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SECTION XXX.

PUBLIC HYGIENE.

§ 1. Introduction.

1. **General.**—Though the safeguarding of the public health as an organised department of administration is of comparatively modern growth, few branches of law have expanded more rapidly than the one relating to that subject. The loss of potential wealth incurred through preventable diseases and deaths is of grave concern to the nation, and is a matter which has recently received an increased amount of attention both from the Commonwealth and State Governments and from the Health and other authorities in Australia. Numerous Acts of Parliament have been passed dealing with various aspects of the subject of public hygiene.

2. **State Legislation.**—In the first place there is a number of statutes, passed by the State Legislatures, such as Public Health Acts, Pure Food Acts, and Milk and Dairy Supervision Acts, providing, *inter alia*, for the constitution of Central Health Authorities, vested with definite powers, and furnishing the machinery necessary to enforce these powers. The general effect of this legislation has been to place local sanitary regulations and the execution of the Acts in the hands of the local authorities, subject to a general superintendence by a Government department.

3. **Commonwealth Legislation.**—Secondly, by the enactment of the Commerce (Trade Descriptions) Act 1905, the Quarantine Acts 1908 and 1912, and the Customs Act 1910, the Commonwealth Government has taken the first steps towards the exercise of its constitutional powers for the protection of the public health. All these Acts are administered by the Department of Trade and Customs.

4. **Scope of Enquiry.**—In addition to the statutes already referred to, account should be taken of a large body of legislation which relates more or less indirectly to the subject of public hygiene. It deals with a great variety of subjects and matters, such as factories, conditions of employment, mines, merchant shipping, prevention of fire, buildings, dangerous performances, contagious diseases, and other matters. There is also a number of statutes which have been passed with the object of protecting and supervising infant life. Owing to exigencies of space it is not possible in this section to do more than give a brief description of the scope and results of the legislation relating to public hygiene in its more important aspects.

§ 2. The Public Health Acts.

1. **General.**—The most important statutes relating generally to the subject of public hygiene are the Health Acts which have been passed in each State. While the scope of these Acts differs considerably in some of the States, there is a general similarity in their chief provisions and range of operation. The administration of the Acts is carried on by either a Central Board or a Commissioner of Health under Ministerial control, while their actual execution is imposed on local Boards of Health or on the local authorities constituted under the various Local Government Acts. Ordinarily the Central authority

has general supervisory powers over local Boards and authorities, and also has power to act in case of default by or in the absence of a local Board or authority as to any duty under the Act, and to recover all expenses incurred. The Central authority may also make regulations, and the central and local Boards may make by-laws for various purposes generally specified in the Health Acts. Generally it may be said that the chief functions of the Central Health authorities are:—(a) the collection and dissemination of useful information relating to health and the prevention of disease, and (b) to control, stimulate, and, where necessary, to supplement the efforts of the local authorities.

Inspectors are sent to make reports on the hygienic conditions of country towns or districts with a view to assisting the local authorities with advice, and keeping the central department posted as to the activity or otherwise of these various bodies.

Rating powers for sanitary purposes are conferred on local authorities by the Local Government Acts.

The general powers of local authorities under the Acts extend to a variety of subjects and matters, including:—sewers and drains, sanitary conveniences, scavenging, cleansing, privies and cesspools, abatement of nuisances generally, offensive trades, public buildings, dwelling-houses and lodging-houses, hospitals, mortuaries, cemeteries and burial grounds, prevention of adulteration of food and drugs, unsound food, pollution of water, supervision of abattoirs and dairies, prevention of infectious diseases, and infant life protection.

2. 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. Briefly put, 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 of Public Health holding the position of Chief Medical Officer of the Government as well as being permanent head of the department.

The Board of Health has certain statutory duties imposed upon it by various Acts of Parliament, and the Director-General is President of the Board. These duties 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 the following Acts:—Public Health Act 1902, Public Health (Amendment) Act 1915, Dairies Supervision Act 1901, Noxious Trades Act 1902, Cattle Slaughtering and Diseased Animals and Meat Act 1902, Sydney Abattoir and Nuisances Prevention Act 1902, Pure Food Act 1908, and Private Hospitals Act 1908. The Board further possesses certain powers connected with public health matters under the Local Government Act 1906. It may be mentioned that the Board of Health is a nominee Board, created in 1881 and incorporated in 1894.

The Director-General of Public Health acts independently of the Board of Health as regards the State hospitals and asylums, and the various public hospitals throughout the State which receive subsidies from the Government.

The Department also controls, on behalf of the Federal Government, the meat export trade of the State. A veterinary inspector is in charge, and has assisting him an assistant veterinary inspector and thirty-five qualified meat inspectors stationed at Glebe Island and at various slaughter-houses throughout the State.

3. Victoria.—In this State the Public Health Acts are administered by a Board composed of two members nominated by the Governor-in-Council and of seven members elected by the municipal councils. The medical and sanitary staffs of the Board consist of (a) the medical inspector, who is also chairman, (b) two assistant medical inspectors, (c) two engineering inspectors, (d) three building inspectors, and (e) nine health inspectors. The main function of the Board is to enforce the execution of the Health Acts by the local municipalities, but it has been found advisable to supplement this supervisory function by an active policy of inspections as to the sanitary condition of

various districts and the sampling of articles of food. The supervision of the sanitary condition of milk production is under the Dairy Supervision Branch of the Department of Agriculture, but distribution is supervised by the Board of Health. Acts administered by the Department of Public Health are:—The Health Acts, the Cemeteries Acts, the Cremation Act 1903, the Adulteration of Wine Act 1905, the Meat Supervision Acts, and the Pure Food Act 1905.

4. **Queensland.**—The Public Health Acts 1900 to 1911 are administered by the Commissioner of Public Health under the Home Secretary. The executive staff of the Department includes a health officer, an assistant-health officer, a medical inspector for North Queensland, a secretary and five clerks, nine sanitary inspectors, and six food inspectors, in addition to rat squads in Brisbane and the main outports, and a mosquito squad for the Brisbane metropolitan area. A northern office, in charge of the medical inspector for North Queensland, is located at Townsville. A laboratory of microbiology and pathology, in charge of a medical director, 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 to compel rectification, at the cost of the local authority, of sanitary evils produced by local inefficiency or apathy. Its powers and responsibilities were widely increased by the Health Act of 1911, which, *inter alia*, enables definite action to be taken against mosquitoes, rats, and other noxious vermin liable to spread disease.

A scheme for the limitation of venereal disease in the metropolitan area has been recently put into operation in Brisbane under statutory powers. It includes compulsory notification, free treatment, and the free supply of salvarsan and allied remedies to all public hospitals. Compulsory segregation of venereally infective persons of either sex may be effected on occasion.

5. **South Australia.**—The Central Board of Health in South Australia consists of five members, three of whom (including the chairman) are appointed by the Governor, while one each is elected by the city and suburban local Boards and the country local Boards. The Health Act 1898 provides that the municipal and district councils are to act as local Boards of Health for their respective districts. There are 182 of these local Boards under the general control and supervision of the Central Board. A chief inspector and two inspectors under the Health, Food, and Drugs Acts, periodically visit the local districts and see generally that the Boards are carrying out their duties. There is also a chief inspector of food and drugs (under the Food and Drugs Act 1908), who, in company with an analyst, visits country districts, and takes samples of milk, which are analysed on the spot. There are two nurse inspectors employed in advising and assisting local Boards in connection with outbreaks of infectious diseases. In the outlying districts there are thirteen inspectors directly responsible to the Board. The Education Department has a medical officer and two female inspectors, who deal with all cases of infectious disease occurring in schools, while their appointments under the Health Act enable them to trace cases of such disease, and deal, if necessary, with the sanitary state of the children's homes.

6. **Western Australia.**—The legislation in this State is The Health Act 1911, with two Amending Acts 1912. The central authority is the Department of Public Health, controlled by a Commissioner, who must be a qualified medical practitioner. The local authorities constitute:—(a) Municipal Councils, (b) Road Boards which may be appointed as such, (c) Local Boards of Health, composed of persons appointed by the Governor for a certain period. These Local Boards are only utilised where neither Municipal Councils nor Road Boards are available. Generally speaking, 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. In cases of emergency the Commissioner may exercise all the powers of the local health authorities throughout the State.

