

Health organization in Australian ports / compiled for the Division of Marine Hygiene, under the authority of the Minister for Health.

Contributors

Australia. Department of Health.
Australia. Division of Marine Hygiene.

Publication/Creation

Canberra : H. J. Green, government printer, [1928?]

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COMMONWEALTH OF AUSTRALIA

Department of Health

SERVICE PUBLICATION NUMBER 39

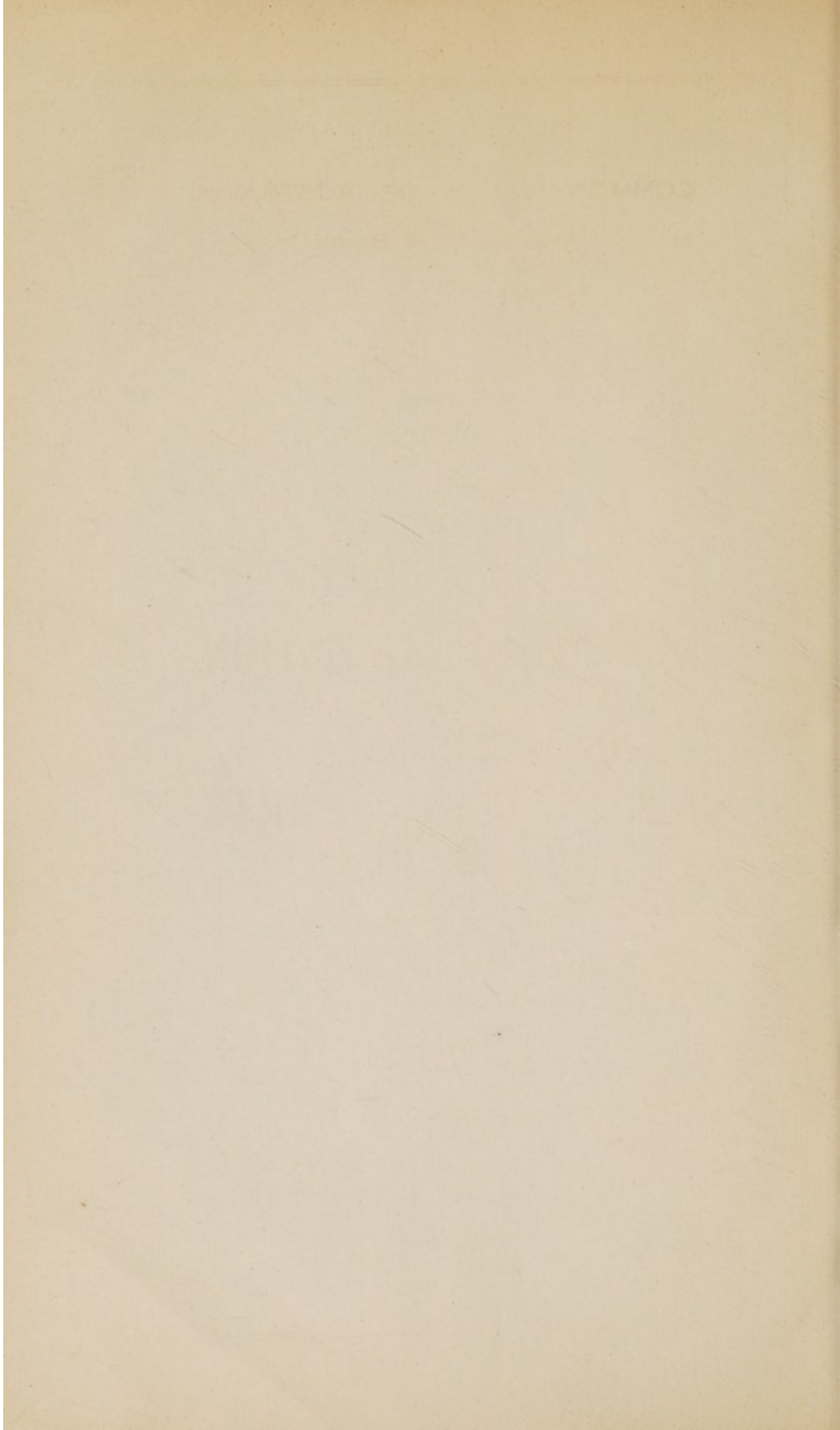
HEALTH ORGANIZATION
IN
AUSTRALIAN PORTS

COMPILED FOR
THE DIVISION OF MARINE HYGIENE,
UNDER THE AUTHORITY OF THE
MINISTER FOR HEALTH

By Authority :
H. J. Green, Government Printer Canberra

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PREFACE.

This publication gives a general summary of the Commonwealth and State Health Organization in relation to Australian ports, and for each of the principal Australian ports a brief description of the situation of the port and the port limits, the local port administration, administration under the Quarantine Act and local health administration.

PREFACE

This publication gives a general summary of the Commonwealth and State Health Organisation in relation to Australian ports and for each of the principal Australian ports a brief description of the situation of the port and the port health administration, administration under the Quarantine Act and local health adminis-

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Port	Health Organisation
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Brisbane	
Melbourne	
Perth	
Sydney	
Tasmania	
Victoria	
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SERVICE PUBLICATION.

HEALTH ORGANIZATION IN AUSTRALIAN PORTS.

The Commonwealth of Australia is a federation of six States—New South Wales, Victoria, Queensland, South Australia, Western Australia and Tasmania. In addition two Territories are included in the Commonwealth—the Northern Territory and the Federal Capital Territory.

Under the federation of the States in 1901, a Commonwealth Legislature was established to deal with such matters as were delegated by the Constitution, whilst the States retained control of such governmental functions as were of domestic concern.

Under this system, therefore, there are in existence separate health authorities for the Commonwealth and for each State.

The constitutional powers of the Commonwealth in regard to health organization in Australian ports relate to quarantine and certain functions under the Navigation Act and Immigration Act.

The administration of domestic sanitation and hygiene generally is a function of each State, which delegates (whilst retaining certain supervisory powers) matters of local sanitation to the local government authorities under the Local Government Act of each State.

COMMONWEALTH HEALTH ADMINISTRATION.

The Federal Health Authority is the Commonwealth Department of Health, which is controlled by the Commonwealth Minister for Health, the chief executive officer being the Director-General of Health, who is permanent head of the Department.

The Commonwealth health organization in ports is under the control of the division of the Department called the Division of Marine Hygiene.

The Commonwealth Department of Health keeps itself fully informed of all happenings in connexion with disease in other countries. The distribution of the various quarantinable and communicable diseases, their relative prevalence in various countries of the world, any alterations in the behaviour of the disease in any country, any occurrence of epidemic disease or the recrudescence of an existing epidemic, the rise or fall in prevalence of endemic disease, &c., are carefully followed. The information is obtained from various sources, partly from the countries concerned under the terms of the International Sanitary Convention, partly from bills of health carried by vessels reaching Australia from overseas, partly from information received from the British Ministry of Health and the Health Section

of the League of Nations. All information obtained is at once compiled and made available to those concerned, and in particular to all officers concerned with the examination in Australia of vessels from overseas.

INSPECTION OF SHIPS FROM OVERSEA PORTS.

(a) All ships arriving from overseas are kept under close supervision from the moment they reach the Australian coast. The master of every oversea vessel equipped with wireless apparatus is required to send a wireless message not less than twelve hours before the expected time of arrival of the vessel at the first port of entry, informing the Quarantine Officer at that port of the state of health on board with details of cases of quarantinable or other disease.

Ships arriving from overseas cannot enter any but a first port of entry, where they anchor on the mooring ground beyond the quarantine line and are subjected to an exhaustive medical and sanitary inspection by the quarantine staff.

Should a vessel be found free from disease on arrival, she is permitted to proceed to further ports without restriction; but similar inspection is made at each subsequent port until a period of eighteen days has elapsed since the vessel cleared from the last oversea port of call, full pratique being withheld until this period of time has elapsed. Even after full pratique has been given, the master of the vessel is under obligation to report any case of communicable disease occurring on board and such cases are immediately investigated by a Quarantine Officer.

In addition, the berthing regulations under the Quarantine Act are enforced at all ports in Australia, and fumigation is carried out either at the terminal port of the voyage or at any previous port if circumstances necessitate it. Thus every ship arriving in Australia from overseas is kept under close supervision during its stay in all Australian ports.

(b) *Infected Ships.*—Should any quarantinable disease break out on board a vessel the vessel is directed to proceed to the nearest port at which there is a quarantine station, and is there quarantined. The cases and contacts are removed to the quarantine station and quarantine maintained until freedom from any spread of infection has persisted for the requisite space of time. Necessary action is also taken to prevent any possible entry of infection by means of the cargo of the vessel or of the mails.

Should an infected vessel have cargo and passengers for other Australian ports she may be permitted to proceed in quarantine to such ports as have quarantine stations and complete the period of quarantine at her final port of discharge.

(c) *Correlation with Shore Sanitation.*—The actual legislative powers of the Commonwealth Department of Health for preventive measures are considerable in relation to the quarantinable diseases—small-pox, plague, cholera, yellow fever or typhus fever—but, except on occasions of shore epidemics of these diseases, in practice the operations of the Department cease mainly at the ship's side.

The State Health Department is notified of any case of infectious disease on a vessel. The notification includes the following particulars:—

- (a) The name of the disease.
- (b) The number of cases on board on arrival of the vessel—
 - (1) Passengers.
 - (2) Crew.
- (c) The date of onset of each case.
- (d) The name, sex, age and shore address of cases landed at the port, including arrangements made for isolation and treatment.

The names and shore addresses of persons suffering from venereal disease who are permitted to disembark, and the arrangements made for treatment, are also notified to the State Health Department concerned.

In regard to interstate shipping and the movement of persons from one State to another, the Quarantine Act becomes operative when, in the opinion of the Governor-General, Commonwealth action is necessary for preventing spread of infection from one State to another.

(d) *Quarantine Machinery.*—For quarantine purposes Australia is divided into six divisions, each under a Chief Quarantine Officer (General), who is in local administrative control of quarantine matters within his division. These divisions coincide with State boundaries excepting that the North-Eastern Division extends beyond Queensland State boundaries to embrace the quarantine administration of North Australia. Under each Chief Quarantine Officer (General) is a staff of permanent quarantine officers and quarantine assistants at the principal ports and of part-time quarantine officers at minor ports.

QUARANTINE STATIONS.

Quarantine stations have been established at various ports on the Australian coast; major stations for each of the capital cities—Brisbane, Sydney, Melbourne, Port Adelaide and Fremantle—and minor stations at Darwin, Thursday Island, Townsville, Bunbury, Broome Albany and Hobart. A permanent staff is employed at each of these stations, which are all in readiness for the receipt of patients and contacts at immediate notice. The stations are fully equipped and self-contained, with isolation hospital facilities for patients and for cases under observation and accommodation for contacts. They are also provided with laboratories and with laboratory animals and other requirements for rapid diagnosis of disease. Thus any case or suspected case of quarantinable disease approaching Australia is immediately and effectively isolated without coming in contact with the shore population, and all contacts are also isolated until it is evident that no further infection is present amongst them.

FIRST PORTS OF ENTRY.

New South Wales.—Sydney, Newcastle, Port Kembla, Grafton (for vessels from New Zealand).

Victoria.—Melbourne, Geelong, Portland.

Queensland.—Brisbane, Thursday Island, Cairns, Townsville, Rockhampton, Bowen.

South Australia.—Adelaide, Port Pirie, Wallaroo, Port Lincoln, Cape Thevenard, Streaky Bay.

Western Australia.—Fremantle, Albany, Bunbury, Broome, Wyndham, Geraldton, Busselton, Derby, Carnarvon.

Tasmania.—Hobart, Beauty Point, Burnie, Devonport.

Northern Territory.—Port Darwin.

FIRST PORTS OF ENTRY FOR VESSELS FROM PORTS DECLARED TO BE
INFECTED WITH YELLOW FEVER.

Thursday Island.	Melbourne.
Townsville.	Adelaide.
Brisbane.	Hobart.
Newcastle.	Fremantle.
Sydney.	

DERATIZATION.

Measures on Vessels.

On arrival, the Quarantine Medical Officer who boards makes inquiries regarding any disease among rats and any unusual number of rats on board.

At each of the principal ports a permanent staff is employed for the inspection, trapping and poisoning and fumigation of vessels.

This staff inspects each vessel on arrival for signs of rodent infestation and supplements this inspection by trapping and poisoning. The vessel is kept under observation at each Australian port of call and the results of inspection are communicated from each port to the Quarantine Officer at the next port of call, and to the Chief Quarantine Officer at the vessel's final port of discharge, where complete deratization is carried out, or, should the results of inspection be satisfactory, a Certificate of Exemption may be issued.

A search for rats is made after fumigation, trapping and poisoning, and all rats are examined and classified. A certain percentage of rats and all rats showing signs of disease are sent for bacteriological examination.

The permanent staff also inspects vessels regularly in order that the berthing regulations may be enforced. In ports where no permanent staff is employed by the Commonwealth Department of Health, arrangements are made with the Customs Department to provide for necessary fumigations to be carried out and for supervision in connexion with berthing regulations.

Special measures against plague and cholera are prescribed by regulation.

The master or owner of any vessel in any port of Australia is required—

- (a) To effectively obstruct by wire netting or other means all openings in the side of the vessel next to the wharf or lighter or any other vessel.
- (b) To keep fixed an effective rat guard disc or screen on all ropes or hawsers connecting the vessel with the wharf or any other vessel; the construction of the rat guards must be as prescribed.

- (c) To illuminate from sunset to sunrise with brilliant lights the side of the vessel next to the wharf or other vessel.
- (d) To remove at sunset and keep removed till sunrise the landing stage and all nets and gangways between the vessel and wharf during such times as these nets and gangways are required for the discharge or loading of cargo or for access of persons to and from the vessel.
- (e) To keep all foodstuffs and food refuse in rat-proof and mouse-proof receptacles.
- (f) To prevent the discharge of any organic refuse into the harbour.
- (g) To maintain on board and use effective means for the destruction of rats.
- (h) To empty and flush or disinfect and clean all lavatories, bilges, water tanks or any closed space on board the vessel.
- (i) To submit any part or the whole of the vessel for fumigation or any articles specified by the Quarantine Officer.

In fumigation of holds sulphur is employed. In some of the larger ports SO_2 gas is pumped into the holds of vessels by a machine. In other ports sulphur is burned in open pots.

Passengers' and crew's quarters are generally fumigated with hydrocyanic gas, which is generated by the addition of sulphuric acid to potassium cyanide.

Quarantine regulations have been amended in accordance with the Articles of the International Sanitary Convention of 1926, and Certificates of Deratization or Exemption from Deratization are issued to vessels in Australian ports.

<i>Ports Qualified to issue Certificates of Deratization and Exemption from Deratization.</i>	<i>Ports Qualified to issue Certificates of Deratization only.</i>
---	--

Thursday Island.
Cairns.
Townsville.
Brisbane.
Newcastle.
Sydney.
Melbourne.
Port Adelaide.
Albany.
Bunbury.
Fremantle.
Broome.
Hobart.

Darwin.
Rockhampton.
Port Kembla.
Geelong.
Warrnambool.
Portland.
Wallaroo.
Port Lincoln.
Cape Thevenard.
Busselton.
Esperance Bay.
Geraldton.
Launceston.
Beauty Point.
Devonport.
Burnie.

DERATIZATION OPERATION IN PRINCIPAL PORTS FOR YEAR 1928.

Operations on Vessels.

Ports.	Vessels Fumigated.	Number of Rodents.		Vessels Trapped and Poisoned.	Rodents.		Rodents found infected with Plague
		Destroyed.	Examined.		Destroyed.	Examined.	
Brisbane ..	76	225	225	115	81	81	Nil
Sydney ..	431	2,178	1,089	375	1,105	600	Nil
Melbourne	197	1,161	1,161	359	860	860	Nil
Port Ade- laide ..	98	222	222	226	89	89	Nil
Fremantle	56	234	234	98	225	225	Nil

Operations on Shore.

Ports.				Rodents.		Rodents found infected with Plague.
				Destroyed.	Examined.	
Brisbane	..	..	..	52,506	45,961	Nil
Sydney ..	..	..	..	5,544	5,544	Nil
Melbourne	..	..	..	1,368	1,368	Nil
Port Adelaide	..	..	..	1,822	No record kept	Nil
Fremantle	..	..	..	2,276	" "	Nil

DERATIZATION MEASURES ON SHORE.

Deratization measures on shore are carried out by State departments. At the main ports rat catchers are employed on wharfs, docks, sheds and warehouses, and rats caught are examined for signs of plague, a certain percentage being submitted to bacteriological examination.

Rat proofing of wharfs and buildings in their vicinity is gradually being extended, and in the construction of new wharfs rat proofing is included in the specifications.

CONTROL OF INFECTIOUS DISEASE IN MERCANTILE MARINE.

In addition to the measures directed against the introduction of quarantinable disease, the Quarantine Act and Regulations provide for the control of communicable disease in the mercantile marine, including venereal disease, it being obligatory for the master of any vessel to notify immediately to the Quarantine Officer any case of the scheduled diseases which occur on his vessel. Such cases are then investigated by the Quarantine Officer and appropriate action taken regarding isolation and regarding precautionary measures in relation to contacts.

DISINFECTION.

A disinfecting machine is part of the equipment of all quarantine stations; contaminated articles, clothing and bedding are disinfected by steam, formalin or cyanide.

In addition, there is attached to most of the fumigation depots a chamber where deck passengers' baggage and various imported goods may be disinfected with sulphur, formalin or cyanide, or by spraying with disinfectant solution.

At the larger ports the Local Health Authority has also provided for the disinfection of infected articles by the provision of a steam disinfecting plant.

BACTERIOLOGICAL EXAMINATIONS.

The larger ports have in addition to the diagnostic laboratories of the Quarantine Stations facilities for the bacteriological examination of suspected cases at the State Health Department Laboratories or the Commonwealth Health Laboratories at Townsville, Rockhampton, Cairns, Lismore, Melbourne, Port Pirie and Launceston.

The Commonwealth Serum Laboratories at Royal Park, Melbourne, manufacture calf lymph for vaccination, and vaccines and sera required for the treatment of all quarantinable and infectious diseases.

BILLS OF HEALTH.

The provision of a bill of health from all ports at which a vessel has called during the current voyage is compulsory. Bills of health are provided on request to vessels leaving Australian ports.

For information regarding the presence of quarantinable disease in overseas ports and countries the information circulated by the League of Nations in the form of the weekly wireless epidemiological report from the Singapore Bureau and the weekly and monthly printed reports are relied on as the main source of epidemiological intelligence.

MEDICAL INSPECTION UNDER THE IMMIGRATION ACT 1901-1924.

Quarantine officers at ports of entry into Australia have been gazetted officers under the Immigration Act. They concern themselves particularly with the examination of passengers with a view to exclude from the Commonwealth:—

- (a) Persons likely, owing to disease or disability to become a charge on the Commonwealth.
- (b) Idiots or insane persons.
- (c) Persons suffering from communicable diseases.

Persons who come under one of these clauses mentioned above, are reported in writing to the Customs boarding officer, who puts into operation the machinery of the Immigration Act.

NAVIGATION ACT.

The Department has undertaken the responsibility of the supervision of accommodation for passengers and crews of vessels registered in Australia or engaged in the coasting trade, and furnishes reports on the examination of ships to the Director of Navigation.

Quarantine officers have been appointed medical inspectors of shipping for this purpose. In addition, Quarantine Officers have been appointed to act as medical inspectors of seamen under the Navigation Act. Their duties are:—

- (a) Medical inspection of seamen applying for employment or employed on a British ship to determine whether the seamen are in a fit state for duty at sea.
- (b) Medical examination of seamen where an injury has been received or illness has developed in the service of the ship. The examination is to determine the liability of the owner in regard to the provision of medical attendance and maintenance.

- (c) Medical examination is required in the case of a seaman left on shore on account of illness or accident incapacitating him for duty. In such cases the owner is liable under certain conditions not only to payment of medical expenses and maintenance but also to payment of wages at full rates for certain specified periods.

These examinations are made on production of an application for examination signed by the Superintendent of Mercantile Marine to whom the report is furnished on the prescribed form.

MEDICAL INSPECTION OF EMIGRANT SHIPS.

On behalf of the British Board of Trade, quarantine officers make inspections of accommodation, medical stores, water supply, provisions, &c., at certain ports.

PORT CHARGES.

The Quarantine Act 1908-1924.—Expenses of Quarantine.

Sections 59, 59A, 59B, 60 and 61 provide that the owner or agent of a vessel ordered into quarantine shall be liable for all expenses of quarantine.

Regulation 10.—Bills of Health.

An outward bill of health in respect of any Australian port and its vicinity shall, on application by the master or owner, or agents of any vessel visiting such port, be issued by a medical quarantine officer or other authorized officer, subject, except in the case of any vessel of war, to the payment therefor of a fee of Ten shillings.

Regulation 55.—Special Inspection for Granting Full Pratique.

Any vessel in an Australian port holding a certificate of limited pratique may, on application by the master, owner or agent, be examined by a quarantine officer after a period of eighteen days has elapsed from her departure from the last oversea port of call for the purposes of granting full pratique.

A fee of £2 2s. shall be paid by the master, owner, or agent, for any such examination.

Regulation 65A.—Certificate of Exemption from Deratization.

A certificate of exemption from deratization with respect to any vessel on arrival at any port in Australia may, on application by the master or owner, be issued by a quarantine officer on the form adopted by the Office International d'Hygiene Publique.

A fee of £1 1s. shall be paid for any such certificate issued.

Regulation 69.—Fees for the Fumigation or Disinfection of Vessels.

(1) The fees charged for the fumigation of spaces on vessels other than those specified in sub-regulation (3) of this regulation by means

of any approved mechanical appliance worked by steam, oil or electric power and not forming part of the equipment of the vessels concerned, shall be as follows:—

	£	s.	d.
(a) For every vessel not more than 20,000 cubic feet of hold space	2	0	0
(b) In the case of vessels of over 20,000 cubic feet of hold space—			
For the first 20,000 cubic feet of hold space	2	0	0
For each additional 20,000 cubic feet or part thereof	1	0	0
(c) The minimum fee for the fumigation of any vessel or portion of a vessel shall be	2	0	0

(2) The fees charged for the fumigation of spaces on vessels other than those specified in sub-regulation (3) of this regulation by means of approved appliances other than those described in sub-section (1) of this regulation shall be as follows:—

(a) For every vessel of less than 50 tons gross ..	1	0	0
(b) For every vessel of 50 tons to 500 tons gross ..	2	0	0
(c) In the case of every vessel of over 500 tons gross—			
For the first 100,000 cubic feet of hold space or part thereof	4	10	0
For each additional 20,000 cubic feet or part thereof	0	15	0

(3) The fees charged for the fumigation or disinfection of cabins, lazarets, or other enclosed spaces such as crew's quarters, chain lockers, store rooms, passengers' accommodation by means of approved appliances, shall be as follows:—

	£	s.	d.
For the first 1,000 cubic feet of space or part thereof ..	1	0	0
For each additional 1,000 cubic feet of space or part thereof	0	3	0

(4) The fees charged for trapping or poisoning operations for destruction of rodents on vessels shall be as follows:—

	£	s.	d.
(a) For every vessel under 50 tons gross	0	10	6
(b) For every vessel over 50 tons gross—			
For the first 250 baits laid, or part thereof	0	5	0
For each additional 250 baits laid, or part thereof	0	3	6
For the first 50 traps or part thereof, set and attended	0	15	0
For every resetting of the first 50 traps or part thereof, and attention	0	10	6
For each additional 50 traps, or part thereof set and attended	0	10	6
For every resetting of the additional 50 traps or part thereof, and attention	0	10	6

(5) When the fumigation or disinfection of any vessel is carried out by the owners or agents, or their employees, the work shall be supervised by a quarantine or other authorized officer, and a fee of £1 1s. shall be charged for such supervision.

(6) In any case where overtime is worked, or travelling or other expenses are incurred by an officer in the fumigation or disinfection or other treatment, or in the supervision of the fumigation or disinfection of any vessel or part of a vessel, the cost of the overtime and travelling or other expenses shall be paid by the owners or agents of the vessel.

Regulation 70.—Fees for the Disinfection of Articles from Certain Places.

The charge for the disinfection of packages of second-hand clothing or of passengers' effects as required by proclamation issued under the Quarantine Act shall be as follows:—

1. Where packages are disinfected ashore—One shilling (1s.) per package.

2. Where packages are disinfected in a suitable compartment of a vessel—

One shilling (1s.) per package up to twenty packages.

In cases where the number of packages exceeds twenty—

Twenty shillings (20s.) for the first 1,000 feet of space or part thereof in the compartment used for disinfection; and

Ten shillings (10s.) for each additional 1,000 cubic feet of space or part thereof in the compartment.

The charges shall be paid by the master or owner or agent of the vessel, each of whom shall be severally responsible therefor.

STATE HEALTH ADMINISTRATIONS.

In each State a Department of Public Health administers the Health Act, together with other relevant legislation. An important function of the Department is to stimulate and advise local sanitary authorities on matters pertaining to the Health Acts and where necessary to rectify or compel rectification at the cost of the local authority of sanitary evils.

The Central Health Administration in each State may be summarized as follows:—

MINISTERIAL:

Minister of Public Health.—New South Wales, Western Australia.

Minister of Health.—Victoria.

Chief Secretary.—South Australia, Tasmania.

Home Secretary.—Queensland.

NEW SOUTH WALES.

The Department of Public Health is controlled by the Minister of Public Health, the Director-General of Public Health is the chief executive officer, and is assisted by various staffs—medical, bacteriological, chemical, veterinary, dairy inspection, meat inspection, sanitary,

pure food and clerical. The work of the Department extends over the whole of the State and embraces all matters relating to public health and the general medical work of the Government.

The Director-General is president of the Board of Health. The duties of the Board of Health consist largely in supervision of the work of local authorities (Municipal and Shire Councils) so far as that work touches upon public health matters connected with various acts, including the Public Health Acts and Venereal Disease Acts. The Board of Health is a nominee board.

VICTORIA.

In this State the Public Health Acts are administered by a commission comprised of the Chief Health Officer and six members appointed by the Governor-in-Council. The medical and sanitary staffs of the commission consist of (a) the Chief Health Officer who is also Chairman; (b) six District Health Officers and three Assistant Health Officers; (c) Chief Sanitary Engineer and Assistant Sanitary Engineer, three Building Surveyors and four Building Inspectors, and (d) twelve Health Inspectors. The main function of the commission is to enforce the execution of the Health Acts by the local municipalities. This is supplemented by an active policy of inspection of the sanitary conditions of various districts and the sampling of articles of food.

QUEENSLAND.

The Public Health Acts are administered by the Commissioner of Public Health under the Home Secretary. The executive staff of the Department includes a Health Officer, a Medical Officer for the tuberculosis bureau, two Medical Officers for venereal disease, fourteen Food and Sanitary Inspectors, and one Staff nurse.

There are in addition rat squads in Brisbane.

A laboratory of microbiology is controlled by the department and performs a wide range of microbiological work for the assistance of medical practitioners and the Department.

One function of the Department is to stimulate and advise local sanitary authorities on matters pertaining to the Health Acts and where necessary to rectify or compel rectification at cost of the local authority of sanitary evils.

SOUTH AUSTRALIA.

The Central Board of Health consists of five members, three of whom (including the chairman, who is permanent head of the department), are appointed by the Governor, and one each is elected by the city and suburban local boards, and the country local boards. The Health Act provides that the municipal and district councils are to act as local Boards of Health for their respective districts. A Chief Inspector and one Inspector periodically visit the local districts and see, generally, that the boards are carrying out their duties. There are three Nurse Inspectors employed in advising and assisting local boards in connexion with outbreaks of infectious diseases, and in carrying out generally similar duties to those of male Inspectors.

WESTERN AUSTRALIA.

The central authority is the Department of Public Health controlled by a Commissioner. The local authorities comprise (a) Municipal Councils; (b) Road Boards where the boundaries of a district are continuous with those of a Road District; and (c) Local Boards of Health appointed by the Governor. These local boards are utilized only where neither Municipal Councils nor Road Boards are available. The act is administered by the local authorities, but the Commissioner has supervisory powers, also power to compel local authorities to carry out the provisions of the act.

All the usual provisions for public health legislation are contained in the Health Act.

TASMANIA.

The central authority is the Department of Public Health controlled by a Director. The Director has very wide powers and in the event of the appearance of dangerous infectious disease (smallpox, plague, &c.) in the State, is vested with supreme power, the entire responsibility of dealing with such an outbreak being taken over by him for the local authorities.

The local authorities (Municipal Councils, &c.) are subject to control and supervision by the Department of Public Health and many of the powers conferred upon them may be converted into duties.

The Department has four full-time inspectors who assist and instruct the local sanitary inspectors.

PROVISION OF HEALTH ACTS.

The principal act administered by each State Health Department is the Public Health Act which deals with nuisances, refuse, night soil, offensive water courses, sewers and drains, pollution of water, offensive trades, dangerous trades, infectious diseases, construction of general hospitals, infectious diseases hospitals, private hospitals, &c.

Infectious Diseases.

Councils must provide accommodation for members of a family whose premises are being disinfected by council on account of infectious disease.

The Minister may intervene when the council fails to adequately deal with the infectious disease.

Medical Officers of Health may enter and inspect premises and examine persons suspected of suffering from any such disease.

Medical Officers of Health may order any person suffering from any infectious disease to be removed to a suitable hospital or place of isolation.

Medical Practitioners are required to notify cases of infectious disease to the local council.

Hospitals for Infectious Disease.

Councils are empowered to provide hospitals for cases of infectious disease.

Rats, Flies, Mosquitoes.

Regulations covering destruction and control are to be carried out by the Council.

Venereal Diseases.

Each State, excepting South Australia, has an act providing for notification and treatment of venereal disease. This act is administered by the Department of Health in Western Australia, Victoria, Queensland and Tasmania. In New South Wales a commissioner is appointed to act under the Minister of Public Health. South Australia has passed an act, but it is not yet in operation.

Steps have been taken to ensure free treatment by medical practitioners or in subsidized hospitals. Clinics have been established and in some cases beds in public hospitals have been set aside for patients suffering from these diseases.

The Commonwealth Government has granted a subsidy of £15,000 per annum to the various States to assist in providing hospital treatment and administrative control.

In New South Wales, the act aims at ensuring that all cases of venereal disease will have immediate and continued treatment. Notification is compulsory.

In Victoria, the acts provide for compulsory treatment by qualified medical practitioners. All hospitals in receipt of State aid treat patients.

In Queensland, notification is compulsory. Subsidized hospitals are required to make provision for the examination and treatment of cases reported to them and clinics have been established in Brisbane and seven towns.

Western Australia.—Persons suffering from these diseases must consult a medical practitioner and place themselves under treatment.

Free examination and treatment are given by subsidized hospitals.

Tasmania.—Persons affected must place themselves under the care of a medical practitioner or of a hospital; provision is made for the free maintenance and treatment of persons suffering from venereal disease. State aided hospitals are required to provide treatment.

Vaccination.

In New South Wales there is no provision for compulsory vaccination, but public vaccinators have been appointed.

Victoria.—Compulsory vaccination, subject to a conscience clause, is in force. During 1924 the number of children vaccinated was less than 5 per cent. of the births registered.

Queensland.—Compulsory vaccination is not in force.

South Australia.—Compulsory vaccination has been suspended—only two vaccinations were reported in 1924.

Western Australia.—Compulsory vaccination is subject to a conscientious objection clause. Very few children are vaccinated. All district medical officers are public vaccinators.

Tasmania.—All infants are nominally required to be vaccinated before the age of twelve months, but this is subject to a conscientious objection clause.

Jennerian vaccine is manufactured at the Commonwealth Serum Laboratories at Royal Park, near Melbourne.

ADMINISTRATION OF PORTS IN THE AUSTRALIAN COMMONWEALTH.

The Commonwealth Navigation Service is concerned with the general administration of the Navigation Act. It is in control of the survey and inspection of interstate and overseas vessels in respect to equipment, general conditions and sea-worthiness, inspection of load-line markings, adjustment of compasses, institution of local proceedings when necessary in case of overloaded or unseaworthy ships, distribution of special weather warnings to shipping. It is the local authority for the receipt of signals of distress, measurements of tonnage of ships, control of shipping and mercantile marine offices, and conducts preliminary investigations into marine casualties.

The medical inspection of seamen and apprentices is under the administration of the Navigation Service which is represented by the Superintendent of Mercantile Marine in each port. In the smaller ports the Sub-Collector of Customs acts as Superintendent of Mercantile Marine.

Seamen or apprentices suffering from any disability apply or are referred to the Superintendent of Mercantile Marine who on payment of the prescribed fee refers them to the Medical Inspector of Seamen for examination and report on the prescribed certificate form.

Apprentices are also referred to the Medical Inspector of Seamen for examination for fitness for the mercantile service and a certificate giving the result of the examination is furnished by the Medical Inspector of Seamen.

The inspection of accommodation for passengers and crews of Australian vessels is carried out for the Navigation Service by Medical Inspectors of Shipping who furnish reports on prescribed forms to the Deputy Directors of Navigation in each State.

STATE ADMINISTRATION OF PORTS.

In the chief ports and harbours of the Commonwealth administrative bodies have been created, in whom are vested the control and management of the port with respect to dredging, wharf and harbour accommodation, pilotage, harbour dues, &c.

Of these Trusts or Boards some are purely departmental and some are nominated by Government, while others are comprised of members appointed by the Municipal and other associations connected with the port. In the latter case, the Government is usually represented on the board by one or more nominated members.

New South Wales.

In New South Wales the system of control of ports is not uniform for all ports. The port of Sydney is under the control of the Sydney Harbour Trust. The establishment of this trust was the direct outcome of the outbreak of bubonic plague in the port of Sydney in the early part of the year 1900. The whole of the foreshores of the harbour, together with certain adjoining wharfs, stores, dwelling houses, and other properties were vested in a body of trustees. Under the act of 1901, an independent body of three commissioners was created for administering the affairs of the harbour and fostering its interests. This Board of Commissioners is invested with the exclusive control of

the port and shipping, buoys, wharfs, and docks, and is empowered to levy certain tolls, dues, rates, rents and charges, and to purchase lands and buildings.

The State Navigation Department has control of the pilotage for the port.

At Newcastle there is no Harbour Board. The State Navigation Department controls navigation, pilotage, harbour and tonnage rate collections, and the explosives magazine.

The Railway Department controls the supply and delivery of coal and the berthing of vessels at coal cranes.

The Public Works Department is in charge of the construction and maintenance of wharfs, and the dredging operations of the port.

At Port Kembla the general control and administration of the port is vested in the State Department of Public Health.

Queensland.

All Queensland ports are administered and controlled by the Department of the Treasury through the sub-departments of Marine and Harbour and Rivers. Several of the ports have Harbour Boards who levy and collect harbour dues on all goods imported or exported, and expend them in port maintenance and improvement. Additions or alterations of port facilities are carried out by the Harbour Board, but must first be submitted to and approved by the Department of the Treasury.

These boards are composed of certain members nominated by the Government and other members elected by the electorate most concerned in the welfare of the port.

The ports which have Harbour Boards are Bundaberg, Gladstone, Rockhampton, Mackay, Bowen and Townsville. In Brisbane and the remainder of the ports—Maryborough, Cooktown, Innisfail, Port Douglas, Thursday Island, Normanton and Burketown—the harbour dues are levied and collected by the Marine Department, which also controls the movements of shipping, pilotage and surveys of vessels under the State Navigation Regulations. The local representative is the Harbour Master. The other sub-department, Harbours and Rivers, controls or supervises all port improvements, dredging and other constructional and maintenance work.

Victoria.

In Victoria the large ports, Melbourne and Geelong, are administered by Harbour Trusts, while the smaller ports—Warrnambool, Portland and Port Fairy—are under the control of the State Ports and Harbours Department which is represented in the port by the Harbour Master.

South Australia.

In South Australia the ports are administered by the South Australian Harbours Board. The officer representing the board at Port Adelaide is the Port Superintendent and at other ports the board is represented by the Harbour Master.

Western Australia.

The larger ports, Fremantle and Bunbury are administered by Harbour Trusts or Boards, while the smaller ports are administered by the Harbour and Light Department, and are under the control of the Chief Harbour Master. Where the jetty is connected with the State railway system it is under the control of the Commissioner of Railways.

Tasmania.

In Tasmania the ports are controlled by Marine Boards. The Hobart Marine Board was established in 1858 and consists of nine wardens elected by the shipowners, importers and exporters of the port.

The Launceston Marine Board was formed in 1858 and consists of thirteen members elected in the Municipal Franchise with special residential qualifications.

The Marine Board of Mersey controls the port of Devonport.

The Port of Burnie is controlled by the Marine Board of Burnie and Table Cape, which is composed of seven wardens.

SUMMARY OF NOTIFICATIONS OF AND DEATHS FROM PLAGUE, CHOLERA, YELLOW FEVER, TYPHUS AND SMALLPOX.

There have been no cases of the above diseases in Australia during the three years ending 31st December, 1928.

COMMUNICATION OF INFORMATION REGARDING QUARANTINABLE DISEASE.

The weekly epidemiological wireless message is received from the League of Nations Eastern Bureau at Singapore, to which similar information regarding Australian ports is transmitted.

SPECIAL ARRANGEMENTS MADE FOR THE DIRECT EXCHANGE OF INFORMATION WITH ADJOINING COUNTRIES.

No formal agreement has been concluded with adjoining countries regarding the communication of important information relating to infectious disease, but there is an understanding with the United States of America, Union of South Africa, Java and New Zealand whereby we receive communications regarding outbreaks of quarantinable disease in ports, or quarantinable disease on vessels bound for Australia, and we transmit similar information to these countries when occasion arises.

Information regarding the occurrence of quarantinable disease is also received from the British Consuls in Java and California.

LOCAL AGREEMENTS ENTERED INTO UNDER ARTICLE 57 OF THE INTERNATIONAL SANITARY CONVENTION.

At the International Pacific Health Conference, held at Melbourne from 15th to 22nd December, 1926, delegates representing the United Kingdom, United States of America, France, Japan, League of Nations, New Zealand and Australia agreed that it was desirable for the better prevention of the spread of epidemic diseases and for the improvement of public health measures generally, to establish a special system of intelligence between the health administrations of islands in the Pacific situated south of the equator and between longitude 140 degrees east and 140 degrees west.

This special system supplements, but does not replace, the work being effectively carried out by the Eastern Bureau of the League of Nations Health Organization at Singapore.

This region is known as the Austral-Pacific regional zone, and includes the following territories:—

Australia	Gilbert and Ellice Islands.
New Zealand	Fiji
New Guinea	Samoa, Western and Eastern
Papua	Cook Islands
Solomon Islands	Tahiti Group
New Caledonia	Tonga.
New Hebrides	

The Commonwealth of Australia, through its Health Department, undertook the organization of the system of intelligence and communicates information which it collects to each administration concerned within the regional zone, taking into account those requirements for information to which individual administrations attach special importance, and maintains touch with all sources of information regarding the occurrence of epidemic diseases outside the regional zone, which may affect countries in the Pacific, notably with the International Health Bureaux at Paris, Geneva, Singapore and Washington.

Each administration within the Zone has undertaken—

- (a) To notify the Commonwealth Department of Health by telegram on the first day of each month, and immediately if necessary, of such new facts as may be important with regard to influenza, measles, cerebro-spinal meningitis, whooping cough, epidemic poliomyelitis, varicella, german measles (rötheln), dysentery, and typhoid, as well as any unusual outbreak of sickness, and at the commencement of each quarter to forward by post a general statement as to the position of these diseases, together with any new facts which may be important in regard to malaria, filaria, yaws, and venereal disease.
- (b) To forward to the Commonwealth Department of Health on the first day of January in each year a statement of the course of events in respect of leprosy, intestinal parasites, deficiency diseases, skin diseases, and epidemic conjunctivitis.

(c) To keep the Commonwealth Department of Health immediately informed of facts relating to the diseases specified in the International Sanitary Convention, 1926 (cholera, plague, yellow fever, typhus, and smallpox), which under the terms of Articles 1 to 7 of that convention, are required to be forwarded by the participating administrations to the Office International d'Hygiene Publique in Paris.

It is understood that the information supplied by any administration under (a) and (b) will necessarily be limited by the extent to which the medical supervision in its territory permits of such information being obtained.

It is further understood that the undertaking in (c) is made without prejudice to the question whether the Commonwealth Health Department could in future be utilized as the agent by which the information from the territories in the Austral Pacific regional zone can ordinarily be transmitted directly or via the Singapore Bureau of the League of Nations to the Office International d'Hygiene Publique under the terms of the International Sanitary Convention, 1926.

WESTERN AUSTRALIAN PORTS.

Fremantle
Busselton
Bunbury
Albany
Esperance
Geraldton
Carnarvon

Wyndham
Derby
Broome
Port Hedland
Cossack
Onslow.

FREMANTLE.

Fremantle is the principal port of Western Australia, situated at the mouth of the Swan River, south latitude 32 degrees 3 minutes, and east longitude 115 degrees 44 minutes. The population is 31,000.

Boundary of Inner Harbour.

