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NEW ZEALAND.

# DEPARTMENT OF HEALTH.

ANNUAL REPORT OF THE DIRECTOR-GENERAL OF HEALTH.

*Presented in pursuance of Section 100 of the Hospitals and Charitable Institutions Act, 1926.*

HON. SIR ALEXANDER YOUNG, MINISTER OF HEALTH.

## CONTENTS.



## REPORTS.

The DIRECTOR-GENERAL OF HEALTH to the Hon. the MINISTER OF HEALTH, Wellington.

I HAVE the honour to lay before you the annual report of the Department for the year 1934–35.

## PART I.—GENERAL SURVEY.

### VITAL STATISTICS.

The state of the public health remained at much the same level in 1934 as in recent years. Although measles, whooping-cough, and influenza were wide-spread there was a comparative absence of other infectious diseases.

*Death-rate.*—The death-rate per 1,000 mean population was 8·48. In 1933 it was 7·98.

*Infant Mortality.*—The infant-mortality rate was 32·11 per 1,000 live births as compared with 31·64 in 1933.

*Still-births.*—The still-birth rate was 28·3 per 1,000 live births. This is a reduction from the rate of 29·7 in 1933.

*Birth-rate.*—Births numbered 24,322, as compared with 24,334 in the preceding year. The birth-rate was 16·47 per 1,000, as against 16·59 in 1933. The 1934 rate is the lowest on record in New Zealand.

*Expectation of Life.*—The New Zealand figures for expectation of life recently received prominence from the use that has been made of them by Lewis I. Dublin and Dr. Alfred J. Lotka, in an article appearing in the *Statistical Bulletin of the Metropolitan Life Insurance Company*. The following is an extract from this article :—

> " It is the good fortune and the just pride of New Zealand to hold, of all nations, the record for average longevity. The male infant born in that Island State can expect on an average to live to the age of sixty-five years, and the female to within six weeks of sixty-eight years. This is a very remarkable achievement, and makes one wonder how close New Zealand has already come to the top score which is ultimately attainable in the present state of our medical and sanitary knowledge."

## Infectious and other Diseases.

The total notifications of infectious and other notifiable diseases received by the Department in 1934 was 3,022, or 597 fewer than in 1933. This is the lowest figure since accurate records of notifications have been compiled for the Dominion.

*Scarlet Fever.*—A total of 762 cases and 8 deaths were reported as against 783 cases and 4 deaths in 1933.

*Diphtheria.*—Perhaps the outstanding feature of the 1934 returns is the marked drop in the incidence of diphtheria. In all, 436 cases and 26 deaths were recorded, as compared with 963 cases and 27 deaths for the preceding year. Dr. Turbott, Medical Officer of Health, Gisborne, reports that his experience of immunization as carried out in his district in 1932 is wholly favourable. In 1932 the incidence rate for diphtheria in the East Cape Health District was 4·44 per 10,000 population, while in 1933 it had fallen to 3 per 10,000. Dr. Cook, Medical Officer of Health, Whangarei, carried out a successful campaign of immunization, which he describes as follows :—

> " Including the inoculations at Awanui, &c., in February and March, 1934, some 900 children, school and pre-school, have received the benefit of this treatment. No active propaganda was instituted to obtain this very satisfactory result ; in all cases the facts were explained to the School Committees and parents, and they were left to make their own decision. The people of the Mangonui County have been isolated for so long a period and have had so many tragedies that they were willing to accept any form of prevention, provided they had faith in the medical and nursing personnel. This faith was well tested, and resisted to a remarkable degree the active efforts of the anti-vivisection society who distributed pamphlets in Kaitaia just at the commencement of work in the school. Despite this circumstance, the original programme was carried out almost in its entirety. The courage of the children in this school particularly was splendid, due in great measure to the sensible attitude adopted by both parents and teachers. In other schools conditions were not quite so easy ; evidently many parents had been very worried with the subject-matter of the various pamphlets issued, and their courage had faltered for a moment or two. By intuition, and by listening to conversation on the question, many children had had these fears transmitted to themselves ; the result was that some children attempted to evade inoculation while others were frightened and showed this in no uncertain manner.
>
> " Anatoxin was used throughout and proved very satisfactory provided that all precautions were taken. Skin tests were used in every case. This test is read after twenty-four hours and it is usual to consider a test positive when the area of reaction is $\frac{1}{2}$ in. or more in diameter. My experience is that sensitive children need not necessarily have a reaction of $\frac{1}{2}$ in. in diameter ; I think that the colour of the reaction is as important as size. In my opinion sensitivity is also demonstrated by a bright red reaction of $\frac{1}{4}$ in. diameter or more. This opinion is based on many observations. For example, every severe local reaction is characterized by this bright red colour, very alarming in its appearance, when of any extent.
>
> " I think, therefore, that the use of anatoxin can be rendered safer, particularly in rural areas, when the following additional safeguards are observed :—
>
> " (1) All children 6–8 or more to be considered potentially sensitive.
> " (2) Bright-red reaction of $\frac{1}{4}$ in diameter or more to be considered positive.
> " (3) Not only the size of the test, but the colour to be considered.
> " (4) All children 6–8 or more to be questioned before the final inoculation, and the site of previous injection examined.
>
> " Children who give a history of severe local reaction will still show peeling of the skin and pigmentation over a large area at site of the previous inoculation, and should either not receive a final inoculation, or the full dose should not be administered. By attention to all these little details no trouble was experienced—a most necessary precaution in a rural community, particularly when faith has been shaken by anti-propaganda."

The following comments from a study of mortality trends in the United States are quoted as illustrating the value of immunization :—

> " Even though widespread use of immunization started less than ten years ago, we now begin to foresee the virtue of elimination of this disease. In 1927–33 the death-rate in the registration States of 1920 declined from 7·8 to 3·1 per 100,000—a drop of 60 per cent. While diphtheria is a small part of the death-rate, this has meant a saving of the lives of about 5,000 children annually."—The *Milbank Memorial Fund Quarterly*, April, 1935.

*Enteric Fever.*—During the year 51 cases were notified, as compared with 106 in 1933. The experience of the year yielded no new features of interest. The risk from contaminated water-supplies in rural places is emphasized by Dr. Champtaloup, Medical Officer of Health, New Plymouth, who reports that—

> "The water from a number of wells has been analysed with varying results, mostly showing contamination. These wells were for the purpose of supplying water to a number of schools, a cottage hospital, and a hotel."

Dr. Maclean reports that the typhoid position amongst Hawke's Bay Maoris shows considerable improvement compared with recent years. This he considers as largely due to the restrictions placed upon the consumption of polluted shell-fish and the routine inoculations carried out by the district nurse.

*Influenza.*—There was a rise in the number of notified cases of pneumonic influenza—71 in comparison with 41 for the previous year. The death-rate for all types of influenza was 1·26 per 10,000 mean population, an increase on the previous year's figure of 0·70.

*Poliomyelitis.*—Fourteen cases were notified, as compared with 43 for the preceding year. This is the lowest figure since 1930, when 12 cases were reported.

*Cerebro-spinal Meningitis and Lethargic Encephalitis.*—A few cases of these diseases occurred. Dr. Turbott reports, with reference to cerebro-spinal meningitis, that 4 cases with 1 death occurred in one family in a country district. Post-nasal swabs were taken from 11 contacts, 5 being positive and 1 doubtful—these contacts were in two households. Repeat swabs taken a week later proved negative. The quarantine, the gargling, and the closing of the rural school of that area for the incubation period of disease successfully kept the disease to the one household.

*Puerperal Fever.*—There were 59 deaths from puerperal fever. Of these 17 were due to sepsis following child-birth, and 42 were due to sepsis following abortion. One hundred and seventy-one notifications were received for puerperal fever following abortion as against 115 for 1933. In a review of deaths from puerperal causes the Government Statistician states,—

> "Among the deaths due to puerperal causes each year are included a considerable number resulting from conditions which should not be considered a normal hazard of the puerperal state. While it is impossible to differentiate these definitely, these can be no doubt that the great majority of septic abortion cases should be classed under this heading. A truer index of 'maternal mortality' than is afforded by the figure of puerperal mortality can thus be arrived at by deducting from the latter all cases of abortion where septic conditions are reported. On this basis the 1934 'maternal mortality' rate not only becomes lower than the 1933 figure, but is actually the second lowest rate recorded during the nine years 1926–34. Septic abortion accounted for more than the whole of the net increase in puerperal mortality between 1933–34."

*Whooping-cough and Measles.*—Whooping-cough and measles have earned an unenviable notoriety of late years. These two diseases of childhood periodically assume epidemic proportions. Whooping-cough was responsible for 40 deaths as against 18 in 1933. Measles was generally epidemic throughout the Dominion, and was responsible for a good deal of disorganization of school-life. It caused 46 deaths in comparison with 17 for 1933. With reference to the prevention and treatment of measles by the use of convalescent serum and blood of adults who have suffered from measles, the following extracts from a report issued by the London County Council are of particular interest:—

> "During the past few years it has been generally conceded that we cannot hope to banish measles from the community, nor are we likely to discover a sovereign remedy for the disease once it has manifested itself. The efforts of the clinician and epidemiologist have therefore been directed to the possible measures whereby the more serious forms may be avoided or mitigated, and the complications and sequelæ of the disease reduced to a minimum. Apart from the undeniable positive ameliorating effect of increasing the general resistance of the population by improved nutritional and hygienic conditions, the inoculation of susceptible contacts with immune serum has offered the most promising prospects of combating the menace of measles. The most serious obstacle in the way of general application of the method is the difficulty of securing adequate supplies of a uniformly potent serum."
>
> "When the convalescent serum results from the infectious diseases hospitals are compared with those of adult serum (similar age distribution, and probability of effective exposure), the significant difference favouring convalescent serum is limited to children under three years of age."
>
> "The analysis of the data presented shows conclusively that adult serum is a valuable measure in measles prophylaxis, in its protective and alternating action only slightly inferior to convalescent serum, and merits a high place in any future policy of measles control."

*Tuberculosis.*—The death-rate from tuberculosis (all forms) was 4·20 per 10,000 (4·16 in 1933). An important feature of the campaign against this disease was the continued supervision of children exposed to infection in their own homes. The Department has now available records of over 2,000 such contacts. Dr. Paterson reports that School Medical Officers have maintained satisfactory co-operation with tuberculosis officers attached to sanatoria or hospitals, arrangements being made for the examination by the latter of children suspected to be suffering from or actually suffering from this disease. A summary of this work in the Wellington area appears in the report on School Hygiene.

A committee representing Hospital Boards controlling North Island sanatoria met departmental representatives recently and discussed the question of endeavouring to secure a better diagnostic service for the people in the area served by these two institutions. As an outcome, a scheme is shortly to be launched whereby clinics under the supervision of the Medical Superintendents of the Otaki and Pukeora Sanatoria are to be established in various centres. The clinics will be periodically visited by those officers for examination of cases of tuberculosis referred by local medical practitioners desirous of obtaining a specialist's opinion.

*Hydatids.*—New Zealand is in an unenviable position as regards the incidence of hydatid disease. Sir Louis Barnett, who has given considerable attention to the study of this disease, in an article contributed to the *New Zealand Medical Journal*, August, 1934, quotes the following statement he made in 1929 :—

> " At least 100 cases of hydatid disease have been occurring in New Zealand for several years past, and the numbers are increasing to some extent with increase of population. It will not be many years before the annual total reaches 150, unless an effective practice of prevention is established."

He goes on to state,—

> " From the collective statistics that I have gathered together and set forth in this paper, the following conclusions can be drawn : They give food for reflection, and clearly call for some intensive prophylaxis against hydatid infection :—
>
> " (1) That hydatid disease is increasing somewhat in New Zealand. Including cases seen in private practice, a reasonable estimate is that from 100–150 cases are occurring every year, with a mortality of about 15 per cent.
>
> " (2) That hydatid infections are far more common in the Canterbury District than anywhere in New Zealand. The Otago District formerly held this unenviable distinction, and now comes second on the list.
>
> " (3) That an increasing number of cases are being treated in the smaller hospitals of the Dominion."

The Hydatid Disease Research and Prevention Department of the Medical School, Otago University, is taking a prominent part in educating the public as to the prevention of this disease. Special posters and folders have been prepared under the direction of Sir Louis Barnett, which will be distributed extensively throughout New Zealand. The Department, by radio talks, press articles, and through its Medical Officers of Health, has also been active in this direction. The solution of the problem of prevention of hydatids is comparatively simple, and can be summed up in the following directions issued by the Medical School Authorities :—

(*a*) Administer regularly every two or three months the specially prepared worm-destroying tablets to country dogs. This can be done quite easily according to the following simple and effective method : Tie the dog to a convenient post or tree on Saturday afternoon. Do not feed him. On Sunday give him a dose of arecolin hydrobromide—For grown sheep and cattle dogs, $\frac{1}{2}$ grain ; for dogs of terrier size, $\frac{1}{4}$ grain ; for smaller breeds and pups, $\frac{1}{8}$ grain. The dose may be given in a small piece of meat or butter. Purging begins in about half an hour. After two hours the dog is let loose and fed. The droppings must be made harmless by fire or burial. Further instructions will be given on request by Health Officers, Stock Inspectors, or Veterinary Surgeons.

(*b*) Never let dogs feed on raw offal, and, if it is needed for dogs' tucker, boil it for ten minutes or so ; it would even suffice to throw the offal into a can of water and bring to the boil. This simple action requiring very little trouble, kills all parasites and renders the food fit for use. Experimental work on alternative methods of killing the parasites by the use of antiseptics such as formalin is now in progress at the Hydatid Research Department of the Otago Medical School.

(*c*) In patting or fondling dogs, handling sheep, and so on, remember the risk of contaminated hands, and the possibility, especially in children, of the hydatid eggs being transferred from hands to mouth. Make a practice of washing the hands before meals.

(*d*) Foodstuffs should be protected against direct pollution by dogs and indirect contamination by flies. Salads and other vegetables that are eaten raw should be carefully washed.

(*e*) Hydatid eggs that reach water soon sink and infection from this source is not very likely, but, to be on the safe side, water for drinking purposes should be boiled or filtered.

*Anthrax.*—A case of anthrax was notified from the South Canterbury District. Dr. Telford, Medical Officer of Health, reports on this case as follows :—

> " The infection was caused by a shaving-brush of foreign origin, and it is interesting to note in this case that out of six shaving-brushes examined from this shipment, three, including the patient's, proved to be infected with the anthrax bacillus—*i.e.*, 50 per cent.—three out of six brushes examined. I do not recall any previous shipment showing such a high degree of infection."

Dr. A. B. Pearson, Pathologist at the Christchurch Hospital, in his report on the examination of the suspected brushes, comments as follows :—

> " Portions of the hair and glue from the shaving-brushes received on 27th July were inoculated into guinea-pigs. Two of the animals died within seventy-two hours of the time of inoculation and bacillus of anthrax was recovered from the heart, blood, and spleen of both animals. One of these animals was inoculated with the washing from the shaving-brush used by the patient, and the other animal was inoculated with the washing from a new and unused shaving-brush. The shaving-brushes were similar in make. They were stamped with the number 332, but did not show the name of the maker nor the country of origin. At the same time as the inoculations were carried out cultures were prepared from the shaving-brushes, but no bacilli of anthrax type could be detected. The cultures revealed numerous bacteria of saprophytic type, including such organisms as *Bacillus subtlis*.
>
> " On 30th July three more shaving-brushes were received and tested. These brushes were of a similar make to the first lot. They were stamped with the same number. They were rather larger in size. Similar tests were carried out with these brushes, and one animal died following inoculations of the washing. At the post-mortem examination bacilli of anthrax were recovered from this animal."

Immediate action was taken by the Department to trace and destroy all stocks of brushes from suspected consignments which remained unsold. The public also were warned of the dangers and were advised to destroy all brushes with the distinguishing number which came into their possession. The steps taken proved adequate and no further cases have occurred.

*Goitre.*—The high incidence of goitre in New Zealand is a public-health problem of major importance. Sir Robert McCarrison, the well-known authority on goitre, had expressed his intention of visiting the Dominion, and it was hoped to get his advice and assistance in dealing with the matter. Unfortunately, his visit has been unavoidably postponed in the meantime, but he has forwarded a reasoned criticism of our past research work and has made some helpful suggestions for future inquiry. It is proposed to continue the investigations along the lines he suggests. These investigations will involve a considerable amount of field work in the way of survey of water-supplies, milk-supplies, sanitary conditions, &c., in the Taranaki and Palmerston North areas.

*Cancer.*—There was a rise in the mortality from cancer, the number of deaths showing an increase of 75, while the rate rose from 11·07 to 11·50 per 10,000.

The Cancer Clinics established under the auspices of the New Zealand Branch of the British Empire Cancer Campaign Society are fulfilling a useful service in providing better facilities for diagnosis and early treatment, and in gathering valuable statistical data.

## Reports of Divisional Directors.

*Public Hygiene.*—Dr. Ritchie, in his report, has made a feature of statistical tables showing the Dominion experience of some of the more important diseases. These should prove a useful source of reference for public-health workers.

*School Hygiene.*—The problem of the nutrition of our school-children has received close attention by the officers of this Division. The following special investigations have been carried out by school medical officers : The incidence of defective eyesight in children ; a comparative study of defects found in medical examination of pakeha and Maori children ; and (with the co-operation of the Government Statistician) the survey of physical measurements of 40,000 children from selected areas. These studies are included in Dr. Paterson's report.

*Hospitals.*—There has been an increase in the numbers of patients, and this fact, together with the rising prices of commodities, the restoration of salary and wage cuts, and the necessity for renewal of depleted stocks and for renovations of buildings, is responsible for increased expenditure of hospital maintenance generally. Added requirements for renewal of stocks and renovations of buildings is the result to a great extent of deferred expenditure in this direction during the recent depression years, and for this reason also it is now observed that the requirements for capital expenditure are showing an increase.

As regards patients' fees, it is worthy of note that revenue from this source shows an improvement, which is due in no small measure to the improved methods of collection. The position regarding this sphere of Hospital Board activities in the majority of cases is satisfactory, and the results have materially assisted in the recent difficult times in keeping the costs of hospital services within reasonable limits.

Full statistical and financial information in regard to hospitals is published as a special appendix to this report.

*Nursing Division.*—Among matters to which Miss Lambie draws attention in her report are the recently introduced system for the exchange of nurses between New Zealand and other countries : the development of tropical nursing service in the islands of the South Pacific ; scholarships awarded by the Rockefeller, Carnegie, and the Florence Nightingale Foundations ; the post-graduate course for nurses ; and problems relating to the health and training of nurses.

*Dental Hygiene.*—One thousand five hundred and fifty-one schools are now under dental supervision representing an increase of 121 on the previous year. An experimental mobile clinic was also put into operation during the year. The number of children who received systematic treatment in 1934 was 83,433, in comparison with 78,391 in 1933. Among special matters reviewed in the Director's report are the prevention of caries by operative methods and dental-health education.

## Maori Hygiene.

Information as to the health of the Maori race is obtainable from two main sources, namely :—

(*a*) Vital statistics compiled by the Government Statistician ; and

(*b*) Reports of occasional special surveys and of routine medical and nursing work carried out by departmental officers.

A study of the data thus made available can lead only to the one conclusion—namely, that the standard of health of the Maori is much below that of the European who is living in close contact with him and under the same natural conditions.

### *Vital Statistics.*

The vital statistics of the Maori race are necessarily incomplete and inexact because many Maori births and deaths go unrecorded. One of the greatest difficulties in obtaining accurate records of Maori deaths is that a large number of the Maoris are not attended during sickness by a medical practitioner. The regulations that were formerly in force allowed two months as the time in which any death could be registered, and also did not insist on a medical certification of the cause of death prior to burial. This difficulty was partly met in 1934 by advising all Registrars of Maori Births and Deaths that if a death was registered without any cause of death or with only an indefinite cause they should report the facts and supply all particulars available to the nearest District Nurse, who in turn would make inquiries. The cause of death supplied by the District Nurse would, failing one supplied by a medical practitioner, be acceptable for registration and statistical purposes.

Following on recommendations made by the Health Department, the regulations governing the registration of births and deaths of Maoris were revised, and the new provisions came into force on the 1st May, 1935. The amended regulations provide for the registration of Maori deaths within seven days if in the South Island and fourteen days if in the North Island, and also do not permit burial unless there has been furnished—(1) A medical certificate of cause of death ; or (2) a Coroner's order to bury, or (3) a Registrar's certificate that the death has been registered. It is yet too early to state whether there is a greater accuracy in the vital statistics of the Maori, but it is felt that the new regulations are a definite step in the right direction.

The following tables with comments show that, apart from the birth-rate, the Maori compares most unfavourably with the European. Confirmatory evidence of this has been obtained from the reports of departmental Medical Officers. It has been established, for instance, that while the Maori child shows superiority in the absence of severe malnutrition, in the incidence of perfect teeth, and in posture, yet he is definitely inferior to the European child in certain respects, particularly as regards his proneness to skin diseases and his susceptibility to bronchitis, pneumonia, influenza, and other respiratory infections.

*Population.*—The Maori population as at the 31st December, 1934, was 73,289, an increase of 1,729 over the figure for the previous year.

*Birth and Death Rates.*—The following table shows a comparison between the Maori and European birth and death rates per 1,000 of the respective populations for the past five years. It will be noted that, whereas the Maori birth-rate is almost two and a half times that of the European, the death-rate is over twice that of the European. Nevertheless the difference between the number of Maori births and the number of Maori deaths is considerable (1,698 for 1934), thus giving the Maori race the satisfactory natural increase of 2·32 per cent. of the whole population, which is much higher than the European natural increase of only 0·80 per cent.

*Maori and European Birth and Death Rates per 1,000 of Respective Populations.*

| Year. | Birth-rates. | | Death-rates. | |
|---|---|---|---|---|
| | Maori. | European. | Maori. | European. |
| 1930 .. .. .. | 31·56 | 18·80 | 14·06 | 8·56 |
| 1931 .. .. .. | 33·74 | 18·42 | 14·81 | 8·34 |
| 1932 .. .. .. | 39·28 | 17·09 | 17·06 | 8·02 |
| 1933 .. .. .. | 41·20 | 16·59 | 16·22 | 7·98 |
| 1934 .. .. .. | 40·67 | 16·47 | 17·51 | 8·48 |

*Infant Mortality.*—The following table gives the Maori infantile death-rate per 1,000 live births each year for the ten-year period 1925–1934 :—

| Year. | Death-rate. | Year. | Death-rate. |
|---|---|---|---|
| 1925 .. .. | 107·23 | 1930 .. .. | 88·51 |
| 1926 .. .. | 117·19 | 1931 .. .. | 95·59 |
| 1927 .. .. | 157·86 | 1932 .. .. | 95·45 |
| 1928 .. .. | 118·16 | 1933 .. .. | 92·61 |
| 1929 .. .. | 78·52 | 1934 .. .. | 93·59 |

The average infant-mortality rate amongst the Maori for the decennium was 101·06 per 1,000 live births, an exceptionally high figure when compared with the European infant-mortality rate for the same period—*i.e.*, 35·19 per 1,000 live births. The greatest mortality in Maori infants is after the first month, but more particularly in the age-group "3 months and under 12 months." Over 40 per cent. of the deaths in the age-period "1 month and under 12 months" are caused by some form of respiratory disease, a factor that is largely influenced by lack of adequate clothing and poor housing.

In the earlier age-group—that is, in infants under 1 month—the Maori has a slight though distinct advantage over the European. For the ten-year period above quoted the death-rates per 1,000 live births of infants under 1 month were—Maori, 22·45; European, 24·08. The death-rates for infants of "1 month and under 12 months" for the same period were—Maori, 78·61; European, 11·11.

Any reduction in the infantile death-rate can only be effected by the education of the Maori people in the proper care of infants. District Nurses to Natives and others have been doing their best, but, owing to the large districts they have to cover, find it difficult to reach the great majority of the Maori people.

During the year under review the Department revised and brought up to date the pamphlet issued in 1916 by the late Sir Maui Pomare. The pamphlet gives instructions in English and Maori for the feeding, clothing, and proper care of both the infant and the mother, and is widely sought after by the Maori people. The adoption of the advice given in this pamphlet should in time make a material reduction in the very high Maori infantile mortality-rate.

*Maternal Mortality.*—Dr. Paget, in his section of this report, has some comment on the problem of the high maternal mortality-rate amongst the Maoris.

*Tuberculosis.*—At all ages the Maori shows undue susceptibility to infection with the tubercle bacillus. The following table shows a comparison between the Maori and the European death-rates per 10,000 of the respective populations for the five years 1930–34 for pulmonary tuberculosis, other forms of tuberculosis, and all forms of tuberculosis:—

*Tuberculosis Death-rate per 10,000 of Respective Populations.*

| Year. | Pulmonary. | | Other Forms. | | All Forms. | |
|---|---|---|---|---|---|---|
| | Maori. | European. | Maori. | European. | Maori. | European. |
| 1930 .. | 28·38 | 3·71 | 5·65 | 0·84 | 34·03 | 4·55 |
| 1931 .. | 32·40 | 3·47 | 4·23 | 0·80 | 36·63 | 4·27 |
| 1932 .. | 34·35 | 3·35 | 7·30 | 0·87 | 41·65 | 4·22 |
| 1933 .. | 28·51 | 3·24 | 7·69 | 0·92 | 36·20 | 4·16 |
| 1934 .. | 32·88 | 3·32 | 7·37 | 0·88 | 40·25 | 4·20 |

Here again the solution of the problem lies in the provision of better housing and the prevention of the gross overcrowding of Maori homes which is now all too common.

*Typhoid Fever.*—Typhoid fever, like tuberculosis, is another disease to which the Maori is over prone. The following table gives the Maori and European death-rates from typhoid fever per 10,000 of the respective populations.

| Year. | Typhoid Fever. | |
|---|---|---|
| | Maori. | European. |
| 1930 .. .. .. .. | 1·78 | 0·05 |
| 1931 .. .. .. .. | 2·04 | 0·06 |
| 1932 .. .. .. .. | 1·43 | 0·05 |
| 1933 .. .. .. .. | 1·54 | 0·04 |
| 1934 .. .. .. .. | 1·36 | 0·01 |

The extensive inoculation campaign carried out during the past five years has undoubtedly effected a marked improvement in the Maori death-rate from this disease, which in 1924 was 5·56 per 10,000 of the Maori population. The provision of safe water-supplies and improved sanitation have also played their part.

*Cancer.*—Cancer is one of the few diseases in which the Maori appears to be definitely superior to the European. This relatively favourable showing, however, may be due to lack of accuracy in diagnosis. The death-rate from cancer amongst the Maoris in 1934 was 2·87 per 10,000 of population as against 11·50 amongst the Europeans.

*Reports of Departmental Officers.*

So far, then, the facts disclosed by a study of the death returns show the Maori race in an unenviable light. Confirmatory evidence that there is an undue amount of sickness amongst the Maoris and that their living-conditions are unsatisfactory is supplied by special investigation carried out by certain departmental officers, by reports of School Medical Officers based on routine medical examinations of school-children, and by reports of District Nurses embodying the results of their everyday work.

*Special Investigations.*—Dr. H. B. Turbott, Medical Officer of Health, Gisborne, was recently awarded a Dorothy Temple Cross Research Fellowship by the Medical Research Council of Great Britain, and conducted an investigation into the health and living-conditions of the 323 households and 2,022 persons who comprise the entire Maori population of the Waiapu County in the East Coast district of the North Island. His main findings were—

(i) Just over 25 per cent. of the total illness or disability of the people was receiving no medical treatment of any sort whatever :

(ii) The incidence of tuberculosis was 56·5 per 1,000, while the death-rate was 4·94 per 1,000. Of the tuberculosis cases which came under his notice 60·86 per cent. had not previously received any medical treatment whatever :

(iii) The economic condition of the people was far from satisfactory. As a standard for economic sufficiency or otherwise, Dr. Turbott fixed a weekly income of 10s. in cash or stores per household irrespective of the size of the family. He found that 13·6 per cent. of the families did not reach even this low standard :

(iv) The housing was of a very poor standard. The houses visited varied greatly in size and sanitary condition. More than half were European type, the remainder varying down to the typical Maori hut with raupo or iron roof, slab walls, and earthen floor. A disconcerting feature of the housing was that no less than 33 per cent. were without privy of any description whatever.