All the usual provisions for public health legislation are contained in the Act, and in addition, provision is made for the registration of midwifery nurses, and the medical examination of school children.

7. *Tasmania*.—The Public Health Act 1903 vests central control in the Chief Health Officer, who is the permanent head of the Department of Public Health. He is charged with very wide functions and powers, and in the event of the appearance of dangerous infectious disease (smallpox, plague, etc.) in the State, is vested with supreme power, the entire responsibility of dealing with such an outbreak being taken over by him from the local authorities. Local executive is vested in local authorities, who possess all legal requirements for the efficient sanitary regulation of their districts. Controlling and supervisory powers over these bodies are possessed by the Department of Public Health, whereby many of the powers conferred upon them may be converted into positive duties. One function of the Department is to advise local authorities on matters pertaining to the Health Act, and, where necessary, to rectify sanitary evils produced by local inefficiency or apathy. The department has four full-time inspectors, who assist and instruct the local sanitary inspectors, but full-time district health officers are not provided for. The number of local authorities under the Public Health Act has been reduced to fifty-one since the Local Government Act 1906 came into force. All parts of Tasmania are now furnished with the administrative machinery for local sanitary government.

§ 3. Inspection and Sale of Food and Drugs.

1. *Introduction*.—The importance of securing a pure and wholesome supply of food and drugs is recognised by both the Commonwealth and State Parliaments. Under the Acts referred to later, and the regulations made thereunder, the importation of articles used for food or drink, of medicines, and of other goods enumerated, is prohibited, as also is the export of certain specified articles, unless there is applied to the goods a "trade description" in accordance with the Act. Provision is made for the inspection of all prescribed goods which are imported, or which are entered for export.

2. *Commonwealth Jurisdiction*.—Under Section 51 (i.) of the Commonwealth Constitution Act 1900, the Commonwealth Parliament has power to make laws with respect to trade and commerce with other countries and among the States. By virtue of that power, the Commerce (Trade Descriptions) Act 1905, and the Customs Act 1910, to which reference has already been made in another part of this book (see pp. 513, 514), were passed.

3. *State Jurisdiction*.—The inspection and sale of food and drugs is also dealt with in each State, either under the Health Acts or under Pure Food Acts. There is, in addition, in the several States, a number of Acts dealing with special matters, such as the adulteration of wine and the supervision of meat. The sanitary condition of the milk supply is also subject to special regulations or to the provisions of special Acts.

(i.) *General Objects of Acts*. The general objects of the Acts dealing with the inspection and sale of food and drugs are to secure the wholesomeness, cleanliness, and freedom from contamination or adulteration of any food, drug, or article, and for securing the cleanliness of receptacles, places, and vehicles used for their manufacture, storage, or carriage. The sale of any article of food or any drug which is adulterated or falsely described is prohibited, as also are the mixing or selling of food or drugs so as to be injurious to the health. A more detailed account of the various State Acts and of their administration and enforcement is given in previous issues of the Year Book (see No. 6, p. 1090).

(ii.) *Inspection and Analysis*. Power is given to any authorised officer to enter any place for the purpose of inspecting any article intended to be used as a food or drug and also to inspect articles being conveyed through the streets, by water or by rail. He may take samples for examination or analysis, and may seize for destruction articles whic

are injurious to health or unwholesome. Chemical analyses and bacteriological examinations are made by qualified officers. Special provision is generally made in the Acts with regard to the sale of preservatives and disinfectants.

(iii.) *Advisory Committees.* In New South Wales, Victoria, and South Australia Advisory Committees have been appointed for the purpose of prescribing food standards and for making recommendations generally with a view to carrying out the provisions of the Acts. The duty of enforcing these regulations is entrusted to the local authorities, but it is stated that up to the present comparatively few of the local councils seem to have realised the importance of guarding the food supplies of the people.

4. **Food and Drug Standardisation.**—With the object of securing uniformity of food and drug standards of the principal manufactured products sold in the Commonwealth, a conference, which was attended by representatives of the Commonwealth and all the individual States except Western Australia, was opened in Sydney on 8th June, 1910. The result of this conference was that several adoptions of standards of food and drugs, and labelling of articles for consumption were made, so as to obtain uniformity in the several States. In June, 1913, a second conference of the principal Health Officers of the Commonwealth and States was held in Melbourne. Emphasis was laid on the importance of fixing uniform standards throughout the Commonwealth for food and drugs, and of also securing uniformity of administration of the laws relating thereto. It was also urged that, as the uniform enforcement of standards throughout the Commonwealth depends to a great extent on the methods of analysis, the Commonwealth and State analysts should prepare standard methods for determination of the chemical standards adopted. The resolutions of the conference were submitted to the Premiers' Conference held in Melbourne in March, 1914, when it was determined to introduce uniform legislation or regulation with respect to the preparation and distribution of food and drugs.

§ 4. Milk Supply and Dairy Supervision.

1. **Introduction.**—Milk is pre-eminently the food which needs most careful protection at each successive stage of its production, carriage, storage, and delivery, from exposure to infection from extraneous matter. The problem of obtaining a pure and clean milk supply has accordingly, during the last few years, demanded an increasing amount of attention from the Health authorities, and in each State special laws and regulations have been passed governing the supervision of dairy farms and dairies.

(i.) *General Provisions of Acts and Regulations.* In general, it may be said that it is not lawful to sell or offer for sale any milk which is not fresh or wholesome, or which has been watered, adulterated, reduced, or changed in any respect by the addition of water or any other substance, or by the removal of cream. Regulations made under the Acts provide for the carrying-on of dairy farms, dairies, factories, and creameries, under proper and wholesome conditions; and supervisors and inspectors are appointed to enforce these provisions. Generally, the execution and enforcement of the Acts are left to the local authorities.

(ii.) *Registration of Dairymen and Milk Vendors.* Dairymen, milk vendors, and dairy-factory or creamery proprietors are required, under penalty, to be registered. In some States registrations must be applied for before commencing to trade; in other States they must be applied for within a specified time after the premises are first used.

(iii.) *Inspection of Premises.* Dairy inspectors employed by the central departments traverse the principal dairying districts, and inspect dairy premises, dairy herds, appliances, and utensils, and ascertain in what fashion the various local authorities carry out the duties imposed on them. Regulations and instructions are issued by the central departments for the information and guidance of local authorities, dairymen, milk vendors, and others, as to precautions to be observed in order to protect milk from contamination, and to ensure cleanliness as to the structural arrangements, dimensions and ventilation of premises, and as to the care and health of dairy cattle. If an inspector

is satisfied that any premises or apparatus used therein are unclean, or unfit for the purposes of dairy produce, he may require the owner to put the same in a proper and wholesome condition.

(iv.) *Notification of Diseases.* Every dairyman or milk vendor is required to report immediately any case of certain prescribed infectious diseases occurring in any human being engaged at or residing on his premises. It is the duty of the local authority to take care that communication between all persons belonging to the infected household and the milk business in all its details is prevented. Cases of notifiable diseases occurring in animals at a dairy farm or dairy must also be reported immediately, and the owner must at once isolate the diseased animal. The sale of milk from an infected cow is prohibited, and, under certain circumstances, an inspector may order an infected animal to be branded or destroyed.

(v.) *Analysis of Dairy Produce.* The local authority generally has power to enter premises and to take away samples of the milk, cream, butter, or cheese there found, and of the water supply therein, for the purpose of examination or analysis.

2. **Number of Dairy Premises Registered.**—The following table shews the number of dairy premises registered and the number of cattle thereon in each State during the year 1913-14.

NUMBER OF DAIRY PREMISES REGISTERED AND CATTLE THEREON, 1913-14.

| Particulars. | N.S.W. | Victoria.* | Q'land. | S. Aust. | W. Aust. | Tas. |
|-------------------------|---------|------------|---------|----------|----------|-------|
| Premises registered ... | 19,400 | 12,814 | 12,636 | 969 | 387 | 702 |
| Cattle thereon ... | 665,000 | 155,250 | 347,437 | 6,775 | 6,132 | 8,992 |

* In districts under the Milk and Dairy Supervision Act 1905.