"By a line starting from the intersection of the north side of Lukin-road and the prolongation northwards of the fence on the west side of Railway Reserve, North Fremantle, and extending southerly along the fence on the western boundary of Railway Reserve and along Railway Bridge; thence along railway fence to western abutment of overhead bridge; then following the north-western foot of embankment of approach to overhead bridge to a point opposite 92 feet north-easterly from south-east corner of Shed J; then south-eastward to angle in railway fence; thence south-westerly along said fence to the eastern side of Cliff-street; thence southwards along said side of street for a distance of about two chains; thence westward crossing Cliff-street, following along the south-eastern boundary fence of the Fremantle Harbour Works Depot to its south-western corner; thence south about four chains; thence on a bearing of 106 degrees 30 minutes for about 11 chains; thence south to the sea coast, and generally westerly along same and the southern side of the south mole to its western extremity; thence west-north-west to the western extremity of the north mole; thence easterly and north-easterly along the north side of the said north mole and the sea coast to its intersection with the prolongation north-westerly of the south-western boundary fence of the North Fremantle store site; thence south-east along the said prolongation and fence to the south-east corner of North Fremantle store site fence; thence along the said fence on the south-easterly side to its intersection with the prolongation of the north side of Lukin-road; thence along the said prolongation and north side of Lukin-road to the starting point, as the said boundary is delineated in plan deposited in the Public Works Department, No. 18,538.

The Outer Harbour.

Bounded by a line starting from the sand patch on the mainland approximately $3\frac{3}{4}$ miles north of Arthur Head, known as "The Winding Sheet," and extending north of westerly to the white buoy on Kingston Spit; thence westerly to Duck Rock beacon; thence southerly to Bathurst Point, Rottnest Island, and along the eastern and southern shore of Rottnest Island in a generally southerly direction to Parker

Point; thence south-westerly to Entrance Point, Garden Island; thence easterly, southerly and westerly, passing along the northern, eastern, and southern shores of the said island to the south-west head; thence southerly to John Point on the mainland, thence easterly and northerly along the sea coast of the mainland and the southern side of the south mole to the latter's western extremity; thence west-north-westerly to the western extremity of the north mole, and thence easterly and north-easterly along the northern side of the said north mole, and northerly along the sea coast of the mainland to the starting point; but there shall be excluded for the said Outer Harbour any lands which have heretofore been and remain alienated from the Crown in fee simple.

The said Fremantle Harbour shall comprise the areas included in the said Inner and Outer Harbours.

The depth of water in the harbour is 36 feet. The rise and fall of tide is 3 feet.

LOCAL PORT ADMINISTRATION.

The port of Fremantle is under the administration of the Fremantle Harbour Trust, which is represented by the harbour master, who also holds the positions of wharf manager and berthing manager.

Pilotage.

Inwards pilotage is compulsory for all ships from overseas, and optional on leaving the port. It is compulsory for oversea vessels entering or leaving the inner harbour. Masters of coastal or interstate ships may be allowed exemption.

Pilots board vessels on the pilotage ground 5 miles east of Bathurst Point, Rottnest Island. Vessels are boarded in all weathers, day or night.

Berthing Accommodation.

Berthing accommodation is provided by Victoria Quay (south side), 5,000 feet in length, and North Quay, 5,000 feet in length. The depth of water is 36 feet at all berths at low water.

Goods sheds are provided on the wharfs, and railway lines connected with the State railway system are provided to all berths.

Water Supply.

Water is laid on to all berths from the port water system.

Principal Imports and Exports.

The principal imports are general cargo, such as textiles, manufactured metals, motor spirit, oils, machinery, and phosphates.

Exports are wheat, wool, gold, timber and flour.

SHIPPING.

Overseas Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	.. 387	1,346,874
1926-27	.. 346	1,629,975

The principal lines calling are the Peninsula and Oriental Company, British India Steam Navigation Company, Navigazione General Italiana, Ellermann Bucknall City and Hall Line, Swedish-Australian Line, Federal Steam Navigation Company, Cunard Commonwealth and Dominion Company, Brocklebank, American Australian Line, Orient Steamship Company, Aberdeen and Commonwealth Line, Messageries Maritime Company, White Star Line, Peninsula and Oriental Branch Line, German and Australian, and Nord Deutscher Lloyd, Shire and Blue Funnel Line.

Interstate Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	274	1,402,400
1926-27	302	1,528,272

The principal lines were the Adelaide Steamship Company, McIlwraith, McEachern's Line, Melbourne Steamship Company, Huddart Parker and the Australian Steamships Limited.

These lines call regularly once a week.

Coastal Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	75	135,584
1926-27	80	130,690

These were almost entirely steamers or motor vessels.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Fremantle was proclaimed a First Port of Entry on 10th July, 1909. The Quarantine line is defined as an imaginary line across the Swan River at the mooring buoy.

The Quarantine Staff comprises a Chief Quarantine Officer in charge of the Division, a permanent full time Quarantine Officer, two local medical practitioners who act as Deputy Quarantine Officers in a part time capacity, Office staff, Fumigation Staff and Quarantine Station Staff.

Boarding is carried out in a launch provided under contract by the Fremantle Harbour Trust. Advice regarding the arrival of vessels requiring pratique is received from the masters and agents of vessels. The signal station advises the arrival of vessels about 1½ to 2 hours before they arrive at the anchorage. The Quarantine Officer generally boards in Gage Roads and in the case of smaller vessels sometimes in the river below the Quarantine line.

Fumigation staff consists of a Sanitary Inspector and two Quarantine Assistants.

Vessels are inspected by the Fumigation Staff to see that they comply with the berthing regulations and for signs of rat infestation.

The fumigation equipment consists of a barge with a machine for generating SO₂ and pumping it into vessels, iron pots for burning sulphur in the holds of vessels, and disinfectants and sprays.

Fumigation equipment is kept in a shed on the wharf.

Trapping and poisoning of rats is carried out by the Fumigation Staff. All rats collected are classified and examined for signs of disease.

Quarantine Station.

The Quarantine Station is situated at Woodman's Point seven miles from Fremantle. Access to this station is available by road as well as by water. There is also a railway from Fremantle to within a mile of the Quarantine Station.

The staff consists of:—

- A Medical Officer in Charge, the Quarantine Officer, Fremantle.
- A Foreman Assistant.
- Two Quarantine Assistants.
- One Female Attendant.
- An Engine-driver.

There is a wooden jetty for landing passengers and patients from vessels.

With the exception of the Administration Block, which is built of stone, the buildings are constructed of wood and iron.

Accommodation is provided for—

1st. Class Passengers	..	..	..	56
2nd " "	..	..	..	96
3rd " "	..	..	..	198
Asiatics	..	..	..	20
Total ..				370

Isolation Hospital Area.

This area contains an Isolation Hospital with three wards containing six beds each and five wards with one bed each—total beds 23. An operating theatre, dispensary, kitchen, baths and lavatories are attached.

An observation block of four wards with four beds in each.

A nurses' block with accommodation for eight nurses.

A change block.

A tramway is used for conveying patients from the jetty to the hospital.

Disinfecting Plant.

A standard steam disinfecter with attachments for formalin and cyanide disinfection is provided.

Bathing Blocks.

Twenty-six baths are available for the disinfection of contacts.

There is a steam laundry with the usual fittings. Stores are provided for passengers luggage and for station equipment and stores.

Disposal of excreta is by the Kaustine system in the isolation areas; elsewhere by the earth pan system. There is electric lighting throughout the station. The electric current is provided from Fremantle.

The water supply is from the bore water and from rain water stored in tanks.

Staff Accommodation.—Residences are available for the four permanent employees. There is also accommodation for a temporary staff during active quarantine.

Venereal Disease.

Special wards are provided for the treatment of cases of venereal disease ordered into quarantine.

Vaccination.

A stock of calf lymph and vaccines is kept by the Quarantine Officer.

Action under the Navigation Act.

The Quarantine Officer and Deputy Quarantine Officers are appointed Medical Inspectors of Seamen, and the Quarantine Officer is the Medical Inspector of Shipping and carries out inspection of vessels under the Navigation Act.

LOCAL HEALTH ORGANIZATION.

The local health authority is the municipal council. The health staff consists of a medical officer of health, two health inspectors and two assistants.

Accommodation for infectious diseases is provided in isolation wards in the general hospital. Transport is provided by motor ambulances.

Laboratory facilities are provided by the Public Health Department, Perth.

Machinery for vaccination is available through the Public Health Department, Perth, in conjunction with the Fremantle Medical Officer of Health.

Treatment of Venereal Diseases.

Free treatment is provided at the Public Hospital, Fremantle.

Rat Control Measures.

Trapping and poisoning of rats are carried out by the Harbour Trust on wharfs, foreshores and in goods sheds.

The council employs one man continually on rat destruction. The inspectors regularly inspect stores and warehouses to ensure that rat control measures are being carried out.

SANITARY SERVICE.

Disposal of Excreta.

With the exception of 400 houses, the premises in Fremantle are connected with the sewerage system.

Garbage Disposal.

Garbage is removed from premises twice a week and buried at two tips.

Water Supply.

Water is reticulated to the port from the Canning River.

BUSSELTON.

Busselton or Vasse is a small town and seaport on the west coast of Western Australia in the southern part of Geographe Bay, south latitude 33 degs. 39 mins., and east longitude 115 degs. 21 mins. It has a population of 300. The population of the district is about 1,000.

The port is bounded by lines from the Quindalup Jetty, and extending due north 3 miles; thence to a point three miles due north from Lockville Jetty; thence to a point on the shore 20 chains north eastward from the entrance to Vasse Inlet.

Depth of water at the anchorage $4\frac{1}{2}$ - 5 fathoms.

Rise and fall of tide 2 ft. 6 inches.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the Harbour and Light Department, and is controlled by the Chief Harbour Master, but the jetty is controlled by the Commissioner of Railways.

Pilotage.

Pilotage is compulsory. A pilot is available, but Masters should notify the Railway Department of the approximate time of arrival. The pilot boards when the ship has come to anchor in the vicinity of the jetty and after the Quarantine Officer and Customs Officer have completed examination.

Berthing Accommodation.

There is a jetty 5,700 feet long, with 480 feet berthage on the west side and 504 feet on the east side. The breadth of the jetty is 39 feet. Depth of water at low water is 23 feet.

There is no shed on the jetty, but the railway goods shed and jetty are connected with the State railway system.

Water is laid on to the jetty from the town supply.

Principal Imports and Exports.

Imports—General cargo.

Exports—Timber and dairy produce.

SHIPPING.

Oversea.

Year.	No. of Vessels.	Tonnage.
1925-26	5	16,004
1926-27	13	42,071

Lines calling are South African Government Line and occasional Swedish and Japanese vessels.

Interstate.

Year.	No. of Vessels.	Tonnage.
1925-26	2	8,813
1926-27	1	4,772

Lines calling—Melbourne Steamship Co., Adelaide Steamship Co., McIlwraith, McEacharn Ltd.

Intra-state and Coastal.

Year.	No. of Vessels.	Tonnage.
1925-26	36	48,775
1926-27	29	29,031

Type of vessel—Motorship.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Busselton was proclaimed a first port of entry on 3rd March, 1921, for vessels other than those from ports declared to be infected with yellow fever.

The Quarantine Officer is a local medical practitioner, who acts as Quarantine Officer in a part-time capacity.

Vessels requiring pratique notify the Quarantine Officer of their expected time of arrival by wireless through the agents. The Quarantine Officer boards vessels at the anchorage $1\frac{1}{2}$ miles from the inner end of the jetty by rowing or sailing boat.

Fumigation is carried out at Busselton by a casual assistant under the supervision of the Quarantine Officer. A stock of sulphur and iron pots is kept at the port.

The Quarantine Officer supervises the carrying out of berthing regulations and issues fumigation certificates and bills of health.

A small stock of calf lymph for vaccination is held by the Quarantine Officer.

Action under the Navigation Act.

The Quarantine Officer holds the appointment of Medical Inspector of Seamen.

Inspection of vessels under the Navigation Act is not carried out at Busselton.

LOCAL HEALTH ORGANIZATION.

The Local Health Authority is the Busselton Board of Health. The health staff consists of the Medical Officer of Health and a Health Inspector.

Isolation Accommodation for Infectious Diseases.

There is an Isolation Ward with six beds at the General Hospital.

Transport is provided by private motor car.

There are no laboratory facilities nearer than Perth.

Treatment of Venereal Disease.

Patients suffering from venereal disease may obtain treatment at the local hospital.

Rat Control Measures.

There are no organized measures for rodent control.

SANITARY SERVICES.

Disposal of Excreta.

There is a weekly pan system. The excreta is buried at a sanitary depot. There are in addition a few septic tanks in use.

Disposal of Garbage.

Garbage is removed once a week and conveyed to a tip.

Water Supply.

Water is obtained from artesian bores, and reticulated to the town.

BUNBURY.

Bunbury is situated in the south-west of Western Australia, south latitude 33 degs. 18½ mins., and longitude 115 degs. 30 mins. east. It has a large bunker trade, and is the port for a large timber and wheat area. The population is 4,900.

The port boundaries are a line starting from the intersection of the west side of the breakwater with the sea coast of Casuarina Point and extending north-easterly along said side of breakwater and onwards to the south-west corner of Leschenault Location 24; thence south-westerly and westerly along the eastern and southern shores of Koombanah Bay to Point McLeod at the entrance to Leschenault Estuary; thence easterly and north-easterly along the northern and north-western shore of Leschenault Inlet to a point north of the right bank of the Preston

River at its mouth; thence south to the said right bank; thence westerly, south-westerly and westerly, following the eastern shore of Koombanah Bay to the shore end of the jetty thence north-westerly along the sea-coast to the starting point.

Rise and fall of tide is 2 feet 6 inches.

LOCAL PORT ADMINISTRATION.

The port is controlled by the Bunbury Harbour Board, but the Harbour Master is appointed by the Harbour and Light Department.

Pilotage.

Pilotage is compulsory. The pilot boards incoming vessels before they enter the harbour, and outward bound vessels are piloted beyond the breakwater.

Berthing Accommodation.

A long jetty juts out into the sea. There is 2,850 feet of berthage on the west side and 2,950 feet on the east side. The breadth of the jetty is 59 feet 6 inches. Depth of water west side 16 feet to 27 feet 6 inches. East side 15 feet to 27 feet 6 inches.

The jetty is connected with the State railway system. There is a goods shed at the shore end of the jetty and a grain shed close to the jetty.

Water is laid on to all berths at the jetty by 3-inch mains from the town water supply.

Principal Imports and Exports.

Imports are general cargo, naphtha and kerosene.

Exports are timber, wheat and bunker coal.

SHIPPING.

Oversea Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	23	70,028
1926-27	32	107,393

Lines calling are—South African Governmental Line, Clan Line, Andrew Weir Line, Brocklebank Line, British India, S.N. Co., Port Line, Ellermann Line. The South African Government Line has a regular service, others are intermittent.

Interstate.

Year.	No. of Vessels.	Tonnage.
1925-26	22	67,985
1926-27	32	107,033

Intra-state.

Year.	No. of Vessels.	Tonnage.
1925-26	89	184,128
1926-27	79	164,893

ADMINISTRATION UNDER THE QUARANTINE ACT.

Bunbury was proclaimed a first port of entry for all vessels except those from ports declared to be infected with yellow fever.

The quarantine line is a line due east from the breakwater sea end to the opposite shore. The anchorage is a large buoy on the south side of the line.

The Quarantine Officer is a local medical practitioner who acts as Quarantine Officer in a part-time capacity. A full-time permanent Quarantine Assistant is stationed at the port.

Notification of the arrival of vessels is given by the agents of vessels and by the Harbour Master. The Harbour Master's launch is used to carry out the boarding work.

Fumigation of vessels is carried out by the Quarantine Assistant, who inspects vessels for signs of rodent infestation, to see that berthing regulations are complied with and carries out trapping and poisoning.

Fumigation is effected by burning sulphur in open pots. Fumigation equipment and stores are kept in a shed on the jetty.

The Quarantine Officer signs fumigation certificates and bills of health.

Action under the Navigation Act.

The Quarantine Officer is appointed Medical Inspector of Seamen. Inspection of vessels under the Navigation Act is not carried out in Bunbury.

Quarantine Station.

The Quarantine Station is situated on the Leschanault Inlet, about three miles from Bunbury. The station can be reached by water only.

A jetty is provided for landing passengers.

The buildings are of wood and iron. Accommodation is provided for twelve passengers.

The hospital contains three wards of four beds each.

There is a store for equipment and utensils and a morgue and cemetery are provided.

A chamber which can be hermetically sealed is used for disinfection by formalin, cyanide or sulphur.

Disposal of excreta is by an earth pan system.

Water supply is from rain water tanks with capacity of 7,000 gallons.

Lighting is by kerosene lamps.

A cottage is provided for the Quarantine Assistant. The staff consists of a Medical Officer in Charge, Quarantine Officer, Bunbury, Assistant Medical Officer, Deputy Officer, Bunbury, one Quarantine Assistant, one Female Attendant.

LOCAL HEALTH ORGANIZATION.

The local Health Authority is the Municipal Council. The health staff consists of a Medical Officer of Health, a Health Inspector and an Assistant.

Isolation Accommodation for Infectious Diseases.

An isolation ward with eight beds is provided at the General Hospital.

Transport is provided by motor ambulance.

Vaccination.

The Medical Officer of Health has a small supply of calf lymph; supplies can be obtained from Perth five hours by rail.

Laboratory facilities are provided by the Laboratory of the Public Health Department, Perth.

Treatment of Venereal Disease.

Free treatment is provided at the Public Hospital.

Rat Control Measures.

The Harbour Board has poison baits laid occasionally in the grain sheds and on the wharfs.

SANITARY SERVICES.

Disposal of Excreta.

There is a double pan system. The excreta is ploughed in at a farm set apart for that purpose.

Garbage Disposal.

Garbage is removed weekly and buried.

Water Supply.

The source of supply is a sub-artesian deep well, from which water is reticulated throughout the port.

ALBANY.

Albany is situated in Western Australia on King George's Sound, South latitude 35 degrees, and East longitude 117 degrees 45 minutes. It has a fine deep-water harbour.

Port Limits.

All the waters of King George's Sound and Princess Royal Harbour lying westward of lines starting from the eastern extremity of Bald Head, and extending north-easterly to the lighthouse on the Breadsea Island, and thence north-westerly to Herald Point.

Depth of water at the anchorage is 30-34 feet at low water.

Rise and fall of tide is 2 ft. 6 in.

LOCAL PORT ADMINISTRATION.

The port is under the control of the Chief Harbour Master of the Harbour and Light Department, whose local representative is the Harbour Master.

Pilotage.

Pilotage is compulsory. The Harbour Master boards vessels from the pilot launch in King George's Sound, 2 miles from King Point Light.

Berthing Accommodation.

New Deep-Sea Jetty.—800 feet south side, 500 feet north side.

Breadth—50 feet. Depth of water—33 feet south side, 25 feet north side.

Old Deep-Sea Jetty.—500 feet west side, 350 feet east side.

Breadth—50 feet. Depth of water—30 feet west side, 30 feet eastward side.

Town Jetty.—400 feet north-east and south-west sides. Breadth—35 feet 6 inches. Depth of water—23 feet both sides.

Goods sheds are not provided on jetties, but jetties are connected with the State railway system. The Stationmaster acts as Wharfinger.

Water is supplied to the jetties by pipe-line from the town reservoir, and can be supplied to ships through hydrants provided on the jetties.

Principal Imports and Exports.

Imports are general cargo.

Exports are timber, fruits, wheat and flour.

SHIPPING.

Oversea Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	22	160,265
1926-27	27	186,441

The lines calling are:—

White Star Line, Liverpool Ocean Steamship Company, Ltd., Commonwealth and Dominion Line, British India Steam Navigation Company, King Line Ltd., Hogarth Shipping Co. Ltd., P. & O. Steam Navigation Co. Ltd., Ellermann Line Ltd., Aberdeen White Star Line, Federal Steam Navigation Co., British Empire Steam Navigation Co., Norddeutscher Lloyd and various German Swedish Norwegian and Dutch lines.

The Ocean Steamship Company, and the Aberdeen White Star Line run a regular service via Cape Town and Durban to the Eastern States of Australia.

Interstate Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	55	238,989
1926-27	63	283,511

The lines calling are McIlwraith, McEacharn Ltd., Adelaide Steamship Co., Melbourne Steamship Co. McIlwraiths run a monthly passenger service.

Intra-state and Coastal.

Year.	No. of Vessels.	Tonnage.
1925-26	65	89,397
1926-27	70	111,267

ADMINISTRATION UNDER THE QUARANTINE ACT.

Albany was proclaimed a First Port of Entry for vessels other than those from ports declared to be infected with yellow fever.

The Quarantine Officer and Deputy Quarantine Officer are private medical practitioners who act as Quarantine Officers in a part time capacity.

Vessels are inspected at the anchorage about a quarter mile off the deep water jetty. The agents or the masters of vessels advise the Quarantine Officer when vessels are due. The lighthouse at Ellifer Island notifies the Customs Officer of the arrival of vessels and Customs notify the Quarantine Officer.

The Quarantine Officer uses a hired launch for boarding work. The Quarantine Assistant checks the number of passengers.

Bills of Health and Fumigation Certificates are signed by the Quarantine Officer.

Fumigation and trapping and poisoning of vessels are carried out by the two Quarantine Assistants who are permanent full time officers stationed at the Quarantine Station.

Fumigation equipment is stored at the station; sulphur fumigation is carried out by the open pot method. Water transport is provided by a departmental motor launch.

Quarantine Station.

The Quarantine Station is situated on Princess Royal Harbour, three miles by water from Albany. The station can only be reached by water.

Staff.

Medical Officer in Charge, Quarantine Officer, Albany.

Assistant Medical Officer, Deputy Officer, Albany.

2 Quarantine Assistants.

1 Female Attendant.

During active quarantine temporary assistants are engaged as required.

Buildings are of wood and iron with the exception of the quarters for the staff, which are stone.

Accommodation is provided for:—

1st Class passengers	..	..	..	32
2nd Class Passengers	..	..	..	32
3rd Class Passengers	..	..	..	32
Total				96

Hospital accommodation is provided in an isolation block with two wards, one containing six beds and the other four. A kitchen, dispensary, baths, lavatory and change block are attached. Accommodation is provided for four nurses.

The bathing block for bathing of contacts contains 26 baths.

Lighting is by kerosene lamps.

Disposal of excreta is by pan system.

Water supply is from a concrete reservoir containing 30,000 gallons, and rain water tanks.

There is a disinfection block with a standard steam disinfecting plant, with formalin and cyanide attachments.

A general store for the storage of station equipment is provided and there is an Administration Block, waiting rooms for passengers, laundry, workshop, morgue and cemetery.

Passengers from vessels are landed at a jetty in the station area.

Action under the Navigation Act.

The Quarantine Officer is the Medical Inspector of Seamen.

Inspections of vessels under the Navigation Act are not carried out at Albany.

LOCAL HEALTH ORGANISATION.

The port Health Authority is the Municipal Council. The Health staff consists of a Medical Officer of Health and a Health Inspector.

Isolation accommodation for infectious diseases is provided by isolation wards with ten beds at the Public Hospital.

Transport is provided by stretchers on wheels or public motor car.

There are three small private hospitals in addition to the public hospitals.

Treatment of Venereal Disease.

Free treatment is provided for all cases of venereal disease at the public hospital and beds are available.

There is no bacteriological laboratory at Albany.

Rat Control Measures.

The Health Inspector lays poison baits and sets traps and instructs owners of rat-infested premises regarding deratization. Instructions are given that any diseased carcasses are to be forwarded to the Council for transmission to the Government Bacteriologist at Perth.

Equipment Available for Disinfection.

There are hand spray pumps, formalin vapour lamp and there is a disinfecting chamber at the hospital.

SANITARY SERVICES.

Disposal of Excreta.

There is a double pan service. Excreta is buried in shallow trenches at the sanitary depot. Hotels are provided with septic tanks.

Drainage.

Drainage is effected by open street channels discharging into the sea. In the business area underground earthenware drains receive the waste water and effluents from the septic tanks and discharge into the sea.

Garbage Disposal.

There is a weekly service for removal of garbage from the prescribed garbage tins of premises to a tip where the garbage is buried.

Water Supply.

Water is pumped from a deep spring into a reservoir from which it gravitates to a secondary reservoir in town, whence it is reticulated to the town. The consumption for 1926-27 was 53,000,000 gallons.

ESPERANCE.

Esperance is a small farming and mining centre on Esperance Bay on the south coast of Western Australia, south latitude 33 degrees 53 minutes, and east longitude 121 degrees 52 minutes. It has a population of about 300.

Port Boundary.

All that water within a radius of 10 miles from Western Entrance Point to Bandy Creek.

Depth of water at the anchorage, 4-5 fathoms.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the Harbour and Light Department and is controlled by the Chief Harbour Master, but the jetty is controlled by the Commissioner of Railways.

Pilotage.

Pilotage is compulsory, but a pilot is available at Esperance only during the wheat season. The pilot boards vessels in Esperance Bay.

Berthing Accommodation.

A pier extends off the shore in front of the township with a berthage of 330 feet on each side. The breadth of the jetty is 18 feet. There is no shed on the jetty, but the jetty is connected by rail with the railway goods shed and the State railway system.

Water is laid on to the jetty from the railway reservoir.

Principal Imports and Exports.

Imports are general cargo.

Exports—Wheat and wool.

SHIPPING.

Oversea Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	1	1,827
1926-27	1	2,686

Lines calling—Vessels under wheat charter, via Fremantle.

Interstate Shipping.

Year.	No. of Vessels.	Tonnage.
1926-27	1	440

Intra-state and Coastal.

Year.	No. of Vessels.	Tonnage.
1925-26	30	17,508
1926-27	30	32,132

Type of vessel—Motor ship.

ADMINISTRATATION UNDER THE QUARANTINE ACT.

Esperance was declared a first port of entry on 7th June, 1926, for vessels other than those from ports declared to be infected with yellow fever.

The Quarantine Officer is a local medical practitioner, who acts as Quarantine Officer in a part-time capacity.

Vessels are boarded at the anchorage outside the quarantine line, which is an imaginary line connecting Simpel Rock with Demster Head and Rossiter Head.

The Quarantine Officer receives advice from Masters of vessels by wireless through the agents of the expected arrival of vessels, and boards by means of a hired sailing vessel.

Fumigation is carried out by a temporary Quarantine Assistant, who inspects vessels and enforces berthing regulations.

A supply of sulphur and iron pots for carrying out fumigation is kept in a shed at the Residency.

Bills of health and fumigation certificates are signed by the Quarantine Officer.

Action under the Navigation Act.

The Quarantine Officer is appointed Medical Inspector of Seamen.

Inspections of vessels under the Navigation Act are not made at Esperance.

LOCAL HEALTH ORGANIZATION.

The local health authority is the local Health Board. The health staff consists of a Medical Officer of Health and a Health Inspector.

Isolation Accommodation for Infectious Diseases.

Nil. A hospital is being built.

Venereal Disease.

Treatment may be obtained from the Government Medical Officer.

Rat Control Measures.

No organized measures are taken to control rats.

SANITARY SERVICES.

Disposal of Excreta.

There is a weekly pan service. Night-soil is buried.

Garbage Disposal.

Refuse is conveyed to a sanitary depot.

Water Supply.

The town supply is derived from roof catchment, stored in tanks, and from underground wells.

GERALDTON.

Geraldton, on the west coast of Western Australia, in the southern corner of Champion Bay, south latitude 28 degrees 47 minutes and east longitude 114 degrees 37 minutes. It is the port of the Murchison goldfield and of a large sheep-raising and grain-growing district.

It is connected northwards by rail to Northampton and Ajana, eastward by rail to Mount Magnet and Sandstone, and southward to Dongarra and Perth. Population of the town is 2,400.

The port boundary extends from Point Moore on the South to such point on the sea beach on the north as may be cut by a line drawn from Point Moore to White Peak.

Rise and fall of tide 2 ft. 6 in.

Depth of anchorage 23 feet at low water.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the Harbour and Light Department and is controlled by the Chief Harbour Master, but the jetty is under the control of the Commissioner of Railways.

Pilotage.

Pilotage is compulsory. A permanent pilot is available at this port, and boards vessels by motor launch.

Berthing Accommodation.

There is a jetty with 2,100 feet of berthage on the north-east side and 2,250 feet on the north-west side. The breadth of the jetty is 47 ft. 6 in. Depth of water on north-east side 23 feet to 12 feet; on the north-west side 23 feet to 11 feet.

There are no sheds on the jetty, but there are sheds in the railway yard. Jetty and sheds are connected with the State railway system. Water is laid on to the jetty from the town water supply.

Principal Imports and Exports.

Imports—General cargo.

Exports—Wheat, wool and ore.

SHIPPING.

Oversea Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	23	66,686
1926-27	26	64,267

Lines calling are Adelaide Steamship Company, Melbourne Steamship Co., and State Shipping Service, call regularly.

Route.—Singapore via ports. Various British, Swedish and Norwegian vessels under charter call during the wheat season.

Interstate Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	Nil	Nil.
1926-27	5	9,386

Lines calling are Adelaide Steamship Company, Melbourne Steamship Company.

Intra-state and Coastal.

Year.	No. of Vessels.	Tonnage.
1925-26	48	90,738
1926-27	54	128,449.

Type of vessels are steamships and motorships.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Geraldton was proclaimed a First Port of Entry on 6th April, 1916, for vessels other than those from ports declared to be infected with yellow fever.

The anchorage is about one mile from the jetty.

The Quarantine Officer is a local medical practitioner who acts as Quarantine Officer in a part-time capacity.

The Quarantine Officer receives advice from agents and from the Divisional Officer of the arrival of vessels requiring inspection. A motor launch is hired for boarding purposes.

There is no permanent Quarantine Assistant at Geraldton.

Fumigation is carried out by the Health Inspector assisted by casual employees. A stock of iron pots and sulphur is kept on hand.

The Health Inspector sets traps on vessels and classifies any rats collected.

The Quarantine Officer signs bills of health and fumigation certificates and they are issued by the Sub-Collector of Customs.

Action under the Navigation Act.

The Quarantine Officer holds the appointment of Medical Inspector of Seamen.

Inspections of vessels under the Navigation Act are not carried out at Geraldton.

LOCAL HEALTH ORGANIZATION.

The local Health Authority is the Geraldton Municipal Council.

The health staff consists of a Medical Officer of Health and a Health Inspector.

Accommodation for Infectious Diseases.

There is one ward set apart at the Public Hospital for isolation of cases of infectious disease.

A motor ambulance is provided for the transport of sick persons.

Nursing Facilities.

In addition to the public hospital and private nurses there is a District Nursing Scheme.

Treatment of Venereal Disease.

Free treatment is provided at the Public Hospital.

Laboratory Facilities.

The nearest laboratory is at Perth.

Rat Control Measures.

Trapping and poisoning are carried out on wharfs, sheds, foreshores and warehouses, but no ratproofing is carried out.

Rats are examined for any sign of disease.

SANITARY SERVICES.

Disposal of Excreta.

There is a weekly double pan system. The night soil is buried in shallow trenches.

Drainage System.

Storm water and private waste water are drained by channels to the ocean.

Water Supply.

Upland surface water is collected in the reservoir and reticulated to the town. Rain water is collected in tanks from roof catchment.

CARNARVON.

Carnarvon is situated on the west coast of Western Australia at the mouth of the Gascoyne River on the southern side, south latitude 24 degrees 53 minutes, and east longitude 113 degrees 40 minutes. It is the chief town of the large pastoral district of Gascoyne, and has a population of 950.

The Port Limits are:—

A south-west line from Charles Point on the mainland to Cape Tonsard at the north end of Bernier Island, then by the western shores of Bernier and Doire Islands to Cape St. Cricq, then by a straight line to Cape Inscription at the north end of Dirk Hartog Island, and by its western shore to Surf Point; thence by a straight line to Steep Point on the mainland and from thence by the coastline to the starting place at Charles Point.

The rise and fall of tide is 5 ft. 6 in.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the Harbour and Light Department and is under the control of the Chief Harbour Master.

Pilotage.

No pilot is provided at the port.

Berthing Accommodation.

There is a wooden jetty with 560 feet of berthage on the north side and 560 feet on the south side. The jetty is 45 feet wide, and there is a depth of water of 17 ft. 6 in. at low water.

There is no shed on the jetty, but there is a steam tramway connecting the jetty with the goods shed $2\frac{1}{2}$ miles off. The jetty is not connected with the State railway system.

There is a water supply to the jetty from the town water supply with hydrants for the supply of vessels.

Principal Imports and Exports.

Imports are general cargo, piping and ironware for sheep stations. Exports are sheep, wool, and skins.

SHIPPING.

Oversea Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	29	56,494
1926-27	31	55,674

Lines calling are West Australian Steam Navigation Co., Ocean Steamship Co., State Shipping Service.

These vessels call regularly on the route to Singapore via ports.

Interstate Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	5	9,220
1926-27	4	8,250

Intra-state and Coastal.

Year.	No. of Vessels.	Tonnage.
1925-26	72	116,957
1926-27	72	135,477

Type of vessels.—Steamships and motorships.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Carnarvon was proclaimed a First Port of Entry on 16th March, 1922, for vessels other than those from ports declared to be infected with yellow fever.

The Quarantine Officer is a local medical practitioner who acts as Quarantine Officer in a part-time capacity.

There is no other Quarantine Staff at Carnarvon.

Notification of the arrival of vessels is received by wireless from the masters of vessels through the agents. Vessels are inspected after berthing at the jetty unless there is any suspected quarantinable disease when the vessel is inspected at the anchorage. A sailing boat or a ship's boat is used for transport.

Action under the Navigation Act.

The Quarantine Officer is appointed Medical Inspector of Seamen, and examines seamen referred to him.

Inspections of vessels under the Navigation Act are not made at Carnarvon.

LOCAL HEALTH ORGANIZATION.

The local Health Authority is the Carnarvon Local Board of Health. The Health Staff consists of a Medical Officer of Health and a Health Inspector.

Accommodation for infectious Disease.

There are two isolation wards for cases of infectious diseases at the General Hospital.

A motor car is used for transport.

Rat Control Measures.

Periodical raids are made on rats, but no rat-proofing measures are carried out.

There are no laboratory facilities at Carnarvon.

Treatment of Venereal Disease.

Free treatment is provided at the Government Hospital.

SANITARY SERVICES.

Disposal of Excreta.

There is a double pan service. The excreta is deposited in the sea and carried out by the tide.

Drainage System.

Nil.

Garbage Disposal.

Garbage is removed once a week and deposited at a depot and burned.

Water Supply.

The source of supply is from wells in the Gascoyne River sand. The water is pumped three miles to a water tower and thence is reticulated to the town.

WYNDHAM.

Wyndham is situated on Cambridge Gulf in the north of Western Australia, south latitude 15 degs. 33 mins., and east longitude 128 degs. 3 mins. It is the port for an extensive cattle district.

The Port Limits Are.

All that piece of water embracing that portion of Cambridge Gulf to the southward of a line from Islet Point to Hardman Point.

Depth of water at the anchorage at low water is 30 feet.

Rise and fall of tide. 25 feet.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the Harbour and Light Department, and is controlled by the Chief Harbour Master.

Pilotage.

Pilotage is compulsory, but the pilot is available during the meat season only. The pilot boards at Lacrosse Island, Cambridge Gulf, 60 miles from Wyndham.

Berthing Accommodation.

Town Jetty.—100 feet berthage west side. Breadth of jetty 31 feet. depth of water 29 feet at high water or spring tide.

Meat Works Jetty.— $1\frac{1}{4}$ miles from Wyndham, 300 feet berthage on the west side. Breadth of jetty 31 feet, depth of water 54 feet at high water.

There are no sheds on the jetty, but the town jetty is connected to sheds by hand traction, and the meat works jetty connected to sheds by steam traction. There is a water supply to the jetty for vessels.

Principal Imports and Exports.

Imports—General cargo.

Exports—Cattle, frozen meat, and meat products.

SHIPPING.

Overseas Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	4	12,335
1926-27	5	13,717

Lines calling—Commonwealth and Dominion Line, Portuguese Line, State Shipping Service. These are regular services.

Interstate.

Year.	No. of Vessels.	Tonnage.
1925-26	8	21,483
1926-27	9	25,451

Intra-state and Coastal.

Year.	No. of Vessels.	Tonnage.
1925-26	12	22,472
1926-27	10	22,337

ADMINISTRATION UNDER THE QUARANTINE ACT.

Wyndham was proclaimed a first port of entry on 10th July, 1907, for all vessels except those from ports declared to be infected with yellow fever.

The Quarantine Officer is a local medical practitioner, who acts as Quarantine Officer in a part-time capacity.

Notice of vessels requiring inspection is received from the masters of vessels by wireless direct or through the agents.

Vessels are boarded off Anthon's Landing Jetty by ship's boat or by meatwork's motor launch.

Fumigation is not carried out at Wyndham. There is no quarantine staff other than the Quarantine Officer.

Action under the Navigation Act.

The Quarantine Officer is appointed a Medical Inspector of Seamen. Inspections of vessels under the Navigation Act are not carried out at Wyndham.

LOCAL HEALTH ORGANIZATION.

The local Health Authority is the Wyndham Health Board. The health staff consists of the District Medical Officer and a Health Inspector.

Isolation Accommodation for Infectious Diseases.

There is a General Hospital, but there are no isolation wards, and no transport facilities for patients.

Treatment of Venereal Diseases.

Free treatment is provided at the hospital.

Rat Control Measures.

There are no organized measures for the destruction of rats.

SANITARY SERVICE.

Disposal of Excreta.

There is a pan system. The excreta is tipped into the Cambridge Gulf.

Garbage Disposal.

Garbage is collected and tipped into the Cambridge Gulf.

Drainage System.

A surface drainage system discharges into Cambridge Gulf.

Water Supply.

Water is reticulated to the town from the King River.

DERBY.

Derby is situated on the north-west coast of Western Australia, on King's Sound, south latitude 17 degs. 20 mins., and east longitude 123 degs. 40 mins. The population is about 80. Derby is the outlet for the pastoral and mineral produce of a large district.

The Port Limits Are.

All that piece of water embracing that portion of King's Sound lying southward and eastward of a line joining Saddle Hill and Valentine Island. The former lying north-east three-quarters east and the latter south-west three-quarters west.

Rise and fall of tide—Spring rise 34 feet.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the Harbour and Light Department, and is controlled by the Chief Harbour Master.

Pilotage.

No pilot is provided.

Berthing Accommodation.

There is a wooden jetty with 184 feet of berthage on the west side. The breadth of the jetty is 31 feet, depth of water is 30 feet at high water.

There is no shed on the jetty, but the jetty is connected with a shed by a horse tramway.

Water Supply to Vessels.

There is a tank at the shore end of the jetty, and a 3-inch main along the jetty. Water is available for vessels. The tank is filled from the bore water supply from the town.

Principal Imports and Exports.

Imports are general cargo.

Exports are, cattle, skins and hides.

SHIPPING.*Oversea Shipping.*

Year.	No. of Vessels.	Tonnage.
1925-26	23	42,986
1926-27	20	36,898

Lines calling are—West Australian Steam Navigation Company, Ocean Steamship Company (Blue Funnel Line), State Shipping Service.

There is a regular service to Singapore ports.

Interstate Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	6	11,064
1926-27	5	10,095

Intra-state and Coastal.

Year.	No. of Vessels.	Tonnage.
1925-26	45	84,396
1926-27	50	98,069

These vessels comprise motorships, steamships and cutters.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Derby was proclaimed a first port of call on 16th March, 1922, for vessels except those that have called at ports declared to be infected with yellow fever.

The Quarantine Officer is a local medical practitioner who acts as Quarantine Officer in a part-time capacity.

The only anchorage is fifteen miles out on account of very strong tides, so vessels are permitted to berth at the wharf, and inspection is carried out there. A policeman is on duty to prevent contact with the shore population until pratique has been given.

Agents notify the Quarantine Officer regarding the arrival of vessels.

Fumigation of vessels is not carried out.

LOCAL HEALTH ORGANIZATION.

The port health authority is the Derby Local Board of Health. The health staff consists of the Government Medical Officer of Health and the secretary to the Local Board of Health.

Accommodation for Infectious Diseases.

There is a Government hospital at Derby, but there is no isolation accommodation provided.

There are no laboratory facilities nearer than Perth.

Rat Control Measures.

There are no organized measures. The local Health Authority pays 6d. per head for all rats brought to it.

SANITARY SERVICES.

Disposal of Excreta.

There is a weekly pan service. Excreta is buried at a sanitary depot.

Disposal of Garbage.

Garbage is removed and tipped in the sanitary depot.

Water Supply.

Water is reticulated to the town from a well which is supplied by a bore 2,300 feet deep.

Treatment of Venereal Disease.

Free treatment for patients suffering from venereal disease is provided at the hospital.

BROOME.

Broome is situated in Roebuck Bay on the north-west coast of Western Australia, south latitude 17 degs. 58 mins., and east longitude 122 degs. 14 mins. The population of the port is 1,175. It is the head-quarters of the pearling fleet.

The port limits are:—

All that piece of water embraced within an east and west line drawn through Station Hill, a north and south line drawn through Fall Point; and east and west line drawn three miles south of Entrance Point; a north and south line three miles west of Entrance Point, and including the whole extent of Dampier Creek.