In addition to the survey given above, Dr. Turbott has made other special studies, the results of which were published in the annual reports of the Department of Health for the years ended 31st March, 1929, 1930, and 1931.

Dr. Duncan Cook, Medical Officer of Health, Whangarei, in a report on the health of the Maori in the North Auckland Health District states,—

> " The Maori is actually living a hand-to-mouth existence ; the quality of food available, though more than bounteous at certain seasons, for a large part of the year is at the subsistence level only ; monotonous and non-appetizing in type, and probably deficient in minerals and vitamins.
>
> " The houses in very many instances are hovels only ; overcrowded, in disrepair, and without any of those conveniences and amenities which render life really comfortable and healthy.
>
> " Clothing also, in the great majority of cases, is unsuitable in type, and deficient in quantity. Associated with these material defects of food, clothes, and houses, is the personal one of *non-awareness* of the insanitary and unhygienic conditions so well apparent to the average pakeha.
>
> " In conjunction with the foregoing insanitary and unhygienic conditions, is an amount of ill-health and human misery which would be intolerable to the average pakeha. One thus finds at almost any age group, but particularly up to fifteen years of age, that the amount of sickness amongst Maoris is unquestionably greater than amongst Europeans.
>
> " Rectification, as we all find, is not just a question of charity, because the *non-awareness* of the Maori to his spiritual and material degradation has been the main factor at work in producing the state of affairs as now found.
>
> " Maori thought and action must have been considerably modified by pakeha education, but this education has been restricted to children and adolescents only. Most of these on leaving school to take their place in the world have been unable to make any change in the emotions or actions of their parents, and, consequently, living-conditions. The result is that, in popular language, they have all ' gone back to the mat '—not an unexpected happening when one reflects on the conditions.
>
> " It is thus apparent that some form of adult education is necessary before any great changes can ensue. For many years departmental officers (nurses in particular) have been attempting to achieve this necessary task, their efforts naturally being concentrated on the immediate causes of ill-health. However, it is increasingly apparent that instruction must be provided which will give the Maori *an awareness or insight* into his present conditions, and at the same time will provide practical forms of expression which will ultimately lead to a building-up of better conditions. Any of us who have attempted to speak to Natives soon learn the futility of verbal instruction ; the abstract qualities which we associate with most of our words are not intelligible, so that finally, if we are to make our meaning comprehensible, we must resort to instruction by example.
>
> " Any form of practical instruction with a cultural basis and directly or indirectly associated with hygiene or sanitation has been encouraged and put into operation in various localities throughout New Zealand."

*Reports of School Medical Officers : School-children.*—The report of the Director, Division of School Hygiene, gives the results of routine school medical examination of 2,803 Maori school-children. The Maori children are superior to the European children in some respects, but definitely inferior in others. The two main conditions in which the Maori child compares unfavourably with the European child are tuberculosis and skin diseases, including pediculosis and uncleanliness. The percentage of Maori children with subnormal nutrition, however, is lower than that of the European children, and the percentage of Maori children with perfect sets of teeth is over six times greater.

*Reports of District Nurses to Natives.*—The report of the Director, Division of Nursing, gives details of the work performed by District Nurses during the year ended 31st December, 1934.

*Organization.*

Responsibility for the welfare of the Maori people is shared amongst the following officers of the Department :—

(1) Medical Officers of Health.
(2) School Medical Officers.
(3) District Nurses to Natives.
(4) Subsidized Medical Officers to Maoris.

In the North Auckland, Taranaki, and East Cape Health Districts the system whereby the Medical Officer of Health is also the School Medical Officer has been in operation for some years, and has proved very successful. The extension of this system to the South Auckland Health District, which is to come into effect as from August of this year, means a closer control and a concentration of effort in the last of the areas which are predominantly Maori. In the South Island, where the Maori population is approximately 3,000 as compared with 70,000 in the North Island, and where the Maori race is practically living as European, the problem of the health of the Maori race is not acute.

There are at the present time thirty-seven medical practitioners subsidized by the Department both from its own vote and from other sources to provide a domiciliary service for indigent Maoris. The Department pays a mileage allowance to certain other doctors for the same purpose.

In addition, the Maoris are showing a growing confidence in the public hospitals and are entering these institutions for treatment in ever increasing numbers.

*Maori Councils.*

A number of Maori Councils are still functioning actively, and in those districts where there is a large Maori population are proving of great assistance to the Medical Officers of Health. A new Maori Council area has been established in the Taumarunui area, with headquarters at Taumarunui. The Department has been successful in arranging subsidies through some of the Maori Councils for the provision of water-supplies, and at the present time is negotiating for subsidies for other schemes.

*The Future.*

During the past few years the services for the prevention and cure of disease amongst the Maoris have been definitely strengthened. To-day Maoris freely enter public hospitals for treatment, while improved organization in areas predominantly Maori has brought an ever-increasing number under the regular routine supervision of District Nurses and Medical Officers of Health. Nevertheless it is still true that there is all too much neglect of hygienic principles and all too much sickness. The problem is economic as well as medico-hygienic, and until the Maori is better housed and becomes self-supporting educative measures are largely doomed to failure. For this reason alone those who are interested in the physical welfare of the Maori race must view with appreciation the attempts under Native-land development schemes to turn the Maori into a self-dependent farmer. Improved housing on these farm settlements, by the reduction in overcrowding, will have marked effect in lessening the incidence of respiratory infections, and particularly of pulmonary tuberculosis, which is the present-day scourge of the Maori race.

Housing, then, is the key to better Maori health. The Department has given some consideration to this subject, and has advocated the erection of Maori homes in Pisé de Terre. This material has the dual advantages of durability and comfort, and the further advantage of economy due to the fact that labour, which represents a large fraction of the cost of building, is readily obtainable.

Much importance must continue to be attached to health education. It has been found that the most satisfactory method is to teach by demonstration, and it is along these lines that the District Nurses are now working. The Maori Women's Institutes have proved a most valuable medium for this form of education, and are rendering an excellent service in instructing young women in all branches of homecraft—cooking, sewing, &c. The influence of such teaching reaches far afield and is a potent force in bettering Maori home life. An extension of the Maori Women's Institute movement is greatly to be desired.

GENERAL.

*National Health Insurance.*—New Zealand in common with many other countries is displaying a growing interest in national health insurance. In December, 1933, the executives of the Hospital Boards Association and of the New Zealand Branch of the British Medical Association set up a joint committee to prepare a report on the subject. The summary of the recommendations of the joint committee is as follows :—

"(1) That a national health insurance scheme was desirable.
"(2) That such a scheme should be compulsory.
"(3) That it should apply to all in receipt of salary and wages below the present income-tax limits.
"(4) That it should apply to all persons in receipt of salaries or wages within the limit prescribed between the ages of sixteen to sixty-five.
"(5) That is should provide a complete medical service and should include a general practitioner service, hospital benefit, consultant and specialist services, maternity benefit, dental benefit, home nursing, and such other types of medical care as seemed desirable.
"(6) That it should include the dependants of the insured.
"(7) That the scheme should be a contributory one, and that the contributions should be at a rate which was regarded as suitable from an actuarial point of view.

"(8) That the payment of the doctor should be at a flat rate so far as the general-practitioner service was concerned, and according to the work done for specialist and consultative services.

"(9) That freedom of choice as between doctor and patient, which is such an important part of the scheme in England, should be incorporated in any New Zealand scheme.

"(10) That an insurance scheme could be fitted into our existing machinery, and that in the Health Department and the Hospital Boards we have suitable agencies to represent Central Government and local insurance committees."

The report was considered by the General Conference of the Hospital Boards Association in Napier in March, 1935, when it was resolved to recommend the Government to investigate the proposals. The British Medical Association at its Conference in Dunedin in February, 1935, also supported the proposals, and expressed its wish to co-operate in every way in making the fullest investigation in the matter.

*Medical Inspection of Ships.*—A modified system of medical inspection was put into force during the year in the case of ships carrying medical officers. Arrangements were made with the shipping companies under which the ship's doctor carries out medical inspection of everybody on board within twenty-four hours of the ship's arrival in port. If such examination indicates that the ship is free of infectious disease the ship is allowed to berth and is boarded at the wharf by the Port Health Officer. However, if any suspected quarantinable disease is found at the preliminary examination the ship is examined in the stream and appropriate action taken. In the event of any passenger being ill or infirm, the doctor, on the vessel's arrival, reports the facts to the Port Health Officer, who then carries out all necessary examinations and takes appropriate action to deal with the case. This arrangement for the acceptance by the Port Health Officer of a declaration by the ship's doctor as to the health of the passengers and crew has reduced to a minimum the possibilities of delay in the berthing of the vessels arriving in New Zealand ports.

His Majesty's Ambassador in Paris signed on behalf of the Government of New Zealand conventions for the suppression of bills of health and consular visas thereon. The modern system of epidemiological service with its reciprocal interchange of notifications by cable and wireless has rendered the bill of health of little importance in maritime quarantine practice.

*Poisons Act.*—The Poisons Act, 1934, was placed on the statute-book in order to make better provision for the control of poisons and certain dangerous drugs. It is designed principally with the object of preventing deaths from misadventure arising from two main causes—firstly, the careless use of industrial and farm poisons from loose packing and from the storage or handling in bottles commonly used for foodstuffs, beverages, or harmless medicines; secondly, the increasing tendency by the public to use certain of the newer drugs having hypnotic or pain-relieving properties, or supposed to be effective for slimming, and so on. Regulations for carrying out the machinery sections of the Act are in course of preparation.

*The New Zealand Branch of the Royal Sanitary Institute.*—It is a matter of considerable satisfaction to record the affiliation of the Sanitary Inspectors' Association with the New Zealand Branch of the Royal Sanitary Institute. The executive of the Institute is now fully representative of architectural, scientific, engineering, and public-health opinion, and can be expected to exert a sound educational influence among all workers in the field of public health.

*Crippled Children.*—For some time the rotary clubs have taken a practical interest in the welfare of crippled children. Lord Nuffield's generous gift of £50,000 has given a fresh impetus to their work and has enabled the formation of the New Zealand Crippled Children's Society, which should render invaluable service in the rehabilitation of an unfortunate section of the community. The essentials in giving assistance to the cripple are, firstly, to deal with his physical defect, restoring him as nearly as possible to the normal; and, secondly, to provide such vocational education and training as will tend to make him self-supporting.

*Health Education.*—The work of health education has been continued on the lines described in previous reports. It has included articles supplied to the press, weekly health talks broadcast through the courtesy of the Radio Broadcasting Board, addresses to various organizations and a wide distribution of health literature. Courses of lectures have been given to Health Inspectors and others, as it is realized that a highly trained personnel is an important factor for imparting sound knowledge on health questions.

The following booklets have been revised: The Expectant Mother and the Baby's First Month, and Maori Maternal and Infant Welfare. A pamphlet on nutrition for guidance of housekeepers and others was prepared, and one also on health hints for use in primary and Native schools.

*Boards associated with the Department.*—The various Boards associated with the Department—namely, the Board of Health, Medical Council, Plumbers Board, Opticians Board, Masseurs Board, Nurses and Midwives Registration Board—have continued their work during the year. Reference to the work of the last-mentioned Board will be found in the report of the Director, Division of Nursing. The Department acknowledges its indebtedness to the members of these Boards for their able services.

## Staff.

I regret to record the death of Mr. C. H. Beggs. For many years Mr. Beggs rendered service of great value as Inspecting Accountant. Mrs. Oliphant, District Nurse, Hastings, died during the year; Miss Lambie in her report refers more fully to that much esteemed officer. Dr. A. Henderson retired on superannuation after fifteen years zealous service as a School Medical Officer.

In conclusion, I wish to express thanks for the support rendered me by officers during the year.

M. H. WATT, Director-General of Health.

# PART II.—PUBLIC HYGIENE.

I have the honour to submit my annual report for the year ended 31st March, 1934.

## SECTION I.—VITAL STATISTICS.

(Exclusive of Maoris unless otherwise stated.)

### POPULATION.

The mean population of the Dominion for 1934 was estimated to be 1,476,988. This total represents an increase over the corresponding figure for the previous year of 10,058, or a percentage increase of population of 0·69.

### BIRTHS.

The births of 24,322 living children were registered in the Dominion during 1934, as against 24,334, in 1933. The birth-rate for the year was thus 16·47 per 1,000 of mean population. The general course of the birth-rate during the last five years is shown in the following table :—

*Births (Number and Rate) in New Zealand, 1930–34.*

| Year. | Total Number of Births registered. | Birth-rate per 1,000 of Mean Population. |
|---|---|---|
| 1930 | 26,797 | 18·80 |
| 1931 | 26,622 | 18·42 |
| 1932 | 24,884 | 17·09 |
| 1933 | 24,334 | 16·59 |
| 1934 | 24,322 | 16·47 |

The birth-rate steadily declines. The natural increase (excess of births over deaths) was 11,795 persons, or only 0·80 per cent. of the total population.

Loss during the year in the migration balance accounts for the increase in population being only 0·69 per cent.

### DEATHS.

The deaths registered during the year numbered 12,527, an increase of 826 over the figure for 1933 (11,701).

*Crude Death-rates.*

| Year. | Crude Death-rate per 1,000 Mean Population. | Year. | Crude Death-rate per 1,000 Mean Population. |
|---|---|---|---|
| 1929 | 8·75 | 1932 | 8·02 |
| 1930 | 8·56 | 1933 | 7·98 |
| 1931 | 8·34 | 1934 | 8·48 |

#### Improvement in the Death-rate since the beginning of the Century.

In Table A are shown the average yearly death-rates per 10,000 of population by sex and age groups for the seven quinquennial periods from 1899 to 1933. The death-rates have been calculated from the population in each age-group at the time of the census taken in the middle year of each quinquennium, with two exceptions: for the age group "under 1 year" the average of the births for the five years has been taken, and, since no census was taken in 1931, the estimated age and sex distribution in that year.

It will be seen that there has been a marked decrease in the death-rate, especially in the lower age-groups. Every age-group, however, shares in the decrease, with the exception of males of eighty years of age and over. One quinquennium, 1914–18, stands out as an exception to the consistent downward trend. The rates for both sexes were affected by the epidemic of influenza which occurred during this period, and in addition the male rates for age-groups between the ages of twenty and forty-five were affected by the absence overseas of many thousands of the healthiest members of the population in these age-groups. Succeeding quinquennia, in the case of males, are also affected by the death, during the war, of approximately seventeen thousand young and healthy males of military age, and possibly by the strain of active service having shortened the lives of many who did return.

TABLE A.—DEATHS FROM ALL CAUSES: AVERAGE YEARLY NUMBER OF DEATHS PER 10,000 OF POPULATION BY SEX AND IN EACH AGE-GROUP.

| Age. | Males. | | | | | | | Females. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. |
| 0–1 .. | 879 | 792 | 660 | 557 | 514 | 437 | 374 | 739 | 635 | 518 | 436 | 402 | 340 | 279 |
| 1–5 .. | 76 | 57 | 51 | 55 | 48 | 37 | 31 | 71 | 54 | 48 | 49 | 43 | 37 | 27 |
| 5–10 .. | 25 | 21 | 19 | 23 | 20 | 16 | 15 | 20 | 17 | 17 | 20 | 17 | 14 | 12 |
| 10–15 .. | 18 | 17 | 15 | 16 | 15 | 13 | 11 | 18 | 16 | 13 | 14 | 12 | 10 | 8 |
| 15–20 .. | 29 | 26 | 24 | 32 | 21 | 19 | 20 | 27 | 29 | 22 | 24 | 20 | 16 | 14 |
| 20–25 .. | 41 | 36 | 30 | 67 | 31 | 27 | 24 | 37 | 35 | 31 | 38 | 29 | 26 | 21 |
| 25–30 .. | 45 | 39 | 35 | 71 | 35 | 29 | 26 | 47 | 44 | 38 | 52 | 37 | 29 | 26 |
| 30–35 .. | 47 | 47 | 44 | 77 | 43 | 35 | 27 | 50 | 47 | 44 | 54 | 41 | 33 | 30 |
| 35–40 .. | 66 | 55 | 58 | 83 | 51 | 43 | 40 | 64 | 54 | 55 | 57 | 48 | 38 | 36 |
| 40–45 .. | 74 | 69 | 67 | 89 | 62 | 54 | 50 | 70 | 63 | 58 | 62 | 52 | 44 | 41 |
| 45–50 .. | 99 | 98 | 93 | 100 | 84 | 76 | 71 | 84 | 81 | 72 | 75 | 69 | 64 | 60 |
| 50–55 .. | 142 | 126 | 125 | 131 | 116 | 110 | 102 | 121 | 100 | 99 | 105 | 96 | 92 | 80 |
| 55–60 .. | 194 | 177 | 179 | 182 | 163 | 157 | 145 | 157 | 147 | 148 | 148 | 137 | 124 | 120 |
| 60–65 .. | 258 | 259 | 255 | 250 | 254 | 247 | 233 | 228 | 217 | 202 | 211 | 203 | 189 | 186 |
| 65–70 .. | 415 | 392 | 407 | 402 | 384 | 394 | 366 | 358 | 326 | 330 | 322 | 316 | 305 | 296 |
| 70–75 .. | 684 | 655 | 615 | 665 | 630 | 585 | 577 | 554 | 549 | 539 | 546 | 530 | 509 | 473 |
| 75–80 .. | 1,067 | 1,027 | 1,000 | 979 | 1,005 | 952 | 967 | 903 | 914 | 910 | 855 | 922 | 851 | 852 |
| 80 and over .. | 1,806 | 1,883 | 1,881 | 1,859 | 1,924 | 1,871 | 1,867 | 1,728 | 1,718 | 1,651 | 1,691 | 1,698 | 1,664 | 1,711 |
| All ages .. | 113 | 108 | 104 | 122 | 102 | 93 | 88 | 90 | 87 | 83 | 87 | 82 | 76 | 75 |

In Table B the death-rates during the six quinquennial periods 1904–1933 are given as percentages of those for the same age and sex groups in the period 1899–1903.

The marked percentage decrease in the death-rate of infants is a reflection of the infant-welfare activities carried on during the period as well as of the improvement in the social conditions of the community generally.

The even more marked, though less consistent, decrease in the death-rate of the next age-group, 1 year and under 5 years, may be ascribed to improved social conditions, the lessened incidence and virulence of the common infectious diseases, which take their heaviest toll at this period of life, and to the better physical condition in which children enter this period as a result of the care and attention given them as infants. The effect of environmental conditions appears to be greater in this period of life than in the earlier and later ones.

TABLE B.—DEATH-RATES AT VARIOUS AGES FROM ALL CAUSES DURING THE SIX QUINQUENNIAL PERIODS 1904–1933 AS PERCENTAGES OF THOSE FOR THE SAME SEX AND AGE GROUPS IN THE PERIOD 1899–1903.

| Age. | Males. | | | | | | | Females. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. |
| 0–1 .. .. | 90·1 | 75·0 | 63·3 | 58·4 | 49·7 | 42·5 | .. | 86·0 | 70·2 | 59·0 | 54·4 | 46·0 | 37·8 |
| 1–5 .. .. | 74·6 | 66·9 | 72·4 | 63·5 | 49·3 | 41·1 | .. | 75·5 | 66·8 | 68·9 | 60·9 | 51·8 | 37·4 |
| 5–10 .. .. | 84·5 | 74·7 | 91·7 | 80·0 | 65·9 | 58·3 | .. | 83·8 | 84·2 | 100·4 | 84·6 | 69·6 | 58·8 |
| 10–15 .. .. | 97·0 | 86·7 | 91·4 | 82·7 | 71·3 | 61·3 | .. | 91·4 | 70·7 | 75·2 | 69·0 | 58·1 | 44·4 |
| 15–20 .. .. | 88·1 | 82·4 | 110·3 | 72·9 | 63·9 | 68·1 | .. | 90·5 | 78·8 | 87·4 | 72·9 | 59·0 | 50·2 |
| 20–25 .. .. | 88·0 | 74·4 | 163·3 | 75·0 | 66·8 | 57·8 | .. | 94·8 | 82·4 | 102·9 | 78·9 | 68·8 | 57·4 |
| 25–30 .. .. | 87·6 | 78·5 | 158·3 | 78·7 | 65·6 | 58·0 | .. | 93·7 | 80·7 | 110·1 | 78·8 | 60·5 | 55·7 |
| 30–35 .. .. | 99·7 | 93·6 | 163·6 | 90·5 | 74·1 | 56·6 | .. | 93·0 | 87·5 | 106·5 | 80·4 | 64·5 | 60·1 |
| 35–40 .. .. | 83·5 | 80·7 | 125·0 | 77·0 | 65·1 | 59·8 | .. | 85·1 | 86·4 | 89·5 | 75·7 | 58·6 | 56·0 |
| 40–45 .. .. | 92·2 | 89·3 | 119·1 | 83·8 | 72·0 | 67·3 | .. | 89·4 | 83·0 | 88·5 | 74·4 | 62·8 | 58·8 |
| 45–50 .. .. | 99·3 | 94·1 | 101·0 | 85·6 | 77·6 | 71·6 | .. | 97·0 | 86·4 | 89·9 | 82·4 | 75·9 | 71·2 |
| 50–55 .. .. | 89·2 | 88·4 | 92·6 | 81·8 | 77·5 | 71·6 | .. | 82·5 | 81·5 | 86·6 | 79·4 | 75·8 | 65·9 |
| 55–60 .. .. | 91·0 | 92·2 | 93·6 | 84·1 | 80·9 | 74·5 | .. | 94·0 | 94·6 | 94·5 | 87·7 | 79·5 | 76·5 |
| 60–65 .. .. | 100·5 | 98·7 | 96·8 | 98·4 | 95·6 | 90·5 | .. | 95·1 | 88·7 | 92·4 | 88·9 | 83·1 | 81·8 |
| 65–70 .. .. | 94·6 | 98·2 | 96·9 | 92·7 | 95·1 | 88·2 | .. | 91·1 | 92·1 | 89·9 | 88·2 | 85·2 | 82·7 |
| 70–75 .. .. | 95·8 | 89·9 | 97·3 | 92·1 | 85·5 | 84·4 | .. | 99·1 | 97·4 | 98·6 | 95·8 | 91·9 | 85·4 |
| 75–80 .. .. | 96·3 | 93·7 | 91·8 | 94·2 | 89·2 | 90·6 | .. | 101·3 | 100·8 | 94·6 | 102·1 | 94·3 | 94·4 |
| 80 and over .. .. | 104·3 | 104·1 | 102·9 | 106·5 | 103·6 | 103·4 | .. | 99·4 | 95·5 | 97·8 | 98·3 | 96·3 | 99·0 |
| All ages .. .. | 95·9 | 92·4 | 108·3 | 90·2 | 82·8 | 77·7 | .. | 96·3 | 92·0 | 96·9 | 90·9 | 84·3 | 83·5 |

## STILL-BIRTHS.

A still-born child is defined as one "which has issued from its mother after the expiration of the twenty-eighth week of pregnancy and which was not alive at the time of such issue." Still-births have been compulsorily registrable in New Zealand since March, 1913. In 1934 still-births numbering 687 were registered, a reduction of 35 on the figure for the previous year. It is interesting to note that

during the past two years, coincident with the decline in the number of still-births, there was an increase in the deaths of infants within twenty-four hours of birth. In the table below the number of still-births, and the rate per 1,000 live births for the last five years are given :—

*Still-births (Number and Rate) in New Zealand, 1930–1934.*

| Year. | Total Number of Still-births registered. | Rate of Still-births per 1,000 Live Births. |
|---|---|---|
| 1930 .. .. .. .. | .. 865 | 32·3 |
| 1931 .. .. .. .. | .. 809 | 30·4 |
| 1932 .. .. .. .. | .. 746 | 30·0 |
| 1933 .. .. .. .. | .. 722 | 29·7 |
| 1934 .. .. .. .. | .. 687 | 28·3 |

(NOTE.—Still-births are not included, either as births or deaths, in the various numbers and rates given elsewhere in this report.)

## THE PRINCIPAL CAUSES OF DEATH.

The following table gives the main causes of deaths during the year and the actual number of deaths therefrom, and also the death-rates per 10,000 of mean population for each of the last five years :—

| Cause. | 1934. | | 1933. | 1932. | 1931. | 1930. |
|---|---|---|---|---|---|---|
| | Number. | Rate. | Rate. | Rate. | Rate. | Rate. |
| Heart-disease (all forms) .. .. .. | 3,348 | 22·67 | 21·12 | 20·15 | 19·50 | 20·33 |
| Cancer .. .. .. .. .. | 1,699 | 11·50 | 11·07 | 10·11 | 10·33 | 10·19 |
| Violence .. .. .. .. .. | 848 | 5·71 | 5·61 | 6·37 | 8·06 | 6·86 |
| Chest-disease (total) .. .. .. .. | 746 | 5·05 | 4·42 | 5·23 | 5·88 | 7·03 |
| Pneumonia .. .. .. .. .. | 256 | 1·73 | 1·65 | 1·91 | 2·26 | 3·01 |
| Pneumonia, secondary to influenza, whooping-cough and measles | 56 | 0·38 | 0·34 | 0·35 | 0·96 | 0·61 |
| Bronchitis .. .. .. .. .. | 217 | 1·47 | 1·21 | 1·42 | 1·40 | 1·88 |
| Broncho-pneumonia .. .. .. .. | 217 | 1·47 | 1·23 | 1·55 | 1·25 | 1·53 |
| Tuberculosis (all forms) .. .. .. | 621 | 4·20 | 4·16 | 4·22 | 4·27 | 4·55 |
| Kidney or Bright's disease .. .. .. | 560 | 3·79 | 3·82 | 3·98 | 4·01 | 3·98 |
| Apoplexy or cerebral hæmorrhage .. .. | 729 | 4·94 | 4·62 | 4·20 | 4·39 | 4·62 |
| Diseases of the arteries .. .. .. .. | 379 | 2·57 | 2·80 | 3·05 | 2·91 | 3·03 |
| Senility .. .. .. .. .. | 456 | 3·09 | 2·30 | 3·01 | 2·96 | 2·93 |
| Diabetes .. .. .. .. .. | 250 | 1·69 | 1·56 | 1·57 | 1·57 | 1·56 |
| Hernia and intestinal obstruction .. .. | 96 | 0·65 | 0·76 | 0·65 | 0·58 | 0·67 |
| Diseases and accidents of child-birth (maternal mortality) | 118 | 0·80 | 0·74 | 0·69 | 0·88 | 0·95 |
| Appendicitis .. .. .. .. .. | 116 | 0·78 | 0·74 | 0·69 | 0·73 | 0·69 |
| Diarrhœa and enteritis .. .. .. .. | 58 | 0·39 | 0·41 | 0·47 | 0·51 | 0·54 |
| Epilepsy .. .. .. .. .. | 51 | 0·35 | 0·28 | 0·28 | 0·38 | 0·39 |
| *Common Infectious Diseases.* | | | | | | |
| Influenza (all forms, including pneumonia) .. | 186 | 1·26 | 0·70 | 0·46 | 1·53 | 0·92 |
| Diphtheria .. .. .. .. .. | 26 | 0·18 | 0·18 | 0·27 | 0·38 | 0·41 |
| Whooping-cough .. .. .. .. | 40 | 0·27 | 0·12 | 0·30 | 0·25 | 0·23 |
| Scarlet fever .. .. .. .. .. | 8 | 0·05 | 0·03 | 0·04 | 0·08 | 0·11 |
| Typhoid .. .. .. .. .. | 1 | 0·01 | 0·04 | 0·05 | 0·06 | 0·05 |
| Measles .. .. .. .. .. | 46 | 0·31 | 0·12 | 0·05 | 0·06 | 0·01 |

*Heart-disease (All Forms)*.—The figures and rates given above show an increase in the number of deaths, and in the crude death-rate per 10,000 of mean population due to some form of heart-disease. An analysis of the deaths from this group of diseases, according to age and sex incidence, is, however, necessary before any conclusion can be arrived at as to whether the incidence is increasing or not. In Table C the death-rates have been calculated by sex and age groups, for seven successive quinquennia. It will be noticed that there has been a definite improvement under age 40 (males) and 55 (females), and a definite move in the other direction above age 60 (males) and 65 (females). In the case of males between 40 and 60 years there has been a change from a downward tendency to an upward one of recent years. Owing to the deaths of approximately 17,000 of our healthiest men overseas during the war, most of whom would to-day have been included in the age-groups mentioned, the percentage of "unfits" in these age-groups has been increased. In addition, the strain of war service is possibly showing its effects amongst those who returned.

