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## CHAPTER XII.

### PUBLIC HYGIENE.

#### § 1. Public Health Legislation and Administration.

Reference to the various public health authorities, Commonwealth and State, their functions, and the legislation administered, may be found in previous issues of the Official Year Book (see No. 22, pp. 493 to 495), but considerations of space preclude the repetition of this information herein.

#### § 2. Inspection and Sale of Food and Drugs.

Legislation is in force in each State concerning the inspection and sale of food and drugs, the general objects being to secure the wholesomeness, cleanliness, and freedom from contamination or adulteration of any food, drug or article; and the cleanliness of receptacles, places, and vehicles used for their manufacture, storage or carriage. For further particulars in this connexion, and with respect also to the sale and custody of poisons, reference should be made to the preceding issue of the Official Year Book, No. 22, pp. 495-497.

#### § 3. Supervision of Dairies, Milk Supply, etc.

1. **General.**—In preceding issues (see No. 22, pp. 497 to 499), allusion is made to the legislation in force in the various States to ensure the purity of the milk supply and of dairy produce generally, but limits of space preclude the repetition of this information in the present issue.

2. **Number of Dairy Premises Registered.**—The following table shows, so far as the particulars are available, the number of dairy premises registered and the number of cattle thereon. Compulsory registration is not in force throughout the whole area of the various States.

DAIRY PREMISES REGISTERED, AND CATTLE THEREON, 1929.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.
Premises registered ..	21,867	23,832	(a)22,457	1,516	(b)	(b)
Cattle thereon ..	970,808	311,175	670,800	9,360	(b)	(b)

(a) Approximate number of dairies operating.

(b) Not available.

#### § 4. Prevention and Control of Infectious and Contagious Diseases.

1. **General.**—The provisions of the various Acts in regard to the compulsory notification of infectious diseases and the precautions to be taken against the spread thereof may be conveniently dealt with under the headings—Quarantine; Notifiable Diseases, including Venereal Diseases; and Vaccination.

2. **Quarantine.\***—(i) *General.* The Quarantine Act is administered by the Commonwealth Department of Health, and uniformity of procedure has been established 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 inter-state 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 inter-state quarantine of animals and plants is left in the hands of the States. The Commonwealth possesses stations in each State for the purposes of human and of animal quarantine.

Further information concerning the chief provisions of the Act and its administration is given in some detail in preceding issues (see No. 22, p. 500).

\* From information furnished by the Commonwealth Director-General of Health.

3. Notifiable Diseases.—A. General.—(i) *Methods of Prevention and Control.* 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. 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.

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.

(ii) *Details by States.* In previous Year Books (see No. 22, p. 501) information concerning the notification, etc., of diseases under State headings has been given, but considerations of space preclude its inclusion in this issue.

(iii) *Diseases Notifiable in each State.* In the following statement diseases notifiable in each State and the Federal Capital Territory are indicated by a cross:—

DISEASES NOTIFIABLE UNDER THE HEALTH, ETC., ACTS IN EACH STATE AND THE FEDERAL CAPITAL TERRITORY.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Fed. Cap. Ter.(h)
Acute lobar pneumonia .. .. .	..	..	..	(e)	+	..	..
Anthrax .. .. .	..	+	..	+	+	+	..
Ankylostomiasis .. .. .	..	+	+	+	+	+	+
Beri-beri .. .. .	..	..	..	..	..	..	..
Bilharziasis .. .. .	..	+	+	+	+	+	+
Brills Disease .. .. .	..	+	+	+	+	..	..
Bubonic plague .. .. .	..	+	+	+	+	+	+
Cerebro-spinal fever .. .. .	..	+	+	+	..	..	..
Cerebro-spinal meningitis .. .. .	..	+	+	+	+	+	+
Chicken-pox .. .. .	..	..	..	..	..	..	..
Cholera .. .. .	..	+	+	+	+	+	+
Colonial fever .. .. .	..	..	..	..	..	..	..
Continued fever .. .. .	..	..	+	..	+	..	..
Dengue fever .. .. .	..	+	+	+	+	+	..
Diphtheria .. .. .	..	+	+	+	+	+	..
Dysentery .. .. .	..	+	+	+	+	+	..
Dysentery .. .. .	..	+	+	+	+	+	..
Encephalitis lethargica .. .. .	..	+	+	+	+	+	..
Enteric fever .. .. .	..	+	+	+	+	+	..
Erysipelas .. .. .	..	..	..	+	..	..	..
Favus .. .. .	..	..	..	+	..	..	..
Filariasis .. .. .	..	..	..	..	..	+	..
Gastro-enteritis, infective .. .. .	..	..	..	..	..	+	..
Hæmaturia .. .. .	..	..	+	..	..	..	..
Hydatids .. .. .	..	+	+	..	..	..	..
Infantile paralysis .. .. .	..	+	+	+	+	+	..
Influenza .. .. .	..	..	..	+(e)	+	..	..
Leprosy .. .. .	..	+	+	+	+	+	..
Low fever .. .. .	..	..	..	..	+	..	..
Malarial fever .. .. .	..	..	+	+	+	+	..
Malta fever .. .. .	..	..	..	..	+	..	..
Measles .. .. .	..	..	..	..	+	..	..
Membranous croup .. .. .	..	+	+	+	+	..	..
Ophthalmia, contagious (including trachoma) .. .. .	..	..	..	..	..	..	+
Pneumonic influenza .. .. .	..	..	..	+(e)	+	..	..
Polioencephalitis .. .. .	..	..	+	..	..	..	..
Polioomyelitis anterior acuta .. .. .	..	+	+	+	+	+	..
Puerperal fever .. .. .	..	+	+	+	+	+	..
Pulmonary tuberculosis (phthisis) .. .. .	..	+	+	+	+	+	..
Pyæmia .. .. .	..	..	..	..	+	+	..
Relapsing fever .. .. .	..	..	+	+	+	+	..