Depth of water at the anchorage at low water is six fathoms.

Rise and fall of tide—Spring rise 28 feet, neap 18 feet.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the Harbour and Light Department, and is controlled by the Chief Harbour Master.

Pilotage.

There is no pilot provided.

Berthing Accommodation.

There is a jetty with 340 feet of berthage on each side. The width of the jetty is 30 feet.

There is no shed provided on the jetty. There is a shed over two miles from the jetty, connected with the jetty by a steam tramway which runs around the town.

Artesian bore water from the town supply is reticulated to the jetty. There are hydrants at each berth for supplying vessels.

Principal Imports and Exports.

Imports are general cargo, consisting mostly of stores for pearling vessels.

Exports are pearl shell, pearls, hides, cattle and wool.

SHIPPING.

Oversea Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	23	41,230
1926-27	23	41,504

Lines calling are West Australian Steam Navigation Company, Ocean Steamship Company (Blue Funnel Line). Route, Singapore via ports.

Interstate Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	5	9,220
1926-27	6	12,375

Intra-state and Coastal.

Year.	No. of Vessels.	Tonnage.
1925-26	46	78,108
1926-27	52	94,756

Type of Vessels.—Motorship, steamship, ketches, pearling luggers.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Broome was proclaimed a first port of entry on 10th July, 1909, for all vessels except those from ports declared to be infected with yellow fever.

The Quarantine Officer is a local medical practitioner who acts as Quarantine Officer in a part-time capacity.

Owing to the large rise and fall of the tide, vessels are permitted to berth at the jetty before inspection. The police supervise to see that there is no contact with the shore population, until pratique has been granted.

The master or agents of vessels advise regarding the arrival of the vessels requiring inspection.

In addition to the Quarantine Officer there is a Quarantine Assistant at Broome.

The Quarantine Assistant inspects vessels to see that they comply with the berthing regulations and for signs of rat infestation. As vessels generally contain cargo when berthed at Broome, fumigation is not carried out. The only vessels fumigated at Broome are the pearling luggers, which are fumigated with cyanide.

There is a shed near the jetty where fumigation stores and equipment are stored, and where disinfection of clothing is effected by formaldehyde gas or cyanide.

The Quarantine Assistant sets traps and lays poison baits on the vessels found to be rat infested.

Ships' refuse is kept in covered bins while vessels are in port, and is dumped at sea.

The Quarantine Officer signs bills of health and fumigation certificates.

Action under the Navigation Act.

The Quarantine Officer holds the appointment of Medical Inspector of Seamen.

Inspection of vessels under the Navigation Act is not carried out in Broome.

Quarantine Station.

The Quarantine Station for this port is situated at Entrance Point four miles from Broome. Access to the station is available by road or water.

The buildings are of wood and iron.

Accommodation is provided for—

European passengers	..	..	..	12
Asiatic passengers	..	..	..	26

Hospital.

There is one ward with six beds for patients and an observation ward containing six beds with kitchen and room for cook attached.

Disinfection is effected in a specially constructed chamber by cyanide gas, sulphur dioxide or formaldehyde.

Disposal of excreta is effected by means of the earth pan system. The attendants' quarters are fitted with the Kaustine system.

Bathing Accommodation.

A bathroom is attached to the hospital ward and to the observation ward and three showers are provided in Asiatic quarters.

Lighting is by kerosene lamps.

Water System.

There is a bore water system worked by a windmill and reticulated to buildings, and rainwater tanks have a storage capacity of 23,000 gallons.

A residence is provided for the staff.

Vaccination.

The Quarantine Officer has a stock of 500 doses of calf lymph and a supply of cholera vaccine.

LOCAL HEALTH ORGANIZATION.

The local Health Authority is the Municipal Council. The health staff consists of the Medical Officer of Health and a Health Inspector.

Isolation Accommodation for Infectious Disease.

There is a Government Hospital, but there is no provision for isolation of infectious diseases.

Nursing Facilities.

There is a matron at the hospital and four nursing sisters at the convent.

Laboratory Facilities.

The nearest laboratory is at Perth, three days distant by aeroplane.

Rat Control Measures.

There are no organized measures for rat destruction.

SANITARY SERVICES.

Disposal of Excreta.

There is a weekly double pan system. Excreta is buried at a sanitary depot.

There is no drainage system.

Garbage Disposal.

Garbage is removed weekly to a depot and buried.

Water Supply.

Water is obtained from three artesian bores and reticulated to the town.

Rain water stored in tanks is generally used for drinking.

Treatment of Venereal Disease.

Free treatment is provided at the Government Hospital.

PORT HEDLAND.

Port Hedland is situated on the north-west coast of Western Australia, north latitude 20 degrees 25 minutes and east longitude 118 degrees 25 minutes. It is the port for Marble Bar.

Port Limits.

All that piece of water within a radius of five miles of Hunt Point at the entrance of Port Hedland.

Rise and fall of tide—Springs rise 19 feet and Neaps 12 feet.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the Harbour and Light Department and is under the control of the Chief Harbour Master. The jetty is under the control of the Commissioner of Railways.

Pilotage.

No pilot is provided. Vessels await suitable tides to cross the bar and anchor in the roads in three fathoms of water about three miles from the shore.

Berthing Accommodation.

There is a wooden jetty with 316 feet of berthage on the north-east side. Breadth of jetty is 25 feet.

There is no shed on the jetty but the jetty is connected by railway to Marble Bar 115 miles distant.

There is no water supply to the jetty.

Principal Imports and Exports.

Imports—General cargo and station requirements.

Exports—Sheep, wool, skins, cattle and ore.

SHIPPING.

Oversea Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	22	39,210
1926-27	23	41,504

Lines calling—West Australian Steamship Co., State Shipping Service. There are regular services to Singapore via ports.

Interstate Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	5	9,220
1926-27	6	12,375

Intra-state and Coastal.

Year.	No. of Vessels.	Tonnage.
1925-26	47	80,341
1926-27	59	88,112

These vessels are motorships, steamships and schooners.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Port Hedland is not a first port of entry.

The Quarantine Officer is a local medical practitioner who acts as Quarantine Officer in a part-time capacity.

Notification of vessels requiring inspection is received from the Sub-Collector of Customs.

Vessels are boarded about four miles from the harbour in a Harbour Trust boat.

Fumigation of vessels is not carried out. There is no Quarantine Staff other than the Quarantine Officer.

Action under the Navigation Act.

The Quarantine Officer is appointed a Medical Inspector of Seamen. Inspection of vessels under the Navigation Act is not carried out at Port Hedland.

LOCAL HEALTH ORGANIZATION.

The port Health Authority is the Port Hedland Road Board.

The health staff consists of a Medical Officer of Health and a Health Inspector.

Isolation Accommodation for Infectious Diseases.

Isolation accommodation is available at the local hospital. There is no provision for transport.

Treatment of Venereal Disease.

Free treatment is provided at the Government Hospital. There is also a Lock Hospital for treatment of aboriginals.

Rat Control Measures.

There are no organized measures for dealing with rat infestation.

SANITARY SERVICES.

Disposal of Excreta.

There is a weekly double pan service and the excreta is buried.

Garbage Disposal.

Garbage is removed and tipped at the garbage depot.

Water Supply.

The water supply is from brackish wells and is distributed by pipes.

COSSACK.

Cossack, situated on the western side of Butcher Inlet on Port Walcott on the north-west coast of Western Australia, south latitude 20 degrees 41 minutes and east longitude 117 degrees 12 minutes, is a small township one mile within Reader Head.

A good road connects Cossack with Roeburne $8\frac{1}{2}$ miles distant, for which Cossack is the seaport.

The port is bounded on the south and on the west by the sea coast westward from the mouth of the Sherlock River to the north end of Dolphin Island, including all the intermediate bays, creeks, coves, inlets, and navigable waters; on the north by lines extending easterly from the north end of Dolphin Island to the south end of Legendre Island, and thence to the north end of Delambre Island, and thence south-easterly to north end of the east boundary herein next described; and on the east by a straight line extending five statute miles true north from the seamount of Sherlock River aforesaid.

LOCAL PORT ADMINISTRATION.

Cossack is under the jurisdiction of the Harbour and Light Department and is controlled by the Chief Harbour Master.

Pilotage.

There is no pilot provided.

Berthing Accommodation.

Port Samson jetty was demolished by a cyclone in 1925 and has not been replaced. Vessels anchor in Cossack Roads where cargo is lightered to a small wharf in Cossack Creek.

Principal Imports and Exports.

Imports—General cargo.

Exports—Wool and skin.

SHIPPING.

Oversea Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	24	43,936
1926-27	22	39,770

Lines calling—West Australian Steam Navigation Co., Ocean Steamship Co., State Steamship Service. There is a regular service via Singapore.

Interstate Shipping.

Year.	No. of Vessels.	Tonnage.
1925-26	3	5,532
1926-27	4	8,687

Intra-state and Coastal.

Year.	No. of Vessels.	Tonnage.
1925-26	50	85,379
1926-27	57	106,977

Type of Vessel—Motorship and steamship.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Cossack is not a first port of entry.

The Quarantine Officer is a local medical practitioner who acts as Quarantine Officer in a part-time capacity.

Advice is received by wireless from the master of vessels through the agents of the expected arrival of vessels. The Quarantine Officer boards by means of a hired launch.

There is no Quarantine Staff at Cossack and fumigation is not undertaken at this port.

LOCAL HEALTH ORGANIZATION.

The local Health Authority is the Roeburne Health Board.

The staff consists of a Medical Officer of Health and a Health Inspector.

Isolation Accommodation for Infectious Diseases.

There is a general hospital at Roeburne, but there is no isolation accommodation provided.

There is a lazaret on an island off Cossack.

Treatment of Venereal Disease.

Free treatment for venereal disease may be obtained at the hospital.

SANITARY SERVICE.

Disposal of Excreta.

Night soil is buried in earth pits.

Disposal of Refuse.

Refuse is removed once a week to a sanitary depot.

Water Supply.

Water is obtained from a deep well and is reticulated to the town from pressure tanks.

ONSLow.

Onslow is situated on the north-west coast of Australia, south latitude 21 degs. 38 mins. and east longitude 115 degs. 6 mins. The population of the town and district is about 500.

The Port Limits are:

All that piece of water bounded by a line starting from Entrance Point, at the mouth of the Ashburton River, to the Ashburton Island; thence to Direction Island; thence in a south-easterly direction to Coolgra Point; and thence along the seashore to the point of commencement, but so as to include the navigable portion of all rivers and creeks flowing into that area.

Rise and fall of tide—Spring tides rise from 6 to 8 feet.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the Harbour and Light Department, and is controlled by the Harbour Master.

Pilotage.

No pilot is provided at this port.

Berthing Accommodation.

There is a concrete jetty with 417 feet of berthage, on both sides. The breadth of the jetty is 30 feet. There is a depth of water of 21 feet at low tide.

There is no shed on the jetty, but the jetty is connected with a goods shed by a 3-ft. 6-in. gauge motor railway. It is not connected with the State railway system. Water is not laid on to the jetty.

Principal Imports and Exports.

Imports are—General cargo and station requirements.

Exports are—Sheep, wool, skins, and ore.

SHIPPING.

Oversea Shipping.

Year.			No. of Vessels.			Tonnage.
1925-26	..	..	23	..	..	42,300
1926-27	..	..	25	..	..	47,822

Oversea Shipping.

Lines calling are—Australian Steam Navigation Company, Ocean Steamship Company (Blue Funnel line), State Shipping Service. There is a regular service with Singapore via ports.

Intra-state and Coastal.

Year.			No. of Vessels.			Tonnage.
1925-26	..	..	4	..	..	7,376
1926-27	..	..	5	..	..	10,094

Intra-state and Coastal.

Year.			No. of Vessels.			Tonnage.
1925-26	..	..	71	..	..	106,192
1926-27	..	..	58	..	..	105,742

The vessels are steamships, motorships, and schooners.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Onslow is not a first port of call.

The Quarantine Officer is a local medical practitioner who acts as Quarantine Officer in a part-time capacity.

There is no other Quarantine Staff at Onslow.

The Quarantine Officer inspects vessels on arrival at the jetty. There is no launch available, and should an inspection be made at the anchorage the ship's boats are used for transport.

Fumigation is not carried out at Onslow.

Poison is laid for rats, but rats are few or non-existent.

LOCAL HEALTH ORGANIZATION.

The local health authority is the Onslow Local Board of Health. The health staff consists of a Medical Officer of Health and a Health Inspector.

Accommodation for Infectious Diseases.

There is a general hospital, but no provision for the isolation of cases of infectious diseases.

Treatment of Venereal Disease.

Free treatment for persons suffering from venereal disease is provided by the medical practitioner.

SANITARY SERVICE.

Disposal of Excreta.

There is a weekly double-pan system. Excreta is buried at a sanitary depot.

Garbage is collected every week and conveyed to a tip.

Water Supply.

Water is obtained by drainage from the sand hills and is reticulated to the town.

SOUTH AUSTRALIAN PORTS.

Port Adelaide.
 Port Pirie.
 Wallaroo.
 Port Lincoln.
 Cape Thevenard.

PORT ADELAIDE.

Port Adelaide is situated on St. Vincent Gulf in South Australia, south latitude 34 degs. 55 mins., and east longitude 155 degs. 35 mins. It is the chief port of South Australia, with a population of 34,000, being 8 miles from Adelaide, the capital of the State.

The port boundaries are the beds and shores to high-water mark of all the waters, creeks and inlets embraced within the Hundred of Port Adelaide and over one nautical league to seaward, measured from low-water mark on any part of the shoals or sandbanks at the entrance to these creeks, waters or inlets always excepting such lands as have already been alienated by the Crown.

Depth of water at wharfs from 15 to 27 feet; at anchorage 24 to 30 feet.

Rise and fall of tides—Springs, 8 ft. 6 in.; neaps, 5 feet.

LOCAL PORT ACCOMMODATION.

Local port administration is under the South Australian Harbours Board. The officers representing the Board at Port Adelaide are the Port Superintendent and the Harbour Master.

Pilotage is compulsory; the pilot boards at the Semaphore Anchorage.

Berthing Accommodation.

There is one wharf at the Outer Harbour with 2,400 feet berthing space with a depth of 32-35 feet at low water, spring tide.

There are 28 wharfs in the inner harbour with a length of 22,131 feet with 15-27 feet depth of water.

There are goods sheds on wharfs, which are provided with railway lines.

Water is laid on to all the wharfs from the Millbrook Reservoir.

Principal Imports and Exports.

Imports—Coal, timber, motor spirit, iron and steel.

Exports—Wheat, motor bodies, wine and wool.

SHIPPING.

Year.		No. of Vessels.		Tonnage.
1924-25	..	712	..	3,733,557
1925-26	..	681	..	3,054,129
1926-27	..	751	..	3,579,123
1927-28	..	659	..	3,443,204

The principal lines are the Orient, Peninsular and Oriental, Blue Funnel, Commonwealth and Dominion Line, British India, White Star, Peninsular and Oriental Branch Service.

The Orient and Peninsular and Oriental boats maintain a fortnightly service, the Peninsular and Oriental Branch Service and Blue Funnel about three-weekly service.

Interstate.

Year.	No. of Vessels.	Tonnage.
1924-25	452 ..	897,764
1925-26	462 ..	806,441
1926-27	543 ..	1,007,968
1927-28	519 ..	893,802

Weekly service with other States.

Coastal.

Year.	No. of Vessels.	Tonnage.
1924-25	2,496 ..	303,834
1925-26	2,302 ..	251,797
1926-27	2,490 ..	290,573
1927-28	2,362 ..	328,146

Steamships and ketches to different ports in the State.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Port Adelaide is a first port of entry for all classes of overseas vessels, gazetted 29th August, 1914; and for vessels from ports infected with Yellow Fever, 28th May, 1915.

No quarantine line has been proclaimed.

Mooring ground is at the Semaphore Anchorage and defined by proclamation 15th August, 1918, as under:—

“All that area in the port of Adelaide based on the following four positions:—

- (a) Wonga Shoal Light;
- (b) Wonga Shoal Light, bearing 180 degrees $7\frac{1}{2}$ cables;
- (c) Wonga Shoal Light, bearing 118 degrees 17 cables;
- (d) Wonga Shoal Light, bearing 90 degrees 15 cables;

and comprised within the following limits:—

The eastern limit is a straight imaginary line joining (a) and (b).

The northern limit is a straight imaginary line joining (b) and (c).

The western limit is a straight imaginary line joining (c) and (d).

The southern limit is a straight imaginary line joining (d) and (a).”

There has been a permanent whole time quarantine officer stationed at Port Adelaide since 1919, under the supervision of the Chief Quarantine Officer (General), who is in control of the Division of South Australia with an office in Adelaide.

The Quarantine Officer is assisted by a private practitioner and his partner, who are Deputy Quarantine Officers, and relieve the Quarantine Officer when necessary. He has an office in Port Adelaide, with a typiste, and a shore quarantine assistant, to attend to details of fumigation and deratization measures on vessels.

The Quarantine Officer is responsible for all marine hygiene work in the port under the Quarantine Act, Navigation Act (including examination of vessels and seamen), Immigration Act and Merchant Shipping Act. He also examines for Invalid Pensions. He is in charge of the Departmental steam launch (with a crew of four) and the Quarantine Station at Torrens Island, with a staff of five.

Seamen with Venereal Disease, if they cannot be isolated and treated on board, are by arrangement treated free at the Night Clinic at the Adelaide Hospital, or if unfit for travel, are lodged in hospital on the Quarantine Station, and treated free there.

Boarding Facilities.

Advice is received at the Divisional Office from other Divisions of the prospective arrival of overseas vessels requiring inspection, and is forwarded to the Quarantine Officer. Agents also advise him, and by Regulation 58 wireless advice, either direct or through agents, is now received. Final advice of the vessel when sighted comes from the Signal Station at the Semaphore.

The vessel is boarded at the mooring ground at the Semaphore Anchorage.

Boarding is usually carried out by the Harbours Board launch, which berths at the Semaphore Jetty and conveys, in addition, the Pilots and Customs Officers to vessels. In emergencies the Quarantine Officer can also use the Departmental Steam Launch.

Average annual inspections for past five years:—

Primary	..	..	113
Secondary	..	..	56

Quarantine Staff in the Port.

The whole time Quarantine Assistant carries out sanitary inspection (including extent of rat infestation) of each vessel on arrival, and forwards a report on prescribed form to Quarantine Officer. This is followed up by daily routine inspection of all vessels in port. Any breaches of Quarantine Regulations are at once reported to the Quarantine Officer.

Masters of vessels are forbidden by regulation to throw refuse into waters of port, or to remove it from the vessel except to an authorized person for destruction. So far no person has been thus authorized.

Fumigation of Vessels.

The Fumigation Staff at Port Adelaide consists of the whole time Quarantine Assistant, Coxswain, Engine-driver, Deckhand, and Launch Boy, who comprise the crew of the Departmental launch.

The equipment consists of double pots for burning sulphur, sprays for use with disinfectants, vessels for carrying out cyanide or permanganate formalin fumigation, and stocks of sulphur, sulphuric acid, potassium cyanide, formalin, potassium permanganate, and cyllin.

These stores and equipment are stored in a shed on the jetty at the Quarantine Station. The Departmental launch is used in transport of equipment to vessels, everything being done by the crew of the launch, who also assist or relieve the shore Quarantine Assistant in fumigation as required. One officer is responsible for each actual fumigation, general activities of the staff being supervised by the Quarantine Officer, who issues the Fumigation Order, signs the fumigation certificate, and himself is present at a fixed number of fumigations annually.

The determination of whether a vessel should be fumigated depends on—

- (1) In Australian vessels, the expiration of a prescribed period, varying with class of trade and state of vessel;
- (2) In overseas vessels on—
 - (a) possession of recent certificate of fumigation or of exemption certificate;
 - (b) report of sanitary inspection;
 - (c) reports of results of trapping in other Australian ports and this port.

The determination is made by the Chief Quarantine Officer on these reports.

Average number of fumigations per annum for past five years, 125.

Trapping and Poisoning.

The staff is the same as for fumigation.

All rats destroyed by fumigation or trapping are collected and counted by fumigation staff; then classified and examined by the Quarantine Officer. Bacteriological examination is conducted, if necessary, at Adelaide Hospital Laboratory.

Reports of inspection of vessels and rat classification are forwarded to the Chief Quarantine Officer through the Quarantine Officer.

Fumigation orders, certificates of fumigation and bills of health are issued and signed by the Quarantine Officer.

Disinfection of personal effects is carried out by the Quarantine staff, in isolated cases, according to directions of the Quarantine Officer; on a larger scale, if required, by staff at the Quarantine Station with equipment as described.

Quarantine Station.

The Quarantine Station is situated on Torrens Island in the Port River, about half way from the Port Adelaide wharfs to the Outer Harbour. A block, about 260 acres in area, running across the centre of the Island, on which were the State Quarantine buildings, was handed over by the State to the Commonwealth in 1911. At each end of the block there is a buffer zone separating the Station from the north and south ends of the Island, which are State property.

The site of the Station is a flat, partly sand and partly clay soil, only a few feet above high water level. It is protected from inundation at high spring tides in winter by an embankment, running round the south and western boundary, strengthened on the west by sheet piling.

The Station is reached by the Departmental launch service—about half an hour's trip from the Port Adelaide wharfs or the Outer Harbour. The southern quarter of the area is laid out as an Animal Quarantine Station, with separate jetty and approach from the main Station.

Layout.

The general layout consists of four areas separated from one another by fences and belts of trees.

- (1) An Isolation compound on the northern side of the area, surrounded by a high galvanized iron fence and outside this is a belt of trees. In this compound is a hospital building with two wards of four beds each, nurses' quarters, kitchen and servery, and change block; also two self-contained cottages for observation of suspicious cases, so arranged as to form an area intermediate between the outer camp and the isolation hospital.
- (2) South of this is the contact camp—four rows of modern cottages, a dormitory block and dining room and kitchen and a recreation room and grounds.
- (3) South of this again, separated by another belt of trees, is the isolation hospital for seamen; used in the past for treatment of venereal cases; reached by a separate road and path from the landing jetty, and self-contained.
- (4) Between the contact camp and the landing jetty are the administrative buildings—waiting room, laundry, boiler house, disinfecting block, bathing block, bulk store, and linen store and doctor's residence and office. In this area are the four attendants' cottages, so arranged that each attendant may control part of the Station.

Landing Facilities.

A strongly built jarrah jetty runs from the foreshore, terminating in a ramp in 10 feet of water at low tide. On the ramp is a crane, by which stretcher cases can be landed from the Departmental launch. A tramline for light hand-pushed trucks runs from the end of the jetty, branching at the shore end into three lines, one running direct to the Isolation Hospital, one to the boiler house and disinfecting block, and one through to the contact camp.

Permanent Staff.

- (1) Medical Officer.—The Quarantine Officer at Port Adelaide, non-resident on the Station except in active quarantine.
- (2) Foreman-Assistant.—In charge of stores, buildings and discipline.
- (3) Engine Driver.—Responsible for steam plant, sewerage plant, and all machinery.
- (4) and (5) Two Quarantine Assistants.—One in special charge of certain buildings and grounds, the other responsible for the venereal hospital, and in quiescent times for certain other buildings.

There is also a separate Quarantine Assistant in charge of the Animal Quarantine Station, who for disciplinary purposes is under the Foreman-Assistant.

Accommodation.

The Contact Camp accommodates normally 224. Lavatory and sanitary accommodation is so adequate that in epidemics up to 500 have been accommodated by extra tents.

The cottages in this area are constructed of wood, the dormitory of galvanized iron, lined with wood, and with cubicles lined with asbestos sheeting, the recreation room of galvanized iron and wood. All are supported on wooden blocks with protection against white ants.

Contact Accommodation.

- 1st Class—56 in dormitory.
- 2nd Class—48 in 8 cottages.
- 3rd Class—120 in 15 cottages.

Isolation.

The Isolation Hospital is constructed of asbestos sheeting with wooden verandahs, and painted galvanized iron roof. There is accommodation for four male and four female patients; by tents in Isolation Compound this has been increased in emergency to 50. Nurses' Quarters for four nurses, and kitchen adjoining, are of galvanized iron, with wooden covered ways and with fireplaces and chimneys.

Observation.

Two wooden cottages, with bath and lavatory, provide accommodation each for two patients. The Isolation Hospital for Seamen to the south of contact camp could in emergency be used for another isolation block—accommodation for eighteen patients, four female patients in separate ward. In this case the separate building normally used as treatment block and office could be converted into Nurses' Quarters.

Laboratory Accommodation.

There is a small laboratory in the Isolation Hospital for Seamen. Any advanced laboratory work for the Station is done at the South Australian Government Laboratory in Adelaide (10 miles distant). Rabbits and guinea pigs are bred in two separate enclosures, both for use in Paul's Test and to supplement other laboratories.

Morgue.

The morgue is situated in a corner of the Isolation Compound, with separate entrance from outside. It is fitted with usual table.

Cremation.

There is no crematorium. The cemetery is situated to the north of the Isolation Compound, shut off from the rest of the Station.

Disinfection Equipment.

- (1) The double size steam disinfector of the standard type of the Australian Quarantine Service (*See Quarantine Service Publication, No. 16, pages 132-136*) is situated in a large galvanized iron building about 30 yards from the shore end of the jetty, adjacent to one end of the building. The steam disinfector is fitted with an additional formalin attachment for formalin disinfection and a hydrocyanic acid attachment.
- (2) A portable disinfector for disinfecting by the formalin and potassium permanganate method.
- (3) A larger fixed chamber, 12 feet x 9 feet x 7 ft. 6 in. inside measurement, for disinfection by the same method, is in process of erection.
- (4) A chamber for disinfection of bristles by boiling is also in course of erection.
- (5) Usual sprays for surface disinfection, special letter disinfector, &c.
- (6) Linen store, &c., are capable of being hermetically sealed so that contents can be disinfected with hydrocyanic acid gas.

Bathing Accommodation.

There is an abundant supply of plunge and shower baths with hot and cold water attachments in contact cottages, dormitory, and isolation hospitals. In addition there is a special bathing block for bathing and disinfection of contact passengers before entering the contact camp, as described in Quarantine Service Publication 16, pages 137-138. This is a jarrah structure on the main drive, containing ten plunge baths and a separate system of ten shower baths for Indians—arranged on standard plan described in Quarantine Service Publication No. 16.

Laundry Equipment.

A fully equipped steam laundry in a galvanized iron structure with cement floor and wooden gratings, consisting of three compartments opening into one another—

- (1) Containing mixing trough, washing machine and hydro-extractor. These are run by a small auxiliary single cylinder steam engine fed with steam from boiler house. Along one wall of this compartment are placed wash troughs for small washes.
- (2) A hot air drying room fitted with steam coils.
- (3) A steam mangle and four electric irons.

Attached to venereal hospital is a separate small laundry for hand washing, with fixed tubs, hand wringer, and mangle.

Water Supply.

The roofs of all cottages, dormitory block, recreation room and most of the administration buildings are connected by overhead galvanized iron pipes with four large underground cement lined brick tanks, from which the rain water thus gathered is raised to overhead tanks by a windmill to each tank. One windmill is fitted with an auxiliary petrol motor engine for use in calm weather.

Each attendant's cottage has its own galvanized iron 1,000 gallon rain water tank. The rain water supply is used exclusively during the winter months.

The rain water supply is supplemented by a 4-inch cast-iron main from the Adelaide water supply brought under the North Arm to the Quarantine Station. This is turned on during the summer months and in times of active quarantine. Arrangements exist by which the water from this main can be turned into the underground rain water tanks, which are thus kept full from the main during the summer, as a reserve supply sufficient for ten days' active quarantine in case of temporary damage to the main beneath the North Arm.

Fire Services.

At appropriate places throughout the Station are 35 emergency Simplex Fire Extinguishers, contained in boxes painted red, with red distinguishing signs and numbers. Adjacent to each extinguisher is an electrical fire alarm, which is set in action on the removal of the extinguisher, and operates three sirens at different points on the Station.

There is an independent circuit of 3-inch water pipes supplied from the main for fire fighting purposes, with twelve stand pipes and hose boxes adjacent. The fire reel is kept adjacent to the central siren, which is the rallying point for the staff in case of fire alarm. The indicator here marks the site of the outbreak. The staff goes through systematic fire drill once a fortnight.

Lighting System.

A Gardner petrol and kerosene engine of 20 horse power, situated in a room adjacent to the boiler house, drives a dynamo, which supplies electric light during active quarantine to all station buildings except the attendants' cottages and temporary attendants' quarters. For these kerosene lamps or candles are used, as is the case with the rest of the station during quiescent periods.

Telephone.

A switchboard is situated in the main office in the Administration Block with telephone attachments to eight parts of the Station. There is a direct line from the switchboard to the south end of Torrens Island, thence by cable under North Arm, thence to Port Adelaide Office, where it can be linked up with Central Exchange.

Sewerage and Drainage.

All buildings contain or are in close proximity to water flushed closets, with underground sewers running to an underground cement lined tank at a central pumping station, thence by means of a petrol

and kerosene engine the contents are conveyed to a sedimentation tank to the north of the Station with an effluent into the Port River. During quiescent periods the underground tank is pumped out two to three times a week; during active quarantine daily.

Provision in Port for Vaccination.

The Quarantine Officer vaccinates regularly all members of staff and families, also stevedores likely to be called upon for lightering cargo.

Stocks of Calf Lymph.

None are kept on the Station, but can be procured at one hour's notice from the Divisional Office in Adelaide, where 50 tubes of calf lymph are always in stock in kelinator. These are renewed every three months from the Commonwealth Serum Laboratories, Melbourne, and can be supplemented from the same source in 24 hours.

Action under the Navigation Act.

Medical Inspection of Seamen.

The Quarantine Officer is the Medical Inspector, and examines seamen referred to him by the Superintendent, Mercantile Marine (Navigation Department).

Average number of seamen inspected annually for the last five years, 191.

Medical Inspection of Shipping.

The Quarantine Officer also performs this duty.

Average number of vessels inspected under the Navigation Act during the last five years, sixteen.

LOCAL HEALTH ORGANIZATION.

The Port health authority is the Local Board of Health constituted under the State Health Act. The Metropolitan County Board of Food and Drugs, with its office in Adelaide, controls premises and conditions connected with food by means of its inspectors.

The health staff of the Local Board of Health consists of a part-time medical officer of health, a health inspector, and a trained nurse inspector. The medical officer of health is a local medical practitioner appointed by the Local Board with the approval of the Central Board and is also a Deputy Medical Officer of the Metropolitan County Board. The Local Board of Health deals with the sanitation of the port and with any epidemic or infectious disease among the port population. Both the Local Board and Commonwealth Health Department have agreements with the Adelaide Hospital, by which isolation accommodation is provided at the Infectious Diseases Block at the Adelaide Hospital. These cases, whether from the port or from vessels in the port, are transported by public motor ambulances, which are fumigated after use. Quarantinable cases are isolated at the Quarantine Station and transported by the departmental launch.

Venereal cases are treated by private practitioners or at the free night clinic at the Adelaide Hospital.

Laboratory facilities are provided by the South Australian Government Laboratory at the Adelaide Hospital.

The Medical Officer of Health and all private practitioners in the port are public vaccinators, and could, in emergency, vaccinate large numbers of the population in a few days. Supplies of calf lymph are obtainable from the depots at the Commonwealth Divisional Office in Adelaide.

Organization, Staff, and Equipment for Dealing with Rats.

Local health authorities only concern themselves with rat extermination on wharfs and premises in the port; that on vessels (including barges, &c.) being the responsibility of the Commonwealth. The majority of the wharfs are old, and afford harborage for rats, but the Harbours Board have promised to make all new wharfs rat proof. They employ a man to carry out rat extermination on wharfs, chiefly by baits. No record is kept of the number of rats destroyed.

The Local Board of Health conjointly with the Metropolitan County Board employ a rat catcher on foreshores, wharf sheds, docks, &c. They supply wharf sheds with traps and poison baits free, and compel warehouses to have cemented cellars and wire-netted ventilators.

Rats are not classified. The rat catcher reports to the Local Board of Health the number of rats caught; any suspicious carcasses are examined at the laboratory at the Adelaide Hospital.

SANITARY SERVICES.

Mean of Disposal of Excreta.—This is effected almost entirely by a water sewerage system—a few remaining cesspools and pans are attended to by the Board of Health.

Drainage.

There is a surface drainage system with outlets into the river and harbour.

Garbage Disposal.

Garbage bins are emptied twice weekly and the contents are deposited in tips.

Water Supply.

The water supply is from the main Adelaide supply from the Millbrook Reservoir. The water is reticulated throughout the port and to the wharfs. Stand-pipes are provided at intervals for supplying vessels with water.

PORT PIRIE.

Port Pirie is situated in South Australia, near the head of Spencer Gulf, south latitude 33 degs. 11 mins. and east longitude 138 degs. 2 mins. It has a population of from 10,000 to 15,000. It was originally founded as the port from which the product of the Broken Hill mines should be exported, a narrow-gauge line being built from Port Pirie to Broken Hill. The Broken Hill smelters have been constructed in the town. The export trade in wheat has grown in recent years. Port Pirie ranks as the fifth port in Australia from the point of view of value of trade.

The port limits are: the beds and shores of all the rivers, creeks, and inlets to high-water mark in Germein Bay, Spencer Gulf within the following limits, viz., from the westerly extreme of Ward's Point on a line of south-west by west half west to the black beacon on the west end of Ward's Spit; thence on a south-east line to a point of land covered with mangroves and adjacent to Port Pirie; thence following the contour of the land and creeks to a point of land bearing north three-quarters east from the highest point of Mount Ferguson and about 2 miles distant; thence on a line west half north to the red beacon marking the north side of Cockle Spit; thence on a line north half east to the starting point of Ward's Point. Bearings magnetic.

Rise and Fall of Tides.—Spring tides, 9 ft. 6 in.; neap tides, 5 ft. 6 in.

LOCAL PORT ADMINISTRATION.

Port Pirie is under the jurisdiction of the South Australian Harbours Board, whose local representative is the harbour master.

Pilotage.

Pilotage is compulsory. The boundary of a pilot cruising station and southern limit of compulsory pilotage is a line drawn from Jarrold Point to Hummock Hill in all weathers.

Berthing Accommodation.

There are eight wharfs with a berthage of 6,273 feet and a depth of 17 to 20 feet of water at low-water spring tides. There is one goods shed on the wharfs, and railway lines connected with the State railway system.

The wharfs are constructed of timber with a vertical facing on the water front, filled in behind to the level of the wharf decking. Rats are prevalent on the wharfs.

Water Supply to Wharfs and Shipping.

Water is laid on to the wharfs from the town water supply, the source of which is the Beetaloo and Baroota Reservoirs. Hydrants at intervals supply water to vessels through rubber hose connexions.

Principal Imports and Exports.

Imports—Coal, coke, and timber.

Exports—Loose ores, lead, and wheat.

SHIPPING.

Oversea Shipping.

Year.	No. of Vessels.	Tonnage.
1924-25	117	415,537
1925-26	125	480,994
1926-27	92	351,163
1927-28	117	448,641

There are no regular sailings, most vessels calling are on charter. Very few passengers are carried.

Interstate Shipping.

Year.	No. of Vessels.	Tonnage.
1924-25	106	218,566
1925-26	95	185,398
1926-27	120	247,895
1927-28	108	209,762

Coastal Shipping.

Year.	No. of Vessels.	Tonnage.
1924-25	411 ..	95,574
1925-26	406 ..	80,399
1926-27	417 ..	85,443
1927-28	391 ..	89,413

The interstate lines of vessels are Australian steamship companies, mainly bringing coal and coke.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Port Pirie was proclaimed a first port of entry on 10th July, 1909, for all vessels except those from ports declared to be infected with yellow fever.

The Quarantine Officer is a local medical practitioner who acts as quarantine officer in a part-time capacity. The medical officer in charge of the Commonwealth Laboratory acts as assistant quarantine officer.

Boarding Arrangements.

As Port Pirie lies some distance up the river and the boarding station is in the roadstead several miles away, arrangements have been introduced by which the pilots interrogate the masters of vessels and inspect the vessels' health reports. If any suspicious circumstances are discovered they detain the vessel there; otherwise the vessel is brought up the river, but is not allowed to tie up at the wharf until boarded by the Quarantine Officer.

The Quarantine Officer is conveyed to the boarding station in a steam tug or launch when the inspection has to be made there.

The quarantine boarding station is any place (within) to eastward of a line drawn between the second black buoy from seaward in Ward Spit and the black buoy marking the channel on the south side of Cockle Spit and thence eastward to No. 1 light at the entrance of the Port Pirie channel.

Fumigation of vessels is carried out by a part-time employee who is under the supervision of the technical assistant at the Commonwealth Laboratory. Sulphur and double iron pans for fumigation are stored in a shed at the Commonwealth Laboratory, also formalin and potassium permanganate.

The Quarantine Officer exercises a general supervision over the vessels regarding the provision of rat guards.

Fumigation certificates and bills of health are signed by the Quarantine Officer.

Venereal Disease.

By arrangement with the Hospital Board, venereal cases from vessels, which cannot be isolated on board, are admitted to the local hospital on the order of the Quarantine Officer.

Action under the Navigation Act.

The Medical Officer in charge of the Laboratory has been appointed a Medical Inspector of Seamen, and examines seamen referred to him by the Marine Superintendent.

Inspections of vessels under the Navigation Act are not carried out in Port Pirie.

LOCAL HEALTH ADMINISTRATION.

The health authority is the local Board of Health. The health staff consists of a part-time Medical Officer of Health, an inspector, and the secretary of the local Board.

Epidemic or infectious diseases are under the control of the local Board of Health.

Isolation for cases of infectious diseases is provided in an isolation ward at the public hospital. Transport for infectious cases is provided by motor ambulance. Nursing facilities are provided by the hospital staff.

Laboratory facilities are provided by the Commonwealth Laboratory.

Rat Control Measures.

No measures are taken to effect deratization, and rats are stated to be numerous on wharfs and in certain portions of the port.

SANITARY SERVICES.

Means of Disposal of Excreta.

There is a double-pan service. Excreta is buried at a sanitary depot.

Drainage.

Underground earthenware pipes are provided for the central portion of the town, and discharge into the river.

Garbage Removal.

There is a weekly service for removal of garbage, which is conveyed to a depot and burned.

Water Supply.

Water is reticulated from the Beetaloo, Baroota, and Bundaleer Reservoirs to the port.

WALLAROO.

Wallaroo is the chief harbour for lower Yorke Peninsula, situated half-way down the east coast of Spencer Gulf, south latitude 33 degs. 55 mins. and east longitude 137 degs. 38 mins. It is the third port in the State with a population of 4,000.

It was originally formed as a port for the Moonta and Wallaroo copper mines, which are a few miles distant. As the harbour facilities were improved the wheat from Yorke Peninsula and adjoining districts was diverted to it. Since the closure of the copper mines exports have been almost wholly agricultural. A certain number of boats call with phosphate from Nauru for the Mount Lyell Superphosphate Works, which are situated in Wallaroo.

The harbour is practically an open bay, with a depth of water of $4\frac{1}{2}$ fathoms at the entrance to the bay, and $5\frac{1}{2}$ fathoms at the anchorage, situated about $\frac{3}{4}$ mile north-west of the new jetty. From the foreshore two jetties project into the bay, of which the northern one, completed in 1927, is only used for shipping now.

The port limits are: The beds and shores to high-water mark of all the waters, creeks and inlets to high-water mark comprised within a line drawn from Riley Point south to Point Hughes.

Rise and fall of tides—Spring tides, 4 ft. 9 in.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the South Australian Harbours Board, whose local representative is the Harbour Master.

Pilotage.

Pilotage is compulsory; the pilot boards within 1 mile of the outer end of the jetty in all weathers.

Berthing Accommodation.

The jetty is about a mile long with the further end set at an angle. The jetty has a berthage of 2,800 feet, the depth of water is 28 feet at low-water spring tides. There are no goods sheds on the jetty, goods are landed direct into railway vehicles. A railway to the jetty is connected with the State railway system. Water is laid on to the jetty from the port supply derived from the Warren Water scheme. There are hydrants for supplying vessels.

Principal Imports and Exports.

Imports—Coal, coke, and phosphate rock.

Exports—Wheat, salt, and superphosphates.

SHIPPING.

Oversea Shipping.

Year.	No. of Vessels.		Tonnage.
1924-25	59	..	188,571
1925-26	54	..	172,181
1926-27	60	..	185,333
1927-28	60	..	204,917

There are no regular sailings; vessels are usually on charter.

Interstate Shipping.

Year.	No. of Vessels.		Tonnage.
1924-25	31	..	56,753
1925-26	34	..	49,704
1926-27	46	..	64,181
1927-28	29	..	42,610

Coastal Shipping.

Year.	No. of Vessels.		Tonnage.
1924-25	393	..	88,852
1925-26	330	..	79,514
1926-27	381	..	84,252
1927-28	324	..	56,374

The coastal shipping consists of small steamers and ketches.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Wallaroo was declared a first port of entry on 10th July, 1909, except for vessels from ports declared to be infected with yellow fever.

