

MANUFACTURING

NATURAL RESOURCES AND LOCATION

Natural resources

Victoria's natural resources—a temperate climate, adequate rainfall and water supply, and productive soils—have been used to provide both raw materials and power for industry. For example, clay deposits for brick, tile, and pottery making are worked near Melbourne, Ballarat, Bendigo, Colac, Shepparton, Wangaratta, and in other areas of Victoria. Sand, used in foundries, and concrete and glass works, is obtained in the Port Phillip and west Gippsland districts. Stone and gravel are quarried in many parts of Victoria, but, since large loads are expensive to transport, sites are concentrated within 80 kilometres of the principal market, metropolitan Melbourne. Inside a similar radius, the availability of limestone has attracted the establishment of cement works at Geelong and Traralgon, while the Lilydale deposits are extracted to produce agricultural lime.

Although Victoria's historic gold rush has long since passed, gold is still mined in the Castlemaine, Gaffneys Creek, and Harrietville areas. Victoria's other mineral resources include salt collected from solar evaporation on the western shores of Port Phillip and from the Wimmera and Mallee lakes; gypsum is also found in the north-western Mallee. More detailed information on mining activity can be found on pages 298–301.

Victorian forests provide approximately one-quarter of Australia's timber output. The fine vegetation of the Central Highlands forms the basis of important felling activities. The industry is also significant in Gippsland, where paper is manufactured at Maryvale. Other paper mills are situated in Melbourne, which is a major market for all wood and timber products.

Water, needed in large quantities for industry, is available throughout much of Victoria from dams in the catchment areas of the chief rivers (see map on page 478 of the *Victorian Year Book* 1966). In most years, Melbourne is well supplied from the storages to its north and north-east in the Plenty, Upper Yarra, Maroondah, and O'Shannassy watersheds. However, severe restrictions were imposed during the 1967–68 and 1972–73 summers because of widespread drought conditions. To meet future demands, construction works are being extended. (See pages 305–7.)

Power supplies and the fuels from which they are derived are basic for industrial development. Victoria's range of carboniferous fuels is not great and, in the past, it was necessary to import significant amounts of black coal from New South Wales. Subsequently, the State Electricity Commission developed the brown coal resources of the La Trobe Valley. The open-cut mines of the Yallourn–Morwell region presently produce about 29.4 megatonnes per year for use in the steam-generation of electricity and briquette making. The Commission now delivers the bulk of Victoria's public electricity requirements; the balance is purchased interstate.

The discovery, in February 1965, and subsequent development of sizeable offshore reserves of oil and natural gas in the Gippsland basin have augmented Victoria's power and chemical resources. In March 1969, natural gas for commercial use flowed from the Barracouta field and, a month later, the first domestic customers were connected. The Marlin field began to operate in January 1970. Natural gas is now piped from Longford to Melbourne and then to Geelong, Ballarat, and Bendigo. Oil in commercial quantities

has been produced from the Barracouta field since October 1969, from Halibut since March 1970, and from Kingfish since April 1971. Petroleum refining is carried out at Altona, Geelong, and Crib Point, and petrochemical manufacturing at Altona, Geelong, Dandenong, and Footscray.

Location

Victoria's earliest industries were located in Melbourne, the entry port for most of the people and their supplies. As Victoria developed, Melbourne became its most populous centre, the major port, the hub of the railway and road network, and major manufacturing centre. At 30 June 1979, 81.1 per cent of Victoria's 8,546 manufacturing establishments owned by multi-establishment enterprises and all single establishment manufacturing enterprises employing four or more persons (see pages 389-90 for further details), and 83.3 per cent of its work force engaged in manufacturing, were located in the Melbourne Statistical Division. There are basic reasons for this: Melbourne's function as port and transport focus makes the collection of raw materials and the distribution of manufactured goods relatively easy; the concentration of Victoria's population in the city means a concentration of potential purchasers and potential workers; and by locating their operations in Melbourne, manufacturers can enjoy easy interchange of materials, parts, and services with other manufacturers.

Melbourne's early industrial suburbs grew on the fringes of the city centre in Port Melbourne, South Melbourne, Richmond, Collingwood, Spotswood, Fitzroy, and Footscray. In these suburbs a wide range of manufacturing industry is to be found. The more recent new industrial municipalities are Altona, Broadmeadows, Moorabbin, Oakleigh, and Dandenong, where extensive areas are available for the establishment of new industries.

Apart from smelting and large-scale steel making, most types of secondary industry are to be found in Melbourne. In terms of employment, engineering and metal processing constitute Melbourne's major industries, but a high proportion of Victoria's chemical, textile, paper, furniture, food, and building materials industries are also concentrated there.

Outside the Melbourne metropolitan area, Geelong is the most important industrial centre, with port facilities, close proximity to the Melbourne market, and rich surrounding rural areas. Industries established in the area include petroleum refining, and the manufacture of agricultural machinery, motor vehicles, aluminium ingots and extruded products, textiles, chemical fertilisers, glass, clothing, carpets, foodstuffs, cement, fertilisers, and sporting ammunition.

The other country areas in which more than 1,000 persons are employed in manufacturing establishments (ranked in order of the number of persons employed in factories) are the Ballarat Statistical District, Bendigo Statistical District, Shepparton-Mooroopna Statistical District, Morwell Shire, Wodonga Rural City, Warrnambool City, Wangaratta City, Portland Town, Maryborough City, and Castlemaine City. The factory population in country areas is engaged in the production of food and textiles from locally produced raw materials; clothing; engineering plants (some of which had their origin in the gold mining era of the nineteenth century); and more recently in decentralised plants with a defence significance.

DEVELOPMENT OF POINT WILSON

In February 1979, it was announced that ICI Australia Limited would proceed with plans for an early start on development of its 766 hectare site at Point Wilson as a petrochemical chlor-alkali manufacturing complex. The development was estimated to cost at least \$500m.

The site was selected for a number of reasons: Melbourne is a major market for plastics and it is important for the source of supply to be near the market; ICI Australia recently completed a 50,000 tonnes per annum PVC plant at nearby Laverton, which will initially be based on imported raw material vinyl chloride monomer until the Point Wilson plant can supply these materials; there will be need for movement in and out of the site of goods and materials through a port; and the proximity to oil refineries in the area is an advantage. (Oil refineries are a source of raw material for petrochemical manufacture and

petrol is produced by the chemical industry as a by-product of the manufacture of ethylene from naphtha, a petroleum fraction.)

The Point Wilson complex is expected to be based on ethylene and caustic/chlorine with the ethylene consumed in production of vinyl chloride monomer, polythene, and ethylene oxide. Ethylene oxide, a liquid, would be used at Point Wilson to manufacture derivative products such as detergents, industrial chemicals, and brake fluid.

The majority of the vinyl chloride monomer would be used in production at the Laverton plant of PVC, a versatile plastic used to manufacture a wide range of industrial and domestic products. Polythene is used widely for making plastic film and a range of industrial and domestic products.

Preliminary studies of the requirements for a 300,000 tonnes per annum solar saltfield in north-west Victoria have been completed. The saltfield, based on underground brines, would supply industrial salt for caustic/chlorine manufacture at Point Wilson. Commissioning date for the complex is dependent on the satisfactory completion of negotiations relating to provision of site services and related requirements. If these negotiations are completed promptly, production could commence in 1985-86. It is estimated the construction workforce would average 700 with a peak of 1,300. ICI took these factors into consideration in preparing the plan of development and in defining the various plants and services on the site.

The Point Wilson development has been the subject of two periods of public review, a Rezoning Environmental Effects Assessment, a public hearing, and a comprehensive plan of development. This plan of development has been considered by the Shire of Corio which, under Amendment Number 6 of the Geelong Regional Interim Development Order, would have had regard to the environment of the site, the protection of wildlife habitats in the area, and the feasibility of joint management of buffer areas and adjoining lands for the long-term protection of these habitats.

ICI has undertaken a large programme of studies in preparation for development of the site. A number of these studies are well advanced and some, for example, the study of wildlife in the area, were into their second year in 1979.

Studies of wildlife in the Spit area, adjacent to the ICI site, have confirmed that the boundaries of the Rural (Conservation) Zone defined as part of the site rezoning, are appropriate and generally provide protection of feeding grounds for the Orange-bellied Parrot which winters in the region. A joint management committee has been formed of bodies responsible for land use of the Spit and adjacent areas. This committee includes representatives of the Victorian Department of Fisheries and Wildlife, the Geelong Regional Commission, the Melbourne and Metropolitan Board of Works, and ICI.

MANUFACTURING ACTIVITY

Manufacturing developments during 1979

During 1979, slightly improved levels of activity were evident in most areas of the manufacturing sector in Victoria. Improvements were most noticeable in the heavy engineering, chemicals, and food industries, and in some areas of the light engineering industries. This was the continuation of a trend that first became evident towards the end of 1978.

The overall demand for engineering products showed signs of recovery during 1979. However, the earthmoving and construction equipment industries continued to experience generally subdued levels of demand. The agricultural equipment industry experienced some decline in sales in 1979, after the relatively buoyant sales of the previous year. The major development plan announced in the heavy engineering sector during 1979 was for an aluminium smelter at Portland. It was anticipated that this smelter would have an initial production capacity of 132,000 tonnes per year when it commences operating in 1983. This production level may be expanded to 528,000 tonnes per annum by the end of the 1980s.

Despite higher levels of demand due to an upturn in the price of basic metals, sales of local mining equipment remained at similar levels to 1978. The failure of Victorian manufacturers to achieve higher sales was due to increased competition from overseas equipment suppliers.

The sales of motor vehicles fell to slightly below 1978 levels. This was largely attributed to higher petroleum prices and the continuation of the trend in consumer preferences towards four cylinder vehicles. Petroleum price increases did, however, stimulate growth in the liquid petroleum gas equipment and conversion industries.

The most significant investment programme within the automobile industry was the commencement of a new four cylinder engine plant at Fishermens Bend. It was estimated that the cost of this project would be \$200m, and that the engines produced would be sold world-wide. As a result, a number of motor vehicle components manufacturers have undertaken significant investment programmes to ensure their ability to supply to the project.

Improved sales were experienced in the cable and communications equipment industries. The major reason for this was a higher level of orders from government instrumentalities. However, some electronic equipment manufacturing operations were impaired by a world-wide shortage of components.

Within the building materials area a number of sectors, particularly brickmaking and timber, were adversely affected by the continued unsatisfactory performance of the home building industry. The most important development in the building materials sector was a \$12.5m expansion to a fibreglass insulation plant at Dandenong.

The paper industry achieved satisfactory sales. Rising overseas pulp prices toward the end of year led to significantly increased exports.

The chemicals sector experienced more buoyant conditions. Exports of chemicals improved significantly, largely because of local manufacturers being able to obtain some feedstocks at world competitive prices. Tenders have been let for a \$500m petrochemicals plant at Point Wilson. The plant will be the largest in Australia when completed in the mid-1980s, and will have a permanent work force of 700. Further information on the Point Wilson project can be found on pages 382-3 of this *Year Book*.

Work also commenced on production facilities for the West Kingfish and Cobia oilfields in Bass Strait. The total cost of development is expected to be \$400m. Oil production is expected to be 35,000 barrels per day, and was due to commence in late 1980 or early 1981.

Rationalisation continued within the motor vehicle tyre industry. A major overseas owned company closed down its Australian operations, and as a consequence, another manufacturer spent \$1.5m to expand its Melbourne plant.

The food industry in general benefited from favourable growing conditions, the relatively low value of the Australian dollar, and high levels of overseas demand for its products. Meat processors, however, experienced a downturn in volume processed because of lower domestic demand and the withholding of stock by farmers. A \$2.2m fully automated cheese factory was opened at Rochester. Most of the produce is expected to be exported. Production capacity was also increased by \$1m extensions to dairy produce plants in both Shepparton and Stanhope.

Economic activity within the textile, clothing, and footwear industries remained at fairly stable levels. This was due to the continued influence of a government programme of import controls designed to keep activities and employment at or about mid-1977 levels. This programme, which was to have finished in mid-1980, has been extended until mid-1981. Several major investment programmes were undertaken in this sector. These included an expansion providing 40 additional jobs at a textile factory at Maryborough; plant extensions costing over \$1m at a Wangaratta textile firm; a new wool scouring plant at Laverton; and the installation of a new \$500,000 wool top making plant at Williamstown.

