421,000; 1965-66, \$527,000; 1966-67, \$682,000; 1967-68, \$650,000.

The relatively low value of overseas imports per head of Tasmanian population is due in part to the transshipment of goods in other Australian ports. Since some goods go overseas from Tasmania by transshipment and are therefore *not* recorded as Tasmanian overseas exports, the export comparisons *per head* of Australian and Tasmanian populations suggest that the State plays an important role as an earner of export income.

Interstate Trade by Air

No data are compiled to show State of origin or State of destination for trade by air; most planes carrying commercial freights in connection with Tasmanian trade take off from or land in Victoria.

The value of interstate trade by air, since 1964-65, has been as follows:
Imports: 1965-66, \$21,123,000; 1966-67, \$20,311,000; 1967-68, \$20,590,000.
Exports: 1965-66, \$25,575,000; 1966-67, \$25,680,000; 1967-68, \$26,941,000.

Interstate Trade by Sea

As might be expected with Melbourne the major port closest to Tasmania, the bulk of the island's interstate trade is transacted with Victoria. The next table shows the value of interstate sea trade with the Australian States. Imports include the value of goods imported into other States from overseas and transhipped to Tasmania; exports include the value of goods exported to other States for transshipment overseas.

Value of Interstate Sea Trade
(\$'000)

Australian State of Origin or Destination	Imports			Exports		
	1965-66	1966-67	1967-68	1965-66	1966-67	1967-68
N.S.W.	38,935	47,769	52,377	89,631	91,318	102,149
Victoria	126,580	135,534	140,733	97,393	107,266	107,765
Queensland	(a) 3,931	(a) 5,911	(a) 5,158	9,858	9,946	8,428
S.A.	20,182	18,063	19,012	11,441	11,657	10,163
W.A.	3,104	2,179	2,786	4,462	4,787	5,190
Total	192,732	209,456	220,065	212,785	224,975	233,694

(a) Includes the value of manganese ore imported from the Northern Territory. Details are not available for separate publication.

Sea Trade of Tasmanian Ports

In the following table, the value of total imports and exports by sea is shown for each port:

**Total Value of Sea Trade Classified According to Port
(\$'000)**

Port	Imports		Exports		Total Sea Trade	
	1966-67	1967-68	1966-67	1967-68	1966-67	1967-68
Burnie	55,777	50,071	53,615	65,572	109,392	115,643
Devonport	58,810	61,038	54,048	55,108	112,858	116,146
Hobart	79,403	87,909	120,401	105,274	199,804	193,183
Currie	1,893	2,486	5,561	5,746	7,455	8,232
Launceston	63,618	62,194	67,001	59,659	130,620	121,853
Stanley	64	40	1,276	3,073	1,339	3,113
Strahan	1,267	1,351	11,907	15,935	13,174	17,286
Lady Barron .. ..	..	..	..	215	..	215
Total	260,832	265,089	313,809	310,582	574,641	575,671

The next table compares the proportion of total sea trade values attributed to each port (with 1958-59 as a base year):

**Total Value of Sea Trade—Port Proportions (a)
(Per Cent)**

Port	1958-59	1963-64	1964-65	1965-66	1966-67	1967-68
Burnie	15.3	16.6	17.0	18.0	19.0	20.1
Devonport (a)	5.6	19.4	21.0	19.7	19.6	20.2
Hobart	50.8	36.6	35.7	36.2	34.8	33.6
Currie	0.5	0.8	0.8	1.0	1.3	1.4
Launceston	23.5	23.8	22.9	22.4	22.7	21.2
Stanley	0.6	0.3	0.3	0.3	0.2	0.5
Strahan	2.4	2.5	2.3	2.4	2.3	3.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

(a) Ulverstone incorporated in Devonport figures from 1 January 1963.

The drop in the proportion of sea trade attributed to Hobart since 1958-59 is related to the increasing use of 'sea-road' facilities available through the ports of Devonport, Launceston and Burnie. The vessels involved in the 'sea-road' service to northern and north-western ports are the *Princess of Tasmania*, the *Bass Trader* and the *Australian Trader* (from mid-1969). As from June 1964 similar facilities became available at Hobart when the *Seaway Queen* began a 'sea-road' service to Melbourne, followed by the *Seaway King* operating a Sydney service from September 1964. In January 1965, the *Empress of Australia* commenced a service with Sydney-Hobart-Sydney as one route and Sydney-Bell Bay-Burnie-Sydney as the other.

Air Trade of Tasmanian Airports

Although Tasmania has a number of airports, only six are used on a regular basis for interstate trade; four are located near Hobart, Launceston, Burnie and Devonport respectively and the remaining two on King and Flinders Islands respectively.

The following table shows the value of interstate air trade passing through Tasmanian airports:

Total Value of Interstate Air Trade Classified According to Airport (\$'000)

Airport	Imports		Exports		Total Air Trade	
	1966-67	1967-68	1966-67	1967-68	1966-67	1967-68
Hobart	10,147	10,528	4,183	4,201	14,330	14,729
Launceston ..	5,986	6,090	20,292	21,617	26,278	27,708
Devonport ..	1,493	1,405	202	211	1,695	1,616
Wynyard (a) ..	1,690	1,670	197	170	1,887	1,839
King Island ..	668	608	614	576	1,282	1,184
Flinders Island ..	327	290	193	166	520	456
Total	20,311	20,590	25,680	26,941	45,991	47,532

(a) Including Smithton.

The percentage of the total value of air trade passing through each Tasmanian airport in 1967-68 was: Hobart, 31.0; Launceston, 58.3; Devonport, 3.4; Wynyard, 3.9; King Island, 2.5; Flinders Island, 1.0.

Commodities Carried by Air

It will be observed that the value of trade by air approaches 8 per cent of the value of total trade by sea and air combined. With regard to exports by air (valued at \$26,941,000 in 1967-68), the major group was 'Textiles and Yarns' valued at \$25,118,000; exports of all foodstuffs (meat, crayfish, fruit, etc.) accounted for a further \$868,000. For imports, there is a much greater range of commodities involved, the chief group being 'Clothing and Footwear' valued at \$11,745,000.

The value of imports by air has shown only a slow increase (from \$19.2m to \$20.6m, 1959-60 and 1967-68); the increase in the value of air exports has also been relatively slow (from \$20.8m to \$26.9m, 1959-60 and 1967-68). A possible explanation is the improvement in sea carriage techniques (roll-on roll-off vessels, container vessels, etc.) and shipping schedules.

Imports of Principal Commodities

The next table shows the value of the principal commodities imported into Tasmania by sea and air:

Imports of Principal Commodities by Sea and Air—Values (\$'000)

Commodity	1965-66	1966-67	1967-68
Beer, Wine and Spirits	3,368	3,854	3,730
Aluminium Oxide	3,085	3,321	3,326
Clothing and Accessories	13,566	13,708	13,189
Cocoa Beans and Cocoa Butter	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>
Footwear	2,879	3,076	3,042
Machinery—Electrical	11,605	12,780	15,031
Other	20,342	23,575	25,003
Metal Manufactures	7,073	8,646	8,090
Metals	14,247	16,901	14,499
Motor Vehicles—New	22,813	26,287	27,541
Other (a)	19,365	18,727	21,512
Ores and Concentrates—Zinc	7,220	6,800	5,267
Other	3,080	4,390	4,263

(a) Mainly tourists' and other motor vehicles imported as passengers' personal effects.

Imports of Principal Commodities by Sea and Air—Values—continued
((\$'000))

Commodity	1965-66	1966-67	1967-68
Paper and Paper Manufactures	8,276	8,487	8,667
Petroleum Products—Motor Spirit	7,180	7,299	8,169
Fuel Oils	7,538	8,262	9,060
Other	4,482	4,332	4,519
Pulp for Paper Making	6,843	6,590	5,734
Rubber Manufactures	4,330	4,342	4,748
Sugar, Refined	4,331	4,410	4,426
Textile Yarn and Fabrics	9,997	9,136	9,696
Tobacco and Cigarettes	12,771	13,258	13,275
Wheat	2,757	2,729	3,283
Wool, Greasy	3,684	3,159	3,544
Other	56,609	67,074	66,065
Total Imports	257,441	281,143	285,679

The table that follows shows the quantities of the principal commodities imported and has been compiled, as far as this is practicable, to match the preceding table of values.

Imports of Principal Commodities by Sea and Air—Quantities

Commodity	Unit of Quantity	1965-66	1966-67	1967-68
Alcoholic Beverages—				
Ale, Beer and Stout	gal	356,032	566,994	454,272
Wine	gal	497,506	502,259	528,584
Spirits and Liqueurs—Overseas	pf gal	20,227	24,485	17,762
Interstate	gal	173,891	175,842	179,846
Aluminium Oxide	cwt	965,608	1,066,299	1,071,232
Cocoa, Beans and Cocoa Butter	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>
Iron and Steel	ton	97,978	115,757	100,351
Motor Vehicles—New	no.	13,113	13,217	14,659
Other (a)	no.	12,252	12,073	13,728
Ores and Concentrates—Zinc	ton	260,025	245,484	206,848
Other	ton	225,743	316,791	257,459
Paper and Paper Manufactures	cwt	411,263	464,551	436,938
Petroleum Products—Motor Spirit	'000 gal	63,422	65,817	69,701
Fuel Oils	'000 gal	76,380	80,824	88,945
Pulp for Paper-making	ton	59,601	59,731	54,312
Sugar, Refined	ton	23,988	24,704	24,198
Tobacco and Cigarettes	'000 lb	2,339	2,346	2,344
Wheat	ton	49,185	47,312	52,998
Wool, Greasy	'000 lb	5,700	5,214	5,687

(a) Mainly tourists' and other motor vehicles imported as passengers' personal effects.

Exports of Principal Commodities

The following table shows the value of the principal commodities exported from Tasmania by sea and air. The largest item listed—'Commodities Not Available for Publication'—comprises the total export value of aluminium, alumina, ferro-manganese, calcium carbide, cement, paper, paper pulp, stationery, hardboard and plywood.

Exports of Principal Commodities by Sea and Air—Values
(**\$'000**)

Commodity	1965-66	1966-67	1967-68
Butter	5,214	5,259	5,107
Fish (including Crayfish)	2,687	2,517	2,708
Fruit—Apples (Fresh)	19,096	11,197	13,702
Pears (Fresh)	1,554	675	945
Processed	2,031	2,381	1,518
Hops	1,677	1,040	1,454
Meat—Beef	3,909	4,739	4,463
Lamb and Mutton	2,185	2,237	1,606
Other	1,188	963	972
Potatoes (Fresh)	2,767	1,468	2,049
Preserved Vegetables (including Dried)	15,360	17,563	15,376
Other Food and Drink (including Confectionery)	23,995	31,324	31,627
Fertilisers	3,811	2,077	607
Hides and Skins	3,163	3,372	2,101
Metal Manufactures (including Machinery)	6,302	7,290	7,768
Metals, Refined—Cadmium	1,265	1,151	1,191
Copper	10,725	11,433	15,063
Zinc	38,331	41,249	33,106
Ores and Concentrates—Lead	5,352	4,969	5,650
Tin	3,060	2,539	6,049
Other	2,891	5,052	6,118
Motor Cars and Commercial Vehicles (a)	19,753	19,265	21,359
Pigments, Paints and Varnishes	8,399	9,433	11,312
Timber—Dressed	3,410	4,137	4,286
Undressed	8,735	9,535	9,205
Wool, Greasy	20,155	20,373	15,041
Woollen Manufactures	24,077	24,102	25,487
Commodities Not Available for Publication (b)	80,918	78,030	85,784
Not Elsewhere Included	8,357	14,120	5,869
Total Exports	330,367	339,490	337,523

(a) Mainly tourists' and other motor vehicles exported as passengers' personal effects.

(b) Commodities comprising this item are: aluminium, alumina, ferro-manganese, calcium carbide, cement, paper, paper pulp, stationery, hardboard, and plywood.

The next table shows the quantities of the principal commodities exported and has been compiled, as far as this is practicable, to match the table of values.

Items in the 'Fish', 'Fruit' and 'Meat' categories have been added while no quantities for commodities in the 'Pigments, Paint and Varnishes' and 'woollen manufacture' are available for publication.

Exports of Principal Commodities by Sea and Air—Quantities

Commodity (a)	Unit of Quantity	1965-66	1966-67	1967-68
Butter	cwt	174,765	179,906	176,998
Fish—Crayfish	cwt	20,322	17,490	12,037
Other	cwt	20,175	27,112	35,076
Fruit—Apples	'000 lb	273,152	199,158	218,416
Pears	'000 lb	23,330	12,674	17,431
Preserved in Liquid	'000 lb	10,479	12,987	9,343
Pulped	'000 lb	3,256	3,845	1,639
Dried	'000 lb	752	762	367
Hops	'000 lb	2,568	1,397	1,831

Exports of Principal Commodities by Sea and Air—Quantities—*continued*

Commodity (a)	Unit of Quantity	1965-66	1966-67	1967-68
Meat—Beef	cwt	121,545	135,711	119,963
Lamb and Mutton	cwt	100,358	103,562	72,372
Pork	cwt	15,336	15,731	15,085
Potatoes (Fresh)	ton	28,758	27,590	29,229
Preserved Vegetables (including Dried)	'000 lb	79,624	85,917	82,941
Fertilisers	ton	62,733	48,133	7,419
Sheepskins	'000 lb	7,205	7,500	6,001
Other Hides and Skins (excluding Furred)	'000 lb	3,663	4,301	4,507
Metals, Refined—Cadmium	ton	308	272	256
Copper	ton	13,923	14,318	14,483
Zinc	ton	135,089	152,820	118,412
Ores and Concentrates—Lead	ton	27,311	26,495	24,624
Tin	ton	1,801	1,759	3,569
Motor Cars and Commercial Vehicles (b)	no.	12,424	12,362	13,537
Timber—Dressed	'000 sup ft	14,375	17,277	17,852
Undressed	'000 sup ft	59,488	62,170	60,045
Wool, Greasy	'000 lb	34,376	35,802	30,854

(a) Principal commodities not available for publication comprise aluminium, alumina, ferro-manganese, calcium carbide, cement, paper, paper pulp, stationery, hardboard, plywood, and confectionery.

(b) Mainly tourists' and other motor vehicles exported as passengers' personal effects.

Exports of Selected Commodities

The following table shows, in summary form, total exports of selected commodities since 1939-40:

Exports of Selected Commodities by Sea and Air

Commodity	Unit of Quantity	1939-40	1949-50	1959-60	1967-68
QUANTITY					
Butter	cwt	55,428	42,886	154,789	176,998
Fresh Fruit (a)	'000 lb	163,464	125,468	177,876	235,846
Potatoes (Fresh)	ton	117,700	84,896	44,001	29,229
Hops	'000 lb	1,584	1,767	2,955	1,831
Wool, Greasy	'000 lb	9,092	9,101	27,977	30,854
Sheepskins	'000 lb	2,285	3,709	7,090	6,001
Refined Copper	ton	11,738	4,253	7,624	14,483
Refined Zinc	ton	70,909	80,704	113,853	118,412
Timber (Dressed and Undressed)	'000 sup ft	50,858	62,136	75,403	77,897
VALUE \$('000)					
Butter .. .. .	..	742	1,278	5,390	5,107
Fresh Fruit .. .. .	..	2,270	4,348	9,490	14,647
Potatoes (Fresh) .. .. .	..	1,558	3,302	1,656	2,049
Hops .. .. .	..	236	610	1,928	1,454
Wool, Greasy .. .. .	..	1,376	6,202	15,254	15,041
Sheepskins .. .. .	..	186	816	2,078	1,369
Woollen Manufactures .. .. .	..	2,674	5,540	17,524	25,118
Refined Copper .. .. .	..	1,416	1,478	5,022	15,063
Refined Zinc .. .. .	..	2,856	9,964	22,922	33,106
Ores and Concentrates .. .. .	..	2,144	4,076	5,952	17,817
Timber (Dressed and Undressed) .. .. .	..	1,238	2,930	8,952	13,491

(a) Unit of measurement changed; previous measure was bushel.

Further Information on Trade Statistics

In this chapter, it is only possible to give a broad outline of Tasmania's trade. The following cover the subject in greater detail:

The Trade and Shipping bulletin: this annual publication of the Tasmanian Office of the Bureau of Census and Statistics deals in detail with the State's interstate trade and includes an integration of interstate and overseas trade.

Overseas Trade: this annual publication of the Commonwealth Statistician gives considerable detail on the State's overseas trade.

RETAIL TRADE IN TASMANIA

Introduction

The statistics in this section have been obtained from the Australian Census of Retail Establishments (last conducted in 1961-62) and, for non-Census years, from the quarterly Australian Survey of Retail Establishments.

Census of Retail Establishments

Retail censuses were taken in respect of the years ended 30 June 1948, 1949, 1953, 1957 and 1962. The information collected in each census is extensive and provides details of retail trading in local government areas, in statistical divisions, and in special 'statistical retail' areas. The census information is also used as a bench-mark for designing a sample representative of all retail establishments.

Survey of Retail Establishments

Quarterly estimates of the value of retail sales have been calculated from the September quarter 1950, inclusive, by means of sample surveys. The information collected quarterly in each survey is much less detailed than in the censuses and provides estimates only for the State as a whole. For 1966-67, a special collection was made from approximately 2,000 establishments, the aim being to revise the sample.

Census of Retail Establishments, 1961-62

Sales by Type of Business

There are two ways in which the value of retail sales may be presented: either as totals for particular commodity groups, or as totals for particular types of business. For example, information from the retail census provides a total of the value of all *groceries* sold by all types of retail business, and also a total of the value of all commodity groups sold by *grocers*; the two totals will normally differ since the classification *grocer* is applied to an establishment in which *groceries* are the principal but not necessarily the only line of sale (e.g. a country *grocer* may also sell commodities such as petrol).

Types of Business, 1961-62

The following table shows the number of retail establishments recorded at the Census of 1961-62; they are classified according to the type of business (determined by the value of the principal line, or lines, of goods sold). Also shown are the total retail sales during 1961-62, for the various types of business. Comparative figures are given of the results of the Census of 1956-57. In the table, the item 'Grocers' is concerned with *grocers'* total sales of all commodity groups; in more general terms, the turnover figures relate to total sales by each type of business, and give no precise indication of total sales of any particular commodity group.

**Number of Retail Establishments and Value of Retail Sales of Goods by
Type of Business, 1956-57 and 1961-62**

Type of Business	Number of Retail Establishments		Value of Retail Sales	
	1956-57	1961-62	1956-57	1961-62
	no.	no.	\$'000	\$'000
Food Stores—				
Grocers	1,100	1,046	33,998	42,190
Butchers	295	357	11,280	13,742
Fruiterers	90	93	2,476	2,966
Bakers	151	158	3,434	4,364
Confectioners and Milk Bars	208	307	3,454	5,872
Cafes	20	59	152	564
Fishmongers and Poulterers	32	44	542	880
Other Food Stores	30	53	806	1,404
Hotels, Tobacconists, etc.—				
Hotels, Wine Saloons, etc.	308	311	15,622	18,382
Tobacconists	23	21	762	456
Tobacconists and Hairdressers	64	51	430	328
Department Stores, Clothiers, Drapers, etc.—				
Department Stores	6	6	7,322	11,964
Clothiers and Drapers	304	336	23,850	24,768
Footwear Stores	61	78	2,980	3,712
Hardware, Electrical Goods, Furniture Stores, etc.—				
Domestic Hardware Stores	57	43	2,284	2,328
Electrical Goods, Radios and Musical Instruments Stores	130	157	5,416	8,976
Furniture and Floor Coverings Stores	77	80	5,008	6,594
Other Goods Stores—				
Chemists	96	124	3,398	5,894
Newsagents and Booksellers	99	121	3,780	5,018
Sports Goods Stores	20	23	640	984
Watchmakers and Jewellers	56	54	1,182	1,252
Cycle Stores	11	8	114	100
Florists and Nurserymen	33	44	422	410
Other Types of Business	77	120	1,742	2,770
Total (excluding Motor Vehicle Dealers, Garages and Service Stations, etc.)	3,348	3,694	131,094	165,918
Motor Vehicle Dealers, Garages and Service Stations, etc.—				
New Motor Vehicle Dealers, Garages and Service Stations	414	476	38,034	40,096
Used Motor Vehicle Dealers	25	48	4,442	11,912
Motor Parts and Tyre Dealers	36	52	1,510	2,006
Total Motor Vehicle Dealers, Garages and Service Stations, etc.	475	576	43,986	54,014
Grand Total	3,823	4,270	175,080	219,932

Sales of Commodities in Statistical Divisions

The next table gives details of retail sales in each statistical division and in the auxiliary groupings, Hobart and Suburbs and Launceston and Suburbs. A further dissection is provided for a special area of Hobart, designated the 'inner city' for the purpose of the Census, and defined as the blocks bounded by Campbell, Brisbane, Barrack and Macquarie Streets. In this table, the value totals for each area are based on commodity totals, i.e. the column for the motor vehicle commodity group relates exclusively to sales of motor vehicles, motor

parts, tyres, petrols, lubricants and other 'motor commodities', irrespective of the type of business making the sale. This contrasts with the presentation in the previous table, where the turnover figures for the motor vehicle group of establishments related to their sales of *all* commodities, including soft drinks, cigarettes, detergents and other 'non-motor commodities'.

Value of Retail Sales of Goods in Each Statistical Division and in City and Suburban Districts, 1961-62

Area	Total Number of Retail Establish- ments	Value of Retail Sales (\$'000)		
		All Commodities Excluding Motor Vehicles, etc. (a)	Motor Vehicles, etc. (a)	All Commodities
STATISTICAL DIVISIONS				
South Central—				
Hobart—Inner City Area ..	425	36,070	10,310	46,380
Remainder of South Central ..	779	26,266	12,798	39,064
Total	1,204	62,336	23,108	85,444
North Central	728	34,592	14,494	49,086
North Western	995	33,676	11,804	45,480
North Eastern	344	7,790	1,082	8,872
North Midland	160	3,668	542	4,210
Midland	131	3,098	404	3,502
South Eastern	246	6,398	888	7,286
Southern	336	9,464	1,076	10,540
Western	126	5,038	474	5,512
Total Tasmania ..	4,270	166,060	53,872	219,932
CITY AND SUBURBAN DISTRICTS				
Hobart and Suburbs—				
Hobart—Inner City Area ..	425	36,070	10,310	46,380
Remainder, Hobart and Suburbs	928	30,720	13,374	44,094
Total Hobart and Suburbs ..	1,353	66,790	23,684	90,474
Launceston and Suburbs	805	36,274	14,814	51,088
Remainder of State	2,112	62,996	15,374	78,370
Total Tasmania	4,270	166,060	53,872	219,932

(a) Sales as commodity group totals; 'motor vehicles, etc.' includes petrol, lubricants, parts, tyres, etc. as well as new and used vehicles.

Quarterly Retail Sales Estimates

Each quarter, returns of retail sales are collected from a fraction (or sample) of all the retail businesses recorded in the most recent census of retail establishments, the fraction being selected to represent the field covered by the census. This sample is varied from time to time to make provision for 'new' establishments opening up, 'old' establishments closing down and 'old' establishments changing type ('old', in this context, relates to businesses as recorded at the most recent census of retail establishments). From the returns made by the sample establishments, estimates are calculated quarterly of the total volume of retail sales, and also the total sales of broad groups of commodities. The following table presents, as annual totals, the results of the quarterly surveys:

**Estimated Value of Retail Sales of Goods by Commodity Groups
(\$ million)**

Commodity Group	1962-63	1963-64 <i>r</i>	1964-65 <i>r</i>	1965-66 <i>r</i>	1966-67 <i>r</i>	1967-68
Groceries	29.32	31.50	33.51	35.20	36.50	37.29
Butchers' Meat	14.97	15.45	17.08	17.83	19.38	19.77
Other Food	21.46	20.57	21.88	22.72	24.22	26.01
Beer, Wine, Spirits	16.88	18.39	18.97	20.38	23.22	25.07
Clothing, Drapery, Piece Goods	30.68	32.75	34.83	35.51	39.24	42.24
Footwear	5.36	5.72	5.76	5.98	6.19	6.43
Domestic Hardware	4.42	4.33	4.35	4.51	5.07	5.59
Electrical Goods	11.74	11.41	11.30	11.25	11.73	12.42
Furniture, Floor Coverings	7.86	7.92	8.49	8.75	9.98	11.17
Chemists' Goods	<i>r</i> 7.69	8.21	9.31	9.81	10.59	10.90
Newspapers, Periodicals, etc.	5.52	5.93	6.37	6.80	7.38	8.05
Other Goods (a)	<i>r</i> 17.34	17.43	18.95	19.65	21.36	22.57
Total (excluding Motor Vehicles, etc.)	173.25	179.62	190.80	198.39	214.87	227.52
Motor Vehicles, Parts, Petrol, etc.	63.27	70.69	75.74	77.42	79.92	85.75

(a) Includes sports goods, jewellery, cycles, flowers, plants, etc.

MARINE BOARDS AND HARBOUR TRUSTS

Introduction

Tasmania has a number of ports for handling overseas vessels; they are sited on the Derwent and Huon rivers in the south (Hobart and Port Huon); on the Tamar in the north (Beauty Point, Inspection Head and Bell Bay); on the Mersey (Devonport), in Emu Bay (Burnie), and at Port Latta, all in the north-west. All overseas ports provide approximately 30 feet or more of water at berths; Port Latta provides a depth of 52 feet nearly a mile off-shore.