**DISEASES NOTIFIABLE UNDER THE HEALTH, ETC., ACTS IN EACH STATE  
AND THE FEDERAL CAPITAL TERRITORY—continued.**

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Fed. Cap. Ter.(h)
Scabies .. .. .	..	..	..	..	..	..	+
Scarlet fever .. .. .	+	+	+	+	+	+	+
Scarlatina .. .. .	+	+	+	+	+	+	..
Septicæmia .. .. .	..	..	..	..	..	..	..
Small-pox .. .. .	+	+	+	+	+	+	+
Tetanus .. .. .	..	..	..	..	..	..	+
Trichinosis .. .. .	..	..	..	..	..	..	..
Tuberculosis .. .. .	..	..	..	..	..	..	+
Tuberculosis in Animals..	..	..	..	..	..	..	..
Typhoid .. .. .	+	+	+	+	+	+	+(e)
Typhus fever .. .. .	+	+	+	+	+	+	+
Veneral Diseases:—							
Chancroid (soft chancre) .. .. .	+	+	+	+(d)	+	+	..
Gleet .. .. .	+	..	..	+(d)	..	..	..
Gonorrhœa .. .. .	+	+	+	+(d)	+	+	..
Gonorrhœal ophthalmia .. .. .	+	+	+	+(d)	+	+	..
Infective granuloma of the pudenda .. .. .	+	+	+	+(d)	+	..	..
Ophthalmia neonatorum .. .. .	..	..	..	..	+	+	..
Syphilis .. .. .	..	..	..	+(b)	+	+	..
Veneral warts .. .. .	+	+	+	+(d)	+	+	..
Whooping cough .. .. .	..	..	..	+	..	..	+
Yellow fever .. .. .	+	+	+	+	+	+	+

(a) Notifiable in certain areas only. (b) Primary and secondary stages only. (c) Influenza vera is notifiable, and any febrile toxic-septicæmic condition similar to influenza, including pneumonic influenza. (d) Act not yet in operation. (e) Includes para-typhoid fever. (f) Bacillary and Amœbic. (g) Echinococcus granulosis-cystic stage. (h) Operative from 12th December, 1929.

(iv) *Cases of Infectious Diseases in each State.* The following table compiled by the Commonwealth Department of Health shows for the year ended 31st December, 1929, the numbers of cases of infectious diseases notified in each State and the Federal Capital Territory:—

**INFECTIOUS DISEASES IN THE STATES OF AUSTRALIA, 1929.**

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Federal Capital Territory.
Akylostomiasis .. .. .	*	Nil	9	Nil	Nil	*	*
Anthrax .. .. .	*	Nil	*	Nil	Nil	Nil	*
Beri-beri .. .. .	*	*	*	*	Nil	*	Nil
Bilharziasis .. .. .	*	Nil	Nil	Nil	Nil	Nil	Nil
Cerebro-spinal fever .. .. .	28	23	8	2	4	4	Nil
Dengue fever .. .. .	*	*	*	*	1	*	Nil
Diphtheria .. .. .	4,322	3,256	1,671	329	539	488	21
Dysentery .. .. .	*	108	2	12	9	*	*
Encephalitis lethargica .. .. .	26	12	6	6	1	2	Nil
Erysipelas .. .. .	*	*	74	152	5	*	2
Filariasis .. .. .	*	*	*	Nil	*	*	*
Hydatids .. .. .	*	Nil	*	*	*	*	*
Influenza .. .. .	*	*	*	495	*	*	Nil
Leprosy .. .. .	1	Nil	6	Nil	4	Nil	Nil
Malaria .. .. .	*	4	1	3	7	3	Nil
Measles .. .. .	*	*	*	4,233	*	*	3
Poliomyelitis .. .. .	240	144	22	8	10	12	Nil
Puerperal fever .. .. .	44§	49	56	73	20	25	Nil
Scarlet fever .. .. .	5,229	1,490	482	238	418	314	8
Tetanus .. .. .	*	6	*	*	Nil	*	*
Tuberculosis .. .. .	1,203	1,407	376	458	443	176	3
Typhoid fever .. .. .	433	184	131	57	95	49	Nil
Typhus, endemic .. .. .	*	*	*	*	13	*	*
Varicella .. .. .	618†	*	*	999	*	*	*
Whooping cough .. .. .	*	*	*	497	*	*	*

\* Not notifiable. † Notifiable 22nd June to 23rd August, 1929. § Notifiable since 16th August, 1929.