Government activities

Industrial legislation

The *Labour and Industry Act 1958* represents the development and consolidation of industrial legislation which had its beginnings in 1873. Among other matters, the Act deals with the registration and inspection of factories, guarding of machinery, and conditions of employment. The Act also provides for the appointment of Wages Boards and the Industrial Appeals Court. Further information on these matters may be found on pages 209-11.

*Department of State Development, Decentralization and Tourism**Introduction*

The Department of State Development, Decentralization and Tourism was established by an Act of the Victorian Parliament on 23 May 1978. The Department is responsible for encouraging and promoting industry and commerce throughout the State, with particular regard to activities outside the Melbourne metropolitan area.

The Department's objectives include: sponsoring and promoting the full and balanced development of the State; promoting the development of secondary and tertiary industries throughout the State; establishing liaison with statutory authorities to provide the utility services necessary to meet the requirements of industry and commerce outside the Melbourne metropolitan area; developing and promoting the tourism industry in Victoria; assisting and co-ordinating the activities of persons and organisations interested in the development of the tourism industry in Victoria; and promoting publicity and research necessary for the carrying out of any of the previously mentioned objectives.

The Department has established Regional Development Committees at Ballarat, Bendigo, and Portland, in order to foster, encourage, promote, and implement programmes directed towards the optimum level of development of the area of Committee activity, and to assist and advise the Minister in relation to legislation or matters charged to his administration, while regional offices are located at Wodonga, Ballarat, Geelong, Shepparton, Mildura, Portland, Warrnambool, Traralgon, Wangaratta, and Bendigo. The Department also provides funding for regional tourist authorities established in each of the twelve regions in the State — Melbourne, Central Highlands, East Gippsland, Goulburn, Westernport-Healesville, North Central, Otway-Geelong, South-West, Wimmera, North-West, North-East, and Gippsland — for the purpose of promoting tourism on a regional basis.

Decentralisation

Under the Victorian Government's decentralisation programme, the Department offers manufacturing and processing secondary industries in country areas of Victoria a range of financial incentives, including pay-roll and land tax rebates, road and rail transport concessions, transport of plant and machinery subsidies, and employment incentives. Other incentives cover electricity power connection costs, housing assistance, and a government contract preference scheme.

Departmental officers assist companies with investigations regarding the establishment or expansion of operations in provincial centres, negotiate with councils and industries, monitor country industry conditions, and promote the benefits of decentralisation to metropolitan and overseas industries. Liaison is also maintained with other government departments and organisations with a view to facilitating the establishment or expansion of Victorian country industries.

During 1979-80, the Department spent \$27.1m on incentives to approved industries under its decentralisation programme. In addition, grants to development committees in country centres to assist with the promotion and attraction of industry amounted to \$75,040. A further \$70,900 in loans was provided to assist local municipalities with the development of industrial estates.

Research and policy

The research and policy function of the Department has two principal objectives: the provision of policy advice on appropriate measures to develop the State's economy, and servicing the requirements of the Victorian Government on matters relating to the State's development.

In fulfilling the former function, studies are undertaken on such matters as the condition of the world economy, the international energy situation, the changing competitiveness of Victoria's main industries, changes in relevant Commonwealth Government policies, the labour market, and the impact of technological change. As part of this responsibility the Division reviews existing policies, and provides advice on specific initiatives and on matters of relevance to the Department's overall functions.

As part of its servicing function the Department conducts employment and industrial surveys, investigates industry suitable for country location, services overseas inquiries, provides details of development opportunities throughout the State, and gives advice and assistance to industry in developing or expanding its operations.

The Department also undertakes research studies on regions within the State in order to assess their problems, their opportunities, and their resource potential. Departmental submissions are prepared to such bodies as the Industries Assistance Commission and the Temporary Assistance Authority.

Major State projects

The Department provides the mechanism to co-ordinate Victorian Government involvement in major development projects throughout the State. The principal objective is to implement Victorian Government policy associated with the establishment of large-scale industries and associated developments through the State.

In fulfilling this function, the Department undertakes studies to assess the regional impact of these developments and assesses the likely effect of the development on the economy of Victoria and the Commonwealth.

The Department is also responsible for ensuring that sponsors of major projects are informed of government policies and statutory requirements, and that sponsors are placed in direct contact with government agencies which have a specific function to perform in relation to the project.

The Department also investigates and prepares reports and submissions to the Victorian and Commonwealth Governments seeking funds for infrastructure development and other purposes related to the project.

Victorian Development Corporation

The Victorian Development Corporation is a statutory authority established by the Victorian Government under the *Victorian Development Corporation Act 1973*.

The Corporation has the power to do whatever is necessary or convenient in connection with encouraging, promoting, facilitating, and assisting in the:

- (1) Establishment and development of country industries.
- (2) provision of tourist accommodation and facilities throughout the State;
- (3) investment opportunities in the State from overseas and interstate; and
- (4) export marketing of the State's primary resources, manufactured goods, and tertiary services.

The Corporation operates through two main divisions: the Decentralization and Tourism Division and the Investment and Export Promotion Division

Decentralization and Tourism Division

This Division is principally responsible for (1) and (2) above, and in particular provides financial assistance to: industries of a manufacturing and processing nature which with certain exceptions are beyond a radius of 80 kilometres from Melbourne; and tourist accommodation and facilities throughout the State.

The finance is provided by way of medium and long-term loans at a concessional rate of interest. The interest rate presently charged by the Corporation is 9.5 per cent per annum, its loans have ranged from \$1,500 to \$1m and the average term of its loans is 8½ years. The Corporation also offers guarantees of repayment to other traditional lenders, and is prepared to consider lease-purchase arrangements with suitable tenants for the purchase or construction of factories.

In considering applications for assistance from industry, the Corporation places considerable emphasis upon creation of new job opportunities, or, in certain cases, the preservation of long-term security of employment for existing wage earners. In the case of tourist projects, the likely demand for the service to be provided, and the effect upon existing operators in that field, are given full consideration.

Because its funds are limited, the Corporation is generally a secondary lender, and is prepared where necessary to accept secondary charges over assets following first mortgages and debentures to more traditional lenders.

VICTORIA—VICTORIAN DEVELOPMENT CORPORATION:
APPROVAL OF LOANS, 1978-79 AND 1979-80

Sector	1978-79			1979-80		
	Number	Amount (\$)	Per cent	Number	Amount (\$)	Per cent
INDUSTRY						
Electrical machinery, cables, and appliances	1	30,000	0.3	1	700,000	6.2
Building materials and fittings	11	586,000	r5.6	11	890,500	8.0
Furniture and joinery	3	105,000	r1.0	6	473,000	4.2
Motor vehicles, parts, and motor engineering	1	10,000	0.1	4	133,750	1.2
Machinery, equipment, and general engineering	19	755,000	r7.2	16	954,875	8.6
Leather and leather goods	2	55,000	0.5	—	—	—
Textiles and clothing	11	2,033,000	r19.3	10	1,722,500	15.4
Printing of newspapers and other publications	3	545,000	r5.1	3	132,000	1.2
Paper and cardboard products and printing	2	40,000	r0.4	2	150,000	1.3
Sawmilling	3	460,000	r4.4	5	467,000	4.2
Food processing, drink, confectionery, and tobacco	r14	r3,230,000	r30.6	17	2,728,100	24.3
Other manufacturing	13	857,000	r8.1	15	834,000	7.4
Sundry	3	81,000	0.7	4	159,000	1.4
Total industry	r86	r8,787,000	r83.3	94	9,344,725	83.4
TOURISM						
Hotels, motels, and guest houses	24	1,129,500	r10.7	24	1,439,000	12.8
Caravan parks	9	273,000	r2.6	9	220,500	2.0
Other	10	357,000	r3.4	9	199,000	1.8
Total tourism	43	1,759,500	r16.7	42	1,858,500	16.6
Grand total	r129	r10,546,500	100.0	136	11,203,225	100.0

Investment and Export Promotion Division

The Corporation endeavours to attract overseas investment, facilitates joint ventures and licencing agreements, and promotes export of Victorian primary produce, manufactured goods, and services.

It is equipped to provide advice, arrange appointments, furnish reports, and conduct confidential investigations on behalf of overseas inquirers. Its officers are also well experienced in preparing and co-ordinating arrangements for incoming and outgoing trade missions. The Corporation also services investment missions from overseas.

The State Government has announced that early in 1981 it proposes to introduce legislation to establish a new statutory authority to be called the Victorian Economic Development Corporation, with the intention to take over the functions and activities presently performed by the Victorian Development Corporation and the Victoria Promotion Committee.

Commonwealth Department of Industry and Commerce

The Department's prime role is to provide advice on Commonwealth Government policy relating to the development of Australian manufacturing and tertiary industries, including shipbuilding, the tourist industry, and small business. In the course of developing advice appropriate to present and likely future circumstances in these sectors and administering certain aspects of policy, the Department monitors industry trends and conditions, and undertakes reviews of specific industries.

Commonwealth Department of Productivity

The major functions of the Department are productivity improvement in industry and commerce, defence production, and registration of patents, trade marks, and designs. The Regional Office (Victoria) participates in planning and operating departmental projects, provides policy advice to Central Office, and develops relations with industry and other State organisations. It also encourages government-industry initiatives and provides an information and referral service on all government programmes and services to industry and commerce through its Business Information Centre.

Commonwealth Department of Trade and Resources

The Department is responsible for developing and maintaining Australia's position as a major world trading nation, through international trade and commodity commitments and

agreements, development of export markets, and formulation of policy proposals for the Commonwealth Government's international trade policy and trading objectives. It is also responsible for matters related to the commercial development, marketing, and export of minerals, including uranium, and hydrocarbon fuels.

Prices Justification Tribunal

The Prices Justification Tribunal was established in August 1973 pursuant to the *Prices Justification Act* 1973. Amendments to the Act occurred in 1974, 1976, and 1979. The functions of the Tribunal are to conduct inquiries in relation to prices for the supply of goods or services, and to report to the Minister for Business and Consumer Affairs the results of every such inquiry.

An inquiry may be either:

- (1) A price justification inquiry, that is to say an inquiry as to whether the price or prices at which a company or companies supplies or supply, or proposes or propose to supply, goods or services of a particular description is or are justified; or
- (2) an inquiry into such specified matter or matters relating to the prices at which goods or services are supplied as is required by the Minister.

Scientific research and standardisation

Commonwealth Scientific and Industrial Research Organisation

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) is a statutory body established by the *Science and Industry Research Act* 1949. Under the Act, the CSIRO replaced the former Council for Scientific and Industrial Research which was established in 1926. Its principal functions under the Act are the carrying out of scientific research in connection with Australian primary and secondary industries or any other matter referred to it by the Minister for Science and Technology; encouraging the utilisation of the results of such research; the training of scientific research workers and the awarding of studentships; the making of grants in aid of scientific research; the recognition and support of research associations; the maintenance of the national standards of measurement; the dissemination of scientific and technical information; the publication of scientific and technical reports; and acting as a means of liaison between Australia and other countries in matters of scientific research.

Standards Association of Australia

This Association is the officially endorsed national organisation for the promotion of standardisation in Australia. It is an independent body incorporated by Royal Charter, having the full recognition and support of the Commonwealth and State Governments and industry. Formed as the Australian Commonwealth Engineering Standards Association in 1922 it was reconstituted as the Standards Association of Australia in 1929. Approximately 40 per cent of its funds are provided by Commonwealth Government grants, the remainder coming from membership subscriptions and the sale of publications.

A Council composed of representatives of Commonwealth and State Government departments, associations of manufacturing and commercial interests, and professional institutions controls the Association's activities. The technical work of the Association is carried out on a voluntary basis by committees composed of experts in the particular subjects for which standards have been requested.