The Quarantine Officer is a local medical practitioner who acts in a part-time capacity. There is in addition another local practitioner who acts as Assistant Quarantine Officer.

Boarding Arrangements.

The Harbour Master's launch is used for boarding. The Quarantine Officer boards three-quarters of a mile out from the jetty where there is good anchorage.

The Quarantine Officer receives advice from the Divisional Office in Adelaide regarding the vessels requiring inspection. The Harbour Master informs the Quarantine Officer when a vessel requiring pratique arrives. Vessels are now required by Regulation 58 to send advice of their probable time of arrival.

Fumigation is carried out under the supervision of the Harbour Master. The fumigation store is now at the shore end of the new jetty. Sulphur and double iron pans for carrying out fumigation by S.O.₂ are stored there, also formalin and potassium permanganate for disinfection purposes.

The Quarantine Officer signs the fumigation certificates and bills of health.

Any suspicious looking rats are forwarded to the Divisional Office for examination.

The Quarantine Officer draws the notice of masters to breaches of the berthing regulations regarding rat guards, &c.

Action under the Navigation Act.

The Quarantine Officer is appointed Medical Inspector of Seamen and examines cases referred to him by the Superintendent of Mercantile Marine. The Harbour Master is the Superintendent of Mercantile Marine.

Inspections of vessels under the Navigation Act are not made at Wallaroo.

LOCAL HEALTH ORGANIZATION.

The health authority is the local Board of Health. The health staff consists of a Medical Officer of Health and a health inspector. The Board of Health is the organization for dealing with epidemic or infectious disease at the port.

Isolation Accommodation for Infectious Diseases is provided at the local Government Hospital. Transport for infected cases is provided by a horse and a hand ambulance.

Laboratory Facilities are not available in the port. The nearest laboratories are those at Port Pirie and Adelaide.

Vaccination.

Calf lymph could be obtained at short notice from Adelaide.

Venereal Disease.

There is no special venereal clinic. Cases on vessels are isolated on board or are admitted from vessels to the Government Hospital on the order of the Quarantine Officer.

Rat-control Measures.

There are no organized measures for the destruction or examination of rats.

SANITARY SERVICES.

Means of Disposal of Excreta.

Pits which are cleaned out when necessary are in general use, and there are some septic tanks. There is no drainage system.

Garbage Disposal.

Garbage is removed by the scavenger and buried.

Water Supply.

The main supply is by reticulation from the Warren, Bundaleer and Beetaloo reservoirs.

PORT LINCOLN.

Port Lincoln is a landlocked harbour on the west side of Spencer's Gulf at the southern portion of Eyre's Peninsula, south latitude 34 degrees 43 minutes, and east longitude 135 degrees 52 minutes. It is the main port in Eyre's Peninsula.

The port limits comprise the bed and shores of all the waters, creeks and inlets of Port Lincoln to high water mark as embraced within a straight line drawn between Cape Donnington and Point Boston, and over one nautical league to seaward measured from any point on the line.

Rise and fall of tides.—Springs, 6 feet; neaps, 4 feet.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the South Australian Harbours Board, which is represented by the Harbour Master.

Pilotage is Compulsory.

The Harbour Master is the pilot for the port; the pilot boards at a point 1 mile north-west of Cape Donnington, in all weathers.

Berthing Accommodation.

There are two jetties—New Pier, 795 feet berthage, with a depth of water from 23 to 28 feet at low water spring tides, and Kirton Point Jetty, 660 feet berthage, with 19 to 28 feet of water at low water spring tides.

There are no goods sheds on jetties; goods are landed direct into railway vehicles. Railway lines to the jetties are connected with the State railway system.

Water is laid on to the wharfs from the Tod River Reservoir, with stand pipes on the wharfs.

Principal Imports and Exports.

Imports.—General cargo, superphosphate and coal.

Exports.—Wheat.

SHIPPING.

Oversea Shipping.

Year.	No. of Vessels.		Tonnage.
1924-25	..	19	67,893
1925-26	..	15	42,781
1926-27	..	24	78,025
1927-28	..	19	62,624

No regular lines—vessels were on charter.

Interstate Shipping.

Year.	No. of Vessels.	Tonnage.
1924-25	28	14,131
1925-26	14	13,933
1926-27	17	17,237
1927-28	8	13,197

Coastal Shipping.

Year.	No. of Vessels.	Tonnage.
1924-25	383	148,258
1925-26	400	135,233
1926-27	487	165,153
1927-28	392	200,514

ADMINISTRATION UNDER THE QUARANTINE ACT.

Port Lincoln was proclaimed a first port of entry on 10th July, 1909, for all vessels except those from ports declared to be infected with yellow fever.

The mooring ground is all that area in the port of Port Lincoln comprised within the following limits:—

The Southern limit is a straight imaginary line from Fanny Point to Winter's Hill.

The Western limit is a straight imaginary line from Kirton's Point to Maria Point.

The Northern limit is a straight imaginary line joining Winter's Hill to the summit (319 feet) of Boston Island.

The Eastern limit is a straight imaginary line from Fanny Point bearing 150 degrees.

The Quarantine Officer is a local medical practitioner, who acts in a part-time capacity as Quarantine Officer. Another local medical practitioner is Deputy Quarantine Officer.

Boarding Arrangements.

Incoming ships are boarded at the mooring ground. The Quarantine Officer goes out in a motor launch of the Harbours Board with the Harbour Master.

In special cases the Quarantine Officer has to board vessels some miles out, in which cases a fee of £10 is charged for inspections outside the mooring ground.

There is no quarantine staff other than the Quarantine and Deputy Quarantine Officer.

Fumigation of vessels is carried out by the Harbour Master under the supervision of the Quarantine Officer. The Quarantine Officer signs fumigation certificates and bills of health, and exercises a general supervision over vessels regarding the provision of rat guards.

A stock of sulphur and pots for carrying out fumigation are kept in the Harbour Board's shed.

A site has been obtained for a Quarantine Station on the projecting point opposite Grantham Island, between Murray's Point and Porter Bay. This site was gazetted in Proclamation 104 of 8th January, 1923.

Action under the Navigation Act.

The Quarantine Officer has been appointed a Medical Inspector of Seamen.

Inspection of vessels under the Act is not undertaken at Port Lincoln.

LOCAL HEALTH ORGANIZATION.

The local health authority is the local Board of Health.

The Health Staff consists of a part-time Medical Officer of Health and a Health Inspector.

The local Board of Health is the organization that deals with any epidemic or infectious disease among the population.

An isolation block at the Government Hospital with twelve beds is provided for the accommodation of cases of infectious disease.

Transport for cases of infectious disease is by means of a stretcher squad.

Nursing facilities could be provided in an epidemic by the public hospital.

Venereal Diseases.

There is no clinic for treatment of cases of venereal disease, but treatment may be obtained at the local hospital.

Rat Control Measures.

No organized measures against rats are undertaken.

SANITARY SERVICES.*Disposal of Excreta.*

There is a double pan service. The excreta is ploughed in at a sanitary depot. The local Board of Health in 1928 ordered all premises to install septic tanks within twelve months, and is giving financial assistance.

Disposal of Garbage.

Garbage is removed once a week to a tip.

Water Supply.

Water is reticulated to the port from the Tod River Reservoir.

CAPE THEVENARD.

Thevenard is in South Australia, on the Great Australian Bight, and is the port for a newly developed wheat-growing area.

The Harbour of Thevenard comprises the beds and shores of portions of Denial Bay, Murat Bay, Bosanquet Bay and Decres Bay, bounded as follows:—Commencing at low water mark Cape Beauford, hundred of Moule; thence line south for 20 cables, thence south 30 degrees east true for 32 cables; thence north 71 degrees east true by a straight line to low water mark, Wittelbee Point, hundred of Bonythen, thence by low water mark in a westerly, northerly, westerly, and southerly direction to a point of commencement.

Rise and fall of tide—

Spring tides, 7 feet; neap tides, 5 feet.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the South Australian Harbours Board, whose local representative is the Harbour Master.

Pilotage.

Pilotage is compulsory. The pilot boards one mile to seaward of No. 1 Beacon in all weathers.

Berthing Accommodation.

There is a jetty with 1,170 feet berthage and a depth of 25 feet at low water spring tide.

There are no goods sheds on the jetty. Goods are landed direct into railway trucks. Railway lines connect with the railway line to Port Lincoln.

Water with stand pipes is laid on to the jetty from the Tod River reservoir.

Principal Imports and Exports.

Imports.—Coal and superphosphates.

Exports.—Wheat and plaster.

SHIPPING.

Oversea Shipping.

Year.	No. of Vessels.	Tonnage.
1924-25	7	21,029
1925-26	9	30,805
1926-27	13	46,217
1927-28	13	46,757

There are no regular sailings; vessels are usually on charter.

Interstate Shipping.

Year.	No. of Vessels.	Tonnage.
1924-25	23	15,768
1925-26	18	15,525
1926-27	25	26,019
1927-28	24	14,753

Coastal Shipping.

Year.	No. of Vessels.	Tonnage.
1924-25	58	12,436
1925-26	64	13,599
1926-27	76	15,927
1927-28	84	18,505

ADMINISTRATION UNDER THE QUARANTINE ACT.

Cape Thevenard was proclaimed a first port of entry on 15th April, 1921, for all vessels except those from ports declared to be infected with yellow fever.

The Quarantine Officer is a local medical practitioner, who acts in a part-time capacity. There is no other quarantine staff.

Fumigation is carried out at Thevenard under the supervision of the Quarantine Officer. Sulphur and iron pans for fumigation are stored in a shed on the jetty. The Quarantine Officer signs fumigation certificates and bills of health.

Action under the Navigation Act.

The Quarantine Officer is appointed Medical Officer of Seamen. Vessels are not inspected under the Navigation Act at Thevenard.

LOCAL HEALTH ORGANIZATION.

The port health authority is the local Board of Health; the health staff consists of a part-time Health Officer. The Secretary of the local board acts as Health Inspector.

Accommodation for Infectious Diseases.

There is a private hospital at Ceduna (the township adjacent to Thevenard) with accommodation for three male and three female patients; but no public hospital. In cases of necessity isolation accommodation could be provided at Denial Bay Hospital (10 miles away).

There is no local stock of calf lymph; supplies must be obtained from Adelaide.

There are no laboratory facilities.

Water is now laid on to the township and port from the Tod River Reservoir.

SANITARY SERVICES.

Sanitation is by the pan system under the supervision of the local Board. Hotels and the Gypsum Factory have installed septic tanks with effluent into the sea.

Garbage is removed by individual occupiers to a local tip.

VICTORIAN PORTS.

Melbourne.

Warrnambool.

Geelong.

Portland.

MELBOURNE.

Melbourne, the capital of Victoria, and principal port, is on the River Yarra, which falls into Hobson's Bay at the head of Port Phillip. Latitude 37 degs. 49 mins. south, longitude 144 degs. 58 mins. east.

The port of Melbourne consists of inlets, bays, harbours, and navigable waters north of and within a line bearing north 74 degs. 6 mins. east from a point marked by a post situated on the western shore of Hobson's Bay opposite the eastern end of Little Nelson-street, Williamstown, to a point on the eastern shore of Hobson's Bay and in line with the north-western side of Fitzroy-street, St. Kilda, including the River Yarra as far as Queen's-bridge and the Maribyrnong River as far as the Hopetoun Bridge at Hopkins-street, Footscray, and also the channels leading to Williamstown and Port Melbourne, a distance of about $3\frac{1}{2}$ miles below the line drawn from Williamstown to St. Kilda.

The port covers an area of 20 square miles, or about $4\frac{1}{2}$ miles square.

All the wharfs and piers within these boundaries are under the control of the Commissioners.

Rise of spring tides throughout harbour 2 ft. 8 in. to be added to all depths. Neap tides, 2 feet.

LOCAL PORT ADMINISTRATION.

The control and management of Melbourne is vested in the Melbourne Harbour Trust Commissioners, appointed by the Governor in Council, consisting of a chairman, who devotes the whole of his attention to the business of the trust, and four other representatives respectively of the interests of ship-owners, exporters, importers, and primary producers.

Pilotage.

Pilotage is compulsory for oversea vessels and for non-exempt interstate and other vessels. The Port Phillip pilot boards outside the heads and the river pilot boards off Williamstown.

Berthing Accommodation and Cargo-handling Facilities.

Wharfs, jetties, piers, &c.	Length. Lin. feet.	Miles.	Area Sq. feet.	Acres.
Yarra wharfs and Victoria Dock ..	31,953	= 6.05	1,367,902	= 35.4
Hobson's Bay wharfs, piers, and Lower Yarra ..	23,005	= 4.36	1,275,696	= 29.4
Totals ..	54,958	10.41	2,843,598	65.

Within the port of Melbourne, including Port Melbourne and Williamstown, the wharfinger accommodation is provided as follows:—

In the River Yarra there are 4 miles of berthage, at the greater part of which there is 27 feet depth at ordinary low water.

In Victoria Dock there are nearly 2 miles of berthage, with a depth of from 27 to 29 feet at ordinary low water.

At Williamstown, Port Melbourne, Footscray, &c., there are altogether about $3\frac{1}{2}$ miles of wharfage with a depth of water from 27 to 37 feet ordinary low water.

On these wharfs there are 96 sheds—59 open and 37 closed—with a length of 19,168 feet and an area of 25 acres.

Nine thousand nine hundred and sixty feet of bay piers and about 4,600 feet of Victoria Dock are laid down with rails, which connect with the general railway system.

Attention is now given to rat-proofing in the construction of new wharfs.

The following cranes are provided:—

Melbourne Australian Wharf	One 60-ton steam crane.
Melbourne Australian Wharf	One 35-ton hydraulic crane.
Melbourne Australian Wharf	One 15-ton hydraulic crane.
Melbourne Spencer Dock ..	One 5-ton hand crane.
Port Melbourne Town Pier	One 4-ton hand crane.
Port Melbourne Town Pier	One 2-ton hand crane.
Williamstown	One 10-ton hand crane.
Williamstown	One 2-ton hand crane.
Footscray	One 3-ton hand crane.

Dry Docks in the Port of Melbourne.

Alfred Graving Dock, at Williamstown:—

	Length.		Breadth.	Depth.
Floor ..	450 feet	Floor	55 feet	On sill H.W. 27 feet
Top ..	459 feet	Top	97 feet	On sill L.W. 24 feet
		Entrance	80 feet	

Can dock up to 57 feet beam.

Williamstown Dockyard.

		Length.		Breadth.
No. 1 Slipway	.. ..	360 feet	..	20 feet
No. 2 Slipway	.. ..	360 feet	..	15 feet
No. 3 Slipway	.. ..	300 feet	..	19 feet

Water is laid on to the wharfs from the municipal supply. Water is supplied to vessels from hydraulic rubber hose connexions.

Principal Exports and Imports—

Imports.	Exports.
Textile manufactures.	Butter.
Tobacco.	Wool.
Tea.	Wheat.
Coffee.	Meat.
Fish.	Condensed milk.
Alcoholic and spirituous liquors.	Confectionery.
Petroleum.	Biscuits.
Machinery.	Fodder.
Metal manufactures.	Fruit.
Timber.	Flour.
Earthenware.	Jam.
Paper.	Hides and skins.
Drugs and chemicals.	Kerosene.
Rubber manufactures.	Tallow.
Leather manufactures.	Soap.

*Shipping Oversea.**Number of Ships and Tonnage—*

		Number.		Gross tonnage.
1924-25	.. ..	Not available.		
1925-26	.. ..	1,022	..	7,616,932
1926-27	.. ..	1,092	..	8,218,924

Principal Lines calling.

P. and O., Orient, Aberdeen, Commonwealth, Blue Funnel, White Star, Federal, Scottish Shire, Ellerman-Bucknall, N.Y.K., Messageries Maritimes, Roosevelt, Swedish-Australia, K.P.M., Norwegian-Australia, U.S.A.-Australia, N.D.L., Holland-Australia, Australia-Oriental.

How often calling—

Fortnightly to six-weekly.

Where from—

England, Continental ports, India, Japan, United States of America, &c.

*Interstate.**Number of Vessels Inward—*

		Number.		Gross tonnage.
1924-25	.. ..	Not available.		
1925-26	.. ..	1,420	..	3,153,772
1926-27	.. ..	1,524	..	3,628,031

Principal Lines calling—

Huddart Parker, McIlwraith, McEacharn, Adelaide Steamship Company, Australian Union Steam Navigation Company, Melbourne Steam Navigation Company, J. Paterson and Company, W. Holyman and Son, Broken Hill Proprietary Company.

How often calling—

A weekly service is provided.

*Intra-state and Coastal.**Number of Vessels in and out—*

	Number.	Gross tons.
July-December, 1924 (estimated) ..	841 ..	416,330
January-June, 1925 ..	803 ..	387,300
1925-26 ..	1,411 ..	590,518
1926-27 ..	1,418 ..	581,240

Type of Vessels—

Steamers, schooners, and ketches.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Melbourne was proclaimed a first port of entry on 10th July, 1909.

Quarantine Line.

An imaginary line bearing north 74 degs. 30 mins. east from a point opposite the eastern end of Little Nelson-street, Williamstown, to a point on the eastern shore of Hobson's Bay and in a line with the north-west side of Fitzroy-street, St. Kilda.

The quarantine anchorage is outside of the quarantine line between the line of buoys marking the eastern side of the channel and the Gellibrand Lightship.

Boarding Facilities.

The Quarantine Officer is informed of the arrival of vessels requiring pratique by the Customs Boarding Officer, who receives telegraphic and telephone reports from Point Lonsdale Lighthouse.

The vessel is boarded by the Quarantine Officer at the quarantine anchorage by means of the Customs launch, the time and place being arranged with the Customs Boarding Officer.

The Customs Department provide a motor launch.

The Quarantine Staff.

The Chief Quarantine Officer (General) is in charge of the Division. There is a full-time permanent Quarantine Officer, a fumigation staff, staff of Quarantine Station and a clerical staff at the Divisional Office.

The fumigation staff inspects vessels regarding their sanitary condition and to determine the degree of rat infestation and inspects fumigation certificates carried by vessels.

The fumigation staff consists of an inspector, one coxswain of launch, one engine-driver, and four quarantine assistants.

The fumigation plant and equipment consists of one steam portable disinfecter. Double iron pans for sulphur dioxide fumigation and enamel dishes for cyanide fumigation, three-letter disinfectors and spray pumps for formalin and cyllin disinfection.

A steam launch is used to convey the fumigation equipment to vessels.

The fumigation equipment is housed at a depot near the wharfs. Two chambers for disinfection of clothing are attached to this depot.

Trapping and poisoning are carried out by the permanent staff.

All rats obtained are classified at the fumigation depot. Ten per cent. of each day's catch is forwarded to the Commonwealth Serum Laboratory for examination. The remainder are opened up and examined, any abnormal conditions noted, and affected rats forwarded to the Serum Laboratory also.

Reports on the inspection, examination, and classification of rats are furnished to the Divisional Office.

Fumigation certificates are issued by the Quarantine Officer, who also issues bills of health.

Arrangements for Removal of Refuse from Vessels in Port.

Refuse is kept in rat-proof and fly-proof receptacles on vessels and removed in refuse carts by the Melbourne Harbour Trust.

Quarantine Station.

The Quarantine Station is situated on Point Nepean, near Portsea. It is on a peninsula bounded on the south by the Southern Ocean and on the north by Port Phillip. The soil is sandy loam, undulating and covered with scrub. The area is 1,400 acres.

There is a jetty at which passengers and crews from vessels are landed. A motor launch is attached to the station for the transport of passengers.

The station staff consists of a foreman assistant, two engine-drivers, and six quarantine assistants.

Accommodation is provided for 772 passengers and 60 staff. The buildings are mostly two-storied of brick and sandstone.

Accommodation.

1st Class, No. 1 Building	..	..	..	88
Bungalow	..	..	..	20
2nd Class, No. 2 Building	..	..	..	30
3rd Class, Nos. 3 and 4 Buildings	..	..	..	184
3rd Class, Huts	..	..	..	384
Observation, No. 5 Building	..	..	..	60
Isolation Hospital	..	..	..	6

There is a laboratory and morgue under the one roof in the isolation compound.

Disinfection Equipment.

There is a standard steam disinfecter 9 feet long and an Equifex disinfecter 16 feet long with attachments for formalin and cyanide fumigation.

Laundry Equipment.

There is a fully-equipped steam laundry with a capacity of 500 pieces daily.

Bathing Accommodation.

Plunge and shower-bath accommodation for 55 persons is provided.
Water Supply.

Rain water is stored in reservoir tanks and underground tanks. The total storage capacity is 207,400 gallons.

There is also a brackish well which is used for fire-fighting purposes.

Fire Services.

These consist of hose, fire buckets, fire extinguishers (chemical). Routine fire drill is held once a month.

Lighting System.

A dynamo on the station provides electric light for all the passenger's accommodation and for the isolation hospital.

The staff cottages are connected with the Yallourn scheme. Most of the permanent staff are provided with cottages at the land entrance to the station.

Telephone.

The station is connected with the Sorrento exchange. There are 31 connexions with the switchboard on the station providing communication with staff and passenger accommodation and isolation hospital.

Sewerage.

Water sewerage is provided to all buildings except the huts. The sewerage is treated in five septic tanks, the effluent is discharged into the sea.

Drainage.

Surface drains and underground pipes with outlet to the sea.

Cremation.

A small crematorium is attached to the station.

Provision in Port for Vaccination.

Supplies of calf lymph are obtained from the Commonwealth Serum Laboratory, Melbourne, where the calf lymph is manufactured.

Navigation Act.

Inspection of shipping and examination of seamen under the Navigation Act are carried out by the Quarantine Officer, who is gazetted a Medical Inspector of Shipping and of Seamen.

Average number of vessels inspected annually	..	86
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Average number of seamen examined annually	..	531
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LOCAL HEALTH ORGANIZATION.

The local health authorities are the Melbourne, Port Melbourne and Williamstown City Councils.

The health staff of each council consists of a Medical Officer of Health and Health Inspectors.

Municipal councils, as the health authority, deal with infectious diseases.

The Queen's Memorial Infectious Diseases Hospital, with 567 beds, provides accommodation for all cases of infectious diseases.

Transport for patients is provided by the Infectious Diseases Hospital ambulance service.

Laboratory Facilities.

The Melbourne University Bacteriological Laboratory examines specimens submitted by health authorities free of charge.

Machinery available for immediate emergency vaccination is provided by medical practitioners, who are appointed as public vaccinators by the State Government for all municipalities.

Rat Control Measures.

Rat extermination is carried out on wharfs, lighters, barges, and other harbour craft on foreshores, wharf sheds, warehouses, docks, &c., by two permanent ratcatchers who are paid by the State Government.

Attention to rat proofing is given when building new wharfs.

Rats trapped or found dead and showing any suspicious signs are sent to the University Laboratory for examination.

Disinfection Equipment.

The Melbourne City Council has a steam disinfecting plant.

SANITARY SERVICES.

Means of disposal of excreta is by a water carriage sewerage system.

Drainage.

Storm waters are conveyed by pitched channels to the river Yarra and the bay.

Garbage and Refuse Removal.

There is a municipal system. Garbage is removed from impervious covered metal receptacles by covered vehicles to the destructor or to regulated garbage tips.

Water Supply.

The supply is from the water system under the control of the Melbourne and Metropolitan Board of Works. Water is reticulated to the wharfs.

Facilities for Treatment of Venereal Disease.

Free clinics are provided at the State Health Department Clinics, 440 Lonsdale-street, and at metropolitan hospitals.

GEELONG.

Geelong is situated at the head of Corio Bay, south latitude 38 degrees 9 minutes, and east longitude 144 degrees 19 minutes.

The Port of Geelong includes all inlets, rivers, bays, harbours and navigable waters westward and southward of and within an imaginary line bearing north 32 degrees west from a point on the east side of Mercer-street, Portarlington, and one chain from highwater mark to a point formed by the intersection of a line parallel with the right bank of Little River and 150 links therefrom, and a line parallel with high-water mark, at a distance of one chain therefrom, exclusive of the waters of Limeburners Bay, north of a line from the south-east point of such bay to a point on high water mark in Corio Bay in line with the west side of the road forming the eastern boundary of allotment 2, parish of Morunghurk.

LOCAL PORT ADMINISTRATION.

The port is under the administration of the Geelong Harbour Trust Commissioners.

Pilotage.

Pilotage is compulsory. The Port Phillip pilot brings the ship right up to the berth from outside the Heads at Queenscliff. If the vessel is not to berth immediately, the pilot brings her to the anchorage and the Harbour Master subsequently berths her. There is no local pilot except the Harbour Master.

Berthing Accommodation.

The railway pier is now being reconstructed with five lines of rails.

Yarra-street Pier.—900 feet long, constructed on wooden piles with wooden decking. There is a closed-in shed at the sea end of the wharf. This pier is not connected to the railway system.

Moorabool-street Pier.—Used for bay traffic, loading of wool into barges and handling of produce from Melbourne for local warehouses. There are open wharf sheds on the pier. The pier has no connexion with the railway system.

Corio Quay.—Several miles from the city, for oversea vessels only.

Private Wharfs.—Ford's for oversea vessels. Corio Quay and Ford's pier are connected to the railway system.

Water is laid on to all the wharfs from the town water supply. There are hydrants at intervals along the wharfs.

Principal Imports and Exports.

<i>Exports.</i>	<i>Imports.</i>
Wheat.	Machinery for Ford's motor factory.
Wool.	Phosphates.
Woollen goods.	Sulphur.
Salt.	Timber.

SHIPPING.

Oversea.

Average number of ships and tonnage—

	Number.	Gross tonnage.
1926-27	107	394,192
1925-26		
1924-25		

Principal Lines calling.

British Phosphate Company, Canadian Government Line, Commonwealth and Dominion Line, American Trading Company, and casual callers.

Vessels call from Ocean Island, Japan, England and Continent.

Interstate.

Number of vessels inwards annually for past three years—

	Number.	Gross tonnage.
1924-25	122	148,448
1925-26		
1926-27		

(average per annum given.)

Principal Lines Calling.

Huddard Parker Limited, Howard Smith Limited.

A weekly service is provided.

Intra-state and Coastal.

Number of vessels in and out annually—

	Number.	Gross tonnage.
1924-25	403	
1925-26	(average per annum	94,393
1926-27	given.)	

Type of Vessels.

Steamships.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Geelong was proclaimed a first port of entry on 10th July, 1909.

The quarantine line is from Limeburners Point to Cornie's Creek (Corio Quay), about 1 mile off the sea end of the railway pier. The quarantine anchorage is east of the quarantine line.

The Quarantine Officer is a private medical practitioner, who acts in a part-time capacity as Quarantine Officer.

Boarding Facilities.

The signal station at Queenscliff advises the Customs Officer at Geelong of the arrival of vessels at Port Phillip Heads bound for Geelong requiring pratique. The Customs Officer notifies the Quarantine Officer. The Quarantine Officer boards from a rowing boat.

Quarantine Staff.

There is no staff other than the Quarantine Officer. One of the permanent staff from Melbourne pays occasional visits of inspection and carries out any fumigation and trapping and poisoning required. The fumigation certificates are issued from Melbourne.

The Quarantine Officer signs bills of health, which are issued by the Customs Office.

Action Under Navigation Act.

The Quarantine Officer makes any examination of seamen that are required.

There is no medical inspection of shipping carried out under the Navigation Act in Geelong.

LOCAL HEALTH ORGANIZATION.

The local authorities are the councils of the City of Geelong, Geelong West and Newtown and Chilwell.

The local health staff consists of a Medical Officer of Health for each municipality and four Health Inspectors.

Provision for the isolation and treatment of cases of infectious disease is made by a group of adjoining municipalities, which provide infectious diseases ward with 43 beds at the General Hospital.

There is a motor ambulance for transport of infectious cases.

Laboratory Facilities.

There is a laboratory at the hospital. There is no machinery available for immediate emergency vaccination; calf lymph may be procured at short notice from the Commonwealth Serum Laboratory, Melbourne.

Free treatment is provided for venereal diseases at the General Hospital.

Rat Control Measures.

Periodical poisoning of rats is carried out by the Harbour Trust on wharfs, on harbour craft, foreshores, wharf sheds, warehouses, docks, &c.

Rats are not examined or classified.

SANITARY SERVICES.

Means of Disposal of Excreta.

The whole town is sewered except a small and diminishing area.

Drainage System.

Stormwater is drained by separate underground channels discharging into the harbour and river.

Garbage Disposal.

Household refuse is removed once a week to a tip and there burned and buried.

Water Supply.

The supply is under the control of the Geelong Sewerage and Waterworks Trust. It is obtained from a timbered and uninhabited watershed, and stored in Koowingborra and Stony Creek Reservoirs. It is reticulated to the municipalities.

WARRNAMBOOL.

Warrnambool is situated on the southern coast of the State of Victoria, between the mouth of the Hopkins River and the Merri River. South latitude, 38 degrees 24 minutes; east longitude, 142 degrees 31 minutes.

The Port of Warrnambool includes all inlets, rivers, bays, harbours and navigable waters north of and within a line bearing south 71 degrees 30 minutes west from the entrance to Hopkins River to the outer end of the reef south of the breakwater pier.

The depth of water at wharfs is from 15 to 18 feet at low water.

The average rise and fall of tide is 3 feet.

LOCAL PORT ADMINISTRATION.

The Port is under the control of the State Ports and Harbours Department, of which the Harbour Master is the local representative.

Pilotage.

Pilotage is compulsory; the Harbour Master, who is the pilot for the port, boards in the fairway beyond the breakwater in an open boat.

Berthing Accommodation.

Berthing accommodation is provided along the inner side of the breakwater; there are 900 feet of available berthage.

The breakwater is of sandstone blocks and concrete, the wharf is along its inner side, and has a vertical solid concrete face to the water. There are no sheds on the wharf. There is practically no harbourage for rats.

Two lines of rails run the length of the wharf, and are connected with the State railway system.

The town water supply is laid on to the wharf by a 2-inch pipe with hydrants at intervals for the supply of vessels.

Principal Imports and Exports.

Imports.	Exports.
Coal.	Condensed milk.
Timber for manufacturing boxes.	Butter.
	Woollen goods.

SHIPPING.

Owing to the unsafe anchorage, due to the swell from the open ocean, and to the silting up of the harbour and risks in berthing, oversea vessels seldom call at Warrnambool.

Oversea.

Number of vessels and tonnage.

Year.	No.	Gross tonnage.
1925-26 ..	5	9,222
1926-27 ..	2	1,599
1927-28 ..	Nil	—

Interstate.

Number of vessels and tonnage—

Year.	No.	Gross tonnage.
1925-26 ..	10	9,509
1926-27 ..	16	15,198
1927-28 ..	17	17,433

Principal Lines Calling.

Australian S.S. Limited.

These are mainly colliers which bring coal and pick up a cargo of condensed milk.

Intra-state.

Number of vessels in and out annually last three years—

Year.	No.	Gross tonnage.
1925-26 ..	130	29,351
1926-27 ..	133	32,609
1927-28 ..	129	32,392

Type of Vessels.—Steamships.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Warrnambool is not a first port of entry. The Quarantine Officer is a local medical practitioner, who acts as Quarantine Officer in a part-time capacity. There is no other quarantine staff at Warrnambool.

There is hardly any oversea shipping at the present time.

Boarding Facilities.

The Quarantine Officer boards with the pilot outside the sandbank in rough weather, or in the fairway outside the breakwater in good weather. Boarding is carried out in an open boat, sailing or motor. In rough weather, if there are no suspicious circumstances on board, the vessel is inspected immediately on berthing.

Fumigation of vessels is carried out by one of the permanent fumigation staff from Melbourne, who brings the equipment with him.

Bills of health are issued by the Quarantine Officer.

Removal of Refuse from Vessels.

There are no arrangements made.

Action under the Navigation Act.

No inspection of vessels is carried out at this port. The Quarantine Officer is the Medical Inspector of seamen. The Customs Officer is the Superintendent of Mercantile Marine.

LOCAL HEALTH ORGANIZATION.

Warrnambool has a population of over 7,700, and is the centre of a rich dairying and agricultural district. The most important industries are the manufacture of woollen goods and condensed milk.

The Port Health Authority is the local City Council. The local Health Staff consists of the Medical Officer of Health and a Health Inspector.

Isolation accommodation for infectious diseases is provided at infectious diseases wards in the Warrnambool District Hospital.

There is a motor ambulance for transporting the sick.

Laboratory Facilities.

There is a laboratory at the infectious diseases wards.

Vaccination.

There is no machinery available for immediate emergency vaccination. Calf lymph could be obtained at short notice from Melbourne.

Treatment of Venereal Diseases.

Free treatment is provided at the Public Hospital.

Rat Control Measures.

No measures are taken, and classification and examination of rats is not carried out.

SANITARY SERVICES.

Disposal of Excreta.

A double pan service is provided with burial of excreta at a depot. About 50 premises have septic tanks.

Drainage System.

There are surface drains with two main underground stormwater channels.

Garbage Disposal.

The garbage is removed weekly to a tip.

Water Supply.

The supply is from the Merri River, and is not good. It is reticulated to the town from large storage tanks. Most householders use rainwater stored in galvanized iron tanks.

PORTLAND.

Portland, on the south-west coast of Victoria; south latitude 38 degrees 22 minutes, east longitude 141 degrees 37 minutes, on the west shore of Portland Bay, is one of the oldest settlements in Victoria. It was a whaling station prior to the arrival of the Henty brothers in 1824, when a small settlement was established.

Port Limits.

The Port of Portland includes all inlets, rivers, bays, harbours and navigable waters westward of and within a line bearing north from Point Danger to the opposite shore.

Depth of Water.

At the new pier	..	..	..	30-32 feet.
At the old pier	..	..	..	12-15 feet.

Rise and fall of tide, 3 feet mean.

LOCAL PORT ADMINISTRATION.

The port is under the control of the States Ports and Harbour Department, which is represented by the Harbour Master, who is also pilot for the port.

Pilotage is compulsory. The pilot boards in the bay, which is land-locked about $\frac{1}{4}$ to $\frac{1}{2}$ mile from the pier, and brings vessels alongside the pier.

Berthing Accommodation.

There are two piers—

1. Outer railway pier, $\frac{3}{4}$ mile long, with 2,400 feet berthing accommodation. Depth, 30-32 feet. This pier is used for oversea vessels. There is a shed at the outer end 450 feet long and 50 feet wide. The pier is built of wooden decking on wooden piles, and provides no rat harbourage.

2. The inner railway pier, 1,200 feet long, constructed of wooden decking on wooden piles, is in a state of disrepair. It is used by coastal vessels. There is an open goods shed at the shore end.

Both railway piers are connected with the State railway system.

Water Supply.

Water is not laid on to either pier, but can be supplied by water trucks on rails.

Principal Imports and Exports.

Imports.	Exports.
Case oil.	Condensed milk.
Sheet tin.	Wool.
Box timber.	Frozen mutton.
General coastal cargo.	Wheat.

SHIPPING.

Oversea.

		Number.	Tonnage.
1924-25	.. ..	36	137,625
1925-26	.. ..	25	106,687
1926-27	.. ..	33	129,362

Principal Lines Calling.

Commonwealth and Dominion Line, America-Australian Line, German-Australian Line, and Norwegian-Australian Line.

These vessels call irregularly from England and the Continent.

Interstate.

Nil.

Intra-state and Coastal.

Weekly communication with Melbourne by small steamers *Casino* and *Sphene*, about every five days.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Portland was proclaimed a first port of entry on 10th July, 1909.

The Quarantine Officer is a local medical practitioner, who acts as Quarantine Officer in a part-time capacity.

There is no other quarantine staff at the port.

Boarding Facilities.

The Quarantine Officer boards with the pilot about $\frac{1}{2}$ mile from the end of the jetty.

Fumigation of Vessels.

Is carried out by one of the permanent fumigation staff from Melbourne. A stock of sulphur and double pans is kept in the shed on the outer pier.

Bills of health are issued by the Quarantine Officer.

Action Under the Navigation Act.

No vessels are inspected under the Navigation Act at Portland. The Quarantine Officer holds the appointment of Medical Inspector of Seamen.

Local Health Organization.

The local health authority is the Borough Council. The staff consists of a Medical Officer of Health and a Health Inspector, who is employed by the borough and four adjacent municipalities.

Isolation Accommodation for Infectious Diseases.

There is an infectious ward at the General Hospital with accommodation for five patients.

Laboratory Facilities.

Nil. The nearest laboratory is at Melbourne. Machinery available for immediate vaccination—nil.

Rat Extermination Measures.

Poisoned baits are laid occasionally on wharfs, sheds, foreshore, warehouses and harbour craft.

Rats are not examined or classified.

SANITARY SERVICES.

Disposal of excreta is by means of a double-pan system. Night-soil is buried at a depot.

Drainage System.

Storm water and domestic sullage are conveyed by open channels and underground drains to the sea.

Garbage Removal.

Garbage is removed once a week to a garbage depot.

Water Supply.

The water supply is obtained from roof catchment and from artesian bores.

The water supply to vessels at the wharfs is by rail from Hamilton.

Treatment of Venereal Diseases.

Free treatment of venereal diseases is provided at the public hospital. There is no special clinic.

TASMANIAN PORTS.

Hobart.
Launceston.
Beauty Point.

Devonport.
Burnie.

HOBART.

Hobart, the capital of Tasmania, is situated at the mouth of the River Derwent, South latitude 42 degrees 53 seconds, and East longitude 147 degrees 20 seconds. The city is picturesquely situated on a gently sloping plain at the foot of the hills that descend from Mount Wellington, which is 4,135 feet high, and has an excellent deep-water harbour. The population is 55,000.

Port Boundary.

The port includes all waters of Storm Bay and D'Entrecasteaux Channel, which are to the northward of a line drawn from Cape Raoul to Southport Island, and of all bays and estuaries opening either into the said bay or the said channel.

Rise and Fall of Tide.

Spring 4 ft. 6 in., neap 3 ft. 6 in. Depth of water in the channel off the wharfs is 12 fathoms.

LOCAL PORT ADMINISTRATION.

The port authority is the Marine Board of Hobart, of which the Treasurer is the ministerial head.

The Marine Board is represented by the Harbour Master.

Berthing Accommodation.

The wharfage accommodation is $2\frac{1}{2}$ miles in length, and occupies the whole of the foreshore in Sullivan Cove.

(1) Ocean Pier, 1,142 feet in length, 122 feet wide. Built of wooden piles with wooden decking, has railway connexion. Depth of water, 10-6 fathoms at inshore end.

(2) Princes Wharf, 1,292 feet long, wooden piles with wooden decking. Depth of water 44 feet to 30 feet at inshore end.

(3) King's Pier, 700 feet in length, 100 feet wide, wooden piles and decking. Depth of water 44 feet to 34 feet at inshore end.

(4) Queen's Pier, 546 feet in length, and 105 feet wide. Wooden piles and decking. Depth of water, 40 feet to 32 feet at inshore end.

There are two docks. Victoria Dock and Constitution Dock for small craft.

Water is laid on to the piers from the town supply, and there are two water boats which can supply vessels.

Pilotage.

Pilotage is compulsory. The pilot boards the vessel off the Derwent Light.

Principal Imports and Exports.

Imports.—Oil, ores, general cargo.

Exports.—Fruit, timber, wool, ores and metals.

SHIPPING.

Oversea.

Year.	No. of Vessels.	Tonnage.
1924-25	87	724,441
1925-26	96	833,039
1926-27	106	851,412

Interstate.

1924-25	293	461,545
1925-26	259	431,703
1926-27	281	494,179

Intra-state and Coastal.

1924-25	201	19,817
1925-26	178	14,468
1926-27	204	28,054

ADMINISTRATION UNDER THE QUARANTINE ACT.

Hobart was proclaimed a first port of entry on 5th July, 1909. The quarantine line is an imaginary line drawn from the seaward end of Princes Wharf across the river and intersecting a line drawn from Kangaroo Bluff, north-east by north. This line is close in to the wharf areas.

The quarantine staff consists of a Quarantine Officer and two Deputy Quarantine Officers, and a Quarantine Assistant.

The masters of vessels requiring pratique advise the Quarantine Officer of their arrival through the agents. The arrival of vessels is notified by the signal station at Mount Nelson to the Harbour Master, who informs the Quarantine Officer. The Quarantine Officer boards in the Harbour Master's launch.

Fumigation is carried out by a Quarantine Assistant. Fumigation equipment for sulphur and cyanide fumigation is kept in a shed on the wharf.

Disinfection of clothing, &c., is carried out at the State Health Department's Steam Disinfector at Vacluse.

The Quarantine Assistant also supervises the carrying out of berthing regulations.

Trapping and poisoning are carried out by the Quarantine Assistant. Any rats not considered healthy are forwarded to the State Laboratory for examination.

The Quarantine Officer signs fumigation certificates. Bills of health are signed and issued by Customs Officers.

Action Under the Navigation Act.

The Quarantine Officer has been appointed Medical Inspector of Seamen.

Inspections of vessels under the Navigation Act are made by the Quarantine Assistant and reports are forwarded to the Director, Division of Marine Hygiene.

Quarantine Station.

The Quarantine Station is situated on North Bruny Island in Barnes Bay, about 12 miles from Hobart. The station can be visited by launch for which there is a departmental contract. There is also a regular steamship service from Hobart to Killara, 2½ miles north of the station.