Interstate and intrastate trade passes through the main ports and is carried on as well through ports at Launceston, Strahan, Stanley, Ulverstone, Currie (on King Island) and Lady Barron (on Flinders Island).

This section deals primarily with the Marine Boards which control the harbours but a brief description is given of the main ports.

Port of Hobart

Location

The approach to the Derwent and the Port of Hobart is made through a very wide strait between Cape Queen Elizabeth (Bruny Island) and Cape Raoul (Tasman Peninsula), approximately 30 miles south-east from the city. The mouth of the Derwent, three and a half miles wide, lies 12 miles south-east of the port which is built upstream on the western bank in a U-shaped cove; the opposite bank lies one and a half miles away to the east at this point. The shores of the Derwent and the arms of the cove act as natural breakwaters.

Description

The present main port of Hobart is extremely compact, being U-shaped and with only 2,000 feet or less separating the two arms. The southern arm is devoted to Princes Wharf with berths numbered one to four; the centre contains Kings Pier while the northern arm is made up of the Macquarie wharves with berths one to four and a special tanker berth. Most wharves and sheds in the

main port are of concrete construction. The urgency of this type of modernisation was emphasised in 1948 when fire destroyed the wooden Ocean Pier No. 2 shed and the outer 80 feet of berth.

The main recent development has been connected with roll-on roll-off type vessels for which special provision has had to be made. Princes Wharf No. 1 berth was converted into a specialised terminal with a drive-on ramp and vehicle marshalling area, the *Seaway Queen* and *Seaway King* first berthing there in June and August 1964, respectively. To accommodate the new Sydney-Hobart roll-on roll-off vessel *Empress of Australia*, extensive land reclamation was carried out to the south of Princes Wharf No. 3 berth and the new facility, named No. 4 berth, involved a further wharf, a drive-on ramp, an extensive marshalling area and a terminal building. The *Empress* began the new service in January 1965.

The most striking feature of the Port of Hobart is the ease with which large vessels can be brought to berth. Tides present no problem, the rise and fall being four feet six inches average, and no dredging of approach channels has ever been necessary.

Subsidiary Ports

In addition to the main port in the heart of the city, there are a number of subsidiary outlets serving the south of the State. Near Snug, on D'Entrecasteaux Channel, is the private wharf of the Electrona carbide works. On the west bank of the Huon River near Geeveston is Port Huon wharf, located in the centre of the principal orcharding area and used mainly for fruit exports. Also based on the Huon River (for export of paper pulp) is the A.P.M. Ltd private wharf at Hospital Bay. In the Derwent itself, two and a half miles upstream from the main port, is a tanker berth at Selfs Point where bulk petrol and oil are stored; tankers pass under the 150 feet high navigation span of the Tasman Bridge on their way. A mile upstream from Selfs Point is the private wharf of the Electrolytic Zinc Company Ltd at Risdon. Nearly twenty miles upstream from the main port is the plant of Australian Newsprint Mills Ltd at Boyer from which newsprint rolls are carried downstream by barge and tug.

The authority controlling the main port and Port Huon is the Hobart Marine Board.

Works Programme

During 1968 extensions to Macquarie Wharf No. 3, construction of a modern slipway on the domain and strengthening the decking of Princes Wharf No. 3 shed were completed. Main work for 1969 includes: (i) construction of a jetty at Howden for the discharge of explosives; (ii) construction of berthage accommodation at Spring Bay for vessels engaged in the export of wood chips; and (iii) construction of a multi-storey office block to replace the present Marine Board Office.

Port of Launceston

Location

Launceston lies nearly forty miles upstream at the headwaters of the Tamar which discharges into Bass Strait between Low and West Heads; although the mouth of the Tamar is four miles wide, the river follows a sinuous course marked by many bends, and narrows to less than 300 yards in some stretches near the city. Tides are large, the rise and fall being from 10 feet to 12 feet according to location and silting occurs in the upper reaches which receive the discharge of the South Esk and North Esk Rivers.

Because of the limitations of the upper Tamar near Launceston, development of the port shows a pattern different from that of Hobart where all interstate and overseas berths are concentrated in the one area. In Launceston, the possibilities of the Tamar have been exploited by decentralisation, the present main outlets being:

- (i) Kings Wharf; interstate berths in Launceston itself immediately downstream from the junction of the North Esk and Tamar Rivers; facilities include a graving dock for small ship repair.
- (ii) Beauty Point Wharf; overseas berths on the western bank approximately eight miles upstream from the mouth of the Tamar;
- (iii) Inspection Head Wharf; overseas berths on the western bank approximately half a mile downstream from Beauty Point Wharf;
- (iv) Bell Bay Wharves; these include a tanker berth, a general cargo and passenger berth and the special cargo wharf serving Comalco Aluminium Ltd, operator of a nearby refinery. The Bell Bay site is on the eastern shore opposite Beauty Point.

The port has also had to make provision for the operation of roll-on roll-off ferry services and Bell Bay is the chosen terminal, the *Empress of Australia* making alternate Sydney-Tasmania voyages to Hobart and Bell Bay.

Description

Virtually all berths in the lower reaches of the port have been constructed since 1951; they are first class modern concrete structures especially designed to employ the Board's mechanical handling equipment.

Channel and lighting improvements have allowed vessels of deeper draft to enter and, more importantly, have permitted navigation of large vessels to be extended into the hours of darkness. The growing industrial complex at Bell Bay demands fast turn-rounds and works programmes have been designed to make them possible.

Works Programme

Channel improvement continued during 1969 and the removal of Garden Island was completed. At Kings Wharf, Launceston, a 17½ ton derrick crane was installed. At the Bell Bay Thermal Station site work on a tanker berth, designed to accommodate tankers of 55,000 tons, continued. Investigation and planning of wharf facilities for the proposed wood chip industry at Long Reach was undertaken.

The Port of Launceston Authority expects to complete the major channel improvements by 1971 giving access to vessels of 55,000 tons which will meet the needs of the area's industries.

In May 1968, the Batman Bridge was opened, thus linking the eastern and western overseas ports on the Tamar.

Change of Name

The Launceston Marine Board controlling the Port of Launceston has recently changed its title and is now known as the Port of Launceston Authority.

Location

Port of Devonport

The Port of Devonport lies close inside the mouth of the Mersey River which, unlike the Derwent and the Tamar, is navigable for only a short distance. The Mersey has a rise and fall of tide approximating nine feet and recent hydrographic survey indicated a maximum tidal flow of 2.1 knots. The river was always a natural harbour for small craft but its development as an overseas port has required extensive dredging and engineering works, including elimination of the tidal bar.

Description

The original river mouth was approximately three-quarters of a mile wide but this has been narrowed to just over 400 yards by an anti-silting barrier thrown out into the sea from the eastern bank. The overseas berths are located on the western bank about a mile upstream from the river's artificial mouth while the special terminal for the roll-on roll-off vessel *Princess of Tasmania* lies opposite on the eastern bank. The *Princess* has maintained a Bass Strait service based on Devonport since 1959 and its berth includes a wharf, a stern-loading drive-on ramp, an extensive vehicle marshalling area and a capacious terminal building. Thousands of tourists and their vehicles pass through this terminal each year. The *Bass Trader* and *Australian Trader* also maintain a weekly ferry service to the port.

The possibility of further development has not been exhausted; while the main berths have been made along the western bank, there is nearly a mile reserved on the opposite bank for the construction of future wharves.

Works Programme

During 1969 a 700 ft wharf on the east bank, for A.P.P.M. Ltd's paper industry at Wesley Vale, was completed and a 25 ton lift portal crane installed.

Location

The Port of Burnie

The ports of Hobart, Launceston and Devonport all lie within the shelter of rivers but the Port of Burnie, on Emu Bay, was built out into the open sea in the lee of Blackmans Point; immediately to the west of the point is a beach on which breaks the short surf of Bass Strait which can produce very rough seas, the nearest land being the Victorian coast 200 miles to the north.

Description

The shelter necessary for all-weather use of the port was provided by a 1,250 foot breakwater anchored to Blackmans Point, and running out to sea with a south-east orientation. The wharves are thus protected by the point and by the breakwater from swells coming in from the west or north, the only two quarters from which heavy seas are feared. Ocean Wharf is constructed immediately in the lee of the breakwater, the two structures appearing as one, and other berths are provided by piers parallel to the breakwater and lying further south.

Future development of the port could not be undertaken without the provision of further protection, and an island breakwater sited north-east from the end of Ocean Wharf has now been constructed. The breakwater, consisting of concrete caissons 1,600 feet long, is oriented south-east and is calculated to give ample protection for up to 2,000 feet of berthage south of existing piers. One interesting feature is the use of the lee of the island breakwater for a tanker berth, the fuel being pumped to land along a submarine pipeline.

In 1961, special facilities were provided to handle the roll-on roll-off vessel *Bass Trader* and the port is also used by the *Empress of Australia* which makes a return voyage to Sydney via Bell Bay and Burnie. (The alternate route worked by the *Empress* is Sydney-Hobart.)

Works Programme

Major works undertaken during 1969 included: (i) completion of a new roll-on roll-off ferry berth and its associated assembly area; (ii) completion of the dredging programme; (iii) construction of a new bulk cargo berth on the reclaimed area to the south of Jones Pier.

Port Latta (Circular Head)

A deep water offshore terminal capable of accommodating bulk ore carriers of 60,000 to 90,000 tons capacity has been constructed at Port Latta for the export of approximately 2.25m tons of iron ore pellets annually to Japan.

The loading facility consists of a four-foot wide conveyor belt which carries pellets to two swivel loaders located a mile offshore. Vessels moor in 52 feet of water to take on pellets, the system having a discharge capacity of about 3,000 tons per hour.

The port is specialised and designed primarily for export of iron ore pellets produced at Port Latta. Some of the raw materials for use by the Port Latta plant are imported through the adjacent port of Stanley. Port Latta is located in an area coming under the jurisdiction of the Circular Head Marine Board.

Constitution of Marine Boards and Harbour Trusts

Introduction

Relatively early in Tasmania's history, it was decided that the control and operation of any port was best put in the hands of citizens who had a local interest in its proper management, and, to this end, port administration was deliberately decentralised; the State Government, by legislation, defined the powers and duties of the new authorities it created but the detailed administration, including financial management, was then very much left to the boards and trusts. This is still the position today, government control relating mainly to the approval of borrowing programmes.

Establishment of Boards

Operation of Tasmania's chief ports ceased to be a direct function of the government of the colony in 1857 when legislation was passed to set up the marine boards of Hobart and Launceston. Each board consisted of five wardens; the mayor and the collector of customs were *ex officio* wardens, the remaining three members being appointed as nominees of the respective Chambers of Commerce. In 1867, the Governor was empowered to create other boards, such bodies to consist of three wardens appointed by the Governor; within a year, boards had been constituted under the titles Mersey, Circular Head and Table Cape.

Boards of Hobart and Launceston

The *Marine Boards Act* 1889 created a special electorate for the Hobart and Launceston boards, the nine wardens for each to be elected by ship-owners, importers and exporters. The respective collectors of customs were required to compile annually rolls of these users of the ports and the number of votes each elector could exercise was proportional to his financial interest; for example, an exporter of goods valued \$400 to \$3,999 had one vote, of \$4,000 to \$9,999 two votes, and of over \$10,000, three votes. Importers received similar voting powers in proportion to the wharfage paid while ship owners' votes were proportional to tonnage of their vessels. It was further provided that three wardens should retire annually and the master warden be elected by board members. By an amending Act in 1895, the voting powers of importers were placed on the same basis as those exercised by exporters and were divorced from wharfage paid.

The special electorate just described is still in existence today and continues to elect the wardens of the Hobart Marine Board; the scale of values affecting the number of votes to be exercised by importers and exporters remains unchanged also. However, in the case of Launceston Marine Board, the system of the special electorate was abolished in 1902 and all Launceston citizens on the rolls for the House of Assembly became eligible to cast single votes, a right extended in 1910 to citizens in the other municipalities bordering the Tamar. In 1916, with the adoption of the Hunter scheme for improvements affecting the whole length of the river, changes were made to increase the number of wardens by representatives from the bordering municipalities but the *Marine Act* 1921 reduced the number of wardens to five, restricted eligibility for standing as warden to citizens of Launceston and changed the voting qualification so that marine board electors had to be those qualified to vote at an election of aldermen for the City of Launceston. More recently, electors in Beaconsfield and George Town have again been given voting rights.

Constitution of Boards

The present system of appointing or electing wardens is summarised as follows:

Election or Appointment of Port Authorities

Authority	Number of Wardens	System of Election or Appointment of Wardens
Hobart Marine Board	9	Special electorate of ship-owners, importers and exporters
Port of Launceston Authority ..	5	Electors of Launceston, Beaconsfield and George Town as for municipal elections
Burnie Marine Board	8	} Municipal electors within proclaimed areas
Devonport Marine Board	11	
Circular Head Marine Board ..	5	
King Island Marine Board	5	
Flinders Island Marine Board ..	3	} Municipal electors Three government nominees and one elected by electors of Queenstown and Strahan
Strahan Marine Board	4	
Smithton Harbour Trust	5	Government nominees

Navigation and Survey Authority of Tasmania

The authority was constituted in 1963 to implement sections of the *Marine Act* 1921 relating to the safety of life and property at sea. Member marine boards contribute equally to the costs of running the Authority; the income is derived from survey and service fees.

Finances of Marine Boards and Harbour Trusts

The principal sources of revenue of the port authorities are shipping tonnage rates and import and export wharfage rates; other sources are charges for pilotage services and the hiring of equipment. Expenditure is summarised under the heading 'works and services' which includes the provision of ordinary port services (e.g. pilotage, tug assistance, etc.), the maintenance of the port (e.g. dredging, etc.) and the improvement of the port (e.g. new wharfs, new berths, etc.). To the degree that insufficient revenue is available to finance port improvements, the authorities borrow money subject to State Treasury approval, the Treasury acting on behalf of the Australian Loan Council and

implementing its annual agreement as to the approved level of new semi-government authority loans.

The following table shows the combined revenue and loan account transactions for each authority:

Marine Boards and Harbour Trusts
Receipts and Expenditure—All Funds, 1967-68
(\$'000)

Particulars	Authority—									Total
	Hobart	Launceston	Devonport	Burnie	Circular Head	King Island	Strahan	Flinders Island	Smithton	
Opening Balance ..	2,025	476	572	2,139	6	29	7	22	6	5,282
Receipts—										
Revenue Account—										
Wharfage Charges	925	681	639	716	17	37	34	15	..	3,064
Hire of Plant and Equipment ..	334	315	73	159	..	2	3	..	..	885
Rents ..	39	105	88	57	2	..	..	..	..	293
Other Charges for Services (a) ..	246	160	197	142	37	4	5	1	..	792
Government Subsidy ..	30	20	..	..	6	..	2	..	..	58
Other Receipts (b)	181	476	64	130	6	1	1	..	..	860
Total ..	1,756	1,756	1,061	1,204	68	44	46	17	1	5,953
Loan Account—										
Loan Raisings ..	350	450	700	850	238	10	..	..	..	2,598
Other Receipts ..	..	..	..	27	1	..	..	..	..	28
Total ..	350	450	700	877	239	10	..	..	..	2,626
Total Receipts	2,106	2,207	1,761	2,081	307	54	46	17	1	8,579
Expenditure—										
Revenue Account—										
Works and Services ..	698	919	330	279	12	6	23	3	1	2,272
Interest ..	134	173	269	549	18	5	1	..	..	1,149
Redemption and Sinking Fund ..	251	107	183	199	16	11	3	1	..	771
Administration ..	171	183	81	66	7	15	17	4	1	544
Other (c) ..	188	399	46	55	5	2	1	1	..	696
Total ..	1,442	1,781	909	1,147	57	39	46	10	2	5,433
Loan Account—										
Capital Works ..	350	551	424	824	243	3	..	..	..	2,395
Total Expenditure	1,792	2,332	1,334	1,971	301	43	46	10	2	7,829
Closing Balance ..	2,339	350	999	2,250	12	41	7	29	5	6,032

(a) Includes dues, tonnage rates, pilotage, mooring and slipway fees, weighbridge revenue and charges for light, power, telephone, water, storage and cleaning.

(b) Includes receipts from sales of assets, interest on investments, and the net receipts of deposit, stores and superannuation accounts.

(c) Includes expenditure on insurance, workers' compensation, superannuation contributions, payroll tax, rents and rates.

The next table summarises the transactions of all Marine Boards and Harbour Trusts:

Marine Boards and Harbour Trusts
Receipts and Expenditure—All Funds
(\$'000)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Opening Balance	5,485	4,538	4,241	4,857	5,282
Receipts—					
Revenue Account	5,046	5,060	5,542	5,628	5,953
Loan Account—					
Loan Raisings	2,631	2,842	2,055	2,310	2,598
Other Receipts	11	104	37	5	28
Total Receipts	7,688	8,006	7,633	7,942	8,579
Expenditure—					
Revenue Account—					
Works and Services ..	1,294	2,255	2,557	2,711	2,272
Interest	655	792	928	1,018	1,149
Redemption & Sinking Fund	590	509	576	627	771
Administration	400	408	465	460	544
Other	1,311	1,050	622	517	696
Total	4,250	5,014	5,148	5,333	5,433
Loan Account—					
Capital Works	4,364	3,290	1,846	2,184	2,395
Total Expenditure	8,614	8,304	6,994	7,518	7,829
Closing Balance	4,559	4,240	4,880	5,282	6,032

Loan Debt and Borrowing

The loan debt of the Marine Boards and Harbour Trusts has increased substantially in recent years. The following table shows the growth of this debt in total and gives individual details for the four principal authorities:

Marine Boards and Harbour Trusts
Loan Debt of Principal Authorities At End of Year
(\$'000)

Authority	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68
Hobart	2,768	2,866	2,700	2,527	2,559	2,658
Launceston	1,684	2,215	2,783	2,888	2,995	3,341
Devonport (a)	2,928	3,415	3,886	4,142	4,734	5,258
Burnie	5,050	5,984	7,473	8,766	9,740	10,443
Other	241	257	260	295	334	(b) 549
State Total	12,671	14,737	17,102	18,617	20,361	22,249

(a) Includes debt of Ulverstone Harbour Trust, the port having been taken over by Devonport Marine Board from 1 January 1963.

(b) Comprised Circular Head, \$437,000; King Island, \$91,000; Strahan, \$20,000; Flinders, \$1,000. Smithton Harbour Trust had no debt.

In 1968-69 new loan raisings by the Marine Boards were (in \$'000): Launceston Port Authority \$1,067; Burnie \$500; Devonport \$495; Hobart \$300; Strahan \$130; and Circular Head \$20.

The next table shows a summary of annual borrowings and analyses the aggregate debt according to creditor:

Marine Boards and Harbour Trusts
Loan Raisings, Loan Debt and Sinking Funds
(\$'000)

Year	Loan Raisings During Financial Year			Loan Debt at End of Financial Year			Total of Sinking Funds at End of Financial Year (a)
	From State Govt	From Other Sources	Total	To State Govt	To Other Creditors	Total	
1957-58	648	648	68	5,806	5,874	27
1958-59	1,125	1,125	22	6,723	6,745	..
1959-60	1,552	1,552	20	8,019	8,039	..
1960-61	1,560	1,560	18	9,280	9,298	..
1961-62	1,930	1,930	16	10,877	10,893	7
1962-63	2,167	2,167	..	12,671	12,671	24
1963-64	2,631	2,631	..	14,737	14,737	53
1964-65	2,842	2,842	..	17,102	17,102	85
1965-66	2,055	2,055	..	18,617	18,617	124
1966-67	2,310	2,310	..	20,361	20,361	182
1967-68	2,598	2,598	..	22,249	22,249	247

(a) Sinking funds maintained by boards and trusts for debt redemption purposes.

SHIPPING AT TASMANIAN PORTS

In 1966-67, a new system of recording shipping movements was introduced. The new data are not comparable with those for years prior to 1966-67. Accordingly this Section dealing with shipping statistics has been sectionalised to show data: (i) on the old basis up to 1965-66; and (ii) on the new basis for 1966-67 and subsequent years.

System of Record (Pre-1966-67)

Vessels using Tasmanian ports can be thought of as overseas, interstate or intra-state but their inward and outward movement, in the tables that follow, is classified according to *the type of voyage* and not according to the type of vessel. The following shows the manner in which voyages are described (both arrivals, 'entries', and departures, 'clearances'):

Type of Voyage

Overseas Vessels	Interstate Vessels	Intra-state Vessels
(i) Overseas Direct		
(ii) Overseas via Other State (a)		
(iii) Overseas via Ports in same State		
(iv) Interstate Direct (a)	(iv) Interstate Direct	
(v) Interstate via Ports in same State	(v) Interstate via Ports in same State	
(vi) Intra-state	(vi) Intra-state	(vi) Intra-state

(a) For definition of this term, see the table that follows.

To show the total entries and clearances for any individual port, it is necessary to add all categories from (i) to (vi) inclusive for each type of vessel. However, to show the total entries and clearances for a State, and for the result to reflect the volume of the State's shipping relations with other States and overseas countries, it is necessary to add only categories (i), (ii) and (iv) for

overseas and interstate vessels. Finally, to show the entries and clearances affecting Australia's shipping relations with other countries, only category (i) should be taken into account.

In the tables that follow, the term 'Overseas and Interstate' is used to indicate that the movements described are restricted to categories (i), (ii) and (iv) for overseas and interstate vessels. The classifications are applied in such a way that, in terms of categories (i), (ii) and (iv), ships are included as arrivals at the *first* Tasmanian port of call only, and departures only at the *last* port of call in Tasmania, i.e. the coastal movement of shipping is excluded.

Categories Illustrated

The term 'interstate direct' is applied to the movements of overseas vessels in certain circumstances and the next table illustrates the system of classification, a hypothetical vessel being engaged on a London-Sydney-London voyage:

Itinerary of an Overseas Vessel on the Australian Coast

Particulars of London-Sydney-London Voyage	Recorded as—		
	For State and for Australia (a)	For the States (a)	
Vessel with Sydney as final port of call—	Overseas direct (V)	Interstate direct (V)	Overseas via other States (T)
Enters Melbourne from U.K.			
Clears Melbourne for Hobart		Interstate direct (T)	Overseas via other States (N.S.W.)
Enters Hobart from Melbourne			
Clears Hobart for Sydney			
Enters Sydney from Hobart	Overseas direct (V)	Interstate direct (T)	Overseas via other States (N.S.W.)
Same vessel returning to U.K.—			
Clears Sydney for Hobart		Interstate direct (V)	Overseas via other States (T)
Enters Hobart from Sydney			
Clears Hobart for Melbourne			
Enters Melbourne from Hobart	Overseas direct (V)	Interstate direct (V)	Overseas via other States (T)
Clears Melbourne for U.K.			

(a) Letters in brackets indicate the State recording the entry or clearance.

In the case of an interstate ship making a round voyage, Melbourne-Hobart-Launceston-Devonport-Melbourne, only the entrance into Hobart and the departure from Devonport would be classified in Tasmanian records as 'Interstate Direct', the remaining movements being classified as 'Interstate via Ports in same State'.

Tonnage of Vessels

The size of a vessel may be expressed as: (i) gross tonnage, i.e. the total volume of enclosed space converted at one ton per 100 cubic feet; (ii) net tonnage, i.e. the enclosed volume of cargo or passenger space similarly converted at 100 cubic feet per ton; (iii) deadweight tonnage, i.e. the weight the

vessel can carry, including bunkers and stores, expressed in tons of 2,240 lb (or, more technically, the difference from the displacement light to the displacement when loaded to the summer deadline). *Net tonnage* is the concept generally used in the tables in this section, but since it can give a misleading impression of the size of ships which have a function other than carrying passengers and cargo (e.g. a tug has no net tonnage), some figures are given for deadweight tons and tons gross also.

Overseas and Interstate Shipping (Pre-1966-67)

The following table shows the total annual number of vessels entering Tasmanian ports, and their net tonnage. The figures are restricted to entries classified as 'overseas and interstate' and exclude coastal movements.

Shipping—Overseas and Interstate (a)
Total Vessels Entering Tasmanian Ports

Year	Vessels Entered		Year	Vessels Entered	
	Number	Net Tons		Number	Net Tons
1954-55 ..	1,081	1,619,692	1960-61 ..	1,354	2,546,476
1955-56 ..	1,030	1,585,547	1961-62 ..	1,533	3,042,052
1956-57 ..	1,161	1,737,334	1962-63 ..	1,614	3,473,984
1957-58 ..	1,241	1,872,012	1963-64 ..	1,508	3,346,157
1958-59 ..	1,257	1,966,301	1964-65 ..	1,472	3,411,793
1959-60 ..	1,308	2,287,182	1965-66 ..	1,645	3,886,522

(a) For definition, see 'System of Record' at the beginning of this section.

In the introduction, 'System of Record', it was indicated that overseas and interstate shipping included three categories of voyages, namely overseas direct, overseas via other Australian States and interstate direct. The next table shows entries and clearances in terms of these three categories. Examination of the figures shows that very few vessels from overseas make Tasmania their first Australian State to visit.