3. **New South Wales.**—The provisions of the Dairies Supervision Act 1901 extend to the whole of the Eastern and Central Divisions of this State and to all important dairying districts further inland. Other districts are brought under the operation of the Act by proclamation from time to time. Every dairyman, milk vendor, and dairy factory or creamery proprietor is required, under penalty, to apply for registration to the local authority for the district in which he resides, and also to the local authority of every other district in which he trades. Registrations must be applied for before commencing to trade and must be renewed annually. The Chief Veterinary Inspector is in charge of all inspectorial work under the Dairies Supervision Act 1901, and has assisting him one assistant veterinary inspector and 14 qualified dairy inspectors, each in charge of a district.

4. **Victoria.**—The inspection and supervision in Victoria of dairies, dairy farms, dairy produce, milk stores, milk shops, milk vessels, dairy cattle and grazing grounds are provided for by the Milk and Dairy Supervision Act 1905, administered by the Minister of Agriculture. Under the Health Act 1890 and the Pure Food Act 1905, however, the Department of Public Health is empowered to take samples of food (including milk, cream, butter, cheese, and other dairy products) for examination or analysis, to institute prosecutions in case of adulterated or unwholesome food, and to carry out inspection of dairies, etc., in districts not yet proclaimed under the Act. By the end of the year 1914, 110 municipal districts, comprising about one-fourth of the area of the State, had been brought under the operation of the Milk and Dairy Supervision Act. The municipal councils have the option of carrying out the execution of the Act themselves or of electing for execution by the Department of Agriculture; up to the present all but one of the municipalities in which the Act has been proclaimed have elected for Departmental execution.

5. **Queensland.**—The control and supervision of the milk supply and of dairies and the manufacture, sale, and export of dairy produce in Queensland are provided for by the Dairy Produce Acts 1904 and 1911, administered by the Department of Agriculture and Stock. These Acts and the regulations made thereunder apply only to prescribed

districts, which comprise the whole of the coastal district from Rockhampton down to the New South Wales border, and the Darling Downs, Maranoa, Mackay, and Cairns districts.

6. **South Australia.**—The Food and Drugs Act 1908, and the Regulations made thereunder, provide for the licensing of vendors of milk and the registration of dairies, milk stores and milk shops. The Metropolitan County Board carries out the requirements of the metropolitan area. In the country, the majority of local authorities have not made statutory provision for the licensing of vendors of milk and the registration of dairy premises; and, in consequence, the Central Board of Health provides for such under the Act.

7. **Western Australia.**—Control of dairies throughout the State is in the hands of the Public Health authorities under the provisions of the Health Act. The inspectors under the Act supervise all sanitary conditions of the premises, the examination of herds being carried out by officers of the Department of Agriculture for the Health Department. This inspection of herds is regularly done, and in the case of such animals as arouse suspicion, the tuberculin test is applied. Regular inspection of premises from a sanitary point of view is also maintained.

8. **Tasmania.**—Local authorities are responsible for the dairies in their respective districts. By-laws for the registration and regulation of dairies have been drafted by the Public Health Department, and in the majority of cases have been adopted by the local authorities. By the Food and Drug Act, which came into force March, 1911, milk sampling is carried out by the local authorities. During 1913, attention was drawn by circular to the requirements of local authorities with regard to dairies, and a special report is now required before licenses are granted. An Act also provides for the registration and inspection of dairies and other premises where dairy produce is prepared, and regulates the manufacture, sale, and export of dairy produce.

§ 5. Prevention of Infectious and Contagious Diseases.

1. **General.**—The provisions of the various Acts as to precautions against the spread and the compulsory notification of infectious diseases may be conveniently dealt with under the headings—(a) Quarantine; (b) Notifiable Diseases; and (c) Vaccination.

2. **Quarantine.**¹—Under the Commonwealth Quarantine Act 1908, the systems of State quarantine formerly in operation were abolished, and a branch of the Department of Trade and Customs, under the immediate control of a Director of Quarantine, was created on 1st July, 1909. An amending Quarantine Act was passed in 1912, correcting certain imperfections in the original Act, and conferring additional powers. As far as is at present practicable, uniformity of procedure has been established throughout the Commonwealth in respect of all vessels, persons, and goods arriving from overseas ports or proceeding from one State to another, and in respect of all animals and plants brought from any place outside Australia. In regard to interstate movements of animals and plants, the Act becomes operative only if the Governor-General be of opinion that Federal action is necessary for the protection of any State or States; in the meantime the administration of interstate quarantine of animals and plants is left in the hands of the States.

(i.) *Transfer of Quarantine Stations.* The transfer from the States to the Commonwealth of the quarantine stations, for the purposes of human quarantine, at the following places, has been effected:—(a) *New South Wales.* North Head (near Sydney). (b) *Victoria.* Point Nepean (near Melbourne). (c) *Queensland.* Colnslie and Lytton (near Brisbane), Magnetic Island (near Townsville) and Thursday Island. (d) *South Australia.* Torrens Island (near Adelaide). (e) *Western Australia.* Woodman's Point (near Fremantle), Albany, and Broome. Animal quarantine stations in each of the States have also been transferred, and steps are being taken for the taking over by the

1. From information furnished by the Federal Director of Quarantine.

Commonwealth of other stations. New buildings and improvements are in course of construction at several of the transferred stations.

(ii.) *Administration of Act.* Co-operation between the Commonwealth and State authorities is secured as far as practicable in the administration of the Act, arrangements having been made by which, under the Director of Quarantine, the State Health Departments of Western Australia and Tasmania administer in those States the division of the Act relating to vessels, persons and goods (general quarantine), the Chief Medical Officer of the Department in each case acting as chief quarantine officer. Payment is made for these services to the State Government. In New South Wales, Victoria, Queensland, and South Australia, this division of the Quarantine Act is administered by a Commonwealth medical chief quarantine officer. The administration of the Acts and regulations relating to oversea animal and plant inspection and quarantine is also carried out by the officers of the State Agricultural Departments acting as quarantine officers. Power to take action for the prevention of the spread of disease within a State still remains in the hands of the State, and as the functions of the Commonwealth and State may be exercised at the same time, the advantage of co-operation is apparent.

(iii.) *Chief Provisions of Act.* The Act provides for the inspection of all vessels from oversea, for the quarantine, isolation, or continued surveillance of infected or suspected vessels, persons, and goods, and for the quarantining and, if considered necessary, the destruction of imported goods, animals, and plants. The obligations of masters, owners, and medical officers of vessels are defined, and penalties for breaches of the law are prescribed. Power is given to the Governor-General to take action in regard to various matters by proclamation, and to make regulations to give effect to the provisions of the Act. Quarantinable diseases are defined as small-pox, plague, cholera, yellow fever, typhus fever, leprosy, or any other disease declared by the Governor-General, by proclamation, to be quarantinable. "Disease" in relation to animals means certain specified diseases, or "any disease declared by the Governor-General by proclamation to be a disease affecting animals." "Disease" in relation to plants means "any disease or pest declared by the Governor-General by proclamation to be a disease affecting plants." The term "plants" is defined as meaning "trees or plants, and includes cuttings and slips of trees and plants and all live parts of trees or plants and fruit."

(iv.) *Proclamations.* The proclamations so far issued specify the diseases to be regarded as diseases affecting animals and plants; appoint first ports of landing for imported animals and plants and first ports of entry for oversea vessels; declare certain places beyond Australia to be places infected, or as places to be regarded as infected with plague; prohibit the importation (a) of certain noxious insects, pests, diseases, germs, or agents, (b) of certain goods likely to act as fomites, and (c) of certain animals and plants from any or from certain parts of the world; and fix the quarantine lines in certain ports of Australia.