There is accommodation for about 200 persons at the Quarantine Station.

First-class accommodation is provided by a five-roomed building. Ten small cubicles are attached to this building.

Third-class accommodation is provided by nine huts, each hut can hold 24 beds.

A general store is provided for housing stores and equipment.

Isolation Area.

The isolation area is fenced and contains—

A change block.

An administration block.

Two hospital blocks each with sixteen beds.

Two observation huts each containing two beds.

Passengers are landed at a wooden jetty.

A cottage is provided for the Quarantine Assistant, who acts as caretaker of the station and is the only permanent staff employed there.

LOCAL HEALTH ORGANIZATION.

The port health authority is the State Department of Health. The local health staff consists of a Medical Officer of Health, three Sanitary Inspectors, who spend only a portion of their time in Hobart, and a rat-catcher.

Isolation Accommodation for Infectious Diseases.

There is an isolation hospital at Selfs Point, consisting of two wards with six beds in each. The hospital is kept fully equipped to take cases at any time.

There is, in addition, an infectious diseases hospital "Vauchuse," where cases of diphtheria and scarlet fever, and, possibly, whooping cough and varicella are treated. This hospital belongs to the Hobart City Council, and has 72 beds in wards. Accommodation could be provided for a considerably larger number on verandahs. This hospital is available for cases removed from vessels in which the diagnosis is doubtful.

Transport facilities are provided by a motor ambulance service.

Organization Available in Event of Severe Epidemic or Quarantinable Disease.

The State Health Department assumes control in the event of an epidemic, and has extensive powers under the Public Health Act.

Laboratory Facilities.

The State Health Department has a bacteriological laboratory for examination of specimens. The work is carried out by a technical assistant. There is no Medical Officer in charge.

There is, in addition, a laboratory at the General Hospital, which carries out ordinary hospital pathological work. The Wassermann examination is not done at either of these laboratories.

Treatment of Venereal Disease.

There is a free clinic at the General Hospital for the treatment of venereal disease, and beds are available for the treatment of in-patients.

Rat Control Measures.

A rat-catcher is employed on shore and on vessels. Trapping and poisoning are carried out under the supervision of the Sanitary Inspector, but very little is done on vessels and nothing on interstate vessels.

Any rats considered unhealthy are forwarded to the State Laboratory for examination. The rats are not classified.

No action is taken regarding rat-proofing on wharfs, sheds or buildings.

SANITARY SERVICES.

Disposal of Excreta.

There is a sewerage system with effluent into the Derwent, after passing through a disintegrating chamber.

Drainage.

Surface waters are conveyed by open channels into the Derwent.

Garbage Disposal.

Refuse is collected by carts and is tipped on the river bank. There is a garbage destructor, but it is not in use, and the refuse is not burned or covered.

Water Supply.

Water is collected in three reservoirs with a total capacity of 300,000,000 gallons. The catchment area is the slope of Mount Wellington. Water is reticulated from the reservoirs to the city.

LAUNCESTON.

Launceston, on the north coast of Tasmania, is situated on the River Tamar about 20 miles from its mouth, south latitude 41 degrees 26 minutes, and east longitude 147 degrees 8 minutes.

The port boundaries are one nautical league to seaward of coast-line from Cape Portland to Badger Head, and including the whole navigable course of the Tamar.

Depth of water at Launceston is 16 feet at low water. Rise and fall of tide is 10 to 12 feet.

LOCAL PORT ADMINISTRATION.

The port authority is the Marine Board of Launceston. The Executive Officer is the Harbour Master.

Pilotage is compulsory for all except exempt shipping. The pilot boards vessels 3-5 miles out from Low Head.

Berthing Accommodation.

Launceston is limited to vessels under 375 feet in length and drawing less than 17 feet.

Wharfs.

King's Wharf on the right bank, 1,400 feet in length, where interstate vessels berth.

Town Wharf.—Left bank in city.

Alexandra Wharf for river craft, &c.

Water is laid on to the wharfs from the town supply.

Practically all oversea shipping goes to Beauty Point or Bell Bay.

Principal Imports and Exports.

Imports.—Manufactured goods and general merchandise.

Exports.—Fruit and wool.

SHIPPING.

Oversea Shipping.

Year.	No. of Vessels.	Tonnage.
1924-25	39	163,009
1925-26	35	157,022
1926-27	34	146,751

Interstate Shipping.

Year.	No. of Vessels.	Tonnage.
1924-25	326	204,436
1925-26	319	217,387
1926-27	292	220,186

Intra-state.

Year.	No. of Vessels.	Tonnage.
1924-25	106	13,426
1925-26	108	8,039
1926-27	86	7,680

ADMINISTRATION UNDER THE QUARANTINE ACT.

Launceston is not a first port of entry. The quarantine line is fixed at Beauty Point, which was proclaimed on 10th July, 1909, as a first port of entry for vessels other than those from ports declared to be infected with yellow fever.

The quarantine line at Beauty Point is an imaginary line drawn through Roundabout and Effingham Points, and extending to the southern shore S.39 E. in direction. To the south an imaginary line drawn from the jetty at Middle Island towards Inspection (or Woody) Head bearing 69 W.

The Medical Officer in charge of the Commonwealth Laboratory holds the appointment of Acting Chief Quarantine Officer (General) for Tasmania.

The Quarantine Officer at Launceston is a part-time officer.

The Quarantine Officer receives advice of a vessel requiring inspection through the Harbour Master, and boards vessels in the Harbour Master's launch at Home Reach or at the Powder Anchorage.

There is a part-time Quarantine Officer also at Beauty Point.

There is no other quarantine staff at Launceston.

Fumigation is carried out, when necessary, by the Quarantine Assistant from Hobart. Sulphur and iron pots are stored in a shed leased by the Commonwealth Department of Health.

Bills of health are issued by the Customs Office.

Action under the Navigation Act.

The Acting Chief Quarantine Officer and the Quarantine Officer are appointed Medical Inspectors of Seamen. The Sub-Collector of Customs acts as Marine Superintendent.

Inspections of vessels under the Navigation Act are made by the Quarantine Assistant from Hobart.

LOCAL HEALTH ORGANIZATION.

The local health authority is the local city council. The health staff comprises the Medical Officer of Health, a Health Inspector and a rat-catcher.

Isolation Accommodation for Infectious Diseases.

There is an infectious diseases block at the General Hospital. There is, in addition, an Isolation Hospital, "Verulam," about 4 miles out, which is available for any epidemic emergency. It has 122 beds, and was used for smallpox in 1913.

Transport is provided by motor ambulance.

Treatment of Venereal Disease.

Patients suffering from venereal disease are treated free of charge at the General Hospital.

Laboratory Facilities.

Facilities are provided by Commonwealth Health Laboratory.

There is a laboratory at the General Hospital, which is for hospital use only.

Vaccination.

No stock of calf lymph is held locally. The State Health Department at Hobart holds a limited stock.

Rat Control Measures.

A rat man, under the control of the Marine Board and paid by the Marine Board, City Council and State Health Department, is engaged in trapping and poisoning in the city and on the waterfront. In addition, a bonus of 3d. per head is paid for rats caught by the public. The rats are not examined or classified.

Rat proofing of wharf sheds, foreshores or warehouses is not carried out.

SANITARY SERVICES.

Disposal of Excreta.

The city is sewered. The crude sewerage passes into the river both above and below the town, but a septic tank is being installed for treatment of this crude sewerage.

Drainage.

Surface drainage is by open and deep channels to the river.

Garbage Disposal.

Garbage is removed regularly, and tipped and covered with earth. It is used for reclaiming low-lying land.

Water Supply.

The water supply for the city is obtained from St. Patrick's River. It is conducted into a settlement reservoir and thence by open conduits to a mechanical filtration plant, from which it is reticulated by gravitation to the city.

BEAUTY POINT.

Beauty Point at the mouth of the River Tamar is included in the port of Launceston. Beauty Point is merely a deep-water wharf of the port. Oversea vessels berth here or lighter their cargo, and do not proceed to Launceston. Beauty Point has no railway communication.

There is a Deputy Harbour Master in charge of the port.

Depth of Water.

There is a depth of 39 feet 6 inches at low water alongside the wharf and 60 feet to 70 feet at the anchorage.

Rise and fall of tide is 10 to 14 feet.

Pilotage is compulsory. The pilot boards off Low Head.

Imports.—Oil and general merchandise.

Exports.—Fruit, wool, timber and general produce.

Berthing Accommodation.

There is a wooden jetty built in L. shape, provided with a well-built goods-shed. A limited water supply from a privately-owned reservoir is available.

About 40 overseas vessels call at Beauty Point annually, but very few vessels make it a first port of call.

Rat Control Measures.

The Deputy Harbour Master lays poison baits at the wharf sheds when rats get numerous. Rats are not classified or examined. Rat proofing is not carried out.

The Quarantine Officer boards vessels by rowing boat or motor launch. The pilot notifies the Quarantine Officer of the arrival of vessels requiring inspection.

Isolation Hospital.

There is a hospital at Beaconsfield, three miles away, which will admit cases of diphtheria, typhoid fever and meningitis, but not cases of scarlet fever and measles.

BELL BAY.

Bell Bay is opposite Beauty Point across the Tamar, and facing Middle Island 6 miles up the river from Low Head. A deep-water jetty is being constructed there. Vessels will be able to berth at this jetty in all weathers, under their own steam.

Length of wharf, 350 feet. Depth of water at wharf, 45 feet. Water will be laid on to the wharf by the Georgetown Council.

BURNIE.

Burnie is situated on the north-west coast of Tasmania, on Emu Bay, south latitude 41 degrees 4 minutes, and 145 degrees 57 minutes east longitude.

Port Boundaries.

One league to seaward of coast line from west side of mouth of River Leven to east side of mouth of Sisters Creek.

Depth of water, L.W.S.T., 42 feet at end of breakwater, 24 feet at inner end of Ocean Pier.

Rise of tide, 11 feet spring, 8 feet neap.

LOCAL PORT ADMINISTRATION.

Burnie is under the jurisdiction of the Marine Board of Burnie and Table Cape, which is represented by the Harbour Master.

Pilotage is not compulsory, but oversea vessels usually take a pilot. The pilot usually boards within a limit of three miles.

Berthing Accommodation.

There are three piers parallel to one another.

(1) Ocean Pier, built alongside the concrete breakwater, constructed of timber piles with wooden decking; depth of water at low water is 38 feet at outer end and 21 feet at inner end. There is a shed on the pier.

(2) No. 2 Pier, built on the old concrete breakwater.

(3) Jones' Pier, built of timber piles with wooden decking. There are open sheds on the wharf.

These piers run out from a seawall with a vertical face to the sea.

Water is laid on to the jetty from the town supply.

Principal Imports and Exports.

Imports.—Oil.

Exports.—Ore, timber, and general produce.

SHIPPING.

Oversea.

Year.	No. of vessels.		Tonnage.
1924-25	..	11	73,086
1925-26	..	9	54,544
1926-27	..	9	50,622

Interstate.

Year.	No. of vessels.		Tonnage.
1924-25	..	445	579,303
1925-26	..	406	585,419
1926-27	..	417	625,048

Intra-state.

Year.	No. of vessels.		Tonnage.
1924-25	..	48	21,730
1925-26	..	31	13,408
1926-27	..	10	4,610

ADMINISTRATION UNDER THE QUARANTINE ACT.

Burnie was proclaimed a first port of entry on the 8th January, 1923, for vessels other than those from ports declared to be infected with yellow fever.

The Quarantine line is an imaginary line drawn from the white and red light on the Breakwater Pier to the Trigonometrical Station on Round Hill.

The Quarantine Officer is a local medical practitioner, who acts as Quarantine Officer in a part time capacity. He boards vessels by means of the pilot launch. The Quarantine Officer receives notice from the agents of the arrival of vessels requiring inspection.

Fumigation is carried out when necessary by the Quarantine Assistant from Hobart. Equipment is brought from Hobart.

Action under the Navigation Act.

The Quarantine Officer holds the appointment of Medical Inspector of Seamen.

Inspections of vessels under the Navigation Act are not carried out at Burnie.

LOCAL HEALTH ORGANIZATION.

The Local Authority of Emu Bay is in charge of local health organization. The Health Staff consists of a Medical Officer of Health and a Health Inspector.

Isolation Accommodation for Infectious Diseases.

There is an Isolation Hospital at Latrobe. Transport is provided by train or by car. There is a small laboratory at the Latrobe Hospital.

Rat Control Measures.

There are no organized measures for control of rodents.

Sanitary Services.

Disposal of excreta is by water carried sewerage system. The sewer discharges into the sea. There are a few septic tanks for premises in isolated areas.

Drainage.

Surface drains discharge into the sea.

Garbage Disposal.

Garbage is removed weekly and tipped on the foreshore at Wyvenhoe.

Water Supply.

A reservoir is filled from Romaine Creek, $2\frac{1}{2}$ miles from the town; the water is reticulated to the town.

DEVONPORT.

Devonport is on the north coast of Tasmania, at the mouth of the River Mersey; south latitude 41 degrees 10 minutes, and 146 degrees 23 minutes east longitude.

Port Boundaries.—One nautical league seaward from low water mark from Badger Head to western side of mouth of River Leven.

Depth of water at the river entrance is 18 feet at L.W.S.T. Rise of tide is 10 feet.

Depth at main wharfs L.W.S.T., 20 to 22 feet.

Vessels up to 23 feet draught use the port.

LOCAL PORT ADMINISTRATION.

The Port Authority is the Marine Board of the Mersey. The Harbour Master also acts as pilot.

Pilotage is compulsory except for exempt masters.

Berthing Accommodation.

There is 1,700 feet of wharfage on the west side of the river. Wharf is constructed of wooden piles with wooden decking. Goods sheds extend the length of the wharfs, and there are two lines of rails connected with the State railway system. Water is laid on to the wharfs from the town water supply.

Principal Imports and Exports.

Imports.—General cargo, manures, seeds, &c.

Exports.—General produce, apples, timber and limestone.

SHIPPING.

Oversea Shipping.

Year.	No. of vessels.	Tonnage.
1924-25	18	69,469
1925-26	11	48,846
1926-27	6	15,241

Interstate Shipping.

Year.	No. of vessels.	Tonnage.
1924-25	318	603,366
1925-26	306	492,014
1926-27	302	297,746

Intra-state Shipping.

Year.	No. of vessels.	Tonnage.
1924-25	Nil	—
1925-26	2	147
1926-27	1	93

ADMINISTRATION UNDER THE QUARANTINE ACT.

Devonport was proclaimed a First Port of Entry on 29th March, 1923, for vessels other than those from ports declared to be infected with yellow fever.

The Quarantine line is an imaginary line running east and west through the Mersey Bluff Lighthouse.

The Quarantine Officer is a part time officer.

Only an occasional vessel requires inspection. The Quarantine Officer supervises the observance of berthing regulations by overseas vessels. The Quarantine Officer receives advice from the agents of vessels requiring inspection, and boards in the Harbour Master's launch.

Fumigation is carried out by a Quarantine Assistant from Hobart. The fumigation equipment from Launceston is used. Trapping and poisoning of vessels is not carried out.

Action under the Navigation Act.

The Quarantine Officer is appointed a Medical Inspector of Seamen. Inspections of vessels under the Navigation Act are not carried out at Devonport.

LOCAL HEALTH ORGANIZATION.

The Port Health Authority is the Devonport Municipal Council; the staff consists of a Medical Officer of Health and a Health Inspector.

Isolation Accommodation for Infectious Diseases.

The Devon Hospital at Latrobe, 6 miles off, has an Isolation Block with 40 beds.

Transport is provided by hired cars.

Treatment of Venereal Disease.

Free treatment is provided at the Devon Hospital.

Laboratory Facilities.

There is a laboratory at the hospital, where pathological and bacteriological specimens are examined.

Vaccines.

No stock is kept. Calf lymph is obtainable from Hobart.

Rat Control Measures.

The Marine Board employees lay poison baits on wharfs and sheds. Rat proofing is not carried out.

SANITARY SERVICES.

Disposal of excreta is by pan system. The pans are emptied into the sea. There are a few septic tanks with effluent into the river.

Drainage.

Concrete water tables and pipes conduct surface and waste water to the river.

Garbage Disposal.

Garbage is removed by council when necessary, and is used for reclamation of hollow land.

Water Supply.

Water is obtained from the River Forth, 14 miles distant. It is pumped into a reservoir, and flows by gravity to three reservoirs in Devonport.

NEW SOUTH WALES PORTS.

Sydney.
Newcastle.
Port Kembla.

PORT OF SYDNEY.

Sydney, the capital of New South Wales and the principal port of the Commonwealth, is situated on Port Jackson, south latitude 33 degrees 52 minutes, and east longitude 151 degrees 12 minutes.

The port limits are—

Eastern boundary from Outer North Head to Inner North Head.

The Port of Sydney includes so much of the Port, together with the rivers falling into it and their tributaries, and of the land on the margin thereof as is covered at mean high water.

The depth of water at the heads at the entrance to the harbour is 80 feet. The depth of water at wharfs and at anchorage at low water is from 12 to 45 feet.

Rise and fall of tide—

Highest known tide	..	7 ft. 6 in.
Lowest	..	1 ft. 1 in.
Average range	..	5 ft. 0 in.

LOCAL PORT ADMINISTRATION.

The port of Sydney is administered by the Sydney Harbour Trust. The bed and shores of the waters of the port, certain lands fronting thereon, wharfs, buildings, and plant are vested in three Commissioners, in terms of the Incorporation Act, for its administration.

The jurisdiction of the Commissioners includes the Port of Sydney, together with the rivers flowing into it, and the land on the margins thereof to mean high-water mark. It also includes such properties upon or adjacent to the water front as have been acquired by the Commissioners in pursuance of their powers.

The functions of the Commissioners comprise, generally, the management and control of the port and other properties within its jurisdiction, the control of shipping within the port, the provision of adequate wharfage accommodation, the collection of tonnage rates and berthing charges in respect of vessels using the wharfs, and of wharage and harbour rates upon goods shipped or unshipped on or from such wharfs, and such operations as are necessary to keep the port in a fit and proper condition for navigation.

In order to carry out these functions, power is given to resume or purchase land, to lease lands vested in the Trust, to construct wharfage accommodation, depots, sheds, cargo handling appliances and other conveniences for facilitating the loading and discharge of goods, &c., and the trade of the port generally, to license and control vessels, to regulate the berthing and disposal of vessels, to remove obstructions to navigation, and generally to administer and manage the port.

The only other authority is the State Navigation Department, which controls pilotage.

Pilotage.

Pilotage is compulsory. The pilots board at the Heads. An inward bound ship requiring the services of a pilot must signal at the territorial limits of the port.

Berthing Accommodation.

There are 57 marginal berths and 121 jetty berths, totalling 65,249 lineal feet.

Sheds are provided on wharfs and piers with an area of 2,907,300 square feet. Twenty-two berths are connected with the State railway system.

Water mains are laid on to the wharfs from the city water supply, and there are water boats for supplying vessels in stream.

PRINCIPAL EXPORTS AND IMPORTS.

Imports.

Steel manufactured and unmanufactured motor cars, motor cycles, bicycles, motor spirit, spirits, whisky, brandy and gin, oils, rubber, tobacco, cigars and cigarettes, silk, cotton and woollen goods, drugs, optical goods and foodstuffs.

Exports.

Coal, coke, ore, wheat, wool, butter, eggs, flour, bran, pollard, meat (frozen), including rabbits and hares, skin, hides, tallow, copper and tin.

SHIPPING.

Oversea Shipping entering the Port.

Year.	No. of Vessels.	Tonnage.
1924-25 ..	1,484 ..	5,743,337
1925-26 ..	1,462 ..	6,053,868
1926-27 ..	1,483 ..	5,993,463

Interstate Shipping entering the port.

Year.	No. of Vessels.	Tonnage.
1924-25 ..	981 ..	1,733,107
1925-26 ..	943 ..	1,608,343
1926-27 ..	1,136 ..	1,987,710

Intra-state and Coastal Shipping.

Year.	No. of Vessels.	Tonnage.
1924-25 ..	5,599 ..	1,692,726
1925-26 ..	5,489 ..	1,617,523
1926-27 ..	5,752 ..	1,683,678

ADMINISTRATION UNDER THE QUARANTINE ACT.

Sydney was declared a first port of entry on the 10th July, 1909.

The Quarantine line is an imaginary line drawn from Bradley's Head to Shark Point.

The Quarantine anchorage is not defined, and may be any portion of the harbour east of the quarantine line. The portion usually selected for vessels in quarantine is that portion of North Harbour known as Spring Cove, adjacent to the western boundary of the Quarantine Station.

Quarantine Staff.

The medical staff consists of a Chief Quarantine Officer and two Quarantine Officers, who are all permanent full time officers of the Commonwealth Department of Health.

The Divisional Office is at the Customs House, where the administrative and clerical staff are located.

Boarding Facilities.

Information of expected arrivals is obtained by the Quarantine Officer from the shipping columns of the daily press, and regularly from the agents of vessels, who transmit information received by wireless from the masters of vessels.

The officer on duty at the signal station, South Head, informs the Quarantine Officer by telephone of the near approach of vessels requiring medical inspection, the signal station being kept informed of the location of the Quarantine Officer.

Vessels are boarded after anchoring in Watson's Bay or at an alternative anchorage approximately midway between Shark Point and Chowder Head.

A departmental motor launch kept at moorings in Watson's Bay is used by the Quarantine Officer for boarding vessels.

The launch is in charge of an Assistant, whose quarters are in direct telephone communication with the signal station, and who is on duty for boarding purposes from sunrise to sunset.

Quarantine Staff in the Port.

At the Quarantine Station a Medical Officer is in charge of a foreman assistant and a staff of thirteen men.

At the Fumigation Depot there is a Sanitary Inspector in charge of a staff of twelve men.

The inspection of vessels in port to enforce the compliance with the Regulations under the Quarantine Act and for evidence of infestation by rodents is carried out by a trained staff of inspectors under a Sanitary Inspector, who is also in charge of fumigation.

Ships' refuse is removed at wharfs by various authorized contractors, and at the anchorage ships' refuse is burnt in ships' furnaces or discharged into punts and emptied at sea.

Fumigation of Vessels.

The staff consists of a sanitary inspector, three coxswains, five engine-drivers, three assistants, and one launch boy.

Plant and Equipment.

There is a fumigation depot at Berry's Bay, where coal, oil, sulphur and fumigating gear are stores, and the floating plant is berthed. The floating plant consists of two steam launches, one fitted with a Clayton fumigator, and a barge on which is installed a Ritchie fumigator.

SO₂ gas is invariably used. Fumigation is carried out by departmental staff, and supervised by the officer in charge of the shift.

The necessity for fumigation is determined by careful inspection, followed up by trapping and poisoning.

Cyanide fumigation of the passenger accommodation and superstructure is carried out by private firms under the supervision of the Quarantine staff.

Trapping and poisoning of vessels is carried out by the permanent staff, which searches vessels and collects rat carcasses after fumigation. Rat are examined and classified, and a bacteriological examination is made when considered necessary.

Deratization certificates and deratization exemption certificates are issued at the Sydney Office.

Disinfection or Fumigation of Personal Effects.

This is carried out when necessary at the Quarantine Station by steam, formalin or cyanide disinfection. Personal effects are also disinfected when necessary in ships' cabins or isolation hospitals, and in addition a large disinfector cabinet 9 ft. x 6 ft. x 8 ft. subdivided into three sections each of equal size (i.e., 3 ft. x 2 ft. x 8 ft.) for formalin, cyanide or sulphur dioxide fumigation is installed at the Parcels Post Office. The sections are principally used for the disinfection of secondhand clothing arriving from proclaimed places.

Provision in Port for Vaccination.

The Sydney Office is the distributing depot for New South Wales of all products of the Commonwealth Serum Laboratories, and ample stocks of sera, vaccines, &c., are held in cold storage, including a minimum of 600 tubes of calf lymph.

Action under the Navigation Act.

The three permanent Medical Officers of the Commonwealth Department of Health are appointed Medical Inspectors of Seamen and Medical Inspectors of Shipping. About 1,700 seamen and 133 vessels are inspected annually in accordance with the provisions of the Navigation Act.

Quarantine Station.

The quarantine station at Sydney is situated on the northern headland of the entrance to Port Jackson. It covers an area of 658 acres. The site is on a high headland with steep rocky coastline. The eastern side is bounded by the Pacific Ocean, the southern and western by the waters of Port Jackson, and the northern end adjoins the municipality of Manly and is bounded by a high stone wall. There is deep water with easy access and safe anchorage off the station harbour foreshore. The soil is of a sandy nature, and indigenous flora grows abundantly.

The station is laid out on the block and compound system; each compound can be effectively isolated from the others.

A wharf 125 feet long, fitted with a crane and narrow-gauge railway for the conveyance of stores, luggage, &c., to various sections of the station is provided. Vessels of any size can safely anchor abreast of the station; boats and tenders may land persons, luggage and stores with safety in all weathers at the wharf.

A similar wharf also facilitates landing at the Seamen's Isolation Hospital a short distance away.

Permanent Staff Employed.

There is a resident Foreman Assistant with a staff of thirteen men.

Accommodation is provided for 1,208 persons at the station. Buildings are of the block type with high gable roofs, partitioned to the ceiling, forming rooms each accommodating two or three persons; there are wide-roofed verandahs all around.

For third-class passengers dormitories are provided.

The general construction of the buildings is of weatherboard on stone foundations, with galvanized iron roofs, but buildings recently constructed as No. 2 Hospital ward, luggage rooms, bathing block, laundry, power house, disinfecting block, saloon kitchen, administrative offices and staff mess are constructed of brick.

Accommodation.

Contact—

First class (including 62 stewards)	..	..	..	220
Second class	..	..	..	112
Third class	..	..	..	393
Isolation Hospital	..	..	..	66
Observation Hospital	..	..	..	18
Administration, temporary staff, postal officials, &c.	..	..	..	25
Seamen's Isolation Hospital	..	..	..	28
Reserve bedding	..	..	..	346

Laboratory Accommodation.

The laboratory and morgue are contained within a brick building on the hospital block.

The laboratory is equipped with benches, lockers and shelves, autoclaves, sterilizer, incubator and all necessary minor equipment.

Provision is made for keeping small laboratory animals in a specially constructed wire pen with a section roofed.

Crematorium.

No crematorium exists on the station; disposal of bodies is by enclosing in a casement and burial in a local cemetery.

Disinfection Equipment.

The disinfection section of North Head Station includes a disinfecting block with two Commonwealth standard type steam disinfectors 18 feet long and 526 cubic feet capacity, fitted with appliances for disinfection by—

Steam heat to a maximum temperature of 115 degrees Centigrade.

Formaldehyde, maximum temperature of 71.1 degrees Centigrade.

Hydrocyanic acid gas, maximum temperature of 71.1 degrees Centigrade.

There is also provision for chemical disinfection by means of fumigation, soaking, swabbing, &c., and for preliminary treatment of material.

Bathing Accommodation.

There is a disinfecting bathing block, where hot and cold water and disinfecting solutions are laid on. Twenty-four bath cubicles are provided for saloon passengers and 50 cubicles for second and third-class passengers, enabling 74 persons to bathe at the one time.

In all detention quarters, hot and cold plunge and shower baths are fitted.

Laundry.

There is a modern steam laundry constructed of brick, with a concrete floor and equipped with washer machine, hydro-extractor, steam drying room, steam mangle, calorifier, set-in wash tubs with hot and cold water, ironing stove, linen racks and store.

Water Supply.

The water supply is from two local reservoirs, through 6-inch mains. The reservoirs have a total storage capacity of 1,268,000 gallons, and are filled from a local catchment area on the eastern side of the main road,

which is free from human and animal habitation. The water is wholesome and palatable. The subsoil of the catchment area is sandy and clayey. The Sydney water supply is also connected to the reservoirs, so that in an emergency they can be filled with water from that source.

An additional water storage of 14,000 gallons is maintained in iron tanks from roofing catchment.

Fire Services.

Fire appliances on the station are water pressure hydrants and chemical fire extinguishers.

There are 39 3-inch hydrants supplied by the 6-inch mains. The hydrants are so distributed in sections that no building is without protection from fire.

Hoses with couplings and nozzles are connected up in readiness, the whole being enclosed in a wooden box painted white.

Chemical fire extinguishers are provided in each building. There is also a chemical machine on wheels of 80-gallon capacity, fitted with 100 feet of hose.

Fire drill is held by the staff every two weeks, and an inspection is made by the Metropolitan Fire Brigade every three months. There is a direct telephone service between the Quarantine Station and the Metropolitan Fire Brigade; continuity of service is checked by a daily morning and evening call.

Lighting Service.

The lighting system is from a local electric supply generated in the power house, the current is 240 volts D.C. The system is controlled from a main switchboard in the power house. Electric light is available in all rooms and buildings and streets.

Oil lamps are available in all buildings for emergencies.

Telephone.

A switchboard is fitted in the administration block. Telephone communication can be made with all sections of the station, staff and with the metropolitan system. Telephones are placed in the various detention quarters.

Sewerage.

There is a water-carriage sewerage system installed, with a discharge into the ocean. Water closets are fitted with multi-flush cisterns and pedestal pans, and the arrangements conform to the regulations of the Metropolitan Board of Water Supply and Sewerage.

Drainage.

A series of water tables are provided. The ground has a natural slope which aids in the drainage of all surface and storm waters into the ocean or harbour.

Treatment of Venereal Disease.

There is accommodation for the treatment of immigrants or other passengers and seamen from overseas vessels, suffering from venereal disease, in a separate compound at the Quarantine Station. In the case of seamen, free treatment is provided.

Local Health Organization.

Port Jackson, Sydney. The Officer-in-Charge of the Sydney water police acts as the local authority under the *Public Health Act 1902*, New South Wales.

The general control and administration of the port is vested in the Sydney Harbour Trust Commissioners, who have a special officer who acts as a Sanitary Inspector.

Port Jackson is included in the combined metropolitan sanitary districts under the Metropolitan Medical Officer of Health, Sydney.

Isolation Accommodation for Infectious Diseases.

There is a infectious diseases hospital at Little Bay, with accommodation for cases of infectious disease. Ambulances are available for the transfer of patients.

Nursing facilities in case of an epidemic would be available from numerous nursing homes and hospitals.

Vaccination can be carried out by the officers of the State Department of Public Health.

Treatment of Venereal Disease.

Free clinics for the treatment of venereal diseases are provided by the State Department of Public Health, the Royal Prince Alfred Hospital, the Sydney Hospital, the Royal North Shore and the Royal South Sydney Hospitals.

Rat Control Measures.

Trapping and poisoning are carried out by two rat-catchers of the State Department of Public Health, and four rat-catchers of the Sydney Harbour Trust Commissioners on foreshores, wharfs, wharf sheds and docks, and in warehouses and all premises adjoining the wharfs, and in the city generally by seven rat-catchers employed by the Sydney Municipal Council.

Wooden wharfs are being replaced generally in the port by removal of piles and the substitution of concrete slabs on the *Monier system*.

The wharf sheds have had ceilings, linings of walls and double walls removed.

Warehouses in the vicinity of the wharfs have had floors concreted. Openings in walls to which rats might gain access have been effectually blocked up.

Ship's refuse and refuse from wharfs is deposited in concrete rat-proof bins.

Rats collected are forwarded daily for examination to the Principal Microbiologist of the State Health Department, who also classifies the rats and fleas found thereon.

A routine bacteriological examination is made of each rat which shows evidence of having died or suffered from any diseases. In any suspicious case, guinea pigs are inoculated from the rat.

SANITARY SERVICES.

Disposal of Excreta.

The port is served by the water sewerage system under the control of the Metropolitan Water, Sewerage and Drainage Board, which also controls the drainage system for surface water and storm water which discharges into the harbour.

Garbage Disposal.

Garbage and refuse from the wharfs is removed by the cleansing department of the City Council by arrangement with the shipping companies, and is incinerated at the city destructors at Moore Park or Pymont.

A certain amount of refuse is removed from ships, barges, &c., by the Harbour Trust by arrangement with the shipping companies, and taken out to sea.

Arrangement is made by licensed dealers for the removal of certain food wastes for feeding pigs.

Water Supply.

Water is supplied by the Metropolitan Water, Sewerage and Drainage Board from its general sources, collected from large catchment areas. This is laid on to the wharfs and is supplied from hydrants to vessels at the wharfs.

PORT OF NEWCASTLE.

Newcastle, the principal coaling port in Australia, is situated in New South Wales, south latitude 32 degrees 57 minutes, and east longitude 151 degrees 49 minutes on the harbour of Port Hunter. It is 80 miles north of Sydney by water.

The port limits are inside a line from Stony Point to the Eastern green beacon.

Depth of water in the harbour—At the entrance fairway, 23 ft. 6 in.; North Channel, 22 feet; Steelworks Channel, 18 feet; Stockton Channel, 14 feet; Basin entrance, 24 feet; centre of Basin, 25 feet; Basin cranes, 26 feet to 28 feet; King's Wharf, 22 feet to 23 ft. 6 in.; Lee Wharf, 24 feet to 26 feet; Lee Wharf Dolphins, 23 feet; Horseshoe Buoy, 25 feet; No. 1 North Harbour Buoy, 22 feet; Nos. 2 and 3 North Harbour Buoys, 17 feet; Anchorage, 25 feet.

Rise and fall of tide—Spring tide, 5 ft. 6 in.; neap tide, 3 ft. 6 in.

LOCAL PORT ADMINISTRATION.

The port is administered by the State Navigation Department under the Colonial Treasurer.

The State Navigation Department controls navigation, pilotage, harbour and tonnage rate collections, and the explosive magazine.

The Railway Department controls delivery of coal and the berthing of vessels at coal cranes.

The Public Works Department is in charge of the construction and maintenance of wharfs, and the dredging operations of the port.

Pilotage.

Pilotage is compulsory, except in the case of interstate vessels when the master holds a pilotage certificate. The pilot boards off the entrance.

Berthing Accommodation and Cargo Handling Facilities.

Name.	Length.
King's Wharf	1,870 feet.
Newcastle & Hunter R. S. & Co.'s Wharf ..	500 "
Market and Timber Wharf	1,000 "
A.A. Co.'s Wharf	1,150 "
Lee Wharf	1,080 "
Lee Wharf extension	500 "
Western Basin Wharf (equipped with electric coal-loading cranes)	1,800 "
Sulphide Wharf	600 "
Eastern Basin Wharf (equipped with hydraulic coal-loading cranes)	2,000 "
South End Dyke N.W. Wharf	700 "
South End Dyke S.W. Wharf	105 "
South End Dyke W. Wharf	720 "
South End Dyke N.W. Wharf	30 "
Dyke Coal-loading Wharf	5,500 "
Cattle and Timber Wharf	600 "
Stockton Wharf	600 "
Steel-works Wharf	1,803 "

There are two sheds each 150 feet by 20 feet provided at Lee Wharf. These are the only sheds provided for the handling of cargo at the port. The Hunter River Company have a shed 530 feet x 30 feet at King's Wharf.

All of the wharfs, with the exception of Stockton Wharf, are connected with the railway.

Water Supply to Wharfs and Vessels.

Water mains from the Chichester Dam are laid along all the wharfs.

A water boat which obtains supplies from the sand-bed area at Tomago is available.

Principal Imports and Exports.

Imports, apparel, textiles, metals and metal machines and machinery, oils, paints and varnishes, wood and wicker (raw and manufactured), drugs, chemicals, ores and concentrates.

Exports.

Timber undressed and poles, coal, meat (frozen), butter, rabbits and hares.

SHIPPING.

Oversea.

Year.	No. of Vessels.	Tonnage.
1924-25	715	2,253,583
1925-26	626	2,032,020
1926-27	561	1,843,293

Vessels of all the principal lines which regularly trade from the United Kingdom and Continent to Australian ports with the exception of the Royal Mail Steamers, call at Newcastle, also vessels of all nationalities from all parts of the world.

Interstate.

Year.	No. of Vessels.	Tonnage.
1924-25	.. 1,307	1,759,919
1925-26	.. 900	1,535,923
1926-27	.. 1,114	1,844,712

The lines of vessels calling at the port are Australian Union Steamship Navigation Company, Howard Smith Limited, Gibbs Bright Limited, McIlwraith and McEacharn Limited, Adelaide Steamship Company, Melbourne Steamship Company, Union Steamship Company, Huddard Parker Limited, Scott Fell Limited, James Patrick Company Limited, Broken Hill Proprietary Limited, and all ships of the Interstate Steamship Association.

Intra-state and Coastal.

Year.	No. of Vessels.	Tonnage.
1924-25	.. 3,459	1,109,039
1925-26	.. 3,154	1,051,160
1926-27	.. 3,236	1,127,520

These vessels are steamships.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Newcastle was proclaimed a first port of entry on 10th July, 1909.

The quarantine line bears north from the south end of Bullock Island Wharf to Scott's Point.

The anchorage and mooring ground is usually in the basin, but may be any portion of the harbour from the entrance to the quarantine line.

The Quarantine Officer is a full-time permanent officer of the Commonwealth Department of Health. There is also a part-time Deputy Quarantine Officer.

Boarding Facilities.

Agents advise the Quarantine Officer of the expected arrival of vessels, and the Quarantine Officer is notified by the signal station when a vessel requiring medical inspection is approaching the port. Vessels are usually boarded in the basin. Boarding is effected by means of the Customs launch during Customs hours, and by a hired launch before and after such hours.

The Quarantine Staff in port consists of a Medical Officer, Foreman Assistant and an Assistant, who are all permanent officers. The plant consists of fumigating tubs and pots, sulphur and various disinfecting agents, which are housed in a building near the wharf.

Fumigation is effected by burning sulphur in open pots, and is carried out by the Foreman Assistant and his Assistant.

The necessity for fumigation is determined by inspection for signs of rodent or vermin infestation and by results obtained from trapping and poisoning.

Trapping and poisoning are carried out by the staff. The rats are examined and classified, and, if necessary, bacteriologically examined by the Medical Officer.

A record of rodents secured and their classification is forwarded to the Divisional Office at Sydney.

Certificates of fumigation are signed by the Quarantine Officer who also issues bills of health on production of a receipt for the fee which is paid to the Receiver of Public Moneys, Customs Department.

Provision for Vaccination.

The Quarantine Officer holds a stock of 50 tubes of calf lymph, further supplies of calf lymph or other vaccines may be obtained from Sydney in a few hours.

Quarantine Station.

There is no quarantine station at Newcastle; vessels ordered into quarantine are sent to Sydney.

Action under the Navigation Act.

The Quarantine Officer is the Medical Inspector of Seamen and of Shipping. About 270 seamen and 21 vessels are examined annually.

LOCAL HEALTH ORGANIZATION.

The port of Newcastle is part of the Hunter River combined sanitary district, consisting of eighteen municipalities and five shires, which is under the supervision of a full-time permanent Medical Officer of Health, who is assisted by one sanitary inspector and one nurse trained in public health work. Each municipality in Newcastle has one or more health inspectors.

Isolation Accommodation for Infectious Diseases.

There are 24 beds for infectious cases in the isolation wards of the Newcastle Hospital and six at Wallsend Hospital 7 miles away.

The Newcastle District Ambulance provides transport for the conveyance of patients.

Nursing facilities are provided by a trained nursing staff at the Newcastle and Wallsend Hospitals and numerous private hospitals.

Treatment of Venereal Disease.

A free clinic is provided for the treatment of venereal diseases at the Newcastle Hospital.

Facilities for Vaccination.

Small supplies of calf lymph are kept in cold storage, and further supplies can be obtained at short notice from Sydney.

Laboratory facilities are available at the Newcastle and Wallsend Hospitals. A small laboratory is attached to the office of the Medical Officer of Health.

Rat-control Measures.

Rat-extermination measures are carried out daily on wharfs by means of poison baits laid by employees of the Railway and Navigation Department.

The Health Department has a temporary full-time rat-catcher, who sets traps along wharfs in the City of Newcastle and in buildings adjacent to the water front.

Owners of wharf sheds, warehouses, and docks are required by regulations under the "Public Health Act," to keep their premises free from rats. This is accomplished by poisoning and trapping and occasionally by fumigation with cyanide. An agreement has been made

that all new wharfs will be rat-proofed by backing with Monier concrete slabs. About half a mile of wharf is so rat-proofed, the remainder has earth and rubble and timber backing. Warehouses are required by regulation under the Health Act to be rendered rat-proof in construction.

The City Council pays a bonus of 6d. per head for rats brought to the depot. Rats are examined and classified by the Medical Officer, and a bacteriological examination is made if it appears advisable.

SANITARY SERVICES.

The greater part of Newcastle and suburbs have water sewerage, the outfall being to the ocean at Merewether.

Drainage.

Storm-water drains run into the harbour, other drains are connected to the sewerage system.

Garbage Disposal.

Garbage is removed weekly, daily, or oftener as required from the city and suburbs and disposed of by earth burial.

Garbage from vessels is either burned in the ship's furnaces or kept in rat-proof receptacles and dumped at sea.

Water Supply.

The water supply for the city is obtained from a dam on the Chichester River, occasionally this is supplemented by water from the Walka Reservoir at West Maitland, which is drawn from the Hunter River and stored before use. Distribution is by cast-iron pipes.