Australian standards are developed by co-operative effort and negotiation on the part of those most concerned, whether as producers or as users. They are based on what is best in present practice. They do not attempt to attain an ideal which might be too costly to adopt under industrial and commercial conditions. They are constantly revised to take account of new developments and to eliminate outmoded practices.

Industrial associations, firms, or government departments may request standards relating to such things as terminology, test methods, dimensions, specifications of performance and quality of products, and safety or design codes. In general, standards derive authority from voluntary adoption based on intrinsic merit. It is only in special cases where safety of life and property is involved, that they may have compulsory application. The Association owns a registered certification trade mark which manufacturers may obtain a licence to use.

The Association has international affiliations, being the Australian member body on the International Standards Organization (ISO) and the International Electrotechnical Commission (IEC); it also maintains close links with overseas standards organisations. It acts as Australian agent for the procurement of overseas publications and the standards of other countries. The headquarters office of the Association is in Sydney, and there is a major office in Melbourne. Branch offices are located in other capital cities and at Newcastle, New South Wales.

National Association of Testing Authorities, Australia

This is the Australian organisation for accreditation of testing and measuring facilities. It registers testing and measuring laboratories which can demonstrate their technical and managerial competence. Registration of laboratories is voluntary. Registered laboratories are operated by industrial, governmental, educational, and commercial testing authorities. The Association is recognised by all State Governments, the Commonwealth Government, and industry associations. Registered laboratories have the right to endorse their test documents in the name of the Association.

Industrial Design Council of Australia

The Industrial Design Council of Australia has established its Victorian headquarters at the Australian Design Centre, 37 Little Collins Street, Melbourne. At the Australian Design Centre there is a small changing exhibition of products which have received the Australian Design Award. The Australian Design Awards, which give recognition to Australian products of high quality design, are made on the recommendation of independent panels with a wide range of technical and design expertise.

The Design Council's field officers are available to assist manufacturers with new product development including assistance through the Council's Technical Information Service in locating and sourcing technical literature. The Council's Design Referral Service offers manufacturers, service industries, and local authorities quick access to pre-selected lists from its extensive register of specialists in all the various aspects of product development.

Throughout the year, the Council runs training programmes on developing new products to help manufacturers plan new product development and to optimise design. The workshops follow a logical progression through the product development process from idea generation to sales and promotion, and includes such all important stages as financial planning, product design, and research. Syndicate discussions and workshops are the backbone of the course and anyone from middle and upper management may enrol.

The Council's education officers work with teachers and curriculum planners in schools and State Colleges, assisting them to develop programmes which will create an awareness and appreciation of design in secondary school students. School groups are welcome to visit the Design Centre.

MANUFACTURING INDUSTRY STATISTICS

Basis of collection

A series of substantially uniform statistics exists from 1901 to 1967-68 when the framework within which manufacturing statistics were collected was changed. The table on page 391 contains a summary of statistics on manufacturing activities in Victoria over that period. More detailed manufacturing statistics in respect of this period have been included in previous editions of the *Victorian Year Book*.

As from the year ended June 1969, the Census of Manufacturing, Electricity, and Gas has been conducted within the framework of the integrated economic censuses, which include the Censuses of Mining, Retail Trade and Selected Services, and Wholesale Trade. As a result, manufacturing industry statistics for 1968-69 and subsequent years are not directly comparable with previous years. The electricity and gas industries, which were previously included in the annual Manufacturing Census, were the subject of separate censuses. The integration of these economic censuses was designed to increase substantially the usefulness and comparability of economic statistics collected and published by the Australian Bureau of Statistics and to form a basis for the sample surveys which supply

current economic statistics from quarter to quarter, particularly those which provide data for the quarterly national income and expenditure estimates.

The economic censuses of Manufacturing, Mining, and Retail Trade previously conducted in Australia were originally designed and subsequently developed primarily to provide statistics for particular industries on a basis which would best suit the requirements of users interested in statistics of those industries. More recently there has been a growth of interest in statistics describing activity in the economy as a whole—reflected, for example, in the development of employment and earnings statistics, surveys of capital expenditure and stocks, and the whole field of national accounts statistics. For such purposes statistics derived from economic censuses in the past have had serious limitations despite the fact that they covered a broad area of the whole economy. Because of the special requirements of each of the censuses, there were no common definitions of data, there was no common system of reporting units, and, as a standard industrial classification was not used for these censuses, industry boundaries were not defined in ways which would avoid overlapping or gaps occurring between the industrial sectors covered. For these reasons, direct aggregation and comparison of statistics from different censuses were not possible.

The integration of these economic censuses meant that for the first time they were being collected on the basis of a common framework of reporting units and data concepts and in accordance with a standard industrial classification. As a result, the statistics for the industries covered by the censuses are now provided with no overlapping or gaps in coverage, and in such a way that aggregates for certain important economic data such as value added, employment, wages and salaries, fixed capital expenditure, and stocks can be obtained on a consistent basis for all sectors of the economy covered by the censuses. From the 1975–76 Census of Manufacturing Establishments onwards, only a limited range of data—employment and wages and salaries—is collected from single establishment manufacturing enterprises with less than four persons employed. This procedure has significantly reduced the statistical reporting obligations of small businesses, while at the same time only marginally affecting statistical aggregates other than the number of establishments. Data in respect of establishments from which the full range of data is collected under the new collection criteria (i.e., all manufacturing establishments owned by multi-establishment enterprises and single establishment manufacturing enterprises with four or more persons employed) is considered to provide reliable information for the evaluation of trends in the manufacturing sector of the economy. All tables in this and subsequent *Victorian Year Books* will show details collected from all manufacturing establishments owned by multi-establishment enterprises and single establishment manufacturing enterprises employing four or more persons, while for 1974–75 some tables also show data collected from single establishment manufacturing enterprises employing less than four persons.

From the 1977–78 Manufacturing Census, the classification of census units to industry is based on the 1978 edition of the *Australian Standard Industrial Classification (ASIC)*. The 1978 edition of the classification replaces the 1969 preliminary edition which had been in use since the 1968–69 Census.

The 1977–78 data used in the following tables is classified according to the 1978 edition of ASIC. In general, the impact of the change in industrial classification is minimal at the ASIC division and sub-division levels, leaving their basic character and structure unchanged. The ASIC division and sub-division levels are the levels used in this chapter.

For a more detailed description of the integrated economic censuses, reference should be made to pages 368–89 of the *Victorian Year Book 1971*.

Summary of manufacturing statistics

Manufacturing statistics compiled for 1967–68 were the last of the old series, and definitions used in the 1967–68 and previous manufacturing censuses were published in the *Victorian Year Book 1971*, pages 394–7. The first publication of statistics from the 1968–69 economic censuses, *Manufacturing establishments and electricity and gas establishments: preliminary statement* (8208.0), was issued in January 1971 and contained information in respect of twelve industry sub-divisions permitting comparisons to be made between States, but did not permit comparisons to be made between 1968–69 and previous

years because of the changes in the definition of the establishment, bases of classification, and forms.

In respect of 1978-79, the four metal products sub-divisions, namely, Basic metal products (sub-division 29), Fabricated metal products (sub-division 31), Transport equipment (sub-division 32), and Other machinery and equipment (sub-division 33), with 163,990 persons or 41.5 per cent of the total employment in manufacturing establishments in 1978-79, employed considerably more persons than any other part of manufacturing industry. Next in order of employment was Food, beverages, and tobacco (sub-division 21), with 55,283 or 14.0 per cent, followed by Clothing and footwear (sub-division 24), and Paper, paper products, printing, and publishing (sub-division 26) with 44,983 and 31,656, respectively, or 11.4 per cent and 8.0 per cent of the total.

VICTORIA—DEVELOPMENT OF MANUFACTURING ACTIVITY

Year	Manufacturing establishments	Employment (a)	Wages and salaries paid (b)	Materials and fuel used	Value added	Turnover	Land, buildings, plant, and machinery
	number	number	\$m	\$m	\$m	\$m	\$m
1901	3,249	66,529	n.a.	n.a.	n.a.	n.a.	25
1911	5,126	111,948	18	51	32	(e) 84	28
1920-21	6,532	140,743	43	135	77	(e) 212	71
1932-33	8,612	144,428	42	122	82	(e) 204	136
1946-47	10,949	265,757	156	368	263	(e) 631	244
1953-54	15,533	331,277	472	1,154	817	(e) 1,971	679
1960-61	17,173	388,050	776	1,914	1,418	(e) 3,332	1,642
1965-66	17,980	439,149	1,077	2,597	2,028	(e) 4,625	2,386
1967-68	18,030	449,945	1,244	2,957	2,395	(e) 5,351	2,685
1968-69	(c) 11,563	431,651	1,342	(d) 3,861	2,542	6,336	(f) 278
1969-70	(c) 11,393	445,663	1,497	(d) 4,307	2,799	6,998	(f) 300
1971-72	(c) 11,408	450,026	1,800	(d) 4,812	3,328	8,055	(f) 374
1972-73	(c) 11,735	455,029	2,045	(d) 5,392	3,738	9,078	(f) 438
1973-74	(c) 12,070	469,838	2,524	(d) 6,486	4,546	10,669	(f) 418
1974-75	(g) (c) 8,924	432,851	2,961	(d) 7,024	5,131	11,730	(f) 455
	(h) (c) 2,834	5,727	17	(d) 53	48	(e) 100	(f) 2
1975-76	(g) (c) 8,873	417,107	3,287	(d) 7,564	5,765	13,220	(f) 462
1976-77	(g) (c) 8,735	409,196	3,650	(d) 8,696	r6,637	15,040	(f) 495
1977-78	(g) (c) 8,571	396,722	3,831	(d) r9,473	6,905	16,175	(f) 653
1978-79	(g) (c) 8,546	394,964	4,102	(d) 11,109	(i) 7,377	(i) 18,228	(f) 742

(a) Average over whole year, including working proprietors.

(b) Excludes drawings of working proprietors.

(c) Number of establishments operating at 30 June.

(d) Purchases, transfers in, and selected expenses.

(e) Output.

(f) Fixed capital expenditure, less disposals.

(g) All manufacturing establishments owned by multi-establishment enterprises and single establishment manufacturing enterprises with four or more persons employed.

(h) Single establishment manufacturing enterprises with less than four persons employed.

(i) Commencing with 1978-79 census, the method of calculating value added, purchases etc. and turnover has been changed to accord more closely with the concepts and definitions used in the Australian National Accounts.

NOTE. A line drawn across a column between the figures indicates a break in continuity in the series. No census of manufacturing establishments was conducted for the year ending 30 June 1971.

A comparison between manufacturing activity in Victoria and the other States is shown in the following table:

AUSTRALIA—MANUFACTURING ESTABLISHMENTS (g), 1978-79

State or Territory	Establishments operating at 30 June	Employment (a)	Wages and salaries paid (b)	Purchases, transfers in, and selected expenses (i)	Value added (j)	Turnover (j)	Fixed capital expenditure less disposals
	number	number	\$m	\$m	\$m	\$m	\$m
New South Wales	9,803	433,227	4,689	12,353	8,675	20,650	780
Victoria	8,546	394,964	4,102	11,109	7,377	18,228	742
Queensland	2,886	112,959	1,125	4,388	2,322	6,591	224
South Australia	2,119	106,302	1,052	2,704	1,851	4,536	196
Western Australia	2,202	65,232	671	2,176	1,322	3,499	214
Tasmania	552	26,066	266	862	549	1,402	77
Northern Territory	87	2,068	28	118	73	186	27
Australian Capital Territory	117	3,073	34	57	61	119	3
Total	26,312	1,143,891	11,966	33,765	22,230	55,211	2,263

For footnotes see table above.

The total value added in 1978-79 was \$7,377m. Of this amount, the Metal products sub-divisions contributed \$2,927m which represented 39.7 per cent of the total. The Food sub-division followed with \$1,208m or 16.4 per cent, and the next in order were the Paper, paper products, printing, and publishing sub-division with \$630m, 8.5 per cent, and the Clothing and footwear sub-division with \$588m, 8.0 per cent.