Shipping—Overseas and Interstate
Total Vessels Entering and Clearing Tasmanian Ports

Classification of Entry	1961-62	1962-63	1963-64	1964-65	1965-66
ENTERED—NUMBER					
Overseas Direct	72	83	81	83	123
Overseas via Other Australian States	238	331	296	238	264
Interstate Direct (a)	1,223	1,200	1,131	1,151	1,258
Total	1,533	1,614	1,508	1,472	1,645
ENTERED—NET TONS ('000)					
Overseas Direct	268	288	275	281	331
Overseas via Other Australian States	1,099	1,447	1,352	994	1,092
Interstate Direct (a)	1,675	1,739	1,719	2,137	2,464
Total	3,042	3,474	3,346	3,412	3,887

Shipping—Overseas and Interstate
Total Vessels Entering and Clearing Tasmanian Ports—continued

Classification of Entry	1961-62	1962-63	1963-64	1964-65	1965-66
CLEARED—NUMBER					
Overseas Direct	28	49	44	58	101
Overseas via Other Australian States	247	314	295	271	311
Interstate Direct (a)	1,278	1,260	1,148	1,174	1,263
Total	1,553	1,623	1,487	1,503	1,675
CLEARED—NET TONS ('000)					
Overseas Direct	135	199	189	237	296
Overseas via Other Australian States	1,101	1,341	1,294	1,066	1,252
Interstate Direct (a)	1,781	1,906	1,782	2,169	2,570
Total	3,017	3,446	3,265	3,472	4,118

(a) Includes both overseas and interstate vessels proceeding 'interstate direct'.

The next table has been compiled to show the dissection of the previous arrivals according to individual Tasmanian ports. The figures for the ports do not include all arrivals but only such as are included in the categories appropriate to 'overseas and interstate'.

Shipping—Overseas and Interstate
Vessels Entering Each Tasmanian Port

Port (a)	1961-62		1962-63		1963-64		1964-65		1965-66	
	No.	Net Tons ('000)	No.	Net Tons ('000)	No.	Net Tons ('000)	No.	Net Tons ('000)	No.	Net Tons ('000)
Hobart	494	1,331	475	1,215	454	1,172	438	1,122	460	1,259
Launceston	307	583	368	786	307	762	321	869	350	1,060
Burnie	206	484	244	759	282	749	266	746	362	822
Currie	101	18	103	26	66	10	67	10	100	21
Devonport	330	572	327	631	316	598	312	613	322	686
Smithton	8	1	6	1	7	1	..	..	..	..
Stanley	13	9	22	12	19	11	23	17	15	11
Strahan	54	42	55	42	56	43	45	34	36	28
Ulverstone (b)	19	2	13	2	..	..	..	..	..	..
Lady Barron	1	..	1	..	1	..	..	..	..	..
Total	1,533	3,042	1,614	3,474	1,508	3,346	1,472	3,412	1,645	3,887

(a) The names of the ports refer to the towns in which the controlling Marine Boards and Harbour Trusts were located.

(b) As from January 1963, the port of Ulverstone came under control of Devonport Marine Board but its shipping was recorded separately for 1962-63.

The shipping movements shown in the previous table do not represent the total shipping entering each port; to obtain this total it is necessary to add in

the movement of vessels engaged in coastal and in purely intra-state voyages. The following table, compiled on this expanded basis, shows total shipping entering each Tasmanian port for a five-year period:

**Shipping—Overseas, Interstate and Intra-State
Vessels Entering Each Tasmanian Port**

Port (a)	1961-62		1962-63		1963-64		1964-65		1965-66	
	No.	Net Tons ('000)	No.	Net Tons ('000)	No.	Net Tons ('000)	No.	Net Tons ('000)	No.	Net Tons ('000)
Hobart	577	1,520	591	1,382	546	1,362	535	1,325	547	1,449
Launceston ..	604	796	580	987	512	904	532	1,009	548	1,194
Burnie	365	686	393	980	402	929	402	1,054	491	1,294
Currie	214	25	185	32	134	21	138	24	149	31
Devonport ..	428	668	403	720	401	688	407	701	388	768
Smithton ..	10	1	10	1	14	1	..	..	..	..
Stanley	94	50	106	44	81	36	46	27	26	18
Strahan	57	43	60	46	62	48	57	43	47	36
Ulverstone (b) ..	61	6	57	5	..	..	..	..	..	..
Lady Barron ..	123	8	150	13	146	15	118	11	145	15

(a) Location of controlling Marine Board or Harbour Trust.

(b) As from January 1963, the port of Ulverstone came under control of Devonport Marine Board but its shipping was recorded separately for 1962-63.

Cargo Shipped and Discharged (Pre-1966-67)

Most of the cargo handled in the ports is recorded in terms of tons of 2,240 lb. However, some additional cargo, mainly bulky commodities, is shipped and recorded on the basis of each 40 cubic feet of space used representing one ton measurement. As totals derived from conversion to a common weight, or alternatively, to a common volume, would not be accurate, entries in each of the two units are recorded and published separately.

The following table gives a summary of cargo discharged and shipped in overseas and interstate trade:

**Cargo Shipped and Discharged
All Tasmanian Ports—Overseas and Interstate Shipping**

Year	Discharged				Shipped			
	Overseas		Interstate		Overseas		Interstate	
	Tons Weight ('000)	Tons Measurement ('000)	Tons Weight ('000)	Tons Measurement ('000)	Tons Weight ('000)	Tons Measurement ('000)	Tons Weight ('000)	Tons Measurement ('000)
1960-61 ..	367	26	769	501	105	138	383	569
1961-62 ..	252	29	721	511	163	180	401	466
1962-63 ..	301	46	1,015	439	204	141	583	468
1963-64 ..	326	43	1,033	449	154	253	630	384
1964-65 ..	389	72	1,015	597	195	198	662	518
1965-66 ..	336	35	1,097	709	203	216	637	530

In the next table, details are shown of the cargo handled at the individual ports. The classification 'overseas' and 'interstate' relates either to the origin or destination of the cargo.

Cargo Shipped and Discharged
Individual Tasmanian Ports—Overseas and Interstate Shipping, 1965-66

Port	Overseas		Interstate		Total	
	Tons Weight ('000)	Tons Measurement ('000)	Tons Weight ('000)	Tons Measurement ('000)	Tons Weight ('000)	Tons Measurement ('000)
DISCHARGED						
Hobart	148	24	243	228	391	252
Launceston ..	128	9	384	150	512	159
Burnie	55	1	325	18	380	19
Currie .. ..	..	..	21	..	21	..
Devonport ..	4	..	105	313	109	313
Smithton .. ..	..	..	..	..	..	..
Stanley .. ..	..	..	5	..	5	..
Strahan .. ..	..	..	14	..	14	..
Total	336	35	1,097	709	1,432	743
SHIPPED						
Hobart	122	163	181	115	303	278
Launceston ..	37	14	129	90	166	104
Burnie	39	21	184	47	223	68
Currie .. ..	..	..	10	..	10	..
Devonport ..	4	18	69	278	73	296
Smithton .. ..	..	..	..	..	..	..
Stanley .. ..	..	..	10	..	10	..
Strahan .. ..	..	..	55	..	55	..
Total	203	216	637	530	840	746

Vessels on Tasmanian Registers

The *Merchant Shipping Act* (Federal) under which vessels are registered in Australia, does not make it compulsory to register vessels under 15 tons burden if engaged in river or coastal trade.

The following table shows the number and tonnage of Tasmanian vessels on register:

Total Vessels on Registers—Tasmania

Year Ended 31 December	Steam		Motor (including Auxiliary)		Sailing		Dredges and Hulks, etc., Not Self-Propelled		Total	
	No.	Net Tons	No.	Net Tons	No.	Net Tons	No.	Net Tons	No.	Net Tons
1961	23	2,122	135	14,004	42	693	3	690	203	17,509
1962	23	2,122	138	14,037	42	693	3	690	206	17,542
1963	23	2,122	143	14,329	42	693	3	690	211	17,834
1964	23	2,122	152	16,682	42	510	3	690	220	20,004
1965	21	2,060	154	16,724	41	507	3	690	219	19,981
1966	21	2,060	159	16,838	41	507	3	690	224	20,095

Registration of Shipping

Country of Registration (Pre-1966-67)

The following table shows the country of registration of the vessels entering all Tasmanian ports:

Country of Registration of Shipping
Vessels Entering All Tasmanian Ports—Overseas and Interstate

Vessels Registered At Ports In—	1961-62		1962-63		1963-64		1964-65		1965-66	
	No.	Net Tons (‘000)	No.	Net Tons (‘000)	No.	Net Tons (‘000)	No.	Net Tons (‘000)	No.	Net Tons (‘000)
Australia	1,122	1,177	1,097	1,235	1,051	1,287	1,039	1,632	1,191	2,157
Belgium-Lux. ..	..	..	..	..	..	..	1	5	..	..
Denmark	18	75	23	113	12	41	9	31	7	16
France	1	4	1	4	2	7	..	..	..	..
Germany, West ..	24	78	33	97	16	58	22	84	16	59
Greece	1	3	2	10	5	28	3	10	7	46
Hong Kong	8	30	9	39	4	18	8	29	1	4
India	4	17	6	19	3	11	6	19	4	15
Italy	4	24	2	15	3	39	1	6	1	4
Japan	4	18	12	16	13	14	8	22	52	76
Liberia	1	8	11	68	2	13	8	52	5	20
Malaysia	4	12	3	10	2	5	3	7	1	3
Netherlands ..	34	106	47	120	51	147	57	142	58	145
New Zealand ..	18	26	22	36	29	56	25	46	24	39
Norway	44	198	54	255	34	170	36	169	32	129
Panama	11	70	4	22	3	21	2	9	9	26
Philippines ..	..	..	1	5	1	5	1	5	..	..
Poland .. ..	..	..	..	..	..	..	..	..	1	4
Sweden	35	128	42	166	35	141	30	118	39	143
United Kingdom	187	1,005	221	1,168	231	1,227	197	953	183	937
U.S.A.	10	49	22	71	10	52	11	53	11	53
U.S.S.R. .. ..	..	..	..	..	..	..	2	5	..	..
Other Countries..	3	14	2	5	1	6	3	15	3	11
Total	1,533	3,042	1,614	3,474	1,508	3,346	1,472	3,412	1,645	3,887

Shipping at Tasmanian Ports (Post 1966-67)

New Definitions (1966-67)

From 1966-67 a new series of shipping statistics was commenced to which the following definitions apply: (i) vessels of 200 tons and under are excluded; (ii) a vessel is recorded as entering or leaving each port visited between arrival in and departure from a State (in the old series, only the *first* port of entry into a State and the *last* port of departure from the same State were taken into account). No meaningful total can now be obtained for a State *by adding port totals*, the total of its ports' entries or its ports' clearances being subject to double, triple, etc. counting because the same vessel may have called at a number of ports within the one State. However, the total number and net tonnage of vessels visiting Tasmania can be calculated without duplication by adding the following classifications: (i) overseas direct; (ii) overseas via other State; (iii) interstate direct. The new series also provides a record of the volume of shipping passing through individual ports.

Vessels Entering Tasmanian Ports

The next table has been compiled in accordance with the new definitions previously stated and shows the number and tonnage of vessels entering Tasmanian ports in 1966-67:

Vessels Entered Tasmanian Ports (a), 1966-67

Port of Entry and Type of Service (b)	Vessels Entered					
	In Cargo		In Ballast		Total	
	No.	Net Tons	No.	Net Tons	No.	Net Tons
Hobart—						
Overseas direct	46	181,763	7	31,844	53	213,607
Overseas via other States ..	55	242,013	..	..	55	242,013
Overseas via port in same State	11	64,123	..	..	11	64,123
Interstate direct	345	879,535	47	64,158	392	943,693
Interstate via port in same State	4	25,274	..	..	4	25,274
Intrastate	41	81,682	3	1,972	44	83,654
Total Hobart	502	1,474,390	57	97,974	559	1,572,364
Burnie—						
Overseas direct	11	27,433	2	10,674	13	38,107
Overseas via other State ..	59	265,287	..	..	59	265,287
Overseas via port in same State	10	33,133	..	..	10	33,133
Interstate direct	336	560,880	8	9,020	344	569,900
Interstate via port in same State	71	401,284	..	..	71	401,284
Intrastate	16	50,875	23	30,067	39	80,942
Total Burnie	503	1,338,892	33	49,761	536	1,388,653
Devonport—						
Overseas direct	2	1,912	1	4,418	3	6,330
Overseas via other State ..	10	43,677	..	..	10	43,677
Overseas via port in same State	2	3,895	..	..	2	3,895
Interstate direct	311	537,601	5	7,056	316	544,657
Interstate via port in same State	13	71,927	..	..	13	71,927
Intrastate	17	44,406	1	785	18	45,191
Total Devonport	355	703,418	7	12,259	362	715,677
Launceston—						
Overseas direct	16	54,589	2	8,352	18	62,941
Overseas via other State ..	41	169,961	..	..	41	169,961
Overseas via port in same State	13	46,873	..	..	13	46,873
Interstate direct	299	912,852	5	14,534	304	927,386
Interstate via port in same State	28	52,209	..	..	28	52,209
Intrastate	25	107,730	1	584	26	108,314
Total Launceston	422	1,344,214	8	23,470	430	1,367,684
Stanley—						
Interstate direct	15	11,775	..	..	15	11,775
Intrastate	9	6,543	1	785	10	7,328
Total Stanley	24	18,318	1	785	25	19,103
Strahan—						
Interstate direct	26	20,244	40	30,884	66	51,128
Intrastate	2	1,308	3	2,324	5	3,632
Total Strahan	28	21,552	43	33,208	71	54,760

(a) See 'New Definitions (1966-67)' for method of compilation.

(b) Type of service ('Overseas via other States', etc.) is defined under 'System of Record' at the beginning of this Section.

Entries by First Port of Call

In 1966-67, the number and net tonnage of vessels entering Tasmanian ports, classified by type of service, were: *overseas direct*, 87 (321,000 tons); *overseas via other States*, 165 (721,000 tons); *interstate direct*, 1,437 (3,048,000 tons); *total*, 1,689 (4,090,000 tons). This *unduplicated* total represents the volume of shipping making voyages to the State in 1966-67.

State or Country of Registration (From 1966-67)

The following table has been compiled to show the Australian State, or the country of registration, of the shipping entering and leaving Tasmanian ports. The number and tonnage of entries and departures has been arrived at in the manner described under 'New Definitions (1966-67)' and therefore are subject to some duplication.

**Australian State or Country of Registration of Shipping at
Tasmanian Ports 1966-67**

Australian State or Country of Registration	Vessels Entered		Vessels Departed	
	No.	Net Tons	No.	Net Tons
Australia—				
New South Wales	44	211,017	44	211,017
Victoria	771	1,332,339	770	1,332,039
Queensland	26	56,073	26	56,073
South Australia	9	39,808	9	39,808
Western Australia	4	23,564	4	23,564
Tasmania	602	1,329,276	605	1,332,558
Foreign—				
Denmark	14	28,795	14	28,795
France	2	540	2	540
Germany, West	13	51,058	13	51,058
Greece	8	48,013	8	48,013
Hong Kong	6	21,433	6	21,433
India	21	78,324	21	78,324
Italy	1	15,764	1	15,764
Japan	36	135,499	35	131,081
Liberia	5	17,350	5	17,350
Mexico	4	21,752	4	21,752
Netherlands	71	180,015	70	175,981
New Zealand	39	67,086	38	65,158
Norway	32	160,734	31	157,242
Poland	4	13,730	4	13,730
Sweden	39	158,494	38	155,100
United Kingdom	215	1,043,820	215	1,046,246
United States of America ..	17	83,757	17	83,757

TRANSPORT COMMISSION**Origin of Commission**

The State railways were operating at a considerable loss in the period following World War I and this difficulty was accentuated by the increasing use of commercial road transport. The 1938 report of the Commonwealth Grants Commission contained the following comment: 'A large State may conceivably stand the cost of duplicated transport, but it is obvious that Tasmania cannot. We believe that the Tasmanian Government appreciates this position and it can only be met by initiative and decision'. At the time of

this report, railways were controlled by a Minister, motor vehicle registration and licensing of drivers were Police Department functions and public vehicle licensing was administered by a Transport Committee drawn from several departments.

Following an enquiry, Parliament passed the *Transport Act* 1938 establishing a new authority headed by a Commissioner and two Associate Commissioners, the associates now being the General Manager of the Railways and the Administrator of Road Transport. This Act and subsequent amending legislation had the effect of creating an administrative authority unique in Australia because the management and control of all public transport, with minor exceptions, became the responsibility of one central authority (government omnibus services in Hobart, Launceston and Burnie and the privately-owned Emu Bay Railway are the exceptions).

Functions of the Commission

The functions of the Commission are as follows:

- (i) the control and management of the Government railways;
- (ii) the regulation and licensing of commercial road transport (i.e. of 'public vehicles');
- (iii) the registration and taxation of motor vehicles and the licensing of drivers;
- (iv) the control and operation of the Bruny Island ferry service and the Flinders Island Shipping service;
- (v) the administration of regulations under the *Traffic Act* concerning road traffic control;
- (vi) the administration and control of State aerodromes;
- (vii) traffic engineering associated with the control of traffic;
- (viii) control and operation of an engineering plant ('tool annexe').

In brief, the Transport Commission emerges as a *businesses undertaking*, an *administrative body* and a *taxing authority*.

Loss of Function

Control and operation of a passenger bus service was removed from the Commission in December 1968 following a Parliamentary inquiry into the service after a series of trading losses.

Control of Commission

The Commission, by Section 6 (2) of the Act, is absolutely free from political control except that the Minister for Transport may, under Section 33, appeal to the Governor if dissatisfied with decisions of the Commission. Section 34 allows the Governor, as a form of assistance to industry in certain cases, to direct the Commission to reduce freight charges but, to the extent that such direction causes a revenue loss, the Treasurer is obliged to re-imburse the Commission; the formula for re-imbursement requires either acceptance of the Commission's original charges as the economic cost of the service or substitution of the Auditor General's calculation of the economic cost, should the level of the Commission's original charges be a matter of dispute.

Commission's Financial Operations

The revenue of the Commission comes from three main sources:

- (1) own business undertakings—railways, shipping services and an engineering plant ('tool annexe');
- (2) taxation and licensing receipts—motor vehicle taxation and registration, drivers' licence fees and fees related to public vehicles control;
- (3) grants from Consolidated Revenue, including proceeds of State land tax.

The financial transactions of the Commission are summarised in the tables that follow. For simplicity of presentation, the transactions are arranged in two sets of accounts, firstly Trading and Profit and Loss, secondly Taxation, Licensing, etc. It should be noted that the net loss in the trading and profit and loss account for any year becomes a charge on Consolidated Revenue in the following year; also, that the proceeds from motor taxation, registration, licensing, etc. are passed to Consolidated Revenue, the Commission being re-imbursed the costs of collecting such revenues and the costs and expenses incurred in connection with the control of, and the provision of facilities for, motor traffic. A distinction is drawn, however, between public vehicle fees and public vehicle licensing; the latter charges are taken into the profit and loss account as an offset against net trading loss.

The amounts paid into Consolidated Revenue by the Commission are transferred by the Treasurer into the State Highway Trust Fund, thereby providing that taxes and charges levied on motorists and commercial road transport shall be devoted to road construction and road maintenance.

Transport Commission—Trading and Profit and Loss Account (£'000)

Particulars	1965-66	1966-67	1967-68
REVENUE			
Railways	6,175	r 6,901	6,852
Road Transport Services	416	424	398
Marine Services	167	174	186
Tool Annexe	252	265	259
Land Tax	2,029	2,108	2,271
Public Vehicle Licensing (by Transfer)	76	78	79
Other Revenue	77	89	111
Net Loss (a)	751	882	1,224
Total	9,943	r 10,921	11,379
EXPENDITURE (b)			
Railways	7,752	r 8,611	8,980
Road Transport Services	415	410	400
Marine Services	183	222	229
Tool Annexe	228	239	241
General, including Administration	299	315	341
Interest	1,067	1,125	1,188
Total	9,943	r 10,921	11,379

(a) To be charged against Consolidated Revenue in following year.

(b) Provisions for depreciation included in each item (excluding interest).

The remaining transactions can be summarised as follows (road safety accounts are excluded):

Transport Commission—Motor Taxation Collection, Licensing, etc.
(*\$'000*)

Particulars	1965-66	1966-67	1967-68
REVENUE			
Motor Tax	2,991	3,563	4,037
Public Vehicle Licensing, Fees, etc.	359	391	403
Registrations, Licences, etc.	910	1,048	1,080
Refunds of Motor Tax Fees	— 26	— 35	— 33
Stamp Duty on Vehicle Registrations .. .. .	..	..	217
Transfers from Consolidated Revenue—			
Road Transport Administration .. .. .	..	..	430
Traffic Engineering Section .. .. .	..	..	249
Total	4,233	4,967	6,382
EXPENDITURE			
Profit and Loss Account (Transfer) (a)	76	78	79
Paid to Consolidated Revenue (b)	r 3,422	r 4,068	5,660
Administration, Traffic Control, etc.	r 727	r 814	661
Total	r 14,225	r 4,960	6,401

(a) Receipts from public vehicle licensing paid into profit and loss account.

(b) Motor Tax and Public Vehicle Fees transferred from Consolidated Revenue to State Highways Trust Fund.

Annual Loss

In the profit and loss account, State land tax is taken as a revenue item, thus reducing the net loss. In effect, the Commission receives annually two grants from the State, firstly all collections of land tax and secondly, reimbursement of the previous year's net loss. The actual burden on Consolidated Revenue, over the last three years on this basis, has been: 1965-66, \$3,156,084; 1966-67, \$2,859,494; 1967-68, \$3,153,083. The accounts reveal that the loss occurs principally in respect of railways but the case for continued subsidisation is argued on a number of grounds:

- (1) abandonment of all railway operations would still leave the State with liability for annual debt charges exceeding \$1,000,000;
- (2) heavy bulk freights now carried by rail would rapidly break up present road surfaces if they were transferred to road haulage; considerable sums would have to be spent in increased roads maintenance or road improvements;
- (3) for certain types of freight, rail transport is still considered more economical than road haulage; closing the railways might add appreciably to the costs of many primary and secondary producers.

The previous table shows the Commission's road transport services operating with an excess of revenue over expenditure but it should be noted that the item 'interest' is not allocated to the various functions. With interest taken into account, road transport services experienced a loss of \$23,044 in 1965-66 and \$10,961 in 1966-67. Parliamentary approval for continuance of these services could not be obtained and they ceased operating in December 1968.

Public Vehicle Licensing

The following types of licence are issued by the Commission to operators of public vehicles:

- Aircraft:* for aircraft used as public vehicles on intra-state journeys.
- Coach:* for vehicles used for the carriage of passengers and goods between places along a specified route.
- Omnibus:* for vehicles seating more than eight passengers and operating within a specified area.
- Cab:* for vehicles seating eight or less passengers and operating within a specified area (i.e. plying or standing for hire).
- Hire-Car:* for vehicles seating eight or less passengers and operating between any places in the State; also for the same vehicles standing or plying for hire within a specified area.
- Carrier:* for vehicles engaged in carriage of goods between places on a specified route.
- Cart:* for vehicles engaged in the carriage of goods within a specified area. (Despite the word 'cart', the licence applies to motor driven vehicles.)
- Ancillary:* for vehicles engaged in the carriage of goods in the course of the trade or business of the owner (excluding farmers, general 'carters' and 'carriers'). Such licences apply to operation within a specified area.

Licences are issued for three-year periods for all public vehicles except those classed as ancillary or hire-car, in which case annual renewal is required. The decision of the Commission to grant or refuse a licence, or to impose conditions or restrictions on a licence, is subject to appeal to the Public Vehicle Licensing Appeal Tribunal. The factors considered by the Commission in issuing a licence include:

(1) suitability of the routes over which the applicant proposes to provide the service; (2) the extent to which the needs of the proposed routes, traffic areas, or districts, are already adequately served; (3) the extent to which the proposed service is necessary or desirable in the public interest; (4) the traffic needs of the district or traffic area, including provision of adequate and efficient services, the elimination of unnecessary and unremunerative services, and the co-ordination of all forms of transport with rail; (5) the condition of the roads over which the proposed service is to be provided; (6) the fitness of the applicant to hold the licence.

Public Vehicle Control

For the purposes of transport control, Tasmania is divided into eight traffic areas so designed that competitive operations of vehicles licensed for one area only are confined to short hauls. From the earlier section on licensing, the following classification emerges:

- (1) licensed for one traffic area only: cabs, omnibuses, 'carts' and ancillary vehicles;
- (2) licensed for specified routes: coaches and carriers;
- (3) licensed for whole State: hire-cars.

Vehicles licensed for a specific traffic area cannot be used outside it without first obtaining a permit for which out-of-area fees are payable as determined by the Commission. The *Traffic Act* provides for maximum permit fees, in relation to goods vehicles, of 0.4c per cwt of unladen weight for each mile

over which the goods are carried. However, the maximum charge determined by the Commission is 0.3333c per cwt. Thus, for a vehicle of an unladen weight of three tons engaged on an out-of-area journey of 120 miles, the permit fee would be \$24 (i.e. $0.3333c \times 60 \times 120$). If goods are carried on the return journey, a further permit fee is payable. In the example quoted, the permit fee at 20 cents per mile virtually doubles the cost of operating the vehicle; it is sufficiently high to prevent most licence holders from travelling outside their area in competition with the railways or with licensed carrier services.