PORT KEMBLA.

Port Kembla is situated in New South Wales (latitude 34 degs. 29 mins. S., longitude 150 degs. 56 mins. E.), near Wollongong, about 50 miles by water from Sydney. The harbour is protected by two breakwaters north and east. The water within the breakwaters is often rough for launches. The entrance is 1,650 feet wide.

Boundaries.

Outer or eastern boundary is a line joining the end of the two breakwaters. Inner boundary is delimited by the land on the margins of the port, which is covered at mean high water.

Depth of water at low water at the entrance channel is 51 feet. The depth at No. 1 low level coal jetty, 24 feet to 35 feet; No. 3 high level coal jetty, 18 feet to 24 feet; No. 4 general cargo jetty, 23 feet to 34 feet.

Rise and Fall of Tide.

The mean spring rise is 5 ft. 6 in., and mean neap tide rise, 3 ft. 6 in.

Local Port Administration.

The general control and administration of the port is vested in the State Department of Public Works.

Pilotage.

Pilotage is not compulsory; there is no pilot at the port, but the Harbour Master will pilot a vessel in. He boards outside or inside the entrance.

Berthing Accommodation.

There are three jetties stretching out from the shore to deep water.

No. 1 low level coal-loading jetty on west side of port, length 1,343 feet, width 40 feet, is connected with State railways. Coal is loaded by electric belts along the wharf into elevators and from the elevators is loaded into vessels. There are no sheds on the jetty. The jetty is constructed of timber on timber piles.

No. 3 high-level coaling jetty on south side of harbour is connected to State railway system. Length 900 feet, loaded trucks run overhead on the high-level jetty and tip the coal into chutes, where it is directed into vessel's holds. There are no sheds on the jetty. The jetty is constructed of timber on timber piles.

No. 4 low-level cargo jetty on south side of harbour, 500 feet long and 50 feet wide, is connected to the State railway system. It is equipped with two electrically-driven cranes.

All these wharfs have water laid on from the town supply.

Principal Imports and Exports.

The principal imports are iron and copper ore from Tasmania, sulphur and rock phosphate.

Exports—Coal and coke.

SHIPPING.

Oversea Shipping, inward and outward.

Year.	No. of Vessels.	Tonnage.
1926 ..	156 ..	826,315
1927 ..	146 ..	745,117

Interstate Vessels, inward and outward.

Year.	No. of Vessels.	Tonnage.
1926 ..	95 ..	206,359
1927 ..	130 ..	288,289

Intra-state Vessels.

Year.	No. of Vessels.	Tonnage.
1926 ..	232 ..	121,622
1927 ..	213 ..	111,785

The principal lines of interstate vessels are Howard Smith, McIlwraith McEacharn, Huddart Parker, Melbourne Steamship Company, Union Steamship Company, Adelaide Steamship Company, Australian Union Steam Navigation Company, Scott Fell Limited.

The intra-state vessels are all steamers.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Port Kembla was proclaimed a first port of entry on 10th July, 1909. The quarantine anchorage is within the entrance.

The Quarantine Officer is a local medical practitioner, who acts in a part-time capacity to attend to the requirements of the Quarantine Act at the port. Most of the vessels inspected are direct from overseas. About 30 vessels are inspected annually.

The Quarantine Officer is informed by telephone by the Customs Officer or the Harbour Master when a vessel requiring inspection is due. The agents invariably notify Customs as well as the Harbour Master in advance of the vessel's arrival.

The vessel usually enters the harbour and drops anchor inside the breakwater.

The Public Works Department launch takes the Quarantine Officer, Customs Officer, and Harbour Master to the vessel. The Customs Officer and Harbour Master board after pratique has been given.

There is no quarantine station at Port Kembla. Vessels ordered into quarantine are dealt with at Sydney.

There is no quarantine staff with the exception of the part-time Quarantine Officer, and vessels are not inspected while lying at the wharf, and trapping and poisoning are not carried out.

When fumigation is required a fumigation officer comes from Sydney with the necessary equipment; only about six vessels are fumigated annually.

There are no arrangements in force for the collection and examination of rats from the wharfs.

Ships' refuse is kept on board vessels and dumped at sea; there is no provision for taking refuse ashore.

Action under the Navigation Act.

The Quarantine Officer is the Medical Inspector of Seamen. The Customs Officer is the Superintendent of Mercantile Marine.

No inspection of vessels under the Navigation Act is carried out at this port.

LOCAL HEALTH ORGANIZATION.

The officer in charge of the Wollongong Police District acts as Local Authority under the *Public Health Act* 1902. The town at Port Kembla is within the Municipality of Central Illawarra. There is a Government Medical Officer resident at Port Kembla. The Council of the Municipality of Central Illawarra employs one health inspector.

There is an isolation ward at the Wollongong Hospital, about 4 miles distant, where infectious diseases are treated. There is a branch of the New South Wales Ambulance Brigade at Wollongong, which is equipped with motor ambulances for the transport of patients.

Laboratory facilities are available in Sydney. The treatment of venereal disease is carried out at the Wollongong Hospital.

Rat Control Measures.

No measures are taken to control or eradicate rats; the wharfs are constructed of timber, and the shore banks are lined with rubble which is not rat-proofed.

SANITARY SERVICES.

Disposal of Excreta.

A pan service is provided with burial of excreta in trenches.

Drainage surface channels connect with a large storm-water drain discharging into the harbour.

Garbage Disposal.

Garbage is removed once a week, and is partly burned and then covered with earth at the Council's depot.

Water Supply.

An abundant supply of water is obtained from the Cordeaux Dam and is reticulated to the town and wharfs.

QUEENSLAND PORTS.

Brisbane.
Maryborough.
Bundaberg.
Gladstone.
Rockhampton.

Mackay.
Bowen.
Townsville.
Cairns.
Thursday Island.

PORT OF BRISBANE.

Brisbane, the capital of Queensland, is situated on the Brisbane River, which flows into Moreton Bay, south latitude 27 degs. 27 mins. east longitude 153 degs. 2 mins. The port limits are as follow:—

Commencing at the south-easterly extremity of Caloundra Head; thence by a line to Cape Moreton; thence by Moreton Island to its southern extremity; thence by a line to the northern extremity of Stradbroke Island; thence by Stradbroke Island to its southern extremity; thence by a line to the extremity of the mainland forming the south head of the passage or opening there; and thence by the mainland to the point of commencement, including all rivers, creeks, and navigable waters in the above-named area.

Tides.

It is high water full and change on the Bar at 10.5, at the Dry Docks 11.0. Mean spring tides rise 6 ft. 7 in., and mean neaps 3 ft. 9 in.

LOCAL PORT ADMINISTRATION.

All Queensland ports are administered and controlled by the Department of the Treasury through the sub-departments of Marine and Harbours and Rivers. Several of the ports have Harbour Boards, who levy and collect harbour dues on all goods imported or exported and expend them in port maintenance and improvement. Additions or alterations of port facilities are carried out by the Harbour Board, but must be first submitted to and approved by the Department of the Treasury. These Boards are composed of certain members nominated by the Government and other members elected by the electorates most concerned with the welfare of the port. The ports which have Harbour Boards are Bundaberg, Gladstone, Rockhampton, Mackay, Bowen, Townsville, and Cairns. In Brisbane and the remainder of the ports—Maryborough, Cooktown, Innisfail, Port Douglas, Thursday Island, Normanton, and Burketown—the harbour dues are levied and collected by the Marine Department, which also controls the lighting of the port, movements of shipping, pilotage, and surveys of vessels, &c., under the State Navigation Regulations, and so on. The other sub-department—Harbour and Rivers—controls or supervises all port improvements, dredging and other constructional and maintenance work.

The central offices of the Marine and Harbours and Rivers Departments are located in Brisbane.

Pilotage.

Pilotage is compulsory, and is arranged for by the Port Master, the pilots boarding arriving vessels at the cruising ground of the pilot vessel, inside an imaginary line drawn from Cape Cliff N. 20 degrees E. (Mount Tempest in line with Cape Cliff) $7\frac{3}{4}$ miles; thence to Fairway Buoy at the entrance to North Channel; thence along the eastern edge of East and Venus Banks to the outer entrance to Freeman Channel; thence to Cape Moreton.

Vessels requiring pilots must approach the cruising ground, carefully observing the sailing directions for approaching the port, and make the pilot signal (day or night) when within 10 or 15 miles of the cruising ground, and continue to do so until answered either from Cape Moreton or the pilot boat.

Berthing Accommodation.

				Length.	Minimum Depth of Water	Rail Connexion.	Shed.
				Feet.	Feet.		
outh Brisbane Reach—							
Fisheries Wharf	..	..	..	100	10	No	Yes
Stanley Wharf	..	..	..	872	20	No	Yes
Graziers Wharf	..	..	..	100	18	No	Yes
Musgrave Wharf	..	..	..	1,420	26	Yes	Yes
Burke's Wharf	..	..	..	198	17	No	Yes
Railway Coal Wharf	..	..	..	1,100	up to 30	Yes	No
Thomas Brown Wharf	..	..	..	500	24	No	Yes
Town Reach—							
A.U.S.N. Mary-street Wharf	..	..	..	460	23	No	Yes
A.U.S.N. Norman-street Wharf	..	..	..	386	23	No	Yes
A.U.S.N. Charlotte-street Wharf	..	..	..	590	23	No	Yes
A.U.S.N. Eagle-street Wharf	..	..	..	350	24	No	Yes
Municipal Wharfs	..	..	..	1,382	26	No	Yes
Howard Smith Wharfs	..	..	..	1,260	24	No	Yes
Bulimba Reach—							
C.S.R. Wharf	..	..	..	200	20	Yes	Yes
Dalgety's Wharf	..	..	..	1,041	24	Yes	Yes
Mercantile Wharf	..	..	..	1,075	26	Yes	Yes
Brisbane Stevedoring Wharf	..	..	..	1,040	26	Yes	Yes
Below Breakfast Creek—							
Cold Store Wharf	..	..	..	376	26	Yes	Yes
Borthwick's Wharf	..	..	..	360	24	No	Yes
A.M.E. Wharf	..	..	..	460	23	Yes	Yes
Pinkenba Railway Wharf	..	..	..	1,056	26 to 28	Yes	Yes
Q.M.E. Wharf	..	..	..	350	24	Yes	Yes

Rail connexion is with the Queensland Government Railways.

Water Supply to Wharfs and Vessels.

Water is laid on to all the wharfs from the city water mains and by hydrants and canvas or rubber hose from wharfs to vessels.

Principal Imports and Exports.

Principal imports are clothing, machinery, motor cars, oil and manufactured goods.

Exports are meat, wool, hides, skins, tallow, butter, and cheese.

SHIPPING.

Oversea Shipping (Inwards).

Year.	No. of Vessels.	Tonnage.
1924-25 ..	391 ..	1,732,101
1925-26 ..	393 ..	1,653,487
1926-27 ..	443 ..	1,885,156

Interstate Shipping (Inwards).

Year.	No. of vessels.	Tonnage.
1924-25 ..	405 ..	964,864
1925-26 ..	393 ..	870,091
1926-27 ..	440 ..	947,307

Intra-state Shipping.

Year.	No. of vessels		Tonnage.	
	Inwards.	Outward.	Inwards.	Outward.
1924-25 ..	360	372	551,556	525,759
1925-26 ..	330	357	536,648	567,365
1926-27 ..	308	351	497,434	548,821

All are steamships.

Interstate Lines of Vessels and Service.

Adelaide Steamship Co. Ltd.	Weekly.
A.U.S.N. Co. Ltd.	"
Australian Steamship Co. Ltd.	Bi-weekly.
John Burke and Co. Ltd.	Approximately fortnightly.

COMMONWEALTH OF AUSTRALIA—STATE OF QUEENSLAND.

List of Oversea Vessels Calling at Brisbane.

Line.	Monthly or Other.	Route.
Australia-Oriental ..	Monthly	Hong Kong, Manila via Thursday Island and Ports to Melbourne
Burns Philp Mail Line ..	Monthly	Singapore, Batavia and Java Ports to Darwin, Thursday Island and Ports to Melbourne
Burns Philp Island Line ..	Monthly	Solomon Islands to Brisbane and Sydney
Burns Philp Island Line ..	Bi-monthly ..	Rabaul and Papua via Brisbane to Sydney
Burns Philp Island Line ..	Three-weekly ..	Papua to Cairns, Brisbane and Sydney
Eastern and Australian (E. & A.)	Monthly	Japanese Ports via Hong Kong, Manila, Sandakan, Thursday Island and Ports to Melbourne
Nippon Yusen Kaisha (N.Y.K.)	Monthly	Japanese Ports via Hong Kong, Manila, Sandakan, Thursday Island and Ports to Melbourne
Osaka Shosen Kaisha-Australia Line (O.S.K.)	Monthly (cargo only)	Japanese Ports, Brisbane, Sydney and Melbourne
Yamashita Kisen Kaisha (Y.K.K.)	Monthly (cargo only)	Japanese Ports, Brisbane, Sydney and Melbourne

List of Oversea Vessels Calling at Brisbane—continued.

Line.	Monthly or Other.	Route.
Royal Packet Nav. Co. (K.P.M.)	Monthly	Singapore, Batavia and Java Ports to Brisbane, Sydney and Melbourne
Orient Royal Mail Line ..	Bi-monthly ..	London, Gibraltar, Naples via Suez, Colombo to Fremantle and Australian Ports to Bris- bane
Aberdeen-Commonwealth Line	Monthly	London, Gibraltar, Naples via Suez, Colombo to Fremantle and Australian Ports to Bris- bane
Messageries Maritime (M.M. Co.)	Monthly (extends to Brisbane for wool sales only)	Dunkirk, Havre, Lisbon, Mar- seilles via Suez to Fremantle and Ports to Brisbane
Australia-Italia S.S. Co. ..	Monthly (extends to Brisbane for wool sales only)	Genoa, Leghorn, Naples via Suez and Colombo to Fremantle and Ports to Brisbane
Norwegian-Australian Line	Irregular ..	Stockholm, Gothenburg, Ham- burg, Antwerp to Melbourne and Ports to Brisbane
Holland-Australia Line ..	Monthly (extends to Brisbane for wool sales only)	Hamburg, Bremen, Rotterdam, Antwerp, Genoa via Suez to Fremantle and Ports to Bris- bane
Blue Funnel Line ..	Monthly	Hamburg and Continental Ports and Glasgow via Capetown to Port Adelaide and Ports to Brisbane
White Star Line	Irregular ..	Liverpool via Capetown to Fre- mantle and Ports to Brisbane
Aberdeen White Star Line	Irregular ..	Liverpool via Capetown to Fre- mantle and Ports to Brisbane
Transatlantic S.S. Co. ..	Irregular ..	Scandinavian Ports via New York and Panama to Brisbane, Sydney and Melbourne
East Asiatic Line ..	Irregular ..	Norwegian and Continental Ports to Fremantle and Ports to Brisbane
Union S.S. Co. of New Zealand	Irregular ..	Avonmouth, Manchester, Leghorn via Port Said and Aden to Fremantle and Ports to Bris- bane
British India Steam Nav. Co. (B.I.S.N. Co.)	Irregular ..	United Kingdom Ports via Cape- town to Fremantle and Ports to Brisbane
Shaw Savill Line ..	Irregular ..	Glasgow via Capetown to Fre- mantle and Ports to Brisbane
Clan Line	Irregular ..	India to Bunbury, Fremantle, and Ports to Brisbane
Clan Line	Irregular ..	Rangoon to Brisbane, Sydney and Melbourne
German-Australian Line ..	Monthly	Hamburg and Northern European Ports via Capetown to Adelaide and Ports to Brisbane
North German Lloyds (N.G.L.)	Monthly	Hamburg and Northern European Ports via Capetown to Adelaide and Ports to Brisbane
Hain Steamship Co. Ltd. ..	Irregular ..	Liverpool via Capetown to Ade- laide and Ports to Brisbane
British Imperial Oil Co. ..	Monthly	Batavia to Cairns and Ports to Brisbane

List of Oversea Vessels Calling at Brisbane—continued.

Line.	Monthly or Other.	Route.
Canadian Merchant Marine	Monthly	Montreal via Panama to Brisbane, Sydney, Melbourne and Adelaide
Federal Steam Nav. Co. ..	Irregular	New York via Panama to Brisbane and Southern Ports
Commonwealth Dominion Line (C. & D.)	Monthly	New York via Panama to Brisbane and Southern Ports
Ellerman Hall Line ..	Irregular	New York via Panama to Brisbane and Southern Ports
Vacuum Oil Co. Ltd. ..	Monthly	San Francisco to Brisbane and Sydney
American-Australian Oriental Line	Irregular	Vancouver and Pacific Ports, United States of America to Brisbane, Sydney and Melbourne

ADMINISTRATION UNDER THE QUARANTINE ACT.

Brisbane was proclaimed a first port of entry on the 10th July, 1909.

Quarantine Line.

The quarantine line is an imaginary line drawn north-west across the Brisbane River from the north-easterly extremity of Gibson Island.

Anchorage and Mooring Ground.

All that area $2\frac{1}{2}$ cables north and south of a line between the Pile Lighthouse and the north-west compass adjusting beacon on the northern end of Mud Island, having for its eastern limit St. Helena Island Jetty bearing 182 degrees, and for its western limit a line drawn on the bearing of 10 degrees through a position from which the Pile Lighthouse bears 280 degrees distant $2\frac{1}{2}$ cables. Provided that on the request of the master, agent, or owner of any vessel subject to quarantine and on payment to the Chief Quarantine Officer for the North-eastern Division, Brisbane, of the fee mentioned hereunder the vessel may, with the approval of the Chief Quarantine Officer (General) or the Quarantine Officer appointed for the port of Brisbane be taken for inspection to one of the following places instead of to the mooring ground:—

- (1) Southwards of a line joining Tangalooma Point and Woody Point £10
- (2) Between a line joining Tangalooma Point and Woody Point and a line joining Cowan Cowan and Skirmish Point 15
- (3) Northwards of a line joining Cowan Cowan and Skirmish Point 25

Quarantine Officers.

The Director, Division of Tropical Hygiene, who is also Chief Quarantine Officer (General) for the North-eastern Division, is stationed in Brisbane.

The Quarantine Officer is a full-time permanent officer of the Commonwealth Department of Health; a local medical practitioner is appointed Deputy Quarantine Officer, and acts in a part-time capacity.

The number of vessels inspected under the Quarantine Act is from 20 to 24 a month.

Boarding Facilities.

Advance written notice of the date and approximate time of arrival of vessels is received from the agents regarding all vessels arriving at the port, and by arrangement the Lighthouse Keepers at Cape Moreton, Cowan Cowan and Pilelight notify by telephone when a vessel passes inwards.

The Quarantine Officer boards by departmental launch from Pinkenba or Lytton, and meets the vessel off Lytton Quarantine Station jetty. Two departmental launches, *Dorunda* and *Bancroft*, are kept at Lytton Quarantine Station. All shipping messages from light-houses are relayed to the Quarantine Officer through the Foreman Assistant at Lytton, and on the Quarantine Officer's instructions the Foreman Assistant arranges the launch movements.

Quarantine Staff in Port.

The staff consists of a Sanitary Inspector, a Coxswain of the Fumigating Barge, and an Engine-driver.

Inspection of Vessels.

All oversea vessels and most coastal vessels are visited on arrival and inspected for compliance with berthing regulations. Search is made for rodents or vermin, and the vessel's fumigation certificate and relative papers are checked. These inspections are carried out by the Sanitary Inspector and the Fumigation Staff. The results are reported through the Quarantine Officer to the Director, Division of Tropical Hygiene, who determines the action to be taken.

Removal of Refuse.

The agents arrange with a contractor for the removal and destruction of refuse. The contractor engaged must be authorized by the Director, Division of Tropical Hygiene.

Fumigation of Vessels.

For Staff, see "Quarantine Staff in Port."

Fumigation Plant.

The Fumigation Office and Store is situated in the Old Drill Hall, Adelaide Street.

A fumigating barge, with a modified Ritchie fumigating apparatus, and self-propelled, is available.

Methods of Fumigation.

(a) By sulphur dioxide generated by combustion of sulphur on the fumigating barge, or in the case of small local vessels, by burning sulphur in open pots.

(b) By hydrocyanic acid gas. This is carried out by a private firm, and supervised by a member of the fumigating staff.

Trapping and Poisoning.

The fumigating staff carry out all trapping and poisoning. As far as practicable every vessel is searched by the fumigating staff after fumigation and all rodent carcasses collected. The staff classify the rats and forward them to the Commonwealth Health Laboratory, Toowoomba, for laboratory examination.

Reports on the inspection of vessels and the number and classification of rats collected are forwarded to the Quarantine Officer and recorded.

Fumigation certificates are signed by the Quarantine Officer, and countersigned by the officer supervising the fumigation.

Bills of Health.

The prescribed fee is paid to the Collector of Public Moneys, and after sighting the receipt the Quarantine Officer makes out and issues bills of health.

Disinfection.

Asiatic baggage and other articles requiring disinfection are disinfected at the Lytton Quarantine Station.

Quarantine Station.

The Quarantine Station is situated at Lytton, near the mouth of the Brisbane River, on its southern bank. The site is low-lying and fairly level, and is bounded on three sides by a Defence Department reserve, and on the other side by the Brisbane River.

A good jetty for launches is available, with steps and landing stage for passengers. A crane is available on the jetty head to facilitate landing of the sick, luggage, and stores.

The permanent staff employed are—a foreman assistant, two engine-drivers, a coxswain, and four assistants.

Accommodation.

All buildings are of wood with galvanized iron roofs, and are raised from the ground on concrete stumps.

The available accommodation is—

	1st.	2nd.	3rd.
Contact	13	13	400
Isolation Hospital ..	13	—	—
Observation Hospital	6	—	—

Asiatic quarters are in tents and troop huts (included in third class above), with separate kitchen, dining room, shelter shed and lavatory and bath blocks.

An additional 219 beds are available, and emergency arrangements could be made by utilizing verandahs and other rooms to accommodate at least 219 in excess of the above figures.

Isolation Hospital.

Two wards of four beds, one convalescent ward of five beds, change block, day room, baths and lavatories attached; one ward completely mosquito proofed.

Observation Hospital.

Six single bedrooms, two mosquito proofed, with necessary day room, lavatories and baths attached.

Disinfection.

A two unit standard steam disinfecter is available with attachments for the use of cyanide or formaldehyde gas. In addition there is a concrete fumigating chamber 10 feet x 10 feet x 10 feet.

A bathing block of the usual service type is available with hot and cold water equipped to deal with ten cabin passengers and twenty crew, third class or deck simultaneously.

The water supply is from city mains, supplemented by tanks.

Fire Appliances.

Fire hydrants and hoses are available at different points on the station, and each building is adequately equipped with fire buckets and chemical fire extinguishers.

Lighting is effected by means of kerosene lamps.

Telephones.

The Medical Officer's and Foreman Assistant's quarters are connected with the city telephone system, and from these an internal telephone system connects up all the more important buildings on the station.

Sewerage.

A water carriage sewerage system is installed, discharging into the river with a chlorination chamber for disinfection of sewerage as necessary.

Provision for Vaccination.

Stocks of calf lymph, plague vaccine and cholera vaccine are kept for quarantine emergencies. In addition, stocks of all Commonwealth Serum Laboratory products are kept and are available at the Divisional Office, Eagle-street, Brisbane.

Action under the Navigation Act.

The Director, Division of Tropical Hygiene, and the Quarantine Officer are appointed Medical Inspectors of Seamen and Medical Inspectors of Shipping. Over 300 seamen and an average of twenty vessels are examined annually.

LOCAL HEALTH ORGANIZATION.

There is the Government Health Department and City of Brisbane Health Department.

The health staff of the Government Health Department consists of a Government Medical Officer, with two Chief Inspectors and Health Inspectors.

The health staff of the City Health Department consists of a Medical Officer of Health, a Chief Health Inspector and Health Inspectors.

The organization for dealing with epidemics of infectious disease among the port population is the Health Department Staff and the City of Brisbane Health Staff.

Isolation accommodation is provided by the Wattlebrae Infectious Diseases Hospital.

Motor ambulances are available for transport of the sick.

Laboratory facilities are provided by the State Health Department and the Brisbane and South Coast Hospitals Board Laboratory.

Venereal Disease.

Free clinics are provided for the treatment of seamen.

Rat Control Measures.

The State Health Department supply a permanent gang of nine expert rat catchers, including a foreman in charge, with dogs trained in the work of rat destruction.

They are equipped with a Clayton gas machine for killing rats in their burrows, which are dug out where possible after fumigation.

Rat extermination methods are carried out on wharfs. The foreshores under wharfs have been rat proofed by concrete baffle walls carried down to a minimum depth of 2 feet below the mud seal, and the river bank protected.

All Government barges and other craft are periodically cyanided by the State Health Department, baits are laid on foreshores, wharf sheds, warehouses, docks, &c.

Rats are regularly examined at the Health Department's Laboratory.

There is a city disinfection plant for disinfecting articles.

SANITARY SERVICES.

Disposal of Excreta.

Part of the city is connected with a water sewerage system, which is being extended. The sewage is discharged into the river. The remainder is served by the double pan system. The excreta is either taken out to sea and dumped or buried in shallow trenches at various sanitary depots.

Water Supply.

The source of supply is the Brisbane River and the Enoggera catchment area. The water is filtered and reticulated under constant pressure.

The Brisbane water supply is controlled by the Metropolitan Water Supply and Sewerage Board.

MARYBOROUGH.

Maryborough is situated on the banks of the Mary River, about 20 miles from its entrance, south latitude 25 degrees 30 minutes east, longitude 152 degrees 43 minutes. It is 167 miles by rail from Brisbane. The port limits are as follow:—

The area between the mainland and Great Sandy Island from a line joining Hook Point and the eastern extremity of Inskip Point to the parallel of 25 degrees 7 minutes south latitude, including all rivers, creeks and navigable waters in the above-named area.

The entrance to the river Mary from the north is by Hervey Bay and from the south by Wide Bay.

It is high water, full and change, at the river heads at 9 hours 55 minutes, and at Maryborough at 11.25. The rise of the tide at the heads is from 7 feet to 10 feet, and the stream runs at from 3 to 4 knots.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the Marine Department of Queensland. The local representative is the Harbour Master.

Pilotage.

The pilot service at Inskip Point has been discontinued. Vessels requiring the services of a pilot through Sandy Strait must give notice to the Harbour Master at the port of departure at least 24 hours before departure.

Unless a vessel is bound to or from Maryborough, pilots for the Straits are not available on Sundays or holidays. The pilot boards off Point Inskip.

Anchorage.

Wide Bay Harbour is the anchorage inside Wide Bay bar and to the westward of Point Inskip, where there is good shelter in from 5 to 6 fathoms.

Berthing Accommodation.

Wharfs.		Length. Feet.	Depth. Feet.	Shed. Square feet.
Union Wharf	..	150	14	5,000
Australian	..	175	15	5,105
Howard Smith	..	250	15	3,390
Government Wharf ..	..	540	12	2,400
Hart and Co.—				
Inner Berth	..	60	20.6	1,200
Outer Berth	..	35	24.3	1,200

Water Supply to Wharfs and Vessels.

Water is laid on to the wharfs from the town supply, which is obtained from Tinana Creek.

Principal Imports and Exports.

Principal Imports—Spirits, cigarettes, and cigars, preserved fish, wearing apparel and textiles, iron and steel bars, and plates and machinery.

There are no direct exports.

SHIPPING.

*Oversea Shipping—Nil.**Interstate.*

Year.	No. of Vessels.	Tonnage.
1924-25	8	1,574
1925-26	4	890
1926-27	5	1,922

There is no constant line or regular service except a small steamer engaged in timber trade to Grafton, New South Wales. Owners: Wilson, Hart and Company.

Intra-state (Inward).

Year.	No. of Vessels.	Tonnage.
1924-25	141	34,286
1925-26	131	39,651
1926-27	127	40,486

Steamships are the only vessels calling at this port.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Maryborough is not a first port of entry. There is no mooring ground or quarantine anchorage proclaimed.

The Quarantine Officer is a local medical practitioner, who acts in a part-time capacity to attend to any requirements of the Quarantine Act at the port.

Inspection of a vessel is not often required. The agents advise the Quarantine Officer of any vessel requiring pratique and the Quarantine Officer boards with the pilot or by private launch.

Quarantine Staff.

There is no Quarantine Staff at Maryborough with the exception of the part-time Quarantine Officer.

No fumigation or trapping of vessels is carried out at this port.

Provision for Vaccination.

Calf lymph vaccine could be obtained from Rockhampton or Brisbane when required.

Action under the Navigation Act.

The Quarantine Officer is also the Medical Inspector of Seamen; only a few examinations are made.

No inspection of vessels under the Navigation Act is carried out at this port.

Local Health Organization.

Maryborough has a population of 12,000. The local Health Authority is the City Council, which appoints a Health Committee from its members.

The local health staff consists of a Medical Officer of Health appointed by the Council, a Government Medical Officer appointed by the State Government, a certificated Health Inspector, and assistant appointed by the Council.

Isolation Accommodation for Infectious Diseases.

There is a good General Hospital, where isolation accommodation is provided for infectious diseases. Transport and nursing facilities are provided by the hospital. Provision is made at the General Hospital for the free treatment of venereal disease. Laboratory facilities are provided at the General Hospital.

Rat Control Measures.

There is an official rat-catcher appointed by the City Council who is continually employed in deratization of wharfs, sheds, warehouses, and the city generally.

Smears are taken from every rodent destroyed and forwarded to the Department of Microbiology, Brisbane, for examination.

The Council's by-laws deal with the rat-proofing of all buildings.

SANITARY SERVICES.

Disposal of Excreta.

A pan service is provided with burial of excreta in accordance with the Sanitary Conveniences and Night-soil Regulations 1926.

Also there are 37 septic tanks with effluents discharging into porous soil or sewers according to their situation.

Drainage.

There is a deep storm-water drainage system up to a 5-ft. sewer (Newtown) and a 9-ft. (in the City).

Garbage and Refuse Removal.

Garbage is removed in covered bins and tipped to a face at a garbage depot.

Water Supply.

The water supply is obtained from Tinana Creek. There is a weir with pumping engines 9 miles south. The water is pumped by two 10-ft. rising mains to a 670,000-gallon service reservoir; thence the water is conducted by one 12-in. and one 9-in. gravitation mains 7 miles to a 500,000-gallon town reservoir, which has a booster pump. The water is reticulated throughout the city.

BUNDABERG.

Bundaberg is the port of a rich agricultural and sugar-growing district in Central Queensland, south latitude 24 degs. 37 mins. and east longitude 152 degs. 19 mins., and is 180 miles by water from Brisbane. The limits of the port are, the Burnett River from the head of navigation to the 4-fathom contour off the entrance, including the north channel and its entrances.

It is high water at the Heads, full and change, at 9 hours 40 minutes. The usual rise at springs is 9 feet. The first of the flood and the last of the ebb run nearly 4 knots at the entrance and at the Upper Flats the stream is still stronger.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the Marine Department of Queensland and the Bundaberg Harbour Board. The Harbour Master represents the Marine Department.

Pilotage.

Pilotage is compulsory for oversea vessels and for non-exempt interstate and other vessels.

Vessels requiring the services of a pilot must give 48 hours' notice to either the Port Master, Brisbane, or the Harbour Master, Maryborough, to allow the pilot, who is stationed at Maryborough, to arrive at Bundaberg.

Berthing Accommodation.

Name of Wharf.		Length. Feet.	Minimum depth of water. Feet.	
New Bundaberg	.. ..	25	..	4
Fairymead	.. ..	50	..	20
Distillery	.. ..	21	..	12
Millaquin Coal	.. ..	22	..	12
Millaquin Sugar	.. ..	23	..	14
Harbour Board	.. ..	360	..	14
Harbour Board	.. ..	123	..	14

These are all private wharfs. A railway runs to the Harbour Board's main wharf and to the Harbour Board's sugar and coal wharfs, and is connected with the Queensland Government Railways.

Water Supply to Wharfs.

Only the Harbour Board's main wharf has a water supply connected with the town supply.

Principal Imports.

Tinned fish, wearing apparel, manufactured metal and fabric.

Exports—Nil.

SHIPPING.

Oversea Shipping—Nil.

Interstate Shipping.

Year	No. of Vessels.		Tonnage.
1924-25	..	2	2,894
1925-26	..	—	—
1926-27	..	—	—

Intra-state Shipping.

Year.	No. of Vessels Inward.		Tonnage.
1924-25	..	92	30,066
1925-26	..	65	30,872
1926-27	..	56	25,561

These intra-state vessels are all steamships.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Bundaberg is not a first port of entry, and owing to the strong current and the comparatively shallow water oversea vessels rarely call there.

There is no quarantine line or anchorage.

The Quarantine Officer is a local medical practitioner, who acts in a part-time capacity to attend to the requirements of the Quarantine Act at the port. He boards vessels requiring inspection with the pilot.

Quarantine Staff.

There is no quarantine staff at Bundaberg with the exception of the part-time Quarantine Officer.

The Customs Officer supervises vessels for compliance with the berthing regulations.

Fumigating and trapping and poisoning are not carried out at this port. Should fumigation be required, arrangements would be made by Brisbane to send an officer of the Quarantine Service with the necessary gear.

Provision for Vaccination.

Stocks of calf lymph may be obtained from Brisbane.

Action under the Navigation Act.

Medical inspection of seamen is carried out by the part-time Quarantine Officer.

No inspection of vessels under the Navigation Act is carried out at this port.

LOCAL HEALTH ORGANIZATION.

Bundaberg has a population of over 10,000.

There is a joint health board for the City of Bundaberg and the Shires of Gooburrum and Woongarra.

The local health staff consists of a Medical Officer of Health, a Government Medical Officer and an inspector.

An Isolation Hospital for infectious diseases is owned and maintained by the joint Health Board, and is administered and staffed by the General Hospital. There is accommodation for twenty beds.

Transport of sick is carried out by the Queensland Ambulance Transport Branch with four motor vehicles.

Nursing facilities are available at the General Hospital.

Venereal Diseases.

The State Government have a building suitably equipped in the grounds of the General Hospital, where treatment is given free of charge.

Laboratory facilities for diagnosis and research work are provided by the Laboratory of the Brisbane Department of Public Health and by the Commonwealth Health Laboratory at Rockhampton, from which supplies of calf lymph for vaccination may be obtained.

Rat Control Measures.

A rat-man is permanently employed in the destruction of rats on wharfs, sheds, warehouses, and foreshores. Dogs and ferrets are used and poison baits are laid.

All rats caught are numbered and recorded and classified daily. Smears are taken and forwarded each week to the Brisbane Public Health Department's Laboratory for bacteriological examination.

Rat-proofing of wharfs and sheds has not been carried out.

SANITARY SERVICES.

Disposal of Excreta.

A daylight pan service is provided, with burial of excreta in trenches at a sanitary depot.

Drainage.

Surface drainage is carried out by water tables leading to various water courses, thence to the river. Concrete channels convey sullage waters from the various adjacent premises.

Garbage Disposal.

Garbage bins and lids are supplied to all premises and emptied once weekly or as often as required.

The garbage is conveyed to the sanitary depot, tipped to a face, and fired daily.

Water Supply.

Only one-third of the town is reticulated at present, and conservation in galvanized-iron tanks is the general practice.

The city source of supply is from a well about 60 feet deep, whence water is pumped into a reservoir, thence to elevated towers, where aeration takes place. It is distributed by gravitation through 10-in. mains to the central city area.

GLADSTONE (Port Curtis).

Gladstone is situated in Central Queensland, south latitude 23 degrees 51 minutes and east longitude 151 degrees 18 minutes, on the shores of Port Curtis, and has a fine natural harbour. It is 354 miles north-west of Brisbane, and 69 miles by rail from Rockhampton, and has a good deep-water harbour.

The port limits are as follows:—

The area between Curtis Island, a line joining Connor Bluff and the north extremity of Facing Island, and Facing Island on the one side and the mainland on the other, limited on the north by a line joining Mundurran and Monte Christo Creeks, and on the south by a line commencing at a point $1\frac{1}{2}$ miles northerly from East Point, Facing Island; thence to the outer extremity of Jenny Lind Bank, and thence by a line to Tiber Point.

In consequence of its silting up, the North Channel into Port Curtis has been closed for the purpose of navigation, and the entrance hereafter mentioned refers to what was formerly known as the "South Channel".

It is high water in Port Curtis full and change at 9 hours 30 minutes, spring rise being from 10 feet to 12 feet. The tides here are much affected by the prevailing winds, and the stream gets very strong at times in the channels.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the Marine Department of Queensland, and the Gladstone Harbour Board. Details of administration are as indicated for Cairns (*see* page 152). The Marine Department is represented by the Harbour Master, who is also pilot for the port.

Pilotage is compulsory for oversea vessels and for non-exempt interstate and other vessels.

As there is no communication between Bustard Head and the pilot station at Gatcombe Head, vessels should telegraph probable time of arrival to the Harbour Master at Gladstone from the last port of departure.

Berthing Accommodation.

	Length of Berths. Feet.	Minimum Depth. Feet.
Gladstone Meat-works Wharf ..	260	21
Harbour Board Jetty ..	775	22
Municipal Wharf ..	30	9
Commercial Wharf ..	40	9

The Harbour Board Jetty is the only one provided with sheds, and is connected with the railway. The wharf is constructed of concrete on wooden piles. Cranes are being built for coaling. There is no rat harbourage on the jetty.

Water is obtainable from the Harbour Board Jetty, direct from the main.

Principal Imports and Exports.

Principal imports are wearing apparel, tinned fish and manufactured metal.

Principal exports are butter, sugar, meat, horse hides, wool and tallow.

SHIPPING.

Oversea Shipping.

The volume of oversea shipping entering the port of Gladstone was as follows:—

Year.	No. of vessels.	Net tonnage.
1924-25	22	105,347
1925-26	30	145,335
1926-27	23	108,974

During this period vessels of the following lines called:—Federal Steam Navigation Company Limited, New Zealand Shipping Company Limited, Peninsular and Orient Company Limited, Union Steamship Company of New Zealand Limited, Commonwealth and Dominion Line, Scottish Shire Line Limited, Oceanic Steam Navigation Company Limited, Atlantic Transport Company, German-Australian Steamship Company, White Star Line, British India Steam Navigation Company Limited.

Oversea vessels do not run to schedule, but call only when required. Average: two ships per month.

Interstate Shipping.

Year.	No. of vessels.	Net tonnage.
1924-25	3	3,123
1925-26	2	1,163
1926-27	5	1,815

Lines: John Burke Limited. Vessels call at irregular intervals when warranted by cargo offering.

Intra-state Shipping.—Vessels in and out.

Year.	No. of vessels.	Net tonnage.
1924-25	55	5,042
1925-26	63	6,552
1926-27	82	7,430

These vessels are steamships and auxiliary sailing vessels.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Gladstone is not a first port of entry.

The quarantine line is an imaginary line at Barney Point across the entrance to the harbour.

The Quarantine Officer is a local medical practitioner, who acts in a part-time capacity to attend to the requirements of the Quarantine Act. As Gladstone is not a first port of entry medical inspection is not often required.

The local agents inform the Quarantine Officer when a vessel requiring pratique is expected. The Quarantine Officer makes his own arrangements for a launch for boarding, and generally accompanies the pilot.

Quarantine Staff.

There is no Quarantine Staff at Gladstone, except the part-time Quarantine Officer.

No fumigation or trapping of vessels is carried out at this port. Should fumigation be required, arrangements would be made for an officer of the Quarantine Service to be sent with the necessary gear from Brisbane or Townsville.

Provision for Vaccination.

Stocks of vaccine lymph are procured from Rockhampton or Brisbane when required.

Action under the Navigation Act.

The Sub-Collector of Customs at Gladstone is the Superintendent Mercantile Marine, and the Quarantine Officer is Medical Inspector of Seamen under the Navigation Act. Only one or two seamen are examined annually.

No inspection of vessels under the Navigation Act is carried out at this port.

Local Health Organization.

Gladstone has a population of over 1,500 persons. The local Health Authority is the Town Council. The local health staff consists of the Medical Officer of Health, and the Health Inspector of the Council.

Isolation Accommodation for Infectious Diseases.

There is an isolation ward at the General Hospital. The hospital has a staff of thirteen nurses.

Free treatment is provided for venereal disease at the General Hospital.

There is a motor ambulance available for the transport of patients to the hospital.

Laboratory facilities can be obtained by sending to Rockhampton or Brisbane.

Rat Control Measures.

The officers of the Gladstone Harbour Board have instructions to destroy rats on Harbour Board property. This is carried out by trapping and poisoning.

Occasional examinations of rats are made for signs of plague.

Sanitary Services.

Disposal of excreta. A weekly and bi-weekly pan service is provided, and the excreta is buried.

Drainage.

Surface concrete water channels are provided.

Garbage Disposal.

There is a weekly garbage removal service. The garbage is removed to a tip.

Water Supply.

Water is stored in a reservoir and is reticulated to the town by gravitation.

ROCKHAMPTON.

Rockhampton is situated in Central Queensland, on the banks of the Fitzroy River, south latitude 23 degrees 23 minutes, and east longitude 150 degrees 31 minutes. The town is about 49 miles from the entrance to Keppel Bay, and is 407 miles from Brisbane by sea. The population is about 30,000.