(v.) *Regulations.* Regulations have been made prescribing the quarantine signal; the hours of clearance of vessels; forms of notices, orders, reports, and bonds to be used by masters, medical officers, quarantine officers, and importers; the period of detention of vaccinated and unvaccinated persons in quarantine; the conditions of removal of goods and mails; the method of disinfection of persons, animals, and infected or suspected articles; the conditions under which certain animals not prohibited may be imported; the sustenance charges for quarantine animals; the conditions of importation of hides, skins, wool, hair, bones, and animal manure; the method of carrying out the quarantining, disinfection, fumigation, and treatment of plants and packages. Regulations have also been made with the object of preventing the ingress to and the egress from vessels of rats and mice, and for the destruction of rats, mice, and other vermin.

(vi.) *General.* The procedure has already been greatly simplified. Instead of all oversea vessels being examined in every State, as was formerly the case, those arriving, from the south and west are now examined only at the first port of call and pratique is given for the whole of the Commonwealth, except in cases of suspicious circumstances.

while vessels arriving from the northern routes are examined only at the first and last ports. It is expected that the restrictions placed upon oversea vessels will be further removed as the machinery of quarantine is improved. The present freedom from certain diseases which are endemic in other parts of the world, would, however, appear to justify the Commonwealth in adopting precautionary measures not perhaps warranted in the already infected countries of the old world.

3. **Notifiable Diseases.**—Provision exists in the Health Acts of all the States for precautions against the spread and for the compulsory notification of infectious diseases. When any such disease occurs, the Health Department and the local authorities must at once be notified. In some States notification need only be made to the latter body. The duty of giving this notification is generally imposed, first, on the head of the house to which the patient belongs, failing whom on the nearest relative present, and on his default on the person in charge of or in attendance on the patient, and on his default on the occupier of the building. Any medical practitioner visiting the patient is also bound to give notice.

(i.) *Notifiable Diseases Prescribed in each State.* In the following statement those diseases which are notifiable in each State are indicated by a cross:—

DISEASES NOTIFIABLE UNDER THE HEALTH ACTS IN EACH STATE.

| Particulars. | N.S.W. | Vic.¶ | Q'land. | S.A. | W.A.‡ | §Tas. |
|---|--------|-------|---------|------|-------|-------|
| Anthrax | ... | + | ... | + | ... | ... |
| Ankylostomiasis | ... | ... | + | ... | ... | ... |
| Beri-beri | ... | ... | ... | ... | + | ... |
| Bubonic plague | + | + | + | + | + | + |
| Cerebro-spinal fever | ... | ... | ... | + | ... | ... |
| Cerebro-spinal meningitis | ... | + | + | + | + | ... |
| Cholera | ... | + | + | + | + | + |
| Continued fever | ... | ... | + | ... | + | ... |
| Diphtheria | + | * | + | + | + | + |
| Dysentery | ... | ... | †¶ | ... | ... | ... |
| Enteric fever | ... | * | + | + | + | + |
| Erysipelas | ... | ... | + | + | + | ... |
| Gonorrhœa | ... | ... | †** | ... | ... | ... |
| Infantile Paralysis | + | + | ... | ... | ... | + |
| Leprosy | ... | + | †‡ | + | + | + |
| Malarial fever | + | ... | ... | + | + | ... |
| Measles | ... | + | ... | + | ... | ... |
| Membranous croup | ... | ... | + | + | + | ... |
| Ophthalmia neonatorum | ... | ... | ... | ... | + | + |
| Poliomyelitis anterior acuta | + | + | ... | ... | ... | + |
| Puerperal fever | ... | + | + | + | + | + |
| Pulmonary tuberculosis(phthisis) | ... | * | + | †† | + | + |
| Relapsing fever | ... | ... | + | + | + | ... |
| Scarlet fever | + | * | + | + | + | + |
| Scarlatina | ... | * | + | + | + | + |
| Septicæmia | ... | + | ... | ... | + | ... |
| Small-pox | + | + | + | + | + | ... |
| Syphilis | ... | ... | †** | ... | ... | ... |
| Trichinosis | ... | ... | ... | + | ... | ... |
| Typhoid | + | * | ... | + | + | + |
| Typhus fever | ... | + | + | + | + | + |
| Whooping cough | ... | + | ... | + | ... | ... |
| Yellow fever... .. | ... | + | + | + | + | + |

¶ Those diseases marked with an asterisk in this column have been declared notifiable diseases, while those marked by a cross have been declared "dangerous infectious diseases" under the Public Health Act 1890, and when prevalent in any municipal district may be declared notifiable diseases within such district. † Other diseases enumerated as notifiable under "The Health Act 1911" of this State are bilharzia hæmatobia, pyæmia, and Malta, dengue, low and Colonial fevers. ‡ Thursday Island area only. ** Metropolitan area of Brisbane only. †† Under the Leprosy Act 1892. § Chicken-pox has been declared a notifiable disease to render certain its differential diagnosis from Small-pox. † Tuberculosis in animals is also notifiable.

(ii.) *Duties of Authorities.* As a rule the local authorities are required to report from time to time to the Central Board of Health in each State as to the health, cleanliness, and general sanitary state of their several districts, and must report the appearance of certain diseases. Regulations are prescribed for the disinfection and cleansing of premises, and for the disinfection and destruction of bedding, clothing, or other articles which have been exposed to infection. Bacteriological examinations for the detection of plague, diphtheria, tuberculosis, typhoid, and other infectious diseases within the meaning of the Health Acts are continually being carried out. Regulations are provided in most of the States for the treatment and custody of persons suffering from certain dangerous infectious diseases, such as small-pox and leprosy.

(iii.) *New South Wales.* The proclamation and notification of infectious diseases are dealt with in Part III. of the Public Health Act 1902. Special provision is made by that Act for the notification of small-pox and leprosy, and for the custody and treatment of lepers. Many improvements have been effected by the Sydney Harbour Trust with a view to generally improving the hygienic condition of the area under its control, and especially with the object of preventing the introduction of bubonic plague. Special reports dealing with outbreaks and the aetiology of plague have been published.

(iv.) *Victoria.* Under Part VIII. of the Public Health Act 1890, the notification of small-pox, cholera, plague, yellow fever, and other prescribed malignant, infectious, or contagious diseases is compulsory. An amending Act, passed in 1907, requires medical practitioners and registrars to report all cases of notifiable diseases coming under their notice in any proclaimed district, and not merely those cases which occur in the district in which the practitioner or registrar is resident.

(v.) *Queensland.* Under Part VII. of the Health Act 1900, all cases of infectious diseases must be notified; special provision is made for notification of small-pox. A report on plague in Queensland for a period covering eight successive years—1900 to 1907—has been published by the Commissioner of Public Health. Apart from the statistical data collected and collated, the report deals exhaustively with the medical, preventive, administrative, and epidemiological aspects of the plague, as observed in Queensland. Plague hospitals are provided at Maryborough, Bundaberg, Gladstone, Mackay, Townsville, and Cairns. Provision is also made for the diagnosis of leprosy, and lepers are sent to Peel Island, Moreton Bay.

(vi.) *South Australia.* In this State cases of infectious diseases must be reported to the local Board, under the provisions of Part VIII. of the Health Act 1898. The onus of notification is placed primarily on the head of the family, and, failing him, the nearest relative, the person in charge, or the occupier of the house; in any case, notification must be given by the medical practitioner attending.

(vii.) *Western Australia.* Regulations made under the Health Act 1911 provide for the compulsory notification to local Boards of infectious diseases. The local Board must report to the central authority. The necessity for providing hospital treatment for infectious cases has been recognised by the Boards of Health, and in several instances wards for the treatment of these cases have been erected.

(viii.) *Tasmania.* Provisions regarding the prevention and notification of infectious diseases are contained in the Public Health Act 1903, as amended in 1908.

