This treatment cannot be extended to the individual States, as the records do not disclose the particular relationship of the States concerned.

4. **Interstate and Coastal Services.**—The foundation of the coastal steamship services in Australia dates back to the year 1851, when a regular trade was established between Melbourne and Geelong by the small screw steamer "Express." Early in the fifties a company was formed in Tasmania with a capital of £40,000 for the purpose of purchasing steamboats, and employing them in the carriage of passengers and goods between Hobart and Melbourne. This service was commenced in 1852, and was thus the first regular interstate service in Australia. About this time the great influx of population and the increase in commerce, caused chiefly by the gold discoveries, emphasised the desirability of establishing more regular and quicker means of communication between the principal ports of Australia, and in 1862 the regular interstate service between New South Wales and Victoria was inaugurated by the s.s. *You Yangs*, which was put into commission in regular service between Melbourne, Sydney, and Newcastle. In 1875 a company was formed in Adelaide for the purpose of supplying suitable steamers for the requirements of the trade between Adelaide and Melbourne. The first two steamers of the company were named the *South Australian* and the *Victorian*, and were small vessels of only 400 tons burthen. From the start success attended these enterprises, and the services thus initiated were rapidly extended and their operations broadened. Numerous other companies were formed to cope with the increasing trade between ports in the Commonwealth, and the companies engaged from time to time added to their fleets of steamers by the acquisition of more modern and rapid vessels, until at the end of the year 1908 the total net tonnage owned by the eleven companies from whom returns have been received amounted to 145,917 tons. A summary of the various mail services carried on during the year 1908 is given in Section XVIII. of this work.

The subjoined table gives particulars, so far as they are available, of all steamships engaged in regular interstate or coastal services at the end of each of the years 1901 and 1903 to 1908 :—

PARTICULARS OF STEAMSHIPS ENGAGED IN REGULAR INTERSTATE AND COASTAL SERVICES IN THE COMMONWEALTH, 1901 to 1908.

Particulars.	1901.	1903.	1904.	1905.	1906.	1907.	1908.
Number of companies making returns	11	11	11	11	11	11	11
Number of steamships	113	114	113	117	122	131	135
Tonnage { Gross	184,574	193,262	195,057	198,338	207,320	227,605	242,766
Tonnage { Net	114,080	118,514	118,612	120,470	125,560	137,573	145,917
Horse-power { Nominal	18,237	18,828	19,031	19,180	20,258	21,735	22,699
Horse-power { Indicated	122,519	133,125	138,422	141,054	149,345	163,166	175,270
Number of passengers for which licensed to carry { 1st class ...	4,617	5,314	5,536	5,764	6,077	6,399	6,689
Number of passengers for which licensed to carry { 2nd class and steerage ...	4,490	5,494	5,645	5,745	5,906	6,026	6,115
Complement of Crew { Masters and officers ...	403	408	404	410	431	458	478
Complement of Crew { Engineers	332	342	343	343	360	388	411
Complement of Crew { Crew	2,875	3,106	3,153	3,181	3,351	3,625	3,721

§ 6. Ports of the Commonwealth.

(A.) New South Wales.

1. **Sydney** (Port Jackson).—Lat. 33° 51′ S., long. 151° 12′ E. *Approach.*—The least width of the entrance to Port Jackson—from Inner South Head to Inner North Head—is 5000 ft., with a depth of 72 ft. to 108 ft. at Low Water Ordinary Spring Tide. The least depth of water in the channels approaching the harbour is 33 ft. at L.W.O.S.T. in the Eastern Channel, and 22 ft. in the Western Channel. *Tide.*—The port establishment

at Fort Denison, Sydney Harbour, is 8 hours 40 minutes. *Wharves.*—The length of wharf frontage, according to the depth of water along the frontage at L.W.O.S.T., is as follows :—

Depth ... ft.	10—15	15—20	20—25	25—30	30—35	Total
Frontage ... ft.	3,067	9,873	14,556	9,993	2,707	40,196

There are 1,134,061 square feet (26 acres) covered wharves, *i.e.*, cargo sheds, and 8541 feet of wharf frontage is connected with the railway system.