Rebates

In actual fact, it is not always necessary for operators to pay full permit fees as described in the previous paragraph since percentage rebates on full fees may be claimed. Such rebates have relation to the suitability of the goods for transport by rail or licensed carrier and are greatest for certain perishable goods; in general, the shorter the journey, the greater the rebate percentage.

Nominal Fees

The policy of the Commission is to avoid unnecessary duplication of transport, and full fees are charged if the goods in question can be handled as conveniently and efficiently by rail or by an existing licensed carrier service. The Commission grants permits at nominal fees of \$1.00 per trip up to 50 miles and \$2.00 per trip over 50 miles if it is satisfied that road transport is more suitable for any of the following reasons: (1) the dimensions of the load are outside railway clearance; (2) the perishable nature of the goods makes them unsuitable for rail transport; (3) time element; (4) shortage of rail waggons; (5) unreasonably high cost of rail transport compared with road transport, because of extra handling or other reasons; (6) special circumstances.

It is estimated that less than a third of out-of-area trips are at full fees, the balance being for nominal fees or at rebates from 30 to 80 per cent of the full fee.

Ancillary Vehicles

In particular circumstances and where small vehicles frequently travel beyond their licensed areas, an annual fee is charged, the fee being determined in accordance with the degree of competition with rail and licensed carrier services. In all other cases, vehicles licensed as an 'ancillary' are required to obtain out-of-area permits for each loaded journey undertaken beyond the limits of the licensed area.

Passenger Vehicles

Commercial passenger vehicles operating out-of-area may be competing with existing rail or licensed coach services, in which case they can be charged fees at a maximum of 0.5c per passenger seat per mile. If no such competition exists, out-of-area fees are charged at \$0.50 for each 25 miles; in the case of round trips, the mileage is halved in applying the charge formula.

Percentage Fees—Coaches and Carriers

Coaches and carriers receiving licences to operate over routes which extend beyond one traffic area are required to pay a fixed annual fee, or a percentage tax on annual revenue, the extent of the tax being proportional to the assessed competition with rail services.

Transport Commission Road Transport Services

In 1967-68, the Commission's passenger bus services operated over 564 route miles, not only linking the principal towns but also providing inter-urban and special services for workers. The Commission's coaches ran nearly one million vehicle-miles in 1967-68.

In June 1968, Parliament took note of losses incurred by the Commission's road services and amended the *Transport Act*, requiring the Commission to cease operating its road services. The Commission's road services were closed down in December 1968.

Transport Commission Shipping Services

The Transport Commission exercises control over: (i) the Bruny Island ferry; (ii) shipping services between Flinders Island, Hobart, Launceston and Victorian ports.

During 1967-68 a Government appointed committee recommended the replacement of the *Sumatra* with a larger, more economic vessel. The newly constructed *Joseph Banks* was purchased and commenced operation during the year.

The new ship is better able to handle livestock and has a carrying capacity of either approximately 5,000 sheep or 800 head of cattle.

In addition to the regular shipping schedule between Hobart and Flinders Island the vessel is available for interstate operations between Tasmania and Victorian ports.

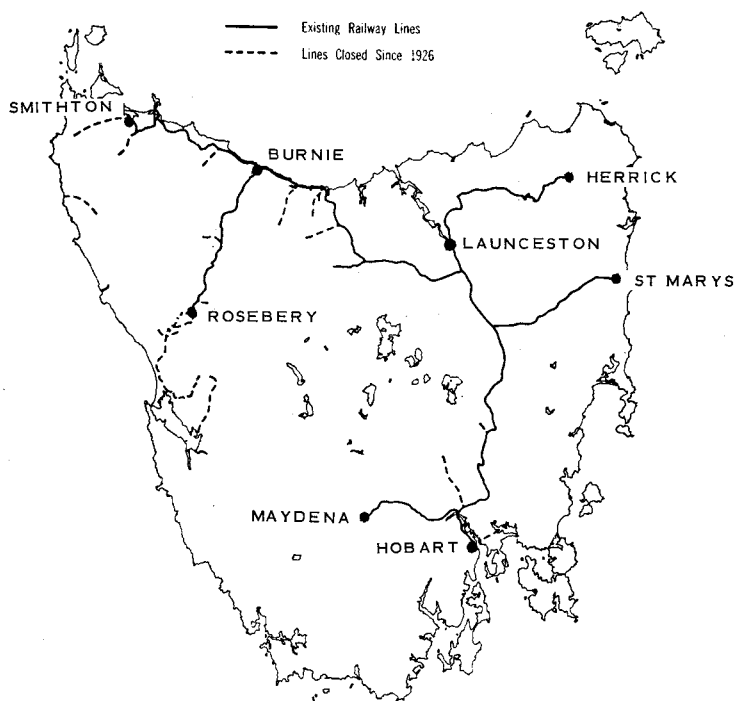
RAILWAYS

Introduction

Tasmania has a three foot six inch gauge Government railway system based on a route mileage of a little under 500 miles. The capital liability of the system at 30 June 1968 was \$21,607,000 but this understates the position since the debt, in 1936-37, was written down by \$9,476,000; the annual debt charges associated with this latter amount were made a charge on Consolidated Revenue. The last year in which earnings exceeded working expenses was 1933-34 and this did not indicate profitable running since interest charges exceeded the small operational surplus. Prior to 1967-68 the peak year of operational loss was 1956-57 when working expenses, *excluding* interest and depreciation, exceeded earnings by \$1,365,000. In 1967-68, the operational loss increased to \$1,479,000 but interest and depreciation provisions together imposed an additional burden of \$1,717,000.

The Tasmanian experience of a government railway system heavily dependent on State grants for its continued existence is by no means unique in Australia today. In 1967-68, all State systems received government grants to offset their operating losses or to enable them to meet depreciation, interest and sinking fund obligations; in terms of accepted accounting, the State systems have generally not been a source of profit for many years.

The railway system in Tasmania is frequently criticised for its failure to 'pay its way'. It can be established, however, that railway development, before the days of mechanised road transport, was an essential pioneering activity; without such development, the State would not have had a railway debt but neither would it have had many of its present farms and factories or even its present level of population.



Railway Systems in 1926 and 1967

Historical

The first railway in Tasmania was opened for traffic in 1871 (construction having begun three years earlier on a 45-mile line from Deloraine to Launceston). It is significant that only one-ninth of the original capital was subscribed by the shareholders of the Launceston and Western Railway Company, the remainder, \$800,000, having been raised by the Government. The line was laid in broad gauge (five foot three inch) without regard for the fact that narrower gauge might be needed in the more mountainous parts of the island. Within a year of opening, the company was in financial difficulties and the line was taken over by the Government. At the date of starting construction, the island's population had not passed 100,000.

The second line was a more ambitious undertaking—123 miles of three foot six inch track from Hobart to Western Junction, linking there with the five foot three inch line—and involved considerable problems of contour survey because of the high plateau lying across the route. The Tasmanian Main Line Railway Company opened the line for traffic in 1876. The problem of differing gauges on the two systems was overcome by laying a third rail on the ten miles of the five foot three inch track from Western Junction to Launceston, the Main Line Company having running rights over this stretch. In 1890, the Government purchased the line for \$2,213,000.

The next line to open for traffic (1884) was owned by the Emu Bay and Mount Bischoff Railway Company which converted an existing horse-tramway to three foot six inch gauge; the 48 mile line connected Waratah to the port of Burnie, the primary objective being to ship out freight from the rich Mount Bischoff tin mines.

By 1890, the essential framework of the present railway system on three foot six inch gauge had been laid, and future growth involved track extensions mainly in directions already determined in the first twenty years of rapid construction. The following table shows the pattern of development in 1890 and compares it with that of the present system. Under 'route' is shown firstly the terminals of individual tracks in 1890 and secondly, the present extent of the same tracks. Only construction dates before 1890 have been quoted since later extension of track was carried out in several stages.

**Government and Private Railways
Route Mileage of Lines Open—1890 and 1968**

Route	Area Served	Year Open For Traffic	Mileage of Lines Open	
			1 Jan. 1890	30 June 1968
Launceston to Devonport ..	North West	1885	(a) 82	..
Launceston to Smithton ..	„ „	..	..	(a) 179
Hobart to Western Junction ..	North-South link	1876	(b) 123	(a) 123
Burnie to Waratah	West Coast	1884	(b) 48	..
Burnie to Rosebery .. ..	„ „	..	..	(b) 71
Conara to St Marys	Fingal Valley	1886	(a) 46	(a) 46
Bridgewater to Glenora ..	Derwent Valley	1888	(a) 24	..
Bridgewater to Maydena ..	„ „	..	..	(a) 44
Launceston to Scottsdale ..	North East	1889	(a) 47	..
Launceston to Herrick ..	„ „	..	..	(a) 85
Other Branches .. ..	..	..	(a) 4	(a) 23
Total Route Miles Open	..	..	374	571
Government .. ..	..	..	203	500
Private .. ..	..	..	171	71

(a) Government.

(b) Private.

The previous table does not show two defunct lines which used to operate on the west coast; these were the government service, Zeehan to Strahan (29 miles), opened in 1892 and the private service, Queenstown to Strahan (21 miles), opened in 1899. The Emu Bay railway was extended to Zeehan by 1900 when it became possible to make a Burnie-Queenstown trip by using all three services and moving Burnie-Zeehan-Strahan-Queenstown.

Growth and Decline

The main task of developing and maintaining railways fell to the Tasmanian Government after it purchased the Hobart-Western Junction line in October 1890. The next table shows the mileage of Government-owned railways from 1895 to the present.

The peak of development was reached in 1930 when 679 miles were open for traffic; since then, many branch lines have been closed down, the competition of road transport making their operation uneconomic. Route mileage has actually declined to what it was fifty years ago at the outbreak of World War I. Examples of lines now closed down are: Brighton to Apsley, 27 miles; Bellerive to Sorell, 15 miles; Zeehan to Strahan, 29 miles.

Government Railways—Route Mileage of Lines Open

Year (a)	Route Miles Open	Year (a)	Route Miles Open	Year (a)	Route Miles Open
1895 ..	420	1925 ..	673	1950 ..	613
1905 ..	463	1930 ..	679	1955 ..	605
1910 ..	470	1935 ..	645	1960 ..	538
1915 ..	533	1940 ..	644	1965 ..	500
1920 ..	629	1945 ..	642	1968 ..	500

(a) 31 December 1895; 30 June for subsequent years.

Recent Developments

The long-term problem of the State railways has been to reduce the annual operational loss and, in this connection, three major trends have become apparent in recent years:

Introduction of Diesel Locomotives

The elimination of steam locomotives from the system has been almost completed; in 1967-68, for example, steam locomotive engine miles were only 0.17 per cent of total engine miles. Three types of diesel are in operation: mechanical, hydraulic and electric but the bulk of running falls on the diesel electric locomotives. At 30 June 1968, the system had in service the following locomotives: steam 20, diesel mechanical 18, diesel hydraulic 2, diesel electric 37, total 77. In addition, services were maintained using 14 self-contained railcars.

Reduction in Passenger Services

The peak of the system's effectiveness in carrying passengers was reached in 1945-46 when 3.4 million passenger journeys were made. Of recent years, a deliberate policy of eliminating uneconomic services has been pursued and passenger journeys in 1967-68 had fallen to 1.1 million.

Rail Ferry Service

This service is somewhat ambiguously titled since, in other parts of the world, there are railway ferries actually moving rolling stock across water barriers. In the Tasmanian situation, there are roll-on roll-off ferries and container vessels, but there is no means of transferring rolling stock to the continental railways; in any case, the different gauges (three foot six inch as against four foot 8½ inch) present a major difficulty. The introduction of roll-on roll-off ferries and container vessels to the Bass Strait trade, commencing in 1959, was nevertheless accepted by the State railways as an opportunity to extend their existing freight services; the new facility was named 'rail ferry service'.

In essence, the rail ferry service aims at giving door to door transport between Tasmania and the continental States. At the Tasmanian end, transport to and from the sea terminals is handled by the railways and by local carriers commissioned by the railways. At the Victorian sea terminals, carriage is arranged through a road transport agency which acts in co-operation with the Tasmanian railways.

The service began with the evolution of the 'railroader' container, a cargo-carrying unit which is adaptable to the carriage of almost any type of freight. The sides and ends of the 'railroader' are removable for the carriage of long articles (e.g. packed timber), or for the nesting of the pallet-like trays, to enable their movement in parcels of up to six within the space of a single

unit. Because these containers are of open design, the charges for cargo are based on actual cargo measurement only and the consignor is therefore not responsible for the cost of lost space, as would be the case with an enclosed type of container. In addition to the general purpose 'railroader', specialised types of container have been evolved, e.g. for heated liquid chocolate, and specially built fibreglass refrigerated containers for substantial quantities of frozen vegetables, etc. Rail ferry service traffic from Tasmania consists chiefly of potatoes, timber, confectionery, tin, electrodes, canned and frozen vegetables, and liquid chocolate, whilst from Melbourne the traffic consists mainly of general cargo, including food stuffs, plastics, footwear, steel, etc. The tonnage carried in containers in this service during 1967-68 was 117,000.

Considerable ingenuity has gone into the design of the rail ferry service containers which need fittings to allow handling by fork-lift truck, railway gantry and ship's crane, as well as anchorages for securing to rolling stock on both Tasmanian and continental railways. The containers on a typical rail ferry service journey may cross Bass Strait in any of three ways: (1) on a road trailer; (2) on the upper deck of a combined trailer-container ship; (3) in the holds of converted container ships. The ports through which the service operates are Burnie, Bell Bay, Devonport and Hobart.

The rail ferry service is now the largest single operator between Melbourne and northern Tasmanian ports and provides an interesting example of co-operation between State and private enterprise.

Bell Bay Line

The State government is currently investigating the economic feasibility of constructing a new line from the City of Launceston to the growing industrial centre and port at Bell Bay (George Town), a distance of 32 miles.

Freight Developments

Modernisation of the railways has affected the carriage of freight generally; in the last 25 years, the following changes have been achieved: (i) density of traffic per mile of line worked (measured as net ton-miles) increased nearly fourfold; (ii) train loads increased by 300 per cent; (iii) average length of haul doubled.

Recent developments in bulk transport facilities have strengthened the capacity of the railways to meet the demands of heavy haulage traffic. One freight being carried is bulk cement in specially built aluminium wagons with a carrying capacity of 45 tons; another is coal in 42 ton capacity bottom dump wagons.

The Transport Commission is currently developing a rail-road service designed to deliver heavy machinery and other items to the Hydro-Electric Commission's Gordon River power development scheme. The task involves: (i) rail haulage to Maydena, where an overhead crane system with a 65 ton lifting capacity is being installed; (ii) road haulage from Maydena to the Gordon River project site. The Tasmanian Road Transport Association, under contract to the Transport Commission, is responsible for road haulage between Maydena and the Gordon River site. To meet the special requirements of the Gordon Project new types of containers have been designed for the carriage of gas cylinders and bulk cement powder.

Operating Statistics

The next table shows the principal operating statistics for the Tasmanian system:

Tasmanian Government Railways Operating Statistics

Year	Route-Mileage Open (a) (Miles)	Revenue Train-Mileage (^{'000} Miles)	Passenger- Journeys (^{'000})	Goods and Livestock Carried (^{'000} Tons)
1962-63.. ..	516	1,322	1,558	1,165
1963-64.. ..	500	1,322	1,426	1,155
1964-65.. ..	500	1,272	1,340	1,091
1965-66.. ..	500	1,283	1,304	1,072
1966-67.. ..	500	1,274	1,197	1,079
1967-68.. ..	500	1,247	1,087	1,162

(a) At end of period.

Financial Operations

The following table gives details of gross earnings and working expenses:

Tasmanian Government Railways Financial Operations

Year	Gross Earnings		Working Expenses (a)		Net Earnings (b)	
	Total	Per Revenue Train Mile	Total	Per Revenue Train Mile	Total	Per Revenue Train Mile
	\$'000	\$	\$'000	\$	\$'000	\$
1962-63	5,598	4.23	6,670	5.04	-1,072	-0.81
1963-64	5,668	4.29	6,940	5.24	-1,272	-0.95
1964-65	5,581	4.39	7,233	5.68	-1,652	-1.30
1965-66	5,985	4.66	7,563	5.89	-1,578	-1.23
1966-67	6,588	5.17	8,325	6.53	-1,737	-1.36
1967-68	6,587	5.28	8,751	7.02	-2,164	-1.74

(a) Includes provision for depreciation but excludes interest.

(b) Excess of gross earnings over working expenses.

Employment and Wages

In the table that follows, details are given of the number of employees, and of wages and salaries paid:

Tasmanian Government Railways Number of Employees and Wages and Salaries Paid

Year	Average Number of Employees (a)		Salaries and Wages Paid (\$'000)	Year	Average Number of Employees (a)		Salaries and Wages Paid (\$'000)
	Salaried	On Wages			Salaried	On Wages	
1962-63	357	1,891	4,868	1965-66	379	1,781	5,651
1963-64	366	1,895	5,220	1966-67	386	1,854	6,107
1964-65	377	1,837	5,355	1967-68	417	2,007	6,425

(a) Excludes construction staff.

Comparison with Other Australian Systems

The Tasmanian system of government railways is the smallest in Australia and the following table, showing principal operational details, allows a comparison to be made:

Australia—Government Railway Systems, 1967-68
Operating Statistics

System	Route Mileage Open (Miles)	Revenue Train Mileage (⁰ 000 Miles)	Passenger Journeys (a) (b) (⁰ 000)	Revenue Goods and Livestock Carried (a) (⁰ 000 tons)	Revenue Net Ton- Miles (Millions)
N.S.W.	6,061	38,535	253,313	30,745	4,844.1
Victoria	4,216	19,885	146,268	11,116	1,776.2
Queensland	5,825	16,831	26,591	11,133	2,201.3
S.A.	2,481	6,418	15,242	4,368	680.9
W.A.	3,815	8,372	9,970	8,910	1,571.7
Tasmania	500	1,247	1,087	1,162	117.2
Commonwealth	2,248	3,206	(c) 347	(d) 3,627	1,072.3
Total Australia	25,146	94,494	452,818	71,061	12,263.7

(a) Interstate traffic is included in the total for each system over which it passes.

(b) Based on ticket sales making allowances for periodical tickets. Tickets sold at concession rates are counted as full journeys.

(c) Passenger journeys continuing over both the Trans-Australian and Central Australian Railway systems are counted twice. In 1967-68 these numbered 9,404.

(d) Tonnages carried over both the Trans-Australian and Central Australian Railway systems are counted twice. In 1967-68 129,949 tons were counted twice.

The financial operations of the six State railways and the Commonwealth Government line are shown below.

Australia—Government Railways, 1967-68
Financial Operations
(\$ million)

System	Gross Earnings (a)	Working Expenses (b)	Net Earnings (c)	Plus Other Earnings Payable to Railways (d)	Less Other Expenses Charged to Railways (e)	Surplus or Deficit
N.S.W.	225.0	194.9	30.0	3.2	33.2	..
Victoria	99.3	105.1	-5.8	..	5.9	-11.6
Queensland	94.0	87.4	6.6	..	19.4	(f) -12.8
S.A.	28.0	(g) 34.6	-6.6	10.2	6.4	-2.7
W.A.	51.6	(g) 47.7	3.9	1.1	9.8	-4.8
Tasmania	6.6	(g) 8.8	-2.2	..	1.1	-3.2
Commonwealth	22.2	(g) 21.3	0.9	..	..	0.9
Total Australia	526.8	499.9	26.9	14.7	75.8	-34.2

(a) Excludes Government Grants and Road Motor Services.

(b) Excludes Road Motor Services.

(c) Gross earnings less working expenses. See notes (a) and (b).

(d) Includes State Government Grants and Road Motor Earnings.

(e) Includes interest and exchange, sinking fund, Road Motor expenses and other expenses charged to Railways.

(f) Includes deficit (\$700,619) on the Queensland 4 ft 8½ in gauge.

(g) Includes provision of reserves for depreciation.

Financial Comparison

In comparing the financial results of the Tasmanian system with those of other authorities, certain difficulties arise from the treatment of depreciation. In the table that follows, working expenses for the Tasmanian, S.A., W.A. and Commonwealth systems include provision of reserves for depreciation. A further complication arises from the fact that interest is not charged against the railways accounts of the Commonwealth system, and, in the Victorian system, only in respect of loan expenditure incurred since 1 July 1960.

To the extent that there is differing treatment of interest and of depreciation provisions in the various systems, the 'surplus or deficit' shown in the next table is not a good basis for making comparisons; however, if due allowance is made for interest charges in the case of the Victorian and the Commonwealth systems, it will be seen that loss, rather than profit, is characteristic of most Australian systems.

GOVERNMENT TRAMWAY, TROLLEY-BUS AND OMNIBUS SERVICES

Scope

The details that follow refer to services provided by the Metropolitan Transport Trust and by the Tasmanian Transport Commission. At 30 June 1967, the Metropolitan Transport Trust was operating omnibus services in Hobart, Launceston and Burnie; in Hobart and Launceston, it was also operating on some routes with trolley-buses. The Transport Commission was operating omnibuses on long-distance intra-state routes; however, in June 1968, the Parliament amended the *Transport Act* and obliged the Transport Commission to wind up its road services by November 1968; this was completed by December 1968.

Metropolitan Transport Trust

Until 1955, tramway, trolley-bus and omnibus services were operated in Hobart and Launceston by the municipal authority in each city. The Hobart system had operated without subsidy but the Launceston system received, as one item of revenue, the annual proceeds from a special tramways rate.

The *Metropolitan Transport Act* 1954 empowered the State to enter into agreements for the acquisition of the two systems and to vest them in the newly constituted semi-government authority named in the Act. After negotiation with the two municipal authorities, the Trust arranged to take over the Hobart system from 28 February 1955, and the Launceston system from 1 July 1955. It was part of the agreement that the Trust should re-imburse to the municipal authorities the annual charges relating to the loan debt of each system. Future capital was to come from the State loan fund.

During 1959-60, the Trust commenced the operation of omnibus services in Burnie. In October 1960, trams ceased running in Hobart (the Launceston system had dispensed with trams before it was taken over by the Trust) and both systems relied entirely on omnibuses and trolley-buses. During 1968, trolley-buses were replaced by omnibuses in Hobart and Launceston.

Financial Operations of Trust

The following table shows the income and expenditure of the Metropolitan Transport Trust:

Metropolitan Transport Trust
Income and Expenditure
(£'000)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Income—					
Traffic Operations	1,855	1,798	1,962	2,093	2,125
Other Earnings	27	31	32	31	33
Subsidy—State Government	680	760	760	975	875
Total	2,562	2,589	2,754	3,099	3,033
Expenditure—					
Traffic Operations	1,221	1,269	1,357	1,505	1,561
Maintenance	433	450	468	499	518
Power and Fuel	211	186	197	210	235
Workshop and Stores .. .	34	34	34	62	51
Administration and General	306	295	308	339	369
Debt Charges	172	167	169	170	157
Depreciation Charges .. .	207	205	215	223	232
Total	2,584	2,606	2,749	3,008	3,122

Loan Debt of Trust

The loan debt of the Trust is partly in respect of debentures and inscribed stock originally issued by Launceston Corporation. Debentures originally issued by the Hobart Corporation have been fully repaid, the last instalment being made in 1965-66. At 30 June 1968, loans of this nature stood at \$133,000; net advances from the State loan fund stood at \$2,726,000.

Transport Commission—Omnibus Services

The financial operations of the Transport Commission are described in the section of this chapter headed 'Transport Commission'; omnibus services are included in the financial details of this authority under 'road transport services'. Details of these omnibus services will be last recorded for 1968-69, the year in which they are obliged to cease operations.

Operating Statistics

The tables that follow combine the operations of the Metropolitan Transport Trust and of the omnibus services provided by the Transport Commission.

Government Trolley-bus and Omnibus Services
Operating Statistics (a)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68
Route-miles (b)—						
Trolley-bus ..	28	28	28	28	28	28
Omnibus ..	808	910	911	923	748	755
Vehicle-miles—('000)						
Trolley-bus ..	1,353	1,340	1,226	1,119	1,052	773
Omnibus ..	4,863	5,094	5,180	5,175	5,272	5,534
Passenger-journeys(c) (‘000)	25,145	24,756	23,955	22,750	22,582	22,144

(a) Operation of fleets owned by Metropolitan Transport Trust and Transport Commission.

(b) At end of period.

(c) Passenger-journeys on trolley-buses and omnibuses.

Financial Details

The following table shows the gross revenue (excluding Government grants) and the working expenses associated with the transport systems of the two authorities:

Government Trolley-bus and Omnibus Services
Gross Revenue and Working Expenses (a)
(\$'000)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68
Gross Revenue (b)	2,302	2,278	2,246	2,387	2,520	2,538
Working Expenses (c)	2,760	2,824	2,862	3,008	3,266	3,346
Net Revenue ..	-458	-546	-616	-621	-746	-808

(a) Operation of fleets owned by Metropolitan Transport Trust and Transport Commission.

(b) Excludes government grants.

(c) Includes depreciation.