4. Vaccination.—In the State of New South Wales there is no statutory provision for compulsory vaccination, though such exists in all the other States of the Commonwealth. With the exception of Victoria, the Vaccination Acts are, however, not generally enforced. The Calf Lymph Depôt of the State of Victoria was transferred to the Commonwealth in October, 1911. It is now designated "The Commonwealth Vaccine Depôt," and is under the control of the Director of Quarantine. Lymph is prepared in this depôt to meet the requirements of the Quarantine Service and of all the States. A considerable demand exists for lymph in the State of Victoria, where infantile vaccination is compulsory, but in the other States the normal requirements are small. During the years 1912, 1913, and 1914, the output of lymph in doses from the depôt was respectively 65,000, 570,000, and 146,000. The number of doses issued in 1913 was, however, abnormal, and was due to the epidemic of small-pox which broke out in Sydney

at the end of June, this being followed by large numbers of vaccinations in each State. The following table shews, so far as particulars are available, the number of persons vaccinated in each State from 1909 to 1914 inclusive:—

NUMBER OF PERSONS VACCINATED IN EACH STATE, 1909 to 1914.

| Year. | N.S.W.* | Victoria.† | Q'land. | S. Aust. | W. Aust. | Tasmania. |
|----------|---------|------------|---------|----------|----------|-----------|
| 1909 ... | 11 | 21,344 | ‡ | 1,477 | ‡ | ‡ |
| 1910 ... | 280 | 21,575 | ‡ | 1,800 | ‡ | ‡ |
| 1911 ... | 20 | 20,562 | ‡ | 1,431 | ‡ | ‡ |
| 1912 ... | ... | 21,548 | ‡ | ‡ | ‡ | ‡ |
| 1913 ... | 520,000 | 24,562 | 33,500 | ‡ | 12,000 | 3,204 |
| 1914 ... | 6,629§ | 23,536 | 30,000 | 940 | 3,017 | ‡ |

* By Government medical officers only. † Children only, who were vaccinated under the Act.
see (ii.) below. ‡ Returns not available. § Exclusive of the military.

(i.) *New South Wales.* Although there is no provision for compulsory vaccination in this State, public vaccinators have been appointed. The large number of vaccinations in 1913 was due to an epidemic of small-pox in New South Wales, 1073 cases of the disease being recorded. No statistics are available as to the proportion of the population who have been vaccinated, but a report of the Principal Medical Officer of the Education Department states that out of 94,918 children medically examined during 1914, 33,109 or 35 per cent. had been vaccinated.

(ii.) *Victoria.* Compulsory vaccination is enforced throughout the State, under Part IX. of the Health Act 1890. From the year 1873 up to the present time it is estimated that 72 per cent. of the children whose births were registered have been vaccinated. Free lymph is provided. As a result of the small-pox epidemic in New South Wales in 1913 it is estimated that, exclusive of the vaccinations of children given in the above table, about 40 per cent. of the adult population were vaccinated or re-vaccinated in 1913.

(iii.) *Queensland.* Although compulsory vaccination is provided for in this State, under Part VII. of the Health Act 1900, only one remote district has been proclaimed under the Act. In the early part of 1912, the Queensland Government sent a medical expedition to the islands in Torres Straits. Over 1200 natives were vaccinated with a view to reducing the risk of the introduction of small-pox from New Guinea. As a result of the small-pox epidemic in Sydney, approximately 33,500 people were vaccinated in Queensland during 1913.

(iv.) *South Australia.* The Vaccination Act 1882, which applies to South Australia and the Northern Territory, is enforced by the vaccination officer of the State and by the Police Department. Under this Act vaccination was compulsory, but in 1901 an Act to abolish compulsory vaccination was passed. This latter Act was subsequently amended, and the present law is that no parent is liable to any penalty if, within 12 months from the birth of the child, he makes a declaration that he conscientiously believes that vaccination would be prejudicial to the health of the child, and within seven days thereafter delivers the declaration to the vaccination officer. It is estimated that about 15 per cent. of the children born are vaccinated.

(v.) *Western Australia.* In this State vaccination is compulsory under the Vaccination Act 1878, which, however, remains almost a dead letter. Under the Health Act 1911, however, a "conscientious objection" clause was inserted, which is availed of by the majority of parents, so that the number of children vaccinated is very small. All district medical officers are public vaccinators, but they receive no fee for vaccinations. Owing to the outbreak of small-pox in Sydney during 1913, it is estimated that not less than 12,000 children and adults were vaccinated in that year, while nearly 3000 vaccinations were effected during 1914 at Bunbury owing to an outbreak of small-pox, which occurred there in May of that year.

(vi.) *Tasmania.* All infants in Tasmania are nominally required, under the Vaccination Act 1898, to be vaccinated before the age of 12 months, unless either (a) a statutory declaration of conscientious objection is made, or (b) a medical certificate of unfitness is

received. The Act has not been enforced, and up to June, 1913, practically no vaccination of infants had been performed since the small-pox outbreak in Launceston in 1903, when 66 cases occurred with 19 deaths. During that year 24,857 were vaccinated in Tasmania. In 1913, owing to the outbreak of small-pox in New South Wales, there were 3204 cases of vaccination by public vaccinators.

§ 6. Tropical Diseases.

1. **Introduction.**—The remarkable development of parasitology in recent years and the increase in knowledge of the part played by parasites in human and animal diseases have shewn that the difficulties in the way of tropical colonisation, in so far as these arise from the prevalence of diseases characteristic of tropical countries, are largely removable by preventive and remedial measures. Malaria and other tropical diseases are coming more and more under control, and the improvements in hygiene, which science has accomplished, lend an entirely new aspect to the question of white settlement in countries formerly regarded as unsuitable for colonisation by European races. In Australia the most important aspect of this matter is at present in relation to such diseases as filariasis, malaria, and dengue fever, which, although practically unknown in the southern States, are of common occurrence in many of the tropical and sub-tropical parts of the Commonwealth.

2. **Queensland.**—(i.) *Transmission of Disease by Mosquitoes.* The existence of filariasis in Queensland was first discovered some thirty-three years ago. The parasite of this disease (and probably of dengue fever also), is transmitted by *Culex fatigans*, the mosquito most prevalent in Queensland. The *Stegomyia fasciata*, conveyer of yellow fever, is another common domestic mosquito throughout Eastern Queensland during the summer, but so far has never been infected from abroad. Occasional limited outbreaks of malaria occur in the northern parts of the State; one at Kidston, in 1910, resulted in 24 deaths. The infection was traced to newcomers from New Guinea. For many years several efforts were made to deal with the mosquito question in the larger centres, but, owing to the absence of the statutory powers, these had only limited success. Special provisions of the Health Act Amendment Act of 1911 remedied this defect, and extensive operations, involving oiling, drainage, tank screening, the use of larvivorous fish, and other measures have been organised by the Department of Public Health. The metropolitan local authorities contributed £420 towards the undertaking for the first year. Some 50,000 square yards of natural breeding places are attended to weekly by a special mosquito squad, over 2000 street gullies are oiled, and tank screening with fine wire gauze is being steadily enforced on owners and occupiers. The work is continued through the winter, in order to reach the eggs and larvæ at their period of lowest vitality. The Department's inspectors have also received a course of training in insect destruction, with a view to enabling the introduction of yellow fever or other insect-borne epidemic disease to be promptly and effectively met.

(ii.) *Institute of Tropical Medicine, Townsville.* In January, 1910, the Australian Institute of Tropical Medicine was inaugurated by the Commonwealth Government at Townsville. A special staff was appointed to carry out both the hospital and research work necessary. Owing to the scarcity of suitable laboratory animals for experimental purposes, and also to the absence of any systematic scheme of collaboration with other medical men throughout the tropical parts of Queensland, the initial difficulties confronting the director were considerable. These difficulties are, however, being overcome, and much valuable research has been made, particularly on the bacteriology of mosquitoes. At the present time an important examination is being carried out of the blood conditions of children born and reared in North Queensland, with a view of proving whether the blood of the children was normal as far as the formed elements are concerned, or whether deterioration had taken place, effecting an anæmia which could be attributed

to climatic conditions only. It is hoped that the result of the work of the institute on these lines will decide the question of the climatic influence on the white man in the tropics, and will indicate whether the great experiment of populating tropical Australia with a white working community can be accomplished.

It is intended at an early date to hold a course of Tropical Medicine at the institute.

3. Northern Territory.—While the Territory is conspicuously free from most of the diseases which cause such devastation in other tropical countries, a slight amount of malaria exists, and, although such cases as occur very rarely end fatally, the Administrator is taking measures for the destruction of mosquito larvæ wherever settlements or permanent camps are formed, while precautions are being taken to prevent the collection of stagnant water in such localities.