Cranes and Facilities for Coaling.—At Pyrmont, on the eastern coal jetty, are two 10-ton cranes, and on the western jetty two hoists of approximately 200 tons per hour. On the wheat-loading jetty, and at Darling Harbour, Pyrmont, are electric conveyors.

GRAVING DOCKS.

Name.	Length.	Breadth.	Height of Sill.	Depth on Sill. H.W.O.S.T.
	ft.	ft.	ft. in.	ft. in.
Mort's Dock and Engineering Co. Ltd., Balmain (*a*)...	640	69	4 6	19 6
,, ,, ,, Parramatta River	597	83	4 0	28 0
Sutherland Dock (Government), Cockatoo Island (*b*)	637	84	3 6	32 0
Fitzroy Dock (Government), Cockatoo Island (*c*) ...	477	59	1 4	21 6

(*a*) Divisible in centre by caisson; has one 10-ton and two 2-ton cranes. (*b*) Divisible in centre by caisson; will take vessels 556 feet long; has two 5-ton travelling cranes. (*c*) Will take vessel 450 feet long; has one 15-ton crane.

FLOATING DOCKS.

Name.	Extreme Length.	Breadth at Entrance.	Draught of Vessel.	Lifting Capacity.
	ft.	ft. in.	ft. in.	Tons.
Mort's Dock and Engineering Co. Ltd.—				
Victoria Jubilee Dock, Johnston's Bay ...	320	44 0	14 0	...
Atlas Pontoon Dock, Parramatta River ..	195 (on blocks)	60 6	Moored in 30 ft. of water	1,500
—Johnston's Bay ...	109	23 0	...	150
Rowntree's, Mort's Bay	163	40 0	12 0	600
Drake's, Balmain	150	40 0	...	...

PATENT SLIPS.

Name.	Length.	Draught of Keel. L.W.O.S.T.		Lifting Capacity.
		Forward.	Aft.	
	ft.	ft. in.	ft. in.	Tons.
Mort's Dock and Engineering Co. Ltd., 1 ...	270	8 10	17 0	2,000
,, ,, ,, 2 ...	200	8 0	16 0	1,500
,, ,, ,, 3 ...	50	2 4	5 6	40

Miscellaneous.—Licenses issued by the Sydney Harbour Trust Commissioners in force on the 30th June, 1909:—Lighters, 233; tonnage, 10,328. Ferry steamers, 58; tonnage, 5877. Tugs, 39; tonnage, 967. Launches (steam and oil), 26; tonnage, 141. Water boats, 14; tonnage, 697. Hulks, 15; tonnage, 6131. Hoisting plant, 15; tonnage, 255.

General Characteristics of the Port.—Port Jackson is a large and safe harbour with a wide area of deep water. The entrance to the harbour is free from dangers, and the

soundings are regular. Its surrounding hills shelter the harbour from all winds, so that a heavy or high sea is never experienced in the port.

2. **Newcastle** (Hunter River).—Lat. 32° 55′ S., long. 151° 49′ E. *Approach.*—Width of entrance, 1200 ft.; least depth L.W.S.T. at entrance 22 ft. 6 in., in channel 22 ft. 3 in. *Tide.*—Full and change, 8.50 a.m. *Wharves.*—Wharf frontage, according to depth of water, is as follows:—

Depth ... ft.	Under 10	10—15	15—20	20—25	25—30	Total
Frontage ... ft.	500	2,800	9,610	2,080	3,200	18,190

Cargo sheds in course of construction, 15,000 sq. ft.; every facility for shipment of coal; 20 cranes; railway connection. *General.*—The port constitutes the mouth of the Hunter River and is liable to heavy currents from that river in flood time. The port is accessible in all but the roughest weather. There are five patent slips.

3. **Port Stephens.**—Width of entrance, 4000 ft.; least depth at entrance L.W.S.T., 24 ft. Used for shipment of timber; few facilities for handling cargo or obtaining coal, water, or other ship's necessaries. Good shelter from easterly or southerly weather.

4. **Port Kembla.**—Protected by eastern breakwater, which, when complete, will be 3100 ft. long; northern breakwater in course of construction. Two coal jetties with shoots for shipping coal. Depth of water at coal shoots, up to 33 ft. L.W.O.S.T.