Comparison with Other States

The services under the two authorities, when their financial details are combined, obviously run at a loss; the losses are met, in the main, from State Government grants. The necessity for subsidising similar government transport systems in other parts of Australia is suggested by the following table:

Australia—Government and Municipal Tramway, Trolley-bus and Omnibus Services, 1967-68

Net Revenue

State	Route Mileage Open	Passenger Journeys	Vehicle Miles	Net Revenue	Gross Revenue (a)
	miles	'000	'000	\$'000	\$'000
N.S.W.	608	242,407	45,212	-5,705	27,274
Victoria	296	156,688	24,649	191	19,306
Queensland	437	78,818	13,194	9	8,608
S.A.	157	47,813	10,666	346	6,225
W.A.	4,674	53,891	21,138	120	8,016
Tasmania	782	22,144	6,307	808	2,538
Total (b) ..	7,080	611,099	124,208	-6,350	72,847

(a) Excludes Government Grants.

(b) Includes A.C.T. and Northern Territory.

The previous table dealing with net revenue in all States is not a complete account of the losses since interest has not been taken into the calculation. In 1967-68, interest payments were as follows (in \$'000): N.S.W., 1,575; Victoria, 1,274; Queensland, 539; S.A., 431; W.A., 490; Tasmania, 181.

ROADS AND BRIDGES IN TASMANIA

Scope

The details in the following section refer to: (i) 'classified' roads; (ii) roads of local government authorities; (iii) roads of other government authorities. A further qualification is that the roads are those normally open to traffic.

Definitions and Mileages

(i) *Classified Roads*: These are roads for which the State Government accepts direct responsibility, the construction and maintenance authority being the Public Works Department. The mileage of classified (or State) roads at 30 June 1968 was as follows: State highways, 1,234 miles; main roads, 667 miles; secondary roads, 197 miles; tourist roads, 47 miles; and other roads, 151 miles; total State roads, 2,296 miles.

(ii) *Roads of Local Government Authorities*: The roads for which the local government authorities accepted responsibility at 30 June 1968, included: town and city streets, 1,558 miles; other municipal roads, 7,469 miles; total, 9,027 miles.

(iii) *Roads of Other Government Authorities*: The roads for which other government authorities accepted responsibility at 30 June 1968, included: roads of the Hydro-Electric Commission, 238 miles, Forestry Commission, 1,851 miles; total, 2,089 miles. The Hydro-Electric Commission mileage (238) includes the new road built from Maydena to the Gordon-Serpentine junction; this 53-mile route into the south-west was opened for public use in June 1967 but permits have to be obtained from the controlling authority.

Surface of Roads

The following table shows mileages of all roads normally open to traffic, classified according to road surface, and according to the level of government which accepts responsibility for construction and maintenance. The most striking feature is the increase, over the last five years, in the percentage of State (or classified) roads with sealed surfaces; as the table indicates, the sealed mileage has increased from 57.2 per cent to 71.3 per cent. The majority of the unsealed State (or classified) road mileage is located in the centre of the State, where the high altitude *Lake* and *Lyell* highways present serious construction problems.

Length of Roads According to Nature of Surface at 30 June

Type of Surface	1963	1964	1965	1966	1967	1968
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CLASSIFIED STATE ROADS

Sealed (a) ... (miles)	1,266	1,336	1,435	1,492	1,576	1,638
Unsealed (b) (miles)	947	874	809	754	705	658
Total ... (miles)	2,213	2,210	2,244	2,246	2,281	2,296
Sealed Ratio (c) (%)	57.2	60.5	63.9	66.4	69.1	71.3

ROADS OF LOCAL GOVERNMENT AUTHORITIES

Sealed (a) ... (miles)	967	1,072	1,184	1,354	1,514	1,677
Unsealed (b) (miles)	7,574	7,510	7,438	7,373	7,408	7,350
Total ... (miles)	8,541	8,582	8,622	8,727	8,922	9,027
Sealed Ratio (c) (%)	11.3	12.5	13.7	15.5	17.0	18.6

Length of Roads According to Nature of Surface at 30 June—*continued*

Type of Surface	1963	1964	1965	1966	1967	1968
ROADS OF OTHER GOVERNMENT AUTHORITIES						
Sealed (a) ..(miles)	27	27	47	47	44	52
Unsealed (b) (miles)	1,259	1,442	1,625	1,807	r 1,882	2,037
Total ..(miles)	1,286	1,469	1,672	1,854	r 1,926	2,089
Sealed Ratio (c) (%)	2.1	1.8	2.8	2.6	2.3	2.5
ALL ROADS						
Sealed (a) ..(miles)	2,260	2,435	2,666	2,893	3,134	3,367
Unsealed (b) (miles)	9,780	9,826	9,872	9,934	r 9,995	10,045
Total ..(miles)	12,040	12,261	12,538	12,827	r 13,129	13,412
Sealed Ratio (c) (%)	18.8	19.9	21.3	22.6	23.9	25.1

(a) Bitumen or concrete.

(b) Includes roads formed or cleared only.

(c) Sealed roads as a proportion of total roads.

Classified (or State) Roads

The next table analyses the mileage of classified roads according to their description, and also according to their surface. The principal State highways include the following: (i) *Arthur* (46 miles), from Sorell to Port Arthur; (ii) *Bass* (177 miles), from Launceston to Marrawah in the north-west; (iii) *Channel* (59 miles), from Hobart to Huonville, via D'Entrecasteaux area; (iv) *Huon* (59 miles), from Hobart to Hythe via Dover; (v) *Lake* (93 miles), from Deloraine via Great Lake to Melton Mowbray; (vi) *Lyell* (171 miles), from Granton, near Hobart, to Strahan; (vii) *Midland* (114 miles), from Glenorchy to Launceston; (viii) *Murchison* (48 miles), from Zechan highway to Waratah area; (ix) *Tasman* (263 miles), from Hobart to Launceston, via East Coast and St Helens; (x) *Waratah* (45 miles), from Somerset to Waratah area.

Classified (or State) Roads
Description and Length at 30 June 1968
(Miles)

Description	Nature of Surface		Total
	Sealed (a)	Unsealed (b)	
Highways	1,037	197	1,234
Main Roads	461	206	667
Secondary Roads	84	113	197
Tourist Roads	4	43	47
Subsidised Roads	12	83	95
Developmental Roads	41	15	56
Total	1,638	658	2,296

(a) Bitumen or concrete.

(b) Gravel or stone.

Expenditure on Roads

As indicated in the preface to this section, the responsibility for road construction and maintenance is placed upon the State Government, and upon local government and semi-government authorities. The financial details which follow relate only to funds available to the State Government. The next table gives a detailed analysis of funds available to the State Government and expenditure from State road funds:

State Road Funds Receipts and Expenditure (Combined Funds)
(\$'000)

Particulars	1965-66	1966-67	1967-68
Receipts—			
State—			
Motor Vehicle Registration, Taxation, Licences, Renewal Fees, Fines, etc.	3,425	3,961	4,396
Consolidated Revenue, n.e.i.	6	..	..
Loan Fund	4,446	1,693	1,188
Commonwealth—			
Commonwealth Aid Roads Act Grants	7,000	7,500	8,000
Local Government—			
Repayment of Advances	19	38	32
Miscellaneous—			
Sale of Plant and Materials	50	79	88
Other	164	184	477
Total	15,109	13,455	14,180
Expenditure—			
Construction and Reconstruction, Roads and Bridges	11,591	9,445	10,214
Maintenance, Roads and Bridges	3,141	3,167	3,436
Purchase of Road Construction Plant and Similar Assets	572	616	695
Hire and Maintenance of Road Plant (Net) (a) . .	—554	—556	—588
Purchase of Materials	18	30	18
Other Works (Commonwealth Aid Roads Act) . .	62	45	48
Grants in Aid to Local Government Authorities . .	35	37	46
Other Expenditure	282	728	329
Total	15,148	13,513	14,197

(a) Hire of plant and workshop charges less maintenance and operation of road construction plant.

Grants under the Commonwealth Aid Roads Act, provide the bulk of the funds with a major contribution from the motoring public. The major item of expenditure is for the construction and reconstruction of roads and bridges.

In addition to the amounts shown above as Motor Vehicle Registration, Taxation, Licences, Renewal Fees, Fines, etc. Stamp Duty is charged on Third Party Insurance and on Motor Vehicle Registrations. These receipts are not paid into State Road Funds, but into Consolidated Revenue:

Stamp Duty on the Ownership and Operation of Motor Vehicles, paid into Consolidated Revenue
(\$'000)

Particulars	1965-66	1966-67	1967-68
Stamp Duty on Third Party Insurance	252	265	275
Stamp Duty on Motor Vehicle Registration . . . .	..	..	189

Receipts and Expenditure, Local Government Authorities

Some of the expenditure appearing in the State Road Funds (Combined Funds) table consists of grants from the State Government to local government authorities, although such grants are not specifically dissected. In Chapter 4, 'Local Government', details will be found of: (i) grants from the State to local government authorities for road purposes; (ii) road rates collected by local government authorities; (iii) expenditure on road construction and maintenance by local government authorities from revenue, and from loan funds.

Bridges in Tasmania

The Tasman Bridge is fully described in the 1967 *Year Book* and the Batman Bridge in the 1968 *Year Book*; the following summarises their principal characteristics.

The Tasman Bridge

Site: The bridge is located on the Derwent estuary a mile upstream from the main port and it connects Hobart to its eastern shore suburbs across nearly 1,200 yards of deep water.

History: An earlier bridge (*the Hobart*) had been built at virtually the same site in 1943 and had contributed to its own obsolescence; it was the direct cause of the rapid development of the eastern shore suburbs and this in turn made provision of a better bridge an urgent necessity. The original structure was a floating arch with a navigation lift span near the western shore; it had only three traffic lanes and the operation of the lift span often caused road traffic to bank up almost back to the city centre.

The replacement, the pre-stressed concrete Tasman Bridge, was commenced in 1960 and opened for traffic on 17 August 1964; the next day, the floating arch of the Hobart Bridge was broken into two 12,000 ton sections for towing away to an anchorage up-stream.

Description: The high-level Tasman Bridge is built on pile-based piers and reaches its maximum height in a fixed navigation span giving a minimum clearance of 150 feet to ships passing underneath. The dimensions are:

The Tasman Bridge: Dimensions

Bridge Sections	Number of Spans	Description	Length (feet)
Western spans	(a) 13	From <i>west</i> abutment to pier 13 ..	1,820
Anchor span	1	From pier 13 to pier 14	197
Navigation span	1	" " 14 " " 15	310
Anchor span	1	" " 15 " " 16	197
Eastern spans	(a) 6	From pier 16 to <i>east</i> abutment ..	840
Total length between abutments			3,364

(a) Each span is 140 feet.

The high-level bridge has four 11-foot traffic lanes. To obtain maximum vehicle capacity, each bridge end terminates in three-level interchanges providing complete separation of the different streams of traffic; on the western, end, the exchange is an integral part of the main bridge; on the eastern end, a separate structure. The eastern approach to the shore abutment is by a short viaduct of twelve 70 foot spans; the western approach is by grade separation viaducts approximately 400 feet long. When the abutment approaches are taken into account, the whole structure is over 4,600 feet long.

The basic construction problem was to establish piers just above water level, to erect columns on the piers and then to span the piers to form a carriage-way. From piers 4 to 8, the dolerite is as much as 300 feet below water surface with an overlay of stiff clays, coarse gravel, sandy loam and conglomerate; at pier 18, the water reaches its greatest depth, 123 feet. Under these conditions, the Tasman Bridge, rising more than 150 feet above the sea, resembles an iceberg with much more hidden below the water than appears above it.

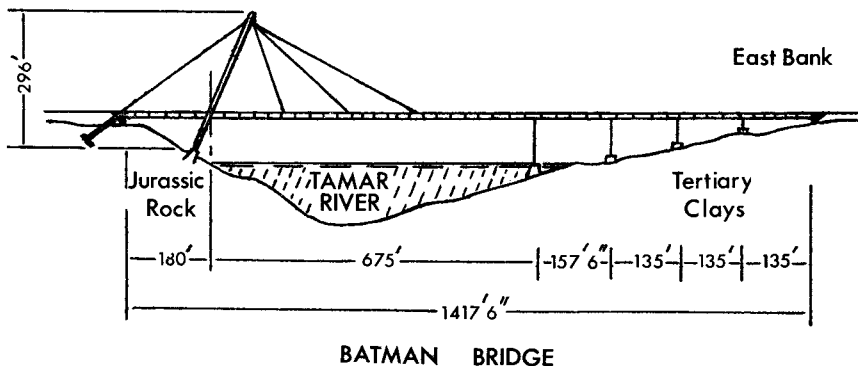
In general, each ordinary pier is based on a nest of eight piles, most of them raked at nearly 5° from the vertical to give greater resistance to horizontal forces; however, the anchor span piers are based on nests of 12 and the navigation span piers on nests of 24. Where possible, piers were driven down to the underlying basalt or dolerite; at piers 4 and 5, the piles were founded in very stiff clays 200 feet below sea level and at piers 6, 7, and 8 they were founded in either a stiff sandy loam or conglomerate, at depths from approximately 180 feet to a maximum depth of 263 feet. On pier 7, a pile of 267 feet is the longest in the whole structure.

Cost: In the report of the Auditor General for 1967-68, the aggregate construction cost was stated as \$14.4m.

The Batman Bridge

Site: The bridge is located 25 miles downstream from Launceston and crosses the Tamar at Whirlpool Reach; the main ports, Bell Bay, Beauty Point and Inspection Head, are five or six miles further downstream from the bridge which therefore needs only give vertical clearance to interstate ships moving south to Launceston (94 feet is provided).

History: The Tamar was bridged in 1863 just below the discharge of the South Esk through Cataract Gorge, only a mile or less from the centre of Launceston. From this point, the Tamar proceeds a further 40 miles to Bass Strait and it has always been a most frustrating obstacle to wheeled traffic. The development of George Town as an industrial area in the 1950s made more apparent the isolation of the coastal north-east from the coastal north-west; even the overseas port was divided with Beauty Point and Inspection Head on the west bank, and Bell Bay on the east. Planning to overcome this obstacle began in the 1960s and on 18 May 1968 the Batman Bridge was officially opened. A glance at a map establishes the fact that the main roads in the Tamar region run north and south, with Launceston as their point of convergence. The Batman will eventually lead to a new orientation, with major roads running east and west to establish more direct links between the north-east and the north-west.



Description: The Batman is a special type of two-lane suspension bridge, with the supporting cables running back through the apex of a single giant A-tower on the west bank. This peculiarity in design is the direct result of the marked difference between the Jurassic bedrock of the west bank and the soft tertiary clays of the east bank; with this geological handicap, it was necessary for virtually the whole weight of the river span (675 feet) to be carried by the west bank foundations. The 315 foot A-tower is inclined at 20° to the vertical so that it leans out over the river; as a result, any lateral thrust exerted by the river span is directed back against the west bank.

The dimensions of the Batman Bridge are shown:

The Batman Bridge: Dimensions

Bridge Section	Description	Length (feet)
Side span	From west abutment to bar of A-tower	180
River span	From bar of A-tower to first east pier	675
First aqueduct span ..	From first east pier to second	157½
Three aqueduct spans	From second pier over third and fourth to east abutment	(a) 405
Total length between abutments		1,417½

(a) Each span is 135 feet.

The most notable construction feat was the eastward extension, in sections, of 618.75 feet of steel truss over the river; only the west end was supported by the A-tower bar whilst the balance had to be held up by permanent and temporary forestays from the A-tower apex. When the projection extended out 618.75 feet from the bar, it was joined to a 56.25 foot projection from the first east pier; the two projections, united at an expansion joint, make up the river span (675 feet).

Cost: The cost of the Batman Bridge, including the road approach to the abutments, will be \$5.1m.

MOTOR VEHICLE REGISTRATIONS

General

Statistics in this section deal with: (i) motor vehicles 'on register' at specific dates; (ii) new motor vehicles registered within a specified period, e.g. a year.

Definitions

Register: To be allowed on the public roads, motor vehicles, except those owned by the Commonwealth Government, are required to be registered with the State Transport Commission; State Government vehicles, as well as privately-owned vehicles, are registered with this authority. Commonwealth Government-owned vehicles, except those belonging to the defence services, are recorded on a separate Commonwealth register. 'On the register', in this section, refers to both the State and Commonwealth registration records, and to all motor vehicles except those of the defence services. Statistics of new motor vehicle registrations comply with the same definition.

Vehicles Included: The statistics cover cars, station wagons, motor cycles and commercial vehicles. Commercial vehicles as defined include utilities, panel vans, trucks and omnibuses. Tractors, trailers, and mobile plant and equipment are excluded.

Vehicles on Register

The following table has been compiled to show, in summary form, the increase in motor vehicles on the register since 1910. To give a convenient measure of this growth, vehicles on the register have been related to the population (vehicles per 1,000 persons), and increases have also been expressed as annual averages for each decade.

Motor Vehicles on Register from 1910

At 30 June	Cars and Station Wagons	Commercial Vehicles	Motor Cycles	All Vehicles		
				Total	Per 1,000 of Population	Average Annual Increase (b)
1910	210	(a)	223	433	2	..
1920	2,404	(a)	1,699	4,103	20	367
1930	12,533	2,198	4,814	19,545	89	1,544
1940	17,598	5,235	3,351	26,184	109	664
1950	25,291	12,928	4,941	43,160	156	1,698
1960	63,748	26,352	3,098	93,198	271	5,004
1968	108,185	32,492	2,189	142,866	374	..
1969	114,283	33,865	2,751	150,899	389	(c) 6,411

(a) Included with cars and station wagons.

(b) For decade ending in year shown.

(c) For nine years ended 30 June 1969.

The next table gives details of motor vehicles on the register for recent years; annual increases are shown to allow comparison with the average annual rates for each decade appearing in the previous historical table.

Motor Vehicles on Register

At 31 December	Cars and Station Wagons	Commercial Vehicles	Motor Cycles	All Vehicles		
				Total	Per 1,000 of Population	Annual Increase
1960	66,140	26,667	2,763	95,570	268	..
1961	70,350	27,177	2,537	100,064	275	4,494
1962	75,697	27,275	2,101	105,073	293	5,009
1963	81,642	28,125	1,856	111,623	308	6,550
1964	88,084	29,005	1,586	118,675	324	7,052
1965	94,039	29,823	1,441	125,303	339	6,628
1966	99,947	31,184	1,562	132,693	355	7,390
1967	104,652	31,908	1,833	138,393	365	5,700
1968	111,163	33,218	2,501	146,882	380	8,489
1969 (a)	114,283	33,865	2,751	150,899	389	..

(a) At 30 June.

Motor Vehicles on Register in Australia

Whilst different concepts of what constitutes a 'motor vehicle on register' at a particular point in time may be appropriate for different purposes, to obtain uniform statistics for all States and Territories it is necessary to adopt a common definition of *motor vehicles on register* at a particular date. In the table that follows, the concept of *motor vehicles on register* at a particular date, say 30 June is as follows:

- (i) vehicles with fees paid up for any period including 30 June;
- (ii) vehicles for which fees were retrospectively paid for any period including 30 June.

This concept excludes vehicles for which payments were not subsequently made in respect of a period including 30 June, even though at that date their registrations may not have been formally terminated.

The table that follows shows details of motor vehicles on the register for all States and Territories:

Australia—Motor Vehicles on Register, 30 June 1968

State or Territory	Cars and Station Wagons	Commercial Vehicles	Motor Cycles	All Vehicles	
				Total	Per 1,000 of Population
	'000	'000	'000	'000	no.
N.S.W.	1,194	301	32	1,527	348
Victoria	954	224	15	1,194	359
Queensland	449	159	15	623	360
S.A.	329	86	12	427	379
W.A.	264	93	10	366	402
Tasmania	108	32	2	143	374
N.T.	12	7	1	20	320
A.C.T.	39	6	1	46	408
Total	3,349	907	88	4,345	361

Registration of New Motor Vehicles

In the next table, details are shown of new motor vehicles registered in Tasmania over a five-year period:

Annual Registrations of New Motor Vehicles

Type of Vehicle	1964	1965	1966	1967	1968
Cars	7,919	8,507	8,595	9,543	9,915
Station Wagons	2,204	1,936	1,709	1,619	1,395
Utilities	1,191	1,170	1,308	1,243	1,134
Panel Vans	382	424	500	499	479
Trucks	787	864	789	802	680
Motor Cycles	45	122	272	575	851
Other (a)	66	106	109	88	116
Total	12,594	13,129	13,282	14,369	14,570

(a) Includes omnibuses, ambulances and hearses.

New Registrations According to Make

The table that follows analyses Tasmanian registrations of new cars and new station wagons according to the make, and illustrates the present popularity of Holden, Ford, Toyota, Chrysler and Morris.

Registrations of New Cars and New Station Wagons, 1968
Classified to Predominant Make

Make	Cars		Station Wagons	
	Number	Proportion of Total Cars (Per Cent)	Number	Proportion of Total Station Wagons (Per Cent)
Alfa Romeo.. ..	21	0.2	..	..
Austin	417	4.2	..	..
Chevrolet	14	0.1	..	..
Chrysler	738	7.4	146	10.5
Datsun	359	3.6	34	2.4
Dodge	10	0.1	..	..
Fiat	118	1.2	3	0.2
Ford	1,998	20.2	329	23.6
Hillman	316	3.2	30	2.2
Holden	3,181	32.1	691	49.5
Isuzu	121	1.2	..	..
M.G.	17	0.2	..	..
Mazda	285	2.9	42	3.0
Mercedes Benz ..	43	0.4	..	..
Mitsubishi	99	1.0	..	..
Morris	722	7.3	..	..
Peugeot	42	0.4	6	0.4
Renault	110	1.1	..	..
Toyota	830	8.4	59	4.2
Triumph	56	0.6	..	..
Volkswagen	298	3.0	45	3.2
Other	120	1.2	10	0.7
Total	9,915	100.0	1,395	100.0

'Scrapping' of Motor Vehicles

Apart from the few 'veteran' cars owned by enthusiasts, most vehicles are eventually scrapped. No information is collected on the number scrapped each year but the following table contains information from which some inferences may be drawn:

New Motor Vehicles Registered and Annual Increase in Motor Vehicles on Register

Particulars	1964	1965	1966	1967	1968
New Motor Vehicles Registered (a)	12,594	13,129	13,282	14,369	14,570
Annual Increase, Motor Vehicles on Register (b)	7,052	6,628	7,390	5,700	8,489

(a) During year ended 31 December.

(b) Annual increase measured at 31 December.

In comparing the two sets of figures in the previous table, it would be wrong to assume that the difference in each year represented purely scrapped vehicles; exceptions would include vehicles transferred interstate and vehicles 'on blocks'—the fact that an owner has let a registration expire does not necessarily mean that he intends to scrap his vehicle. Subject to these and similar difficulties of interpretation, it would appear that over six thousand motor vehicles may have been scrapped annually since 1963.

ROAD TRAFFIC ACCIDENTS IN TASMANIA

Scope of Statistics

With the rapid development of road transport, there has come an increase in the number of road traffic accidents; some merely involve damage to vehicles, but others result in injury or death. To evolve meaningful statistics describing these events, it has been found necessary to narrow the field of observation to those road traffic accidents which involve casualties, since some accidents resulting only in vehicle damage are not reported to the police (the drivers might merely exchange names and report to their respective insurance companies). Further, there is the difficulty of fixing, in monetary terms, some valid standard for determining what degree of vehicle damage warrants inclusion of an accident in a long-term statistical series—obviously \$20 or \$50 for repairs in 1950 is not comparable with \$20 or \$50 for repairs now.

For these and other reasons, the statistics in this section are restricted to details of those road traffic accidents which were recorded by the police and which involved casualties requiring medical or surgical treatment, or caused death.

Source of Data

Details of each road traffic accident reported to the police, or investigated by the police, are recorded on a standard form and copies are made available to the Transport Commission and to the Bureau of Census and Statistics; at the Bureau, monthly statistics are compiled only from those reports describing accidents involving casualties. The Transport Commission employs the reports it receives in connection with road engineering, the location of traffic signs and signals, the pin-pointing of dangerous locations, traffic engineering, and accident prevention in general.

Responsibility for, and Cause of, Accidents

For the purposes of the statistics in this section, the police officer reporting the accident determines, on the basis of the evidence available, the road user or agency responsible, and also the cause of the accident. The fact that civil or criminal courts may later make different decisions on these matters is disregarded in these statistics; nor is any attempt made to distinguish between accidents giving rise to subsequent legal action and those not doing so.

Causes of Accidents

Causes of accidents in Australian States are classified, for statistical purposes, in accordance with a standard list of 76 prime causes (although, in this section, only the most frequent causes will be shown). Contributory causes and conflicting or incomplete evidence make precise classification difficult. No provision is made to record and classify such antecedent causes as fatigue, the influence of intoxicating liquor, discourtesy, impatience or other driving faults (e.g. 'intoxication' is listed as a possible prime cause but where evidence of intoxication is inconclusive, the reporting police officer usually shows some more immediately apparent cause).