The port boundaries are the Fitzroy River from the head of navigation to a line joining Cattle Point and Sea Hill, including all rivers, creeks and navigable waters connected therewith, as far as the northern limit of Port Curtis.

Port Alma is the nearest port on the Australian coast to the Panama Canal, and is approached by a deep channel 34 miles wide through the Barrier Reef.

The rise and fall of tide—

	Time.	Spring tide. ft. in.	Neap tide. ft. in.
Deepwater Wharf } ..	12	9 6	7 3
Gavial Creek }			
Broadmount ..	10.10	13 0	9 6
Port Alma ..	9.43	14 6	9 0
Sea Hill ..	9.23	13 9	10 6

The depth of water at low spring tide is—

	Feet.
Deepwater Wharf, Rockhampton..	16
Gavial Creek Wharf ..	16
Broadmount Wharf ..	22
Port Alma Wharf ..	25
Sea Hill Anchorage ..	36

Local Port Administration.

The port is under the jurisdiction of the Marine Board and the Rockhampton Harbour Board, which is elected locally.

Details of administration are as indicated for Cairns.

Pilotage.

Pilotage is compulsory, and the pilots board at Sea Hill, where the pilot station is situated. Application for pilotage is made to the Harbour Master's Office, Rockhampton.

Berthing Accommodation.

	Feet.
Deepwater Wharf, Rockhampton ..	1,150
Gavial Creek Wharf (Coaling) ..	261
Broadmount Wharf ..	632
Port Alma ..	1,000

All the wharfs have goods sheds, and are connected with railway lines.

The Deepwater and Gavial Creek Wharfs are connected with the town water supply.

Vessels needing water at Broadmount and Port Alma can be supplied from tanks brought on railway trucks. Port Alma is 36 miles by rail from Rockhampton. Steamers of the largest size berth at the wharf and leave without the aid of a tug.

The navigation of the river up to Rockhampton is safe at any high tide for vessels drawing up to 16 feet, and at spring tides up to 19 feet. The wharfs at Rockhampton are on the south side of the river, and can accommodate ships drawing up to 20 feet.

Principal Imports and Exports.

The principal imports are motor fuel, galvanized iron, cotton-piece goods, spirits, tinned fish and woolpacks.

The principal exports are wool, frozen and tinned meat, cotton, tallow and hides.

SHIPPING.

Oversea Shipping.

The volume of oversea shipping entering the port is as follows:—

Year.	No. of vessels.	Net tonnage.
1924-25 ..	55 ..	234,995
1925-26 ..	43 ..	171,354
1926-27 ..	29 ..	114,307

Lines of Vessels Calling.

British India Steam Navigation Company Limited, Federal Steam Navigation Company Limited, Anglo-Saxon Shipping Company Limited, New Zealand Shipping Company, Scottish Shire Line, Union Steamship Company Limited, Australian and Oriental Steamship Company, Eastern and Australian Steamship Company Limited, Peninsular and Oriental Steam Navigation Company Limited, Shaw Saville and Albion Company Limited, Bolton Steamship Company.

These vessels arrive from Liverpool and London, via Suez Canal and the Cape, United States of America, via Panama Canal, and direct from West Coast, Singapore, Java and Malay States, via Queensland ports.

Interstate Shipping.

Year.	No. of vessels.	Net tonnage.
1924-25 ..	116 ..	199,997
1925-26 ..	57 ..	101,797
1926-27 ..	60 ..	97,776

Lines of Vessels Calling.—Australian Steamships Proprietary Limited, Australasian United Steam Navigation Company Limited, Broken Hill Company Proprietary Limited, Interstate Steamship Limited.

Intra-state Shipping.

Year.	No. of vessels.	Net tonnage.
1924-25 ..	41 ..	1,286
1925-26 ..	46 ..	1,079
1926-27 ..	48 ..	1,459

Type of Vessels.—Motor boats, auxiliary ships and occasional steamships.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Rockhampton was gazetted a first port of entry on 10th July, 1909.

The quarantine line is an imaginary line at Egg Island across the entrance of the harbour. As there is now no quarantine station, the usual anchorage is at Sea Hill.

The Quarantine Officer is a permanent full-time officer of the Department of Health, who is in charge of the Commonwealth Health Laboratory at Rockhampton.

Only about four vessels annually are inspected at Rockhampton.

The shipping agents notify the Quarantine Officer of the arrival of a vessel requiring inspection, and the inspection is made at Port Alma wharf.

Quarantine Staff.

There is no Quarantine Assistant at Rockhampton, the technical assistant in the permanent staff of the Health Laboratory inspects vessels to see that they comply with the berthing regulations, and that they are in a satisfactory sanitary condition, and undertakes the supervision of fumigation of vessels. Only small coastal vessels are fumigated at Rockhampton. Fumigation is carried out by the open pot method. Fumigation stores and gear are kept in a shed on the wharf.

Trapping and poisoning of rats is not carried out at this port. Any rats killed by fumigation are taken to the Health Laboratory, classified and examined bacteriologically.

The reports on these rodents are forwarded to the Divisional Office at Brisbane.

Ship's refuse is kept on board the vessel in covered receptacles until the vessel puts out to sea, when it is discharged.

Bills of health and certificates of fumigation are issued by the Quarantine Officer.

Provision for Vaccination.

Stocks of calf lymph and other Commonwealth Serum Laboratory products are held at the Health Laboratory.

Action under the Navigation Act.

The Quarantine Officer is Medical Inspector of Seamen under the Navigation Act. Very few seamen are examined.

Inspection of vessels under the Navigation Act is not carried out in this port.

LOCAL HEALTH ORGANIZATION.

Rockhampton has a population of over 25,000 persons, and is the principal port for Central Queensland, which contains some of the best pastoral and agricultural lands in Australia and is also rich in minerals. It is connected by rail with Brisbane, and with Townsville and inland by the main trunk line to Longreach, 426 miles due west.

The Port Health Authority is the Rockhampton City Council, and, in addition, there is a Fitzroy Shire Council and a Livingstone Shire Council.

The local health staff consists of a Government Medical Officer, a Medical Officer of Health for Rockhampton City Council and a Medical Officer of Health for Fitzroy and Livingstone Shire Councils, and the Health Inspector for the City Council.

Isolation Accommodation for Infectious Diseases.

There is no special infectious diseases hospital, cases of infectious disease are isolated at the Rockhampton General Hospital and Children's Hospital.

There is an ambulance brigade which transports persons suffering from sickness or injury.

Provision is made at the General Hospital for the treatment of venereal disease at a free clinic.

Laboratory facilities for diagnostic and research work are provided by the Commonwealth Health Laboratory at Rockhampton, which holds stocks of vaccines and serums.

Rat Control Measures.

Four men are constantly employed by the Rockhampton City Council in searching for and destroying rats.

Poisoned baits are laid about the wharfs every two weeks. The Rockhampton Harbour Board attends to the deratization of their own craft, but there is no regular routine fumigation.

Action has not been taken to render the wharfs and foreshores rat-proof.

The four men employed by the City Council report to the Inspector all cases of rat infestation. The Inspector classifies and examines all rats, and a smear is taken from every rat collected and forwarded to the Commonwealth Laboratory for bacteriological examination.

Sanitary Services.

A double daylight pan service is provided with burial of excreta at a depot.

Drainage.

There are several deep sewers which discharge into the Fitzroy River near the city.

Garbage Disposal.

There is a weekly service for the removal of garbage, which is taken to the sanitary depot at Lion Creek, where combustible material is burned.

Water Supply.

The source of supply is the Fitzroy River. It is pumped from the river at Yaamba to the filtration works at Mount Charlton, thence flows by gravitation to Rockhampton.

PORT OF MACKAY.

Mackay is situated in North Queensland, south latitude 21 degrees 10 minutes, east longitude 149 degrees 5 minutes. It is distant 540 nautical miles from Brisbane. The port limits are as follows:—

Commencing at Hay Point, thence by a line bearing north 13 degrees west to a point about 1 mile east of Round-top Island; thence by a line bearing about north 30 degrees west to the north-eastern extremity of Slade Island; thence by a line bearing west to the mainland; thence by the mainland to the point of commencement, including all rivers, creeks and navigable waters within that area.

Vessels calling at the port of Mackay anchor off Flat-top Island. At the anchorage there is not less than 18 feet of water at L.W.O.S.T.

The Town of Mackay is situated near the mouth of the Pioneer River. A bar extends across the mouth of the river, which nearly dries at L.W. springs, and thence the depth of the channel, which has an average width of about half a cable, varies from 1 foot to 5 feet at low water. The bar at the entrance is subject to change.

Tides.—It is high water, full and change at 11 hours 8 minutes. There is a rise and fall on the bar of from 12 feet to 16 feet, and at the township of 10 feet to 12 feet, so that the smaller class of vessels can reach the town wharfs without difficulty. From the narrowness of the channel and the strength of the tides, the river is not suited for the navigation of any but small vessels.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the Marine Department of Queensland and the Mackay Harbour Board. Details of administration are similar to those indicated for Cairns (*see* page 152). The Marine Department is represented by the Harbour Master, who is also pilot for the port.

Pilotage.

The Pilot Station is situated on the mainland west of Flat-top Island. Vessels requiring a pilot will signal to the lighthouse at Flat-top, whence the signal will be reported to the Harbour Master's Office.

Berthing Accommodation and Cargo Handling Facilities.

Only small vessels enter the river and berth alongside the wharfs. Larger vessels anchor off Flat-top Island, and discharge cargo into smaller local craft.

The following wharfs on the river bank are privately owned:—

Howard Smith and Son's Wharf	..	Length, 241 ft.
Adelaide S.S. Company Wharf	..	Length, 270 ft.
A.U.S.N. Company Wharf	..	Length, 330 ft.
Victoria Wharf	..	Length, 207 ft.

There is one public wharf, the Bond Wharf, with a river frontage of 60 feet.

The wharfs are all built of timber over the open rubble retaining wall which lines the river. The river at the wharfs is dry at L.W.O.S.T., but at high tide there is from 10 feet to 12 feet of water at the wharfs. Neither wharfs nor wharf sheds are rat proofed. A line of rails connects the wharfs with the State Government railway system.

Water Supply to Wharfs and Vessels.

The town water supply obtained from an underground stream is reticulated to the wharfs for supply to shipping.

Principal Imports and Exports.

The principal imports are general cargo and motor fuel.

Exports.—Sugar.

SHIPPING.

Oversea Shipping.

Year.	No. of vessels.	Net tonnage.
1924-25 ..	9 ..	23,655
1925-26 ..	16 ..	57,810
1926-27 ..	18 ..	55,965

The only regular line of oversea vessels calling at the port is the British Imperial Oil Company's Line of oil vessels, which calls on the inward voyage from Singapore once every three months.

Other oversea vessels call occasionally on the outward voyage for sugar shipments during the months July to December.

Interstate Shipping.

Year.	No. of vessels.	Net tonnage.
1924-25 ..	193 ..	461,973
1925-26 ..	164 ..	371,307
1926-27 ..	157 ..	401,542

A bi-weekly service from Melbourne via ports and from Cairns via ports is maintained by the A.U.S.N. and Australian Steamship Lines.

The Adelaide Steamship Company's vessels call from July to December for sugar.

Small steamers and occasional ketches trade between Mackay and other Queensland ports.

Intra-state Shipping.

Year.	No. of vessels.	Net tonnage.
1924-25 ..	8 ..	1,992
1925-26 ..	7 ..	548
1926-27 ..	2 ..	294

ADMINISTRATION UNDER THE QUARANTINE ACT.

Mackay is not a first port of entry.

Quarantine Line.

The quarantine line is an imaginary line through Flat-top Island across the entrance to the port.

The Quarantine Officer is a local medical practitioner, who acts in a part-time capacity.

The number of vessels requiring medical inspection for pratique is four to five annually. The local agents inform the Quarantine Officer when a vessel requiring pratique for the port is expected to arrive. There is no contract for launch services, but the Quarantine Officer makes his own arrangements for a local launch to convey him to the vessel, which awaits inspection at the anchorage at Flat-top, beyond the Quarantine line.

Quarantine Staff.

With the exception of the part-time Quarantine Officer there is no quarantine staff at Mackay.

No fumigation or trapping or poisoning operations are carried out on vessels. Oversea vessels do not enter the river.

Removal of Refuse.

Animal and vegetable waste matter are stored in rat-proof tins whilst vessels are in port, and dumped at sea.

Provision for Vaccination.

No stocks of calf lymph or other vaccines are kept locally, but any requirements for emergency use can be obtained at a few minutes' notice from the stock held by the Commonwealth Health Laboratory at Rockhampton.

Action under the Navigation Act.

The Sub-Collector of Customs is the Superintendent, Mercantile Marine, and the part-time Quarantine Officer is Medical Inspector of Seamen under the Navigation Act. It is seldom, however, that any examination of seamen is required at this port.

Inspection of vessels under the Navigation Act is not carried out at this port.

LOCAL HEALTH ORGANIZATION.

Mackay has a population of some 7,000 persons. It is the port for a rich sugar-growing district.

The port health authority is the City Council. The local health staff consists of the Medical Officer of Health and one certificated Health Inspector.

Isolation Accommodation for Infectious Diseases.

There are two infectious diseases wards and one lock ward, with total accommodation for 30 patients. This accommodation is under control of a Joint Hospital Board, comprised of representatives of the City Council and of neighbouring shires.

Provision is made at the General Hospital for the treatment of venereal disease, and seamen suffering from venereal disease can obtain treatment free of charge at all times.

A local ambulance of the Queensland Ambulance Transport Brigade is available for transport of the sick, and nursing facilities can be provided from the General Hospital in case of epidemic emergency. Some 30 nurses are employed at this hospital.

Laboratory Facilities.

There is a small laboratory at the Mackay General Hospital.

The Commonwealth Health Laboratories at Rockhampton and Townsville are fully equipped for diagnostic and research work, and pathological and other material is sent from Mackay to one or other of these laboratories for examination.

Rat Control Measures.

These are carried out under the supervision of the City Health Inspector. A rat catcher and four dogs are employed continuously on this work on wharfs, foreshores, wharf sheds and warehouses. Traps and poison baits are laid, both ashore and on harbour craft, lighters, &c. Rats are collected and classified, and a return of all rats obtained is forwarded weekly to the State Health Department at Brisbane. Smears are made from each batch of rats collected, and are sent to the State Laboratory at Brisbane for examination.

Practically no rat proofing work has been carried out at wharfs or in the city.

SANITARY SERVICES.

Removal of Refuse.

Nightsoil is collected and disposed of by burial at a depot. Some buildings have septic tank installations, the effluent running to the sewer, which discharges into the river.

Drainage.

The main portion of the city is drained by sewers to the river. In the remainder, house drainage is disposed of on the allotment on which the house is built.

Garbage.

Garbage and refuse is removed by a regular service to a tip, and there burned or buried.

Water Supply.

The city water supply is obtained from an underground stream by means of a well and bore, and is reticulated throughout the city.

PORT OF BOWEN.

Bowen is situated in North Queensland, south latitude 20 degrees 1 minute, and east longitude 148 degrees 14 minutes 54 seconds on Port Denison Harbour. It is distant 645 miles from Brisbane. The port limits are as follows:—

Commencing at Cape Edgecombe; thence by a line to Cape Gloucester; thence by the mainland to the point of commencement, including all rivers, creeks, and navigable waters within that area.

Port Denison Harbour is extensive and well sheltered, with deep water channels. The approach to the jetty is through a cutting 200 feet wide leading into a swinging basin, which is entered about 1,000 feet from the jetty head, and is 500 feet wide on the north-east side and 700 feet wide on the south-west side of the jetty.

The depth of water in the swinging basin and cutting is 18 feet L.W.O.S.T.

It is high water full and change at about 10.20. The spring rise is from 8 feet to 10 feet; neap 4 feet to 8 feet. The rise of tide is irregular, and is largely influenced by the wind.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the Marine Department of Queensland, and the Bowen Harbour Board. Details of administration are as indicated for Cairns (*see* page 152). The Marine Department is represented by the Harbour Master, who is also pilot for the port. The Harbour Board is elected locally, and has in addition to local members two Government representatives.

Pilotage.

Pilotage is compulsory for oversea vessels and for non-exempt interstate and other vessels. The pilot boards usually at the Fairway Buoy off the north entrance.

Berthing Accommodation and Cargo Handling Facilities.

There are two piers controlled by the Bowen Harbour Board, an old wooden structure and a reinforced concrete pier springing at an angle from the old wooden pier.

The old wooden pier is 2,770 feet long, with 665 feet of berthage on either side at the outer end.

The new reinforced concrete pier is 500 feet long, with berthage on both sides for its full length. This pier carries an electric transport crane, capable of coaling or bunkering vessels at the rate of 175 tons per hour, on either side.

At the outer end of the old jetty are wharf sheds, partly open and partly closed, built of wood, with galvanized iron roofing. The sheds are not rat proofed.

The depth of water—L.W.O.S.T.—at berths is as follows:—

Old Pier, 10 ft. off N.E. side.—19½ ft. min. to 23¾ ft. max.
10 ft. off S.W. side.—19¼ ft. min. to 24 ft. max.

New Concrete Pier, 10 ft. off N.E. side.—23 ft. min.
10 ft. off S.W. side.—23 ft. min.

A railway system with several lines of rails, and connected with the Queensland Government Railways, is carried to the outer end of both piers. Loading is mainly direct from truck to vessel, and vice versa.

Water Supply to Wharfs and Vessels.

Water is laid on to both old and new piers. The source of supply is the town water supply obtained from the Don River, three miles from the town (*see below*). A 6-inch pipe line is carried to the pier, which branches into two 3-inch pipe lines to either pier. Hydrants at intervals supply water to vessels through 2½-inch rubber hose connections. A charge of 4s. per 1,000 gallons is made by the Bowen Harbour Board.

Principal Imports and Exports.

Principal imports are general cargo, motor fuel and kerosene.

Exports are coal, frozen meat, sugar, hides, skins, tallow and tomatoes.

Total imports for 1926	..	..	11,943 tons.
Total exports for 1926	..	..	52,884 tons.

SHIPPING.

Oversea Shipping.

The volume of oversea shipping entering the port of Bowen is as follows:—

Year.		No. of vessels.		Net tonnage.
1924-25	..	19	..	88,962
1925-26	..	24	..	99,052
1926-27	..	16	..	54,084

During this period vessels of the following lines called:—

Via Southern Ports—

Commonwealth and Dominion Line—25 vessels from the United Kingdom.

British-India Steam Navigation Company, from India.

Federal Line, from the United Kingdom.

Via Northern Ports—

Burns Philp and Company, from New Guinea.

Vessels of other lines call occasionally for bunkers or coal cargo, hailing from China, Japan, East Indies, Singapore and the Pacific Islands. These usually reach Bowen from the north, via Thursday Island or Townsville.

Interstate Shipping.

Year.	No. of Vessels.	Net Tonnage.
1924-25	115	229,511
1925-26	58	87,465
1926-27	100	199,023

A weekly service is maintained with the southern Australian ports by the vessels of the A.U.S.N. Line and Howard Smith Company. The Adelaide Steamship Company's vessels call fortnightly during the sugar season which is at the end of the year.

Vessels of the following lines also call:—

J. Burke and Company.

Wilson Hart.

Hyne Co. (Timber).

Intra-state Shipping.

A few steam and auxiliary sailing vessels engaged in local coast trade enter Bowen. In 1926-27 thirteen vessels were handled. Coastal luggers engaged in the beche-de-mer industry enter occasionally for water.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Bowen was proclaimed a first port of entry on 17th September, 1927, for all vessels except those arriving from ports proclaimed for yellow fever. Vessels very seldom make Bowen a first port of entry, calling first usually at southern ports or at Australian ports north of Bowen. Occasionally a vessel enters direct for coal cargo or for bunkers.

Quarantine Line.

The quarantine line is fixed as an imaginary line at the red buoy across the entrance to the harbour. No mooring ground for vessels subject to quarantine has been proclaimed, the vessel anchoring outside the quarantine line until pratique for the port has been granted.

The Quarantine Officer is a local medical practitioner who acts in a part-time capacity to attend to the requirements of the Quarantine Act at the port. As vessels usually reach Bowen via other Australian ports at which pratique covering the port of Bowen has been granted, medical inspection is not often required at this port, on an average less than one vessel per month requiring inspection. The local agents inform the

Quarantine Officer when a vessel requiring pratique is expected. The Harbour Master, who is pilot for the port, is also advised in advance. There is no contract for launch services, but the Quarantine Officer either accompanies the pilot in the pilot launch when the pilot boards the vessel at the Fairway Buoy, or, should the pilot be required to board the vessel far out, the agents at their own expense provide a launch and the Quarantine Officer boards the vessel at the red Fairway Buoy just beyond the Quarantine line.

Quarantine Staff.

There is no Quarantine Staff at Bowen with the exception of the part-time Quarantine Officer. The wharfinger, who is an officer of the Bowen Harbour Board, and who is constantly on the wharfs, attends to the enforcement of the berthing regulations. The Health Inspector of the Bowen Town Council also visits all vessels on arrival and sees that proper sanitary precautions are observed and that ships' refuse is not dumped into the waters of the port. This refuse is kept in covered metal receptacles on the vessel and dumped at sea after the vessel leaves, or is burned in the ships' furnaces.

Fumigation and trapping of vessels are not carried out at this port. Should fumigation be required arrangements would be made for an officer of the Quarantine Service to be sent with the necessary gear from Townsville.

Bills of health are signed by the Quarantine Officer and issued by the Customs Officer.

Provision for Vaccination.

Stocks of vaccine lymph are held at the Australian Institute of Tropical Medicine, Townsville, eight hours by rail from Bowen.

Action under the Navigation Act.

The Sub-Collector of Customs at Bowen is the Superintendent, Mercantile Marine, and the part-time Quarantine Officer is Medical Inspector of Seamen under the Navigation Act. The number of seamen examined annually by the Medical Inspector at this port does not exceed fifteen.

Inspection of vessels under the Navigation Act is not carried out at this port.

LOCAL HEALTH ORGANIZATION.

Bowen has a population of some 2,500 persons. It is the port for a rich sugar-growing district and also the outlet for the Bowen River Coalfield situated 50 miles south-west of Bowen, in which it has been estimated that over 100,000,000 tons of coal can be profitably mined. The output in 1926 was 143,000 tons. Meat works and salt works are also important local industries at Bowen.

The port health authority is the Bowen Town Council. The local health staff consists of the Medical Officer of Health, who is also Quarantine Officer, and the Health Inspector of the Council.

Isolation Accommodation for Infectious Diseases.

There is a good district hospital, but no special isolation accommodation is available for infectious disease. The Town and Shire Councils have under contemplation the building of a small Infectious Diseases Hospital.

Provision is made at the district hospital for the treatment of venereal disease, and a small ward is available for this purpose. Treatment is available for seamen free of charge at all times, but it is rarely that seamen from oversea vessels apply for treatment at Bowen.

A local ambulance is available for transport of the sick, and nursing facilities can be provided from the district hospital in the case of epidemic emergency. Calf lymph for vaccination purposes can be obtained at short notice from the Commonwealth Health Laboratory at Townsville. Laboratory facilities for diagnostic or research work are provided by this laboratory.

Rat Control Measures.

The officers of the Bowen Harbour Board have instructions to destroy rats on the Harbour Board property, but no special rat-man is employed. Rats are destroyed on wharfs and foreshores by trapping and by hunting with carpet snakes.

The pier is 2,770 feet long, and does not provide harbourage for rats. The wharf sheds at the outer end of the pier are not rat-proofed, but the shore wharf shed is built of concrete, and is rat-proofed. The Town Health Inspector supervises rat-control work generally. No special arrangements exist for the examination and classification of rats destroyed, but in time of plague emergency arrangements for such examination are made.

SANITARY SERVICES.

Disposal of Excreta.

A pan service is provided with burial of excreta in trenches at a selected depot.

Drainage.

Surface concrete channels are provided, discharging to the sea.

Garbage Disposal.

There is a weekly service for the removal of garbage, which is burnt at the garbage tip.

Water Supply.

An abundant supply of pure water is obtained from the Don River 3 miles from the town. Clear water is obtained from a sand bed by sinking spear pumps, and the water is pumped electrically to a reservoir situated near the district hospital, whence it is reticulated to the town by gravitation.

PORT OF TOWNSVILLE.

The port of Townsville, in North Queensland, is situated on the western shore of Cleveland Bay, and is the port and outlet of a rich sugar-growing, grazing, and mining district. Latitude, 19 degs. 15 mins. 25 secs. south and east, longitude 146 degs. 49 mins. 58 secs.

The steaming distance from Brisbane is 818 miles, and from Thursday Island, 682 miles.

The port limits are as follow:—

Commencing at Cape Cleveland; thence by a line to the north-east extremity of Magnetic Island; thence to the most northerly extremity; thence to the White Rock, and thence to Bay Rock; thence to Cape Pallarenda; thence by the mainland to the point of commencement, including all rivers, creeks, and navigable waters within this area.

It is high water full and change at 9.25, irregular, spring rise from 8 feet to 12 feet, extraordinary spring rise 18 inches higher, and the corresponding low tide falls 18 inches lower, neap rise from 4 feet to 8 feet, the smallest neap range of about 1 foot occurs about two days before the moon's third quarter.

The diurnal inequality of 3 feet chiefly affects high water, and is largest when the moon's declination is large, and altogether absent when the moon is on the equator. When the sun has south declination, the higher tides at spring occur during the day, and when the north declination, at night. Also, when the sun is south, the higher tide of the lunation is at full moon, and when north at new moon. When perigee occurs about the time of full or new moon, the tides are then the highest.

LOCAL PORT ADMINISTRATION.

The port is under the jurisdiction of the Marine Department of Queensland and the Townsville Harbour Board. The Marine Department is represented by the Harbour Master.

Administration is carried out by the Harbour Board, comprising nine members, created by special Act 1895. Two of the members are appointed by the Governor in Council, and seven are elected by different areas in the Harbour Board District, the electoral rolls for these districts being used.

Details of administration are as indicated for Cairns (*see* page 152).

Pilotage.

Pilotage is compulsory for oversea vessels. Vessels requiring the services of a pilot should signal Cape Cleveland directly the flag can be made out, so that it can be repeated to the pilot station at Townsville. On approaching Townsville the pilot will board, and those vessels exempt from pilotage should show the number of the port from which they sailed.

Large steamers wishing to berth inside the breakwater should wire draught and probable time of arrival to the Harbour Master, Townsville, from their last port of departure in order that arrangements may be made for berthing.

Pilots board vessels off Fairway Buoy on arrival or as tide suits.

Berthing Accommodation.

Both wharfs and piers are provided. The length of wharf frontage available is 3,990 feet of public wharfage, and 683 feet of private wharfage.

Wharfs recently constructed are of reinforced concrete. Sheds are provided on the eastern jetty wharf, concrete pier and inner concrete wharfs.

The eastern jetty wharf and concrete pier are connected with the railway system.

Name of Wharf.	Public or Private.	Length of Wharf Frontage.	Minimum depth 15 ft. off wharf.
Coal wharf and dolphins ..	Public	350 feet	24
Eastern Jetty wharf ..	"	1,900 "	26
Concrete pier, two berths ..	"	940 "	21
Ross Creek Harbour Board Works	"	100 "	8
Inner concrete wharfs, two berths	"	700 "	10
A.U.S.N. Co. ..	Private	171 "	3½
Burns, Philp ..	"	285 "	8
Howard Smith ..	"	145 "	6
Wilson Hart ..	"	17 "	2
Chapman's (above bridge) ..	"	25 "	Dries
Marine Department ..	"	40 "	2

Water is supplied by the Townsville Harbour Board. Water is drawn from two wells to raised tanks on Magazine Island with a storage capacity of 250,000 gallons and is led by gravitation to the wharfs. The charge is 3s. per 1,000 gallons delivery at wharfs, in the bay from tugs, 25s. per 1,000 gallons, with minimum of £12 10s; for 20,000 gallons or over, 17s. 6d. per 1,000. The capacity of the tug is 110 tons.

Principal Imports and Exports.

Imports—Apparel, machinery, lubricating oils, motor spirit, manufactured metal, corn sacks, iron and steel bars, earthenware, cement, tools of trade, and spirits.

Exports.—Wool, meat, sugar, silver, lead ores, hides, tallow, trochus shell, beche-de-mer, sandalwood, and horses.

SHIPPING.

Oversea Shipping.

Year.	No. of Vessels.	Net tonnage.
1924-25 ..	127	450,364
1925-26 ..	158	572,417
1926-27 ..	143	486,634

Vessels of the following lines call regularly at monthly intervals:—

Nippon Yusen Kaisha Line from Japan, via ports.

Australian and Oriental Steamship Company Limited from Hong Kong, via ports.

Eastern and Australian Steamship Company Limited from Japan, via ports.

Burns, Philp and Company Limited from Singapore, via ports.

British India Steam Navigation Company from London, via southern ports.

British Imperial Oil Company Limited from Singapore, via ports.

Blue Funnel Line from London, via southern ports (casually).

White Star Line from London, via southern ports (casually).

Numerous other lines from the United Kingdom and the United States of America call occasionally.

Interstate Shipping.

Year.	No. of Vessels.	Net tonnage.
1924-25 ..	239 ..	541,727
1925-26 ..	209 ..	448,024
1926-27 ..	235 ..	525,454

This includes vessels of the following lines:—

Australian United Steam Navigation Company Limited	} Weekly service.
Adelaide Steamship Company Limited	
Howard Smith Limited	
John Burke and Company	Fortnightly.

Intra-state Shipping.

Year.	No. of Vessels.	Net tonnage.
1924-25 ..	260 ..	43,326
1925-26 ..	195 ..	31,027
1926-27 ..	135 ..	18,371

ADMINISTRATION UNDER THE QUARANTINE ACT.

Townsville was proclaimed (10th July, 1909) a first port of entry for all vessels.

The quarantine line is fixed as an imaginary line from the Fairway Buoy across the entrance of the harbour. Vessels are required to anchor beyond the line until pratique for the port is granted.

The Quarantine Officer is a permanent Medical Officer of the Commonwealth Department of Health. The Medical Officers of the Institute of Tropical Medicine are gazetted Quarantine Officers, and relieve the Quarantine Officer when necessary. There are about 20 to 25 inspections annually of vessels subject to quarantine.

Launch Services and Boarding of Vessels.

The Quarantine Officer is notified by the agents of the expected time of arrival of a vessel requiring pratique. The vessel is boarded off the Fairway Buoy at the entrance to Platypus Channel. The launch service is provided under control by Messrs. Hayles Magnetic Island Limited, who are notified by the Quarantine Officer when the launch is required. The launch leaves from Messrs. Hayles' wharf.

Quarantine Staff in Port.

The quarantine staff at Townsville are permanent full-time officers of the Commonwealth Department of Health. The staff consists of a Quarantine Officer, a Quarantine Assistant in the port, and at the Quarantine Station an Assistant in Charge, an Engine-driver, and a third Assistant.

The Assistant at the port carries out the sanitary inspection of vessels, with special attention to the condition of the vessel as regards rat infestation and compliance with the Berthing Regulations while in port. He also carries out any necessary fumigation, trapping or poisoning operations on the vessel.

Refuse.

Animal and vegetable refuse is kept in metal rat-proof containers on the vessel and dumped at sea or destroyed in ship's furnaces.

Fumigation of Vessels.

Fumigation is performed by the Quarantine Assistant, and is effected by burning sulphur in pots, or by cyanide, hydrocyanic acid gas being developed by the addition of diluted sulphuric acid to potassium cyanide in earthenware vessels.

All stores and equipment for carrying out fumigation, trapping and disinfection are kept at the fumigation store at the end of the main wharf.

Trapping of vessels and laying of poison baits is carried out by the Quarantine Assistant in accordance with routine instructions. Rodents are collected from vessels by the Quarantine Assistant and conveyed to the Institute of Tropical Medicine where they are classified and examined. Rodent reports are furnished and forwarded weekly to the Divisional Office, Brisbane.

Disinfection.

Disinfection on board vessels is, where necessary, carried out by the Quarantine Assistant. Disinfection of second-hand clothing or Asiatic baggage is carried out in a fumigating chamber at the end of the main wharf by the pot method.

Certificates of Fumigation.

On completion of fumigation or of trapping and poisoning operations on a vessel a certificate is issued, which is signed by the Quarantine Officer.

The Quarantine Assistant hands the fumigation certificate to the agents together with the account.

The agents pay the account to the Sub-Collector of Customs, who forwards to the Collector of Customs in Brisbane a monthly statement showing the amounts collected.

The butts of fumigation certificates are checked by the Audit Inspector against the amounts paid to Customs.

Bills of Health.

Bills of health are signed by the Quarantine Officer and issued to vessels on production of a receipt for the fee from the Customs Department.

Particulars as to the incidence of infectious disease in the port, together with any special action taken in respect of the vessel while in port, are entered on the back of the bills of health.

Provision for Vaccination.

Large stocks of calf lymph and prophylactic vaccines are held by the Institute of Tropical Medicine, Townsville.

Action under the Navigation Act.

The Superintendent of Mercantile Marine is the Sub-Collector of Customs.

The Quarantine Officer is Medical Inspector of Shipping and Medical Inspector of Seamen under the Navigation Act.

No licences for vessels under the Navigation Act are taken out at this port.

Any seaman requiring examination is referred to the Medical Inspector of Seamen by the Superintendent, Mercantile Marine, who sends with each seaman an application for examination on the official form. Fees for examination are collected by the Superintendent, Mercantile Marine.

Case records of each inspection are kept by the Medical Inspector, who forwards the essential particulars each month to the Divisional Office at Brisbane for transmission to the Central Office of the Commonwealth Department of Health. Some 30 examinations are made annually by the Medical Inspector of Seamen.

Quarantine Station.

The quarantine station is situated at Cape Pallarenda, 9 miles from Townsville. It covers an area of 140 acres on the foot-hills of Cape Marlow bordering the sea.

Patients and passengers from vessels are generally landed by sea, there being a jetty at the station with an average depth of 9 feet of water. Patients and contacts are towed in one of the ship's boats by one of Hayles Magnetic Island Limited launches, under contract. Passengers and crew and their effects are conveyed by launch.

There is a good road to the station from the town. The permanent staff consists of the assistant in charge, an engine-driver, the third assistant, and the quarantine officer visits regularly and when occasion requires it.

Arrangements have been made with the local General Hospital to supply nursing staff when necessary during active quarantine.

The station can accommodate—

First class passengers	50
Second class passengers	50
Third class passengers	100
Asiatics	100
In isolation wards	25
In observation wards	25

The buildings are of cubical design, constructed of wood, with 12-feet verandahs all around.

There is a well-equipped surgery and dispensary. The morgue is situated in the isolation section.

There is a disinfection block which houses the disinfector and the boiler. The disinfector is a modern machine of standard design, in which saturated steam of a pressure of 10 lb. to the square inch is used. There is also a cyanide and a formalin attachment.

The bathing block for personal disinfection of contacts contains ten showers in separate cubicles, each with its change compartment. There is a fumigation chamber attached to the bathing block.

There is a well-equipped laundry.

Store.

All station equipment and stores not in use are kept in a wooden store building. There are two cyanide chambers in which linen and blankets are stored.

Passenger Accommodation.

The first, second and third class passengers' accommodation is in separate blocks.

Asiatic Area.—Asiatics are accommodated in large tents erected on concrete bases. A separate kitchen, with set-in coppers for cooking rice, is available. The whole area is fenced off from the other portion of the station.

Isolation Area.

A change block and hospital are provided with kitchen, bathroom and water closets.

Observation Hospital.

A wooden building, consisting of three wards, each capable of accommodating eight patients with nurses' room, lavatories, bathroom and kitchenette attached.

Receiving Shed.

There is a small shed at the entrance gate for the reception of stores in times of active quarantine.

Water Supply.

Water is pumped by a windmill from a well into storage tanks, whence it is distributed by pipes to the various buildings for domestic use. This supply is supplemented by tanks which receive rain water from the roof.

For combating fire, water is stored in a dam at the head of a valley at the back of the station within the quarantine area, and conveyed by pipes to the station.

Fire-fighting Apparatus.

A canvas hose is kept for attachment to the special water supply, and chemical fire extinguishers are kept in all buildings.

Lighting.

Lighting is provided by kerosene lamps.

Telephones.

There is one main line to Townsville with ten extensions to the various buildings on the station.

Sewerage.

A water sewerage system is provided. The effluent is treated with chloride of lime and is discharged into the sea at ebb tide.

LOCAL HEALTH ORGANIZATION.

The port health authority is the Townsville City Council. The local health staff consists of a Medical Officer of Health and two sanitary inspectors appointed by the local authority.

Isolation Accommodation for Infectious Disease.

There is a large General Hospital, but no special infectious diseases hospital. Isolation accommodation is provided on portion of the General Hospital verandah, where there are beds for fifteen patients. About 150 yards from the main hospital buildings there are six huts, two large and four small, which would be used for isolation in an emergency.

There is a motor ambulance brigade for conveying patients to hospital.

Treatment of Venereal Disease.

There is a free clinic for treatment of venereal disease at the Townsville General Hospital.

Laboratory.

The Tropical Institute at Townsville, which is under the control of the Commonwealth Department of Health, has a well-equipped laboratory, and carries out bacteriological and pathological examinations and investigations. A large stock of calf lymph for vaccination and vaccines and sera are held at the institute, and supplied to the hospital and medical practitioners as required.

Rat Control Measures.

The Harbour Board has one rat-catcher permanently employed trapping and baiting around wharfs and the breakwater. Occasionally additional rat-catchers are employed.

The Harbour Board has carried out considerable rat-proofing work by grouting portion of the breakwater walls with cement along Ross Creek, and adjacent to the wharfs.

All rats caught or obtained by the local authority or Harbour Board are taken to the Tropical Institute, where they are classified and examined.

SANITARY SERVICES.

There is a double-pan system with a weekly daylight service, and special services for hotels, schools, &c., where necessary. The contents of the pans are buried.

In the main town area street water tables are used as sewers, which discharge into covered sewers and thence into Ross Creek. In the residential areas there is surface and subsoil drainage.

Garbage and Refuse Removal and Disposal.

In the town area there is a weekly, and, in the residential area, a bi-weekly service. The garbage is tipped on to low-lying ground. All combustible material is burned, and covering material is used.

Water Supply.

Water is obtained from the Ross River and Herbert Well. The water is pumped from Herbert Well to the reservoir on Castle Hill and distributed by service pipes.

PORT OF CAIRNS.

THE PORT.

The port of Cairns is situated in North Queensland, south latitude 16 degrees 55 minutes 25 seconds, and east longitude 145 degrees 46 minutes 50 seconds on the west side of Trinity Inlet on the inner edge of Trinity Bay. It is distant 908 nautical miles from Brisbane. The port limits are as follows:—

Commencing at Cape Grafton, thence by a line bearing north (magnetic) 2 miles, thence by a line bearing N. 82 degrees W. (magnetic), to Taylor Point, thence by the H.W. line on the mainland to the point of commencement, including all rivers, creeks and navigable waters within the above limits.

The port is well sheltered and secure and is entered through a channel cut through the mudbank, which lies across the entrance to the inlet. This channel, which commences about 5 miles from the City of Cairns, is marked with beacons, and presents a straight run with a width of 130 feet, and carries approximately 21 ft. 6 in. of water at L.W.O.S.T.

After passing through the channel, the inlet widens to 1,300 feet and carries up to 30 feet of water at low water in the centre, and 24 feet to 25 feet at L.W.O.S.T., 15 feet outside the quay line giving room for manoeuvring vessels. The inlet is navigable for vessels of 15 feet draft for some 5 miles above the town, at which point the Hambleton Wharf is situated. The inlet over this distance carries from 18 feet to 30 feet of water.

It is high water, full and change, at 9.30. The mean spring rise of tide is from 6 feet to 9 feet, neaps 4 feet to 7 feet. The tides are considerably influenced by the wind.

Local Port Administration.

The port is under the jurisdiction of the Marine Department of Queensland and the Cairns Harbour Board. The Marine Department, which is a sub-department of the Treasury, is represented by the Harbour Master appointed by the State Government under the State Navigation Act, who attends to lights and navigation marks, soundings, supply of pilots for vessels arriving, departing or moving within the port, the supervision of handling of dangerous cargoes, including explosives, and the administration of acts relating to fisheries. Pilotage fees and other port dues are collected by this department.

The Cairns Harbour Board provides facilities for shipping and the handling of cargo, and attends to harbour improvements. This board was constituted by Act of Parliament on 20th December, 1905, and consists of twelve members locally elected from the City and Shire of Cairns and adjacent Shires. The Harbour Board owns the wharfs and maintain them, provides and maintains railway extensions to the wharfs, and all facilities for loading and unloading cargo, keeps the channel and berths dredged, and provides water supply for vessels. It collects harbour and berthage dues which, together with loan moneys, are spent on harbour maintenance and improvements. There are no privately-owned wharfs at Cairns, and the Railway Department has no jurisdiction on the wharfs.

Pilotage.