5. **Eden** (Twofold Bay).—Width of entrance, 1½ miles; least depth at entrance L.W.S.T., 42 ft. *Wharves.*—Frontage, 260 ft., depth to 15 ft.; 300 ft., depth to 20 ft. One steam crane; good shelter.

6. **Kiama.**—Width of entrance, 460 ft.; least depth at entrance L.W.S.T., 10 ft. *Wharves.*—Frontage, 200 ft., depth to 15 ft.; 850 ft., depth to 20 ft. L.W.S.T.

(B.) Victoria.

1. **Melbourne** (River Yarra, Hobson's Bay, Port Phillip).—Lat. 37° 49′ S., long. 144° 58′ E. *Approach* (from General Notice to Mariners respecting Navigation in Victorian Waters—Department of Ports and Harbours).—Port Phillip is an extensive bay, about 31 miles long north and south, and 20 miles wide at the middle, where, on the west side, it forms an arm (Western Arm), extending W.S.W. for 15 miles to Geelong. At the north end of the bay the waters contract, forming the portion known as Hobson's Bay. The entrance to Port Phillip, between Points Lonsdale and Nepean, is 1¾ miles wide, but the reefs projecting from these points reduce the navigable channel to about six cables (3600 ft.). For 2½ miles within Port Phillip Heads the entrance is deep and free from danger, after which the bay widens out and is filled with numerous sand-banks, extending 8 miles to the northward and 12 miles to the eastward. Between these banks are four channels, viz., South, Symonds', West, and Cole's. The South, West, and Cole's Channels are buoyed off and available for navigation (according to instructions). These channels are defined by lights and buoys. The South Channel is available at low water for vessels drawing 30 ft.; the West Channel is available at ordinary low water for vessels of 17 ft. draught, but the tide may fall a foot below ordinary low water during spells of easterly to northerly weather. The least depth of water in the fairway of Cole's Channel is 12 ft.

Tides.—Vulgar establishment, 2 hours 41 minutes; corrected establishment, 2 hours 10 minutes; semi-menstrual inequality, 1 hour 10 minutes. *Wharves.*—The length of wharf frontage, according to the depth of water, is as follows:—

Depth ... ft.	Under 10	10—15	15—20	20—25	25—30	Total.
Frontage ... ft.	500	700	4,250	15,370	19,460	40,280

Of the 40,280 ft. of wharf frontage, 6100 ft. are at Williamstown, 5860 ft. at Port Melbourne, 19,520 ft. in the River Yarra, and 8800 ft. in the Victoria Dock. The Victoria Dock, which is situated four miles up the River Yarra, covers an area of about 96 acres. There are 568,000 square feet (13 acres) of covered wharves (cargo sheds), of which 7 acres are closed sheds. About 4600 ft. of the Victoria Dock and 7800 ft. of bay piers at Port Melbourne and Williamstown are laid down with rails, which connect with the general railway system.

GRAVING DOCKS.

Name.	Length.	Width at Entrance.		Depth on Sill.	
		Top.	Bottom.	L.W.O.S.T.	H.W.O.S.T.
	ft.	ft.	ft.	ft.	ft.
Duke's, South Melbourne	520	71	61	20	23
Wright and Orr's, South Melbourne	430	70½	50	20	23
Alfred Graving Dock (Government) Williamstown	450	97	55½	25	27

Floating Dock (Melbourne Steamship Company, Williamstown).—Length, 216 feet; breadth at entrance or extreme, 36 feet; depth on sill ordinary high water, 13 feet; can take vessels up to 900 tons. *Patent Slips.*—Four patent slips, the largest having a lifting capacity of 500 tons. *General Characteristics.*—In the River Yarra and Hobson's Bay the weather conditions are variable; the winds do not long prevail in any quarter, a change coming usually within twenty-four hours and seldom exceeding two days. Northerly winds occasionally blow with considerable force, and a change is sometimes accompanied by heavy squalls from the south-west for a short period, after which it moderates rapidly. Strong winds of a dangerous nature are exceptionally rare in this locality, although strong westerly and southerly gales are occasionally experienced on the coast and in Port Phillip Bay. Tidal currents in Hobson's Bay are weak, and their direction mostly dominated by the prevailing wind. The mean spring tide is about 2 feet 6 inches, although double that amount has been recorded when influenced by continuous strong south to west winds, north-easterly winds having the opposite effect. The waters of the River Yarra are almost continually running outward, there being practically no flow in during flood tide, the rise of the sea level merely banking up the waters of the river and checking the outflow; under the influence of strong west to southerly winds, however, an upstream current is caused, but extends to a few feet only below the surface, and exerts little or no effect on other than very light draught vessels. The normal rate of outflow, from one to two knots per hour, is slightly accelerated by heavy rains.