4. Other States.—In Western Australia it is stated that malaria is not known to exist south of the 20th parallel, while filaria has not been discovered at all. No mosquito-borne diseases are known to exist in Victoria, South Australia or Tasmania, and it is stated that filariasis is uncommon in New South Wales, the only cases known being imported ones. Kerosene and petroleum have been successfully used to destroy mosquitoes at various places in these States, both by municipalities and private individuals.

§ 7. Supervision of Infant Life.

It has been frequently stated in recent years that when the social, climatic, and industrial conditions are taken into consideration, the infantile mortality of Australia, particularly in the large towns, is much higher than it should be. It is now generally recognised, however, that infant mortality is largely attributable to parental ignorance and neglect, and that, in particular, improper feeding is accountable for perhaps the majority of infant deaths. In all the States of the Commonwealth, Acts have been passed with the object of generally supervising the conditions of infant life and of reducing the rate of infantile mortality, and in many of the large towns measures have been adopted by private individuals to spread among the mothers a knowledge of the best methods of feeding and caring for their infants. Milk Institutes have also been established after the manner of the *Gouttes de Lait*¹ in Europe, with the object of reducing the number of deaths of infants from milk poisoning in the summer months. Reference has been made in a previous part of this book (see page 169) to the number of infantile deaths and the rates of infantile mortality in each State, and it will be convenient to here shew corresponding particulars for the year 1914, classified according to metropolitan and other districts in each State:—

INFANTILE DEATHS AND RATES OF INFANTILE MORTALITY FOR METROPOLITAN AND OTHER DISTRICTS, 1914.

| Districts. | N.S.W. | Victoria. | Queensland. | S.A. | W.A. | Tasmania. | Commonwealth. |
|--------------------------------|--------|-----------|-------------|-------|-------|-----------|---------------|
| NUMBER OF INFANTILE DEATHS. | | | | | | | |
| Metropolitan | 1,472 | 1,495 | 377 | 548 | 289 | 144 | 4,325 |
| Other ... | 2,245 | 1,340 | 894 | 430 | 338 | 286 | 5,536* |
| RATES OF INFANTILE MORTALITY.† | | | | | | | |
| Metropolitan | 69.01 | 83.82 | 69.40 | 84.02 | 69.35 | 110.36 | 76.42 |
| Other ... | 69.48 | 72.88 | 61.87 | 67.38 | 67.08 | 60.71 | 68.02 |

* Including 3 in Commonwealth territories. † i.e., the number of deaths of infants under one year of age per thousand births.

1. Organised action in this direction commenced in 1894 in Belgium. The original Belgian Society is known as the "*Société des Gouttes de Lait*." The movement has become an international one, and branches of the Society have been founded all over Europe. Similar philanthropic work was commenced in the United States of America before 1894.

It may be seen that in each State the rates of mortality are higher in the metropolitan than in other districts. The causes of "preventable" deaths may generally be attributed to milk poisoning, want of knowledge on the part of mothers, inability to nurse, and lack of the necessary medical facilities.

The figures in the foregoing table do not, however, completely represent the hygienic aspect of the question. For every infant death recorded there are probably three or four survivors who have sustained more or less serious permanent physical damage, quite apart from injuries at birth or congenital causes. It is stated that the far-reaching influence of the first year or two of life upon the whole subsequent physical welfare of the individual cannot be recognised too clearly, and it has been alleged that many serious defects and diseases occurring in later life may be credited to results ensuing from infantile disease. This is particularly the case in respect of digestive diseases.

The conditions regulating the employment of boys and girls in shops and factories are referred to in the section of this book dealing with *Industrial Unionism and Industrial Legislation* (Section XXVII.). Certain particulars have also been given in Section XXIV. (pages 820 to 822) of this book regarding Orphanages, and Industrial and Reformatory Schools in Australia. In previous issues of this book a short account has been given of the principal Acts which have been passed in each State dealing with the subject of child-life, and of the principal functions of the States' Children's Departments. (See Year Book No. 6, p. 1101).

§ 8. Medical Inspection of State School Children.

1. Introduction.—For many years medical officers of health and many others concerned in education generally have, from time to time, suggested the desirability of a medical inspection of school children. The State, which enforces school attendance under penalties, is also under the obligation of securing a satisfactory hygiene for the child during such attendance. Moreover, efficiency in education demands several things, viz., that the conditions under which the studies are made shall be physically and hygienically satisfactory; that there shall be no undue concentration of nervous effort on school work, and that the child shall be reasonably safeguarded against infection, etc. Only by an adequate scheme of medical supervision can these results be attained.

Several limited and isolated surveys of the physical proportions of Australian children have been made during the past 30 years in the various States. The first important systematic survey, however, was made in Sydney in 1901, and the results were reported by the Government Statistician of New South Wales to the Australasian Association for the Advancement of Science Conference in Hobart in 1902, and shewed that the Sydney boy was taller than the English boy, but that his chest expansion was small in comparison with European figures.

A series of measurements on 500 boys took place concurrently but independently in Hobart during 1901, which also gave similar results. It was recognised that the figures were based on limited numbers, but they at least challenged attention. The 1901 survey in Sydney, though small, was a valuable and suggestive contribution to anthropometric research in Australia, and may be regarded as the beginning of a systematic attempt to ascertain what characteristics of bodily form are exhibited in Australia. This inquiry roused considerable interest in the other States, and series of measurements have since been made in Western Australia, Tasmania, and South Australia, by various authorities, and in Victoria by the Education Department's medical officers. Each year since 1907 the Department of Education of New South Wales has carried out regular anthropometric measurements of the height and weight of school children, and now possesses records of over 100,000 children, the results being detailed in the Department's annual reports. A card for each child allows his measurements for successive years to be recorded. The department perambulated the apparatus, each set serving about 20 schools, and the visits recur in the same month of each succeeding year.

2. Co-ordination of Effort.—So far as it has been carried out, the medical inspection of school children goes to shew that in Australia, as in other lands, the hygiene, both of the schools and of the pupils therein, is more defective than is ordinarily recognised, and that not only preventable physical injury to the rising generation from school conditions can be avoided, but also instruction itself can be made more efficient by a proper regard to the demands of a good school hygiene. With a view to securing uniformity of procedure in the several States, the Commonwealth Government in 1907 formulated a scheme and communicated with the States asking their co-operation in obtaining measurements of school children with a view to establishing the relations between age, weight and height, chest measurement, etc. Delays occurred from various causes, but in a paper read at the Science Congress in Sydney in 1911, the subject was again brought under notice, and this led to the appointment by the congress of a committee of experts to encourage anthropometric research and to consider the organisation of a systematic survey of school children throughout Australia. The scheme was essentially identical with the former proposal of the Federal Government, but in the interim the report of the British Anthropometric Committee became available, thus making possible a method uniform with that of Great Britain, and making the results immediately comparable with those of Europe.

The Australian Anthropometric Committee has drawn up a memorandum setting forth the importance and object of the survey, and suggestions as to method for the use of teachers, physical trainers and others interested.

A description of the proposed survey will be found in previous issues of the Year Book (see No. 6, p. 1104).

On the coming into operation of the Defence Act of 1910, military training became compulsory in the Commonwealth, and advantage has been taken of the prescribed medical examination to make a systematic record of the height, weight and chest measurement of each trainee. There can be no doubt that these anthropometric records will in time furnish valuable data for the study of Australian physical development. Further reference is made to this subject in the section dealing with "Defence."

3. New South Wales.—In this State, arrangements were made in May, 1907, for the medical inspection of school children in Sydney, and later in the year the work was extended to Newcastle.