**B. Venereal Diseases.**—(i) *General.* The prevention and control of venereal diseases are undertaken by the States. Each State has a Venereal Diseases Act, or provisions in the Health Act govern the working of the measures taken to combat these diseases. In every State notification has been made compulsory. A list of notifiable forms of venereal complaints is given in the table on the preceding page. Steps have been taken to ensure free treatment by medical practitioners or in subsidized hospitals. Registered pharmaceutical chemists are allowed to dispense prescriptions only when signed by medical practitioners. Clinics have been established, and, in some cases, beds in public hospitals have been set aside for patients suffering from these diseases.

Penalties may be imposed on a patient who fails to continue under treatment. Clauses are inserted in the Acts which aim at preventing the marriage of any patient or the employment of an infected person in the manufacture and distribution of foodstuffs.

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. The supervision of this work, in so far as it relates to the expenditure of the subsidy, is undertaken by the Commonwealth Department of Health. In February, 1922, a conference was held to consider the means of securing the best results from this subsidy.

The question of Commonwealth assistance has now been taken up by the Federal Health Council. In the Commonwealth Department of Health, a Division of Tuberculosis and Venereal Disease was established in 1927 with a medical officer as Director.

(ii) *Details by States.* A statement of the provisions in each State, together with certain statistical data, has appeared in previous Year Books (see No. 22, pp. 503 and 504), but cannot be included in this issue.

**4. Vaccination.**—(i) *Demand for Vaccine.* In New South Wales there is no statutory provision for compulsory vaccination, though in all the other States such provision has been made. Jennerian vaccine for vaccination against small-pox is prepared at the Commonwealth serum laboratories in Melbourne. A moderate demand exists for the vaccine in Victoria, but in the other States the normal requirements are small. During the years 1912, 1913, and 1914 the output of the vaccine in doses from the depot 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, and was followed by large numbers of vaccinations in each State.

(ii) *Details by States.* In previous issues of the Year Book (see No. 22, pp. 504 and 505) information concerning the provisions in each State was given, but owing to considerations of space cannot be included herein.

**5. Commonwealth Serum Laboratories.**—The establishment for the preparation of Jennerian vaccine situated at Royal Park, near Melbourne, formerly known as the "Calf Lymph Depot," was in 1918 greatly enlarged by the Commonwealth. The remodelled institution is designated the "Commonwealth Serum Laboratories," and forms a division of the Commonwealth Department of Health. The list of bacteriological preparations produced by the laboratories has been extended to cover a wide range, thus forming a valuable national provision for the protection of public health.

**6. Health Laboratories.**—The Commonwealth Department of Health has established health laboratories at Rabaul in New Guinea, at Lismore in New South Wales, at Bendigo in Victoria, at Townsville, Toowoomba, Rockhampton and Cairns in Queensland, at Port Pirie in South Australia, and at Kalgoorlie in Western Australia, and arrangements are being made for the organization of similar laboratories in other parts of Australia.

The laboratory at Rabaul which until 1930 was carried on in conjunction with the hookworm campaign, and was working in close co-operation with the health organization of the New Guinea Administration, was transferred to the Administration at the beginning of 1930.

The Bendigo Laboratory was opened in 1922. Besides carrying on the ordinary diagnostic and educational work of a health laboratory, it possesses an X-ray equipment, and undertakes the examination, diagnosis, and treatment of persons suffering from miner's disease and tuberculosis.

The laboratory at Townsville is now carried on as a separate establishment. The laboratory at Toowoomba was opened on 18th December, 1923.

All of these laboratories are undertaking successfully the diagnostic, educative, and research work for which they were created.

By arrangements between the Commonwealth and Western Australian Governments a special medical survey of persons engaged in the mining industry in Western Australia was carried out in 1925-26 by the Commonwealth Health Laboratory at Kalgoorlie, when 4,067 mine employees were examined. A further arrangement provides for the re-examination annually of mine employees in the Kalgoorlie district for a period of three years.

**7. Industrial Hygiene.**—The Industrial Hygiene Division of the Commonwealth Department of Health was established in December, 1921. Its objects are the collection of reliable data, the investigation of industrial conditions affecting health, and the issue of advice to employers and employees for the improvement of conditions of work and for the safeguarding of health. Publications have been issued dealing with the scope of industrial hygiene, and with health hazards in industry. Expert advice is available to employers and employees, and it is anticipated that the work of the division will be of great value in guiding the development of industry along hygienic lines, and in improving generally the condition of workers. With a view to the adoption of a concerted scheme of action and a uniform basis for standards and records throughout Australia, conferences of delegates from the State Health and Labour Departments and the Commonwealth Department of Health were held in 1922, 1924, and in 1927.