2. **Geelong** (Corio Bay, Port Phillip).—Lat. 38° 8′ S., long. 144° 21′ E. *Approach.*—From Port Phillip Bay by the Hopetoun Channel which has a navigable width of 130 ft., (being increased to 230 ft.), with a least depth of 24 ft. 6 in. O.L.W.S. (Approach to Port Phillip—see Melbourne). *Tide.*—High water full and change 3 hrs. 17 min.; average rise 1 ft. 9 in. but is greatly influenced by winds, westerly winds increasing and easterly winds decreasing the rise. *Wharves.*—The length of wharf frontage with the

depths of water thereto is as follows:—Railway Pier, 1480 ft., depth 24 to 25 ft.; Yarra-street Pier, 1620 ft., depth 24 to 25 ft.; Moorabool Pier, 500 ft,. depth 10 to 20 ft.; Eastern Pier, 200 ft., depth 10 to 15 ft.; Corio Quay, 300 ft., depth 27 ft.; Freezing works wharf, 470 ft., depth 19 to 30 ft. Corio Quay and the Railway Piers are directly connected with the main lines of railway. There are three 2-ton and one 3-ton cranes.

3. **Portland** (*Portland Bay*).—Lat. 38° 20′ S., long. 141° 36′ E. *Jetties.*—1. Frontage on the south side 500 ft., depth 14 to 17 ft.; north side, frontage 400 ft., depth 15 to 17 ft. 2. (Railway Pier).—is 40 ft. wide for 450 ft. at outer end with a least depth of 29 to 31 ft. at low water. At a distance of 95 ft. from the end of the pier the water shoals to 23 ft. L.W. Both jetties are connected with the railway system and cargo is shipped direct from railway trucks. *Tides.*—Establishment of port 0 hours 30 min ; rise 3 ft. *General Characteristics.*—The port is easy of access, there being no hidden dangers in the approach. Anchorage is commodious and safe in all winds except S.E. As the holding ground is excellent a vessel with good ground tackle can ride out a S.E. gale in safety. The piers are fitted with spring piles and vessels are moored by coir hawsers and can berth at the piers in all but the worst weather.

(C.) Queensland.

1. **Brisbane** (Brisbane River, Moreton Bay).—Lat. 27° 28′ S., long. 153° 6′ E. *Approach.*—There are two main entrances to Moreton Bay, with depths of 24 ft. and 30 ft. respectively at Low Water Spring Tide. The approaches to Brisbane Roads have a depth from 6 to 10 fathoms L.W.S.; thence to Brisbane are artificial channels 300 ft. wide, with a depth of 24 ft. The channels in the Town and South Brisbane Reaches carry a minimum depth from 20 ft. to 24 ft. at L.W.S. At Pinkenba is a swing basin 4500 ft. long by 900 ft. wide, with a minimum depth of 24 ft. L.W.S. Brisbane is about 16 miles from the entrance to the river. *Tide.*—The correct establishment of the port is 10 hours 5 minutes, and the semi-menstrual inequality 1 hour 10 minutes. Spring tides rise from 7 ft. to 8 ft.; neaps rise from 5 ft. to 6 ft. *Wharves.*—The length of wharf frontage, according to the depth of water L.W.S., is as follows:—

Depth ... ... ft.	Under 10	10—15	15—20	20—25	Total.
Frontage ... ... ft.	710	700	1,020	6,730	9,160

The Pinkenba wharves are connected with the railways for both passenger and goods traffic, and all other wharves except the North Brisbane wharves are connected for goods traffic. With the exception of the coal wharves all wharves are amply supplied with covered cargo sheds. *Docks.*—Graving Dock (Government): Length, 430 ft.; breadth, 50 ft. at block level; depth on sill, 12 ft. 8 in. L.W.S. There are three patent slips, the largest having a cradle 200 ft. long and capable of lifting vessels up to 1000 tons with a draught of 20 ft.