The following table contains a summary of manufacturing establishments by sub-division of industry in Victoria during the year 1978-79:

**VICTORIA—MANUFACTURING ESTABLISHMENTS (g) BY SUB-DIVISION
OF INDUSTRY, 1978-79**

ASIC code	Industry sub-division	Establishments operating at 30 June	Employment (a)	Wages and salaries (b)	Purchases, transfers in, and selected expenses (i)	Value added (i)	Turnover (i)	Fixed capital expenditure less disposals
		number	number	\$m	\$m	\$m	\$m	\$m
21	Food, beverages, and tobacco	957	55,283	588	2,707	1,208	3,901	121
23	Textiles	291	19,046	185	511	324	827	16
24	Clothing and footwear	1,041	44,983	371	653	588	1,208	13
25	Wood, wood products, and furniture	1,068	18,401	162	371	296	661	17
26	Paper, paper products, printing, and publishing	853	31,656	359	703	630	1,314	63
27	Chemical, petroleum, and coal products	286	21,610	274	881	595	1,458	159
28	Non-metallic mineral products	380	12,737	152	322	306	635	26
29	Basic metal products	169	12,817	165	677	297	953	46
31	Fabricated metal products	1,114	35,061	355	739	635	1,360	33
32	Transport equipment	434	61,319	649	1,689	1,008	2,656	155
33	Other machinery and equipment	1,216	54,793	564	1,160	987	2,078	60
34	Miscellaneous manufacturing	737	27,258	278	697	502	1,177	34
	Total	8,546	394,964	4,102	11,109	7,377	18,228	742

For footnotes see page 391.

The next table summarises, by sub-division of industry, the percentage contribution of Victorian manufacturing establishments to the total Australian figures for the year 1978-79:

**VICTORIA—MANUFACTURING ESTABLISHMENTS (g)
BY SUB-DIVISION OF INDUSTRY, 1978-79:
PERCENTAGE OF AUSTRALIAN TOTALS
(per cent)**

ASIC code	Industry sub-division	Establishments operating at 30 June	Employment (a)	Wages and salaries (b)	Purchases, transfers in, and selected expenses (i)	Value added (i)	Turnover (i)	Fixed capital expenditure less disposals
21	Food, beverages, and tobacco	29	29	30	31	30	31	27
23	Textiles	47	52	52	51	51	52	50
24	Clothing and footwear	51	56	56	54	56	55	50
25	Wood, wood products, and furniture	28	25	25	24	25	25	24
26	Paper, paper products, printing, and publishing	33	32	33	35	32	34	30
27	Chemical, petroleum, and coal products	33	35	35	29	31	30	37
28	Non-metallic mineral products	24	28	28	24	28	26	18
29	Basic metal products	33	14	14	15	13	14	15
31	Fabricated metal products	28	33	34	31	34	33	35
32	Transport equipment	34	45	45	52	46	50	68
33	Other machinery and equipment	33	34	34	36	36	35	34
34	Miscellaneous manufacturing	36	42	43	44	43	43	37
	Total	32	35	34	33	33	33	33

For footnotes see page 391.

The following table shows the number of manufacturing establishments operating in Victoria at 30 June 1975 to 1979, classified according to sub-division of industry:

VICTORIA—NUMBER OF MANUFACTURING ESTABLISHMENTS BY
SUB-DIVISION OF INDUSTRY AT 30 JUNE

ASIC code	Industry sub-division	1975		1976 (g)	1977 (g)	1978 (g)	1979 (g)
		(g)	(h)				
21	Food, beverages, and tobacco	1,014	165	992	963	984	957
23	Textiles	322	58	332	319	301	291
24	Clothing and footwear	1,283	189	1,219	1,141	1,079	1,041
25	Wood, wood products, and furniture	1,044	516	1,083	1,088	1,078	1,068
26	Paper, paper products, printing and publishing	880	324	874	866	848	853
27	Chemical, petroleum, and coal products	275	73	280	283	276	286
28	Non-metallic mineral products	353	100	367	373	380	380
29	Basic metal products	181	30	176	173	166	169
31	Fabricated metal products	1,124	420	1,087	1,118	1,097	1,114
32	Transport equipment	402	122	427	425	409	434
33	Other machinery and equipment	1,299	442	1,299	1,281	1,228	1,216
34	Miscellaneous manufacturing	747	395	737	705	725	737
Total		8,924	2,834	8,873	8,735	8,571	8,546

For footnotes see page 391.

The size classification of manufacturing establishments is based on the number of persons employed at 30 June 1979 (including working proprietors). The following table shows the number of manufacturing establishments classified according to the number of persons employed:

VICTORIA—MANUFACTURING
ESTABLISHMENTS (a) CLASSIFIED
ACCORDING TO NUMBER OF
PERSONS EMPLOYED (INCLUDING
WORKING PROPRIETORS)
AT 30 JUNE 1979

Manufacturing establishments employing persons numbering	Number of establishments	Number of persons employed (b)
Less than 10	3,643	21,738
10 to 19	1,899	26,227
20 to 49	1,519	46,866
50 to 99	698	50,407
100 to 199	422	60,011
200 to 499	275	81,274
500 to 999	58	38,674
1,000 and over	32	59,683
Total	8,546	384,880

(a) All manufacturing establishments owned by multi-establishment enterprises and single establishment manufacturing enterprises with four or more persons employed. In addition, there were 3,070 single establishment enterprises employing 6,233 persons in the one to three persons employed group.

(b) Excludes persons employed in separately located administrative offices and ancillary units serving more than one establishment.

The relative importance of large and small manufacturing establishments is illustrated in the preceding table. At 30 June 1979, 3,643 establishments employing less than ten employees had a total employment of 21,738 persons. A total of 42.6 per cent of manufacturing establishments—those employing less than ten persons—employed 5.6 per cent of the persons engaged. The most numerous of the establishments with less than ten persons were printing, stationery, and bookbinding, furniture (excluding sheetmetal), joinery and wooden structural fittings, and industrial machinery and equipment not elsewhere classified.

A general indication of the geographical distribution of manufacturing establishments in Victoria at 30 June 1979 is shown in the following table where they are classified according to statistical divisions:

**VICTORIA—MANUFACTURING ESTABLISHMENTS (g)
IN STATISTICAL DIVISIONS, 1978-79**

Statistical division	Establishments operating at 30 June	Employment (a)	Wages and salaries (b)	Purchases, transfers in, and selected expenses (i)	Value added (i)	Turnover (i)	Fixed capital expenditure less disposals
	number	number	\$m	\$m	\$m	\$m	\$m
Melbourne	6,935	329,193	3,429	9,068	6,086	14,906	565
Barwon	282	20,041	238	601	437	1,041	104
South Western	110	4,916	44	223	96	328	5
Central Highlands	184	8,149	79	161	133	293	8
Wimmera	70	1,381	11	24	18	40	2
Northern Mallee	86	1,238	10	32	26	55	5
Loddon-Campaspe	206	9,277	83	243	139	374	10
Goulburn	202	6,075	62	252	122	364	14
North Eastern	131	5,146	49	145	132	275	15
East Gippsland	97	2,102	19	72	36	109	3
Central Gippsland	180	5,892	62	238	126	365	9
East Central	63	1,554	15	52	27	78	3
Total	8,546	394,964	4,102	11,109	7,377	18,228	742

For footnotes see page 391.

Manufacturing establishments in the Melbourne Statistical Division constituted 81.1 per cent of the total number in Victoria at 30 June 1979, 83.3 per cent of the persons employed, and 82.5 per cent of the value added.

The number of manufacturing establishments and persons employed therein, classified according to statistical division, is shown in the table above.

It should be noted that Geelong is located in the Barwon Statistical Division, Bendigo, Castlemaine, and Maryborough in the Loddon-Campaspe Statistical Division, Ballarat in the Central Highlands Statistical Division, Warrnambool in the South Western Statistical Division, Shepparton in the Goulburn Statistical Division, Wangaratta in the North Eastern Statistical Division, and Morwell and Yallourn in the Central Gippsland Statistical Division.

Employment, wages, and salaries

Employment

From 1968-69, all persons employed in a manufacturing establishment and separately located administrative offices and ancillary units serving the establishment (including proprietors working in their own businesses) are included as persons employed. The grouping of occupations comprises (1) working proprietors; (2) administrative, office, sales, and distribution employees; and (3) production and all other employees.

The figures showing employment in manufacturing establishments represent either the average number of persons employed, including working proprietors, over a full year, or the number of persons employed at June each year as specified in the following tables:

**VICTORIA—PERSONS EMPLOYED (a) IN MANUFACTURING
ESTABLISHMENTS, 1974-75 TO 1978-79**

ASIC code	Industry sub-division	1974-75		1975-76 (g)	1976-77 (g)	1977-78 (g)	1978-79 (g)
		(g)	(h)				
21	Food, beverages, and tobacco	60,848	362	59,172	58,380	58,234	55,283
23	Textiles	22,933	127	23,811	21,075	19,460	19,046
24	Clothing and footwear	49,195	403	49,441	46,822	45,012	44,983
25	Wood, wood products, and furniture	19,231	999	19,301	19,640	19,089	18,401
26	Paper, paper products, printing, and publishing	34,187	670	32,503	32,656	31,654	31,656
27	Chemical, petroleum, and coal products	21,749	151	20,239	20,462	21,174	21,610
28	Non-metallic mineral products	14,027	202	13,524	13,580	12,950	12,737
29	Basic metal products	12,983	71	12,709	13,197	12,475	12,817
31	Fabricated metal products	37,796	860	35,989	35,830	35,267	35,061
32	Transport equipment	61,663	239	60,391	62,171	58,752	61,319
33	Other machinery and equipment	68,851	876	62,384	58,116	55,402	54,793
34	Miscellaneous manufacturing	29,388	767	27,643	27,267	27,253	27,258
Total		432,851	5,727	417,107	409,196	396,722	394,964

For footnotes see page 391.

It should be noted that the metal fabricating sub-divisions (29-33) (including transport equipment, machinery, and other equipment), Food, beverages, and tobacco sub-division (21), and Clothing and footwear sub-division (24) are large contributors.

VICTORIA—NUMBER OF MANUFACTURING ESTABLISHMENTS (g) AND PERSONS EMPLOYED (a) IN EACH STATISTICAL DIVISION, CLASSIFIED ACCORDING TO INDUSTRY SUB-DIVISION, 1978-79

ASIC code	Industry sub-division	Statistical division											Total	
		Mel-bourne	Barwon	South Western	Central High-lands	Wimmera	North-ern Mallee	Loddon-Campaspe	Goul-burn	North Eastern	East Gipps-land	Central Gipps-land		East Central
NUMBER OF MANUFACTURING ESTABLISHMENTS (g)														
21	Food, beverages, and tobacco	533	44	32	33	28	40	53	57	44	18	54	21	957
23	Textiles	237	22	1	6	2	—	4	8	3	1	5	2	291
24	Clothing and footwear	960	16	5	9	1	—	17	12	4	1	13	3	1,041
25	Wood, wood products, and furniture	751	43	20	35	8	7	28	40	27	50	39	20	1,068
26	Paper, paper products, printing, and publishing	720	18	13	14	8	10	16	17	9	8	14	6	853
27	Chemical, petroleum, and coal products	264	10	2	2	—	—	3	1	1	—	3	—	286
28	Non-metallic mineral products	219	21	12	23	7	13	27	21	14	6	15	2	380
29	Basic metal products	142	10	1	7	1	—	3	2	1	—	1	1	169
31	Fabricated metal products	970	37	6	18	5	4	24	16	7	4	20	3	1,114
32	Transport equipment	359	14	6	11	—	5	16	10	3	3	7	—	434
33	Other machinery and equipment	1,083	34	10	20	8	7	13	12	17	3	5	4	1,216
34	Miscellaneous manufacturing	697	13	2	6	2	—	2	6	1	3	4	1	737
Total		6,935	282	110	184	70	86	206	202	131	97	180	63	8,546
NUMBER OF PERSONS EMPLOYED (a)														
21	Food, beverages, and tobacco	38,394	1,297	2,591	1,241	525	722	2,420	3,436	1,837	638	1,533	649	55,283
23	Textiles	13,916	1,731	n.p.	438	n.p.	—	565	437	n.p.	n.p.	318	n.p.	19,046
24	Clothing and footwear	38,075	1,853	n.p.	662	n.p.	—	1,557	397	n.p.	n.p.	876	n.p.	44,983
25	Wood, wood products, and furniture	13,117	614	481	745	115	89	399	543	643	994	448	213	18,401
26	Paper, paper products, printing, and publishing	27,734	389	187	494	91	149	352	331	n.p.	98	n.p.	156	31,656
27	Chemical, petroleum, and coal products	19,661	1,566	n.p.	n.p.	—	—	n.p.	n.p.	n.p.	—	n.p.	—	21,610
28	Non-metallic mineral products	9,806	1,202	47	645	64	90	273	196	146	n.p.	223	n.p.	12,737
29	Basic metal products	9,111	2,597	n.p.	786	n.p.	—	115	n.p.	n.p.	—	n.p.	n.p.	12,817
31	Fabricated metal products	31,497	1,013	44	529	n.p.	24	862	267	129	66	450	n.p.	35,061
32	Transport equipment	53,067	n.p.	54	1,597	—	41	1,158	179	14	n.p.	53	n.p.	61,319
33	Other machinery and equipment	48,572	2,468	227	861	171	123	1,353	148	358	69	415	28	54,793
34	Miscellaneous manufacturing	26,243	n.p.	n.p.	n.p.	n.p.	—	n.p.	90	n.p.	n.p.	74	n.p.	27,258
Total		329,193	20,041	4,916	8,149	1,381	1,238	9,277	6,075	5,146	2,102	5,892	1,554	394,964

For footnotes see page 391.