In the case of females of ages 55 to 65, the rates have remained practically stationary.

It is in the older age-groups that there is a marked increase in the death-rate, and this increase is more marked in each successive age-group. It is significant that coincident with this marked increase there has been a still more marked decrease in the death-rate from senility, a decrease which very much exceeds that of the death-rate from all causes in these age groups. It is obvious that there has been a change-over from senility to other diseases as the certified cause of death, and as the number of diseases from which the aged are likely to die is somewhat limited, causes of death such as heart-disease, cancer, cerebral hæmorrhage, and apoplexy, &c., share the results of more accurate certification.

Table D shows the marked decline in the death-rate from senility since the beginning of the century.

TABLE C.—DISEASES OF THE HEART: AVERAGE YEARLY NUMBER OF DEATHS PER 10,000 OF POPULATION BY SEX AND IN EACH AGE-GROUP.

| Age. | Males. | | | | | | | Females. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. |
| 0–1 .. | 7·9 | 12·7 | 11·3 | 2·0 | 0·8 | 0·8 | 0·2 | 3·9 | 9·8 | 7·3 | 1·0 | 1·3 | 0·6 | 0·2 |
| 1–5 .. | 0·8 | 0·4 | 0·8 | 0·6 | 0·5 | 0·4 | 0·3 | 1·0 | 0·4 | 1·4 | 0·7 | 0·5 | 0·5 | 0·2 |
| 5–10 .. | 0·7 | 0·7 | 1·5 | 0·8 | 1·4 | 0·6 | 0·5 | 1·3 | 1·0 | 1·4 | 0·9 | 1·2 | 0·6 | 0·5 |
| 10–15 .. | 0·6 | 0·9 | 1·3 | 1·1 | 1·2 | 0·9 | 0·6 | 1·8 | 1·5 | 1·0 | 1·1 | 1·0 | 0·9 | 0·5 |
| 15–20 .. | 1·3 | 1·1 | 1·9 | 1·4 | 1·1 | 1·1 | 0·7 | 2·1 | 1·8 | 1·6 | 1·1 | 1·4 | 0·9 | 0·8 |
| 20–25 .. | 1·8 | 1·8 | 1·7 | 2·4 | 1·3 | 1·1 | 0·9 | 1·2 | 1·8 | 2·4 | 1·6 | 1·2 | 1·6 | 1·3 |
| 25–30 .. | 2·3 | 1·8 | 2·1 | 1·7 | 1·7 | 1·4 | 1·4 | 2·3 | 2·0 | 2·6 | 2·0 | 2·4 | 1·7 | 1·3 |
| 30–35 .. | 2·7 | 2·4 | 2·2 | 2·3 | 3·1 | 2·8 | 1·9 | 3·2 | 3·2 | 3·7 | 1·8 | 2·6 | 2·5 | 2·2 |
| 35–40 .. | 4·6 | 4·5 | 4·7 | 5·7 | 4·6 | 3·6 | 3·4 | 4·9 | 5·0 | 5·1 | 4·6 | 5·2 | 3·2 | 3·3 |
| 40–45 .. | 7·2 | 7·7 | 7·2 | 6·0 | 6·8 | 5·0 | 6·2 | 7·8 | 7·5 | 6·1 | 6·7 | 6·2 | 4·8 | 4·2 |
| 45–50 .. | 11·4 | 13·1 | 11·6 | 11·3 | 11·8 | 10·8 | 12·1 | 12·6 | 12·7 | 10·9 | 10·0 | 11·8 | 9·5 | 8·8 |
| 50–55 .. | 21·3 | 18·0 | 21·0 | 19·2 | 20·5 | 20·9 | 21·4 | 24·7 | 17·1 | 19·8 | 16·9 | 16·3 | 15·8 | 14·2 |
| 55–60 .. | 36·3 | 37·8 | 32·6 | 35·7 | 33·6 | 36·6 | 37·5 | 29·9 | 27·2 | 30·6 | 32·9 | 30·4 | 25·7 | 29·4 |
| 60–65 .. | 51·4 | 60·6 | 51·3 | 54·5 | 63·7 | 60·6 | 70·9 | 65·4 | 45·8 | 46·0 | 48·3 | 53·7 | 49·5 | 49·8 |
| 65–70 .. | 94·3 | 93·7 | 108·5 | 98·9 | 113·1 | 114·9 | 122·1 | 83·6 | 71·1 | 83·4 | 78·6 | 90·2 | 90·0 | 95·6 |
| 70–75 .. | 143·6 | 152·5 | 156·5 | 160·1 | 178·8 | 170·4 | 202·4 | 112·5 | 118·7 | 134·7 | 125·2 | 154·0 | 161·6 | 171·6 |
| 75–80 .. | 205·7 | 210·9 | 255·6 | 225·6 | 267·6 | 285·6 | 353·4 | 148·9 | 170·2 | 205·5 | 201·8 | 238·0 | 254·6 | 328·7 |
| 80 and over .. | 223·2 | 255·2 | 315·2 | 295·1 | 408·2 | 427·5 | 702·2 | 157·7 | 161·7 | 216·9 | 246·9 | 298·2 | 409·3 | 642·9 |
| All ages .. | 12·2 | 13·2 | 14·6 | 15·1 | 16·7 | 16·8 | 21·7 | 8·8 | 9·1 | 10·8 | 10·8 | 12·9 | 13·8 | 17·8 |

TABLE D.—SENILITY: AVERAGE YEARLY NUMBER OF DEATHS PER 10,000 OF POPULATION BY SEX AND IN EACH AGE-GROUP.

| Age. | Males. | | | | | | | Females. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. |
| 65–70 .. | 23·4 | 16·7 | 21·0 | 29·8 | 24·3 | 17·2 | 7·2 | 15·9 | 17·1 | 16·3 | 19·0 | 16·0 | 10·2 | 5·5 |
| 70–75 .. | 100·6 | 87·2 | 75·5 | 100·7 | 73·9 | 49·1 | 29·7 | 73·5 | 85·4 | 69·0 | 78·8 | 55·4 | 41·4 | 18·6 |
| 75–80 .. | 233·7 | 235·8 | 194·6 | 215·7 | 192·8 | 118·9 | 69·2 | 243·0 | 229·3 | 184·0 | 205·3 | 173·2 | 122·3 | 60·4 |
| 80 and over .. | 846·3 | 852·6 | 756·1 | 752·0 | 684·7 | 547·8 | 263·1 | 986·6 | 908·2 | 778·4 | 757·9 | 674·8 | 488·4 | 242·9 |
| All ages .. | 6·2 | 7·0 | 7·5 | 10·0 | 8·5 | 6·1 | 3·2 | 5·2 | 5·9 | 5·9 | 7·1 | 6·7 | 5·1 | 2·7 |

*Cancer.*—Cancer stands second only to heart-disease as a cause of death, and, as in the case of the latter, the crude death-rate is increasing. Great attention has been focused on it for many years, not only because of its apparent increase, but also because of the amount of suffering it entails. The rates given in Table E show no definite alteration in incidence below the age of sixty-five, but an increasing incidence above that age, the increase becoming more marked as age advances. The remarks made under heart-disease regarding the decline in senility as a cause of death may have some application here, and the decrease in the certification of deaths from other diseases, such as diarrhœa and enteritis in the aged, may also be a factor in the increase in the cancer total.

In his statistical study of cancer in New Zealand published in the Official Year-Book, 1926, the present Government Statistician (J. W. Butcher) states—"New Zealand has been noticeably successful in reducing her rate of infantile mortality, and a certain measure of success has attended the efforts made in recent years to cope with tuberculosis. The judicious handling of infectious and epidemic diseases, and the legislative safeguards against unnecessary occupational risks, have further increased every person's prospect of reaching middle life. But by an unalterable law of nature a man must die in due course, and if he survives the years of childhood and reaches middle life without having fallen a victim to accident, epidemic disease, tuberculosis, or some other cause, he finds his selection of diseases in his older age considerably limited, being largely confined to heart-disease in some form or other, arterial degeneration, apoplexy, cancer, and old age."

The chances of a child of five years of age at the present time ultimately dying of cancer are greater than were those of his father or grandfather when of that age, but this increased risk must be weighed against the longer expectation of life which he enjoys as compared with his father or grandfather at that age.

On the other hand, it may be said that the chances of cancer developing in an individual at any particular age are no greater than they were a generation or more ago, but, should cancer develop and end fatally, the chances of the death being certified as due to cancer are enhanced.

TABLE E. — CANCER: AVERAGE YEARLY NUMBER OF DEATHS PER 10,000 OF POPULATION BY SEX AND IN EACH AGE-GROUP.

| Age. | Males. | | | | | | | Females. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. |
| 0–1 .. | 0·2 | 0·5 | 0·6 | 0·3 | 0·8 | .. | 0·2 | 0·4 | 0·5 | 0·6 | 0·1 | 0·4 | .. | .. |
| 1–5 .. | 0·1 | 0·2 | 0·7 | 0·5 | 0·4 | 0·3 | 0·4 | .. | 0·4 | 0·4 | 0·2 | 0·4 | 0·3 | 0·3 |
| 5–10 .. | 0·4 | 0·2 | 0·2 | 0·1 | 0·2 | 0·1 | 0·3 | 0·1 | 0·1 | 0·1 | 0·1 | 0·2 | 0·2 | 0·1 |
| 10–15 .. | 0·1 | 0·1 | 0·1 | 0·3 | 0·1 | 0·3 | 0·2 | 0·05 | 0·2 | 0·1 | 0·1 | 0·3 | 0·1 | 0·2 |
| 15–20 .. | 0·4 | 0·4 | 0·3 | 0·4 | 0·4 | 0·3 | 0·2 | 0·3 | 0·1 | 0·1 | 0·2 | 0·2 | 0·1 | 0·3 |
| 20–25 .. | 0·4 | 0·3 | 0·3 | 0·5 | 0·4 | 0·8 | 0·5 | 0·5 | 0·1 | 0·3 | 0·2 | 0·3 | 0·3 | 0·5 |
| 25–30 .. | 0·6 | 0·7 | 0·6 | 0·9 | 0·3 | 0·5 | 0·9 | 1·0 | 1·1 | 1·0 | 0·6 | 0·6 | 1·0 | 0·9 |
| 30–35 .. | 0·7 | 0·9 | 1·3 | 0·7 | 1·0 | 1·0 | 0·9 | 1·8 | 1·7 | 2·1 | 1·9 | 1·9 | 2·5 | 2·5 |
| 35–40 .. | 2·8 | 1·9 | 2·3 | 2·2 | 2·3 | 2·5 | 2·6 | 4·7 | 4·6 | 4·7 | 4·0 | 4·3 | 4·4 | 4·5 |
| 40–45 .. | 4·6 | 4·3 | 4·6 | 4·7 | 4·5 | 4·1 | 3·8 | 10·4 | 9·9 | 9·6 | 7·9 | 8·5 | 8·4 | 7·3 |
| 45–50 .. | 10·7 | 8·8 | 8·3 | 9·6 | 8·4 | 8·8 | 8·4 | 18·4 | 14·9 | 16·6 | 17·1 | 14·7 | 15·8 | 14·8 |
| 50–55 .. | 16·1 | 17·0 | 19·1 | 16·8 | 16·6 | 15·4 | 17·1 | 22·9 | 21·0 | 22·3 | 23·5 | 24·5 | 24·3 | 20·9 |
| 55–60 .. | 29·2 | 24·5 | 30·0 | 27·2 | 27·7 | 29·3 | 23·7 | 32·7 | 33·0 | 35·2 | 32·2 | 31·7 | 30·0 | 28·2 |
| 60–65 .. | 37·0 | 45·1 | 46·0 | 41·1 | 47·4 | 50·1 | 44·6 | 39·9 | 44·5 | 41·1 | 44·1 | 42·1 | 43·5 | 42·5 |
| 65–70 .. | 51·4 | 53·3 | 60·5 | 68·2 | 65·8 | 76·6 | 75·3 | 46·8 | 56·3 | 58·1 | 61·9 | 55·7 | 55·7 | 55·1 |
| 70–75 .. | 73·7 | 80·1 | 81·9 | 94·7 | 91·7 | 96·7 | 94·4 | 62·4 | 62·0 | 73·0 | 70·6 | 84·0 | 82·0 | 79·6 |
| 75–80 .. | 83·2 | 90·3 | 87·9 | 90·4 | 105·1 | 130·5 | 137·8 | 77·4 | 75·9 | 102·5 | 82·5 | 99·0 | 93·5 | 102·8 |
| 80 and over .. | 71·6 | 79·4 | 96·5 | 112·1 | 100·0 | 128·9 | 147·0 | 48·7 | 60·8 | 96·7 | 90·4 | 99·8 | 114·6 | 125·9 |
| All ages .. | 6·9 | 7·2 | 7·9 | 8·8 | 8·7 | 9·8 | 10·5 | 6·2 | 6·7 | 7·7 | 7·9 | 8·7 | 9·5 | 11·2 |

*Chest Diseases.*—In the table of principal causes of death it will be seen that there has been an increase in the number of deaths and in the crude death-rate from the various conditions included under this term. The rate is, however, lower than for the years 1929 to 1932.

In Table F are shown the death-rates for pneumonia, bronchitis, and pleurisy combined. Deaths from pneumonia as a complication of influenza and the other infectious diseases were not included in the deaths from which the rates were calculated. The death-rates from influenza are given separately in Table G, and deaths from pneumonia complicating the infectious diseases such as whooping-cough and measles form a very small portion of the total deaths from pneumonia.

The figures show that as causes of death the respiratory diseases mentioned are declining, even among the aged. The most marked decrease has occurred in children under five years of age.

(NOTE.—Prior to 1908 pneumonia would probably take precedence over influenza as the cause of death when both were mentioned on the certificate of death.)

TABLE F.—PNEUMONIA, BRONCHITIS, AND PLEURISY: AVERAGE YEARLY NUMBER OF DEATHS PER 10,000 OF POPULATION BY SEX AND IN EACH AGE-GROUP.

| Age. | Males. | | | | | | | Females. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929 1933. |
| 0–1 .. | 110·8 | 86·1 | 64·7 | 45·7 | 46·0 | 42·7 | 38·1 | 98·0 | 68·2 | 50·3 | 36·0 | 37·7 | 40·4 | 29·4 |
| 1–5 .. | 13·6 | 11·6 | 8·7 | 8·4 | 10·2 | 6·4 | 5·9 | 12·6 | 10·9 | 9·3 | 7·6 | 8·6 | 8·0 | 4·6 |
| 5–10 .. | 2·0 | 1·8 | 1·5 | 1·3 | 2·1 | 1·6 | 1·0 | 1·4 | 1·8 | 1·2 | 1·3 | 1·5 | 0·9 | 0·9 |
| 10–15 .. | 0·7 | 0·8 | 0·7 | 0·5 | 0·8 | 0·7 | 0·9 | 1·3 | 1·0 | 0·8 | 0·4 | 0·7 | 0·6 | 0·5 |
| 15–20 .. | 1·7 | 1·0 | 1·1 | 1·2 | 1·7 | 1·0 | 1·0 | 1·5 | 1·8 | 1·0 | 1·1 | 1·6 | 1·0 | 0·9 |
| 20–25 .. | 2·4 | 2·6 | 1·8 | 2·5 | 2·3 | 1·4 | 1·7 | 1·8 | 2·2 | 1·6 | 0·9 | 1·5 | 0·9 | 0·7 |
| 25–30 .. | 2·8 | 2·4 | 1·6 | 3·3 | 2·2 | 1·4 | 1·8 | 2·6 | 2·3 | 1·7 | 1·7 | 1·9 | 1·2 | 0·9 |
| 30–35 .. | 3·6 | 3·0 | 2·4 | 3·7 | 3·7 | 1·9 | 2·3 | 2·9 | 3·0 | 2·7 | 2·0 | 3·0 | 1·8 | 1·7 |
| 35–40 .. | 5·8 | 4·3 | 3·7 | 4·1 | 5·0 | 3·3 | 3·7 | 4·9 | 4·2 | 2·9 | 3·0 | 2·9 | 2·5 | 2·4 |
| 40–45 .. | 8·1 | 5·0 | 5·6 | 4·8 | 7·2 | 3·9 | 5·7 | 5·4 | 3·9 | 2·9 | 2·6 | 3·5 | 2·2 | 2·2 |
| 45–50 .. | 9·2 | 7·9 | 7·9 | 6·5 | 9·0 | 5·9 | 6·1 | 6·3 | 5·8 | 2·9 | 2·4 | 3·4 | 2·5 | 3·0 |
| 50–55 .. | 13·1 | 10·6 | 7·4 | 7·4 | 9·8 | 8·1 | 7·2 | 9·8 | 7·5 | 5·2 | 3·8 | 5·3 | 3·4 | 3·6 |
| 55–60 .. | 16·8 | 13·3 | 11·6 | 10·7 | 12·9 | 10·1 | 9·5 | 14·5 | 13·3 | 8·4 | 5·8 | 6·1 | 4·6 | 5·0 |
| 60–65 .. | 25·5 | 21·5 | 16·7 | 14·5 | 19·2 | 15·6 | 13·3 | 24·7 | 21·0 | 14·7 | 14·5 | 13·4 | 9·0 | 7·7 |
| 65–70 .. | 42·5 | 39·6 | 29·8 | 24·5 | 30·8 | 26·6 | 19·8 | 41·1 | 35·8 | 22·7 | 21·7 | 24·5 | 18·2 | 13·7 |
| 70–75 .. | 72·2 | 64·2 | 44·6 | 47·4 | 54·9 | 40·4 | 34·5 | 71·1 | 59·4 | 45·1 | 45·2 | 44·1 | 31·2 | 23·2 |
| 75–80 .. | 119·9 | 103·3 | 80·2 | 77·2 | 91·2 | 72·5 | 55·4 | 128·6 | 105·4 | 94·5 | 79·4 | 96·2 | 68·4 | 56·6 |
| 80 and over .. | 188·1 | 190·9 | 153·6 | 156·3 | 205·0 | 179·2 | 158·6 | 174·5 | 178·5 | 142·7 | 147·6 | 153·1 | 164·9 | 136·0 |
| All ages .. | 11·7 | 10·3 | 8·2 | 8·3 | 9·6 | 7·3 | 6·8 | 9·4 | 8·5 | 6·6 | 5·8 | 6·7 | 5·6 | 4·7 |

TABLE G.—INFLUENZA: AVERAGE YEARLY NUMBER OF DEATHS PER 10,000 OF POPULATION BY SEX AND IN EACH AGE-GROUP.

| Age. | Males. | | | | | | | Females. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. |
| 0–1 .. | 8·1 | 3·5 | 1·6 | 5·9 | 2·6 | 4·0 | 2·4 | 8·9 | 2·5 | 1·8 | 5·0 | 2·8 | 4·1 | 3·2 |
| 1–5 .. | 1·0 | 0·6 | 0·2 | 3·3 | 1·6 | 1·0 | 2·1 | 0·7 | 0·6 | 0·1 | 3·7 | 1·4 | 1·0 | 1·5 |
| 5–10 .. | 0·3 | 0·3 | 0·1 | 1·0 | 0·5 | 0·2 | 0·4 | 0·2 | 0·1 | 0·2 | 1·0 | 0·7 | 0·3 | 0·5 |
| 10–15 .. | 0·2 | 0·2 | 0·1 | 1·2 | 0·6 | 0·3 | 0·2 | 0·2 | 0·3 | 0·1 | 1·4 | 0·9 | 0·4 | 0·2 |
| 15–20 .. | 0·4 | 0·3 | 0·3 | 7·4 | 0·9 | 0·4 | 0·4 | 0·4 | 0·4 | 0·1 | 4·2 | 0·9 | 0·5 | 0·2 |
| 20–25 .. | 0·5 | 0·5 | 0·2 | 19·7 | 1·4 | 0·4 | 0·3 | 0·7 | 0·4 | 0·2 | 8·5 | 1·3 | 0·3 | 0·5 |
| 25–30 .. | 0·3 | 0·4 | 0·2 | 27·4 | 2·1 | 0·5 | 0·5 | 0·5 | 0·6 | 0·2 | 14·3 | 2·4 | 0·4 | 0·5 |
| 30–35 .. | 0·6 | 0·4 | 0·1 | 29·6 | 2·4 | 0·4 | 0·4 | 0·7 | 0·9 | 0·3 | 14·2 | 2·7 | 0·9 | 0·7 |
| 35–40 .. | 1·0 | 0·8 | 0·3 | 26·4 | 3·2 | 1·0 | 0·9 | 1·1 | 0·6 | 0·5 | 10·2 | 2·5 | 0·7 | 0·8 |
| 40–45 .. | 1·2 | 0·8 | 0·5 | 21·6 | 3·1 | 1·4 | 0·9 | 1·2 | 1·2 | 1·1 | 9·2 | 2·7 | 0·6 | 0·7 |
| 45–50 .. | 2·1 | 0·9 | 0·7 | 15·5 | 3·1 | 1·9 | 1·1 | 1·9 | 1·1 | 0·2 | 8·3 | 2·1 | 0·7 | 1·0 |
| 50–55 .. | 3·4 | 1·6 | 0·6 | 12·2 | 2·8 | 1·7 | 1·4 | 2·5 | 1·2 | 0·5 | 11·7 | 2·3 | 1·7 | 0·5 |
| 55–60 .. | 3·4 | 3·6 | 0·8 | 8·1 | 4·9 | 2·1 | 1·5 | 4·6 | 2·4 | 1·4 | 8·4 | 2·7 | 1·1 | 1·4 |
| 60–65 .. | 4·1 | 3·7 | 2·2 | 8·1 | 5·0 | 2·6 | 2·0 | 6·7 | 3·6 | 2·2 | 8·9 | 3·5 | 2·5 | 1·8 |
| 65–70 .. | 10·0 | 8·3 | 3·7 | 9·8 | 5·2 | 3·5 | 2·4 | 12·9 | 9·7 | 2·8 | 9·8 | 5·1 | 3·9 | 3·2 |
| 70–75 .. | 14·6 | 7·9 | 5·5 | 16·4 | 6·8 | 6·3 | 5·5 | 14·2 | 11·3 | 9·3 | 14·0 | 7·0 | 3·6 | 5·5 |
| 75–80 .. | 28·0 | 17·9 | 10·0 | 20·5 | 14·3 | 12·9 | 12·7 | 28·6 | 25·3 | 15·3 | 25·7 | 17·5 | 10·7 | 9·3 |
| 80 and over .. | 56·1 | 41·8 | 24·9 | 26·6 | 19·9 | 24·3 | 17·1 | 45·3 | 53·0 | 26·3 | 37·2 | 21·3 | 28·8 | 22·3 |
| All ages .. | 1·9 | 1·4 | 0·7 | 13·3 | 2·4 | 1·3 | 1·2 | 1·8 | 1·3 | 0·8 | 7·7 | 2·2 | 1·2 | 1·1 |

*Tuberculosis (All Forms).*—The following table shows the course of this disease since 1929:—

| Year. | Number of Deaths from Tuberculosis. | Death-rate from Tuberculosis per 10,000 of Mean Population. | Year. | Number of Deaths from Tuberculosis. | Death-rate from Tuberculosis per 10,000 of Mean Population. |
|---|---|---|---|---|---|
| 1929 .. .. | 642 | 4·56 | 1932.. .. | 615 | 4·22 |
| 1930 .. .. | 649 | 4·55 | 1933.. .. | 611 | 4·16 |
| 1931 .. .. | 617 | 4·27 | 1934.. .. | 621 | 4·20 |

Of the 621 deaths from tuberculosis last year, 491 (=3·32) were assigned to pulmonary tuberculosis and 130 to other forms of the disease.

*Other Forms of Tuberculosis.*—The 130 deaths last year from other forms of tuberculosis were distributed as follows:—

| | |
|---|---|
| Tuberculosis of meninges and central nervous system .. .. .. | 54 |
| Tuberculosis of intestines and peritoneum .. .. .. .. | 17 |
| Tuberculosis of vertebral column .. .. .. .. .. | 15 |
| Tuberculosis of bones and joints .. .. .. .. .. | 3 |
| Tuberculosis of lymphatic system .. .. .. .. .. | 1 |
| Tuberculosis of genito-urinary system .. .. .. .. .. | 9 |
| Tuberculosis of other organs .. .. .. .. .. .. | 2 |
| Disseminated tuberculosis .. .. .. .. .. .. | 29 |
| | 130 |

*Pulmonary Tuberculosis.*—In Table H is shown the downward movement of the death-rate at various ages and for the sexes separately since the beginning of the century. One interesting feature of the table is the failure of young adult females (20 to 25 years) to participate in the improvement during the period 1909–1928. In commenting on this feature of the returns for England and Wales for 1932, the Registrar-General states that the same failure is evident in some other countries, and suggests that for the females of urban areas the explanation may lie partly in the postponement for increasing numbers, by improved sanitation in childhood, of the establishment of a satisfactory immunity to tuberculous infection, so that it takes a larger toll at the period of greatest biological stress. Increased employment of young women in clerical and commercial occupations probably tends to enhance this stress, though, on the other hand, a lower birth-rate should have diminished it.

Whatever the causes operating in New Zealand to produce this result, it is pleasing to note that the death-rate for females in this age-group decreased considerably for the period 1929–1933.

As pulmonary tuberculosis is only one of the forms in which we pay toll to the tubercle bacillus, Table J has been inserted to show the improvement in the death-rate from all forms of tuberculosis.

(NOTE.—As regards pulmonary tuberculosis, the figures for the first and second quinquennia shown are not altogether comparable with those for subsequent quinquennia, as they did not apparently include deaths certified as being due to "tuberculosis" (not further defined), which have since 1908 been treated as due to pulmonary tuberculosis.)

Prior to 1908 the general heading "Tuberculosis" included the subheading "Tubercular meningitis, Acute hydrocephalus." To what extent the heading "Acute hydrocephalus" included non-tubercular hydrocephalus it is impossible to say, though deaths from "tubercular meningitis, acute hydrocephalus" in 1907 numbered 115, as against 83 from "tubercular meningitis" in 1908.