2. **Bowen** (Port Denison).—Lat. 20° 1′ S., long. 148° 15′ E. *Approach.*—Width of entrance, 3 cables (1800 ft.); least depth, 25 ft. L.W.S. Inner harbour approached by two channels—South Channel, depth 22 ft. L.W.S., buoyed and lighted; North Channel, depth 13 ft. 6 in. L.W.S. *Tides.*—Corrected establishment, 10 hours 20 min.; semi-menstrual inequality, springs, 8 ft. to 10 ft.; neaps, 4 ft. to 8 ft. *Wharves.*—Frontage, 408 ft., with depth 21 ft. L.W.S.; 408 ft., with depth 16½ ft. L.W.S.; connected with railways. *Cargo Sheds.*—5764 sq. ft.

3. **Cairns** (Trinity Bay).—Lat. 16° 54′ S., long. 145° 44′ E. *Approach.*—Width of entrance, 200 ft.; depth, L.W.S., 15 ft. *Tides.*—Full and change, 9 hours 30 min.; springs rise, 6 ft. to 8 ft.; neaps, 2 ft. to 4 ft. *Wharves.*—Frontage, 858 ft., with depth from 14 to 21 ft.

4. **Cooktown** (Endeavour River).—Lat. 15° 28′ S., long. 145° 17′ E. *Approach.*—Width of entrance, 200 ft., channel through bar; depth, 17½ feet. *Tides.*—High water, full and change, 9 hours; springs rise 7 ft. to 9 ft.; neaps, 4 ft. to 6 ft. *Wharves.*—Frontage, 120 ft., depth under 10 ft.; 200 ft., depth 15 ft. to 17 ft.; covered wharves, 6675 sq. ft.; wharves are connected with railway. One 5 ton crane.

5. **Gladstone** (Port Curtis).—Lat. 23° 52′ S., long. 151° 27′ E. *Approach.*—Width of entrance about 1 mile. Channel varies in width from 1 mile to not less than 3 cables (1800 ft.), with a depth of 24 ft. *Wharves.*—Frontage, 550 ft., depth up to 20 ft. Railway connection with Government jetty.

6. **Rockhampton.**—Lat. 23° 30′ S., long. 151 E. *Approach.*—South Channel, width 1000 ft., depth 12 ft. L.W.O.S.T. Middle Channel, width 200 ft., depth 16 ft. L.W. Channel, 350 ft. wide, 25 ft. deep L.W.O.S.T., leads to Port Alma, about 7 miles from entrance, where is wharf frontage of 500 ft., with a depth of 26 ft., and sheds covering 18,000 square ft. At Broadmount, 10 miles from entrance to the river, by Middle Channel, is wharf and shed accommodation, with connection by rail with city. Wharf berths have a depth of 23 ft. at L.W. Between the Heads and the city the channel is 200 ft. wide and 16 ft. deep at L.W.O.S.T. *Wharves.*—Frontage, 1787 ft., with depth up to 20 ft.; area of sheds, 26,389 square ft.; city wharves connected with railways; one travelling 10-ton crane. *Docks and Slips.*—Slip will take a vessel 150 ft. long, 300 tons burthen, with draught up to 6 ft. forward. Gridiron will take a vessel 238 ft. by 36 ft., and weighing 1500 tons. The gridiron is 5 ft. above low water, and the rise of ordinary spring tide is 14 ft.

7. **Port Kennedy** (Thursday Island).—*Approach.*—Two entrances, depths 18 and 24 ft. respectively at L.W.O.S.T. The approach to the port, through the Normanby Sound, carries a minimum depth of 6 fathoms. *Tides.*—Vulgar establishment, 12 hrs.; springs rise 10 ft.; tides very irregular. *Jetties.*—One frontage, 200 ft., depth 22 ft. L.W.S. One frontage, 42 ft., depth 8½ ft. L.W.S. *Cargo Sheds.*—6720 sq. ft.