A special article entitled "Industrial Hygiene in Australia" will be found in Official Year Book No. 18, pp. 522 to 555.

**8. Public Health Engineering.**—A division of sanitary engineering was established in the Commonwealth Department of Health early in 1923. Investigation has been made into numerous sanitary engineering problems affecting Australia, including a number referred to the Department by various State Governments. Advice is given generally on the protection of water supplies, drainage, and other engineering questions affecting health.

In 1927 a special conference convened by this Division was attended by official representatives of Government and municipal authorities concerned with health, water supply, sewerage and similar activities. Numerous papers on public health problems were read and discussed.

**9. Veterinary Hygiene and Plant Quarantine.**—In 1927 Directors were appointed to control divisions of the Commonwealth Department of Health, which have been created to deal with veterinary hygiene and plant quarantine.

## § 5. Tropical Diseases.

**1. General.**—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 shown that the difficulties in the way of tropical colonization, 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 and the production of new synthetic drugs for treatment which science has accomplished, furnish a new outlook on the question of white settlement in countries formerly regarded as unsuitable for colonization by European races. In Australia, the most important aspect of this matter is at present in relation to such diseases as hookworm, filariasis, dengue fever, and to a lesser extent, malaria, which, although practically unknown in southern Australia, occur in many of the tropical and sub-tropical parts.

Systematic attention is being directed to these diseases and to other aspects of tropical hygiene by the Division of Tropical Hygiene of the Commonwealth Department of Health.

2. **Transmission of Disease by Mosquitoes.**—Information under this heading has appeared in previous issues (see No. 22, pp. 506 and 507), but cannot be repeated in this volume.

3. **Control of Introduced Malaria and Bilharziasis.**—Reference to this subject may be found in previous Year Books (see No. 22, p. 507).

4. **Hookworm.**—In 1911, attention was drawn to the necessity for an investigation into hookworm infection in Queensland, and the view was expressed that notified cases did not accurately indicate the prevalence of the disease. Researches made subsequently tended to support this view.

An investigation made in Papua in 1917 by an officer of the International Board of Health of the Rockefeller Foundation disclosed the fact that half of all natives examined were infected with hookworm disease. In co-operation with the Government of Queensland and the Australian Institute of Tropical Medicine, the survey was extended to Queensland, and a considerable number of cases of hookworm infection was found in certain northern coastal areas. In October, 1919, the Australian Hookworm Campaign was begun. This campaign was supported jointly by the Commonwealth, the International Health Board of the Rockefeller Foundation, the State of Queensland, and the other States in which work in this direction was undertaken. By the end of 1922, the survey of Australia and its dependencies had been completed. The total number of examinations up to 30th September, 1924, including those in Dr. Waite's survey in Papua and the earlier work in Queensland, was as follows:—

People examined for hookworm disease	..	..	394,578
Found to be infected with hookworms	..	..	62,051 (15.7%)

Endemic hookworm infection was found in intermittent areas along the eastern coast of Australia from Cape York to Macksville in New South Wales. The higher summer rainfall in these areas appears to be chiefly responsible for the localization of the infection. It is also found in the vicinity of Broome and Beagle Bay in Western Australia, in the northern part of the Northern Territory, and along the eastern coast of the Gulf of Carpentaria. In the Territory of Papua, 59.2 per cent. of the natives were found to be infected, and in the Territory of New Guinea, 74.2 per cent. There is no endemic hookworm infection in Victoria, South Australia, Tasmania, the interior of Queensland, New South Wales, except the north-eastern part, and Western Australia except the far north.

Metalliferous mines were examined in Victoria, South Australia, New South Wales, Tasmania, and Western Australia, and were found entirely free from hookworm infection. The examination of metalliferous mines in Queensland showed either no infection or a light infection which may have originated chiefly outside the mines. Coal mines in Victoria, Tasmania, and Western Australia were free from infection. Examinations were made in the coal mines of the Newcastle district, and among 1,226 miners examined in about 25 mines only five infected miners were found. In the Ipswich group of coal mines in Queensland, 31.5 per cent. of the miners were infected, and in the Howard-Torbanlea group (Queensland) 75.8 per cent. were infected. Recommendations were made with regard to the correction of the insanitary conditions responsible for these high infection rates.

Wherever operations are carried on by the hookworm campaign, emphasis is placed on the prevention of hookworm disease, in contrast to temporary relief through the cure of existing cases, and much work has been done to improve methods of night-soil disposal, and to teach the people the danger from soil pollution.

In October, 1924, the International Health Board withdrew from the work which was then continued under the direction of the Division of Tropical Hygiene of the Commonwealth Department of Health. From 1st October, 1924, to 30th September, 1929, under the new administration the field units engaged in the investigation examined 157,998 persons, of whom 13,968, or 8.8 per cent., were found to be infected with hookworm.