In the following table the number of persons employed in manufacturing establishments in Victoria is classified according to the nature of their employment at 30 June 1975 to 1979:

**VICTORIA—MANUFACTURING ESTABLISHMENTS:
TYPE OF EMPLOYMENT**

At 30 June—	Working proprietors	Administrative, office, sales, and distribution employees	Production and all other employees	Total
1975 { (g)	4,358	103,382	313,911	421,651
{ (h)	3,130	922	2,260	6,312
1976 (g)	4,287	102,632	311,731	418,650
1977 (g)	4,318	102,699	297,946	404,963
1978 (g)	4,007	99,170	288,021	391,198
1979 (g)	4,019	98,859	294,468	397,346

For footnotes see page 391.

The following table shows the nature of employment in manufacturing establishments at 30 June 1979 classified according to industry sub-division:

**VICTORIA—MANUFACTURING ESTABLISHMENTS (g): TYPE OF
EMPLOYMENT BY INDUSTRY SUB-DIVISION AT 30 JUNE 1979**

ASIC code	Industry sub-division	Working proprietors	Administrative, office, sales, and distribution employees	Production and all other employees	Total
21	Food, beverages, and tobacco	628	15,033	36,979	52,640
23	Textiles	70	3,627	15,390	19,087
24	Clothing and footwear	617	5,978	38,542	45,137
25	Wood, wood products, and furniture	707	3,534	14,323	18,564
26	Paper, paper products, printing, and publishing	343	9,612	21,790	31,745
27	Chemical, petroleum, and coal products	30	9,488	12,296	21,814
28	Non-metallic mineral products	160	3,231	9,602	12,993
29	Basic metal products	37	4,289	8,840	13,166
31	Fabricated metal products	501	8,608	26,110	35,219
32	Transport equipment	183	14,344	49,481	64,008
33	Other machinery and equipment	436	14,690	40,281	55,407
34	Miscellaneous manufacturing	307	6,425	20,834	27,566
Total		4,019	98,859	294,468	397,346

For footnotes see page 391.

Although "production and all other employees" constitute 74.1 per cent of the total number employed in manufacturing establishments, the percentage varies from 85.4 per cent in sub-division 24 to 56.4 per cent in sub-division 27. Sub-division 27 also has the highest percentage of "administrative, office, sales, and distribution employees", 43.5 per cent, compared with the Victorian average of 24.9 per cent.

Where small establishments predominate there is usually a higher proportion of working proprietors than on the average and a smaller than average managerial and clerical staff. This is particularly evident in sub-division 25 where working proprietors comprise 3.8 per cent of the total number employed.

The numbers of males and females employed in manufacturing establishments, and the proportions of the average male and female population per 10,000 working in these establishments in 1978-79 and earlier years are shown in the following table:

VICTORIA—MANUFACTURING ESTABLISHMENTS:
EMPLOYMENT (a) OF MALES AND FEMALES, 1901 TO 1978-79

Year	Males		Females		Total	
	Number	Average per 10,000 of male population	Number	Average per 10,000 of female population	Number	Average per 10,000 of total population
1901	47,059	778	19,470	325	66,529	553
1911	73,573	1,118	38,375	579	111,948	847
1920-21	96,379	1,283	44,364	574	140,743	923
1932-33	91,899	1,020	52,529	575	144,428	796
1946-47	188,758	1,876	76,999	745	265,757	1,303
1953-54	240,698	1,979	90,579	751	331,277	1,367
1960-61	280,207	1,925	107,843	750	388,050	1,341
1965-66	310,303	1,937	128,846	809	439,149	1,375
1967-68	316,108	1,912	133,837	812	449,945	1,362
1968-69	297,411	1,771	134,240	800	431,651	1,286
1969-70	306,917	1,794	138,746	812	445,663	1,303
1971-72	310,750	1,751	139,276	785	450,026	1,268
1972-73	314,259	1,744	140,770	782	455,029	1,263
1973-74	320,921	1,758	148,917	816	469,838	1,287
1974-75 { (g)	302,234	1,634	130,617	706	432,851	1,170
{ (h)	4,275	23	1,452	8	5,727	15
1975-76 (g)	291,736	r1,560	r125,371	r668	417,107	r1,113
1976-77 (g)	288,743	r1,530	120,453	r636	409,196	r1,082
1977-78 (g)	280,708	1,461	116,014	601	396,722	1,030
1978-79 (g)	279,315	1,454	115,649	598	394,964	1,025

For footnotes see page 391.

Female workers in manufacturing establishments at 30 June 1979 were 29.3 per cent of the total number employed. Females exceeded males in the Clothing and footwear sub-division (24) where they accounted for 75.5 per cent of the sub-division total.

In sub-division 29, Basic metal products, the proportion of females to total persons employed is at its lowest, 10.2 per cent.

VICTORIA—MANUFACTURING ESTABLISHMENTS:
EMPLOYMENT AT 30 JUNE

ASIC code	Industry sub-division	Number at 30 June—					
		1975		1976 (g)	1977 (g)	1978 (g)	1979 (g)
		(g)	(h)				
MALES							
21	Food, beverages, and tobacco	41,834	280	42,256	42,149	39,929	37,907
23	Textiles	13,625	82	13,337	11,625	11,083	11,139
24	Clothing and footwear	12,194	204	11,800	11,389	11,221	11,053
25	Wood, wood products, and furniture	16,460	884	16,503	16,645	16,023	15,682
26	Paper, paper products, printing, and publishing	24,543	517	24,119	24,172	23,418	23,417
27	Chemical, petroleum, and coal products	15,599	114	15,160	15,487	15,959	16,369
28	Non-metallic mineral products	11,969	188	12,059	11,854	10,959	11,073
29	Basic metal products	11,166	58	11,616	11,774	11,027	11,824
31	Fabricated metal products	29,250	777	28,853	28,509	27,981	28,303
32	Transport equipment	50,711	224	51,915	50,728	49,565	53,835
33	Other machinery and equipment	49,642	756	46,442	43,571	41,103	41,658
34	Miscellaneous manufacturing	18,969	599	19,067	18,595	18,544	18,910
	Total	295,962	4,683	293,127	286,498	276,812	281,170
FEMALES							
21	Food, beverages, and tobacco	16,520	125	15,826	15,451	14,983	14,733
23	Textiles	9,769	54	9,933	8,425	8,223	7,948
24	Clothing and footwear	36,348	231	37,156	34,522	33,758	34,084
25	Wood, wood products, and furniture	3,015	216	3,049	3,213	2,908	2,882
26	Paper, paper products, printing, and publishing	8,899	254	8,714	8,781	8,379	8,328
27	Chemical, petroleum, and coal products	5,617	49	5,188	5,151	5,322	5,445
28	Non-metallic mineral products	1,812	43	1,800	1,760	1,788	1,920
29	Basic metal products	1,400	16	1,417	1,363	1,253	1,342
31	Fabricated metal products	7,353	149	7,639	7,316	6,960	6,916
32	Transport equipment	8,852	45	10,124	9,344	8,983	10,173
33	Other machinery and equipment	16,619	197	15,574	14,540	13,515	13,749
34	Miscellaneous manufacturing	9,485	250	9,103	8,599	8,314	8,656
	Total	125,689	1,629	125,523	118,465	114,386	116,176

For footnotes see page 391.

Wages and salaries

The next table gives details of wages paid in the various classes of industry in Victoria in 1978-79. Amounts paid to "administrative, office, sales, and distribution employees" are shown separately from those paid to "production and all other workers". It should be noted that in all tables of salaries and wages paid the amounts drawn by working proprietors are excluded.

VICTORIA—MANUFACTURING ESTABLISHMENTS (g):
WAGES AND SALARIES PAID, 1978-79
(\$m)

ASIC code	Industry sub-division	Paid to—		
		Administrative, office, sales, and distribution employees	Production and all other workers	All employees
21	Food, beverages, and tobacco	180	408	588
23	Textiles	43	142	185
24	Clothing and footwear	67	303	371
25	Wood, wood products, and furniture	38	124	162
26	Paper, paper products, printing, and publishing	120	240	359
27	Chemical, petroleum, and coal products	130	144	274
28	Non-metallic mineral products	46	106	152
29	Basic metal products	68	97	165
31	Fabricated metal products	105	249	355
32	Transport equipment	199	451	649
33	Other machinery and equipment	176	388	564
34	Miscellaneous manufacturing	78	199	278
	Total	1,251	2,851	4,102

For footnote see page 391.

Of the total amount of wages and salaries paid in Victoria in 1978-79—\$4,102m—the metal fabricating sub-divisions (29-33) (including transport equipment, machinery, and other equipment), were responsible for \$1,733m or 42.2 per cent; Food, beverages, and tobacco, \$588m or 14.3 per cent; Clothing and footwear, \$371m or 9.0 per cent; and Paper, paper products, printing, and publishing, \$359m or 8.8 per cent.

Turnover

The following table shows the value of turnover of manufacturing establishments. The figures include sales of goods whether produced by an establishment or not, transfers out of goods to other establishments of the same enterprise, bounties and subsidies on production, plus all other operating revenue from outside the enterprise, such as commission, repair and service revenue, and the value of capital work done on own account. Rents, leasing revenue, interest, royalties, and receipts from the sale of fixed tangible assets are excluded.

VICTORIA—MANUFACTURING ESTABLISHMENTS:
TURNOVER BY INDUSTRY SUB-DIVISION (j)
(\$m)

ASIC code	Industry sub-division	1974-75		1975-76 (g)	1976-77 (g)	1977-78 (g)	1978-79 (g)
		(g)	(h)				
21	Food, beverages, and tobacco	2,548	8	2,767	3,104	3,477	3,901
23	Textiles	534	2	674	699	710	827
24	Clothing and footwear	799	7	942	1,002	1,073	1,208
25	Wood, wood products, and furniture	438	14	521	606	618	661
26	Paper, paper products, printing, and publishing	833	11	939	1,047	1,165	1,314
27	Chemical, petroleum, and coal products	803	3	904	1,076	1,216	1,458
28	Non-metallic mineral products	403	6	487	579	586	635
29	Basic metal products	548	2	577	744	773	953
31	Fabricated metal products	845	15	959	1,104	1,196	1,360
32	Transport equipment	1,648	5	1,909	2,311	2,444	2,656
33	Other machinery and equipment	1,566	16	1,696	1,811	1,886	2,078
34	Miscellaneous manufacturing	766	12	845	957	1,032	1,177
	Total	11,730	100	13,220	15,040	16,175	18,228

For footnotes see page 391.