Road Traffic Accident Statistics

The following table summarises the principal statistics of road traffic accidents involving casualties from 1949-50:

Road Traffic Accidents Involving Casualties from 1949-50

Period	Accidents		Persons			
	Number	Per 10,000 Vehicles Registered (a)	Killed		Injured	
			Number	Per 10,000 Vehicles Registered (a)	Number	Per 10,000 Vehicles Registered (a)
1949-50	969	242	64	16.0	1,154	288
1959-60	743	82	79	8.7	1,004	111
1964-65	1,180	99	97	8.2	1,692	142
1965-66	1,291	103	88	7.0	1,955	155
1966-67	1,356	102	102	7.7	2,081	157
1967-68	1,268	91	112	8.1	1,990	143
1968-69	1,400	95	122	8.3	2,228	152

(a) Based on average number of motor vehicles on register during period. 'Vehicles on register' is defined in earlier section headed 'Motor Vehicle Registrations'.

The immediate inference to be drawn from the above table is that the annual totals of accidents involving casualties, and of persons killed and injured, have increased at a much slower rate than have motor vehicles on the register. In 1950, there were 43,160 motor vehicles on the register at 30 June, the corresponding figure for 1969 being 150,899; in the period covered by the table, the registration figure has more than tripled, whereas accidents and casualties have not doubled, and the rates per 10,000 vehicles are much lower.

Location of Accidents

The first table shows the location of accidents in the State:

Road Traffic Accidents and Casualties by Location, 1967-68

Particulars	City of Hobart	Suburbs of Hobart	Remainder of State	Whole State
Accidents Involving Casualties ..	298	246	724	1,268
Persons Killed	17	25	70	112
Persons Injured	420	361	1,209	1,990

Responsibility for Road Accidents

The next table shows the agency or type of road user believed responsible:

Responsibility for Road Traffic Accidents, 1967-68

Responsibility Attributed to—	Accidents Involving Casualties	Persons Killed	Persons Injured
Drivers of Motor Vehicles ..	996	74	1,697
Riders of Motor Cycles	29	4	35
Pedal Cyclists	23	1	23
Pedestrians	134	24	117
Passengers	8	2	7
Motor Vehicle Defects	35	3	54
Motor Cycle Defects	1	..	1
Pedal Cycle Defects	2	..	2
Animals	4	1	3
Road Conditions	14	1	18
Weather	11	..	17
Parties not Involved (a)	9	..	15
Other Causes	2	2	1
Total	1,268	112	1,990

(a) e.g. a car collides with another, after swerving to avoid a pedestrian who is not struck.

Cause of Accidents—Drivers of Motor Vehicles Responsible

The next table analyses accidents for which drivers of motor vehicles were believed responsible:

Road Traffic Accidents, Drivers of Motor Vehicles Responsible, 1967-68
Classification According to Cause

Principal Causes of Accidents for which Drivers of Motor Vehicles (excluding Motor Cycles) were Responsible	Accidents Involving Casualties	Persons Killed	Persons Injured
Excessive speed having regard to conditions	192	39	331
Not keeping to the left	112	10	246
Not giving right of way to other vehicles at intersection	224	6	396
Failing to make right-hand turn at intersection with due care	37	3	54
Intoxicated	62	1	92
Inexperienced, including inexperience with type of vehicle in use at time of accident	28	4	55
Inattentive driving	182	6	270
Reversing without care	6	..	8
Overtaking on near-side or in the face of oncoming vehicle(s) or without enough clearance	35	..	68
Following other vehicle too closely	36	..	59
Infirmity of driver	4	..	5
Driver asleep or drowsy	19	..	24
Dazzled by lights of an approaching vehicle	10	..	13
Failing to signal intention of turning or stopping, or giving incorrect signal	5	..	8
Pulling or swinging out from kerb suddenly or without warning	7	..	10
Disregarding, misunderstanding or failing to observe traffic sign or signal of other driver	22	..	44
Crossing railway level crossing without due care ..	3	2	2
Hit-run drivers (n.e.i.)	9	2	8
Other causes	3	1	4
Total	996	74	1,697

Causes of Accidents—Pedestrians Responsible

The table that follows analyses road traffic accidents for which pedestrians were held responsible, in terms of the standard list of causes (after drivers of motor vehicles, pedestrians were reported responsible for the next most numerous group of accidents):

Road Traffic Accidents, Pedestrians Responsible, 1967-68
Classification According to Cause

Principal Causes of Accidents for which Pedestrians were Responsible	Accidents Involving Casualties	Persons Killed	Persons Injured
Walking across roadway without due care	65	16	53
Running across roadway	23	3	20
Passing behind or in front of moving or stationary vehicle or object	5	2	3
Stepping off kerb without due care	4	..	4
Intoxicated	6	1	5
Children under 7 years of age not under, or breaking away from, the supervision of an older person ..	18	..	18
Other causes	13	2	14
Total	134	24	117

Road Features and Accidents

The next table analyses all accidents according to location and shows the road features at the site. Most accidents occur on *straight roads*.

Features of Roadways on Which Accidents Occurred, 1967-68

Features of Roadways	Accidents Involving Casualties	Persons Killed	Persons Injured
At Intersections—Controlled	40	1	67
Uncontrolled	383	14	607
Other than at Intersections—			
Straight Road	485	48	692
Bend or Curve	336	46	583
Bridge, Culvert or Causeway	11	..	20
Steep Hill	5	1	10
Top of Hill	4	..	8
Railway Level Crossing	4	2	3
Other Locations .. .. .	..	..	..
Total	1,268	112	1,990

Types of Accidents

The next table analyses types of vehicle accidents.

Types of Accidents	Accidents Involving Casualties	Persons Killed	Persons Injured
Collisions between Vehicles	706	46	1,219
Vehicle—			
Overturning or leaving road	371	36	592
Colliding with fixed object (incl. parked vehicle)	34	1	44
Colliding with animal	5	1	4
Colliding with pedestrian	145	26	126
Passenger accidents	7	2	5
Total	1,268	112	1,990

Types of Road Users Killed or Injured

The following table analyses casualties:

Type of Road User Killed or Injured, 1967-68

Type of Road User Involved	Killed			Injured		
	Males	Females	Persons	Males	Females	Persons
Drivers of Motor Vehicles	37	2	39	752	133	885
Motor Cyclists	3	..	3	51	5	56
Pedal Cyclists	2	..	2	39	3	42
Passengers (all types)	27	14	41	418	461	879
Pedestrians	19	8	27	85	42	127
Other Classes .. ..	..	..	..	..	1	1
Total	88	24	112	1,345	645	1,990

Accidents and Holidays

The behaviour of traffic on the roads can be related to public holidays, and to holiday weekends. The next table analyses accidents in terms of this relationship (and calls attention, by an 'annual equivalent' column, to the difference in apparent risk associated with holidays):

Road Traffic Accidents, 1967-68
Accidents in Relation to Holidays

Day of Occurrence	Days in 1967-68	Accidents Involving Casualties	Persons Killed		Persons Injured	
			Number	Annual Equivalent (a)	Number	Annual Equivalent (a)
Public Holidays (not Saturdays or Sundays)	13	21	6	169	43	1,210
Days during Holiday Week-ends (Saturdays and Sundays Only)	14	39	2	52	75	1,958
Days before Holidays (or Holiday Week-ends)	11	29	1	33	48	1,591
Days after Holidays (or Holiday Week-ends)	11	22	5	166	28	932
Other Days ..	317	1,152	98	113	1,796	2,074
Total ..	366	1,268	112	112	1,990	1,990

(a) The daily average rate has been assumed to persist for a year.

Age and Responsibility

As shown in a previous table, drivers of motor vehicles (excluding motor cycles) were believed responsible for 996 out of the 1,268 accidents involving casualties which were reported to the police during 1967-68. The following table analyses the age and sex of the drivers responsible for these 996 accidents, and also shows the casualties associated with the accidents.

Road Traffic Accidents, 1967-68
Age and Sex of Drivers of Motor Vehicles Responsible

Age Group of Drivers Responsible (in Years)	Male Driver			Female Driver		
	Accidents Involving Casualties	Persons Killed (a)	Persons Injured (a)	Accidents Involving Casualties	Persons Killed (a)	Persons Injured (a)
Under 21	263	25	480	21	..	45
21-29	275	19	487	32	4	40
30-39	137	11	209	15	..	35
40-49	94	8	150	11	..	17
50-59	67	1	106	16	20	23
60 and over ..	52	4	87	3	..	4
Not Stated ..	10	2	14	..	..	..
Total ..	898	70	1,533	98	4	164

(a) The age groups relate to the driver who may, or may not be, included in the casualty figures.

Days of the Week on Which Accidents Occurred

The following table shows the day of the week on which accidents and casualties occurred:

Road Traffic Accidents, 1967-68
Day of Week of Occurrence

Day of the Week	Accidents Involving Casualties	Persons Killed	Persons Injured
Monday	107	9	174
Tuesday	127	11	161
Wednesday	131	11	180
Thursday	156	10	223
Friday	198	19	289
Saturday	343	34	591
Sunday	206	18	372
Total	1,268	112	1,990

Age and Sex of Road Users Killed

The next table shows the age and sex of the various types of road user killed:

Road Traffic Accidents, 1967-68
Age and Sex of Road Users Killed

Age Group (in Years)	Type of Road User Killed					All Road Users
	Drivers of Motor Vehicles	Motor Cyclists	Pedal Cyclists	Passengers (All Types)	Pedestrians	
MALES						
Under 7 .. ..	..	..	..	..	..	..
7-16	1	..	1	5	5	12
17-20	8	2	..	12	1	23
21-29	12	1	..	4	..	17
30-39	6	..	..	3	1	10
40-49	5	..	..	..	4	9
50-59	2	..	..	1	4	7
60 and over ..	3	..	1	2	3	9
Not Stated ..	..	..	..	..	1	1
Total ..	37	3	2	27	19	88
FEMALES						
Under 7 .. ..	..	..	..	2	1	3
7-16 .. ..	..	..	..	1	3	4
17-20 .. ..	..	..	..	3	1	4
21-29	2	..	..	1	..	3
30-39 .. ..	..	..	..	1	..	1
40-49 .. ..	..	..	..	1	1	2
50-59 .. ..	..	..	..	3	..	3
60 and over ..	..	..	..	1	2	3
Not Stated ..	..	..	..	1	..	1
Total ..	2	..	..	14	8	24

CIVIL AVIATION IN TASMANIA

Introduction

Early Flights

A significant event in the history of aviation in Tasmania occurred on 16 December 1919 when Lt Arthur Long of the Army Flying Corps crossed Bass Strait to Melbourne, taking six hours and making an emergency landing at Torquay on the way. Today's pure jets make the trip in under an hour. Shortly afterwards he started an aerial newspaper-carrying business between Hobart and Launceston.

In 1932, Mr L. Johnson began a Launceston-Flinders Is. service using a Desoutter and, in the same year, Victor and Ivan Holyman began a similar service with a De Havilland Fox Moth.

Pioneering of Melbourne Service

The Holyman brothers entered into partnership with Johnson to form Tasmanian Aerial Services Pty Ltd and, by 1933, the company was serving Smithton and King Is. By 1934, the company had become Holyman Airways Pty Ltd and was operating a Bass Strait service to Melbourne with DH 86 Dragon aircraft. Two aircraft were lost including the 'Miss Hobart' flown by Victor Holyman. In 1936, the 'Bungana', a DC2, was purchased and the era of reliable services across Bass Strait began.

Interstate Services

In 1936, Holyman Airways and Adelaide Airways Ltd merged to become Australian National Airways Ltd and the new company operated services between all States. Thus, a Tasmanian service had expanded to develop into an all-Australian service. In 1957, A.N.A. and Ansett amalgamated to form Ansett-A.N.A. Tasmania's interstate services are provided by Ansett Airlines (formerly known as Ansett-A.N.A.) and by T.A.A. (the Australian government airline formed in 1946). Services to and from Melbourne are provided from Hobart, Launceston, Devonport, Wynyard, Flinders Is. and King Is.

Intra-State Services

Supplementary intra-state services using Beechcraft twin engine planes were commenced in May 1964 by T.A.A. As a result, regular air service connections link Hobart, Launceston, Devonport, Wynyard, Queenstown and Strahan. Then in November 1967, the Tasmanian Aero Club, with modern single engine aircraft, commenced fixed schedule commuter services linking Launceston with Coles Bay, St Helens, Devonport, Wynyard and Smithton. However, the Tasmanian Aero Club ceased operating commuter services on 7 February 1969 and T.A.A. followed them in July 1969. Aerial Services of Tasmania now operate commuter services on the intrastate routes vacated by T.A.A.

Administration of The Air Navigation Act and Regulations in Tasmania

The *Air Navigation Act* 1920-66 (Federal) and associated regulations are administered for Tasmania by the Regional Director, Victoria-Tasmania region; the authority is the Civil Aviation Department. The department's more important functions include the provision and maintenance of government aerodromes, the licensing of aircraft and pilots, and a responsibility for supervising all aspects of air safety.

Classification of Flying Activities

Flying activities are classified by regulation into the following well defined categories:

(a) *Private Operations*: Private use of aircraft may be gauged by the fact that there were 235 licensed *private* pilots in the State in 1969.

(b) *Aerial Work Operations*: These operations refer to aircraft used for *aerial* survey; spotting; agriculture; advertising; flying training; ambulance service; police or customs work; or for the carriage of goods owned by the pilot, the owner or the hirer for purposes of trade. Within Tasmania, there are four licensed flying training organisations and one aerial agricultural organisation carrying out most of the aerial work activities.

(c) *Charter Operations*: These refer to aircraft hired for passenger or freight movement, but not according to fixed schedules, or to and from fixed terminals. There were eight licensed charter operators based in Tasmania in 1968.

(d) *Commuter Operations*: These are charter operations to a fixed schedule, and to or from fixed terminals; they are authorised by an exemption granted under Air Navigation Regulations. Tasmania has two approved operators.

(e) *Regular Public Transport*: This refers to aircraft carrying freight and passengers according to fixed schedule, and operating on specified routes. All services of this kind are provided in Tasmania by T.A.A. and Ansett Airlines.

Tasmanian Aerodromes

The major aerodromes in Tasmania are owned and operated by the Commonwealth Government. The following describes both Commonwealth-owned and other aerodromes in use at 30 June 1969.

Hobart

Hobart airport, Commonwealth-owned, is eleven miles east of the city and ranks seventh in the volume of passengers handled at Australian terminals. It was completed in 1956 and then consisted of a sealed runway 5,800 feet by 200 feet. Extension and strengthening of the runway, taxiway and aprons to take Electra, DC9 and Boeing 727 aircraft at full weight was completed in 1966 (727s now operate pure jet services to Hobart). The airport is equipped with complex aviation and navigation aids.

The previous Hobart airport at neighbouring Cambridge is retained for flying training activities and light aircraft operations.

Launceston

This Commonwealth-owned airport, 10 miles south-east of Launceston, ranks next after Hobart in passenger volume but handles considerably more freight. Improvements include a lengthening of the runway and the completion of a new terminal building and maintenance depot. This was the drome from which Holyman and Johnson flew their Bass Strait services in the early 1930s and which the R.A.A.F. used for training in World War II.

The area control centre provides air traffic control for the whole of Tasmania via repeater stations, south on Mt Wellington and north on Mt Barrow. The airport also is used for flying training and other light aircraft charter and aerial work operations; a grassed area is available for these activities.

Devonport

The Devonport Commonwealth-owned aerodrome was originally constructed in the early 1930s. In 1950 it was developed to handle DC₃, DC₄ and Viscount type aircraft and is now active with regular public transport, aerial work, charter, flying training and private operations. The aerodrome is equipped with night lighting, a non-directional beacon, a visual-aural range and distance measuring equipment.

Wynyard

The Wynyard Commonwealth-owned aerodrome has one sealed runway 4,400 feet and one 3,900 feet long for regular public transport operations, charter, aerial work and private operations. The aerodrome has radio navigation equipment and night lighting.

King Island

King Island airport is a Commonwealth-owned aerodrome situated four miles north-east of Currie. It has three gravel runways, night lighting, and radio navigational equipment.

Flinders Island

Flinders Island Commonwealth-owned aerodrome is situated three miles north of Whitemark. It has three grassed landing strips strengthened with some gravel and is equipped with aircraft navigation aids and radio. The 050° and 132° runways were resheeted in June 1968.

Smithton

Situated two miles west of Smithton, this licensed aerodrome, owned by the Transport Commission, was originally developed in the 1930s for Bass Strait services. It has a sealed main runway plus lesser gravel strips and is used for itinerant charter and private flights. Smithton is not equipped with radio navigation aids or aircraft communications facilities.

Bridport

The Bridport licensed aerodrome, which is the responsibility of the Transport Commission, was developed for the purpose of air-freighting local produce, mainly fish, direct to Victoria. The landing strip consists of a grassed area 4,000 feet long by 400 feet wide.

St. Helens

St Helens is a licensed aerodrome owned and operated by the Municipality of Portland. It was the first aerodrome constructed in Tasmania under the Commonwealth Aerodrome Local Ownership Plan and was officially opened in April 1963. A grassed strip 3,900 feet long and 300 feet wide is of sufficient dimension to permit operations by DC₃ and F27 type aircraft. The aerodrome currently serves the charter, aerial work and private operation requirements for the area and has a non-directional beacon for instrument navigation.

Queenstown

The Municipality of Queenstown provided an authorised landing area for light aircraft in 1937. In 1963, work was commenced on the construction of a runway suitable for the operation of DC₃ type aircraft at Queenstown under the Local Ownership Plan; it was opened on 17 April 1966. With the completion of this aerodrome, Queenstown was included in the intra-state services provided by T.A.A. Beechcraft aircraft.

Strahan

The port of Strahan serves the West Coast of Tasmania and, in particular, the Queenstown and Zeehan areas. The aerodrome at Strahan was constructed under the Commonwealth Aerodrome Local Ownership Plan and is owned by the Municipality of Strahan. It was opened for regular public transport operations in 1964, has a non-directional beacon, and was included on the T.A.A. Beechcraft route.

Cambridge

This government aerodrome was constructed during the early days of aviation and comprised four runways. After World War II, it was used extensively for DC3, DC4 and Convair regular passenger services. However, with hills in the near vicinity the site could not be developed and, following construction of the new Hobart Airport, it was retained for flying training activities and light aircraft operations.

Passenger, Freight and Aircraft Movements

The following table has been compiled to show the volume of activity at the State's principal airports; the following definitions apply:

Passengers: The figures for fare-paying passengers at each airport are the sum of embarkations and disembarkations.

Freight: The figures are the sum (in tons of 2,000 lb) of freight (including mail) loaded and unloaded at each airport.

Aircraft Movements: A take-off is one movement, a landing another.

Principal Airports**Passengers, Freight and Aircraft Movements (a)**

Year	Hobart	Launceston	Devonport	Wynyard	King Is.	Flinders
PASSENGERS ('000)						
1965-66	167	155	48	41	15	11
1966-67	178	159	55	52	16	12
1967-68	182	156	61	55	16	10
FREIGHT (SHORT TONS)						
1965-66	5,753	8,676	772	681	460	595
1966-67	6,454	8,362	743	880	455	496
1967-68	6,715	8,381	811	917	413	444
AIRCRAFT MOVEMENTS						
1965-66	7,747	11,780	3,452	3,295	1,371	1,019
1966-67	8,013	10,819	3,950	3,945	1,299	885
1967-68	7,488	11,216	3,971	4,142	1,318	765

(a) See definitions prefacing table.

Comparison with Principal Australian Airports

The next table shows the volume of activity at the principal Australian airports in terms of the number of passengers, freight and aircraft movements. Details of international services have been excluded so that comparisons are purely in terms of domestic traffic (international services are centred on Melbourne, Sydney, Brisbane and Perth).

Australia—Principal Airports
Passengers, Freight and Aircraft Movements (a), 1967-68

Airport	Passengers	Freight (Short Tons)	Aircraft Movements
Sydney	3,234,193	58,680	75,386
Essendon (b)	2,092,188	43,188	50,348
Brisbane	975,805	15,985	25,518
Adelaide	863,652	14,476	19,478
Perth	358,924	8,191	10,444
Canberra	410,701	3,323	16,840
Hobart	182,459	6,715	7,488
Launceston	156,443	8,381	11,216

(a) See definitions prefacing this section.

(b) Airport for Melbourne. The airport name 'Melbourne' is reserved for the new international airport now being constructed.

Hobart ranks seventh in the number of passengers (182,459) and freight tonnage (6,715) handled by Australian airports. Launceston is the fifth busiest freight centre (8,381) ranking above Perth (8,191 tons), Hobart (6,715 tons) and Canberra (3,323 tons).

POSTAL AND TELECOMMUNICATION SERVICES

Development of Communication Services

General

The Commonwealth Postmaster-General's Department provides and controls postal facilities and telecommunication services in Tasmania. Basically the Australian Post Office consists of two services, *postal* and *telecommunications*, supported by engineering, supply, accounts, personnel and administration establishments.

The Postal Service

In 1816, the first long-distance mail service in Australia was started between Hobart and Launceston, the carrier walking both ways and taking a fortnight for the round trip; by 1835 the service had become a twice weekly mail cart or coach delivery.

Hobart Town and its environs in 1835 was served by a thrice daily, two-penny post; today the service is once per day at a cost of five cents. All forms of transport are used to convey the mails, the number of individual postal articles handled in Tasmania in 1967-68 amounting to 66 million. (More than 2,650 million articles were handled by the Post Office throughout Australia.)

All letter class mail, within the dimensions of *Post Haste*, to and from Tasmania is carried by air, free of airmail surcharge, whilst the bulk of 'Other Article' mail is received and despatched daily by ship. To help speed the handling of mail, the Post Office has introduced *Postcode*. This is a four-figure postal location number designed to take full advantage of electronic mail coding equipment. It also helps greatly in the manual sorting of mail. An electronic mail exchange has been installed in Sydney and this type of exchange will be extended progressively to other State capitals. Automatic reading of numbers is being studied as a possible further development in letter sorting.

Telecommunications

Hobart and Launceston were linked by a telegraph line in 1857 and two years later a Bass Strait cable was in operation, only to fail in 1861. By 1869 a second cable was laid and communication with overseas countries became possible in 1872 when the Overland Telegraph was established between Adelaide and Darwin.

The first telephone line in Tasmania linked Hobart and Mt Nelson signal station in 1880, both Hobart and Launceston having exchanges by 1883. However, no link with Victoria or overseas countries was provided until 1936.

Telephones: The Post Office is working towards a highly automated telephone system so that subscribers may make direct long-distance calls anywhere in Australia by simply dialling the required number. This system is called *Subscriber Trunk Dialling* (S.T.D.); it avoids the delays associated with manually-operated exchanges and charges are based on actual time used. S.T.D. has been introduced to many centres and is being rapidly extended.

Telegraph: The teleprinter exchange (TELEX) had only one Tasmanian subscriber in 1957 but 126 were connected by 30 June 1968. The TELEX service is fully automatic and subscribers can now contact each other without an exchange operator's assistance. Calls can be made automatically to 20 of the 111 overseas countries tied in with Australian telegraphic services, while the remainder can be contacted through an exchange operator.

Construction: The Broadband Network of the Post Office carries previously unthought of volumes of traffic, including telephone calls, telegraph and telex messages, picturegrams and radio and television programmes. This huge national network already covers 6,700 miles and by 1971, the main routes will be Cairns-Brisbane-Sydney-Canberra-Melbourne-Hobart and Melbourne-Adelaide-Perth-Carnarvon (W.A.). Spurs will lead out to virtually every major centre in all States and there are links with the *Seacom* and *Compac* cables connecting Australia with overseas countries; there is also a link to the Overseas Telecommunications Commission's earth satellite station at Moree.

Tasmania has been joined to the Broadband Network by a micro-wave radio link terminating in Hobart. This link forms part of Tasmania's internal communication system which is being developed for S.T.D. Burnie and Launceston have been linked by a co-axial cable. Radio links will be provided with other centres to extend the S.T.D. facility. In recent years, the Post Office in Tasmania has had a policy of installing underground cables which have higher traffic densities. This policy is illustrated by the following table:

Cable and Aerial Wire Mileages at 30 June

Particulars	1964	1965	1966	1967	1968
Aerial Wire, Single Wire Mileage	60,186	58,480	57,046	55,403	48,398
Conductors in Cable, Single					
Wire Mileage (a)	392,821	438,012	518,003	575,073	633,709
Co-axial Cable, Tube Miles (a) ..	..	..	366	437	437

(a) Laid underground.

Employment

The next table analyses the total number employed by the Department in Tasmania:

Postmaster-General's Department—Persons Employed

Particulars	Number at 30 June 1968	Year	Total Number at 30 June
Full-time Employees (a)—			
Permanent Officers	2,699	1955 ..	3,677
Temporary and Exempt Officers (b) ..	856	1956 ..	3,783
		1957 ..	3,942
		1958 ..	3,957
Total	3,555	1959 ..	4,012
		1960 ..	3,995
Others—		1961 ..	4,066
Non-official Postmasters and Staff ..	395	1962 ..	4,077
Telephone Office Keepers	14	1963 ..	4,144
Mail Contractors (c)	189	1964 ..	4,184
Part-time Employees	35	1965 ..	4,169
		1966 ..	4,254
Total	633	1967 ..	4,247
		1968 ..	4,188
Grand Total	4,188		

(a) Full-time employees are those directly under the control of the Department. The remainder shown as 'Others' provide services, which may or may not occupy their full time, under contract or in return for payments appropriate to work performed.

(b) Exempt staff are persons exempt from the provisions of the *Public Service Act* (Federal).

(c) Includes persons employed to drive vehicles.