TABLE H.—TUBERCULOSIS OF THE RESPIRATORY SYSTEM: AVERAGE YEARLY NUMBER OF DEATHS PER 10,000 OF POPULATION BY SEX AND IN EACH AGE-GROUP.

| Age. | Males. | | | | | | | Females. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. |
| 0–1 .. | 2·1 | 0·8 | 0·9 | .. | 0·3 | 0·4 | 0·5 | 2·0 | 1·5 | 1·5 | 0·6 | 0·4 | 0·3 | 0·3 |
| 1–5 .. | 0·7 | 0·6 | 0·6 | 0·5 | 0·5 | 0·3 | 0·3 | 0·8 | 0·6 | 0·4 | 0·3 | 0·2 | 0·2 | 0·1 |
| 5–10 .. | 0·6 | 0·5 | 0·4 | 0·3 | 0·2 | 0·1 | 0·1 | 0·6 | 0·2 | 0·5 | 0·2 | 0·2 | 0·4 | 0·2 |
| 10–15 .. | 0·4 | 0·9 | 0·6 | 0·3 | 0·3 | 0·3 | 0·2 | 2·1 | 1·6 | 1·3 | 0·7 | 1·0 | 0·5 | 0·3 |
| 15–20 .. | 4·4 | 4·3 | 2·9 | 3·0 | 1·9 | 1·6 | 1·4 | 8·2 | 7·7 | 6·3 | 5·9 | 5·6 | 4·6 | 2·6 |
| 20–25 .. | 11·4 | 8·4 | 7·3 | 11·4 | 6·5 | 4·7 | 3·5 | 12·4 | 11·6 | 8·9 | 8·8 | 8·8 | 8·5 | 6·6 |
| 25–30 .. | 14·9 | 9·6 | 8·5 | 10·7 | 9·6 | 7·1 | 4·8 | 14·1 | 13·5 | 11·2 | 10·8 | 10·0 | 8·2 | 7·8 |
| 30–35 .. | 11·9 | 11·4 | 10·0 | 10·5 | 9·6 | 8·4 | 5·0 | 12·2 | 10·1 | 10·4 | 8·7 | 7·9 | 5·8 | 5·9 |
| 35–40 .. | 15·6 | 11·3 | 10·5 | 10·0 | 8·5 | 8·2 | 6·5 | 12·4 | 8·8 | 9·3 | 7·3 | 7·8 | 5·4 | 4·6 |
| 40–45 .. | 11·0 | 9·5 | 9·7 | 9·7 | 9·3 | 7·4 | 6·4 | 9·9 | 8·7 | 7·0 | 6·5 | 6·6 | 5·2 | 3·5 |
| 45–50 .. | 10·0 | 10·3 | 9·8 | 8·6 | 9·1 | 7·3 | 6·7 | 8·1 | 8·7 | 5·1 | 4·4 | 5·3 | 4·2 | 3·5 |
| 50–55 .. | 12·1 | 11·6 | 9·9 | 7·2 | 8·6 | 7·4 | 5·6 | 6·8 | 6·9 | 6·0 | 5·1 | 4·7 | 3·9 | 2·7 |
| 55–60 .. | 12·7 | 10·4 | 12·0 | 7·3 | 8·3 | 7·8 | 7·1 | 7·8 | 5·1 | 5·1 | 4·6 | 4·1 | 3·8 | 3·0 |
| 60–65 .. | 14·4 | 10·0 | 7·8 | 6·7 | 8·3 | 6·1 | 6·3 | 6·0 | 5·1 | 5·7 | 2·9 | 5·0 | 5·2 | 2·8 |
| 65–70 .. | 15·6 | 10·8 | 9·9 | 6·3 | 5·4 | 5·5 | 7·4 | 9·3 | 5·8 | 7·1 | 4·4 | 4·2 | 3·0 | 3·3 |
| 70–75 .. | 10·1 | 10·6 | 7·6 | 6·7 | 5·6 | 4·8 | 7·6 | 5·6 | 4·3 | 6·0 | 4·1 | 3·2 | 2·7 | 2·3 |
| 75–80 .. | 7·9 | 4·9 | 7·3 | 3·3 | 4·9 | 4·0 | 2·8 | 10·7 | 5·1 | 2·5 | 2·7 | 3·7 | 4·8 | 3·1 |
| 80 and over .. | 8·4 | 4·3 | 2·9 | 4·0 | 3·4 | 3·7 | 2·4 | 3·4 | 2·6 | 0·9 | 1·4 | 2·1 | 1·3 | 1·2 |
| All ages .. | 7·9 | 6·7 | 6·0 | 5·7 | 5·3 | 4·4 | 3·7 | 7·3 | 6·5 | 5·7 | 4·9 | 4·8 | 4·0 | 3·2 |

TABLE J.—TUBERCULOSIS (ALL FORMS): AVERAGE YEARLY NUMBER OF DEATHS PER 10,000 OF POPULATION BY SEX AND IN EACH AGE-GROUP.

| Age. | Males. | | | | | | | Females. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. |
| 0–1 .. | 24·3 | 17·3 | 9·9 | 4·8 | 3·3 | 5·4 | 2·6 | 21·3 | 12·5 | 7·8 | 4·1 | 4·7 | 3·7 | 2·7 |
| 1–5 .. | 4·7 | 5·4 | 3·6 | 3·2 | 3·4 | 2·4 | 2·0 | 5·3 | 4·9 | 3·7 | 2·9 | 3·3 | 2·5 | 2·2 |
| 5–10 .. | 2·3 | 2·5 | 2·0 | 1·6 | 1·6 | 1·0 | 0·9 | 2·2 | 2·4 | 1·9 | 1·4 | 1·5 | 1·3 | 0·8 |
| 10–15 .. | 2·0 | 2·6 | 1·6 | 1·2 | 1·2 | 0·9 | 0·7 | 4·3 | 3·0 | 2·3 | 1·8 | 2·2 | 1·2 | 0·8 |
| 15–20 .. | 6·5 | 6·2 | 4·4 | 4·5 | 3·1 | 2·5 | 2·2 | 10·2 | 10·2 | 8·2 | 7·4 | 7·4 | 5·5 | 3·6 |
| 20–25 .. | 13·8 | 9·6 | 8·7 | 13·9 | 8·1 | 5·6 | 4·5 | 14·9 | 13·9 | 10·8 | 10·5 | 11·1 | 10·0 | 7·7 |
| 25–30 .. | 16·9 | 10·9 | 10·1 | 12·5 | 11·5 | 8·0 | 5·6 | 16·7 | 15·4 | 12·9 | 12·6 | 11·6 | 8·9 | 8·6 |
| 30–35 .. | 13·5 | 13·1 | 11·2 | 11·9 | 11·4 | 9·6 | 5·6 | 14·5 | 11·2 | 11·8 | 10·6 | 9·2 | 6·5 | 6·7 |
| 35–40 .. | 16·7 | 12·9 | 11·4 | 11·5 | 9·9 | 9·3 | 7·7 | 13·7 | 10·1 | 10·3 | 8·9 | 8·8 | 6·0 | 5·2 |
| 40–45 .. | 11·6 | 10·9 | 11·5 | 11·2 | 10·6 | 8·5 | 7·1 | 11·3 | 9·7 | 8·7 | 7·6 | 7·7 | 5·8 | 4·1 |
| 45–50 .. | 11·1 | 11·6 | 11·2 | 9·7 | 10·2 | 8·5 | 7·4 | 8·6 | 9·5 | 6·0 | 5·3 | 6·8 | 5·0 | 3·9 |
| 50–55 .. | 13·4 | 12·7 | 10·7 | 8·3 | 9·8 | 8·0 | 6·3 | 8·0 | 7·8 | 6·8 | 6·7 | 5·2 | 4·5 | 3·8 |
| 55–60 .. | 13·9 | 12·0 | 12·9 | 8·1 | 9·0 | 8·5 | 8·0 | 8·2 | 6·2 | 5·9 | 5·4 | 5·0 | 4·6 | 4·1 |
| 60–65 .. | 15·3 | 11·1 | 8·9 | 7·2 | 8·9 | 6·8 | 6·8 | 6·7 | 5·1 | 6·1 | 3·1 | 5·5 | 5·9 | 3·1 |
| 65–70 .. | 17·1 | 11·6 | 10·6 | 7·0 | 6·7 | 5·7 | 7·9 | 10·9 | 6·1 | 8·0 | 4·4 | 4·5 | 3·5 | 4·0 |
| 70–75 .. | 10·5 | 11·4 | 8·1 | 7·0 | 6·8 | 5·1 | 7·9 | 5·6 | 4·3 | 7·3 | 5·0 | 3·7 | 3·6 | 2·8 |
| 75–80 .. | 7·9 | 5·4 | 7·7 | 4·3 | 4·9 | 4·0 | 2·8 | 10·7 | 5·1 | 3·1 | 3·5 | 4·5 | 6·7 | 3·4 |
| 80 and over .. | 9·8 | 5·4 | 4·4 | 5·5 | 4·1 | 3·7 | 2·4 | 3·4 | 2·6 | 0·9 | 1·4 | 2·7 | 1·3 | 1·2 |
| All ages .. | 10·3 | 8·8 | 7·7 | 7·2 | 6·8 | 5·5 | 4·6 | 9·9 | 8·7 | 7·4 | 6·4 | 6·4 | 5·0 | 4·1 |

*Apoplexy and Diseases of the Arteries.*—During the past six years the crude death-rate from these conditions has remained fairly constant. Last year the rate showed a slight increase on that for the previous year.

| Year. | Death-rate per 10,000 of Mean Population. | Year. | Death-rate per 10,000 of Mean Population. |
|---|---|---|---|
| 1929 .. .. | 7·55 | 1932 .. .. | 7·25 |
| 1930 .. .. | 7·65 | 1933 .. .. | 7·42 |
| 1931 .. .. | 7·30 | 1934 .. .. | 7·51 |

*Kidney or Bright's Disease.*—The number of deaths in which this disease was certified as the cause in 1934 was 560, one less than in 1933. As will be seen from Table K, the death-rate from nephritis, although varying from period to period at different ages, shows on the whole no marked tendency to increase or decrease.

TABLE K.—NEPHRITIS (ACUTE AND CHRONIC): AVERAGE YEARLY NUMBER OF DEATHS PER 10,000 OF POPULATION BY SEX AND IN EACH AGE-GROUP.

| Age. | Males. | | | | | | | Females. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. |
| 0–1 .. | 2·5 | 3·7 | 2·2 | 2·4 | 2·1 | 1·7 | 2·0 | 1·6 | 1·5 | 0·9 | 1·8 | 1·2 | 1·6 | 1·0 |
| 1–5 .. | 0·8 | 0·4 | 0·5 | 0·6 | 0·7 | 0·5 | 0·4 | 0·5 | 0·6 | 0·7 | 0·5 | 0·4 | 0·7 | 0·3 |
| 5–10 .. | 0·4 | 0·6 | 0·5 | 0·6 | 0·2 | 0·2 | 0·3 | 0·2 | 0·1 | 0·5 | 0·4 | 0·3 | 0·4 | 0·3 |
| 10–15 .. | 0·2 | 0·6 | 0·3 | 0·4 | 0·3 | 0·4 | 0·3 | 0·3 | 0·3 | 0·4 | 0·4 | 0·5 | 0·4 | 0·5 |
| 15–20 .. | 0·6 | 1·0 | 0·8 | 0·3 | 0·4 | 0·5 | 0·6 | 0·6 | 0·7 | 0·5 | 0·5 | 0·9 | 0·3 | 0·5 |
| 20–25 .. | 0·9 | 0·9 | 0·6 | 1·3 | 0·9 | 0·6 | 0·6 | 0·7 | 0·7 | 1·0 | 0·8 | 0·7 | 0·8 | 0·6 |
| 25–30 .. | 1·2 | 0·7 | 0·8 | 1·0 | 0·7 | 0·8 | 0·6 | 2·0 | 1·7 | 1·1 | 1·0 | 1·0 | 1·0 | 0·7 |
| 30–35 .. | 1·4 | 1·2 | 1·1 | 1·3 | 1·2 | 1·2 | 0·7 | 1·8 | 1·3 | 1·3 | 1·1 | 1·3 | 1·4 | 1·2 |
| 35–40 .. | 1·7 | 1·7 | 2·2 | 1·6 | 1·6 | 1·6 | 1·5 | 2·7 | 2·7 | 2·1 | 1·4 | 2·1 | 2·0 | 2·1 |
| 40–45 .. | 2·8 | 2·1 | 2·2 | 2·1 | 2·4 | 2·7 | 2·3 | 2·8 | 2·2 | 3·6 | 2·5 | 2·4 | 2·4 | 2·9 |
| 45–50 .. | 3·9 | 4·4 | 3·9 | 3·8 | 2·8 | 3·7 | 3·4 | 4·1 | 4·1 | 3·7 | 2·5 | 3·1 | 3·8 | 4·4 |
| 50–55 .. | 6·0 | 6·1 | 5·5 | 5·5 | 5·3 | 4·8 | 5·1 | 5·7 | 5·9 | 5·2 | 3·9 | 4·9 | 5·6 | 5·7 |
| 55–60 .. | 8·9 | 10·3 | 8·9 | 6·5 | 7·3 | 8·4 | 8·5 | 5·2 | 6·9 | 7·9 | 5·8 | 7·3 | 7·6 | 8·1 |
| 60–65 .. | 12·5 | 11·4 | 12·6 | 11·8 | 10·1 | 10·7 | 11·7 | 12·7 | 11·2 | 7·8 | 8·0 | 9·9 | 11·4 | 12·6 |
| 65–70 .. | 20·1 | 20·8 | 17·7 | 17·7 | 17·6 | 16·9 | 19·9 | 11·6 | 16·3 | 12·6 | 9·8 | 13·8 | 14·8 | 19·4 |
| 70–75 .. | 29·9 | 34·4 | 32·9 | 21·9 | 23·0 | 23·8 | 30·2 | 16·1 | 21·2 | 13·6 | 15·5 | 13·6 | 19·7 | 29·4 |
| 75–80 .. | 40·3 | 43·3 | 42·6 | 30·8 | 42·6 | 33·3 | 57·9 | 10·7 | 27·8 | 23·9 | 19·1 | 28·9 | 21·8 | 45·8 |
| 80 and over .. | 30·9 | 45·0 | 50·5 | 43·7 | 49·0 | 55·2 | 81·5 | 18·5 | 16·8 | 17·8 | 22·8 | 27·2 | 36·0 | 65·2 |
| All ages .. | 3·1 | 3·5 | 3·3 | 3·1 | 3·1 | 3·2 | 4·0 | 2·1 | 3·4 | 2·3 | 2·0 | 2·5 | 2·8 | 3·9 |

*Diabetes.*—The number of deaths (250) is 21 more than occurred in 1933, the rate being 1·69 as against 1·56. Both the number of deaths and the crude death-rate tend to increase.

Insulin was introduced for the treatment of diabetes in 1923, and the effect its use has had in prolonging the lives of diabetics, especially below middle life, is indicated in the last two quinquennial periods in Table L.

TABLE L.—DIABETES MELLITUS: AVERAGE YEARLY NUMBER OF DEATHS PER 10,000 OF POPULATION BY SEX AND IN EACH AGE-GROUP.

| Age. | Males. | | | | | | | Females. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. |
| 0–1 .. | .. | 0·16 | .. | .. | .. | 0·14 | .. | .. | .. | .. | .. | .. | .. | .. |
| 1–5 .. | 0·06 | .. | 0·13 | .. | 0·23 | 0·04 | 0·15 | 0·06 | 0·05 | 0·09 | 0·19 | 0·16 | 0·11 | 0·08 |
| 5–10 .. | 0·14 | 0·04 | 0·11 | 0·26 | 0·39 | 0·15 | 0·18 | 0·05 | 0·05 | 0·23 | 0·17 | 0·09 | 0·22 | 0·19 |
| 10–15 .. | 0·05 | 0·27 | 0·39 | 0·54 | 0·26 | 0·18 | 0·15 | 0·43 | 0·42 | 0·22 | 0·22 | 0·37 | 0·21 | 0·18 |
| 15–20 .. | 0·24 | 0·41 | 0·54 | 0·36 | 0·73 | 0·47 | 0·09 | 0·24 | 0·47 | 0·37 | 0·35 | 0·38 | 0·23 | 0·27 |
| 20–25 .. | 0·29 | 0·37 | 0·36 | 0·39 | 0·46 | 0·28 | 0·24 | 0·33 | 0·13 | 0·22 | 0·64 | 0·33 | 0·18 | 0·13 |
| 25–30 .. | 0·34 | 0·37 | 0·51 | 0·65 | 0·18 | 0·23 | 0·33 | 0·54 | 0·37 | 0·51 | 0·33 | 0·37 | 0·46 | 0·32 |
| 30–35 .. | 0·20 | 0·32 | 0·65 | 1·04 | 0·68 | 0·35 | 0·23 | 0·59 | 0·49 | 0·42 | 0·55 | 0·46 | 0·28 | 0·19 |
| 35–40 .. | 0·58 | 0·68 | 1·06 | 0·82 | 0·56 | 0·20 | 0·35 | 0·38 | 0·43 | 0·66 | 0·54 | 0·93 | 0·48 | 0·32 |
| 40–45 .. | 0·93 | 0·74 | 0·90 | 0·87 | 0·74 | 0·37 | 0·34 | 0·58 | 0·76 | 0·66 | 0·94 | 0·62 | 0·69 | 0·49 |
| 45–50 .. | 0·94 | 1·31 | 1·40 | 1·03 | 0·91 | 0·87 | 0·67 | 1·29 | 1·53 | 0·58 | 1·37 | 1·29 | 1·44 | 1·13 |
| 50–55 .. | 1·95 | 1·20 | 2·37 | 1·50 | 1·66 | 1·82 | 1·17 | 1·67 | 2·65 | 2·29 | 2·18 | 2·63 | 2·32 | 2·50 |
| 55–60 .. | 1·90 | 2·57 | 2·88 | 3·85 | 2·73 | 2·58 | 1·71 | 4·62 | 4·56 | 5·39 | 5·89 | 4·96 | 4·08 | 4·47 |
| 60–65 .. | 2·97 | 2·57 | 4·53 | 5·34 | 4·03 | 3·94 | 4·56 | 6·24 | 9·32 | 10·56 | 9·07 | 6·22 | 5·86 | 8·75 |
| 65–70 .. | 4·53 | 5·73 | 8·41 | 7·85 | 7·44 | 6·51 | 6·14 | 9·62 | 11·58 | 14·93 | 11·47 | 13·07 | 13·02 | 15·85 |
| 70–75 .. | 5·24 | 7·67 | 8·97 | 12·50 | 11·96 | 8·19 | 10·52 | 9·27 | 14·30 | 15·59 | 16·63 | 16·31 | 19·44 | 18·61 |
| 75–80 .. | 5·25 | 7·03 | 11·13 | 10·93 | 10·48 | 11·86 | 24·81 | 7·15 | 13·49 | 17·18 | 22·62 | 18·34 | 19·59 | 26·00 |
| 80 and over .. | 7·02 | 9·65 | 6·58 | 11·56 | 19·96 | 11·12 | 15·10 | 3·36 | 11·64 | 14·09 | 15·17 | 20·27 | 18·42 | 22·67 |
| All ages .. | 0·72 | 0·87 | 1·20 | 1·36 | 1·18 | 1·00 | 1·16 | 0·92 | 1·23 | 1·41 | 1·53 | 1·52 | 1·55 | 1·92 |

*Diarrhœa and Enteritis.*—Diarrhœa and enteritis at one time stood high in the list of principal causes of death, the young and the aged being chiefly affected. In 1934 there were 58 such deaths, compared with 354 in 1900, when the population was almost exactly half what it is to-day. In the young, the decline is due to the improved environment during the early period of life, and to the welfare work which has been a feature of the past twenty-five years. At the other extreme, old age, the reduction is probably due in part to more accurate diagnosis and certification of cause of death. Table M shows the marked reduction in deaths certified as due to diarrhœa and enteritis.

TABLE M.—DIARRHŒA AND ENTERITIS: AVERAGE YEARLY NUMBER OF DEATHS PER 10,000 OF POPULATION BY SEX AND IN EACH AGE-GROUP.

| Age. | Males. | | | | | | | Females. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. | 1899–1903. | 1904–1908. | 1909–1913. | 1914–1918. | 1919–1923. | 1924–1928. | 1929–1933. |
| 0–1 .. | 144·34 | 157·68 | 104·42 | 52·06 | 33·74 | 20·32 | 13·41 | 131·34 | 135·51 | 79·21 | 41·05 | 21·79 | 17·82 | 6·67 |
| 1–5 .. | 6·34 | 6·19 | 5·95 | 4·23 | 2·47 | 2·02 | 1·38 | 7·12 | 5·58 | 4·64 | 3·84 | 3·07 | 1·85 | 0·89 |
| 5–10 .. | 0·60 | 0·44 | 0·30 | 0·51 | 0·33 | 0·27 | 0·06 | 0·71 | 0·49 | 0·54 | 0·40 | 0·25 | 0·31 | 0·06 |
| 10–15 .. | 0·19 | 0·37 | 0·22 | 0·11 | 0·07 | 0·09 | 0·09 | 0·38 | 0·14 | .. | 0·19 | 0·10 | 0·18 | 0·06 |
| 15–20 .. | 0·24 | 0·14 | 0·22 | 0·13 | 0·15 | 0·10 | 0·06 | 0·19 | 0·14 | 0·09 | .. | 0·04 | 0·07 | 0·12 |
| 20–25 .. | 0·15 | 0·20 | 0·12 | 0·46 | 0·13 | 0·10 | 0·06 | 0·62 | 0·35 | 0·13 | 0·26 | 0·28 | 0·15 | 0·07 |
| 25–30 .. | 0·28 | 0·24 | 0·26 | 0·10 | 0·09 | 0·12 | 0·13 | 0·36 | 0·37 | 0·42 | 0·33 | 0·16 | 0·12 | 0·07 |
| 30–35 .. | 0·54 | 0·42 | 0·36 | 0·35 | 0·13 | 0·09 | 0·15 | 0·66 | 0·49 | 0·56 | 0·25 | 0·38 | 0·32 | 0·23 |
| 35–40 .. | 0·82 | 0·25 | 0·46 | 0·74 | 0·52 | 0·08 | 0·18 | 0·47 | 0·79 | 0·60 | 0·45 | 0·34 | 0·40 | 0·20 |
| 40–45 .. | 1·02 | 0·33 | 0·32 | 0·60 | 0·48 | 0·12 | 0·04 | 0·92 | 0·86 | 0·66 | 0·65 | 0·43 | 0·30 | 0·12 |
| 45–50 .. | 0·84 | 0·56 | 0·66 | 0·48 | 0·64 | 0·44 | 0·42 | 0·43 | 0·71 | 0·97 | 0·79 | 0·43 | 0·58 | 0·22 |
| 50–55 .. | 1·04 | 1·20 | 1·08 | 0·92 | 0·93 | 0·34 | 0·27 | 2·00 | 1·18 | 0·72 | 0·57 | 1·01 | 0·26 | 0·34 |
| 55–60 .. | 2·04 | 1·43 | 1·80 | 2·03 | 1·13 | 0·81 | 0·53 | 2·01 | 2·19 | 2·54 | 1·92 | 1·19 | 0·50 | 0·33 |
| 60–65 .. | 2·34 | 2·09 | 1·56 | 2·73 | 1·78 | 0·93 | 0·39 | 3·99 | 2·12 | 3·52 | 1·91 | 2·03 | 0·44 | 0·53 |
| 65–70 .. | 4·33 | 3·30 | 3·11 | 3·21 | 2·53 | 0·83 | 0·71 | 7·63 | 3·16 | 3·45 | 2·09 | 2·18 | 1·36 | 0·61 |
| 70–75 .. | 4·11 | 6·87 | 6·44 | 5·29 | 2·11 | 1·52 | 1·73 | 12·36 | 9·97 | 9·62 | 6·42 | 4·55 | 1·81 | 1·24 |
| 75–80 .. | 14·00 | 12·44 | 8·83 | 11·93 | 5·24 | 1·65 | 1·65 | 10·72 | 15·17 | 13·50 | 9·76 | 6·11 | 2·59 | 2·17 |
| 80 and over .. | 16·84 | 25·74 | 15·36 | 10·05 | 9·53 | 8·24 | 3·58 | 25·17 | 18·11 | 29·11 | 17·24 | 11·20 | 7·64 | 7·69 |
| All ages .. | 5·06 | 5·48 | 3·91 | 2·56 | 1·52 | 0·89 | 0·57 | 5·14 | 5·16 | 3·48 | 2·04 | 1·29 | 0·87 | 0·43 |

*Infectious Diseases.*—Of the common infectious diseases whooping-cough and measles, and also influenza except where pneumonic complications occur, are not notifiable. The notifiable diseases will be commented upon in a later section.

Influenza was more prevalent in 1934 than in the previous year, and the number of deaths increased by 83 (from 103 to 186), the death-rate per 10,000 of mean population being 1·26, as compared with 0·70 in 1933.

Whooping-cough, which caused 44 deaths in 1932, and only 18 in 1933, again increased in prevalence in 1934, and resulted in 40 deaths. This disease becomes epidemic every few years, the period between the main crests of the epidemic waves varying from three to four years, with a tendency during the past fifteen years for the period to lengthen.

Measles, from which New Zealand had been markedly free from 1928, become epidemic in 1933 and caused 17 deaths. The epidemic started in the north, and reached Otago towards the end of that year. It persisted during 1934, 46 deaths resulting.

INFANT MORTALITY, 781.

The infant-mortality rate for 1934 was 32·11 per 1,000 births.

*Infant Mortality in New Zealand, 1929–34 (per 1,000 Live Births).*

| Year. | Under One Month. | One Month and under Twelve Months. | Total under Twelve Months. | Year. | Under One Month. | One Month and under Twelve Months. | Total under Twelve Months. |
|---|---|---|---|---|---|---|---|
| 1929 .. | 23·26 | 10·84 | 34·10 | 1932 .. | 21·30 | 9·92 | 31·22 |
| 1930 .. | 24·03 | 10·45 | 34·48 | 1933 .. | 22·81 | 8·79 | 31·64 |
| 1931 .. | 22·69 | 9·46 | 32·15 | 1934 .. | 22·86 | 9·25 | 32·11 |

It will be seen from the above that there was a slight rise last year in the death-rate of infants.

*Analysis of Deaths of Infants under One Month of Age, 1934.*

The following table gives the causes of these deaths during the year:—

| Cause of Death. | Under One Day. | One Day and under One Week. | One Week and under Two Weeks. | Two Weeks and under Three Weeks. | Three Weeks and under One Month. | Total. |
|---|---|---|---|---|---|---|
| Whooping-cough .. .. .. | .. | .. | .. | 2 | .. | 2 |
| Measles .. .. .. .. | .. | .. | 1 | .. | .. | 1 |
| Influenza .. .. .. .. | .. | .. | 2 | 1 | .. | 3 |
| Syphilis .. .. .. .. | 2 | .. | .. | .. | .. | 2 |
| Meningitis .. .. .. .. | .. | .. | .. | 1 | .. | 1 |
| Convulsions .. .. .. .. | .. | 10 | 1 | .. | .. | 11 |
| Broncho-pneumonia .. .. .. | .. | 4 | 3 | .. | 2 | 9 |
| Pneumonia .. .. .. .. | .. | 2 | 2 | 1 | .. | 5 |
| Diarrheoa and enteritis .. .. .. | .. | 1 | .. | .. | .. | 1 |
| Congenital malformations .. .. | 15 | 41 | 11 | 1 | 7 | 75 |
| Congenital debility .. .. .. | 10 | 8 | 1 | 1 | 1 | 21 |
| Injury at birth .. .. .. .. | 14 | 40 | 7 | 4 | .. | 65 |
| Premature birth .. .. .. | 156 | 80 | 22 | 2 | 1 | 261 |
| Other diseases .. .. .. .. | 19 | 41 | 10 | 3 | 1 | 74 |
| Accidental mechanical suffocation .. | .. | .. | .. | .. | .. | .. |
| Other causes .. .. .. .. | 5 | 8 | 4 | 1 | 7 | 25 |
| Totals, 1934 .. .. .. | 221 | 235 | 64 | 17 | 19 | 556 |
| Totals, 1933 .. .. .. | 195 | 240 | 64 | 31 | 25 | 555 |

Thus 456 of a total 556 infant deaths in the first month of life occurred during the first week and may be regarded as mainly due to pre-natal influences. It is also of interest to record that 58 per cent. of the infant deaths (in the first twelve months of life) occurred in this first week—*i.e.*, 456 in a total of 781.

## SECTION 2.—NOTIFIABLE DISEASES.

Attached are four tables showing the notifications of infectious and other notifiable diseases in New Zealand for the year 1934. Tables A, B, and C, and, unless otherwise stated, the comments and tables given in this report, deal with Europeans only.

Table A shows distribution by months.
Table B shows distribution by health districts.
Table C shows distribution by age and sex.
Tabe D shows distribution of Maori cases by health districts.

### General.

During the year 1934 there was a decrease of 597 in the number of notifications as compared with the previous year. The particular diseases which show a marked reduction on the previous year's figures are scarlet fever, diphtheria, enteric fever, tuberculosis, poliomyelitis, hydatids, lethargic encephalitis, bacillary dysentery. Increases were shown in the notifications for cerebro-spinal meningitis, influenza, erysipelas, puerperal fever, both following child-birth and abortions, tetanus, food-poisoning, and undulant fever.