Purchases, transfers in, and selected items of expense

In the following table the figures include purchases of materials, fuel, power, containers, etc., plus transfers in of goods from other establishments of the enterprise, plus charges for commission and sub-contract work, repair and maintenance expenses, outward freight and cartage, motor vehicle running expenses, and sales commission payments:

**VICTORIA—MANUFACTURING ESTABLISHMENTS: PURCHASES,
TRANSFERS IN, AND SELECTED ITEMS OF EXPENSE
BY INDUSTRY SUB-DIVISION
(\$m)**

ASIC code	Industry sub-division	1974-75		1975-76 (g)	1976-77 (g)	1977-78 (g)	1978-79 (g)
		(g)	(h)				
21	Food, beverages, and tobacco	1,763	5	1,808	1,998	2,339	2,707
23	Textiles	300	1	391	407	420	511
24	Clothing and footwear	405	3	495	512	551	653
25	Wood, wood products, and furniture	238	7	286	330	335	371
26	Paper, paper products, printing, and publishing	438	5	467	535	604	703
27	Chemical, petroleum, and coal products	486	2	514	670	723	881
28	Non-metallic mineral products	197	3	239	285	299	322
29	Basic metal products	389	1	378	499	486	677
31	Fabricated metal products	448	7	497	576	640	739
32	Transport equipment	1,038	2	1,093	1,355	1,510	1,689
33	Other machinery and equipment	891	8	938	1,001	1,005	1,160
34	Miscellaneous manufacturing	430	7	460	528	561	697
	Total	7,024	53	7,564	8,696	9,473	11,109

For footnotes see page 391.

Stocks

The figures in the following tables include all stocks of materials, fuels, etc., finished goods and work-in-progress whether located at the establishment or elsewhere. It should be noted that due to reporting differences on individual returns and variations in the number of establishments from year to year, the closing stocks in one year may differ from the opening stocks in the following year.

**VICTORIA—MANUFACTURING ESTABLISHMENTS:
STOCKS BY INDUSTRY SUB-DIVISION
(\$m)**

ASIC code	Industry sub-division	1974-75		1975-76 (g)	1976-77 (g)	1977-78 (g)	1978-79 (g)
		(g)	(h)				
OPENING STOCKS							
21	Food, beverages, and tobacco	295	1	382	383	407	482
23	Textiles	149	—	126	140	141	150
24	Clothing and footwear	144	1	130	159	169	186
25	Wood, wood products, and furniture	54	1	64	73	82	84
26	Paper, paper products, printing, and publishing	104	1	138	133	145	166
27	Chemical, petroleum, and coal products	131	—	189	175	202	239
28	Non-metallic mineral products	41	—	52	57	73	89
29	Basic metal products	79	—	105	131	152	139
31	Fabricated metal products	149	1	180	194	215	222
32	Transport equipment	282	—	379	382	462	514
33	Other machinery and equipment	370	1	475	473	473	509
34	Miscellaneous manufacturing	121	1	144	151	176	178
	Total	1,919	7	2,364	2,451	2,696	2,959
CLOSING STOCKS							
21	Food, beverages, and tobacco	376	—	396	409	464	497
23	Textiles	124	—	139	143	144	158
24	Clothing and footwear	129	1	154	167	187	219
25	Wood, wood products, and furniture	62	1	72	83	85	89
26	Paper, paper products, printing, and publishing	138	1	134	152	160	185

VICTORIA—MANUFACTURING ESTABLISHMENTS:
STOCKS BY INDUSTRY SUB-DIVISION—*continued*
(\$m)

ASIC code	Industry sub-division	1974-75		1975-76 (g)	1976-77 (g)	1977-78 (g)	1978-79 (g)
		(g)	(h)				
27	Chemical, petroleum, and coal products	181	—	176	200	232	257
28	Non-metallic mineral products	52	—	57	75	91	81
29	Basic metal products	104	—	130	161	139	160
31	Fabricated metal products	173	1	197	213	226	236
32	Transport equipment	380	—	377	471	478	555
33	Other machinery and equipment	475	1	491	504	515	578
34	Miscellaneous manufacturing	150	1	149	168	178	200
	Total	2,344	6	2,473	2,746	2,899	3,217

For footnotes see page 391.

Value added

Statistics on value added in the following table have been calculated by adding to turnover the increase (or deducting the decrease) in value of stocks and deducting the value of purchases and selected items of expense:

VICTORIA—MANUFACTURING ESTABLISHMENTS:
VALUE ADDED BY INDUSTRY SUB-DIVISION
(\$m)

ASIC code	Industry sub-division	1974-75		1975-76 (g)	1976-77 (g)	1977-78 (g)	1978-79 (g)
		(g)	(h)				
21	Food, beverages, and tobacco	866	3	973	1,132	1,195	1,208
23	Textiles	209	1	296	295	293	324
24	Clothing and footwear	379	3	471	498	540	588
25	Wood, wood products, and furniture	208	7	244	285	285	296
26	Paper, paper products, printing, and publishing	428	6	468	530	576	630
27	Chemical, petroleum, and coal products	368	1	377	432	523	595
28	Non-metallic mineral products	216	2	254	312	305	306
29	Basic metal products	183	1	225	276	275	297
31	Fabricated metal products	421	8	479	547	567	635
32	Transport equipment	709	2	814	1,044	950	1,008
33	Other machinery and equipment	780	8	775	841	922	987
34	Miscellaneous manufacturing	365	6	390	445	474	502
	Total	5,131	48	5,765	6,637	6,905	7,377

For footnotes see page 391.

Relation of costs to turnover

Certain costs of production, the value of turnover, movement in stocks, and the balance available for profit, interest, rent, taxation, depreciation, etc., in each sub-division of manufacturing industry during 1978-79 are given in the following tables:

VICTORIA—MANUFACTURING ESTABLISHMENTS (g):
COSTS AND TURNOVER, 1978-79
(\$m)

ASIC code	Industry sub-division	Cost of—			Balance between turnover, stocks, and costs (a)	Turnover (i)
		Purchases and selected items of expense (i)	Wages and salaries	Movement in stocks		
21	Food, beverages, and tobacco	2,707	588	+ 15	621	3,901
23	Textiles	511	185	+ 8	139	827
24	Clothing and footwear	653	371	+ 33	217	1,208
25	Wood, wood products, and furniture	371	162	+ 5	133	661

VICTORIA—MANUFACTURING ESTABLISHMENTS (g):
COSTS AND TURNOVER, 1978-79—continued
(\$m)

ASIC code	Industry sub-division	Cost of—			Balance between turnover, stocks, and costs (a)	Turnover (i)
		Purchases and selected items of expense (i)	Wages and salaries	Movement in stocks		
26	Paper, paper products, printing, and publishing	703	359	+ 19	271	1,314
27	Chemical, petroleum, and coal products	881	274	+ 18	321	1,458
28	Non-metallic mineral products	322	152	- 8	153	635
29	Basic metal products	677	165	+ 21	132	953
31	Fabricated metal products	739	355	+ 14	280	1,360
32	Transport equipment	1,689	649	+ 41	359	2,656
33	Other machinery and equipment	1,160	564	+ 69	423	2,078
34	Miscellaneous manufacturing	697	278	+ 22	224	1,177
	Total	11,109	4,102	+ 258	3,275	18,228

(a) Balance 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.

For other footnotes see page 391.

VICTORIA—MANUFACTURING ESTABLISHMENTS (g) : PERCENTAGE OF
SPECIFIED COSTS TO TURNOVER, 1978-79
(per cent)

ASIC code	Industry sub-division	Cost of—			Balance between turnover, stocks, and costs (a)	Turnover (i)
		Purchases and selected items of expense (i)	Wages and salaries	Movement in stocks		
21	Food, beverages, and tobacco	69.4	15.1	0.4	15.9	100.0
23	Textiles	61.8	22.4	1.0	16.8	100.0
24	Clothing and footwear	54.1	30.7	2.7	18.0	100.0
25	Wood, wood products, and furniture	56.1	24.5	0.8	20.1	100.0
26	Paper, paper products, printing, and publishing	53.5	27.3	1.4	20.6	100.0
27	Chemical, petroleum, and coal products	60.4	18.8	1.2	22.0	100.0
28	Non-metallic mineral products	50.7	23.9	-1.3	24.1	100.0
29	Basic metal products	71.0	17.3	2.2	13.9	100.0
31	Fabricated metal products	54.3	26.1	1.0	20.6	100.0
32	Transport equipment	63.6	24.4	1.5	13.5	100.0
33	Other machinery and equipment	55.8	27.1	3.3	20.4	100.0
34	Miscellaneous manufacturing	59.2	23.6	1.9	19.0	100.0
	Total	60.9	22.5	1.4	18.0	100.0

(a) Balance 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.

For other footnotes see page 391.

There are considerable variations in the proportions which purchases and selected items of expenditure, and wages and salaries, bear to the turnover in the different sub-divisions. These are, of course, due to the difference in the treatment required to convert materials to their final form. Thus in sub-division 24 the sum paid in wages represents 30.7 per cent and the purchases and selected items of expense 54.1 per cent of the values of the finished articles, while in sub-division 21 the expenditure on wages amounts to 15.1 per cent and that on purchases, etc., to 69.4 per cent of the value of turnover.

In the following table specified costs of production, the value of turnover of manufacturing establishments, and the balance available for profit and miscellaneous expenses are compared for each of the years 1974-75 to 1978-79:

VICTORIA—MANUFACTURING ESTABLISHMENTS: SPECIFIED COSTS OF PRODUCTION, ETC., AND TURNOVER
(\\$m)

Year	Cost of—		Movement in stocks	Balance between turnover, stocks, and costs (a)	Turnover (i)
	Purchases and selected items of expense (i)	Wages and salaries			
1974-75 { (g)	7,024	2,961	+ 425	2,170	11,730
{ (h)	53	17	—	30	100
1975-76 (g)	7,564	3,287	+ 108	2,476	13,219
1976-77 (g)	8,696	3,656	+ 293	2,981	15,040
1977-78 (g)	9,473	3,831	+ 203	3,074	16,175
1978-79 (g)	11,109	4,102	+ 258	3,275	18,228

(a) Balance available to provide for all other costs, such as rent, interest, insurance, pay-roll tax, income tax, depreciation, etc., as well as drawings by working proprietors and profit.

For other footnotes see page 391.

In the following table the components of cost are converted to their respective percentages of the value of turnover:

VICTORIA—MANUFACTURING ESTABLISHMENTS: PERCENTAGE OF SPECIFIED COSTS OF PRODUCTION, ETC., TO TURNOVER
(per cent)

Year	Cost of—		Movement in stocks	Balance between turnover, stocks, and costs (a)	Turnover
	Purchases and selected items of expense	Wages and salaries			
1974-75 { (g)	60.0	25.2	+ 3.7	18.5	100.0
{ (h)	53.0	17.0	—	30.0	100.0
1975-76 (g)	57.2	24.7	+ 0.8	18.7	100.0
1976-77 (g)	57.8	24.3	+ 1.9	19.8	100.0
1977-78 (g)	58.6	23.7	+ 1.3	19.0	100.0
1978-79 (g)	60.9	22.5	+ 1.4	18.0	100.0

(a) Balance available to provide for all other costs, such as rent, interest, insurance, pay-roll tax, income tax, depreciation, etc., as well as drawings by working proprietors and profit.

For other footnotes see page 391.

Fixed capital expenditure, and rent, leasing, and hiring expenses

Fixed capital expenditure is the outlay on new and second-hand fixed tangible assets less disposals. Rent, leasing, and hiring expenses are the amounts paid for renting, leasing, and hiring of premises, vehicles, and equipment.