8. **Townsville.**—Lat. 19° 15′ S., long. 146° 49′ E. *Approach.*—Channel, 8000 ft. long, 250 ft. wide, 17 ft. deep. *Wharves.*—Outer Harbour: Jetty, 1800 ft. long; depth 22 to 24 ft. L.W.O.S.T. In Harbour: Frontage, 860 ft., with depth to 8 ft.; 100 ft., with depth to 12 ft.; 320 ft., with depth to 18 ft. Covered wharves: Outer Harbour, 20,480 sq. ft.; Inner Harbour, 9600 sq. ft. *Tides.*—High water, full and change, 9 hrs. 30 min.; springs rise 8 to 12 ft., neaps rise 4 to 8 ft. *Patent Slip.*—Length of slip way, 400 ft.; cradle, 150 ft.; depth of water on cradle H.W.S., 8 ft. forward, 12 ft. aft; lifting power, 800 tons.

9. **Maryborough.**—Lat. 25° 32′ S., long. 152° 46′ E. Vessels drawing 24 ft. can enter by the northern entrance, via Hervey's Bay, and anchor with safety in 6 fathoms at White Cliffs, 28 miles from the town. The minimum depth between the heads and the town is 9 ft. at low water; spring tides rise 9 to 10½ ft. at the town, and 10 to 12½ ft. at the heads. *Wharves.*—Public wharves: Frontage, 754 ft., minimum depth 12 to 14 ft.; several private wharves, with minimum depth from 8 to 20½ ft.; two cranes on Government wharf can ship 30 tons of coal per hour; shear-legs to lift 15 tons.

(D) South Australia.

1. **Port Adelaide.**—Lat. 34° 56′ S., long. 138° 36′ E. *Approach.*—Width of entrance, 400 ft., with least depth L.W.S.T. from 30 ft. to 33 ft. The channel to the inner harbour has a depth of 23 ft. L.W.S.T. *Tides.*—Vulgar establishment, 5 hrs. 10 min.; rise about 8½ ft. *Wharves.*—The length of wharf frontage, according to depth of water L.W.S.T., is as follows:—

Depth ... ft.	Under 10	10—15	15—20	20—25	25—30	30—35	Total.
Frontage ... ft.	3,500	650	900	3,250	2,700	1,500	12,500

There are three cranes capable of lifting 30 tons. All wharves are connected with the railways. *Docks.*—No graving or floating docks. There are four patent slips, the dimensions of the largest being:—Extreme length, 720 ft.; length of cradle, 250 ft.; draught on blocks H.W.O.S., forward 13 ft., aft 20 ft. 6 in.; lifting power, 1500 tons.

2. **Port Pirie.**—Lat. 33° 11′ S., long. 138° 1′ E. *Approach.*—Channel 150 ft. wide with a depth of 15 ft. L.W.O.S. *Tides.*—High water, full and change, 7 hrs. 15 min.; rise and fall from 8 ft. to 9 ft. *Wharves.*—Length of frontage, 5926 ft., with depth from 17 ft. to 20 ft. *General.*—Good anchorage for the largest vessels in 5 to 6 fathoms L.W. springs.

3. **Wallaroo.**—Lat. 33° 56′ S., long. 137° 37′ E. *Wharves.*—Jetty 2100 ft. long, with depth to 24 ft. L.W.S.T.; hydraulic hoists; connected with railway system. *Tides.*—High water, full and change, 5 hrs. 45 min.; rise and fall about 5 ft.

(E) Western Australia.

1. **Fremantle** (Swan River).—Lat. 32° 03′ S., long. 115° 45′ E. *Approach.*—The approach to Fremantle is by Gage Roads, about 8 miles long and 5 miles wide. The Roads lie between a long line of islands and reefs and the mainland, and are open only to the north. The entrance to the Inner Harbour is protected by moles, that on the north being 4800 ft. long and that on the south 2040 ft. The channel between is 450 ft. wide and runs for a length of 3000 ft. to the Inner Harbour Basin. At its inner end this channel, for 1550 ft., widens to 575 ft. The harbour basin is about 4500 ft. long by 1400 ft. wide, with a depth throughout of 30 ft. below lowest low water. *Wharves.*—Wharf frontage, 9255 ft., of which 7955 ft. has a depth of 30 ft., 1000 ft. a depth from 22 ft. to 22 ft. 6 in., and 300 ft. a depth from 16 ft. 6 in. to 20 ft., all at extreme low water. Wharves are connected with railway system. Cargo sheds cover an area of 177,000 square feet. There are five 3-ton and one 10-ton portable electric cranes. These cranes are of the four-legged gantry type, the gantry permitting the passage of two loaded trains. Each crane is fitted with two capstans for feeding trucks through the gantry. Electric wharf capstans are installed for the movement of railway trucks. *Docks.*—A graving dock 850 ft. long, 100 ft. wide, and 33 ft. deep over sills is in course of construction. There is a patent slip 660 ft. long; cradle, 185 ft. long, 26 ft. wide; depth over blocks (H.W.O.S.), 10 ft. 9 in. forward and 18 ft. 6 in. aft; lifting capacity, 850 tons dead weight.