In October, 1929, the scheme for hookworm control was revised and modified. In both Queensland and New South Wales there are now committees for control which include the State officers responsible for public health and the health of school children respectively; continuity and co-ordination of programme are provided for by entrusting the chairmanship of each of the committees to the Director of the Division of Tropical Hygiene.

In the latter part of 1922, the scope of the campaign was widened to include a malaria and filaria survey in co-operation with the Division of Tropical Hygiene, Commonwealth Department of Health. This work is being carried out as opportunity arises.

Both of the species of hookworm which infest man are found in Australia. They differ in ways important to the practical sanitarian, and the need has been recognized for a new and more practicable method of determining their respective distribution. Such a method has been evolved at the Australian Institute of Tropical Medicine, and is being introduced as part of the routine of hookworm control within Australia.

Several epidemiological and microbiological problems relating to hookworm and other intestinal parasites in tropical and sub-tropical Australia have been investigated by the Australian Institute of Tropical Medicine and the Commonwealth Health Laboratories in Queensland in co-operation with the work of the field units, and useful information has been obtained and applied in regard to the control of hookworm among white people in the coastal tropical and sub-tropical regions of Australia.

**5. Australian Institute of Tropical Medicine.**—The Australian Institute of Tropical Medicine was founded at Townsville in January, 1910. From 7th March, 1921, to 3rd March, 1930, when it was merged in the School of Public Health and Tropical Medicine, Sydney University, the Institute was administered by the Commonwealth Department of Health, and a full account of its activities from its foundation up to 1922 will be found in Official Year Book No. 15, pp. 1010–1012.

**6. School of Public Health and Tropical Medicine, Sydney University.**—The Commonwealth Government, under an agreement with the Sydney University, established a School of Public Health and Tropical Medicine at the Sydney University as from 4th March, 1930, for the purpose of training medical graduates and students in the subjects of public health and tropical medicine. The organization of the Australian Institute of Tropical Medicine at Townsville was merged in the new School, and the staff, equipment, and material have been transferred to Sydney.

Since 1922 a number of investigations has been carried out, including the physiology of white population in the tropics, causes of obscure tropical fevers, sociological survey of certain tropical areas of Queensland, the destruction of mosquito larvæ and the control of mosquitoes in the larger centres of population, tropical diseases among the aboriginals on Palm Island, leprosy among aboriginals in the Northern Territory, prevalence of filariasis in Cairns, Yarrabah Mission Station, Port Douglas, Mossman, and Innisfail, and reputed foci of malaria in tropical Queensland. Courses of instruction in tropical medicine and hygiene commence in May of each year, and continue for four months, and ten publications dealing with various aspects of tropical medicine, etc., have been issued.

**7. Royal Commission on National Health, etc.**—Information concerning the following subjects may be found in previous Year Books (see No. 22, pp. 509 and 510):—(a) Royal Commission on National Health appointed by the Commonwealth Government in 1924; (b) Travelling Study Tours under the League of Nations; (c) International Sanitary Convention; (d) Far Eastern Epidemiological Bureau, Singapore; and (e) International Pacific Health Conference. Considerations of space preclude the repetition of this matter in this issue.

## § 6. Medical Inspection of School Children.

**1. General.**—Medical inspection of school children is carried out more or less thoroughly in all the States. Medical staffs have been organized, and in some States travelling clinics have been established to deal with dental, ocular, and other defects.

**2. New South Wales.**—A complete system of medical inspection of school children came into operation in this State in 1913. The scheme, as now applied, includes, in country districts, the medical examination of every child at least twice during the compulsory period of school attendance (7–14 years). In the metropolitan area, the scheme provides for the full medical examination of all “entrants” and “leavers”



(1st class in Infants' Departments and children 13 years of age respectively), and the review of all cases found defective between those ages. Parents are notified of the defects found in children, and urged to have them treated. In the metropolitan area, these notices are reinforced by "follow up" work of school nurses, who also arrange hospital and clinic treatment in many cases.

When fully staffed, the staff employed consists of 19 medical officers, 19 dental officers (including 8 part-time), 8 school nurses, 15 dental assistants, and 13 clerical officers. Of the medical staff, three are oculists carrying out refractions and general ocular treatment in schools in country districts; while the dental activities include 11 Travelling Dental Clinics for country work, and a School Dental Clinic (staffed by the equivalent of 3 full-time dental officers and assistants), and a Clinic attached to the Out-Patient Department of the Children's Hospital in the metropolitan area.

Special attention is paid to the supervision of the health of High School pupils, both girls and boys, and these schools in the metropolitan, Newcastle, and Wollongong districts are visited by school medical officers once a year for this purpose.

The same health supervision is maintained by a woman medical officer attached to the Teachers' College. Every student, on entering the college, is medically examined, and any defects found must be remedied before final acceptance. A course of 30 lectures on hygiene is delivered, which every student attends.