VICTORIA—MANUFACTURING ESTABLISHMENTS (g) : FIXED CAPITAL EXPENDITURE LESS DISPOSALS AND RENT, LEASING, AND HIRING EXPENSES, 1978-79
(\\$'000)

ASIC code	Industry sub-division	Fixed capital expenditure less disposals			Rent, leasing, and hiring expenses
		Land, buildings, and other structures	Vehicles, plant, machinery, and equipment	Total	
21	Food, beverages, and tobacco	25,542	95,419	120,962	33,247
23	Textiles	496	15,171	15,667	10,048
24	Clothing and footwear	1,536	11,857	13,393	16,010
25	Wood, wood products, and furniture	4,102	12,867	16,970	14,066
26	Paper, paper products, printing, and publishing	9,786	53,147	62,933	16,722
27	Chemical, petroleum, and coal products	12,407	147,068	159,475	9,020
28	Non-metallic mineral products	2,157	23,500	25,657	3,882
29	Basic metal products	2,630	43,495	46,125	5,589
31	Fabricated metal products	5,502	27,003	32,505	16,368
32	Transport equipment	24,368	130,350	154,718	14,996
33	Other machinery and equipment	8,731	51,028	59,760	28,927
34	Miscellaneous manufacturing	614	33,713	34,327	17,777
	Total	97,872	644,620	742,492	186,651

For footnotes see page 391.

**VICTORIA—MANUFACTURING ESTABLISHMENTS:
FIXED CAPITAL EXPENDITURE
(\$'000)**

ASIC code	Industry sub-division	1974-75		1975-76 (g)	1976-77 (g)	1977-78 (g)	1978-79 (g)
		(g)	(h)				
21	Food, beverages, and tobacco	70,690	165	50,694	63,982	91,453	120,962
23	Textiles	19,088	19	14,522	14,674	11,576	15,667
24	Clothing and footwear	7,727	121	8,152	7,154	11,148	13,393
25	Wood, wood products, and furniture	11,860	313	16,072	21,656	9,169	16,970
26	Paper, paper products, printing, and publishing	49,453	243	37,093	57,021	60,106	62,933
27	Chemical, petroleum, and coal products	34,598	20	61,343	57,444	161,264	159,475
28	Non-metallic mineral products	30,030	56	42,350	18,370	26,724	25,657
29	Basic metal products	27,750	21	59,370	72,762	55,970	46,125
31	Fabricated metal products	36,387	267	31,782	33,277	27,685	32,505
32	Transport equipment	91,590	89	61,902	77,323	120,689	154,718
33	Other machinery and equipment	45,456	321	45,102	36,414	45,484	59,760
34	Miscellaneous manufacturing	30,163	474	33,765	35,050	31,974	34,327
	Total	454,794	2,108	462,149	495,127	653,243	742,492

For footnotes see page 391.

Electricity and fuels used

**VICTORIA—MANUFACTURING ESTABLISHMENTS: VALUE OF
ELECTRICITY AND FUELS USED BY INDUSTRY SUB-DIVISION
(\$'000)**

ASIC code	Industry sub-division	1974-75		1975-76 (g)	1976-77 (g)	1977-78 (g)	1978-79 (g)
		(g)	(h)				
21	Food, beverages, and tobacco	30,930	180	35,682	38,219	44,530	49,921
23	Textiles	8,740	32	10,226	10,930	11,521	13,563
24	Clothing and footwear	4,857	66	5,595	5,530	5,925	7,160
25	Wood, wood products, and furniture	3,868	120	4,618	5,600	6,318	7,390
26	Paper, paper products, printing, and publishing	13,237	104	14,393	13,191	13,754	16,947
27	Chemical, petroleum, and coal products	18,908	30	21,049	25,740	29,822	35,061
28	Non-metallic mineral products	17,066	74	18,232	21,524	23,555	24,577
29	Basic metal products	19,207	28	21,385	24,028	25,816	35,086
31	Fabricated metal products	9,328	200	10,220	11,673	12,667	14,969
32	Transport equipment	14,685	46	14,223	17,342	18,258	22,384
33	Other machinery and equipment	12,698	143	13,509	13,763	15,196	17,596
34	Miscellaneous manufacturing	10,978	132	12,260	13,606	14,594	17,682
	Total	164,502	1,154	181,393	201,146	221,955	262,337

For footnotes see page 391.

**VICTORIA—MANUFACTURING ESTABLISHMENTS:
VALUE OF ELECTRICITY AND FUELS USED BY COMMODITY
(\$'000)**

Commodity	1974-75		1975-76 (g)	1976-77 (g)	1977-78 (g)	1978-79 (g)
	(g)	(h)				
Electricity	97,819	931	107,344	117,847	131,909	158,651
Coal and coke—						
Black coal	27	—	53	65	31	34
Brown coal	1,314	—	1,568	1,468	1,382	1,965
Brown coal briquettes	3,522	10	3,626	4,111	3,931	4,635
Coke (including coke breeze)	2,908	9	2,573	3,346	3,137	3,882
Petroleum fuels (non-gaseous)—						
Light oils, etc.	3,031	74	3,391	4,590	5,921	5,727
Industrial diesel fuel	4,280	22	4,835	6,141	6,486	6,588
Furnace oil and other fuel oil	23,948	29	23,759	19,688	17,169	18,826
Reticulated gas	20,791	40	25,431	35,669	42,240	50,634
Other fuels	6,862	38	8,811	8,220	9,748	11,397
Total	164,502	1,154	181,393	201,146	221,955	262,339

For footnotes see page 391.

**VICTORIA—MANUFACTURING ESTABLISHMENTS:
QUANTITIES OF FUELS USED BY COMMODITY**

Fuel	Unit	1974-75		1975-76 (g)	1976-77 (g)	1977-78 (g)	1978-79 (g)
		(g)	(h)				
Coal and coke—							
Black coal	tonne	1,462	8	1,700	1,470	693	658
Brown coal	"	427,889	19	386,547	331,417	310,475	432,641
Brown coal briquettes	"	403,979	673	345,222	337,738	279,249	279,133
Coke (including coke breeze)	"	54,161	225	38,376	39,719	35,264	37,816
Petroleum fuels (non-gaseous)—							
Light oils, etc.	'000 litres	32,276	683	29,652	35,103	40,902	33,695
Industrial diesel fuel	tonne	78,557	398	63,760	74,009	71,795	160,189
Furnace oil and other fuel oil	"	573,960	577	442,938	310,055	232,865	321,415

For footnotes see page 391.

Some selected factory products of Victoria and Australia

Annual quantity and value

From February 1976, production statistics have no longer been collected from single establishment manufacturing enterprises employing less than four persons or from establishments predominantly engaged in non-manufacturing activities but which may carry on, in a minor way, some manufacturing activity. However, except for a few commodities, the effect of this modification on production levels and movements is marginal.

The following table shows quantities of some selected articles manufactured in Victoria, and corresponding figures for Australia during 1978-79 and 1979-80. Owing to the limited number of producers, it is not permissible under statute to publish particulars regarding some articles of manufacture which would otherwise appear.

VICTORIA AND AUSTRALIA—SELECTED ARTICLES MANUFACTURED (a)

Commodity code no.	Article	Unit	Victoria		Australia							
			1978-79	1979-80	1978-79	1979-80						
027.02-29, 72-77; 023.17	Meat—canned (excluding baby food)	'000 tonnes	26	22	45	39						
051.56-59							Ice cream	mill litres	83	84	213	215
051.72-73	Milk—powdered: full cream	'000 tonnes	65	65	77	80						
n.a.	Factory butter (b)	"	81	69	105	84						
n.a.	Cheese (b)	"	81	94	142	151						
062.01	Flour, white (including sharps)	"	231	224	1,031	1,042						
063.11, 21, 31	Malt	"	224	233	476	522						
064.21	Biscuits	"	49	50	125	124						
074.61, 65	Natural fruit juices	mill litres	40	54	135	57						
076.08, 15, 22	Canned or bottled apricots, peaches and pears	'000 tonnes	105	97	133	119						
076.60	Jam, etc.	"	25	15	31	21						
094.02-47	Vegetables canned or bottled (including pickled)	"	34	35	138	126						
104.06-18	Confectionery—	"	25	26	53	56						
104.21-29	Chocolate or containing chocolate											
123.18	Other	"	27	27	55	53						
159.01	Sauce—tomato	mill litres	18	17	23	22						
159.01	Canned cat and dog food	'000 tonnes	r 176	185	190	199						
171.03, 07, 08,	Aerated and carbonated waters, canned or bottled (c)	mill litres	259	249	974	960						
242.07-11	Wool-scoured or carbonised	'000 tonnes	30	32	81	83						
261.41	Briquettes—brown coal	"	1,131	1,235	1,131	1,235						
372.22-36, 48, 50	Finished woven fabric—woollen (d)	'000 sq m	2,024	2,871	4,550	5,950						
372.52-72; 374.51-59	Blankets, and rugs (e)	'000	829	691	1,299	961						
403.02, 18, 20, 52-96							Plastics and synthetic resins	'000 tonnes	425	494	618	709
404.01-98	Bricks—clay	mill	410	438	1,936	2,206						
472.01, 03	Tiles, roofing	"	53	57	202	221						
472.12; 475.30	Ready mixed concrete	'000 cub m	r 2,853	2,508	10,838	11,013						
475.90	Electric motors	'000	950	1,303	3,187	3,718						
503.13-32	Finished motor vehicles (f)—	'000	215	206	375	363						
581.02-08, 10-16							Cars and station wagons	'000 doz	r 1,473	1,605	2,809	2,819
773.02-35							Shirts (men's and boys')	'000 doz	5,070	5,300	6,239	6,628
775.01-39							Women's hosiery	'000 doz pairs	1,555	1,774	1,762	2,007
775.51-82, 775.91-98;	Men's hosiery	"										

VICTORIA AND AUSTRALIA—SELECTED ARTICLES MANUFACTURED (a)—continued

Commodity code no.	Article	Unit	Victoria		Australia	
			1978-79	1979-80	1978-79	1979-80
776.01-22	Children's hosiery	"	1,135	1,209	1,163	1,239
776.31-42	Infants' hosiery	"	169	114	169	114
	Footwear—boots, shoes, and sandals (g)—					
793.05, 08, 21, 22, 31, 32, 41, 46, 51, 61, 65 66, 71, 81	Men's and youths'	'000 pairs	6,826	7,768	10,903	11,735
793.06, 09, 23, 24, 33, 34, 42, 47, 52, 62, 67, 68, 72, 82						
	Women's and maids'	'000 pairs	9,829	10,617	12,995	13,739
793.04, 07, 10, 25, 35, 43, 48, 53, 63, 69, 73, 83	Children's and infants'	"	5,413	5,092	6,863	6,399

- (a) By all manufacturing establishments owned by multi-establishment enterprises and single establishment manufacturing enterprises with four or more persons employed.
 (b) Source: Australian Dairy Corporation.
 (c) Excludes bulk aerated and carbonated waters.
 (d) Excludes blanketing and rug material.
 (e) Double, three-quarter, single cot, bassinet, pram etc; wool mixture and other fibre. From 1 July 1975, includes tufted blankets.
 (f) Excludes vehicles finished by specialist body building works outside the motor vehicle manufacturers' organisation.
 (g) Excludes thongs and adults boots with uppers of rubber or synthetic material.

Monthly production statistics

The Australian Bureau of Statistics collects monthly production returns and makes available printed tables of Australian production statistics within a few weeks of the month to which they relate. A list of the subjects included in these production bulletins is given in the following table:

AUSTRALIA—PRODUCTION BULLETINS

No.	Subject	No.	Subject
1	Electricity, Gas, and Electrical Appliances (8357.0)	5	Building Materials and Fittings (8361.0)
2	Clothing and Footwear (8358.0)	6	Chemicals and By-Products (8362.0)
3	Food, Drink, and Tobacco (8359.0)	7	Motor Vehicles, Parts, and Accessories (8363.0)
4	Textiles, Bedding, and Floor Coverings (8360.0)	8	Miscellaneous Products (8364.0)

A preliminary production bulletin showing Australian totals for selected major production indicators is also published. In addition, statistical publications for the meat and dairying industries and mineral and mineral products are issued each month. Selected Victorian production figures are published in the *Monthly Summary of Statistics, Victoria* (1303.2).

HISTORY OF THE BREWING INDUSTRY IN VICTORIA

The brewing industry in Victoria dates to the first days of the Settlement of Port Phillip. In fact, in 1838, at Melbourne's first land sales, a Mr John Moss bought land for a brewery which he built behind an inn in Flinders Street. Soon other breweries appeared, many owned by prominent citizens, such as Melbourne's first mayor, Henry Condell. Already in the days before the goldrush, Melbourne showed a keen demand for beer and by 1851 boasted seven breweries.