Revenue and Expenditure

The table that follows gives details of the financial operations of the Department in Tasmania. Three points of explanation are necessary: (i) financial statistics are compiled with a dissection between operations in the six States and in the central office (located in Melbourne); an adequate picture of the financial results of a year's trading can be obtained only from the combined Australian accounts of the Department; (ii) in the expenditure table appear items of a capital nature but the source of funds for this work is not included in the revenue table; (iii) the Department is administered as a business undertaking and pays interest to the Commonwealth Treasury on all capital; interest is not brought to account in the table.

Postmaster-General's Department—Financial Operations in Tasmania
(\$'000)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
REVENUE					
Postal	2,466	2,603	2,685	2,779	3,173
Telegraph	388	415	471	509	568
Telephone	5,688	6,709	7,209	7,883	8,939
Other	24	13	9	38	178
Total	8,566	9,740	10,374	11,209	12,858

Postmaster-General's Department—Financial Operations in Tasmania—continued
(\\$'000)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
EXPENDITURE					
From Ordinary Votes—					
Salaries and Payments in Nature of Salary	3,718	3,957	4,181	4,690	5,016
Administration	492	525	578	544	551
Stores and Material	112	124	158	219	245
Mail Services	266	264	271	281	285
Engineering Services (Other than Capital Works) ..	2,896	3,173	3,303	3,532	3,936
Total	7,484	8,044	8,491	9,267	10,034
Rent, Repairs and Maintenance	92	126	131	143	207
Capital Works and Services (a) ..	5,084	6,225	7,629	7,998	7,667
Other .. ..	..	..	16	26	32
Grand Total ..	12,660	14,395	16,267	17,434	17,940

(a) Source of funds for this expenditure not shown under 'Revenue'.

Operations of the Department

Apart from its obvious role of providing communication facilities through various media, the Department provides a money order and postal order service and also acts as an agent for a number of other instrumentalities in transactions which include: savings bank deposits and withdrawals; payment of pensions and allowances; War Service Homes repayments; sale of State duty stamps, etc.

The following table shows the volume of mail handled and the monetary transactions carried out through use of the Post Office in Tasmania.

Postal Services

Particulars	Unit	1963-64	1964-65	1965-66	1966-67	1967-68
Post Offices—Official	no.	54	54	54	55	56
Non-official	no.	446	440	433	421	389
Postal Traffic (a)—						
Letters, Postcards, etc.	'000	47,452	49,108	51,710	55,594	55,273
Newspapers, Books, etc.	'000	9,340	9,549	10,309	10,531	10,141
Parcels	'000	232	263	288	302	303
Registered Articles	'000	371	371	375	379	349
Money Orders—						
Issued—No.	'000	342	366	353	364	322
Value	'000	8,548	9,356	11,576	12,690	13,468
Paid —No.	'000	253	263	274	298	266
Value	'000	7,852	8,768	10,902	12,042	12,727
Postal Orders (b)—						
Issued—No.	'000	388	368	356	344	350
Value	'000	390	378	384	467	599
Paid —No.	'000	208	206	206	208	201
Value	'000	212	212	213	268	351

(a) Number of distinct articles handled.

(b) Prior to 1 June 1966, the figures refer to a similar system using *postal notes*.

Postal Services

The following table shows the volume of mail handled and the monetary transactions carried out through use of the Post Office in Tasmania.

Money Orders: An order may be obtained for sums up to \$80 on a single order. Orders for overseas are limited to \$50, and a remitter may send only one such order in any week.

Postal Orders: A system of *postal orders* replaced a system of *postal notes* from 1 June 1966 and from October 1967 postal orders in denominations ranging from 10 cents up to \$5, \$6, \$7 and \$8 have been available; they provide security since they can be traced and also be 'crossed' like a bank cheque. Duplicates can be issued in certain circumstances.

Telephone and Telegraph Services

The next table describes telephone and telegraph services in Tasmania:

Telecommunications

Particulars	Unit	1964-65	1965-66	1966-67	1967-68
Telephone—					
Automatic Service Subscribers	'000	47	50	53	57
Manual Service Subscribers	'000	13	12	12	10
Subscribers with access to S.T.D.	'000	6	6	7	39
Automatic Exchanges	no.	131	137	140	148
Manual Exchanges	no.	234	212	191	164
Value of Calls Made—					
Local (including S.T.D.)	\$'000	1,539	1,632	2,186	2,537
Trunk	\$'000	2,229	2,388	2,791	2,904
Telegraph—					
Phonograms Lodged	'000	288	317	336	340
All Telegrams Lodged (a)	'000	572	610	640	596

(a) Includes telegrams lodged by telephone (i.e. phonograms).

Telephones: The following table further analyses the telephone services in Tasmania, showing the dissection between *business* and *residential*:

Telephone Services at 30 June: Operating Services

Particulars	Unit	1964	1965	1966	1967	1968
Services in Operation—						
Business	'000	29.9	30.6	31.4	32.4	32.4
Residential	'000	26.3	27.4	29.5	31.3	33.4
Public Telephones	'000	1.1	1.1	1.1	1.1	1.2
Instruments in Operation	'000	78.0	82.4	86.1	88.9	93.0

RADIOCOMMUNICATION**Stations in Tasmania**

The section which follows relates to radiocommunication (radio telegraph and radio telephone) stations only; particulars of broadcasting stations and of broadcast listeners' licences are specifically excluded and are dealt with in a subsequent section.

The following table shows the number of radiocommunication stations and their categories over a number of years:

**Number of Authorised Radiocommunication Stations at 30 June
(Two-way Services)**

Particulars	1964	1965	1966	1967	1968
Fixed Stations (a)—					
Aeronautical	9	9	8	8	8
Outpost (b)	15	17	16	19	19
Other	36	38	42	62	57
Total	60	64	66	89	84
Land Stations (c)—					
Aeronautical	8	8	7	7	7
Base Stations for—					
Land Mobile Services ..	202	243	266	303	319
Harbour Mobile Services ..	5	6	13	13	13
Coast (d)	21	21	22	22	24
Special Experimental ..	12	16	14	17	17
Total	248	294	322	362	380
Mobile Stations—					
Aeronautical	29	32	24	26	26
Land Mobile Services ..	1,404	1,650	1,945	2,385	2,588
Harbour Mobile Services ..	41	50	59	68	75
Outpost	45	35	58	67	66
Ships	240	279	303	370	415
Total	1,759	2,046	2,389	2,916	3,170
Amateur Stations	160	170	174	194	222
Grand Total	2,227	2,574	2,951	3,561	3,856

(a) For exchange of radio messages with other similar stations.

(b) Stations established in remote localities for communication with control stations, e.g. the lighthouse service.

(c) For exchange of radio messages with mobile stations.

(d) Land stations for communication with ocean-going vessels.

To operate a radio transmitter as previously described, it is necessary to obtain a licence from the Postmaster-General's Department which is responsible for frequency allocation and for certain inspectorial functions. In the previous table, the term 'authorised' refers to equipment licensed by this authority.

Some examples of the use to which this form of communication is put, include: (i) the police networks for intra-state signals and for link with police cars; (ii) coastal radio service to ships at sea (the same service provides links with outpost transmitters in the State's remote areas, e.g. Port Davey); (iii) army network with direct link to Melbourne; (iv) fire brigade network operating in the area controlled by each authority; (v) fishermen's network with base stations at Triabunna, Dunalley, Bicheno, St Helens, Lady Barron, Currie, Stanley and Strahan; (vi) lighthouse network (the source of weather reports at remote coastal stations); (vii) special purpose networks of various authorities, e.g. Hydro-Electric Commission, Forestry Commission, ambulance services, etc; (viii) marine boards' V.H.F. networks (on single international frequency) for ship-to-shore link with overseas vessels; (ix) the 'mutton birders' network—operating from Whitemark on Flinders Island when the

'birders', in the season, inhabit the otherwise deserted Bass Strait islands;
(x) mine networks, e.g. central control linked to outposts engaged in blasting;
(xi) freighting services and taxi networks, etc.

BROADCASTING AND TELEVISION

General

In Australia, broadcasting and television services are provided both from commercial and Commonwealth Government transmitters; the *Federal Broadcasting and Television Act 1942-67* governs the operation of services designated the National Broadcasting Service, the National Television Service, the Commercial Broadcasting Service and the Commercial Television Service.

The National Services

The national services (both broadcasting and television) are provided by the Australian Broadcasting Commission which has sole responsibility for programme material; the actual transmitters are operated by the Postmaster-General's Department. Owners of broadcast and television receivers are required to pay annual licence fees to the Postmaster-General's Department, and this revenue is used to help pay the cost of operating the national services.

The Commercial Services

The commercial services (both broadcasting and television) are operated under licences granted by the Postmaster-General, who, in exercising his licensing powers, takes into consideration recommendations made by the Australian Broadcasting Control Board. The revenue of the commercial services is obtained from advertising. Licence fees, payable to the Postmaster-General's Department, are charged on a sliding scale from 1 per cent to 4 per cent of gross advertising revenue.

The Australian Broadcasting Control Board

Although the commercial services are operated as private enterprise undertakings, the Board exercises control in certain fields, by prescribing programme standards, laying down rules for advertising time and advertising content, determining hours of operation, and by establishing and supervising operational standards. The Board allocates frequencies for transmission and investigates applications for the establishment of stations. In all these functions, it works under the ministerial jurisdiction of the Postmaster-General.

Hours of Transmission

At 30 June 1968, eight commercial broadcasting stations in Tasmania were operating; two in the Hobart area averaging 133 hours weekly; six elsewhere in the State averaging 118 hours weekly. The corresponding figures for the two commercial television stations were 66.25 hours weekly in the Hobart area, and 67.50 hours in the Launceston area.

Programme Standards, Commercial Stations

Broadcasting Standards

Licensees are required to provide programmes in accordance with standards determined by the Australian Broadcasting Control Board. These

standards contain special provisions dealing with the timing of family and children's programmes, and the number, duration and suitability of advertisements, e.g. in a sponsored programme, advertising per 15 minutes of programme is limited to 3.0 minutes.

Also under the *Broadcasting and Television Act 1942-67*, licensees are required to broadcast religious services, or other matter of a religious nature during such periods as the Board determines. The minimum time set by the Board is one hour per week but stations are providing, free of charge, considerably more than one hour per week for religious broadcasts. The Act also provides that licensees shall, as far as possible, use the services of Australians in the production and presentation of programmes, and that not less than five per cent of the time occupied by the programmes of stations in the broadcasting of music shall be devoted to works of Australian composers.

Television Standards and Australian Content

The Board has prescribed standards for commercial television and these relate to programme content; timing of programmes (e.g. content when children are most likely to be watching); the number, content and duration of advertisements. Officers of the Board monitor programmes and investigate viewers' complaints with regard to programme content.

Since July 1967, all metropolitan commercial stations (and all country commercial stations operational for three years) have been required to transmit Australian-originated programmes for 50 per cent of transmission time. This Australian material must be featured in peak viewing time (7.00 pm to 9.30 pm) for at least 18 hours in each four weeks; it must appear for at least two hours per week between 7.00 pm and 9.00 pm. Australian drama must be featured for at least two hours per month. Special credit is given in calculating Australian programme percentages for drama written by Australians; local production of overseas dramas; Australian-designed children's programmes. Limited 'Australian credit' is allowed for programmes produced in the British Commonwealth.

Category of Television Programmes

The following table shows, as varying proportions of transmission time, the types of programme televised in the Hobart area:

Category of Television Programmes—Hobart, 1968-69 (a)
Proportion of Transmission Time

Programme Category	Hobart Commercial Programmes	Hobart National and Commercial Pro- grammes Combined
	per cent	per cent
Drama	46.8	31.4
Light Entertainment	17.6	10.3
Sport	9.2	11.7
News	8.8	7.2
'Family'	7.6	4.7
Information	2.2	3.4
Current Affairs	3.8	10.4
The Arts .. .. .	..	1.7
Education	4.0	19.2
Total	100.0	100.0

(a) Source: Australian Broadcasting Control Board.

Film Classification

Films imported for televising are classified as suitable for unrestricted viewing (G), not suitable for children (A) and suitable for adults only (AO). Classifications are advertised before showing.

Television Stations in Operation

The next table gives details of the television stations in operation:

Television Stations in Operation, 30 June 1969

Call Sign and Channel	Area	Transmitter Location	Height Above Sea Level— Top of Aerial (ft)	Hours of Service (Weekly)
NATIONAL				
ABT 2	Hobart	Mt Wellington	4,410	85.25
ABNT 3 (a) ..	NE. Tasmania	Mt Barrow	4,780	85.25
COMMERCIAL				
TVT 6	Hobart	Mt Wellington	4,340	77.00
TNT 9	NE. Tasmania	Mt Barrow	4,654	69.25

(a) Transmits programmes originating from ABT2.

Relay of Television Programmes from Other States

Tasmania is linked with Victoria by a broadband radio link installed by the Postmaster-General's Department which enables the direct relay of television programmes from the mainland States via a repeater station on Flinders Island and a chain of stations (Waterhouse-Mt Dismal-Launceston-Cleveland-Mt Seymour-Chimney Pot Hill (Hobart)) on the Tasmanian mainland. In 1969 a direct T.V. coverage of the *Apollo Eleven* moon landing; the Olivares-Rudkin World Championship fight and the start of the Sydney-Hobart yacht race were relayed via this link to Tasmania.

Microwave Links and Intra-State Relays

The prime sources of programmes in Hobart are the commercial and national studios which are linked to their Mt Wellington transmitters (TVT6 and ABT2) by micro-wave links; the commercial studio in Launceston feeds programmes to its Mt Barrow transmitter (TNT9) by the same method. As there is no national studio at Launceston, the transmitter on Mt Barrow (ABNT3) relays the Hobart national programmes through the broadband radio link. This service is also available to commercial stations.

Television Translator Stations

Tasmania, due to its terrain, has areas where television reception direct from the Mt Wellington or Mt Barrow transmitters is either difficult or impossible. To provide good reception in such areas, translator stations, which are low powered stations receiving signals from a parent station and re-transmitting on another channel to areas with poor reception, have been installed as follows:

Television Translator Stations—Progress of Installation, June 1969

Area Served	Parent Station		Local Channel	
	National	Commercial	National	Commercial
Queenstown-Zeehan	ABT2	TVT6	4	8
Rosebery-Renison Bell	ABT2	TVT6	1	10
Taroona .. ..	..	TVT6	..	8
Swansea-Bicheno .. ..	..	TVT6	..	8
Smithton-Stanley	ABNT3	TNT9	1	6
Gowrie Park	ABNT3	TNT9	11	1
South Launceston	ABNT3	TNT9	1	11
St Marys-Fingal Valley	ABNT3	TNT9	1	11
Maydena .. ..	..	TVT6	..	8
Waratah .. ..	..	TNT9	..	10
Savage River-Luina .. ..	..	TNT9	..	7

De-icing

In view of the temperature and weather conditions existing at Mt Wellington and Mt Barrow, precautions have been necessary to prevent the formation of ice on the aerial elements and the resultant danger of damage from falling ice.

In the case of the aerial at the Hobart national station ABT₂ (Mt Wellington), the aerial elements are heated by mains power which is switched on automatically by means of a thermostat when the temperature falls below freezing point. In the case of the Hobart commercial station (TVT6, Mt Wellington), the junctions between the coaxial feeder lines and the aerial elements are protected by small plastic covers. In the case of the Launceston (Mt Barrow) commercial station TNT₉ and national station ABNT₃, the whole of the aerial is covered by a plastic cylinder. The lower part of the ABNT₃ mast is metal-sheathed for 190 feet to ward off ice which falls from the plastic cylinder and which could damage the mast.

Broadcasting Stations in Operation

The following table gives details of the broadcasting stations in operation:

Broadcasting Stations in Operation at 30 June 1969

Call Sign	Classification	Location	Hours of Service (weekly)
7ZL	National	Hobart	125.50
7ZR	National	Hobart	125.75
7NT (a)	National	Launceston	125.75
7QN (a)	National	Queenstown	125.75
7HO	Commercial	Hobart	140.00
7HT	Commercial	Hobart	131.25
7AD	Commercial	Devonport	116.50
7BU	Commercial	Burnie	113.50
7EX	Commercial	Launceston	163.00
7LA	Commercial	Launceston	126.00
7QT	Commercial	Queenstown	98.50
7SD	Commercial	Scottsdale	100.50

(a) Transmits, in the main, programmes originating from 7ZL and 7ZR.

On the map, Tasmania looks a small island and, if it were flat, reception of programmes from all 12 stations would probably be possible at any given point. Because of hills and mountains, this does not occur, certainly not by day, and reception of mainland stations is often better than that of the more distant local stations.

The structure and population distribution in the state has given rise to a regional pattern of broadcasting stations with concentrations in Hobart and Launceston and outlying stations in the north-east, north-west and west.

Listeners' and Viewers' Licences

Revenue from Licences

The revenue from licences for the decade is shown in the following table. From 1 April 1965 three types of licences: listener's; viewer's and combined were issued. The revenue from each type of licence is not available separately after 1963-64.

Broadcast Listeners' and Television Viewers' Licences—Revenue (a)
(£'000)

Year	Type of Licence (b)		Total Revenue
	Listener's	Viewer's	
1959-60	392	43	435
1960-61	382	182	564
1961-62	370	276	645
1962-63	358	426	784
1963-64	356	510	865
1964-65	1,005		1,005
1965-66	1,047		1,047
1966-67	1,127		1,127
1967-68	1,157		1,157
1968-69	1,314		1,314

(a) From 1964-65 no breakup is available.

(b) Includes the 'combined licence' from 1 April 1965.

Details of Rates

In general, all persons owning a radio or television set (or both) are required to pay an annual licence fee. Terms used in the next table are defined as follows:

Pensioner Rate: While concession rates apply to certain classes of pensioners, licences free of charge may be granted to blind persons over 16 years of age, or to a school.

Hirer's Licence: Each broadcast or television receiver let out on hire, except those under hire purchase contracts, must be covered by a hirer's licence held by the person or firm from whom the receiver is hired.

Lodging House Licence: Owners of hotels, motels, guest houses, furnished premises, etc. are required to hold a licence for every broadcast or television receiver provided for the use of guests, lodgers and tenants.

The schedule of fees is as follows:

Broadcast Listeners' and Television Viewers' Licences—Rates from 1 October 1968 (\$)

Licence	Ordinary Rate	Pensioner Rate
FOR BROADCAST RECEIVER		
Listener's or Hirer's Licence	6.50	1.00
Lodging House Licence	6.50	..
FOR TELEVISION RECEIVER		
Viewer's or Hirer's Licence	14.00	3.00
Lodging House Licence	14.00	..
COMBINED LICENCE (FOR BROADCAST AND TELEVISION RECEIVER)		
Combined Receiving Licence	20.00	4.00

Licences in Force

The following table shows the number of listeners' and viewers' licences in force in Tasmania from 1925:

Licences in Force—Listeners' and Viewers' Licences from 1925

At 30 June	Broadcast Listeners'	Television Viewers'	Combined (a)
1925	567	..	..
1930	6,048	..	..
1940	42,191	..	..
1950	64,369	..	..
1960	78,900	4,662	..
1965 (a)	62,299	47,779	10,718
1966 (a)	28,733	6,283	56,050
1967 (a)	21,917	7,240	60,405
1968 (a)	14,811	7,469	61,752
1969 (a)	12,456	8,731	66,254

(a) The combined receiving licence was introduced in April 1965, to be held by those persons owning both a broadcast and a television receiver at the same address. Separate licences are still available for persons owning only one type of receiver.

Licences and Receivers

The number of receivers in use, both for broadcasting and television, exceeds the number of licences, since the householder or members of his family may operate any number of receivers normally kept at the address shown on the licence. (This concession does not apply to those required to hold lodging house licences.)

Although television transmission did not begin in Tasmania before the first half of 1960 (with ABT2 and TVT6 in Hobart), a few licences were held in the northern areas of the State as early as 1957; the owners of these receivers were able to tune to programmes originating in Victoria but the quality of reception was very variable due to the distance.

Zones

The rates for broadcast listeners' licences quoted in a previous table are those applicable to Zone 1 which includes areas within 250 miles of specified broadcasting stations. Zone 2 is defined as the remainder of Australia and persons living in this zone can obtain broadcast listeners' licences at a reduced rate. All Tasmanians live in Zone 1 and pay Zone 1 rates.

Appendix A

PUBLICATION OF TASMANIAN STATISTICS

HOW TO OBTAIN CURRENT PUBLICATIONS

General

The Tasmanian Office of the Commonwealth Bureau of Census and Statistics is located at *Kirksway House, corner of Kirksway Place and Montpelier Retreat, Hobart*. Requests for statistical publications can be made by calling at this address; by phoning *Hobart 202122*; or by writing to the *Deputy Commonwealth Statistician, G.P.O. Box 66A, Hobart, 7001*.

Service to the public is not restricted to the distribution of publications. If no publication adequately covers the subject matter of the enquiry, then a special extraction of the data required may be undertaken if they are available from the basic records held in the office.

Historical

The first Government Statistician in Tasmania was E. C. Nowell who took up duty in 1867. Before this appointment, statistics had been published in the official 'Blue Books' compiled by the Colonial Secretary during the period 1822-1855, and in volumes entitled *Statistics of Tasmania* after self-government was granted.

By the *Commonwealth and State Statistical Agreement Act 1924*, the Tasmanian Parliament ratified an agreement for the establishment of an office of the Commonwealth Bureau of Census and Statistics, such office to meet the statistical needs of the State Government; provision was made for the Deputy Commonwealth Statistician, a Commonwealth officer, to hold at the discretion of the State Government, the title of (State) Government Statistician. The first officer appointed in this way was L. F. Giblin, M.C., D.S.O., who had previously been the State Government Statistician. (It was not till the late 1950s that similar arrangements were made in the other Australian States.)

Statistics from 1804

In the Archives Office of Tasmania, the following series are available:

- (i) Official 'Blue Books' for period 1822-1855.
- (ii) *Statistical Account of Van Diemen's Land or Tasmania, 1804 to 1854* compiled by Hugh M. Hull (Office of the Colonial Secretary).

- (iii) *Statistics of Tasmania*—annual publications from 1856 to 1922-23.
- (iv) *Statistics of the State of Tasmania*—annual publications commencing 1923-24 and still being produced annually. (Copies of these volumes are held at the University Library, the State Library in Hobart and the Public Library in Launceston; current volumes can be purchased from the Tasmanian Office of the Commonwealth Bureau of Census and Statistics.) The 1967-68 volume will be available by June 1970.

Copies of publications listed from (ii) to (iv) inclusive are available for inspection at the Tasmanian Office of the Bureau.

Current Publications of the Tasmanian Office

The Tasmanian Office of the Commonwealth Bureau of Census and Statistics is engaged in a continuous publication programme, the statistics appearing in either printed or mimeographed form.

In general, the mimeographed publications (which are obtainable free of charge) have been compiled to make information available at the earliest possible moment. Printed publications contain information in very much greater detail but, because of the inevitable delay imposed by manuscript preparation and the printing process, may be issued a year later than the period to which they refer. (The printed *Monthly Summary of Statistics* is an exception and the 'lag' is no more than about two months.)

Printed Publications

The following table sets out details of all printed publications issued by the Tasmanian Office:

Printed Publications Issued by the Tasmanian Office

Title	Frequency	For issue in 1970	Price	
			Excluding Postage (\$)	Including Postage (\$)
Tasmanian Year Book	Annual	1970	1.00	1.45
Monthly Summary of Statistics	Monthly	(a)	0.15	0.20
Pocket Year Book of Tasmania	Annual	1970	0.15	0.24
Statistics of the State of Tasmania—				
Demography	Annual	1968	0.60	0.73
Trade and Shipping	Annual	1967-68	0.40	0.49
Primary Industries and Meteorology	Annual	1967-68	0.70	0.83
Secondary Industries and Building	Annual	1967-68	0.60	0.73
Finance (b)	Annual	1967-68	0.60	0.73
Social	Annual	1968	0.20	0.29
Statistical Summary	Irregular	(c)	0.40	0.49
Bound Volume of all above Bulletins	Annual	1967-68	2.50	2.87

(a) Published one to two months after the most recent month for which figures are available.

(b) Incorporates Public Finance, Local Government Finance and Private Finance.

(c) Irregular; current issue, 1962-63.

Mimeographed Publications

The next table gives details of all mimeographs produced by the Tasmanian Office:

**Mimeographed Publications Issued by the Tasmanian Office
(Free of Charge)**

Subject Matter	Title of Publication	Frequency
Alcoholic Liquor	Wholesale Sales and Stocks of Wine and Spirits; Consumption of Alcoholic Liquor	Annual
Building	Building Approvals Building Statistics	Monthly Quarterly
Insurance	Fire, Marine and General Insurance	Annual
Municipal Statistics	Compendium of Municipal Statistics .. Local Government Finance	Irregular (Last Issue, 1968) Annual
Population	Population in Local Government Areas .. Vital and Population Statistics	Annual Quarterly
Production (General)	Miscellaneous Indicators of Productive Activity	Monthly
Production (Primary)	Dairy Industry Farms, Farm Population, Employment, Irrigation and Machinery Used Fruit Production Hop Production Livestock Livestock and Wool Production (Preliminary Figures) Meat Production Potato Production Poultry Slaughtering and Chicken Hatching .. Tractors on Rural Holdings Value of Production (Primary) Wool Production Statistics	Annual Annual Annual Annual Annual Annual Annual Annual Annual Monthly Triennial Annual Annual
Production (Secondary)	Factory Production Sawmill and Plywood Mill Statistics	Annual Monthly
Retail Trade	Retail Sales of Goods	Quarterly
Towns	Index of Tasmanian Towns	Irregular
Trade	Trade (Overseas) Trade (Overseas and Interstate) by Sea and by Air	Annual Annual
Transport and Traffic	Motor Vehicle Registrations Road Traffic Accidents	Monthly Quarterly

**TASMANIAN STATISTICS IN CENTRAL OFFICE
PUBLICATIONS**

General

Although publications of the Tasmanian Office of the Bureau of Census and Statistics make available statistics on many aspects of the State, there are some fields in which additional or more frequent information is available in publications of the Central Office.