The medical and psychological examination of delinquent boys brought before the Children's Court is carried out by a male medical officer, and approximately 1,500 boys are examined and reviewed yearly. The examination of certain girl delinquents is undertaken by a woman medical officer, who also carries out the examination and health supervision of children in residence at the Glenfield Special School for backward children.

One other medical officer is engaged for the greater part of each year in an investigation into hookworm infestation in school children in the North Coast District, working in conjunction with the Federal Health Authority.

From time to time, mass investigations are made into the prevalence and distribution of certain abnormal conditions affecting school children, such as goitre, acute rheumatism, trachoma, feeble-mindedness, crippling, etc.

During 1928, 76,988 children were fully examined, 37,038 (48.11%) were notified for treatment of various defects, including dental. Of these 20.25% were notified for medical defects only. Of those notified for medical and dental defects 18,733 (50.58%) were treated. In addition 24,927 children were "reviewed" (metropolitan system), of whom 9,457 (37.94%) were notified for medical and dental defects, and 4,214 (44.56%) of those notified were treated. Eleven Travelling Dental Clinics working in country districts treated 15,467 children. Dental treatment was also provided at the Metropolitan School Dental Clinic and the Children's Hospital Dental Clinic (Out-patient Department) for 5,747 and 1,038 children respectively.

3. **Victoria.**—The system adopted provides for the medical examination of each child once every three years during its school life. With the doubling of the medical staff in 1925 the Department concentrated on country work, and medical inspection has been undertaken since that date in country and rural districts, reaching the most remote corners of the State. Medical inspection is now undertaken in all High schools, in practically all country State schools, and in about half of the metropolitan State schools, but in only a few of the registered and institutional schools.

Each school is visited once in every three years, and each child examined. In schools with an attendance of 70 or more, the older boys are examined by a medical man and the older girls by a medical woman. At this inspection every child is first weighed and measured, vision and hearing tested, then undressed to the waist and medically examined as for life assurance, but with a fuller investigation of many hygienic factors, which, at that age, greatly influence the health and growth of the child. Opportunity is also taken to teach the child healthy habits, how to correct faults, and also to get into co-operation for the remedying of defects found.

School nurses employed by the Department are devoted to "follow-up" work *i.e.*, visiting the homes and getting treatment for children found defective by the school medical officers. Owing to the smallness of the staff their work is confined to the metropolitan area. The result of their work is that the treatment received is much greater than that which is obtained without them.

In addition to the medical examination, each child in those schools visited by the school dentist receives dental treatment on entrance to school (if under 8 years of age), and each year thereafter, until it is 12 years of age, when it is left dentally fit.

The present staff is arranged so that 3 dentists and 4 dental attendants are always on duty at the Melbourne Dental Centre, where children from the infant classes in the inner metropolitan schools are brought by the teacher for dental treatment.

A dentist with a dental attendant and equipment travels along the railway line far enough to give one year's work, using practically every town large enough to provide a day's work as a base. The school committees of the outlying schools are notified of the visit, and the parents are invited to bring to the base all children eligible for treatment, *i.e.*, all children under 8 years of age, and all other children treated by the school dentists on previous visits. This method gives all schools in the district the opportunity of dental treatment.

The time of another dentist is fully occupied treating the children in the three largest country centres, Bendigo, Ballarat, and Geelong. In each of these cities a centre with a dentist, dental attendant, and equipment is established for about three months of the year, where children from the infant classes of the neighbouring schools are brought by the teacher or parents.

Three dentists with dental attendants are in charge of three fully-equipped dental vans, each of which has an itinerary which it completes each year. The advantage in the use of a dental motor van is that it is furnished as a dental surgery. It can be driven into the school yard and, immediately on its arrival, work can be commenced without any delay incidental to unpacking equipment, etc., and to the preparation of a room.

In no case is the same dental officer on the same trip for the whole year; work is distributed so that there is a change over at every school vacation—Christmas, May, and September. Those who have been in the country take a period of duty in the city and *vice versa*, while those who have been in the van on one trip will probably travel by train the next time, likewise there is constant change between dentist and dental attendants. By doing this it is felt that monotony is relieved, and that the standard of work is maintained at a higher level by the stimulus of change.

The staff of the medical branch consists of 8 full-time medical officers, 8 dentists, 9 dental assistants, and 2 school nurses.

During the year ended 30th June, 1929, 49,400 children and 1,645 teachers were medically examined, and 28,075 received dental treatment. In addition, 10,756 homes were visited by the school nurses.

**4. Queensland.**—In matters affecting the general administration of the medical branch of the Department of Public Instruction, the Department acts on the advice of its Chief Medical Officer, who, while acting independently in all matters affecting individual schools, is in close touch with the Department of Public Health, and observes the policy of that Department in all matters connected with schools which may have direct bearing upon the health of the State.

Medical inspection of schools and school children is at present carried out by a staff of 4 full-time and 1 part-time medical officers. These officers examine all children for cardiac and pulmonary conditions, and in addition, make a thorough examination of all children referred to them by the school nurses; 20,719 were thus medically examined in 1929, and of these, 3,903 were notified as suffering from some condition requiring correction.