With the discovery of gold and the subsequent growth of population in the Colony, breweries opened in almost every town, and many mining towns had three or four each. Many were just crude constructions, housed in sheds on the diggings. However, these smaller and makeshift breweries disappeared from the diggings once the surface gold was exhausted.

After the initial rush for gold, towns grew and so did the breweries that were in them. In 1871, Victoria had 746,450 persons and 126 breweries.

The art of brewing consolidated after the early gold rushes. Breweries employed better equipment and skills in order to improve the quality of colonial beers which until this time were not highly rated. They were dark and heavy and characterised by a bitter taste, or "colonial twang", and persons who could afford to drink imported beers — mainly English. In fact the improvement in the quality of local brews can be measured by the change in the amount of beer imports. In 1860, beer worth \$1.2m was imported into Victoria, but by 1872, the value was less than \$300,000.

However, not all the breweries shared this improvement and growth, and those with insufficient equipment and technology eventually failed as competition grew more vigorous. Increasing costs and competitive pricing cut profitability so that the breweries' success relied upon the reputation their products gained for them. During the 1880s, the number of breweries in Victoria fell to about 100; almost 80 of these were in country towns.

The successful breweries were able to take good advantage of the prosperous 1880s and prepare for the future.

An important change in the style of beer brewed took place at this time and was immediately popular. The successful brewing of lager — a beer which was light in colour and served chilled — established a taste in beers which Australians still prefer.

The first commercially successful lager brewery in Australia was established in 1888 by the Foster brothers in Collingwood, a suburb of Melbourne. The Foster Brewing Company was equipped with the most up-to-date American machinery, including ice-making equipment, and the head brewer had studied his art in Cologne. The company's brews quickly competed with the local and imported bottled beer market. The other local breweries soon developed competitive lager beers.

The depression of the 1890s which followed the land boom in the previous decade brought economic recession, and the brewing industry was a significant victim. Between 1895 and 1905, more than 50 breweries in Victoria closed. Many of those surviving were forced to undergo financial restructuring or changed hands. Other events at this time adversely affected the brewing industry; in 1892, the Shiels Government introduced a beer tax by passing the Beer Duty Act and, four years later, the discovery of gold in Western Australia brought about a decrease in the Victorian population.

Although the first years of the new century saw a return to relative prosperity for the economy, some breweries never recovered and finally closed or sold out. The brewing industry did not make a hasty return to profitability because there were too many competing breweries. Several of the larger Melbourne brewers decided to curtail price discounting in order to keep their businesses profitable, but this caused a hostile reaction from some of the more influential hotel keepers, who decided to build their own brewery. The Melbourne Co-operative Brewery, thus formed, became a serious competitive threat to the established brewing companies.

In order to reduce costs, some Melbourne brewing companies decided to amalgamate as a means of reducing the number of breweries. The agreement took two years to negotiate and finally on 8 May 1907 Carlton and United Breweries Limited was registered. Brewing for the combine took place only at Carlton and Victoria breweries, which are still operating today, with the other breweries gradually being phased out.

The six companies involved in this merger were:

- (1) McCracken's City Brewery Limited. Founded in 1851 in Little Collins Street, it became very successful having the largest share of beer sales in Victoria.
- (2) Victoria Brewery Proprietary Limited. Founded in 1854, it also became successful having used scientific research at an early stage to develop popular brands.
- (3) Carlton Brewery Limited. Founded in 1858 as the North Melbourne Brewery and eventually bought by Edward Latham in 1865 who improved it to a position where it held the second largest share of Victorian beer sales.
- (4) The Castlemaine Brewery Company Limited was established as a branch of the original brewery in Castlemaine in 1871 and became another large brewery.
- (5) The Shamrock Brewery and Malting Company Proprietary Limited was established in Collingwood in 1865 and although depressed in the 1890s, it recovered from that period as probably the most solvent of all the breweries.

(6) The Foster Brewing Company Proprietary Limited which has been mentioned for its successful brewing of lager beers. It was also the first Australian brewery to begin an export trade with a shipment of beer to South Africa in 1901. Today, the Foster's brand is Australia's largest export beer. The Foster Brewery was the only one to survive the 1890s virtually unscathed, which was an indication of the success of its recently introduced lager beers.

Although in 1907 Victoria had 37 breweries, the new combine supplied more than half the State's beer. Carlton and United Breweries Limited (C.U.B.) had its most aggressive competition in the Melbourne market. In 1925, after years of competition between them, C.U.B. and the Melbourne Co-operative Brewery merged their interests. The Co-operative's Abbotsford brewery continued to operate and today, expanded and modernised, is the largest brewing plant in Australia.

In 1926, the Richmond Nathan System Brewing Co. Pty Ltd, was formed. It used a system of brewing developed by Dr Nathan before the First World War which was regarded as very hygienic because it used enclosed fermentation vessels as opposed to the open vessels popular at the time. The brewery competed in the Victorian market and sold its products nationally. However, with increasing competition, its assets were bought by C.U.B. in 1962.

Until 1968, C.U.B. was the only brewing company in Victoria. In that year Courage Breweries Limited opened a plant in Broadmeadows, and traded for ten years. In 1978, the brewery was taken over by the New South Wales brewer, Tooth and Company Limited, and the name Courage has been dropped from the operating company.

MANUFACTURING INDUSTRY IN THE BENDIGO AREA

Introduction

The manufacturing sector plays an important role in the economy of the Bendigo Statistical District, hitherto referred to as Bendigo and the surrounding agricultural region. Bendigo is the major centre in the heart of Victoria in which a wide and steadily expanding range of manufacturing industry has been established with engineering, steel fabrication, and textiles being the most important. However, food, clay products, and transport industries have also been established in recent times. The population of Bendigo has increased by 12.6 per cent over the period 1970-71 to 1979-80 and is continuing to increase with industrial expansion.

General background

The Bendigo Statistical District is defined as the City of Bendigo, Borough of Eaglehawk, and parts of the Shires of Huntly, Marong, and Strathfieldsaye, the total area representing some 301,533 hectares with a population in excess of 56,800 persons. Bendigo is located 148 kilometres north-west of Melbourne in the Loddon-Campaspe region. The topography of the region is relatively uniform with an average of 228 metres above sea level. The mean maximum temperature is 20°C and the mean minimum temperature is 9°C. Mean rainfall for the area is 508 mm with most falls being recorded during the winter period from May to August.

The region is a designated area for accelerated development under the Victorian Government's decentralisation programme, and its industrial base, stimulated by major investments, has broadened steadily in recent years. At the beginning of 1981, there were more than 190 businesses which had been approved as Decentralised Secondary Industries. This development and on-going assistance has also been fostered by the Bendigo Development Committee which comprises local businessmen and council representatives from the Bendigo area.

Bendigo is well situated in Victoria's network of highways and railways and is a recognised industrial and trading centre for an extensive area of the State. The region is well serviced with water, electricity, natural gas, and sewerage facilities, all of which have ample capacity to cope with major expansion. Substantial areas of serviced industrial estates are also available at attractive rates. Bendigo has a modern airport with capacity to handle planes up to the size of Fokker Friendships. Daily commuter and freight flights operate between Bendigo and Melbourne.

VICTORIA—BENDIGO STATISTICAL DISTRICT, MELBOURNE
STATISTICAL DIVISION, AND VICTORIA:
AVERAGE EMPLOYMENT (a) AND NUMBER OF
MANUFACTURING ESTABLISHMENTS (g), 1975-76 AND 1977-78

Particulars	Bendigo Statistical District	Melbourne Statistical Division	Victoria
	per cent	per cent	per cent
Average employment in manufacturing industry (a)	+ 7.89	-5.87	-4.89
Manufacturing establishments at 30 June (g)	+ 10.96	-5.04	-3.40

For footnotes see page 391.

Recent developments

Bendigo is continuing a well balanced growth in the manufacturing sector and the tertiary and primary sectors. Continued growth in the manufacturing sector has been assisted by the policies of the Victorian Government through its decentralisation programme and by the Bendigo Development Committee.

Major companies which have been established in Bendigo since mid-1975 include John Lysaght (Aust.) Ltd, which has developed a steel milling plant at Epsom; Empire Rubber (Aust.) Pty Ltd, which is engaged in the manufacture of rubber components, predominantly for the automotive trade, and employs 250 persons, and Vickers Australia Ltd, which is engaged in precision engineering for the mining industry. Companies which have completed a significant expansion include Tomlins Simmie (a division of K.M.M.), which has completed a \$2m expansion to its stock feed mill, and Canada Packers (Mayfair Hams and Bacon Company) which has completed a \$3m investment at its Bendigo plant and employs 500 persons. The local engineering and airconditioning company of McNiece Bros Pty Ltd (which employs 300 persons) has entered into a joint venture with the German company, Precismeca Gesellschaft Fur Fordertechnik, to form Precismeca Australia Pty Ltd. The company has invested \$600,000 in a new plant for the manufacture of materials handling equipment. The company of Cooper and Cooke (Ceramics) Pty Ltd has recently completed a major factory for the manufacture of electric ceramic jugs and associated products and has taken advantage of local clays which substantially reduces the cost of production. Courtaulds Hilton Ltd, a major pantyhose manufacturer, has acquired a 2,800 square metre plant in Bendigo. Employment at this plant, though initially 80 persons, is expected to increase in the near future with the company investing more than \$1m in its operation up to December 1980. Pacific Carpet Yarns Pty Ltd has also invested more than \$1m in upgrading plant and equipment. These projects provide a significant addition to Bendigo's present industrial base which includes industries engaged in the production of cement, eucalyptus, television commercials, films, and programmes, motor vehicle parts and reconditioning, and iron and steel foundries.

New industrial estates on both freehold and Crown land have been developed in the Shire of Huntly, the Borough of Eaglehawk, and the City of Bendigo (Long Gully estate). The Long Gully estate was assisted by a \$290,000 loan from the Decentralisation Advisory Board under the Commonwealth Regional Development Programme. This enabled the Bendigo Council to develop an area of 12 hectares together with the erection for lease of three 195 square metre factories.

Recognising the growth of Bendigo's manufacturing industry, the Victorian Government has announced its intention to build a major State government office block costing upwards of \$5m to service the increasing needs of the region. At the 1976 Census of Population, employment in the government sector (Commonwealth, State, and local) accounted for 31.8 per cent of the workforce in the Bendigo Statistical District.

Other major developments include a \$12m shopping complex at Kangaroo Flat — opened in September 1979, the erection of a \$3.5m multi-storey car park in Bendigo — due for opening late in 1981, and a \$4.5m extension to the Bendigo College of Advanced Education — which is in its final stages of construction.

Bendigo is regarded as potentially one of the prime goldfields in the world and is generally held to be one of the three main fields in the gold-bearing quartz area in

Victoria. The last major mine (Central Deborah Gold Mine) ceased mining operations in 1954 but has since been re-opened as a tourist attraction. The Western Mining Corporation has taken out two exploration licences covering a 1,122 square kilometre area.

Further references: History of manufacturing, *Victorian Year Book* 1961, pp. 531-5; Motor vehicle industry, 1962, pp. 591-4; Chemical industry, 1963, pp. 615-20; Petrochemical industry, 1964, pp. 650-4; Glass industry, 1965, pp. 606-8; Agricultural machinery industry, 1966, pp. 587-9; Aluminium industry, 1967, pp. 415-18; Automation and technical development in industry, 1967, pp. 376-82; Textile industry, 1968, pp. 416-20; Canning of foodstuffs, 1967, pp. 432-5; Butter, cheese and processed milk products, 1970, pp. 431-6; Heavy engineering, 1971, pp. 419-22; Light engineering, 1972, pp. 392-5; Secondary industry and the environment, 1974, pp. 418-21; Concrete pipe industry, 1975, pp. 500-1; Paper industry, 1976, pp. 466-8; Wine industry in Victoria, 1977, pp. 510-11; Timber industry in Victoria, 1978, pp. 434-7; Manufacturing industry in the Geelong area, 1980, pp. 406-8

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