Tables and comments regarding certain of the more common infectious diseases are given below :—

*(a) Scarlet Fever in New Zealand.*

| Year. | Number of Notifications. | Deaths. | | |
|---|---|---|---|---|
| | | Number. | Rates per 10,000 of Mean Population. | Case-fatality Rate per Cent. |
| 1928 .. .. .. | 6,127 | 57 | 0·40 | 0·93 |
| 1929 .. .. .. | 4,848 | 27 | 0·19 | 0·56 |
| 1930 .. .. .. | 2,244 | 16 | 0·11 | 0·71 |
| 1931 .. .. .. | 1,304 | 11 | 0·08 | 0·84 |
| 1932 .. .. .. | 829 | 6 | 0·04 | 0·72 |
| 1933 .. .. .. | 783 | 4 | 0·03 | 0·51 |
| 1934 .. .. .. | 762 | 8 | 0·05 | 1·05 |

The year 1928 was the "peak" year of the epidemic which occurred during 1927–29. Since then the incidence of the disease has declined, the notifications last year numbering 762, the lowest figure recorded since 1910 (1,925 cases), when records were first kept for the calendar year instead of for the year ending 31st March.

The deaths, however, numbered 8 as compared with 4 the previous year, the case-fatality rate per cent. being 1·05 as against 0·51 in 1933.

*(b) Diphtheria.*

| Year. | Number of Notifications. | Deaths. | | |
|---|---|---|---|---|
| | | Number. | Rates per 10,000 of Mean Population. | Case-fatality Rate per Cent. |
| 1929 .. .. .. | 1,687 | 92 | 0·65 | 5·45 |
| 1930 .. .. .. | 1,440 | 58 | 0·41 | 4·03 |
| 1931 .. .. .. | 1,327 | 55 | 0·38 | 4·14 |
| 1932 .. .. .. | 802 | 40 | 0·27 | 4·99 |
| 1933 .. .. .. | 963 | 27 | 0·18 | 2·80 |
| 1934 .. .. .. | 436 | 26 | 0·18 | 5·96 |

As will be seen from the table, there was a remarkable drop in the number of notifications of this disease in 1934, from 963 in 1933 to 436 in 1934.

The last severe epidemic of diphtheria experienced in New Zealand was in 1917–19, the notification for these years being—1917, 5,458 cases; 1918, 5,539 cases; and 1919, 3,499 cases. Since that epidemic the incidence has been declining, the decline being interrupted at intervals by an increase. At the present time we are apparently experiencing the trough of an epidemic wane, and the low incidence which has been a feature of the past few years cannot be expected to continue indefinitely.

The number of deaths (26) was 1 less than in 1933, and was the lowest ever recorded for the Dominion. But whereas in 1933 there were 27 deaths to 963 notifications, in 1934 there were 26 deaths to 436 notifications. The case-fatality rate for last year is therefore more than double that of the previous year—5·96 per cent. as compared with 2·80 per cent., and is the highest experienced for many years.

*(c) Typhoid Fever.*

This disease, once one of the principal causes of death, has dropped from a high position to a very lowly one. There were only 51 cases amongst the European population during the year, with 1 death. The death-rate per 10,000 of mean population (0·01) was over one hundred times less than the average rate for the several years prior to 1900, and over two hundred times less than in the "eighties."

As will be seen from Table D, there were more Maori cases than European ones—89 as against 51—and the deaths of Maoris numbered 10 as against 1 European.

*(d) Pulmonary Tuberculosis.*

| Year. | Number of Notifications. | Deaths. | |
|---|---|---|---|
| | | Number. | Rates per 10,000 of Mean Population. |
| 1929 .. .. .. | 1,374 | 524 | 3·72 |
| 1930 .. .. .. | 1,244 | 529 | 3·71 |
| 1931 .. .. .. | 1,109 | 501 | 3·47 |
| 1932 .. .. .. | 904 | 488 | 3·35 |
| 1933 .. .. .. | 890 | 476 | 3·24 |
| 1934 .. .. .. | 824 | 491 | 3·32 |

*(e) Acute Poliomyelitis.*

| Year. | Number of Notifications. | Deaths. | | |
|---|---|---|---|---|
| | | Number. | Rates per 10,000 of Mean Population. | Case-fatality Rate per Cent. |
| 1929 .. .. .. | 55 | 7 | 0·05 | 12·73 |
| 1930 .. .. .. | 12 | 5 | 0·04 | 41·67 |
| 1931 .. .. .. | 25 | 5 | 0·03 | 20·00 |
| 1932 .. .. .. | 148 | 19 | 0·13 | 12·84 |
| 1933 .. .. .. | 43 | 8 | 0·05 | 18·60 |
| 1934 .. .. .. | 14 | 2 | 0·01 | 14·29 |

The last serious epidemic of this disease was experienced in 1925, when 1,159 cases were notified and 175 deaths occurred. In 1932 a small outbreak took place. Last year there were only 14 sporadic cases notified, with two deaths.

*(f) Lethargic Encephalitis.*

There were no outbreaks of this disease during the year. The total number of cases notified for the year was 14 Europeans and 1 Maori.

*(g) Bacillary Dysentery.*

During the year 1934 there were only 20 cases of bacillary dysentery notified, which constitutes a decrease on the number notified for the two previous years—namely, 63 and 44 respectively.

*(h) Hydatids.*

An analysis of the number of notifications of hydatids for the past five years presents an interesting feature. For the five years 1930–34 a total of 229 cases of this disease was notified, of whom 117, or 51·09 per cent. of the total, were notified from the Canterbury Health District. The following table shows for the five years 1930–34 the total number of cases of hydatids, the number of cases in the Canterbury Health District, and the percentage of the latter to the total notifications.

| Year. | Total Notifications for Dominion. | Notifications from Canterbury Health District. | Percentage of Notifications from Canterbury District to Total for Dominion. |
|---|---|---|---|
| 1930 .. .. | 52 | 24 | 46·20 |
| 1931 .. .. | 59 | 23 | 39·00 |
| 1932 .. .. | 37 | 15 | 40·50 |
| 1933 .. .. | 46 | 32 | 69·60 |
| 1934 .. .. | 35 | 23 | 65·70 |
| Total .. | 229 | 117 | 51·09 |

For the year 1934 there was a total of 15 deaths from hydatids (hydatid disease of liver, 10, and hydatid disease of other organs, 5), of which 7 occurred in the Canterbury Province.

*Infectious Disease amongst Maoris.*

Table D attached gives the number of notifications of infectious disease received for members of the Maori race. These figures are not included in the European figures, as a very large number of cases amongst Maoris are missed, due to the fact that a large proportion of Maoris fail to obtain medical assistance when they become ill. The figures, while very inaccurate, serve their purpose in indicating to what extent the Maori people are attacked by disease. Of the 287 notifications received, 103, or over 35·89 per cent. of the total, were pulmonary tuberculosis, a disease to which the Maori is very susceptible. The next disease in order of importance of the number notified is typhoid fever, for which disease 89 cases were notified. Here, again, we have a disease which has a peculiar affinity for the Maori race, due, for the most part, to their lack of sanitation and the ease in which infection can and does spread. The only other diseases to reach double figures were influenza, puerperal fever (ordinary), trachoma, bacillary dysentery, and diphtheria.

TABLE A.—NOTIFIABLE DISEASES IN NEW ZEALAND FOR YEAR ENDED 31ST DECEMBER, 1934, SHOWING DISTRIBUTION BY MONTHS.

| Month. | Scarlet Fever. | Diphtheria. | Enteric Fever. | Tuberculosis. | Cerebro-spinal Meningitis. | Poliomyelitis. | Influenza. | Erysipelas. | Puerperal Fever. | | Eclampsia. | Tetanus. | Hydatids. | Trachoma. | Ophthalmia Neonatorum. | Lethargic Encephalitis. | Food Poisoning. | Dysentery. | | Actinomycosis. | Undulant Fever | Lead Poisoning. | Anthrax. | Leprosy. | Phosphorus Poisoning. | Totals, 1934. | Totals, 1933. | Totals, 1932. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ordinary. | Following Abortion or Miscarriage. | | | | | | | | Bacillary. | Amœbic. | | | | | | | | | |
| January .. .. | 51 | 35 | 2 | 58 | 1 | .. | 3 | 16 | 13 | 9 | 8 | 4 | 3 | .. | 1 | 2 | 2 | 2 | .. | .. | 2 | .. | .. | .. | .. | 212 | 255 | 309 |
| February .. .. | 53 | 28 | 6 | 73 | .. | 3 | 1 | 14 | 17 | 9 | 3 | 1 | 4 | .. | 2 | 1 | 1 | 1 | .. | 1 | 2 | .. | .. | .. | .. | 220 | 276 | 322 |
| March .. .. | 63 | 38 | 6 | 67 | 1 | 1 | 2 | 19 | 8 | 16 | 5 | 3 | 4 | 1 | 2 | 1 | 5 | 10 | .. | .. | 3 | .. | .. | .. | .. | 255 | 329 | 375 |
| April .. .. | 85 | 40 | 6 | 58 | .. | 2 | 4 | 24 | 13 | 17 | 2 | 3 | 1 | .. | 2 | 1 | 11 | 1 | .. | .. | 3 | 1 | .. | .. | .. | 274 | 402 | 333 |
| May .. .. | 91 | 41 | 10 | 70 | 2 | 2 | 3 | 22 | 11 | 15 | 3 | 2 | 3 | 1 | 3 | 1 | .. | 2 | .. | .. | 2 | .. | .. | .. | .. | 284 | 364 | 323 |
| June .. .. | 66 | 57 | 2 | 74 | 6 | .. | 6 | 18 | 14 | 13 | 10 | .. | 1 | .. | 2 | .. | .. | .. | .. | .. | 3 | .. | .. | .. | .. | 272 | 352 | 332 |
| July .. .. | 83 | 54 | 5 | 75 | 1 | 1 | 18 | 31 | 9 | 18 | 11 | 1 | 2 | 1 | 1 | .. | 2 | 1 | .. | .. | 2 | .. | 1 | .. | .. | 317 | 311 | 313 |
| August .. .. | 74 | 33 | 2 | 69 | .. | 1 | 10 | 24 | 11 | 10 | 8 | .. | 2 | .. | 2 | 1 | .. | .. | .. | .. | 3 | .. | .. | .. | .. | 250 | 308 | 277 |
| September .. .. | 46 | 30 | 4 | 68 | 3 | .. | 4 | 20 | 9 | 16 | 10 | .. | 3 | .. | 2 | .. | .. | .. | .. | .. | 2 | .. | .. | .. | .. | 217 | 291 | 279 |
| October .. .. | 73 | 27 | 3 | 86 | 3 | 2 | 6 | 18 | 9 | 15 | 10 | 1 | 5 | .. | .. | 4 | .. | 1 | .. | .. | 3 | .. | .. | .. | .. | 266 | 252 | 276 |
| November .. .. | 36 | 31 | 5 | 62 | .. | 1 | 11 | 19 | 11 | 15 | 8 | 2 | 4 | .. | 1 | 1 | .. | 1 | .. | 1 | 5 | .. | .. | .. | .. | 214 | 251 | 277 |
| December .. .. | 41 | 22 | .. | 64 | 2 | 1 | 3 | 14 | 3 | 18 | 3 | 4 | 3 | .. | .. | 2 | 56 | 1 | .. | .. | 4 | .. | .. | .. | .. | 241 | 228 | 299 |
| Totals, 1934 .. | 762 | 436 | 51 | 824 | 19 | 14 | 71 | 239 | 128 | 171 | 81 | 21 | 35 | 3 | 18 | 14 | 77 | 20 | .. | 2 | 34 | 1 | 1 | .. | .. | 3,022 | .. | .. |
| Totals, 1933 .. | 783 | 963 | 106 | 890 | 12 | 43 | 41 | 226 | 105 | 115 | 84 | 15 | 46 | 8 | 25 | 26 | 42 | 63 | 1 | 4 | 18 | 1 | .. | 1 | 1 | .. | 3,619 | .. |
| Totals, 1932 .. | 829 | 802 | 195 | 904 | 16 | 148 | 24 | 233 | 110 | 142 | 62 | 17 | 37 | 4 | 23 | 21 | 72 | 44 | .. | 7 | 24 | 1 | .. | .. | .. | .. | .. | 3,715 |

TABLE B.—NOTIFICATIONS OF CASES OF NOTIFIABLE DISEASES BY HEALTH DISTRICTS FOR YEAR ENDED 31ST DECEMBER, 1934.

| Name of Disease. | North Auckland. | Central Auckland. | South Auckland. | Thames-Tauranga. | Taranaki. | East Cape. | Wanganui-Horowhenua. | Wairarapa-Hawke's Bay. | Central Wellington. | Nelson-Marlborough. | Canterbury. | West Coast. | Otago. | Southland. | Totals. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scarlet fever | 10 | 175 | 45 | 18 | 34 | 9 | 82 | 54 | 88 | .. | 54 | 1 | 93 | 99 | 762 |
| Diphtheria | 39 | 78 | 61 | 21 | 28 | 16 | 28 | 36 | 93 | 7 | 16 | 6 | 3 | 4 | 436 |
| Enteric fever | 1 | 8 | 13 | 6 | 3 | 4 | 2 | 3 | 1 | 2 | 4 | .. | 3 | 1 | 51 |
| Tuberculosis | 14 | 169 | 33 | 17 | 29 | 11 | 24 | 41 | 128 | 24 | 146 | 17 | 109 | 62 | 824 |
| Cerebro-spinal meningitis | .. | 5 | 2 | 1 | .. | 4 | .. | 1 | .. | .. | 2 | 2 | 2 | .. | 19 |
| Poliomyelitis | .. | 1 | .. | 1 | 2 | .. | 4 | 2 | .. | 1 | 2 | 1 | .. | .. | 14 |
| Influenza | 4 | 3 | .. | .. | 5 | .. | .. | 8 | 3 | .. | 21 | 1 | 14 | 12 | 71 |
| Erysipelas | 1 | 83 | 18 | 8 | 5 | 6 | 11 | 18 | 35 | 2 | 36 | 2 | 10 | 4 | 239 |
| Puerperal fever— | | | | | | | | | | | | | | | |
| Ordinary | 7 | 18 | 6 | .. | 7 | 4 | 10 | 6 | 22 | 4 | 30 | 1 | 5 | 8 | 128 |
| Following abortion or miscarriage | 2 | 85 | 2 | 2 | 4 | 1 | 4 | 4 | 10 | 2 | 49 | 1 | 2 | 3 | 171 |
| Eclampsia | 6 | 24 | 5 | 1 | 2 | 1 | 5 | 5 | 4 | 8 | 9 | .. | 7 | 4 | 81 |
| Tetanus | 2 | 3 | 2 | 2 | 1 | 2 | 1 | 5 | 2 | .. | .. | .. | 1 | .. | 21 |
| Hydatids | 1 | .. | .. | .. | 1 | .. | .. | 2 | 2 | 3 | 23 | 1 | 2 | .. | 35 |
| Trachoma | .. | 1 | .. | .. | 1 | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 3 |
| Ophthalmia neonatorum | 1 | 3 | .. | .. | .. | 2 | 2 | 3 | 2 | 2 | .. | .. | 2 | 1 | 18 |
| Lethargic encephalitis | .. | 1 | 1 | 1 | 2 | .. | 1 | 2 | 1 | .. | 2 | 1 | .. | 2 | 14 |
| Food poisoning | 1 | 22 | 1 | 2 | .. | 1 | .. | .. | .. | .. | 50 | .. | .. | .. | 77 |
| Bacillary dysentery | 1 | 7 | 11 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 20 |
| Actinomycosis | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 |
| Undulant fever | 1 | 5 | 1 | 1 | .. | 4 | 6 | 2 | 1 | 2 | 6 | .. | 2 | 3 | 34 |
| Lead poisoning | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Anthrax | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | 1 |
| Total | 91 | 693 | 201 | 81 | 125 | 65 | 180 | 192 | 394 | 57 | 451 | 34 | 255 | 203 | 3,022 |

TABLE C.—NOTIFIABLE DISEASES IN NEW ZEALAND FOR YEAR ENDED 31ST DECEMBER, 1934, SHOWING DISTRIBUTION BY AGE AND SEX.

| Disease. | Under 1 Year. | | 1 to 5 Years. | | 5 to 10 Years. | | 10 to 15 Years. | | 15 to 20 Years. | | 20 to 25 Years. | | 25 to 30 Years. | | 30 to 35 Years. | | 35 to 40 Years. | | 40 to 45 Years. | | 45 to 50 Years. | | 50 to 55 Years. | | 55 to 60 Years. | | 60 to 65 Years. | | 65 to 70 Years. | | 70 to 75 Years. | | 75 to 80 Years. | | 80 Years and over. | | Total Cases at all Ages. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. |
| Scarlet fever .. .. | 5 | 1 | 87 | 115 | 129 | 168 | 43 | 72 | 10 | 22 | 8 | 26 | 2 | 18 | 11 | 10 | 2 | 14 | 2 | 5 | 1 | 6 | .. | 2 | 1 | .. | .. | 1 | .. | .. | .. | 1 | .. | .. | .. | .. | 301 | 461 |
| Diphtheria .. .. | 1 | 2 | 60 | 60 | 81 | 95 | 17 | 27 | 8 | 12 | 7 | 21 | 4 | 9 | 3 | 7 | 2 | 4 | 3 | 4 | .. | 1 | .. | 5 | .. | 2 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 186 | 250 |
| Enteric fever .. .. | .. | 1 | 2 | 3 | 3 | 1 | 7 | 1 | 3 | 1 | 4 | 4 | 6 | 2 | 2 | 1 | .. | .. | 2 | .. | .. | 1 | .. | 2 | 3 | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 32 | 19 |
| Tuberculosis .. .. | .. | 1 | 1 | .. | 6 | 6 | 11 | 13 | 41 | 50 | 59 | 109 | 58 | 66 | 40 | 54 | 43 | 28 | 45 | 19 | 35 | 19 | 35 | 17 | 22 | 9 | 9 | 6 | 6 | 3 | 4 | 5 | 1 | 1 | 1 | 1 | 417 | 407 |
| Cerebro-spinal Meningitis .. | 1 | .. | 2 | 2 | 2 | 2 | 2 | .. | 1 | .. | 1 | .. | 1 | .. | 1 | 3 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 11 | 8 |
| Poliomyelitis .. .. | 1 | .. | 1 | 2 | 3 | 2 | 3 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 10 | 4 |
| Influenza .. .. | 1 | 2 | 2 | .. | 2 | 3 | 2 | 5 | 2 | 2 | 3 | 1 | 1 | 2 | 3 | 9 | 3 | 4 | 2 | 4 | 4 | 1 | 2 | 2 | 1 | 1 | 1 | .. | .. | 1 | 3 | 1 | .. | .. | 1 | .. | 33 | 38 |
| Erysipelas .. .. | 2 | 1 | 6 | 5 | 2 | .. | 4 | 2 | 4 | 3 | 2 | 3 | 5 | 9 | 5 | 12 | 10 | 15 | 12 | 18 | 9 | 18 | 11 | 14 | 7 | 14 | 10 | 10 | 5 | 6 | 3 | 3 | 4 | 3 | 2 | .. | 103 | 136 |
| Puerperal fever— | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ordinary .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 12 | .. | 22 | .. | 42 | .. | 27 | .. | 15 | .. | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 128 |
| Following abortion or miscarriage | .. | .. | .. | .. | .. | .. | .. | .. | .. | 12 | .. | 43 | .. | 44 | .. | 42 | .. | 19 | .. | 10 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 171 |
| Eclampsia .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 7 | .. | 29 | .. | 18 | .. | 15 | .. | 8 | .. | 3 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 81 |
| Tetanus .. .. | .. | .. | 1 | .. | 1 | 2 | 4 | .. | 3 | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 1 | .. | 1 | .. | 2 | .. | 1 | .. | 1 | .. | .. | .. | 19 | 2 |
| Hydatids .. .. | .. | .. | .. | 2 | 2 | 2 | 2 | 1 | .. | .. | .. | 2 | .. | 1 | .. | 2 | 3 | 2 | 4 | 1 | 1 | .. | 4 | 1 | .. | 3 | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 17 | 18 |
| Trachoma .. .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 1 |
| Ophthalmia neonatorum .. | 8 | 10 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 8 | 10 |
| Lethargic encephalitis .. | .. | .. | 1 | .. | 3 | .. | 1 | .. | 1 | 1 | 2 | 1 | .. | .. | 1 | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 11 | 3 |
| Food poisoning .. .. | .. | .. | 6 | 3 | 3 | 2 | 1 | 3 | 4 | 2 | 4 | 8 | 4 | 6 | .. | 6 | 1 | 1 | 4 | 3 | 2 | 3 | 1 | .. | 1 | 3 | .. | 2 | 1 | .. | 1 | 1 | .. | .. | 1 | .. | 34 | 43 |
| Bacillary dysentery .. .. | .. | .. | 4 | 3 | 2 | .. | .. | 1 | 1 | .. | 1 | .. | .. | 2 | .. | .. | .. | .. | .. | 1 | 1 | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 1 | 11 | 9 |
| Actinomycosis .. .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 |
| Undulant fever .. .. | .. | .. | .. | .. | .. | 2 | 3 | .. | 1 | 2 | 3 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 4 | 1 | 1 | .. | .. | 1 | .. | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 17 | 17 |
| Lead poisoning .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. |
| Anthrax .. .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. |
| Total .. .. | 19 | 18 | 173 | 195 | 239 | 286 | 100 | 125 | 83 | 126 | 95 | 278 | 84 | 220 | 70 | 191 | 66 | 113 | 78 | 73 | 55 | 51 | 56 | 45 | 36 | 37 | 23 | 22 | 14 | 10 | 13 | 11 | 6 | 4 | 5 | 2 | 1,215 | 1,807 |

TABLE D.—MAORIS: NOTIFICATIONS OF CASES OF NOTIFIABLE DISEASES FOR YEAR ENDED 31ST DECEMBER, 1934.

| Disease. | North Auckland. | Central Auckland. | South Auckland. | Thames–Tauranga. | Taranaki. | East Cape. | Wanganui–Horowhenua. | Wairarapa–Hawke's Bay. | Central Wellington. | South Island. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scarlet fever | .. | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | 2 |
| Diphtheria | 3 | .. | 3 | 1 | .. | 1 | 1 | 2 | .. | .. | 11 |
| Enteric fever | 1 | 7 | 35 | 2 | 6 | 21 | 11 | 5 | .. | 1 | 89 |
| Tuberculosis | 16 | 12 | 21 | 5 | 4 | 11 | 3 | 19 | 1 | 11 | 103 |
| Cerebro-spinal meningitis | .. | .. | .. | .. | .. | 2 | .. | .. | .. | .. | 2 |
| Influenza | 17 | .. | .. | .. | 1 | .. | 1 | 1 | .. | .. | 20 |
| Erysipelas | .. | .. | .. | .. | .. | 2 | .. | 1 | .. | 1 | 4 |
| Puerperal fever— | | | | | | | | | | | |
| Ordinary | 5 | 1 | 1 | .. | .. | 3 | 2 | 1 | .. | .. | 13 |
| Following abortion or miscarriage | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 2 |
| Eclampsia | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 |
| Tetanus | 1 | .. | .. | 1 | 1 | .. | .. | 1 | .. | .. | 3 |
| Hydatids | .. | .. | .. | .. | .. | 2 | .. | .. | .. | .. | 2 |
| Trachoma | 1 | .. | 3 | .. | 7 | .. | 1 | .. | .. | .. | 12 |
| Ophthalmia neonatorum | .. | 2 | .. | .. | 1 | .. | .. | 2 | .. | .. | 5 |
| Lethargic encephalitis | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Bacillary dysentery | 9 | .. | .. | 1 | .. | 1 | 3 | .. | .. | .. | 14 |
| Undulant fever | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Actinomycosis | .. | .. | .. | .. | .. | 2 | .. | .. | .. | .. | 2 |
| Total | 55 | 25 | 64 | 10 | 19 | 45 | 22 | 33 | 1 | 13 | 287 |

TABLE E.—VENEREAL-DISEASES CLINICS.—CASES TREATED DURING THE YEAR ENDED 31ST DECEMBER, 1934.

| —— | Auckland. | | Wellington. | | Christchurch. | | Dunedin. | | Totals. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. |
| Number of persons dealt with at or in connection with the out-patient clinic for the first time and found to be suffering from— | | | | | | | | | | |
| Syphilis | 147 | 65 | 39 | 75 | 21 | 10 | 16 | 5 | 223 | 155 |
| Soft sore | .. | .. | .. | .. | 3 | .. | 1 | .. | 4 | .. |
| Gonorrhœa | 452 | 156 | 282 | 282 | 336 | 133 | 93 | 49 | 1,163 | 620 |
| No venereal disease | 233 | 48 | 61 | 52 | 64 | 25 | 29 | 5 | 387 | 130 |
| Total attendance of all persons at the out-patient clinics who were suffering from— | | | | | | | | | | |
| Syphilis | 2,210 | 1,877 | 3,051 | 1,480 | 1,382 | 391 | 823 | 447 | 7,466 | 4,195 |
| Soft sore | .. | .. | .. | .. | 34 | .. | 4 | .. | 38 | .. |
| Gonorrhœa | 17,070 | 2,332 | 19,309 | 5,825 | 12,690 | 6,092 | 5,051 | 3,084 | 54,120 | 17,333 |
| Number of persons suffering from— | | | | | | | | | | |
| Syphilis | 816 | 665 | 946 | 901 | 505 | 152 | 183 | 100 | 2,450 | 1,818 |
| Gonorrhœa | 1,252 | 693 | 1,221 | 573 | 2,550 | 1,529 | 651 | 477 | 5,674 | 3,272 |

## SECTION 3.—PORT HEALTH INSPECTION.

TABLE 1.—NUMBER OF VESSELS INSPECTED DURING THE YEAR ENDED 31ST DECEMBER, 1934.

| Port. | Number of Vessels inspected. | Prohibited Immigrants. | | | |
|---|---|---|---|---|---|
| | | Infectious-disease Cases. | V.D. Cases. | Infirm Cases. | Mental Cases. |
| *North Auckland Health District—* | | | | | |
| Whangarei | 7 | .. | .. | .. | .. |
| Opua | 2 | .. | .. | .. | .. |
| *Combined Auckland Health District—* | | | | | |
| Auckland | 297 | 16 | 33 | 124 | 7 |
| *Taranaki Health District—* | | | | | |
| New Plymouth | 26 | .. | .. | .. | .. |
| *East Cape Health District—* | | | | | |
| Gisborne | 3 | .. | .. | .. | .. |
| *Combined Wellington Health District—* | | | | | |
| Wanganui | 5 | .. | .. | .. | .. |
| Napier | 7 | .. | .. | .. | .. |
| Wellington | 137 | 4 | 10 | 75 | 2 |
| Picton | 4 | .. | .. | .. | .. |
| Nelson | 2 | .. | .. | .. | .. |
| *Combined Canterbury Health District—* | | | | | |
| Lyttelton | 28 | .. | 6 | .. | .. |
| Timaru | 3 | .. | .. | .. | .. |
| Westport | 4 | .. | .. | .. | .. |
| Greymouth | 2 | .. | .. | .. | .. |
| *Combined Otago Health District—* | | | | | |
| Oamaru | 3 | .. | .. | .. | .. |
| Port Chalmers | 24 | 1 | .. | .. | .. |
| Bluff | 49 | .. | .. | .. | .. |
| Totals | 603 | 21 | 49 | 199 | 9 |

## SECTION 4.—WORKING OF THE SALE OF FOOD AND DRUGS ACT.

TABLE 1.—SHOWING SAMPLES RESPECTIVELY OF MILK AND OTHER FOODSTUFFS TAKEN AND DEALT WITH DURING THE YEAR ENDED 31ST DECEMBER, 1934.