In 1913, the scheme of school medical inspection was re-organised so as to embrace every pupil in the State whose parents desired such medical inspection of their children. The employment of part-time Medical Officers was discontinued, and a staff consisting of a Principal Medical Officer and nine full-time Medical Officers was appointed. It was decided to extend the medical inspection of school children to such non-State schools as were agreeable. To cope with this extra work, six additional Medical Officers have been added to the staff. Attached to the staff are also five school nurses and six clerks. The work now being carried on by the Medical Branch may be classified under the following heads:—

(1) The medical inspection of all school children (except about 10,000), in the State, whether attending public or non-State schools; (2) The investigation of epidemics of infectious diseases affecting school children; (3) Inspection of school buildings; (4) Delivering of systematic courses of lectures at the training college; (5) Delivering lectures to the senior girls in all metropolitan schools on the care of babies, personal cleanliness, home hygiene, sick nursing, etc.; (6) Delivering lectures to parents; (7) The medical examination of candidates for admission to the teaching service; (8) Giving first treatment in the back country schools to the eyes of scholars suffering from ophthalmia, and instructing the children and parents regarding future treatment and prevention; also supplying those children with sufficient drugs to carry on the treatment; (9) Visiting the parents of defective children by nurses to better secure the treatment of those children.

During the year 1914, 94,918 children were medically examined, exclusive of the number examined by the Travelling Hospital referred to hereafter.

Of this number, 76,323 were children attending public schools, and 15,662 attending private schools. Of the former children, 46,187, or 60 per cent., were found suffering from physical defects, and of these, 14,096, or 30 per cent., were treated, while of those attending non-State schools, 10,173, or 65 per cent., were found to be suffering from physical defects, and of these, 1700, or 16 per cent., were treated.

The most notable extension in the work during 1914 was the provision made for treating physically defective children in those parts of the State where it is difficult or impossible for them to obtain treatment otherwise. During the year 1914 a Travelling Hospital and a Travelling Ophthalmic Clinic were inaugurated, and arrangements were completed whereby the Metropolitan Dental Clinic and the Travelling Dental Clinic would start at the beginning of 1915. The Travelling Hospital, which is staffed by two medical officers, a dentist, and a nurse, works in those parts of the State where there are no resident doctors or dentists. After the school children have been medically examined, the treatment of defectives is undertaken. Minor operations are performed, such as the removal of adenoids and enlarged tonsils; eye defects are treated, while dental hygiene is attended to. The number of children treated by the Travelling Hospital and Ophthalmic Clinic during the four months they have been in operation, amounted to 2558.

The Sydney University has established a special course for the training of school medical officers. It is expected that a supply of school medical officers, trained to meet the special requirements, will always be available in the future.

4. **Victoria.**—In Victoria three medical inspectors have been appointed by the Education Department, and a commencement was made towards the end of 1909 by the examination of the pupils attending the Melbourne Continuation School. During the year 1909-10 the chief work of the inspectors consisted in carrying out a preliminary investigation of the health of the pupils in various schools in town and country. During the year ending 30th June, 1911, many of the ideas and intentions outlined in the previous Annual Education Report were initiated, and the foundation laid for a proper and systematic scheme of medical school instruction in future. In the year 1913-14, 12,943 children were examined, of whom 10,808 were attending elementary schools. The following table shews the defects and their percentage amongst Victorian boys and girls in the elementary schools examined:—

VICTORIA.—NUMBER AND PERCENTAGE OF DEFECTS IN SCHOOL CHILDREN, 1913-14.

| Number of Children Examined. | PARTICULARS OF DEFECTS. | | | | | | | | | | | |
|---|-------------------------|----------|------------------|---------|-------|--------------------|--------|--------|---------|-------|---------|--|
| | Vision. | Hearing. | Nose and Throat. | Dental. | Hair. | Lateral Curvature. | Lungs. | Heart. | Anæmia. | Skin. | Hernia. | |
| NUMBER SUFFERING FROM DEFECTS. | | | | | | | | | | | | |
| Boys 5598 | 700 | 553 | 1,039 | 3,006 | 81 | 25 | 11 | 22 | 81 | 65 | 46 | |
| Girls 5210 | 550 | 372 | 651 | 3,026 | 1,092 | 10 | 4 | 26 | 88 | 49 | 3 | |
| Total 10,808 ... | 1,250 | 925 | 1,690 | 6,032 | 1,173 | 35 | 15 | 48 | 169 | 114 | 49 | |
| PERCENTAGE ON TOTAL NUMBER EXAMINED, SUFFERING FROM DEFECTS. | | | | | | | | | | | | |
| Boys 5598 | 12.5 | 9.8 | 18.6 | 53.7 | 1.4 | 0.4 | 0.2 | 0.4 | 1.5 | 1.1 | 0.8 | |
| Girls 5210 | 10.6 | 7.1 | 12.5 | 58.1 | 20.9 | 0.2 | 0.1 | 0.5 | 1.7 | 0.9 | 0.1 | |
| Total 10,808 ... | 11.5 | 8.5 | 15.6 | 55.8 | 10.8 | 0.3 | 0.1 | 0.4 | 1.5 | 1.0 | 0.4 | |

5. **Queensland.**—In this State a systematic scheme for the inspection of State school children has recently been prepared and came into operation on 1st January, 1911, under which a Medical Branch of the Department of Public Instruction was created, consisting of a Medical Inspector of Schools, a School Nurse, and a Dental Inspector. To this staff have been added an Ophthalmic Inspector and two assistant Dental Inspectors. There are in addition five part-time Medical Inspectors. Under the present scheme the children are examined and, if found defective, notices are sent to the parents. The children are treated either by their own doctors, or if they cannot afford private treatment, at the hospital. During the year 24,499 examinations were completed. The medical examinations numbered 7856, 2570 being in connection with diphtheria outbreaks; of the remainder, about 32 per cent. received notices referring to physical defects requiring medical attention.

While adenoids appear to be the principal defect throughout all the State schools, the children in the Northern and Western districts suffer largely from defective vision and trachoma. The work of the Ophthalmic Inspector is chiefly confined to these districts. In Cairns and Townsville several cases of ankylostomiasis and anæmia (probably due to the same disease) were found. The report of the Dental Inspector, while still disclosing an appalling percentage of defects in the teeth of the children, shews, even in the short time in which the scheme has been in existence, a marked improvement in the schools that were examined twelve months previously.

In the reports the relation between educational progress or intelligence and physique and nutrition is shewn under the three degrees of comparison, indicated by the words "Good," "Fair," and "Poor." In the following tables the figures given are for 1850 children, being the total examined in five schools:—

QUEENSLAND.—RELATION BETWEEN INTELLIGENCE OF SCHOOL CHILDREN AND PHYSIQUE AND NUTRITION, 1912.

| Intelligence. | Number Examined. | Physique. | | | Nutrition. | | |
|---------------|------------------|-----------|-------|-------|------------|-------|-------|
| | | Good. | Fair. | Poor. | Good. | Fair. | Poor. |

NUMBER OF CHILDREN.

| | | | | | | | |
|----------|-------|-----|-----|-----|-------|-----|-----|
| Good ... | 1,329 | 786 | 444 | 99 | 866 | 333 | 130 |
| Fair ... | 460 | 177 | 204 | 79 | 256 | 132 | 72 |
| Poor ... | 61 | 22 | 29 | 10 | 34 | 16 | 11 |
| | 1,850 | 985 | 677 | 188 | 1,156 | 481 | 213 |

PERCENTAGE ON NUMBER EXAMINED IN EACH CLASS.

| | | | | | | | |
|----------|-------|-------|-------|-------|-------|-------|-------|
| Good ... | 1,329 | 59.14 | 33.41 | 7.45 | 65.16 | 25.06 | 9.78 |
| Fair ... | 460 | 38.48 | 44.35 | 17.17 | 55.65 | 28.70 | 15.65 |
| Poor ... | 61 | 36.06 | 47.54 | 16.40 | 55.74 | 26.23 | 18.03 |
| | 1,850 | 53.24 | 36.60 | 10.16 | 62.49 | 26.00 | 11.51 |

The children examined were also classified according to "intelligence" and "physical condition." This classification is shewn in the following table, and it may be observed that the columns marked with a (x) indicate conditions which are alleged to

interfere seriously with the child's school progress. In this table "deafness" does not include the deafness accompanying adenoids, nor does "physical defects" include such as are incidental to adenoids. Excluding the first and last columns, the figures in the table represent individual defects, not individual children.