How to Obtain Central Office Publications

Central Office printed publications may be *bought* direct from the Government Printer, Canberra and from the Tasmanian Office of the Bureau of Census and Statistics; they may also be ordered from leading booksellers in the principal centres. A standing order may be placed with the Government Printer, Canberra, with whom a credit account may be arranged.

In addition to printed publications for which a charge is made, there are other Central Office publications (mimeographed, etc.) which may be obtained free of charge from the Commonwealth Statistician, Canberra.

Subject Matter of Central Office Publications

The fields of statistical enquiry covered in Central Office publications are very wide and the best way to obtain a guide to the material available is to write to: *The Commonwealth Statistician, Canberra* and ask for *Publications of the Commonwealth Bureau of Census and Statistics*. Copies of this guide are also available at the Tasmanian Office of the Bureau. This free 52-page guide lists the publications of the Central Office and of the State Offices; in addition, it contains a subject index.

Readers with interest in a particular field are invited to call at, or write to, the Tasmanian Office which is in a position to give advice on what publications are available.

Appendix B

CHRONOLOGY

THE YEAR 1969

Record to 25 October

U.S. yacht *Ondine* took line honours in Sydney-Hobart yacht race; handicap winner *Koomooloo*. Tasmanian Government Railways take over Burnie railway station from Emu Bay Railway Company, Federal Minister for National Development (Mr Fairbairn) approved woodchip industry. Animal and Birds Protection Board subsidised survey of magpie population. Parangana Dam (first of H.E.C. Mersey-Forth scheme) completed. Consignment of 17 stud Tasmanian cattle exported to New Zealand. Mt Lyell Mining and Railway Co. Ltd donated Abt railway engine to Tasmanian Transport Museum. A.N.M. commissioned new paper machine with capacity exceeding 100,000 tons of newsprint. Southern Tasmania hit by strong winds; gusts up to 75 m.p.h. Production from Comalco's Bell Bay aluminium plant nearing peak capacity. East Coast drought led to water shortage at St Marys. Strikes interrupted T.A.A. air services to Tasmania. Bureau of Agricultural Economics announced intended survey of Tasmanian fruit export industry. *George H. Evans* (emergency power generating ship) sold by H.E.C. to West Australian mining company. Century-old coaching house at Ross opened as licensed restaurant. State Government made \$15,000 donation to Victorian bush fire relief appeal. Officials inspect newly formed rural fire brigades. First stage of \$80,000 caravan resort at Scamander completed. Tasmania exempted from nation wide rail strike. Commissioner of Trade Practices cited Tasmanian Breweries Pty Ltd to appear before Trade Practices Tribunal; first case under Federal *Trade Practices Act*. \$198,000 contract let by Scottsdale Council for construction of town sewerage treatment plant. Briseis Tin N.L. continued diamond drill testing at Briseis tin mine Derby. Casino proposal for Launceston by U.S. businessman. Senate Select Committee on Air Pollution concluded Tasmanian investigation. New \$20,500 factory at Cygnet to process apples. Longford municipality received six tanker trailers for rural fire brigades. Sir Paul Hasluck appointed Governor-General of Australia. Aberfoyle N.L. announced discovery of promising nickel deposits near Mt Lindsay. Federal Minister for Civil Aviation announced \$80,000 improvement to Hobart airport's instrument landing system. Launceston company demonstrated its first commercially built hovercraft. New A.N.L. roll-on roll-off ferry *Australian Trader* to operate between Melbourne and northern Tasmanian ports. Regional psychiatrist appointed for Mersey Region (Deloraine to Ulverstone). Sydney firm to undertake King Island port study. Bale of super-fine merino wool at Launceston sales sold for record price of 780c per lb. Mr Reece set record for continuous service as State Premier. Tasmania to be excluded from container shipping service. Forestry Commission 600 ft long bridge over Arthur R. (west coast) opened. Stanley to be port for overseas export of rutile and zircon mined on King Island. Commonwealth Road Grant formula revised; State to receive increased grants. Dorset tin dredge encountered rich tin reserves at Gladstone operating site. Hobart's first Blue Gum festival. New hop picking machine

makes debut in Scottsdale district. 'Stock and Crop' census forms delivered by mail; previously by police. North-West General Hospital opened at Burnie. Site for new Launceston Regional Library chosen. Retail price of butter increased 3 cents per pound. Tasmanian Chief Justice warned drivers convicted of dangerous driving could expect gaol sentences. Power Corporation (Aust.) Ltd (subsidiary of Power Corporation of Canada) took out exploration licence over 5,300 acres around Tasmania Mine at Beaconsfield. Naracoopa Rutile Ltd commissioned processing plant at Naracoopa, King Island; company to mine beach sand for rutile, zircon and other minerals. Shipment of 38,000 lb of clover honey left Burnie for Japan. Dredging at E.Z. Co.'s Risdon wharf to deepen port facilities. Federal Government announced grant of \$750,000 for Cressy-Longford irrigation scheme conditional upon acceptance by majority of affected farmers. Liquid oxygen tank exploded at Launceston factory; one killed instantly and two received fatal burns. Three East German sailors deserted ship at Hobart and sought political asylum. Tasmania to have new air conditioned ambulances. Roll-on roll-off ferry for Stanley and King Island planned. Prospector reported valuable mineral find in north-west near Arthur River. H.E.C. let \$0.75m contract to Tasmanian firm for supply of pipes for Fisher power station (Mersey-Forth scheme) penstock. State elections. Avoca kangaroo shoot held. H.E.C. reduced some rentals at Strathgordon to avoid industrial unrest. Hobart's first preservation order taken out on four houses in Battery Point. Hobart water-front strike interrupted fruit exports. Freighter *Mundoora* crashed into Dennes Point jetty (Bruny Island). Victorian secretary of Tramway and Motor Omnibus Employee's Union gaoled; Australia-wide strikes. Postmaster-General announced plan to bring T.V. to King Island. Tamar Regional Valley Planning Authority formed. Election results announced: 17 Labor, 17 Liberal, one Centre Party members returned; ten sitting members lost their seats. Gordon Edgell Pty Ltd announced \$200,000 extension to Devonport food processing plant. H.E.C. let \$3m contract for Bell Bay thermal power station. Fisheries Division to survey newly discovered east-coast scallop beds. Centre Party member, K. O. Lyons, combines with Liberal Party to form Liberal-Centre Party coalition government; end of 35-year Labor rule in Tasmania. Mt Lyell Co. housing project at Queenstown completed. Glaxo-Allenburys Pty Ltd to establish \$0.8m plant on north-west coast for processing oil poppies; plant to be commissioned by 1971. Serious flooding in north, north-east and north-west; Longford inundated; Midland Highway cut at Ross; first serious test for Launceston flood protection project. Launceston Mayor estimated that Launceston flood protection scheme saved the city approximately \$3m. Tasmanian Trades and Labour Council put black ban on installation work connected with H.E.C. computer. Fire at Electrona carbide plant; output cut by 60 per cent. Tasmanian company awarded \$3m contract for construction of first stage of Tasmanian College of Advanced Education. Liberal-Centre Party coalition to legislate for three-year parliament; not to apply to present Parliament. Committee established by Government to study Launceston Bell Bay rail link. Hobart Marine Board to construct \$45,000 garbage incinerator to deal with refuse. Production commenced at Mt Lyell Co's. Crown Lyell No. 3 and Cape Horn mines. Work commenced on Hobart Marine Board's explosives jetty. Deloraine Council set up committee to investigate timber resources of the municipality. Full Bench of Federal Arbitration Commission granted equal pay to females performing equal work; female salaries to be brought up to male salaries in stages. Cut-suction dredge arrived at Tamar to dredge entrance. Federal Government to participate with Australian Dairy Produce Board in \$0.8m study of the dairy industry. New Teachers College at Mowbray (Launceston suburb) occupied. Fruit wasp reported on north-west coast. *Australian Trader* arrived at Devonport on maiden voyage. Work on Gordon River project officially commenced. Rockfall in Lemonthyme tunnel

puts Lemonthyme power station temporarily out of commission. State Government and private enterprise to conduct survey of State's industrial potential. Extension of New Norfolk sewerage system costing \$100,000 undertaken. Explosion in one of Comalco's three rectiform transformers interrupted production. U.S. 'Moon Shot' to put two astronauts on Moon launched. State and Federal Health Ministers agree to introduce legislation curbing cigarette advertising. 12.39 pm A.E.S.T. 21 July 1969, Man took first step onto Moon's surface. Burnie cheese company (Lactos) designed new fully mechanised cheese making machine. Burnie sulphuric acid plant to use sea-water for cooling. Smelting at Mt Lyell Co.'s Queenstown smelter suspended after partial failure of plant. Hobart site of congress on teacher education. State Government established law reform committee. Chief Secretary foreshadowed legislation to amend State Wages Board system. Public Works Department surveyed drivers using Tasman Bridge as part of plan to improve traffic flows. Hobart Marine Board let contract for geophysical and hydrographic survey of Spring Bay to Queensland company. Hong Kong influenza hit State. Hobart Trade Fair opened. Flooding in Midlands and North Midlands, farmers suffered heavy sheep losses in Cressy area. Hobart City Council agreed to re-zone area at New Town to allow construction of \$3.5m 'K-Mart Discount' store. Seven-mile water pipeline from Mersey to A.P.P.M. paper plant at Wesley Vale completed. Cabinet vetoed proposed move of Government Printery to Warrane. 'Glenleith', Tasmania's major hop farm, sold; new owner to up-root hop fields. John Lysaght (Australia) to build \$70,000 steel fabrication plant at Spreyton. Tankers carrying inflammable liquids banned from Tasman Bridge during peak traffic hours. Floodgates at Meadowbank dam open; no serious flood damage. Launceston casino backer asked for 15 years' monopoly in northern Tasmania. World's longest living heart transplant patient died. Cressy-Longford farmers vote in favour of Brumby Creek irrigation scheme. No action to be taken by State Government regarding proposed Marine Board Building. Ironmongers' Wages Board gives substantial increases to retail employees. Strike at Mt Lyell mine, Queenstown. University to receive \$6.9m and the College of Advanced Education \$3.98m during triennium 1970-1972. H.E.C. to construct \$3m office block. Ship chartered to transport 100,000 kW generator from Japan for Cethana Power station. Legislation proposed for long service leave for casual workers. Ross to be third town by-passed by Midland Highway. Death of Sir Robert Cosgrove, KCMG, Premier of Tasmania 1939-1947 and 1948-1958. Regulation imposing severe penalties on the users of stimulants introduced. H.E.C. to 'underground' cables in selected areas of Hobart. Research into the abalone fishery to be undertaken near Maria Island. Building contract for Wrest Point casino approved. State seeking \$1,500m steel industry to be located in Australia by Hamersley Iron, Kaiser Steel Corp., Bethlehem Steel Corp. and Armco Steel Corp. Federal and State governments to consider port development for King Island. Reports of aborigine stone quarries near Swanston to be investigated by Tasmanian Museum geologist. Federal government policy on uniform freight rates on overseas container vessels announced. Professional Fisheries Association (Tas.) seeks the extension of territorial waters to 25 miles. Proved ore body at King Island Scheelite mine doubled to 6.0m tons. Road grants to certain north-western municipalities substantially increased. H.E.C. profit for 1968-69 exceeded \$1.8m. Housing Department purchased two homes for aborigines. Launceston Teachers College officially opened. Legal action taken to prevent construction of Hobart Marine Board office building. Silver-lead prospect discovered near Zeehan. Battery Point redevelopment plan leads to criticism of Hobart City Council by National Trust. Land speculators negotiating for large areas of land east of Hobart. Gallup Poll indicates that 61 per cent of Australians in favour of Daylight Saving. David Alexander Ritchie, Tasmanian Rhodes Scholar for

1970. Apex Clubs of Australia organise a 'Walk-around-Australia' to raise funds for a medical foundation, Tasmanian clubs raised \$10,000. Largest search in Tasmanian history for lost bushwalker in Mt Anne area unsuccessful. Commonwealth government to construct a 13 storey \$4m office block in Hobart. Federal election: narrow victory to Liberal-Country Party coalition; successful Tasmanian candidates: Bass, L. Barnard (A.L.P.); Braddon, R. Davies (A.L.P.); Denison, R. Solomon (Liberal); Franklin, R. Sherry (A.L.P.); Wilmot, G. Duthie (A.L.P.).

(See also Appendix C for details of other 1969 information.)

Appendix C

LATER INFORMATION

CHAPTER 3

Federal Elections 25 October 1969

The Liberal-Country Party coalition was returned to power with a substantially reduced majority at the elections of 25 October 1969. The composition of the new House of Representatives is as follows: A.L.P. 59, Liberal Party 46, Country Party 20, a majority of 7 for the Liberal-Country Party coalition compared with a majority of 40 in the previous Parliament.

In Tasmania the sitting A.L.P. members: L. H. Barnard (Bass); G. W. A. Duthie (Wilmot) and R. Davies (Braddon) were returned. The sitting Liberal member for Franklin, Mr T. G. Pearsall was defeated by the A.L.P. candidate Mr R. H. Sherry, while in Denison, Dr R. J. Solomon, a new member, won the seat for the Liberal Party.

CHAPTER 5

Population at 30 June 1969

At 30 June 1969, the population of Tasmania was estimated to be 388,460 persons. The sections below show the estimated distribution of this population: (i) in local government areas and statistical divisions; (ii) in the principal urban areas (other urban and rural sections excluded).

(i) **Estimated Population of Tasmania in Local Government Areas and Statistical Divisions at 30 June 1969:**

Hobart 52,810; Glenorchy 41,770; Clarence 33,400; Brighton 2,290; Glamorgan 1,150; Green Ponds 860; Richmond 1,660; Sorell 3,520; Spring Bay 1,240; Bruny 410; Esperance 3,780; Huon 5,100; Kingborough 10,470; New Norfolk 10,940; Port Cygnet 2,460; Tasman 1,190.

Statistical Division Totals: Hobart Div. 147,830; SE. Div. 7,160; S. Div. 18,060.

Launceston 36,700.

Total North Central Division 36,700.

Burnie 19,890; Circular Head 8,300; Deloraine 5,130; Devonport 18,660; Kentish 6,350; King Island 2,450; Latrobe 5,000; Penguin 4,950; Ulverstone 11,020; Wynyard 10,600.

Total NW. Division 92,350.

Beaconsfield 10,870; Fingal 3,630; Flinders 1,240; George Town 5,560; Lilydale 8,280; Portland 1,460; Ringarooma 2,700; Scottsdale 3,810.

Total NE. Division 37,550.

Evandale 1,500; Longford 5,200; St Leonards 15,200; Westbury 5,080;

Total N. Midland Division 26,980.

Bothwell 990; Campbell Town 1,630; Hamilton 4,250; Oatlands 2,380; Ross 630.

Total Midland Division 9,880.

Gormanston 550; Queenstown 4,600; Strahan 460; Waratah 1,700; Zeehan 3,990.

Total Western Division 11,300.

Migratory 650.

Total Tasmania 388,460.

(ii) **Estimated Population of Principal Urban Areas in Tasmania at 30 June 1969:**

Hobart Metropolitan Area 124,880; Urban Launceston 62,390; Urban Burnie-Somerset 19,550; Urban Devonport 16,600; Urban Ulverstone 7,450; Urban New Norfolk 6,350.

CHAPTER 9**Tourist Bureau**

The tourist industry is a particularly important income earner for the State and it is expected to develop rapidly and increase in importance during the 1970s.

Promotional activity, emphasising Tasmania as a national 'holiday island' with the accent on motor touring, is being undertaken throughout the Commonwealth. Tasmania, steeped in history and offering much spectacular scenery is obviously of outstanding tourist potential, but much promotional work needs to be fostered before Tasmania and holidays become synonymous in the minds of tourists.

The Tourist and Immigration Department through its agencies is engaged in tourist promotion and the handling of reservations for travel and accommodation. The following table shows the receipts of the Tourist and Immigration Department for recent years:

Receipts of the Tourist and Immigration Department (a)
(\$'000)

Office	1963-64	1966-67	1967-68 (b)	1968-69
Tasmania—				
Hobart	491	606	628	682
Launceston	109	135	140	164
Devonport	61	72	70	79
Burnie	50	76	68	71
Queenstown	7	37	46	49
Mainland—				
Melbourne	934	1,130	1,090	1,196
Sydney	474	831	820	1,017
Brisbane	321	447	376	453
Adelaide	286	392	366	402
Total	2,733	3,727	3,604	4,113

(a) Receipts in respect of travel, accommodation and associated items.

(b) Receipts affected by severe bush fires in Tasmania.

The Department in conjunction with the State Treasury, recently conducted a survey among tourists in an effort to determine what tourism means to the economy. Results of the survey will be known during 1970 and will provide answers concerning tourists' attitudes and spending habits.

The State Government has announced its intention to establish a Tourist Authority comprising representatives of government and private industry during 1970.

CHAPTER 10**National Wage Case 1969**

The Metal Trade Unions again presented the test claim in the 1969 National Wage Case. The unions claimed for the re-introduction of the basic wage and to increase the last existing basic wage by \$12.30. The unions also requested the re-introduction of quarterly basic wage adjustments according to movements in the Consumer Price Index.

As an alternative the unions claimed an increase of \$12.30 per week in the minimum wages together with a provision for their automatic quarterly adjustment and an increase of \$9.65 in total award wages.

The Commission handed down its judgement on 1 December 1969. In its judgement the Commission reverted from the traditional flat money increase to the percentage system and granted a flat 3 per cent increase (subject to a minimum increase of \$3.50 per week) in total award wages for all wage earners covered by the Federal Metal Trades Award. It also increased the minimum wage by \$3.50 per week. The effect in Hobart was to make the standard minimum rate \$43.00 per week.

The Commission rejected the unions' claims for the re-introduction of basic wages and their automatic adjustment and also for the introduction of automatic adjustments to minimum wages.

CHAPTER II

Real Estate Transactions

Title to Land

When acquiring land today, the buyer needs to know whether the documents are under the 'old system' or the 'new system'. The new system dates from the *Real Property Act* 1862 when Tasmania introduced an adaptation of the Torrens system (Sir Robert Torrens' Real Property Act became law in S.A. in 1858). The Torrens system provides that the matter of title to land shall be a government responsibility. Each piece of separately-owned land is represented by a certificate of title which, with a few minor exceptions, is guaranteed by the State; in Tasmania, the issue and registration of titles is the work of the Land Titles' Office. A statutory assurance fund is maintained to indemnify owners against loss through error.

Land alienated before 1862 was not subject to the provisions of the *Real Property Act* and transactions involving such land are still being recorded under the *Registration of Deeds Act* (the first Tasmanian Deeds Act was made in 1827); this is the 'old system', involving complicated conveyancing, searching, etc. The conveyance is merely evidence of ownership as between the parties to the agreement and lacks the element of conclusive proof inherent in the Torrens certificate of title which proclaims 'that the person mentioned in it is owner of the land therein described as against all the world.' Put another way, land passing from A to B, and then to C under the old system requires a search to ascertain the validity of B's ownership and then of A's ownership; under the new system, C's certificate of title is adequate proof and A and B can be disregarded.

The dual system persists to this day but the *Local Government (Registered Titles) Act* 1966 provided that all new subdivisions of land should be brought under the *Real Property Act* without charge. Fees on voluntary applications to bring land under the *Real Property Act* have also been abolished to encourage other owners to change to the Torrens system.

Property Sales and Mortgages

Sales of real estate, and mortgages on the security of real estate, involve either certificates of title, under the new system, or deeds, conveyances, etc. under the old system. In the following table, sales and mortgages recorded both under the *Real Property Act* and the *Registration of Deeds Act* are combined to give a single series showing real estate transactions in Tasmania over a ten-year period:

Real Estate Transactions (a)

Year	Property Sales		Mortgages			
	Number	Total Con- sideration	Registered		Discharged	
			Number	Amount	Number	Amount
		\$'000		\$'000		\$'000
1959-60	9,598	47,878	8,284	34,280	5,634	15,624
1960-61	9,893	52,384	8,131	35,857	5,609	15,210
1961-62	8,868	41,524	7,441	30,761	5,090	14,513
1962-63	9,182	43,544	8,360	33,857	5,643	16,150
1963-64	8,946	47,602	8,754	37,516	6,172	18,264
1964-65	10,163	60,690	9,304	45,996	6,571	22,992
1965-66	10,272	56,637	9,818	44,999	6,722	22,957
1966-67	11,011	65,341	9,408	52,258	7,578	24,990
1967-68	11,626	72,651	10,233	60,980	7,419	25,086
1968-69	10,657	74,069	10,616	67,009	7,009	25,237

(a) Registered under the *Real Property Act* and *Registration of Deeds Act*.

Appendix D

COMPUTER SERVICE CENTRE

Introduction

Prior to 1968, the Tasmanian Office of the Bureau of Census and Statistics had no computer, though some of its processing work was done by the Bureau's computers in Canberra and, to a lesser extent, in the other States. Originally this involved sending Tasmanian data to Canberra where operators converted it to an appropriate input medium, e.g. punched cards. In 1964, a data preparation centre was established in the Tasmanian Office where Bureau operators produced punched paper tape for transmission to the Canberra computer; the computer-processed output was then sent back to the Tasmanian Office.

Other Commonwealth and State departments in Tasmania, in this period, were also having a limited amount of work done by computer, but this involved making special arrangements to use the equipment of Cadbury Fry-Pascall Aust. Ltd at Claremont, the H.E.C.-University centre at Sandy Bay, the Transport Commission or even of departments in other States. No one authority, Commonwealth or State, had a sufficient work-load in Tasmania to justify the purchase of a medium-sized computer for its own exclusive use.

Commonwealth-State Agreement

In July 1968, the Commonwealth Bureau of Census and Statistics began operating a Computer Service Centre in Hobart; the main users are: (i) the Bureau's own Tasmanian Office; (ii) other Commonwealth departments; (iii) State departments. The degree of co-operation implicit in this arrangement is best indicated by the location of the computer itself in the new State Government office building in Murray Street.

The Centre was officially commissioned on 30 August 1968 by Senator The Hon. R. C. Wright in the presence of the Hon. The Premier, E. E. Reece, members of Commonwealth and State Parliaments and other invited guests.

The computer itself is operated by Bureau officers of the Tasmanian Office but other users are responsible for: (i) data preparation for input (i.e. producing punched cards, punched paper tape, etc.); (ii) preparation of programmes (and the associated preliminary work of systems analysis).

The Computer

The machine is a *Control Data 3200* computer system. It is a modern, medium-sized, general purpose computer, providing extremely fast and economical solutions to data processing and scientific problems. It comprises a central processor, a core store of 16,384 'words', an operating console and typewriter, various peripheral input-output devices and controllers. The input-output devices at present consist of seven magnetic tape transports, a card reader, a card punch, a paper tape reader and punch and a printer.

The printer operates at speeds of up to 1,000 lines a minute on sheets of continuous stationery, each line containing up to 135 characters. This is, however, very slow in comparison with the transfer rate within the computer which takes place at 1,200,000 characters per second or at roughly 500 times the speed of the printer.

The installation of the Hobart computer completed an Australia-wide Bureau network comprising thirteen Control Data machines located in Canberra and all capital cities. The machine in Hobart is of identical configuration to those in Brisbane, Adelaide and Perth.

Processing of Statistical Data

One of the main functions of the computer is to process the Bureau's own statistical work and much of the data appearing in this Year Book has been produced by computer methods. The long-term aim is to have as many facets as possible of statistical collections processed by or under the control of the computer. Thus the computer will be involved from the initial stages of preparing and maintaining lists of informants, addressing forms, maintaining control of the subsequent receipt of returns, sending reminders to informants, processing the data received, editing, querying and amending it as necessary and finally printing out the tables and other information to be published.

To do this the Bureau has in Hobart a data preparation pool, comprising both paper tape and punched card machine operators and a small team of programmers, who are responsible, in conjunction with the appropriate statistical officers, for designing and developing local applications. For Commonwealth-wide Bureau applications (e.g. annual farm census) there is a larger team of programmers located in the Central Office of the Bureau in Canberra.

The extension of computer processing made possible with the installation of the Hobart machine, following on installations in other centres, was a most significant event which will result in considerable change to most areas of the Bureau's work in this State. The development of major applications is, however, time consuming and requires much painstaking effort by programmers and others. As a result the full benefits will not be immediately obvious in all fields for some considerable time. The principal benefits expected, apart from a reduction in clerical effort, are the increased timeliness of statistics, improvement in their reliability and accuracy and an extended range of tabulations, all of which should result in a better statistical service to the community.

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