2. **Albany** (Princess Royal Harbour).—Lat. 35° 2′ S., long. 117° 54′ E. *Approach.*—King George's Sound, width at entrance, 660 ft.; depth (L.W.S.), 33 ft. *Wharves.*—The wharf frontage, according to the depth of water, is as follows:—

Depth ... ft.	Under 10	10—15	15—20	20—25	30—35	Total.
Frontage ... ft.	200	300	550	900	950	2,900

Wharves are connected with railway system. One 10-ton, one 5-ton, one 3-ton locomotive steam crane. Five coal hulks moored in harbour; using two hulks, 40 tons per hour can be bunkered. *Floating Dock.*—Length, 130 ft.; breadth, 22 ft. 2 in.; draught of vessel, 6 ft. 10 in.

3. **Broome** (Roebuck Bay).—*Approach.*—Least depth of water in channels approaching Roebuck deep—from N.N.W., 7 fathoms; from W.N.W., 5½ fathoms. Least depth of water at entrance to harbour, north of entrance rock, is 66 ft. *Jetty.*—Dry at low water, 22 ft. 6 in. of water on ordinary spring tides, and 12 ft. on neap tides; two berths each 340 ft. long. One 3-ton hand crane. Jetty connected with town by tramway. *Tides.*—The rise and fall of spring tides is 28 ft. Vessels can berth alongside the jetty and lie on the muddy sand when the tide is low.

4. **Bunbury.**—*Approach.*—Entered from Koombana Bay, width of entrance 4000 ft. with depth not less than 26 ft., or a width of over a mile with a depth of 24 ft. *Wharves.*— Wharf frontage, according to depth of water L.W.S.T., is as follows :—

Depth ... ... ft.	Under 10	10—15	15—20	20—25	Total.
Frontage ... ft.	200	760	2,050	1,150	4,160

Two 10-ton and two 5-ton locomotive cranes, one 3-ton steam gantry crane and one 3-ton derrick hand crane. Wharves are connected with the railway system. *Coaling.*—Local coal can be supplied from the shore at the rate of 60 tons per hour. *General.*—The harbour is protected from the north by a breakwater 4015 feet long, and on all sides by land.

(F) Northern Territory.

1. **Port Darwin.**—Lat. 12° 28′ S., long. 130° 50′ E. *Approach.*—Width of entrance, 2¾ miles; least depth at entrance, 8 fathoms (L.W.S.T.); least depth in channels approaching harbour, 6 fathoms. *Wharves.*—L-shaped jetty with berthing 558 ft.; depth of water, 21 ft. (L.W.S.T.); cargo sheds on shore; cranes up to 10 tons; railway line to jetty and coal can be shipped direct from trucks. *Docks.—Nil.* Vessels can be placed on the flats for repairs. *General.*—The harbour, of irregular shape, occupies about 8 square miles of navigable water, is land-locked, and affords the greatest security in times of storms.

(G) Tasmania.