| Health District. | Number of Samples taken | | Number of Vendors. | | Samples not complying. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Number of Samples. | | Number of Warnings issued. | | Number of Prosecutions recommended. | |
| | Milk. | Other. | Milk. | Other. | Milk. | Other. | Milk | Other. | Milk | Other. |
| North Auckland | 60 | 12 | 57 | 12 | 3 | 4 | 3 | 2 | .. | 2 |
| Central Auckland | 1,650 | 295 | 1,617 | 273 | 150 | 35 | 93 | 9 | 39 | 12 |
| South Auckland | 263 | 61 | 262 | 61 | 18 | 7 | 10 | 2 | 6 | 4 |
| Thames-Tauranga | 52 | 16 | 52 | 16 | 2 | 1 | 2 | 1 | .. | .. |
| Taranaki | 55 | 3 | 47 | 2 | .. | 1 | .. | 1 | .. | .. |
| East Cape | 226 | 57 | 226 | 57 | 7 | 1 | 5 | .. | 2 | 1 |
| Wanganui-Horowhenua | 253 | 58 | 252 | 52 | 6 | 12 | .. | 5 | 6 | 5 |
| Wairarapa-Hawke's Bay | 241 | 34 | 237 | 31 | 6 | 5 | 1 | 3 | 5 | 2 |
| Central Wellington | 1,850 | 48 | 1,798 | 46 | 61 | 13 | 15 | 6 | 33 | 3 |
| Nelson-Marlborough | 103 | 54 | 100 | 54 | 2 | 3 | .. | 2 | 2 | 1 |
| Canterbury | 1,812 | 143 | 1,703 | 113 | 111 | 10 | 82 | 2 | 29 | 4 |
| West Coast | 148 | 36 | 139 | 16 | 20 | 3 | 19 | 2 | 1 | .. |
| Otago | 828 | 417 | 434 | 133 | 56 | 10 | 26 | 5 | 7 | 1 |
| Southland | 61 | 28 | 27 | 3 | 2 | .. | 2 | .. | .. | .. |
| Totals | 7,602 | 1,262 | 6,951 | 869 | 444 | 105 | 258 | 40 | 130 | 35 |

TABLE 2.—SHOWING INSPECTION OF PREMISES ENGAGED IN SELLING OR MANUFACTURING FOODSTUFFS DURING THE YEAR ENDED 31ST DECEMBER, 1934.

| Health District. | Number of Premises inspected engaged in the Selling or Manufacture of Foodstuffs. | Number of such Premises found to have Defects. | Number of Instances Goods were "seized" or "destroyed." |
|---|---|---|---|
| North Auckland | 1,013 | 104 | 3 |
| Central Auckland | 1,209 | 172 | 31 |
| South Auckland | 2,408 | 212 | 2 |
| Thames-Tauranga | 256 | 22 | .. |
| Taranaki | 118 | 26 | 1 |
| East Cape | 771 | 177 | 1 |
| Wanganui-Horowhenua | 428 | 45 | 48 |
| Wairarapa - Hawke's Bay | 272 | 29 | 5 |
| Central Wellington | 522 | 46 | 100 |
| Nelson-Marlborough | 590 | 68 | 1 |
| Canterbury | 1,421 | 4 | 4 |
| West Coast | 914 | 51 | 7 |
| Otago | 2,177 | 249 | 15 |
| Southland | 705 | 29 | 8 |
| Totals | 12,804 | 1,234 | 226 |

TABLE 3.—LEGAL PROCEEDINGS FOR YEAR, 1934.

| | Number of Prosecutions. | Amount of Fines and Costs. £ s. d. |
|---|---|---|
| Milk below standard | 49 | 145 2 11 |
| Milk, added water | 45 | 197 16 1 |
| Milk, stale | 10 | 25 18 6 |
| Milk, dirty | 11 | 36 10 8 |
| Butter, excess moisture | 2 | 5 13 0 |
| Butter, labelling | 3 | 13 13 6 |
| Ice-cream below standard | 1 | 1 10 6 |
| Paraffin oil below standard | 7 | 25 14 2 |
| Camphorated oil below standard | 6 | 7 16 0 |
| Camphorated oil, labelling | 4 | 6 11 8 |
| Excess preservative in sausage meat | 1 | 3 4 6 |
| Food premises (Regulation H. 125) | 2 | 4 5 0 |
| Failure to vacate premises while closure order in force | 2 | 1 2 0 |
| Dangerous Drugs Regulations | 11 | 42 3 9 |
| Plumbing and Drainage Regulations | 1 | 1 10 0 |
| Plumbers Registration Act | 1 | 1 0 0 |
| Cemeteries Act | 1 | 0 12 0 |
| Breach of borough by-laws | 1 | 0 17 0 |
| Totals | 158 | £521 1 3 |

T. R. RITCHIE,
Director, Division of Public Hygiene.

# PART III.—SCHOOL HYGIENE.

I have the honour to report on the work of the Division of School Hygiene for the year ended 31st March, 1935.

## Staff.

The School Medical and Nursing staff, as last year, consists of a Director, ten School Medical Officers, and twenty-five School Nurses. Dr. Helen Bakewell, Wellington, was on leave of absence in England for the greater part of the year. Dr. Phyllis Moir was appointed to act as School Medical Officer, Wellington, during Dr. Bakewell's absence. We are indebted to Dr. F. W. W. Dawson, Medical Officer of Health, Christchurch, for valuable assistance in the Canterbury District.

It was with great regret that we parted from Dr. Albert Henderson, School Medical Officer, Auckland District, who retired on superannuation at the end of the year after fifteen years' service. Dr. Henderson's place in Auckland was filled by the transfer of Dr. Phillipps from Canterbury.

A loss to the personnel of the School Nursing staff was sustained by the retirement on superannuation of Miss Wright, School Nurse, Auckland, after many years of good service. Miss Small, who has been acting as Red Cross and School Nurse in Taranaki, has lately been transferred to the School Nursing staff, Wellington, where, in addition to other duties, she will give addresses and demonstrations on health education matters to special groups of nurses and students.

The new arrangement in the Wairarapa by which Miss Hodges acts as School Nurse and District Nurse is working well, and has resulted in closer attention to the needs of the Maori population.

The work of district nurses and school nurses alike has been carried out capably and with interest.

## Figures relating to Work accomplished in 1934.

The following summary serves to indicate the extent of work accomplished during the school period, February to December, 1934 :—

| | | |
|---|---|---|
| Schools inspected— | | |
| Of roll under 100 | 909 | |
| Of roll 100 to 500 | 373 | |
| Of roll over 500 | 100 | |
| | | 1,382 |
| Children examined— | | |
| Complete examinations | 64,323 | |
| Partial examinations | 43,782 | |
| | | 108,105 |
| Number of notifications sent to parents | | 33,119 |
| Number of addresses to school-children | | 530 |
| Number of parents interviewed | | 10,338 |
| Number of lectures or addresses to parents | | 88 |
| The figures for the work of the school nurses are as follows :— | | |
| Number of days assisted Medical Officer in schools | | 1,754½ |
| Number of children examined for medical schedule (H. Sch. 14) | | 84,346 |
| Number of days engaged wholly in clerical work | | 1,023 |
| Number of children re-examined after Medical Officer's inspection | | 33,137 |
| Number of children examined by special request | | 10,263 |
| Number of visits to homes in— | | |
| Large towns | 6,446 | |
| Small country towns | 2,348 | |
| Scattered districts | 2,282 | |
| | | 11,076 |
| Number of children taken personally to hospital, &c. | | 873 |
| Number of children taken personally to dental clinic | | 158 |
| Number of health talks given | | 768 |

SUMMARY OF COMPLETE EXAMINATIONS.

| | European. | Maori. |
|---|---|---|
| Number of children examined | 57,154 | 2,803 |
| Percentage found to have defects | 70·28 | 72·28 |
| Percentage with defects other than dental | 50·13 | 49·27 |
| Percentage of children showing evidence of— | | |
| Subnormal nutrition | 5·64 | 2·57 |
| Pediculosis | 0·68 | 4·64 |
| Uncleanliness | 0·90 | 1·68 |
| Skin— | | |
| Impetigo | 0·89 | 4·39 |
| Scabies | 0·79 | 15·91 |
| Ringworm | 0·20 | 0·04 |
| Other skin-diseases | 1·40 | 0·96 |
| Non-vaccination | 97·81 | 96·82 |
| Heart— | | |
| Organic disease | 0·75 | 0·82 |
| Functional disturbance | 1·11 | 2·60 |
| Respiratory disease | 1·02 | 0·82 |
| Total deformities of trunk and chest | 11·82 | 4·09 |
| Mouth— | | |
| Deformities of jaw or palate, including irregularity | 2·30 | 0·46 |
| Dental caries | 32·76 | 48·59 |
| Extractions of permanent teeth | 6·30 | 2·75 |
| Fillings | 54·73 | 19·19 |
| Perfect sets of teeth | 2·19 | 14·09 |
| Nose and throat— | | |
| Nasal obstruction | 2·69 | 1·28 |
| Enlarged tonsils | 13·13 | 7·71 |
| Enlarged glands | 5·99 | 3·75 |
| Goitre— | | |
| All degrees | 16·55 | 5·75 |
| Incipient | 13·86 | 5·21 |
| Small | 2·30 | 0·50 |
| Medium | 0·33 | 0·04 |
| Large | 0·06 | .. |
| Eye— | | |
| External eye-disease | 1·49 | 0·82 |
| Total defective vision | 3·78 | 1·03 |
| Corrected | 2·28 | 0·21 |
| Uncorrected | 1·50 | 0·82 |
| Ear— | | |
| Otorrhœa | 0·20 | 0·75 |
| Defective hearing | 0·30 | 0·32 |
| Defective speech | 0·50 | 0·07 |
| Mental— | | |
| Feeble-mindedness | 0·24 | 0·04 |
| Epilepsy | 0·03 | .. |
| Other nervous defects | 0·37 | 0·07 |
| Tuberculosis— | | |
| Total | 0·07 | 0·60 |
| Pulmonary | 0·05 | 0·46 |
| Other tissues | 0·02 | 0·14 |

As shown above, 1,382 schools were inspected by School Medical Officers, and 108,105 children medically examined, 64,323 examinations being complete, and 43,782 partial examinations. This indicates a slight increase in numbers over last year. It is to be noted that over 10,000 parents were personally interviewed by School Medical Officers, and school nurses paid some 11,076 visits to homes.

School Medical Officers and nurses continue to co-operate with various philanthropic and relief agencies in schemes of amelioration, such as distribution of milk at school, organization and staffing of health camps—activities which have been of marked practical value during the recent years of economic difficulty. Much of this work cannot be tabulated.

## MALNUTRITION.

Special attention has been given to the question of malnutrition among school-children throughout the Dominion, and advice given regarding methods of amelioration.

It is evident that the incidence of malnutrition as indicated by these returns is practically the same as that noted a year ago. The very slight rise noted for the whole group examined—5·64 per cent. in 1934 as against 5·48 per cent. in 1933—is very largely due to the fact that the proportion of children included from the primer classes (which as a general rule show slightly higher percentage of malnutrition) is greater than last year.

## HEIGHT-WEIGHT-AGE SURVEY.

In July of last year arrangements were made for the estimation of the height, sitting height, weight, and chest measurements of New Zealand children. The co-operation of teachers in securing these measurements was requested, and we wish to express our appreciation for the generous assistance afforded by them in carrying out this survey.

We have to thank the Government Statistician for the records now to hand regarding the height and weight of boys and girls at ages 5 to 15 inclusive.

Measurements were obtained from some 40,000 children attending schools in the following areas :—

Group A.—Urban areas : The four main centres with their suburban boroughs, town districts, &c.
Group B.—Larger secondary towns—viz., Population of 4,000 and over, excluding those suburban to the four chief cities.
Group C.—Smaller boroughs and town districts and villages, with population of 400 and over.
Group D.—Rural.
Group E.—Maori.

The averages obtained were as follows :—

*Combined Groups.*

| Age at Nearest Birthday. | Boys. | | Girls. | |
|---|---|---|---|---|
| | Average Height. | Average Weight. | Average Height. | Average Weight. |
| | Inches. | Lb. | Inches. | Lb. |
| 5 .. .. .. | 43 | 42 | 43 | 41 |
| 6 .. .. .. | 45 | 46 | 45 | 45 |
| 7 .. .. .. | 47 | 50 | 47 | 49 |
| 8 .. .. .. | 49 | 55 | 49 | 54 |
| 9 .. .. .. | 51 | 61 | 51 | 60 |
| 10 .. .. .. | 53 | 66 | 53 | 65 |
| 11 .. .. .. | 54 | 72 | 55 | 73 |
| 12 .. .. .. | 57 | 78 | 57 | 82 |
| 13 .. .. .. | 59 | 88 | 59 | 94 |
| 14 .. .. .. | 61 | 97 | 61 | 101 |
| 15 .. .. .. | 62 | 103 | 62 | 108 |

The first height-weight-age records for New Zealand children were obtained in 1913, the year following the establishment of the School Medical Service. In 1925 further records were obtained for the age groups 11 to 14 years inclusive. The table following, which sets out the findings in the three investigations concerned, is of interest. The Department of Public Health, City Hall, Toronto, issues a folder, "Health Rules for the use of_____School," which gives the average weight for height and age of Toronto children, and this return is published for comparison purposes alongside the New Zealand records :—

*Weights.*

| Age at Nearest Birthday. | Boys. | | | | Girls. | | | |
|---|---|---|---|---|---|---|---|---|
| | 1913. | 1926. | 1934. | Toronto Scale. | 1913. | 1926. | 1934. | Toronto Scale. |
| | Lb. | Lb. | Lb. | Lb. | Lb. | Lb. | Lb. | Lb. |
| 5 .. .. .. | .. | .. | 42 | 41 | .. | .. | 41 | 38 |
| 6 .. .. .. | 45·0 | .. | 46 | 46 | 45·6 | .. | 45 | 45 |
| 7 .. .. .. | 49·4 | .. | 50 | 49 | 48·7 | .. | 49 | 48 |
| 8 .. .. .. | 54·7 | .. | 55 | 54 | 53·6 | .. | 54 | 52 |
| 9 .. .. .. | 59·7 | .. | 61 | 59 | 58·6 | .. | 60 | 57 |
| 10 .. .. .. | 63·7 | .. | 66 | 65 | 63·1 | .. | 65 | 63 |
| 11 .. .. .. | 69·2 | 71·8 | 72 | 71 | 69·2 | 71·0 | 73 | 71 |
| 12 .. .. .. | 75·4 | 76·5 | 78 | 77 | 76·3 | 79·2 | 82 | 79 |
| 13 .. .. .. | 82·9 | 84·0 | 88 | 83 | 88·0 | 90·2 | 94 | 89 |
| 14 .. .. .. | 94·1 | 92·3 | 97 | 92 | 95·7 | 99·8 | 101 | 98 |
| 15 .. .. .. | 100·9 | .. | 103 | 102 | 100·3 | .. | 108 | 104 |

*Heights.*

| Age at Nearest Birthday. | Boys. | | | | Girls. | | | |
|---|---|---|---|---|---|---|---|---|
| | 1913. | 1926. | 1934. | Toronto Scale. | 1913. | 1926. | 1934. | Toronto Scale. |
| | Inches. | Inches. | Inches. | Inches. | Inches. | Inches. | Inches. | Inches. |
| 5 .. .. .. | .. | .. | 43 | 42 | .. | .. | 43 | 41 |
| 6 .. .. .. | 44·1 | .. | 45 | 45 | 44·3 | .. | 45 | 45 |
| 7 .. .. .. | 46·4 | .. | 47 | 46 | 46·2 | .. | 47 | 46 |
| 8 .. .. .. | 48·6 | .. | 49 | 48 | 48·6 | .. | 49 | 48 |
| 9 .. .. .. | 50·7 | .. | 51 | 50 | 51·6 | .. | 51 | 50 |
| 10 .. .. .. | 52·2 | .. | 53 | 52 | 52·2 | .. | 53 | 52 |
| 11 .. .. .. | 53·7 | 54·7 | 54 | 54 | 53·8 | 54·4 | 55 | 54 |
| 12 .. .. .. | 55·6 | 56·1 | 57 | 56 | 55·8 | 56·7 | 57 | 56 |
| 13 .. .. .. | 57·3 | 57·8 | 59 | 58 | 58·3 | 59·1 | 59 | 59 |
| 14 .. .. .. | 59·3 | 59·8 | 61 | 60 | 59·9 | 60·6 | 61 | 60 |
| 15 .. .. .. | 61·1 | .. | 62 | 62 | 60·1 | .. | 62 | 61 |

It is to be noted that there has been an increase in both the average in height and weight of New Zealand children during the last twenty years. In view of the fact that 1934 followed on two or three years of economic depression and was itself distinguished by a series of epidemic diseases, especially measles and influenza, affecting the health of the children to a wide extent, it is satisfactory to find this progress in physical development has been maintained.

It has been our custom for several years to adopt the Toronto average height and weight for age ratio as providing a fairly approximate standard for New Zealand children. From the returns just to hand, however, it would appear that New Zealand children, generally speaking, compare very favourably with Toronto children as judged from records on the folder above mentioned.

The results for separate groups are as follows :—

| Age at Nearest Birthday. | Boys. | | Girls. | |
|---|---|---|---|---|
| | Average Height. | Average Weight. | Average Height. | Average Weight. |
| | *Group (a).—Urban Areas.* | | | |
| | Inches. | Lb. | Inches. | Lb. |
| 5 | 43 | 42 | 43 | 41 |
| 6 | 45 | 46 | 45 | 45 |
| 7 | 47 | 50 | 47 | 48 |
| 8 | 49 | 55 | 49 | 53 |
| 9 | 51 | 59 | 51 | 60 |
| 10 | 53 | 65 | 53 | 64 |
| 11 | 55 | 72 | 55 | 72 |
| 12 | 57 | 79 | 57 | 83 |
| 13 | 59 | 87 | 59 | 90 |
| 14 | 60 | 94 | 61 | 98 |
| 15 | 62 | 101 | 61 | 104 |
| | *Group (b).—Larger Secondary Towns.* | | | |
| 5 | 43 | 42 | 42 | 39 |
| 6 | 45 | 45 | 45 | 44 |
| 7 | 47 | 49 | 47 | 48 |
| 8 | 49 | 53 | 49 | 54 |
| 9 | 51 | 61 | 51 | 59 |
| 10 | 53 | 66 | 53 | 65 |
| 11 | 54 | 70 | 55 | 72 |
| 12 | 57 | 78 | 57 | 81 |
| 13 | 59 | 87 | 59 | 91 |
| 14 | 61 | 96 | 61 | 100 |
| 15 | 62 | 100 | 62 | 106 |
| | *Group (c).—Smaller Boroughs, &c.* | | | |
| 5 | 43 | 42 | 44 | 43 |
| 6 | 45 | 46 | 45 | 45 |
| 7 | 47 | 50 | 47 | 48 |
| 8 | 49 | 55 | 49 | 54 |
| 9 | 51 | 61 | 51 | 60 |
| 10 | 53 | 66 | 53 | 66 |
| 11 | 54 | 73 | 55 | 73 |
| 12 | 57 | 79 | 57 | 83 |
| 13 | 59 | 88 | 60 | 96 |
| 14 | 61 | 98 | 61 | 102 |
| 15 | 63 | 106 | 62 | 111 |
| | *Group (d).—Rural.* | | | |
| 5 | 45 | 45 | 44 | 43 |
| 6 | 46 | 46 | 45 | 46 |
| 7 | 47 | 50 | 47 | 49 |
| 8 | 50 | 55 | 51 | 55 |
| 9 | 52 | 61 | 51 | 60 |
| 10 | 53 | 66 | 53 | 65 |
| 11 | 55 | 71 | 55 | 75 |
| 12 | 57 | 77 | 57 | 84 |
| 13 | 59 | 89 | 59 | 99 |
| 14 | 61 | 98 | 61 | 104 |
| 15 | 62 | 105 | 62 | 108 |
| | *Group (e).—Maori.* | | | |
| 5 | 42 | 41 | .. | .. |
| 6 | 44 | 45 | 46 | 42 |
| 7 | 47 | 51 | 48 | 48 |
| 8 | 49 | 58 | 49 | 55 |
| 9 | 52 | 64 | 51 | 60 |
| 10 | 53 | 69 | 53 | 67 |
| 11 | 56 | 76 | 56 | 82 |
| 12 | 57 | 82 | 58 | 90 |
| 13 | 59 | 95 | 59 | 105 |
| 14 | 61 | 104 | 61 | 109 |
| 15 | 63 | 116 | 61 | 114 |

A slight but fairly constant superiority in weight for height and age is noted when comparing returns for country children with those for children in urban areas.

The Maori Group is relatively a small one (1,188) and, therefore, the return for "E" may not be strictly comparable with that of other groups.

The following tables of weights for height and age are also published. Such discrepancies as appear may be considered to be due to an unduly small number of children in that particular group :—

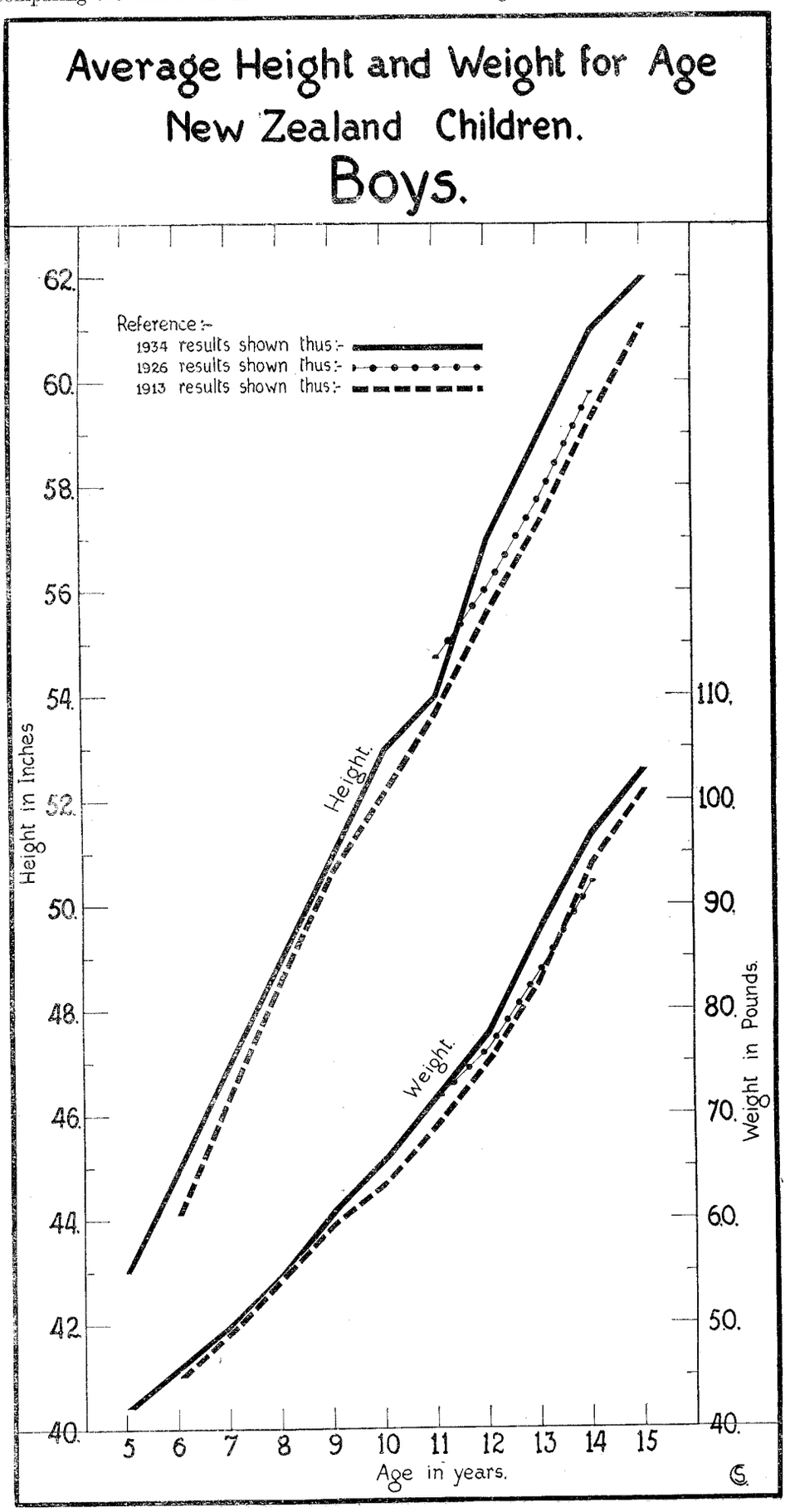
*Weight in Pounds for Boys.*

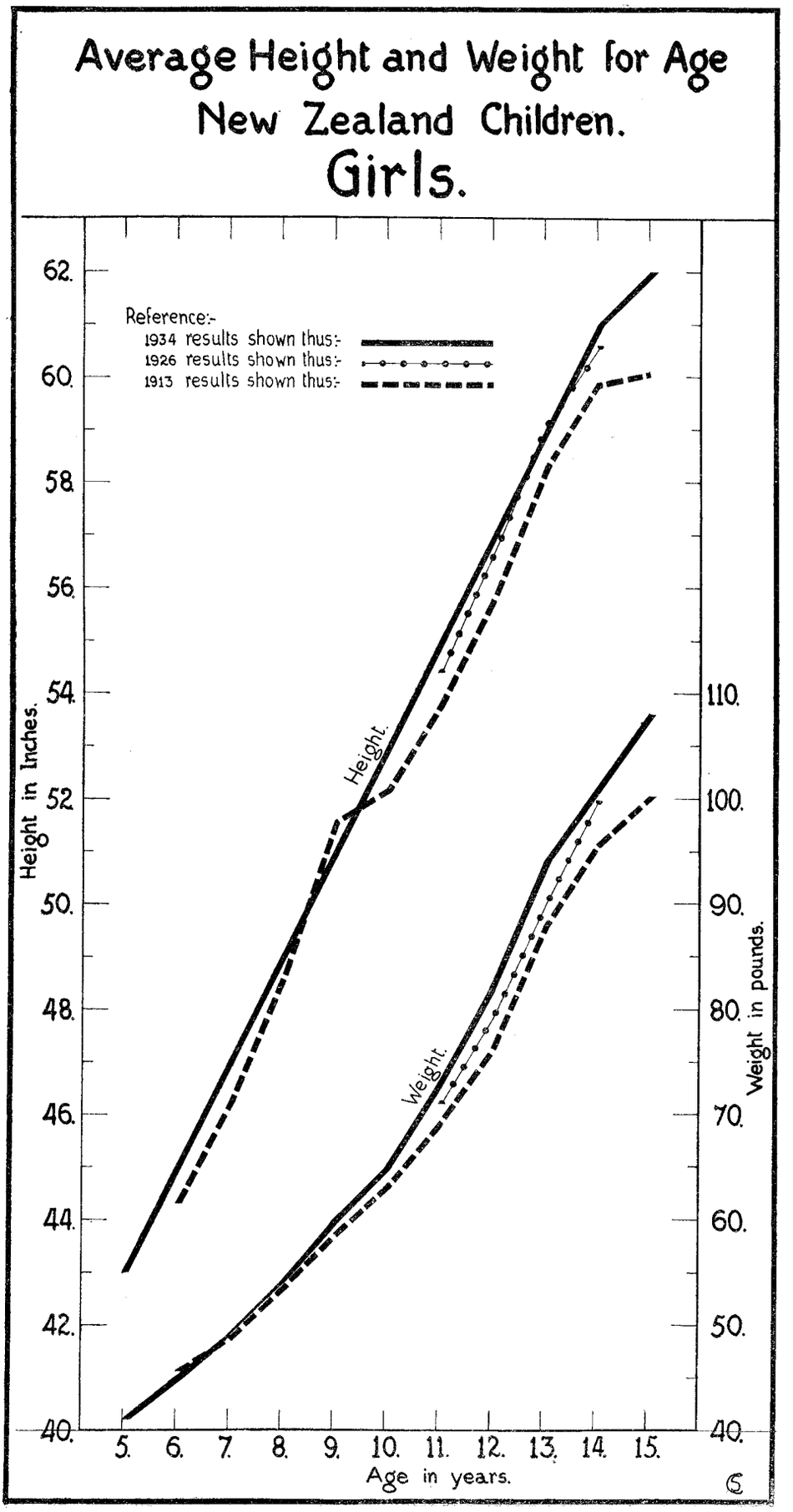
| Height in Inches. | Age in Years. | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 40 | 38 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 41 | 35 | 38 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 42 | 40 | 39 | 41 | .. | .. | .. | .. | .. | .. | .. | .. |
| 43 | 41 | 42 | 42 | .. | .. | .. | .. | .. | .. | .. | .. |
| 44 | 43 | 43 | 43 | 43 | .. | .. | .. | .. | .. | .. | .. |
| 45 | 45 | 45 | 45 | 46 | .. | .. | .. | .. | .. | .. | .. |
| 46 | .. | 47 | 47 | 47 | 50 | .. | .. | .. | .. | .. | .. |
| 47 | .. | 50 | 49 | 50 | 50 | 50 | .. | .. | .. | .. | .. |
| 48 | .. | 51 | 51 | 52 | 52 | 53 | .. | .. | .. | .. | .. |
| 49 | .. | 54 | 54 | 54 | 55 | 56 | 58 | .. | .. | .. | .. |
| 50 | .. | 56 | 56 | 57 | 57 | 57 | 59 | 59 | .. | .. | .. |
| 51 | .. | .. | 60 | 59 | 59 | 60 | 61 | 63 | .. | .. | .. |
| 52 | .. | .. | 60 | 62 | 62 | 63 | 63 | 67 | .. | .. | .. |
| 53 | .. | .. | .. | 64 | 66 | 65 | 66 | 67 | 68 | .. | .. |
| 54 | .. | .. | .. | 67 | 68 | 68 | 69 | 70 | 70 | 73 | .. |
| 55 | .. | .. | .. | 70 | 71 | 71 | 71 | 73 | 74 | 75 | .. |
| 56 | .. | .. | .. | .. | 75 | 74 | 75 | 76 | 76 | 77 | 78 |
| 57 | .. | .. | .. | .. | 75 | 78 | 79 | 79 | 80 | 80 | 81 |
| 58 | .. | .. | .. | .. | .. | 79 | 82 | 83 | 84 | 84 | 86 |
| 59 | .. | .. | .. | .. | .. | 84 | 85 | 85 | 88 | 88 | 89 |
| 60 | .. | .. | .. | .. | .. | .. | 93 | 91 | 91 | 92 | 92 |
| 61 | .. | .. | .. | .. | .. | .. | 93 | 93 | 94 | 97 | 95 |
| 62 | .. | .. | .. | .. | .. | .. | 97 | 95 | 100 | 102 | 100 |
| 63 | .. | .. | .. | .. | .. | .. | .. | 101 | 107 | 105 | 106 |
| 64 | .. | .. | .. | .. | .. | .. | .. | .. | 109 | 111 | 114 |
| 65 | .. | .. | .. | .. | .. | .. | .. | .. | 112 | 116 | 115 |
| 66 | .. | .. | .. | .. | .. | .. | .. | .. | 117 | 121 | 122 |
| 67 | .. | .. | .. | .. | .. | .. | .. | .. | 119 | 125 | 127 |
| 68 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 127 | 133 |