School nurses now numbering 10 have been appointed from time to time. To each nurse is assigned a group of schools, and she is instructed to make a list at each school of those children whom she considers should be seen by the medical inspector at his next visit. She supervises the sanitation, cleanliness and ventilation of the school and notifies the head teacher of all infectious or verminous children or those suffering from impetigo, scabies, etc., who are then excluded. During the year 1929, school nurses examined

33,817 children. In the metropolitan area, the nurses examine the teeth and report all eligible carious cases to the Dental Hospital for treatment. The work of the school nurse is proving more and more valuable in keeping the standard of sanitation high and in controlling the general health of the children.

The Department has in its employ a staff of 12 dentists. These officers are each assigned a district, and such district is not changed for three years unless for reasons which the Chief Medical Officer, on the recommendation of the Chief Dental Inspector, considers advisable. During the year 1929, 35,191 children were examined; 34,618 extractions were performed; and there were 32,442 fillings and 19,832 other treatments. Children and parents alike are beginning to realise the very great value of early dental treatment. The former appreciate the fact that, in the early stages of decay, they are not called upon to suffer pain during dental manipulations, and the latter see in the increased health and vigour of their children the practical value of such treatment.

The Medical Branch, under the direction of the Chief Medical Officer, consists of three sections known respectively as the Medical, Dental and Nursing Sections. These combined constitute the School Medical Service of the State.

In addition to the ordinary activities of the Branch, there has recently been added the Wilson Ophthalmic School Hostel for the treatment and education of severe cases of trachoma. Such cases, on the recommendation of Dr. Johnson, the Departmental Ophthalmologist, are admitted from time to time. Beneficial results have already been obtained. The Institution is situated at Eildon Hill, Windsor, and is fully equipped to treat all types of eye case. The Ophthalmic Surgeon was engaged from London; he is at present organizing the work of some 30 part-time ophthalmic officers in Western Queensland.

Following the policy of the Government to give the same medical and dental facilities to the children of the back country as are obtainable by city dwellers, a Rail Dental Clinic has been constructed. This consists of a carriage 21 feet long, divided into—

- (a) Lavatory and shower accommodation.
- (b) Sleeping and living room, fitted with all conveniences, including ice chest and two-burner Gloria cooking-stove. Ample drawer space is provided in dressing table, and under the sleeping berth.
- (c) Dental surgery fitted with all the latest appliances for dental treatment, including Gloria sterilizer and pressure filtered water. The dental engine is electrically driven and foot controlled. Perfect illumination is obtained by a dental spot light which is part of the chair equipment.
- (d) A compartment for waiting patients which also contains the engine and generator and batteries for lighting the car throughout.

A motor car is carried on a railway waggon at the rear, and can be used at each stopping place to visit the surrounding villages served by the rail centre. This unit will operate in the distant and roadless parts of the State where there would be difficulty in taking the present Road Motor Clinic.

5. South Australia.—Medical inspection embraces the examination of all children attending primary, central, high and technical high schools. Each child is examined once in three years. Reports are furnished to parents of defects likely to interfere with educational progress. The staff consists of 1 principal medical officer, 4 medical inspectors, 1 psychologist, 2 dentists, 3 trained nurses, 2 dental assistants and a disinfecting officer. The dentists attend country schools and treat children. The dentist from the City Clinic was transferred in October, 1928, to the Dental Hospital, where school children are now treated. The medical inspectors meet the parents after the examination of the children, report any defects, and recommend treatment. It has been found that a personal talk is of greater value than a written notice. The psychologist examines mentally retarded children and supervises their work in the opportunity classes which have been established for their benefit.

During the year 1929, 24,773 children were examined by the medical inspectors; of these 590 required notices for defective vision, 167 for defective hearing, and 1,473 for adenoids and tonsils. Two thousand eight hundred and ninety children received dental treatment.

6. **Western Australia.**—Under the Public Health Act 1911–1922, the medical officers of health appointed by the local authorities became medical officers of schools and school children. In the Health Department there are 2 full time and 1 half time medical officers for schools, whose duty is to conduct medical examinations, and three school nurses are employed. During 1929, 12,429 (4,912 country and 7,517 metropolitan) children were examined.

7. **Tasmania.**—To Tasmania belongs the credit of being the first State in Australia to provide for the medical inspection of State school children. As far back as 1906, 1,200 children from the Hobart State schools were examined. At the present time 2 full-time medical officers carry out medical inspections in country and convent schools, while 2 part-time medical officers conduct examinations of school children in Hobart and Launceston. There are also 4 nurses, whose chief duty is to visit the homes to advise the parents as to the treatment of defects disclosed by the medical examination. Country schools are visited by medical officers about once every two years. There are 4 full-time dental officers—two working at dental clinics in Hobart and Launceston, and two visiting the smaller country schools.