QUEENSLAND.—RELATION BETWEEN INTELLIGENCE OF SCHOOL CHILDREN AND PHYSICAL CONDITION, 1912.

| Intelligence. | Number Examined. | Adenoids. | | | Defective Vision.* | | Deafness.* | Weak Hearts. | Enlarged Glands. | Anæmia. | Physical Defects. | Mental Deficiency |
|--------------------|------------------|-----------|---------|-----------|-------------------------------|----|------------|--------------|------------------|---------|-------------------|-------------------|
| | | x Marked. | Slight. | Re-moved. | x f ₂ or worse. | ‡ | | | | | | |
| NUMBER OF DEFECTS. | | | | | | | | | | | | |
| Good ... | 1,329 | 174 | 458 | 133 | 46 | 51 | 41 | 34 | 336 | 33 | 508 | 0 |
| Fair ... | 460 | 124 | 157 | 51 | 15 | 21 | 20 | 26 | 180 | 36 | 232 | 0 |
| Poor ... | 61 | 28 | 12 | 6 | 4 | 3 | 4 | 4 | 29 | 13 | 35 | 5 |
| | 1,850 | 326 | 627 | 190 | 65 | 75 | 65 | 64 | 545 | 82 | 775 | 5 |

PERCENTAGE OF NUMBER OF DEFECTS ON CHILDREN EXAMINED.

| | | | | | | | | | | | | |
|----------|-------|-------|-------|-------|------|------|------|------|-------|-------|-------|------|
| Good ... | 1,329 | 13.09 | 34.46 | 10.01 | 3.46 | 3.84 | 3.09 | 2.56 | 25.28 | 2.48 | 38.23 | 0.0 |
| Fair ... | 460 | 26.96 | 34.13 | 11.09 | 3.26 | 4.57 | 4.34 | 5.65 | 29.13 | 7.82 | 50.43 | 0.0 |
| Poor ... | 61 | 45.90 | 19.67 | 9.84 | 6.56 | 4.92 | 6.56 | 6.56 | 47.54 | 21.31 | 57.37 | 8.03 |

* Normal hearing is assumed to be susceptible to an ordinary whisper over a distance of eighteen feet and is represented by the denominator of a fraction, while its numerator indicates to what this distance has to be reduced in order that the whisper may become intelligible. Visual condition or vision is similarly represented by a fraction, the denominator of which represents the distance in metres (a metre being approximately forty inches) at which normal vision would clearly distinguish an object, while the numerator indicates the reduction in distance required ere the patient attains clear effortless visual perception. Thus f₂ would mean that a person whose eye test was represented by that fraction, could only see an object at six metres distance, which had he possessed normal vision he would have seen at a distance of twelve metres. Normal vision, which is generally tested by Snellen's ordinary test type, is represented by the fraction ‡.

6. South Australia.—In 1909, at the desire of the Government, Dr. Rogers examined 1000 school-going children in different parts of the State. No children under seven years nor over 15 years of age were examined. Investigations were made with regard to personal appearance, cleanliness, height, weight, chest measurements, teeth, eyesight, hearing, nose and throat, etc., and the report was presented to the Minister for Education in September, 1910, the results being, on the whole, satisfactory. A summary of this report, which contains statistical details exhibiting many interesting comparisons between various States in the Commonwealth and other parts of the world, was given in a previous issue of this book (see vol. No. 5, pp. 1132 to 1138).

No State medical supervision of its school children was, however, undertaken in South Australia until 1913, when a medical officer, a fully trained nurse, and a health inspector were appointed for the work. Under the system adopted, the children are weighed and measured, their sight and hearing tested, and their chests, throats, and teeth examined. After examination, a notice is sent to the parents of any child who is found defective to an extent likely to interfere with its educational progress. No treatment is undertaken by the State. During the nine months ending 31st December, 1913, 4490 children were examined; of these 4057 were attending metropolitan and 433 country schools. The following table shews the percentage of boys and girls examined who were defective, and also the percentage of those whose defects interfered with their school work :—

SOUTH AUSTRALIA.—DEFECTS OF SCHOOL CHILDREN, 1913.

| Item. | Defective. | | Interfering with School Work. | | Item. | Defective. | | Interfering with School Work. | |
|-----------------------|------------|-----------|-------------------------------|-----------|-------|------------|-----------|-------------------------------|--|
| | Per cent. | Per cent. | Per cent. | Per cent. | | Per cent. | Per cent. | | |
| Vision Girls | 26.1 | 9.3 | Enlarged tonsils | Boys | 46.5 | 11.0 | | | |
| „ Boys | 23.3 | 7.5 | Teeth Girls | | 49.7 | 13.6 | | | |
| Hearing Girls | 5.7 | 3.3 | „ Boys | | 68.3 | 13.9 | | | |
| „ Boys | 5.6 | 3.5 | Deformities ... Girls | | 16.8 | ... | | | |
| Adenoids Girls | 41.1 | 11.4 | „ Boys | | 11.3 | ... | | | |

In addition 28 cases of heart disease were discovered, while 10 children were found very mentally defective, and 43 very dull, though not incapable of learning.

7. Western Australia.—Until the year 1911, no general scheme for school medical inspection existed in Western Australia, although examination in a few metropolitan schools had been intermittently carried on. During the latter part of 1906 and the first half of 1907 an extended examination of about 3300 children was conducted by the Department of State Medicine and Public Health with the co-operation of the Education Department. Many physical defects among the children were detected, and the co-operation of the Inspector-General of Schools resulted in steps being taken, where possible, to provide better hygienic conditions. The system followed during 1909 was that, wherever possible, a visit was made to a school, the teacher bringing up all children who appeared to be suffering from any physical defects or bodily ailments. The exact condition of the child having been determined, a notice was sent to the parents calling attention to the necessity of obtaining treatment for the defect. Under the Health Act 1911, Medical Officers of Health become medical officers of schools and school children, and during 1912, taking Government and Private schools together, 135 out of 668 schools were medically inspected, while out of 48,423 children, 11,369 were examined, or about 23.5 per cent. From the figures at present available it appears that about 71.5 per cent. of the children examined were reported as in some way defective, most of the defects being connected with the teeth. Excluding dental defects and uncleanliness, the number reported as defective is about 9 per cent.

In the Metropolitan District the members of the Dental Society have carried out a regular system of examination of children's teeth. In connection with this, and also in connection with the general system of medical inspection, free treatment is provided for those children whose parents are unable to pay.

8. Tasmania.—The credit of being the first State in the Commonwealth to provide for the medical inspection of schools and school children in a systematic way rests with Tasmania, where, under the direction of the Chief Health Officer and the Director of Education, about 1200 children attending schools in Hobart were inspected in 1906. The general examination was based upon that of the Royal Commission on Physical Training (Scotland) of 1903, but considerable modifications and adaptations were found necessary in order to fit it to immediate requirements. No attempt was made to secure anthropometric observations beyond those of unquestionable medical value, and in only one case (colour of eyes) were any purely anthropological data collected. The sociological data obtained (parental occupation, etc.), were found of much service, and produced some interesting comparative results.

Medical inspection of school children as now existing in Tasmania is carried out by three medical officers, each controlling respectively one of three areas, which for medical inspection purposes are known as Hobart District, Launceston District, and the Country

Districts of the State. Additional assistants in the persons of school nurses have been appointed to follow up the work of the Medical Inspectors. Reports on the physical condition of the children are furnished, and parents advised when medical attention is considered necessary, and in the case of parents unable to pay for such attention, orders are given for free treatment at the hospital. During 1913, 3109 children were examined by Dr. Ormiston; of these, the percentage requiring medical attention was as follows:—Advanced adenoids and enlarged tonsils, 3.9 per cent.; defective sight, 3.7 per cent.; and defective hearing, 1.6 per cent.; while Dr. Clark, out of 1867 children, found that 547, or 29 per cent., were suffering from various defects to an extent requiring medical treatment in order to fit them for their educational studies. Of these 547 children 152 had severe defects, and 263 were suffering from advanced adenoids. With regard to dental condition, all the Medical Inspectors agree that the teeth of the children of Tasmania seem to be uniformly bad.