*Weight in Pounds for Girls.*

| Height in Inches. | Age in Years. | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 40 | 35 | 35 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 41 | 37 | 36 | 37 | .. | .. | .. | .. | .. | .. | .. | .. |
| 42 | 39 | 39 | 40 | .. | .. | .. | .. | .. | .. | .. | .. |
| 43 | 41 | 41 | 40 | 43 | .. | .. | .. | .. | .. | .. | .. |
| 44 | 42 | 43 | 43 | 41 | .. | .. | .. | .. | .. | .. | .. |
| 45 | 45 | 45 | 45 | 45 | .. | .. | .. | .. | .. | .. | .. |
| 46 | .. | 46 | 47 | 47 | 47 | .. | .. | .. | .. | .. | .. |
| 47 | .. | 49 | 49 | 49 | 49 | 51 | .. | .. | .. | .. | .. |
| 48 | .. | 52 | 51 | 51 | 51 | 52 | 56 | .. | .. | .. | .. |
| 49 | .. | 54 | 54 | 54 | 54 | 53 | 53 | .. | .. | .. | .. |
| 50 | .. | 57 | 56 | 56 | 57 | 57 | 57 | 58 | .. | .. | .. |
| 51 | .. | .. | 60 | 59 | 59 | 59 | 58 | 62 | 71 | .. | .. |
| 52 | .. | .. | 62 | 62 | 61 | 62 | 62 | 63 | .. | .. | .. |
| 53 | .. | .. | .. | 66 | 64 | 64 | 65 | 66 | 68 | .. | .. |
| 54 | .. | .. | .. | 66 | 68 | 68 | 69 | 68 | 71 | 70 | .. |
| 55 | .. | .. | .. | 68 | 71 | 72 | 71 | 71 | 72 | 81 | .. |
| 56 | .. | .. | .. | .. | 74 | 74 | 76 | 77 | 76 | 76 | .. |
| 57 | .. | .. | .. | .. | 76 | 77 | 79 | 79 | 79 | 81 | .. |
| 58 | .. | .. | .. | .. | .. | 80 | 83 | 82 | 84 | 85 | 88 |
| 59 | .. | .. | .. | .. | .. | 81 | 87 | 88 | 88 | 92 | 96 |
| 60 | .. | .. | .. | .. | .. | .. | 90 | 92 | 93 | 98 | 99 |
| 61 | .. | .. | .. | .. | .. | .. | 101 | 97 | 97 | 101 | 101 |
| 62 | .. | .. | .. | .. | .. | .. | 97 | 99 | 103 | 105 | 109 |
| 63 | .. | .. | .. | .. | .. | .. | .. | 107 | 109 | 110 | 112 |
| 64 | .. | .. | .. | .. | .. | .. | .. | 111 | 109 | 114 | 119 |
| 65 | .. | .. | .. | .. | .. | .. | .. | .. | 119 | 117 | 121 |
| 66 | .. | .. | .. | .. | .. | .. | .. | .. | 120 | 122 | 124 |
| 67 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 127 | 130 |

The upward trend of the heights and weights of our school-children is shown in the accompanying graphs comparing the results of the three New Zealand investigations :—




Average Height and Weight for Age
New Zealand Children.
Girls.
Reference:-
1934 results shown thus:-
1926 results shown thus:-
1913 results shown thus:-
Height.
Weight.
Height in Inches.
Weight in pounds.
62.
60.
58.
56.
54.
52.
50.
48.
46.
44.
42.
40.
110.
100.
90.
80.
70.
60.
50.
40.
5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15.
Age in years.

As these returns have just become available, their further analysis has not been possible, but it is hoped, when opportunity offers, to give fuller consideration to them and to the other data obtained from the survey.

## Faulty Posture and Physical Deformity.

Nearly all School Medical Officers refer to the prevalence of faulty posture. Dr. Anderson remarks: " . . . Children exhausted with outside interests arrive at school tired and sit in poor attitudes over their morning work; at interval, under existing conditions, they are massed together for approximately fifteen minutes' drill, irrespective of the numerous types of human build and of their physical condition. The futility of giving heavy exercises to a child whose brain is already exhausted by school work, or by want of sleep, is clearly pointed out by recent authorities. Discrimination should be exercised with regard to drill classes in our schools." In Dunedin where there is treatment provision at the general hospital for defects of this kind, Dr. Stevenson reports favourably upon the results obtained. The value of organized games, and especially of swimming, is emphasized by several School Medical Officers.

With regard to physical deformities, Dr. Phillipps states: " The most noticeable deformity of New Zealand children—and of the people generally for that matter—is that of the jaws. It is rare to see well-shaped jaws, and the resulting deformity of the face is very noticeable in the population generally. The Maoris still have good jaws, and, although a Maori child may have bad teeth, nevertheless it is usual to find that the jaws are well shaped."

Lists of cripple children were obtained in some areas by School Medical Officers at the request of the local Rotary Club in connection with the scheme now being inaugurated.

## Health Camps.

The health-camp movement continues to receive increasing public support and appreciation, and each year new districts are to be congratulated upon the enterprise and enthusiasm shown by the establishment of health camps.

It is impossible in this report to do justice to the excellent achievements of individual associations. Two newly established health camps are deserving of mention: The Southland Children's Health Camp Association constructed convenient and attractive camp buildings at Omaui Beach, between Invercargill and the Bluff, some fifty children being accommodated there during the summer holidays, with striking benefit to their physical condition. The South Canterbury Health Camp Committee utilized the Geraldine School and adjacent grounds for the efficient running of a health camp for some twenty children; this was a most successful effort, and Mr. and Mrs. Ruston in particular, who supervised the camp, are to be congratulated upon the results obtained.

Other well-known health-camp associations whose activities have been frequently recorded in previous reports continue to carry on efficiently and successfully. These organizations are now so well established in public esteem that it is unnecessary to do more than refer to them by name: The Community Sunshine Association, Auckland; The Wellington Children's Health Camp Association; the Sunlight League of New Zealand, Christchurch; the Dunedin Children's Health Camp Committee; the Bryant Home, Raglan; the Waikato Children's Camp League. All these organizations owe much of their success to the interest and practical assistance given by voluntary workers, and to the generosity of the public. Particular mention may be made of Rotary clubs in various districts. Dr. Anderson states: " Our thanks are due to the Rotary Club in Dannevirke. This club has done much valiant work for the cause of our school-children in giving milk during the winter months; also in sending cases to the Otaki Health Camp. The after-care of such children on their return from Otaki has been of particular value. The Hastings Rotary Club has been most helpful in sending children to camp." The Wellington Rotary Club has also given valuable assistance to the Otaki Health Camp.

## Tuberculosis.

The total percentage of tuberculosis found in routine examination equalled 0·07 per cent. for European childern, of which 0·05 per cent. was pulmonary and 0·02 per cent. of other tissues. The incidence of tuberculosis among Maori childern is definitely greater, the total being 0·6 per cent. (pulmonary, 0·46 per cent., of other tissues, 0·14 per cent.).

The work of supervision of tuberculosis contacts has been continued as far as possible. Records are to hand with regard to over 2,000 tuberculosis contacts throughout the Dominion. In nearly all areas School Medical Officers have maintained satisfactory co-operation with tuberculosis experts attached to sanatoria or hospitals, arrangements being made for the examination of children suspected to be suffering or actually suffering from this disease. Many instances are quoted by School Medical Officers where this constant supervision and early treatment undoubtedly save children from becoming victims of tuberculosis. In outlying districts and where the school nursing staff is small, however, it is not possible to afford tuberculosis contacts such close personal observation as is desirable.

The following is a summary of work in connection with tuberculosis contacts in the Wellington area :—

*Summary for Year 23rd February, 1934, to 22nd February, 1935.*

| | |
|---|---|
| Number of schools visited— | |
| Three-monthly | 68 |
| Six-monthly | 4 |
| Approximate number of families on list | 343 |
| Approximate number of children on list | 652 |
| Number of home visits | 573 |
| Number of children— | |
| Examined by Dr. Short (Tuberculosis Specialist) | 327 |
| X-rayed | 31 |
| Receiving treatment—hospital, sanatorium, or other treatment | 23 |
| To Dr. Gillies (Orthopædic Specialist) | 4 |
| To Eye, Ear, Nose, and Throat Specialists (approximately thirty-five visits | 21 |
| To office for weight or examination by School Medical Officer | 43 |
| To Otaki Health Camp or Rest-home | 24 |
| For Dental treatment at hospital or dental clinic (this does not include St. Joseph's Orphanage, Nai Nai Convent, or to private practitioner) | 163 |

## Defective Eyesight.

Dr Champtaloup has forwarded the result of an interesting investigation into the incidence of defective eyesight in the Taranaki District. The eyesight of all childern upward from and including Standard I was tested, particular attention being paid to factors in the school environment contributing to eyestrain or to the production of myopia, particularly aspect of class-rooms, lighting, and glare. The total number of children tested was 4,111, and findings were as follows :—

"The group of 4,111 has been subdivided according to the type of class-room and the aspect.

Class 1 : Nearly two-thirds were in modern rooms with left-hand lighting and a good aspect.

Class 2 : 183 had left-hand lighting and poor aspect, mainly N.W.

Class 3 : 665 were in the Taranaki fresh-air class-room, equally divided between a north aspect and east.

Class 4 : 551 were in older rooms where lighting fell from two or more sides of the room, and the aspect was mainly unsatisfactory.

"Incidence of untreated new defects in these classes was as follows :—

| | Per Cent. | |
|---|---|---|
| Total : | 2·90. | |
| Class 1 : | 2·30 | Modern L. lighting. Good aspect, ⅔ whole. |
| ,, 2 : | 6·50 | Modern L. lighting. Poor aspect. |
| ,, 3 : | 2.05 | Fresh-air class-room. |
| ,, 4 : | 3·80 | Mixed lighting, mainly poor aspect. |

"Altering the classification and making selected groups gave following result:—

| | Per Cent. |
|---|---|
| N.W. aspect (all types of rooms) | 6·4 |
| Glare (all types of room where this was obvious or subject to complaint) | 5·4 |

"It becomes evident that *aspect* is the single factor exerting the strongest inflence in this respect, and that a N.W. aspect is particularly bad. In the first place the lighting is not so good. Furthermore, the light instead of falling from the rear during most of the day, falls at its time of maximum illumination from the front. Indirect rays tend thus to be reflected towards the eyes instead of away from them. In winter, when the sun is lower, direct rays fall on the eyes in forward gazing. Where the blackboard is againt the wall or away from the window this affects more particularly the children in the outer rows of desks. In certain class-rooms where blackboards were fixed obliquely against the window, children on the inner side of the room had, during a great portion of the day, to look directly against the light, and had also to contend with reflected light on the blackboard. These were factors incriminated in cases of eyestrain occurring in rooms with this aspect."

## Native Schools.

The medical supervision and examination of Native schools is yearly being established on a more secure basis, the responsibility now assumed by District Nurses in this respect ensuring definite progress.

Dr. Turbott has forwarded a comparative summary of defects found in routine examination of pakeha and Maori children in the East Cape district :—

"During 1934 a total of 2,384 children were examined, 1,591 pakeha and 793 Maori. An analysis of main defects provides these figures :—

| | Pakeha. Per Cent. | Maori. Per Cent. |
|---|---|---|
| Malnutrition | 3·89 | 1·89 |
| Skin-disease— | | |
| Impetigo | 0·75 | 3·65 |
| Scabies | 0·15 | 15·63 |
| Other troubles | 1·52 | 0·63 |
| Total | 2·42 | 19·91 |
| Non-vaccination | 96·04 | 99·49 |

| | Pakeha. Per Cent. | Maori. Per Cent. |
|---|---|---|
| Heart-disease— | | |
| Organic | 0·69 | 0·50 |
| Functional | 1·44 | 0·75 |
| Total | 2·13 | 1·25 |
| Respiratory disease (actually found in schools) | 1·50 | 0·88 |
| Bony deformities of trunk and chest | 2·89 | 1·13 |
| Dental caries | 32·05 | 25·85 |
| Perfect sets of teeth | 6·72 | 20·68 |
| Nose and throat defects— | | |
| Nasal obstruction | 1·82 | 2·17 |
| Enlarged tonsils | 10·24 | 5·17 |
| Enlarged glands | 3·51 | 3·02 |
| Goitre— | | |
| Incipient | 19·92 | 4·53 |
| Small | 1·06 | 0·00 |
| Total | 20·98 | 4·53 |
| Eye and ear troubles— | | |
| Conjunctivitis | 0·31 | 0·75 |
| Defective vision (corrected) | 2·13 | 0·00 |
| Defective vision (uncorrected) | 1·69 | 0·37 |
| Otorrhœa | 0·25 | 0·50 |

As previous records have shown, it is to be noted that the Maoris show less dental caries, deformity of trunk and chest, enlarged tonsils, and goitre, but that, on the other hand, tuberculosis and skin diseases have a much higher incidence among the Maoris than among white children.

In May, 1934, a conference on Maori Hygiene was held in the Heath Department, representatives from the Education and Native Departments also being present. The work of the various Departments concerned was reviewed briefly and the responsibilities defined. A sub-committee from the Education, Native, and Health Departments met subsequently to consider what modification of the primary-school curriculum is advisable to meet the special needs of Maori children, having regard to the necessity for preparing them for a healthy and independent adolescence and adult life by means of health education, practical training in domestic arts, handicrafts, husbandry, &c. The value of practical performance as against theoretical instruction of Maori pupils was emphasized, and the responsibility of the district nurse defined. It was agreed that infant-welfare centres for older girls should be established under the supervision of the district nurse, the lessons therein to be approved by the Education Department and given by a woman teacher. It was agreed also that the Junior Red Cross organization was suitable as a vehicle for Maori education in health matters, since it gives opportunity for "club" work and has the advantage of providing communication with schools overseas, thus helping to establish friendly relationship between Maori and pakeha. The scope it provides for handwork and the ready means of co-operation which it affords with existing societies, such as women's institutes, &c., are additional advantages. It was agreed that the Health Department should furnish information to the Education Department, on application, upon any subject relating to health and sanitation in schools, also that health literature is urgently required by the teachers of Native schools. A small handbook "Health Hints" under preparation by the Health Department will be suitable and convenient for health teaching in Native schools.

### Kindergartens.

A closer co-operation between the School Medical Service and the kindergartens is to be noted each year. The annual medical examination of kindergarten schools was carried out by School Medical Officers in most centres throughout the Dominion, the result of the examination of 458 children being as follows:—

Number of children examined, 458. Percentage found to have defects, 75·11. Percentage with defects other than dental, 55·68. Percentage of children showing evidence of—Subnormal nutrition, 6·99; pediculosis, 0·66; uncleanliness, 0·66. Skin—Impetigo, 0·87; scabies, 0·44; ringworm, 1·09; other skin-diseases, 2·18. Non-vaccination, 99·56. Heart—Organic disease, 0·66. Respiratory disease, 3·49. Total deformities of trunk and chest, 17·00. Mouth—Deformity of jaw or palate, including irregularity, 0·66; dental caries, 42·58; fillings, 11·57; perfect sets of teeth, 26·86. Nasal obstruction, 4·80. Enlarged tonsils, 14·85. Enlarged glands, 13·10. Goitre—All degrees, 3·93. Eye—Total defective vision, 1·75; corrected, nil; uncorrected, 0·44. Ear—Otorrhœa, nil; defective hearing, 0·22. Defective speech, nil. Notifications to parents, 34·06.

The cordial relationship between the teachers of kindergartens and the parents of pupils results in keen interest and mutual assistance in regard to measures for the welfare of the children. In Dunedin Dr. Stevenson has initiated a system of follow-up from the kindergarten to the primary school, thus simplifying the work of examination of primary-school entrants. In the Wellington District, Miss Small, formerly Red Cross and School Nurse, Taranaki, is working in kindergarten schools of the central city area; in addition to assisting at the routine medical examination and follow-up work, lectures and demonstrations are given by her on health education to kindergarten trainees and to the group of nurses taking the post-graduate course arranged by the Health Department. Co-operation with the local Red Cross Society is maintained.

### Medical Examination of Applicants for Entrance into Teaching Profession.

The medical examination of applicants for entrance into the teaching profession was carried out this year, some 707 being examined. Generally speaking, reports were favourable with regard to the type of applicant presenting himself.

### Examination of Secondary Schools.

A few secondary schools were examined by School Medical Officers as time and opportunity permitted.

### Special Classes.

School Medical Officers continue to co-operate with officers of the Education and Mental Hospitals Departments in measures for the welfare of children requiring special methods of education—as the mentally backward, or those suffering from deafness or speech defect.

### Infectious Diseases.

The year 1934 was noted for widespread outbreaks of infectious diseases, measles and influenza of considerable virulence, in particular, sweeping the country and limiting school attendance. Diphtheria in epidemic form occurred in one or two centres; whooping-cough, mumps, chicken-pox, and scarlet fever also asserted themselves in some areas. Dr. Cook, Medical Officer of Health for North Auckland, carried out a very successful campaign of immunization against diphtheria—some 900 children being treated. (An account of this work appears in another section of the departmental report). Ringworm in various parts of the Dominion has continued to be a source of trouble, being slow to yield to various curative measures.

### Treatment Returns.

Actual figures are not yet to hand, but all School Medical Officers remark on the difficulty during the last few years of obtaining medical treatment for defects noted. This is so all the more where specialist treatment is necessary, especially for country children. In regard to dental treatment, Dr. Baker McLaglan remarks: "I have again to stress the importance of hospital dental out-patient departments. Surely in these days we know enough of the importance of aseptic mouths to realize that treatment of dental defects is as important as treatment of any other bodily defect. In some districts, for instance, where there are many poor, there are no means whereby any one unable to pay a private dentist can get any dental treatment except extraction by his lodge doctor when his toothache is unbearable."

### Open-air Schools.

In Auckland under the auspices of the Community Sunshine Association, the open-air day school for delicate and undernourished children continues its admirable work, and in Dunedin similar good work is carried on with success by the open-air school at Kew.

### Schools and School Buildings.

School Medical Officers continue to report on school sanitation and to draw attention to environmental conditions requiring remedy. Dr. Stevenson in particular forwarding an interesting resumé of observations in a large number of Otago schools. Dr. Champtaloup has supplied interesting information as to the incidence of defect in relation to type of class-room in the Taranaki District, and pays a tribute to the fresh-air rooms built by the Taranaki Education Board, which are popular with both teaching staff and pupils.

### Goitre.

Special attention continues to be given to the question of goitre by various School Medical Officers. It is evident that the iodine-content of soil, though an important influence in the incidence of goitre, is not the only factor to be considered, the problem being rather concerned with the amount of iodine in the body-system available for use by the thyroid. Faults in the body metabolism and dietetic deficiencies may thus be responsible for the occurrence of goitre even though the iodine-intake is such as would be sufficient if other conditions for health were satisfactory.

The amount of goitre of all degrees found in routine examination last year was 16·55 per cent. European and 5·75 per cent Maori. Dr. Phillipps, recently transferred from Canterbury to Auckland, remarks upon the very apparent lessened incidence of goitre in the northern city. In Southland, Dr. Abbott states: "In spite of the fairly general use of iodized salt, there appears from the year's figures to be a decided increase in the amount of goitre in all ages in both incipient and small classes. No reason for this is apparent." In Taranaki with a high iodine-content of soil and where until recent years a low goitre incidence was recorded, a rapid rise has been noted. The situation has been under close supervision. Dr. Champtaloup, Medical Officer of Health for Taranaki, reports this year as follows:—

> "A careful check has again been kept on the incidence of goitre, and findings are recorded for 3,755 primary-school children and 310 high-school girls. The same classification is used as formerly:—
>
> "(1) Normal.
> "(2) X Incipient. Palpable but not visible.
> "(3) XX Incipient. Palpable and also visible. Slight and confirmed on deglutition.
> "(4) XXX Larger. Including small, medium, and larger.

" Primary Schools (3,755)—

| | Per Cent. | | | |
|---|---|---|---|---|
| " Normal .. .. | 11·3 | | | |
| " X .. .. | 37·1 | 37·1 per cent. palpable | | |
| " XX .. .. | 50·3 | 51·6 per cent. visible | 88·7 per cent. total. | |
| " XXX .. .. | 1·3 | | | |

" High School (310)—

| | Per Cent. | | | |
|---|---|---|---|---|
| " Normal .. .. | Nil. | | | |
| " X .. .. | 32·6 | 32·6 per cent. palpable | | |
| " XX .. .. | 64·2 | 67·4 per cent. visible | 100 per cent. total. | |
| " XXX .. .. | 3·2 | | | |

" Comparing findings for primary schools in 1934 with those of 1933, I find a definite increase in the incidence of thyroid enlargement.

| | Normal. Per Cent. | Palpable. Per Cent. | Visible. Per Cent. | Total. Per Cent. |
|---|---|---|---|---|
| " 1933 .. .. .. | 23·2 | 35·8 | 42·0 | 77·8 |
| " 1934 .. .. .. | 11·3 | 37·1 | 51·6 | 88·7 |

" The increase is mainly in the two-plus class, that in the three-plus class being lower —1·3 per cent. as against 2·05 per cent. (1933).

" Figures for the high-school girls appear to be high. Taken in comparison with primary schools, bearing in mind the physiological factor, and the higher age, this is not more than one might expect. The main incidence falls in the two-plus class, only 3·2 per cent. being larger. These latter were all classified as small. It is possible that at a later age a certain proportion of these enlargements will be less.

" While working on the coast area near Opunake, I noted that the percentage of children with no enlargement appeared to be higher. Examination of the returns shows this to be correct. At Pungarehu, Opunake, and Rahotu the incidence of enlargement was lower and fell mainly in the palpable class. These schools are close to the coast, and there is a good sprinkling of Maoris. Pungarehu in particular, where 30 per cent. were normal, is composed largely of Maoris."

### Domestic Course for Girls just leaving School.

During the year Dr. Gunn put forward a proposed scheme for the better training of girls for domestic occupations. The object of the scheme is to secure improvement in the social standing of domestic workers by means of a system of co-ordination of the training received in the technical school with actual practice in the home. Dr. Gunn reports: " I have with Mr. Hancox, Principal of the Palmerston North Technical School, drawn up a list of subjects necessary, and an influential committee of twelve ladies has been formed who seem most enthusiastic. It is hoped to get girls now entering the technical school to take up this special domestic course. The course suggested is that the girls should have two years as full technical-college pupils, taking a special domestic-science course. In the third year these girls are to go out to homes, selected by the committee, and do their practical work under the guidance of a mistress. Afternoon or evening classes should be taken at the technical school, the girls to have the full benefits of such school in classes, games, and amusements. In the fourth year the domestic work will be more advanced and the girls will receive higher wages. The committee have agreed to take an interest in these girls, who, if considered suitable, will be taught to specialize in some particular branch of work. I think a very successful scheme can be elaborated and made practical; but, of course, very little can be done until we get the girls who have had their first two years at the Technical College Domestic work."

### Publications.

With the valuable co-operation of Dr. Baker McLaglan a pamphlet " Simple Hygiene " has been prepared, affording a basis of instruction to pupils in primary schools, including Native Schools. It is hoped this will be suitable for use also in Junior Red Cross circles.

A small pamphlet " Hints on Nutrition," outlining general principles of dietetics and giving simple suggestions with regard to daily food has been prepared with the co-operation of the Home Science School, Dunedin; Miss Shaw, Christchurch Technical College; Miss Rennie, Wellington; and of Mrs. Johnstone, Mount Cook Cookery Centre, Wellington.

### Special Investigations.

Besides the survey of physical measurements quoted above, considerable time has been devoted to examining children and interviewing parents with the object of obtaining information of value to the Division of Dental Hygiene in an investigation into the cause of the widespread dental caries found in New Zealand.

The Division of School Hygiene wishes to express appreciation to the Mental Hospitals Department, Education Department, various Education Boards, School Committees, and teachers for valuable co-operation.

A. G. Paterson,
Director, Division of School Hygiene.

# PART IV.—HOSPITALS.

I have the honour to submit the annual report of the Hospital Division.

## General.

The vacancy caused by the death of Mr. C. S. Allan has been filled by the appointment of Mr. G. Reid as Technical Inspector. Owing to the increased building operations of various hospitals the Technical Branch has been very busy, and until the second Inspector was appointed it was quite impossible to keep pace with the work. Gradually these arrears have been worked off, but the amount of office and inspection work involved in the discharge of their duties keeps these two officers more than fully occupied.

## Hospital Inspections.

The work of inspection of hospitals is done in conjunction with the nursing division and a scheme of co-operation has now been adopted whereby overlapping is reduced to a minimum.

A commencement was made with furnishing a detailed report on every hospital, and while this may take several years to complete, a very creditable start has been made by the various officers concerned. Once a hospital has been reported on in detail, subsequent Inspectors note any alterations and additions to the basic report.