1. **Hobart** (Sullivan Cove, River Derwent).—Lat. 42° 53′ S.; long. 147° 22′ E. *Approach.*—There are two approaches to the Port of Hobart from the sea, the one through Storm Bay, between the north part of Bruni Island and Tasman's Peninsula, being more generally used on account of its open character and is much to be preferred by sailing vessels; the other approach is through D'Entrecasteaux Channel. The width of the entrance, between the Derwent Light and the Pilot Station, Pierson Point, is 2¼ miles with a least depth of water (L.W.S.) of 48 ft. The estuary retains a uniform width of about 2½ miles from the entrance as far as Hobart, with a depth of from 10 to 12 fathoms to within half a mile, and at least 3 fathoms within a quarter of a mile of

either shore. Sullivan Cove has a depth of 4 fathoms 100 yards N.E. of Battery Point, deepening to 9 and 10 fathoms in the middle of the Cove. *Tides.*—High water, full and change at Hobart 8 hours 15 minutes; springs rise 4½ ft. and neaps 3½ ft. *Wharves.*—The length of wharf frontage, according to the depth of water at L.W.O.S.T., is as follows:—

Depth ft.	Under 10.	10—15.	15—20.	20—25.	25—30.	30—35.	Over 35.	Total.
Frontage ft.	1,500	2,300	1,300	500	1,000	2,900	1,800	11,300

The wharves are not yet connected with the railways, though the matter has been under consideration for some time. There are 70,236 square feet of covered wharves, *i.e.*, cargo sheds. *Cranes, etc., and Facilities for Coaling.*—There is a 25-ton steam crane and an 8-ton hand crane. Coaling is done mostly at the piers, but vessels can be coaled in the stream if required.

Docks and Slips.—There are no graving or floating docks. There are six patent slips, the largest having a cradle 219 ft. long by 30 ft. wide, with a depth of 13 ft. forward and 24 ft. aft, and a lifting capacity of 350 tons.

2. **Outports of Hobart.**—*Port Huon* (Huon River).—Wharf frontage, 390 ft.; depth (L.W.) 10 to 30 ft. *Port Esperance* (D'Entrecasteaux Channel).—Wharf frontage, 180 ft.; depth, 24 ft. *Southport* (D'Entrecasteaux Channel).—Wharf frontage, 200 ft.; depth, 22 ft.

3. **Launceston** (River Tamar).—Lat. 41° 26′ S., long. 147° 7′ E. The Port of Launceston is situated at the confluence of the North Esk and South Esk Rivers, and is about 42 miles from the sea, from which it is approached by the River Tamar (a tidal river). The Tamar is well lighted from the sea to Launceston and can be safely navigated by day or night. There is wharf frontage of about 5000 feet, with a depth at low water up to 16 ft.; rise and fall of tide about 11 ft.; covered cargo sheds cover an area of 41,780 sq. ft.; there are steam and hand cranes capable of lifting up to 12 tons, and a floating dock to accommodate vessels up to 160 ft. long. At Beauty Point (6 miles from the Heads) is wharf accommodation with a depth of 40 ft. at low water. This wharf is connected by tram with the town of Beaconsfield (Tasmania gold mine).

4. **Devonport** (River Mersey).—*Approach.*—Least depth approaching entrance. 24 ft. (L.W.S.T.); at entrance, 16 ft.; width of entrance, 150 ft. *Tides.*—High water, full and change, 11 hrs. 20 min.; springs rise 10 ft., neaps 8 ft. *Wharves.*—Frontage, 1500 ft.; depth, 15 to 16 ft. (L.W.S.T.). Covered wharves: Area, 700 sq. ft. (connected with railway system). Patent slip: Length of cradle, 120 ft.; width, 20 ft.; depth forward, 7 ft.; lifting power, 150 tons.

5. **Burnie** (Emu Bay).—Concrete breakwater 600 ft. long with 28 ft. 6 in. of water at sea end; also pier 600 ft. long with depth of 27 ft. 6 in. at sea end. Connected with railway system.

6. **Stanley** (Circular Head).—Lat. 40° 45′ S., long. 145° 19′ E. Breakwater 600 ft. long; breakwater pier 420 ft. long with depth of 32 ft. at seaward end and 20 ft. at inshore end of berthage space (L.W.S.). Town pier 334 ft. long with berthage space across the end of 150 ft., with depth of 17 ft. to 19 ft. (L.W.S.).

7. **Strahan** (Macquarie Harbour).—There is a bar about three-quarters of a mile from the entrance. Sea breaks heavily in strong W. or N.W. winds; in other winds the sea is smooth and the bar safe at high water for vessels drawing up to 10 ft. *Wharves.*—Frontage, 1000 ft.; depth at low water, 13 ft. to 18 ft.; crane to lift 20 tons.