Pilotage is compulsory for oversea vessels. Vessels requiring the services of a pilot should, in order to save time, wire the Harbour Master from the last port of call, informing him of the probable time of arrival. The pilot boards the vessel by the pilot launch at the Fairway Buoy at the entrance of the channel about 5 miles from the City, and brings the vessel to her berth. The Harbour Master is pilot for the port of Cairns.

Berthing Accommodation and Cargo Handling Facilities.

The wharfage consists of a continuous quay line 1,500 feet long, constructed of reinforced concrete. Concrete piles carry the concrete decking, and behind the piles a vertical concrete curtain wall rises from the sloping mud and rubble bed of the creek. The face to the railway and roadway consists also of a vertical concrete wall.

Five sheds are erected on the wharf with a total floor area of 70,000 square feet. These sheds have a concrete floor continuous with the wharf and with the railway platforms, which are on a level with the railway truck floors. Two revolving cranes (10-ton) are provided at the rear of the sheds, and one travelling 10-ton crane on the wharf in front of the sheds. There are special facilities for loading sugar by travelling band elevators, electrically driven, with special hold chutes. There is storage space in special sheds for 18,000 tons of sugar.

Special facilities are provided for loading floating logs, and a large gantry travelling crane for loading non-floating logs from the trucks.

A railway system connected with the State Government Railways extends along the whole length of the wharfs both in front and at the rear of the wharf sheds. The Cairns Harbour Board provides and maintains this railway system within the boundaries of its property.

The wharfs and approaches are electrically lighted, and the light is continuously available.

In addition to the wharfs, there is a log ramp and dolphins with a minimum depth of 18 feet of water alongside.

A new wharf for the accommodation of oversea vessels is under construction. This wharf is situated beyond the southern end of the present wharf area, and will be entirely disconnected from it. It will be 400 feet long with railway tracks along the front, and will have a berthage depth of 32 feet at L.W.O.S.T.

Two other wharfs exist. These are the old Chillagoe Wharf, with a length of 60 feet, used mainly by small intra-state craft, and the Harbour Department's Public Wharf, with a length of 51 feet. Neither of these wharfs is connected with the railway system.

Water Supply to Wharfs and Vessels.

The water supply is obtained from the city mains. For the supply of water to vessels, four 3-inch pipes lead from the city mains to the wharfs and are carried along the wharf edge. Tap valves are provided at intervals, to which 2½-inch rubber hose connexions are screwed. The water is of excellent quality both for domestic and boiler purposes. For the year 1926, 9,222,000 gallons of water was supplied to 370 vessels.

Principal Imports and Exports.

The principal imports are coal and coke, fodder, kerosene, motor spirit, sugar sacks, machinery and general cargo.

The principal exports are sugar, timber, dairy produce, meat, maize and ores, gold, silver and lead in matte, sandalwood, trochus shell and beche-de-mer.

The value of imports and exports for the past three years was as follows:—

Year.	Imports.	Exports.
1924-25	£352,981	£976,663
1925-26	328,124	1,531,245
1926-27	257,043	955,130

SHIPPING.

Oversea Shipping.

The volume of oversea shipping entering the port of Cairns annually is indicated below—

Year.	No. of vessels.	Net tonnage.
1924-25 ..	99 ..	240,351
1925-26 ..	99 ..	288,035
1926-27 ..	107 ..	272,726

Vessels of the following lines call regularly at approximately monthly intervals:—

Burns Philp and Company.
 Australian and Oriental Steamship Company Limited.
 Eastern and Australian Steamship Company Limited.

Vessels of the following lines call occasionally, and usually reach Cairns, via southern Australian ports:—

American-Australian Steamship Company.
 British-India Steamship Navigation Company.
 Anglo Saxon Petroleum Company.
 Trans-Atlantic Steamship Commerce Company.
 Aberdeen White Star Line.
 Scottish Shire Steamship Company.
 Cunard Steamship Company.
 Union Steamship Company.
 Dutch Royal Packet Line.
 Federal Steamship Company.

Vessels seldom enter Cairns as a first port of entry. An exception is s.s. *Morinda* (Burns Philp and Company), which makes Cairns her first port of call in Australia from New Guinea.

Interstate Shipping.

The volume of interstate shipping entering the port of Cairns is as follows:—

Year.	No. of vessels.	Net tonnage.
1924-25 ..	135 ..	310,984
1925-26 ..	111 ..	246,331
1926-27 ..	151 ..	302,874

and includes vessels of the following lines:—

Ausn. United S.N. Co. Ltd. .. Weekly.
 Adelaide S.S. Co. Ltd
 Australian S.S. Co. Ltd.
 John Burke and Co. Fortnightly.
 Colonial Sugar Refineries S.S. Co.
 Ltd. Monthly (in the sugar
 season only).

Intra-state Trade.

A considerable trade is carried on between Cairns and other Queensland ports by small steamers, Cairns being a trans-shipping centre for many small ports on the North Queensland Coast.

The following figures indicate the volume of this trade:—

		Steam.		Motor.		Sailing.	
		Number of Vessels.	Tonnage.	Number of Vessels.	Tonnage.	Number of Vessels.	Tonnage.
1924-25	..	440	67,499	295	44,325	114	974
1925-26	..	337	47,468	156	11,357	117	595
1926-27	..	263	36,975	195	11,336	115	724

Luggers trade between Townsville and Thursday Island along the coast, where they collect trochus shell and beche-de-mer. These luggers frequently call at Cairns to unload trochus shell and beche-de-mer for trans-shipment to vessels bound for China. The luggers usually carry Japanese officers and black crews (Pacific Islanders or Papuans), and may go as far south as Mackay.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Cairns was proclaimed (10th July, 1909) a first port of entry for all vessels except those arriving from ports proclaimed for yellow fever.

Vessels very seldom make Cairns a first port of entry, but reach that port via either Thursday Island or southern Australian ports. Occasionally a casual caller puts in direct from overseas, or a small sailing craft from the Pacific Islands may put in for provisions or water.

The quarantine line is fixed as an imaginary line at the Fairway Buoy across the entrance to the harbour. No mooring ground for vessels subject to quarantine has been defined. Vessels are required to anchor beyond the quarantine line until pratique for the port is granted. Once the vessel has entered the channel she cannot turn owing to insufficient width in the channel, but must proceed up to the town. There is anchorage in 30 feet of water in the inlet opposite the wharfs.

The Quarantine Officer is a permanent Medical Officer of the Department of Health, who is also Medical Officer in Charge of the Cairns Health Laboratory. As most overseas vessels coming via Thursday Island get pratique at that port for all ports up to but not including Brisbane, and as vessels from the south usually have full pratique before reaching Cairns, the number of vessels requiring medical inspection at Cairns is small, amounting to 4 to 6 each month, including less than half this number of primary inspections.

Launch Services and Boarding of Vessels.

The Quarantine Officer is notified by the Agents of the vessel of the expected time of arrival of a vessel requiring pratique. The Quarantine Officer accompanies the pilot on the pilot's launch and boards the vessel at the Fairway Buoy outside the quarantine line. The Customs Officer usually does not board until the vessel has berthed. When the pilot's launch is carrying the pilot out to the vessel and the Quarantine Officer accompanies him, no charge is made against the Quarantine Service for the use of the launch. When, however, the Quarantine Officer requires to make a special trip, the pilot's launch is made available under agreement, provided that it is not otherwise required

by the pilot. This agreement provides for a certain charge per hour, which includes fuel and wages, but not overtime, which latter is an extra charge based on scale rates. When the launch is waiting at the ship's side only wages and overtime are charged.

Quarantine Staff.

The Quarantine Staff at Cairns consists of the Quarantine Officer and one permanent full-time Quarantine Assistant. The latter carries out the sanitary inspection of vessels, with special attention to the condition of the vessel as regards rat infestation, and to compliance with the Berthing Regulations while in port. He also carries out any necessary fumigation, trapping or poisoning operations on the vessel.

Animal and vegetable refuse is kept in metal rat-proof containers on the vessel, and is emptied daily into covered bins placed by the Harbour Board at the gangway. This refuse is removed by an employee of the Harbour Board, and burned in brick incinerators, three of which are in operation at the rear of the wharf sheds. The Quarantine Assistant assists in seeing that the ship's refuse bins are daily emptied. Refuse from the wharfs is also collected and burned daily in the incinerator.

Fumigation of Vessels.

Fumigation is performed by the permanent Quarantine Assistant, usually with the assistance of members of the ship's crew. The Quarantine Assistant remains on board during the whole period of fumigation. Fumigation is carried out by burning sulphur in pots or tubs. All plant, including pots, sulphur and materials for general disinfection work, such as formalin, permanganate of potash and liquid disinfectants, are kept in an iron building adjacent to the wharfs, which building is sub-divided into a storeroom and a gas-tight fumigation chamber.

Fumigation of vessels is carried out under instructions from the Divisional Office in Brisbane, to which particulars of the fumigation certificates carried by the vessel and the condition of the vessel as regards rat infestation are wired as soon as the Quarantine Assistant has completed his inspection.

Trapping of vessels and the laying of poison baits is carried out by the Quarantine Assistant in accordance with routine instructions. The Quarantine Assistant collects, examines and classifies all rats obtained from vessels. Wherever practicable the carcasses are sent to the Commonwealth Health Laboratory, Cairns, for bacteriological examination. A complete record is kept of the rats obtained and of their classification, and the results of examination. All particulars are forwarded to the Divisional Office at Brisbane, where they are entered in a register.

In addition to the fumigation of vessels for the destruction of rats, luggers employed in the trochus shell and beche-de-mer industry are also fumigated for the destruction of cockroaches.

The Quarantine Assistant periodically inspects barges, coal hulks and harbour craft of all kinds for rat infestation. Traps are set and poison baits laid, and where necessary fumigation is carried out. Rats obtained are dealt with as indicated above. There is very little evidence of rat infestation on local craft.

Facilities for Disinfection.

Disinfection on board vessels is, where necessary, carried out by the Quarantine Assistant. When disinfection of effects from vessels is required, as, for example, secondhand clothing or Asiatic baggage, this is carried out either in a suitable confined space on board the vessel or in the gas tight fumigation chamber situated close to the wharf.

Certificates of Fumigation.

On completion of fumigation or of trapping and poisoning operations on a vessel, a certificate is issued, which is signed by the Quarantine Officer and countersigned by the Quarantine Assistant who performed the work. The Quarantine Assistant hands the fumigation certificate to the Agents, together with the statement of account, including overtime charges. The Agents pay the account to the Sub-Collector of Customs, who forwards to the Collector of Customs in Brisbane a monthly statement showing the amounts collected. The Quarantine Assistant keeps particulars on the butt of the certificate form, which butts are checked by the Audit Inspector against the amounts paid to Customs.

Bills of Health are signed by the Quarantine Officer, and issued to vessels by the Sub-Collector of Customs. Particulars as to the incidence of infectious disease in the port, together with any special action taken in respect of the vessel while in port, are supplied by the Quarantine Officer for insertion on the Bill of Health.

Provision for Vaccination.

Stocks of calf lymph and prophylactic vaccines are held at the Commonwealth Health Laboratory.

Action under the Navigation Act.

The Sub-Collector of Customs is Superintendent, Mercantile Marine. The Quarantine Officer is Medical Inspector of Seamen under the Navigation Act. Any seamen requiring examination are referred to the Medical Inspector of Seamen by the Superintendent, Mercantile Marine, who sends with the seaman an application for examination, on the proper form. Fees for examination are collected and paid in the usual way. Case records of each examination are kept by the Medical Inspector, who forwards the essential particulars to the Divisional Office at Brisbane for transmission to the Central Office of the Commonwealth Department of Health. Some 30 examinations are made annually by the Medical Inspector of Seamen.

Medical Inspection of vessels under the Navigation Act is not carried out at Cairns.

Local Health Organization.

The port health authority is the Cairns City Council. The local health staff consists of the City Medical Officer of Health and the City Health Inspector, who holds the certificate of the Royal Sanitary Institute, London.

The District State Health Inspector, who is responsible directly to the Commissioner of Public Health for Queensland, also has his headquarters at Cairns.

Isolation Accommodation for Infectious Diseases.

No special accommodation exists for the isolation of cases of quarantinable or infectious disease. A vessel arriving with quarantinable or a serious epidemic of infectious disease on board would be directed to proceed to Townsville, twelve hours distant by sea, where ample isolation accommodation for dealing with patients and contacts is available at the Quarantine Station.

The Cairns District Hospital, which is situated within a short distance of the port, has ample accommodation for non-infectious cases. At this hospital a clinic for the free treatment of seamen suffering from venereal disease is in operation, and treatment can be obtained daily from 9 a.m. to 11 a.m., and also by arrangement with the Resident Medical Officer at any hour.

Transport of the sick is provided for by an Ambulance Transport Brigade, with four motor ambulances.

Laboratory facilities are provided by the Commonwealth Health Laboratory, recently established at Cairns.

Rat Control Measures in Cairns.

Rat control operations in the city are supervised by the City Health Inspector, under whom a rat-man is employed. The Cairns Harbour Board also employs a rat-man to destroy rats within the boundaries of its property, and his work is supervised by the City Health Inspector, who makes frequent inspections of the wharfs and waterfront.

The rat control measures employed are the setting of traps, laying of poison baits, use of dogs and the use of a gun with dust shot.

The wharf sheds are well built, and both wharfs and sheds are proofed against rats. The rapid disposal of cargo in the sheds gives little opportunity for rat harborage, and rat infestation on the waterfront is light.

All rats destroyed by trapping, poisoning and other means are collected by the rat-man. Smears are made and sent to the Laboratory for examination, and the carcasses are then burned.

SANITARY SERVICES.

Disposal of Excreta.

The Cairns City Council operates a double pan system with incineration of excreta. In the case of certain hotels and other large buildings a septic tank system is installed, and a similar system is provided by the Cairns Harbour Board on its property.

Drainage.

Surface drains only are provided, emptying into the sea.

Garbage Disposal.

The garbage from vessels is burned in brick incinerators at the wharf.

Garbage from the city is collected and removed to a refuse tip.

Water Supply.

This is obtained from the Freshwater Creek at a point in the hills 18 miles distant from Cairns. The water, which is collected from an uninhabited reserve, runs by gravitation to a reservoir 3 miles from Cairns, where it is permitted to settle. From this reservoir it runs by gravitation to the city, and is reticulated throughout.

THURSDAY ISLAND (PORT KENNEDY), IN TORRES STRAIT.

Thursday Island is situated 20 miles north of Cape York, south latitude 10 degrees 30 minutes, and east longitude 142 degrees 13 minutes.

The Torres Strait Pilots' Station is at Thursday Island.

The port limits are as follows:—

Commencing at Pott Point, Friday Island, thence by that Island to Webb Point; thence by a line to Heath Point, Prince of Wales Island; thence by a line to Smith Point, Horn Island; thence by that Island as far as King Point; thence by a line to Menmuir Point, Hammond Island; thence by that Island to its western extremity; thence by a line to Tessy Head, Goode Island; thence by that Island to its western extremity, and thence by a line to the point of commencement.

Depth of water at the jetty is 22 feet at low water, and at the anchorage it is 30 feet.

It is high water full and change at about twelve hours.

High tides rise 10 feet; low tides 2 feet. Tides are very irregular.

LOCAL PORT ADMINISTRATION.

The Port is under the jurisdiction of the Marine Department of Queensland; the Harbour Master is the local representative. The Port Authority is the Marine Board of Queensland.

Pilotage.

Pilotage is compulsory for oversea vessels and for non-exempt interstate and other vessels. The Harbour Master is the pilot for the port, and boards at the Fairway Buoy off Tucker Point.

The pilot is stationed at Thursday Island, and is in telephone communication with the Lighthouse Station at Goode Island, which should be signalled by vessels requiring the pilot's services.

Berthing Accommodation.

Berthing accommodation is provided at the East jetty, which has a T-head. The length of space available is 200 feet. There are two goods sheds on the end of the jetty; they are not rat proofed. There is no railway system at Thursday Island. The jetty is constructed of wood, and tram lines are laid along it.

Water Supply to Wharf and Vessels.

Water supply is from the town reservoir by a 3-inch main. There are four hose pipe connexions on the jetty head, which can supply 6,000 gallons in an hour.

Principal Imports and Exports..

Principal imports are rice and all food stuffs, cotton piece goods, spirits, canvas and duck, kerosene, benzine, and diving engines and apparatus for the pearl shell fleet.

Exports are pearl shell, trochus shell, beche-de-mer, pearls and tortoise shell.

SHIPPING.

Oversea Shipping—Inwards.

Year.	No of vessels.	Net tonnage.
1924-25 ..	135	307,013
1925-26 ..	131	311,365
1926-27 ..	118	338,052

Vessels of the following lines call:—Nippon Yusen Kaisha, Australian Oriental Line, Eastern and Australian S.S. Co. Ltd., Burns Philp and Co. Ltd., British Imperial Oil Co., and H. P. Reynolds. There is a monthly service by each line.

Route from Japan, Hongkong, Singapore, Balik-papan and Daru (Papua).

Interstate Shipping—Inwards.

Year.	No of vessels.	Tonnage.
1924-25 ..	Nil	—
1925-26 ..	4	784
1926-27 ..	8	4,463

Line—John Burke Limited.—A monthly service is provided.

Intra-state Shipping—Inwards.

Year.	No. of vessels.	Tonnage.
1924-25 ..	65	7,001
1925-26 ..	62	7,910
1926-27 ..	59	5,974

These vessels are steamships and sketches.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Thursday Island was gazetted a first port of entry on the 10th July, 1909.

The Quarantine Line is an imaginary line at Vivien Point, across the entrance to the harbour.

The Mooring Ground is all that area at Thursday Island comprised within the following limits:—

- (a) On the east a line drawn 0 degree true from Black Rock for a distance of 950 yards.
- (b) On the north a line drawn 270 degrees true from the northern extremity of limit (a) for a distance of 2,000 yards.
- (c) On the west, a line drawn 180 degrees true from the western extremity of limit (b) to the coast of Friday Island.

The Quarantine Officer is a full-time permanent officer of the Commonwealth Department of Health.

The local medical practitioner acts as Deputy Quarantine Officer.

Thursday Island is the first port of call for vessels from the East. Vessels picking up a Torres Strait pilot off Goode Island are inspected by the Quarantine Officer. The average number of vessels inspected is 130 annually.

The Quarantine Officer examines all Papuans indented for service on the Pearl Shell fleet and gives them hookworm treatment and is also Medical Officer for the 9th Battery Royal Australian Garrison Artillery stationed at Thursday Island.

Boarding Facilities.

The Quarantine Officer receives notification of vessels requiring inspection from the shipping agents, and in the case of vessels calling for a pilot only, from the Torres Strait Pilot Service.

Vessels are boarded by the Quarantine Officer at the anchorage off Goode Island except in the case of small vessels from New Guinea, which are boarded in the harbour.

Boarding is carried out by the quarantine launch; should this not be available the Lighthouse Department's launch is used. If that launch is not available the use of a launch is obtained from the Harbour Master or from private companies.

The Lighthouse-keeper at Goode Island notifies the Quarantine Officer by telephone when a vessel requiring inspection is sighted and gives the anticipated time of arrival.

Quarantine Staff.

There are three permanent full-time officers. Two of these are at the Quarantine Station, the engine-driver who is in charge, and an assistant who also acts as deck hand on the launch. In the port there is an engine-driver in charge of the Quarantine launch, who also inspects all vessels berthing at the jetty to ensure their compliance with Quarantine Regulations and makes an inspection of vessels for rat infestation.

Vessels which do not berth at the wharf are inspected by the Quarantine Assistant.

Removal of Refuse.

Vessels seldom remain at the jetty more than a few hours, so their refuse is placed in covered refuse tins and dumped at sea.

Fumigation of Vessels.

Fumigation is carried out by the engine-driver of the Quarantine launch, assisted when necessary by the staff from the Quarantine Station.

All vessels of the Pearl Shell fleet are subjected to regular cyanide fumigation, mainly on account of cockroaches.

Large vessels are rarely subjected to fumigation as they are generally fully loaded at Thursday Island.

A stock of sulphur and iron tubs are kept for carrying out sulphur fumigation, and are stored in a shed at the shore end of the jetty, together with a stock of cyanide, sulphuric acid, and vessels for effecting cyanide fumigation.

A disinfecting chamber is provided in this shed for the disinfection of Asiatic deck passengers' luggage.

Trapping and poisoning are carried out by the Quarantine Staff. Owing to the short time vessels stay in port, trapping and poisoning are seldom possible.

The Quarantine Officer classifies and examines all rats secured.

Reports on the inspection of vessels and the examination of rats are forwarded to the Divisional Office in Brisbane.

Disinfection of Asiatic deck passengers' baggage is carried out in a fumigation chamber attached to a fumigation shed on the wharf, where fumigation equipment and stores are housed.

Action under the Navigation Act.

The Sub-Collector of Customs acts as Deputy Marine Superintendent. The Quarantine Officer examines seamen and inspects vessels under the provisions of the Navigation Act.

Quarantine Station.

Staff.—An engine-driver, who is in charge, and one quarantine assistant.

The Quarantine Station is situated in the Quarantine Reserve in the north-west corner of Thursday Island, with a sea frontage to the Aplin Pass, and commands a view of the mooring ground at Goode Island. The station is about 3 acres in area with a frontage to the sea of 260 feet and a depth of 576 feet. The station is about $1\frac{1}{2}$ miles from the town.

The buildings are constructed of wood with galvanized-iron roofs, and are raised on concrete blocks.

The station is surrounded by a wire fence.

Accommodation.

There is accommodation for six first class passengers in Administration Block; four second class passengers in tents; fifteen third class passengers in Papuan Compound—which can be supplemented by tents.

Administration Block.—This has a dispensary, dining room, kitchen, three bedrooms with two beds in each, and a bathroom.

Isolation.

There are four beds in one ward and ten beds in the other. The larger ward is divided by a partition so that it can be used for males and females.

Observation.

There is accommodation for six persons in tents if the wards should be occupied.

Concrete floors are laid down for the tents with timber uprights for ridge poles. There is a change block at the entrance to the Isolation Compound.

The Papuan Compound is a wooden building in a separate enclosure, and may be used as third class or Asiatic quarters.

Laboratory.

There is a laboratory and morgue under one roof. A stock of from fifteen to twenty guinea pigs is kept for diagnostic purposes.

There is no crematorium. The cemetery is outside the station fence.

Bathing Accommodation.

There is a bathing block with four showers in separate compartments. Each compartment is divided by a door so that a foul and a clean side is constituted, and the entrance to the bathing block is divided from the exit.

Hot water is not provided, the tropical climate making such a provision unnecessary.

The Laundry is a separate building fitted with the necessary equipment.

Disinfection Block.

This is situated near the shore, and houses a steam disinfector of 7 ft. 6 in. long by 4 feet diameter, fitted with the standard steam mechanism and an attachment for formalin fumigation. The compartment housing the disinfector is divided into two so that a foul and a clean side is constituted.

Steam is brought from a boiler in an adjacent compartment, and there is a passengers' luggage store under the same roof.

Cyanide Chamber.

This is a building with a capacity of 1,000 cubic feet, which is used to preserve linen and blankets against various destructive insects.

Jetty.

On the water front there is a stone pier, with a wooden jetty at the end, where the Quarantine launch can be moored and passengers and patients landed.

A tram line is laid along the pier to the disinfection block.

There is a small shed at the land entrance to the station for receiving stores during an active quarantine.

Lighting is effected by benzine and kerosene lamps. The staff cottages and the administration block are connected with the Thursday Island telephone exchange.

Fire Service.

There is a canvas hose for connection with the town supply by means of a stand-pipe; fire buckets and patent extinguishers are kept in each building.

Sewerage.

All bathrooms, closets and sinks are connected with the Quarantine Station septic tank system, which has an effluent into the sea.

Water Supply.

Rain is obtained by catchment from the roofs, and is stored in twelve 1,000-gallon tanks. The overflow goes into a concrete underground tank with a capacity of 30,000 gallons, from which water is pumped into a high iron tank by a windmill and is thence distributed by pipes throughout the station.

There is also a main connecting the station with the Thursday Island waterworks.

There are two staff cottages on the station for housing the staff.

LOCAL HEALTH ORGANIZATION.

Thursday Island has a population of 1,700 persons. The main industries are pearl shell and trochus shell fishing. For carrying on this industry about 500 Japanese and over 200 Papuans are engaged under indenture by the owners of the pearl shell luggers.

A number of the natives of the Torres Strait Islands are also engaged in recovering pearl shell and trochus shell.

The port health authority is the Thursday Island Town Council.

The local health staff consists of the Medical Officer of Health, who is also the Government Medical Officer, and the Town Clerk, who acts as Health Inspector.

There is a good General Hospital, which has an isolation ward for treating cases of infectious disease.

The hospital has a stretcher on wheels for transporting sick persons, and has a staff of nurses.

Laboratory facilities for diagnostic and research work are provided by the Tropical Institute at Townsville. A large stock of calf lymph is kept by the Quarantine Officer.

Provision for treatment of venereal disease is made at the Torres Strait Hospital; treatment is available for seamen free of charge.

Rat Control Measures.

Rats are destroyed in the shed on the wharf by trapping, poisoning, and by drowning with a hose.

The Town Council pays a bonus of 1s. a head for large rats and 6d. a head for small rats.

SANITARY SERVICES.

Disposal of Excreta.

A pan service is provided; the excreta is tipped into the sea in Aplin Pass, where there is a strong tide running.

Drainage.

Surface drains for rain water discharge into the sea.

Garbage Disposal.

There is a weekly service for removal of garbage, which is taken to a garbage depot and covered with earth.

Water Supply.

Rain water is collected from a catchment area in a reservoir. This is supplemented by pumping from a well. The water is pumped to a high level concrete tank on Milman Hill and reticulated to the town.

NORTH AUSTRALIAN PORTS.

DARWIN.

Darwin is situated in North Australia. South latitude 12 degs. 20 mins. and east longitude 130 degs. 50 mins.

The port limits are as follow:—Within an imaginary line north-east and south-west between east and west points.

The depth of water at the anchorage in the fairway is from 4 to 12 fathoms, and at the wharf at low water spring tide is 20 feet.

Rise and fall of tide, spring 23 ft. 8 in., neap 16 ft. 1 in., with a range of 22 feet for spring tide and 5 ft. 4 in. for neap tides.

LOCAL PORT ADMINISTRATION.

The North Australian Commission has charge of North Australia ports under the *Northern Australia Act 1926*. A Harbour Master has been appointed, but there is no Marine Board or Harbour Board.

Pilotage.

Pilotage is not compulsory. There is no pilot stationed at Darwin, but arrangements may be made, if required, with the masters of small local craft.

Berthing Accommodation.

There is one wooden L-shaped pier. The length of pier space available is 559 feet on the south-east side and 500 feet on the north-west side.

No sheds are provided on the pier, but a sorting shed with a capacity of 60,000 cubic feet is situated about 440 yards distant.

The pier is connected with the railway system by two tracks on the approach and four tracks on the main pier.

The gauge is 3 ft. 6 in., and there is a turntable at the elbow of the pier.

Water Supply to Wharfs and Vessels.

Water is pumped from the railway catchment dam of 5,000,000 gallons capacity to a 26,000-gallon tank in the railway yard, and is reticulated to the jetty. It is available to vessels by four 2½-in. hoses, each of which can supply 2,000 gallons per hour.

Principal Imports and Exports.

The principal imports are general cargo and coal.

The principal exports are cattle, buffalo hides, tin, pearl shell, beche-de-mer and dried fish.

SHIPPING.

Oversea Shipping.

The number of vessels inwards annually for the three years 1924-25, 1925-26, 1926-27 was 27. The gross tonnage annually for those years was 115,581.

The lines of vessels calling are Burns, Philp, Melbourne to Singapore, monthly service; V. Madrigal Company, Darwin to Manila, monthly; British Imperial Oil Company, Borneo to Brisbane, half-yearly.

Interstate Shipping.

The number of vessels inward annually for years 1924-25, 1925-26, and 1926-27 was ten. The West Australia State Steamships provide a two-monthly service.

Intra-state Shipping.

The number of vessels in and out annually for the years 1924-25, 1925-26, 1926-27 was fifteen, and their annual tonnage, 2,579. The vessels are steamships and auxiliary ketches.

ADMINISTRATION UNDER THE QUARANTINE ACT.

Darwin was proclaimed a first port of entry on 10th July, 1909. The Quarantine Mooring Ground is defined as follows:—

“(1) That area at Darwin comprised within the following limits:—

- (a) On the north-east by a line drawn south 67 degs. east magnitude from Fort Point to meet the eastern extremity of limit (c).
- (b) On the north-west by a line drawn south 60 degs. west magnitude from Fort Point to meet western extremity of limit (d).
- (c) On the south-east by a line drawn north 69 degs. east magnitude from the centre of Swire's Bluff to meet the eastern extremity of limit (a).
- (d) On the south-west by a line drawn south 40 degs. east magnitude from Emery Point intersecting lines (b) as a western limit and intersecting line (c) as the southern limit.

(2) Vessels must not approach within two cables length of the shore.

(3) Vessels of not more than 40 tons may anchor within a radius of three-quarters of a mile from Fort Point to the south of line drawn from Fort Point to Swire's Bluff, and Fort Point to North Shell Island, but must not approach within two cables length of the shore.”

The Quarantine Officer is the Chief Health Officer of the North Australia Administration, who acts in a part-time capacity to attend to the requirements of the Quarantine Act for the port.

The Quarantine Officer receives advice regarding vessels requiring pratique from the agents. The masters of vessels advise by wireless or by flag signal.

The Quarantine Officer boards at the mooring ground in the Administration launch; if this is not available a private launch is used.

Quarantine Staff.

The part-time Quarantine Officer and clerical and inspection staff at the North Australia Health Department by arrangement with the Administration carry out any work required in connexion with the administration of the Quarantine Act.

Inspections of vessels are made by the inspection staff. Vessels keep their food refuse on board in covered rat-proof receptacles and dump it at sea. No arrangements are made for the removal of refuse from vessels in port. Fumigation of vessels is carried out by the

fumigation staff of the Health Department. Facilities exist for the fumigation of luggers and small craft only. Cyanide fumigation is the method usually adopted. Trapping and poisoning is carried out by the inspection staff, who also collect the rats after fumigation.

All rats are marked for identification, and are classified and examined at the Health Department.

Reports on the classification and examination of rats are forwarded to the Divisional Office in Brisbane.

A fumigation chamber for the disinfection of personal effects is placed at the head of the jetty.

Certificates of fumigation and bills of health are issued by the Quarantine Officer.

Quarantine Station.

Staff.—There is no permanent staff employed on the Quarantine Station. The old Quarantine Station on Channel Island has been transferred to the North Australian Administration, and plans have been prepared for a new Quarantine Station at a site on the east arm of the Darwin Harbour.

The plans for the new station include—

- (1) An isolation hospital with three wards and a wide verandah. A kitchen and lavatory block are attached.
- (2) A contact block. A three-roomed building with wide verandah and kitchen and lavatory block are attached.
- (3) A change block consisting of three compartments with a bathroom in the central compartment.
- (4) A store divided into two compartments, one for general stores and the other for textiles, blankets and mattresses. The latter will be made gastight for use as a cyanide chamber.
- (5) An attendant's cottage.
- (6) An incinerator shed.
- (7) A laundry.
- (8) A fumigation chamber.
- (9) Stables.
- (10) A jetty for landing at high tide.
- (11) Water supply. In addition to galvanized-iron tanks attached to the buildings a water supply will be obtained from a well or bore by a petrol pump and reticulated to the buildings.
- (12) Drainage and sewerage will discharge directly into the sea.

Provision for Vaccination.

A supply of calf lymph is held in charge of the Quarantine Officer, and two medical practitioners are available to carry out vaccination.

Action under the Navigation Act.

The part-time Quarantine Officer is the Medical Inspector of Seamen and Medical Inspector of Shipping.

Local Health Organization.

The port health authority is the North Australia Department of Public Health.

The local staff consists of a full-time Chief Medical Officer, a part-time Medical Officer, an Inspector, and two Assistants.

Isolation Accommodation for Infectious Diseases.

There is provision at the General Hospital for cases of infectious disease, permanent accommodation is provided for six cases and emergency accommodation for over 50 cases.

A motor truck fitted with stretchers is provided for the transport of patients.

Treatment for Venereal Diseases.

Aboriginal patients and half-caste females are treated at an aboriginal clinic. White people are required under the Venereal Diseases Ordinance to consult medical practitioners.

Laboratory facilities are provided by the Laboratories of the Department of Public Health and the Stock Department.

A large supply of calf lymph is always stocked at Darwin.

Rat Control Measures.

Rat regulations require owners to combat rat infestation by removing litter and other harbourage, proofing drains, protecting garbage, and to assist reduction by trapping, poisoning, and the use of dogs.

A native gang attends to public buildings, and collects all rats caught by householders each morning. These rats are brought to the Health Department for inspection and routine bacteriological examination.

The wharf is trapped and wharf buildings trapped and fumigated periodically.

A register is kept of all rats caught, showing date, premises, sex, classification, and result of bacteriological examination.

SANITARY SERVICES.

Disposal of Excreta.

A pan service is provided with burial of excreta at a sanitary depot.

Drainage.

Flood water is drained by street tables into the sea. Waste water is drained by open concrete drains, after passage through a charcoal filter, into the street water tables.

Garbage Disposal.

There is a weekly service for the removal of garbage.

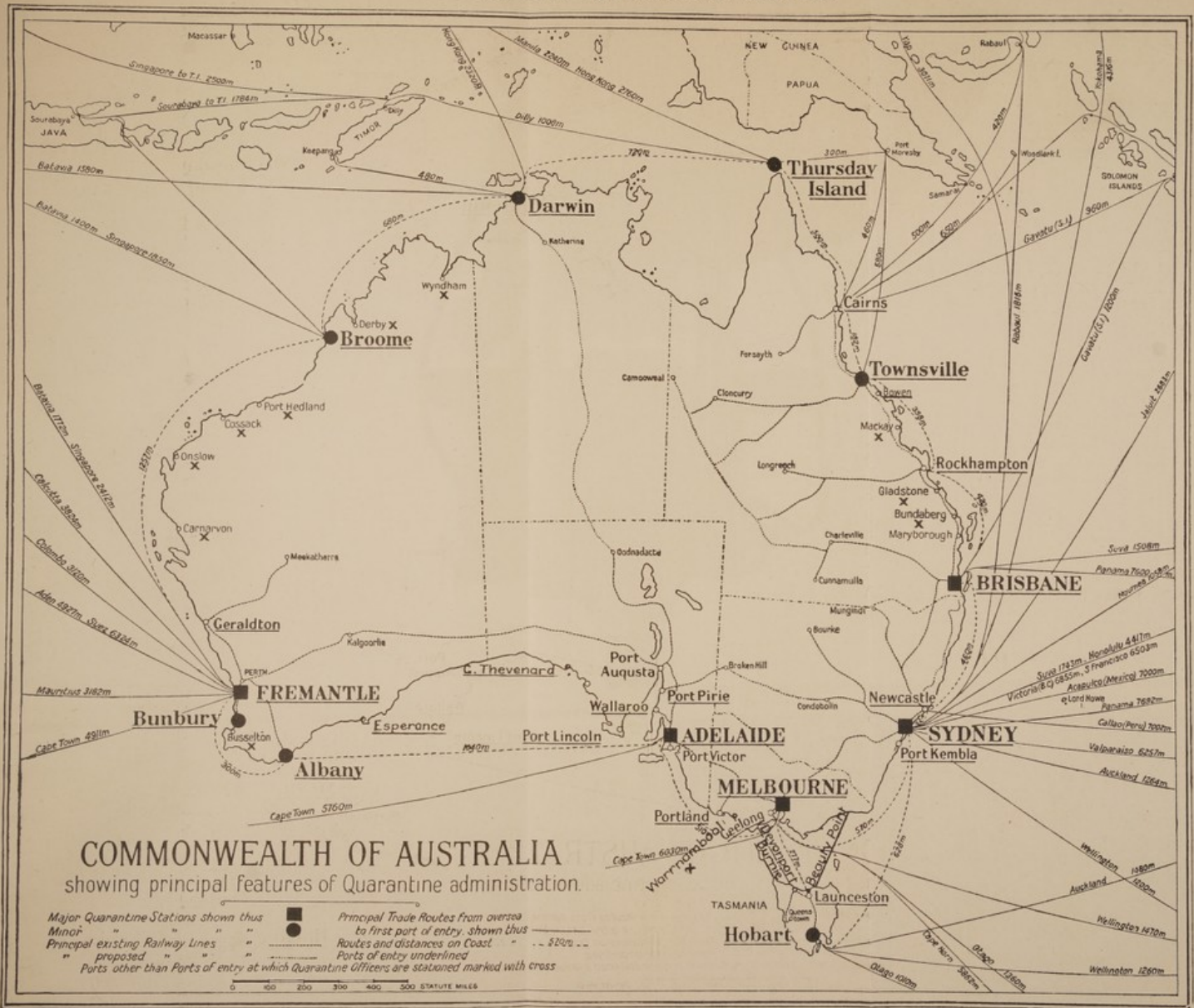
Water Supply.

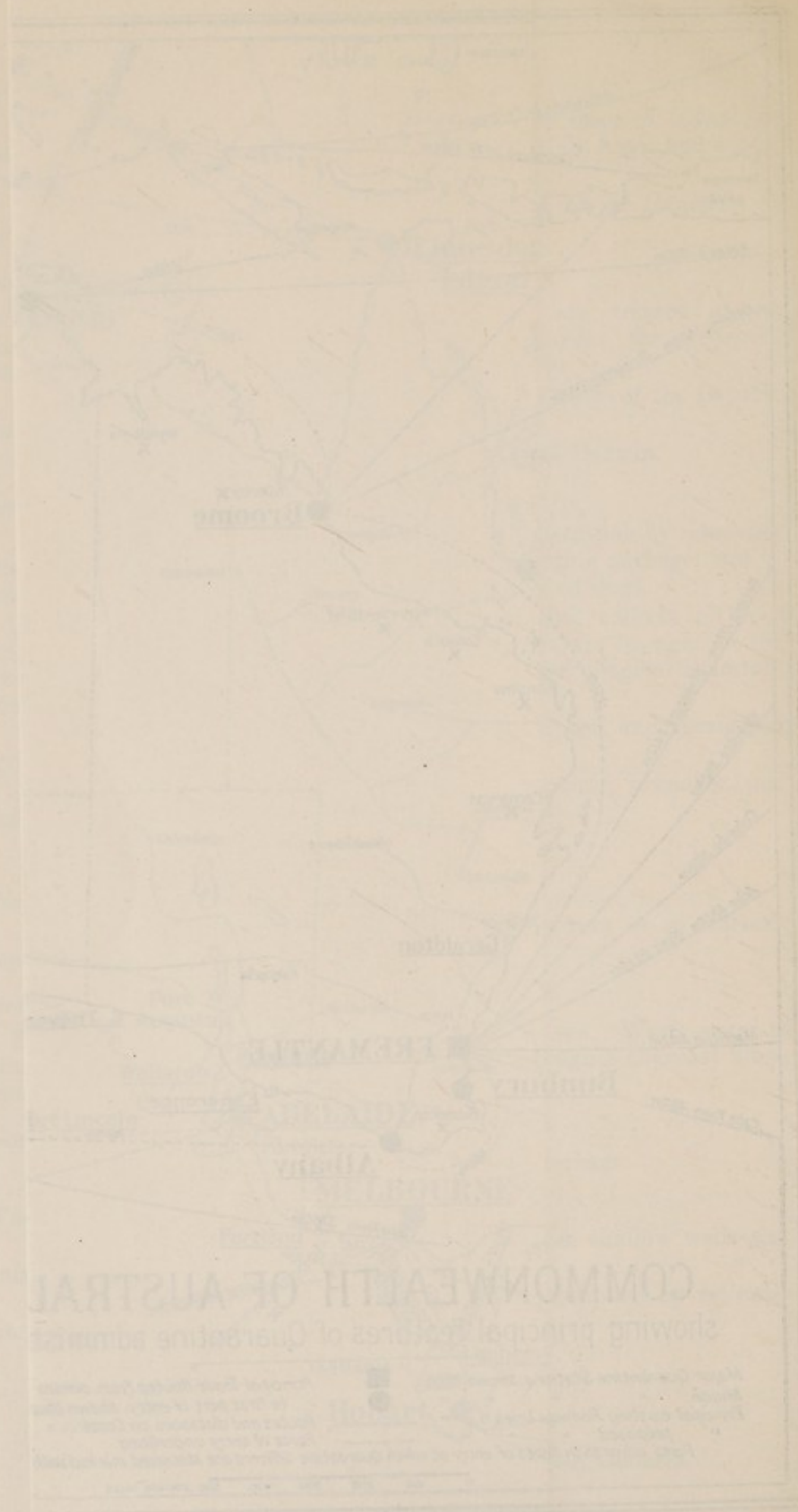
The inhabitants obtain their water supply from shallow wells and rain-water storage.

Certain groups of Government buildings are supplied by reticulation from wells.



AUSTRALIAN QUARANTINE SERVICE.





COMMONWEALTH OF AUSTRALIA Showing principal features of its coastline and major cities

Scale: 1:1,000,000
 The map shows the coastline of Australia and the locations of the states and territories. Major cities are marked with dots. The map is oriented with the coastline on the left and the interior on the right.