8. **Federal Capital Territory.**—By arrangement the education facilities are provided by the Education Department of New South Wales, and the medical inspection of school children is conducted on similar lines to those adopted in that State. This function, however, is now being taken up by the Commonwealth Department of Health. Separate statistical information is not available, the figures for the Territory being included in those shown for New South Wales in 2 *supra*.

### § 7. Supervision and Care of Infant Life.

1. **General.**—The number of infantile deaths and the rate of infantile mortality for the last five years are given in the following table, which shows that during the period 1925 to 1929 no less than 35,450 children died in Australia (including Territories) before reaching their first birthday. With few exceptions, the rate of mortality in the metropolitan area is consistently greater than that for the remainder of the State. Further information regarding infantile mortality will be found in Chapter XXV.—Vital Statistics:—

#### INFANTILE DEATHS AND DEATH RATES, 1925 TO 1929.

State.	Metropolitan.					Remainder of State.				
	1925.	1926.	1927.	1928.	1929.	1925.	1926.	1927.	1928.	1929.
<b>NUMBER OF INFANTILE DEATHS.</b>										
New South Wales	1,282	1,336	1,161	1,045	1,263	1,719	1,724	1,797	1,963	1,710
Victoria ..	1,155	1,205	1,118	1,016	855	892	784	848	903	732
Queensland ..	318	318	365	298	272	599	683	715	693	579
South Australia ..	287	328	370	292	220	241	181	244	250	216
Western Australia	280	232	210	233	269	183	177	179	186	239
Tasmania ..	101	77	79	81	58	187	156	177	219	197
Australia (b) ..	3,423	3,496	3,303	2,965	2,937	3,821	3,685	3,960	4,124	3,673
<b>RATE OF INFANTILE MORTALITY.(a)</b>										
New South Wales	56.74	60.72	56.39	49.41	56.52	53.68	55.41	54.04	58.35	56.39
Victoria ..	50.81	62.91	62.46	57.14	50.51	53.70	47.14	49.38	54.02	43.89
Queensland ..	49.71	50.41	57.28	48.26	55.83	43.14	50.76	53.12	44.81	42.53
South Australia ..	48.95	53.03	64.00	49.09	43.50	43.08	34.16	42.72	45.79	38.53
Western Australia	65.71	53.85	57.30	60.74	64.00	49.64	44.33	37.16	38.21	49.30
Tasmania ..	67.83	53.73	55.71	80.92	55.56	50.15	43.88	51.83	59.35	52.49
Australia (b) ..	57.13	58.86	59.27	53.05	53.12	50.43	50.05	50.88	52.88	49.65

(a) Number of deaths under one year per 1,000 births registered.

(b) Exclusive of Territories.

During recent years greater attention has been paid to the fact that the health of the community depends largely on pre-natal as well as after care in the case of mothers and children. Government and private organizations are, therefore, taking steps to provide instruction and treatment for mothers before and after confinement, while the health and well-being of mother and child are looked after by the institution of baby health-centres, baby clinics, crèches, visitation by qualified midwifery nurses, supervision of milk supply, etc.

**2. Government Activities.**—In all the States Acts have been passed with the object of supervising and ameliorating the conditions of infant life and reducing the rate of mortality. Government Departments control the boarding-out to suitable persons of the wards of the State, and wherever possible the child is boarded-out to its mother or near female relative. Stringent conditions regulate the adoption, nursing and maintenance of children placed in foster-homes by private persons, while special attention is devoted to the welfare of ex-nuptial children. (See also in this connexion Chapter XI.—Public Benevolence.) Under the provisions of the Maternity Allowance Act 1912, a sum of five pounds is payable to the mother in respect of each confinement at which a living or viable child is born. Further particulars regarding Maternity Allowance are given in Chapter VIII.—Finance.

**3. Nursing Activities.**—(i) *General.* In several of the States, the Government maintains institutions which provide treatment for mothers and children, while, in addition, subsidies are granted to various associations engaged in welfare work.

(ii) *Details by States.* In previous issues of the Year Book (see No. 22, pp. 515 and 516) information, with certain statistical data, concerning the activities of institutions in each State has been included, but cannot be published in this issue.

(iii) *Summary.* The following table gives particulars of the activities of the Baby Health Centres and the Bush Nursing Associations :—

**BABY HEALTH CENTRES AND BUSH NURSING ASSOCIATIONS, 1929.**

Heading.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Total.
Baby Health Centres:—							
Metropolitan No.	39	58	5	39	(b)16	4	161
Urban-Provincial and Rural No.	37	35	10	5	..	3	90
Total No.	76	93	15	44	16	7	251
Attendances at Centres .. No.	373,697	225,707	108,794	56,307	37,606	20,201	822,312
Visits paid by Nurses .. No.	105,732	56,646	14,216	36,235	10,177	10,672	233,678
Bush Nursing Association, Number of Centres .. ..	44	62	10	(a)31	1	17	165

(a) District Trained Nursing Society.

(b) Includes Urban-Provincial and Rural.

NOTE.—Particulars for the Federal Capital Territory are not available.