It is pleasing to note that medical superintendents, matrons, and other executive officers of the Hospital Boards extend to us a full measure of co-operation during our visits of inspection.

During the year two official inquiries were held—one conducted by yourself at Riverton, and the second conducted by the Secretary of the Department and myself at Greymouth.

## Building Operations.

There has been considerable building activity, and the following are the principal works either in hand or completed during the year:—

(1) *Southland Hospital Board.*—Continued progress has been made with the new general hospital at Kew, and the building should be ready for occupation next year.

(2) *Wallace and Fiord Hospital Board.*—A commencement was made to install in Riverton Hospital a heating and steam plant.

(3) *South Otago Hospital Board.*—A contract to provide quarters for the Resident Medical Officer has been let.

(4) *Otago Hospital Board.*—(*a*) A contract for the new administration building was let, and good progress has been made with the work. (*b*) Authority to purchase the site for the new obstetric hospital was issued, and the plans for the building are nearing completion.

(5) *Westland Hospital Board.*—(*a*) New X-ray room was erected. (*b*) Consideration is at present being given to the question of additions to this hospital, which for some months has been greatly overcrowded both as regards accommodation for patients and nurses.

(6) *Grey Hospital Board.*—Plans are practically complete for the addition of a two-story block at the Greymouth Hospital, with the necessary additions to the Nurses' Home.

(7) *Nelson Hospital Board.*—Consent has been issued for the erection of additional accommodation for nurses.

(8) *Wellington Hospital Board.*—(*a*) Plans for additions and alterations to the Ophthalmic Ward are now completed. (*b*) Extensive repairs and renovations to the Fever Hospital and the Nurses' Home connected therewith have been completed, and the building is once again in occupation.

(9) *Palmerston North Hospital Board.*—Plans for the erection of a new administration block at the general hospital and additions to the Awapuni Home are now completed, and the work should be commenced in the near furure.

(10) *Wanganui Hospital Board.*—A new annex for the accommodation of patients suffering from pulmonary tuberculosis has been completed. In order to house the extra nursing staff required additions have been made to the Nurses' Home.

(11) *Patea Hospital Board.*—Alterations and additions have been made to the isolation quarters in order to make them suitable for maternity patients, and in order to provide more room for nurses. Accommodation for domestic staff has been added to the kitchen block.

(12) *Taranaki Hospital Board.*—(*a*) The theatre block has been remodelled and modernized. (*b*) The kitchen block has also had extensive alterations, with an entire remodelling, and fitted with modern refrigeration plant.

(13) *Hawke's Bay Hospital Board.*—Large additions have been made to the Soldiers Memorial Hospital at Hastings, giving increased accommodation for medical and surgical patients; a new maternity wing has been added.

(14) *Cook Hospital Board.*—A new maternity annex has been built in the same grounds as the general hospital, thus concentrating all hospital activities on one site.

(15) *Waikato Hospital Board.*—(*a*) Since the King George V Hospital was taken over by the Board extensive alterations have been made to the buildings, so that more small wards and single rooms are now provided and also accommodation for maternity cases. The work of the hospital shows a great increase. (*b*) A new boiler-house has been built and a new boiler installed, so that the supply of steam, previously inadequate, is now ample to meet all requirements.

(16) *Auckland Hospital Board.*—Costley Infirmary: An additional story is being added to the women's block to provide necessary additional accommodation. The necessity of building a special hospital to accommodate all "chest cases" is being discussed with the Auckland Hospital Board.

(17) *Waiapu Hospital Board.*—Plans and specifications have been completed and a contract let for additions to the hospital, including a new ward, a cottage for domestic staff, and remodelling of other parts of the hospital.

(18) *Bay of Islands Hospital.*—In order to allow of proposed additions and alterations to the general part of this hospital, the maternity ward has been moved to a new position. Plans for the alterations and additions are now in hand.

The above is a short résumé of the main building operations during the last year. The total cost of these, together with several other minor works, is over £150,000.

It is considered that the expenditure on additions to hospitals and ancilliary buildings must in the future show an increase.

Some of our hospitals are overcrowded, and in many instances all available veranda space is occupied by permanent beds. In fact, so universal is this mis-use of veranda space that I think it is desirable that the main wards should have no side veranda, but be provided only with a sun-room at the northern end.

This policy was followed out at Napier, and is being adopted at the new Kew Hospital (Southland). This allows a maximum amount of sunshine to enter the wards and offers no impediment to efficient ventilation.

### Accommodation for Patients Suffering from Pulmonary Tuberculosis.

All the sanatoria in New Zealand are now administered by Hospital Boards, either singly or in groups.

In New Zealand the number of beds provided in sanatoria is as follows:—

| | M. | F. |
|---|---|---|
| *South Island*— | | |
| Cashmere Hills | 92 | 104* |
| Pleasant Valley | 24 | 30 |
| Wakari | 30 | 15 |
| Waipiata | 44 | 74 |
| Total | 190 | 223* |

* Plus 8 children.

| | | |
|---|---|---|
| *North Island*— | | |
| Pukeora Sanatorium | 150 | .. |
| Otaki Sanatorium | .. | 62 |
| Total | 150 | 62 |

Note.—Proposals to add more beds at Otaki are at present being considered.

In addition there are provided in special annexes attached to Hospital Board institutions a number of beds as follows:—

| | M. | F. |
|---|---|---|
| North Island | 156 | 139 |
| South Island | 49 | 41 |

The total accommodation available in each Island is:—

| | M. | F. |
|---|---|---|
| North Island | 306 | 201 |
| South Island | 239 | 264* |

* Plus 8 children.

Of the total number (507) of beds in the North Island 41·8 per cent. are sanatoria beds, and in the South Island of the total number (511) beds 82·3 per cent. are in sanatoria.

The average rate of occupied beds for the year ending 31st March, 1934, in the sanatoria in the two Islands is:—

| | |
|---|---|
| North Island | 62·4 |
| South Island | 80·7 |

Obviously although the North Island has a lesser number of sanatoria beds they are not so fully utilized as those in the South Island.

Taking the individual sanatoria, the following is the occupied-bed rate for the year ending 31st March, 1934 :—

| | Per Cent. |
|---|---|
| Waipiata | 94·2 |
| Otaki | 90·5 |
| *Wakari | 78·4 |
| Cashmere | 77·0 |
| Pleasant Valley | 68·0 |
| Pukeora | 50·7 |

* In obtaining this figure the twelve beds for infectious disease have been deleted, as no cases were admitted during the year.

It is pleasing to note that the low, occupied-bed rate at Pukeora Sanatorium is causing concern to the Waipawa Hospital Board, which is taking action to obtain the co-operation of the Hospital Boards in sending suitable cases for treatment.

### Tuberculosis Dispensaries.

Practically all authorities agree that no campaign to combat tuberculosis which does not centre on a tuberculosis dispensary can hope to achieve a full measure of success. The dispensary is described as the "pivotal agency" of all anti-tuberculosis activities. For many years North Canterbury and Otago Hospital Boards have had tuberculosis dispensaries established, and practically ever since the agreement to establish a sanatoria at Waipiata was reached the Medical Superintendent at Waipiata has paid regular visits to various centres in the various Boards' districts. The Auckland and Wellington Hospital Boards in the North Island have now organized tuberculosis clinics in charge, however, of only a part-time specialist.

In order to obtain the best results it is essential that the dispensary specialist act in full co-operation with the medical authorities at the sanatoria. In regard to Otaki, this end has been gained by appointing the dispensary officer in Wellington as visiting consultant to the sanatorium. A similar move is contemplated in connection with Pukeora Sanatorium. At neither Auckland nor Wellington is the tuberculosis officer a full-time specialist, and undoubtedly a full development of the dispensary activities will require the whole-time services of the officer in charge. At no other of the North Island centres are tuberculosis clinics held, but it is to be hoped that the contemplated movement in that direction will be successful.

### Dangerous Drugs.

Since the institution of the system requiring proper records of purchases and issues and administration to be kept, great improvement in the control of these items has resulted.

### Deaths under Anæsthesia.

The statistics under this heading have not been grouped since 1929. Appended are the figures for the years 1930–1934.

Total anæsthetic deaths for years ending 31st December, 1930, 23 ; 1931, 17 ; 1932, 17 ; 1933, 11 ; 1934, 22 : total, 90.

*Nature of Anæsthetic.*

| Anæsthetic. | 1930. | 1931. | 1932. | 1933. | 1934. |
|---|---|---|---|---|---|
| Chloroform | .. | 2 | 2 | 1 | 2 |
| Chloroform and ether | 12 | 4 | 4 | 1 | 9 |
| Ether | 4 | 4 | 2 | 2 | 4 |
| Ethyl-chloride and ether | 3 | 2 | .. | 4 | 2 |
| Ethyl-chloride | .. | .. | 1 | .. | .. |
| Novocain | .. | .. | 1 | .. | .. |
| Spinocain and nitrous oxide | .. | 1 | .. | .. | .. |
| Avertin | .. | .. | .. | .. | 1 |
| Cocaine | 1 | .. | .. | .. | .. |
| Nitrous oxide and oxygen | 2 | 2 | 1 | 1 | 4 |
| Paraldehyde and saline | .. | .. | 1 | .. | .. |

Note.—In some instances the nature of the anæsthetic used was not given.

Cocaine was used by mistake instead of neo-caine in the death recorded under that heading in 1930.

Paraldehyde and saline : Death in 1932 was caused through administering an overdose of paraldehyde.

*Deaths according to Hospitals, &c.*

| Hospital. | 1930. | 1931. | 1932. | 1933. | 1934. |
|---|---|---|---|---|---|
| Auckland | 1 | .. | 1 | .. | 2 |
| Wellington | 2 | 4 | 1 | 3 | 3 |
| Christchurch | 4 | 2 | .. | .. | 2 |
| Dunedin | 4 | 2 | 1 | 1 | 1 |
| Palmerston North | 2 | .. | .. | .. | 3 |
| Waikato | 1 | .. | 1 | .. | 2 |
| Napier | 1 | 1 | 1 | 1 | 1 |
| Cook | 2 | 1 | 1 | .. | 1 |
| Timaru | .. | .. | 1 | 1 | .. |
| New Plymouth | .. | 1 | .. | .. | .. |
| Southland | .. | .. | 1 | .. | .. |
| Thames | 1 | .. | .. | .. | .. |
| Buller, Westport | .. | .. | .. | 1 | .. |
| Westland | .. | .. | 2 | .. | .. |
| Waipukurau | 1 | .. | .. | .. | .. |
| Memorial, Hastings | .. | 1 | .. | .. | .. |
| Taumarunui | .. | .. | 1 | .. | .. |
| Waihi | .. | .. | 1 | .. | .. |
| Darfield | .. | .. | 1 | .. | .. |
| Maniototo and Ranfurly | .. | .. | 1 | .. | .. |
| Rotorua | .. | .. | .. | 1 | 1 |
| Private hospitals | 3 | 3 | 2 | 2 | 2 |
| Dental surgeries | 1 | .. | .. | 1 | 2 |
| Private houses | .. | 2 | 1 | .. | 2 |

QUEEN MARY HOSPITAL, HANMER.

I attach statistics from the annual report of the Medical Superintendent (Dr. Chisholm).

*Annual Statistics of the Queen Mary Hospital, Hanmer Springs, 1st April, 1934, to 31st March, 1935.*

| —— | Service. | Civilian. | Female. | Total. |
|---|---|---|---|---|
| Number of patients in hospital at commencement of year | 5 | 20 | 53 | 78 |
| Patients admitted during year | 13 | 153 | 201 | 367 |
| Patients treated during year | 18 | 173 | 254 | 445 |
| Patients discharged recovered | 3 | 70 | 68 | 141 |
| Patients discharged relieved | 11 | 65 | 105 | 181 |
| Patients discharged unrelieved | 2 | 15 | 17 | 34 |
| Patients died | .. | 1 | 1 | 2 |
| Total patients discharged | 16 | 151 | 191 | 358 |
| Patients remaining 31st March, 1935 | 2 | 22 | 63 | 87 |
| Average number of occupied beds per day | 3·9 | 22·4 | 53·5 | 79·8 |
| Average individual days' stay | 85·7 | 50·7 | 83·6 | 73·3 |
| Patients transferred to other institutions | .. | 4 | 4 | 8 |
| Number of deaths within twenty-four hours of admission | .. | .. | .. | .. |
| Rate of mortality per cent. over total cases under treatment | .. | .. | .. | 0·4 |

Out-patient treatment:—

| | |
|---|---|
| Patients treated during year | 333 |
| Total number of attendances | 1,329 |

R. A. SHORE,
Director, Division of Hospitals.

# PART V.—DENTAL HYGIENE.

I have the honour to submit the following report on the work of the Dental Division for the year ending 31st March, 1935 :—

The School Dental Service has successfully maintained its position during the year under review ; in fact, the statistics reveal a small increase in the number of children under treatment, and also in the number of schools reached by the Service. The former steady expansion of the Service has of necessity suffered a check during the recent years of acute financial stringency. However, two new districts have been opened up during the year under review—namely, Wanganui country district, where the new mobile clinic has been established, and Forbury, Dunedin. Comments on the operation of the mobile clinic appear in another part of this report. A new clinic was also established at Waimataitai, Timaru, but this was in the nature of a reorganization, as the children who are now treated at this clinic formerly attended at another centre.

Owing to the fact that no student dental nurses were appointed in 1932, the usual draft of trained dental nurses for service in the field was not available from the training-school in 1934. To meet this position, a reserve of trained dental nurses from the previous year had been retained at the Wellington Clinic, and these were augmented in the field by the temporary re-employment of several ex-dental nurses who had left the Service to be married. Thus the service has been maintained, and at the same time provision for the future was made by the appointment of an increased number of student dental nurses, twenty-five being appointed in 1934, an increase of five over the previous year. Moreover, it is anticipated that a further increase will be made in 1935.

The service is now in operation at 248 centres, of which 143 are main centres and 105 are sub-bases. (The method of organizing sub-bases is illustrated in the map on page 48.) A list of treatment centres is included in this report.

While the Wanganui country area (mobile clinic) and Forbury (Dunedin) are the only new districts to be opened up during the year, a certain amount of local extension has been carried out in connection with established clinics. Under this heading, additional sub-base clinics have been established at the following centres, the main centre in each case being shown in parentheses : Waitakaruru (Ngatea, Hauraki Plains), Maraenui (Opotiki), Torere (Opotiki), Blackball (Runanga, Westland), Hanmer Springs (Hawarden, North Canterbury), Kaikoura (Hawarden), and Omakau (Ranfurly).

## Staff of the Dental Division.

On the 31st March, 1935, the staff, disposed as under, numbered eleven dental officers, 211 dental nurses, and one attendant :—

| | Dental Officers. | School Dental Nurses. | Dental Attendant. |
|---|---|---|---|
| Director | 1 | .. | .. |
| District Dental Superintendents | 4* | .. | .. |
| Administrative and training staff, Wellington Clinic | 3 | 2 | .. |
| Staff of school dental clinics— | | | |
| Auckland District | 3† | 48 | .. |
| Wellington District | .. | 54 | .. |
| Canterbury District | .. | 35 | .. |
| Otago District | .. | 22 | 1 |
| In training | .. | 46‡ | .. |
| On extended leave | .. | 4 | .. |
| | 11 | 211 | 1 |

* The Dental Superintendent of the Otago District is also in charge of the Central Clinic, Dunedin.
† Includes two Native Dental Officers working among Native schools in Bay of Plenty and East Coast districts.
‡ Of this number, eighteen will shortly complete their training and will be drafted for service in the field. The appointment of thirty additional student dental nurses has been authorized and is being proceeded with.

## Statistics.

Operations performed in the field and in the training-school from the 1st January to the 31st December, 1934 :—

| | | |
|---|---|---|
| Fillings— | | |
| In permanent teeth | 163,555 | |
| In "first" teeth | 236,005 | |
| | | 399,560 |
| Extractions— | | |
| Of permanent teeth | 1,992 | |
| Of "first" teeth | 68,215 | |
| | | 70,207 |
| Other operations | | 157,111 |
| Total operations | | 626,878 |

The following figures illustrate the progress of the Service during the last five years :—

| Year. | Number of Schools under Systematic Treatment. | Number of Children receiving Systematic Treatment. | Total Number of Operations. |
|---|---|---|---|
| 1930 .. .. .. .. | 930 | 67,652 | 463,204 |
| 1931 .. .. .. .. | 1,118 | 68,995 | 562,759 |
| 1932 .. .. .. .. | 1,297 | 72,584 | 619,390 |
| 1933 .. .. .. .. | 1,430 | 78,391 | 623,625 |
| 1934 .. .. .. .. | 1,551 | 83,433 | 626,878 |

Total operations since the inception of the Service : 4,564,905.

## The Training of Dental Nurses.

At the commencement of the year under review (1st April, 1934), twenty-two nurses were in training—these all in their second year. Eighteen of this group sat and passed the final examination, and shortly will be transferred to various parts of the Dominion to staff school dental clinics. Four who were not eligible to sit the final examinations will be given a special final examination at a later date.

Twenty-five new probationer dental nurses were appointed in May and one in July. Of these, twenty-four have passed their primary examination and will soon commence their second-year training. Two were retired.

Dr. Ada Paterson and Dr. F. S. McLean were examiners for the primary examination (anatomy and physiology) held on the 3rd and 4th October, 1934. Of the twenty-three candidates who presented for examination, fifteen were successful in passing both subjects, and eight anatomy only. One was absent on sick leave. A special primary examination held in February of this year saw these nine candidates complete this examination.

The final examination held on the 25th, 27th, and 28th March for the eighteen senior nurses eligible, was conducted by Mr. Millen Paulin, B.D.S., and the Superintendent of the Training School. The candidates sitting this examination all succeeded in passing.

## Wellington Dental Clinic.

The following is an extract from the report of the Superintendent, Mr. J. B. Bibby :—

*Attendances and Operations.*—Attendances and operations performed in the Dental Clinic, Wellington, for the year ending 31st March, 1935, are shown below, with the 1933–34 figures in parentheses :—

| Attendances. | Fillings. | Extractions. | Other Operations. |
|---|---|---|---|
| 29,565 | 15,139 | 1,700 | 19,046 |
| (35,430) | (28,703) | (2,530) | (18,833) |

Total attendances and operations performed since the opening of the Wellington Clinic to 31st March, 1935, are—

| Attendances. | Fillings. | Extractions. | Other Operations. |
|---|---|---|---|
| 399,325 | 265,522 | 66,107 | 213,775 |

The volume of work for the past year has again shown a decline. This is directly the result of the limited number of operators, but there is a further factor, in that last year the operative work was in the hands of the reserve group of trained dental nurses. As mentioned in my last report it is very obvious that much advantage would accrue from the retention permanently of a group of trained dental nurses in the Wellington Clinic.

*Number of Patients under Treatment.*—At the 31st March, 1935, the number of patients under treatment was 4,775, as compared with 5,907 at the end of the previous year.

*Annual Registration Fee.*—Registration during the twelve months ending 31st March, 1935, totalled 3,100, compared with 3,435 for the previous year. Exemptions granted were 341, or 11 per cent. of the total of those paying the registration, last year's figures being 693 and 20·2 per cent. respectively. Of those eligible for treatment at 31st March, 1935, 72 per cent. have paid a registration fee, or have been exempted, compared with 71·4 per cent. at 31st March, 1933, and again 71·4 per cent. at 31st March, 1934.

## Ratio of Extractions to Fillings.

In recent annual reports mention has been made of the steady decrease year by year in the number of teeth extracted as compared with the number saved by filling. Since all children who are under the care of the clinics are treated, and completed, twice in each year, these figures are of interest as showing, in effect, the proportion of unsaveable to saveable teeth.

The decrease year by year represents a steady improvement in the dental health of the school-child, or, to be more precise, of those school-children who come under the care of the school dental clinics. The fact that the number of patients per officer is strictly limited doubtless contributes to this result.

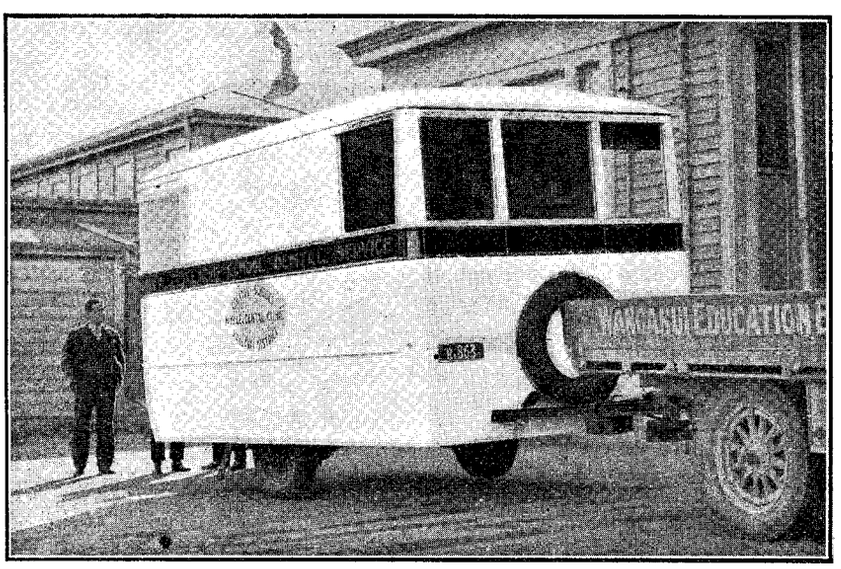
For the first time in the thirteen years during which the Service has operated, the extraction figure has ceased to fall ; in fact, it shows an infinitesimal rise, but, as this amounts to less than 0·2 extractions per 100 fillings, it can almost be said to have remained stationary during the past two years. Whether this index figure for unsaveable teeth will fall below seventeen under existing conditions it is difficult to foretell, but any marked increase in the number of pre-school patients will almost certainly lower it.

The following table shows the proportion of extractions to fillings since the inception of the Service :—

| | Fillings. | Extractions. | Ratio : Extractions per Hundred Fillings. |
|---|---|---|---|
| 1921–22 .. .. .. .. | 13,047 | 14,939 | 114·5 |
| 1922–23 .. .. .. .. | 24,603 | 25,436 | 103·3 |
| 1923–24 .. .. .. .. | 47,610 | 37,978 | 79·7 |
| 1924–25 .. .. .. .. | 59,322 | 43,181 | 72·6 |
| 1925–26 .. .. .. .. | 61,506 | 41,339 | 67·2 |
| 1926–27 .. .. .. .. | 84,723 | 53,232 | 62·8 |
| 1927–28 .. .. .. .. | 116,916 | 66,523 | 56·8 |
| 1928–29 .. .. .. .. | 146,354 | 76,555 | 52·3 |
| 1929–30 .. .. .. .. | 190,934 | 71,128 | 37·2 |
| 1930–31 .. .. .. .. | 258,546 | 75,973 | 25·5 |
| 1931–32 .. .. .. .. | 334,827 | 80,389 | 24·0 |
| 1932–33 .. .. .. .. | 382,289 | 74,633 | 19·5 |
| 1933–34 .. .. .. .. | 397,437 | 69,208 | 17·4 |
| 1934–35 .. .. .. .. | 399,560 | 70,207 | 17·5 |

## The Mobile Clinic.

As noted elsewhere in this report, a mobile clinic was put into operation during the year as a unit of the School Dental Service, and at this period it would be appropriate to discuss the relative merits of the mobile and stationary systems in the light of the experience gained up to the present time.




Experimental Mobile Dental Clinic.

Established and maintained by the Wanganui Mobile Dental Clinic Committee, and operated as a unit of the School Dental Service. It serves a group of twenty country schools.

It is obvious that the chief advantages of the mobile system are its convenience and the saving of time that is effected by carrying out the treatment at the schools themselves. Under the other system, where a centrally situated permanent clinic serves a group of schools, many of the children have to travel some distance (frequently several miles) for treatment. This calls for a greater effort on the part of parents and local School Committees. On the other hand, the mobile system is more costly. In the first place, the vehicle costs more to build than does a standard stationary clinic. Then again, the latter, if built on school-grounds, as it usually is, is a school building, and is kept in repair by the local Education Board. The cost of maintaining a mobile clinic under existing conditions falls entirely on the local dental clinic committee. To this must be added the cost of haulage from school to school. It might be said that this item is offset in the case of a stationary clinic by the cost of transporting children from outlying schools to the central clinic. This, however, would depend entirely on the distances separating the different schools from the clinic and on the local organization. It has been argued that the matter of moving from school to school would be simplified if the clinic, instead of being built as a trailer, were built on a motor chassis, so that it could move under its own power. Here again, it is a matter of cost. Apart from the question of employing a competent driver for such a large and relatively unwieldy vehicle, both the first cost and the cost of maintenance would be much greater. Moreover, it is doubtful whether such a plan would be economical, as the vehicle would be standing much more than it would be moving. The Department's experience some years ago with a motor clinic did not prove satisfactory.

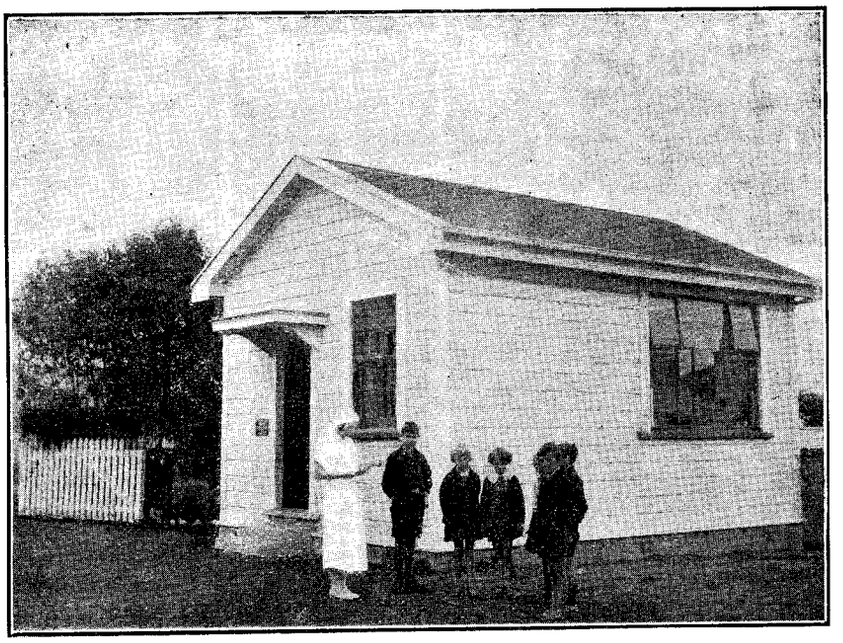
As the result of the experience gained with the mobile trailer clinic since it was placed on the road six months ago, it can be said that it makes for greater convenience of working, but that the first cost and the cost of operation (both of which have to be borne by the local committee) are considerably higher than in the case of a centrally situated stationary clinic.

### Prevention of Caries by Operative Methods.

During recent years, the attention of the Service has been focused to a considerable extent on the preservation of the teeth by early attention to those pits and fissures where decay usually commences. The procedure that has been adopted is to open up all such pits and fissures to the minimum extent necessary to retain copper amalgam. This is done as soon as the teeth are sufficiently erupted, and before the onset of caries. Whenever it is found on opening up a tooth that caries is already established, a normal cavity preparation is followed, and the tooth restored by means of silver amalgam.

The prophylactic copper amalgam fillings have a typical appearance, which is by no means displeasing. They show up black against the white enamel of the tooth as narrow clean lines following the course of the fissures, or else as small pin-head fillings. Their value in preventing major dental defects is undoubted, and, now that their use has become general in the School Dental Service, there has been a definite decrease in the number of silver amalgam fillings in permanent teeth. As the latter can be regarded as representing teeth that were definitely carious, it is obvious that the prophylactic fillings are having the desired effect.

Admittedly this procedure has its limitations. For instance, it is not applicable to approximal surfaces. Nevertheless the experience of the Service is that, notwithstanding its being an operative procedure, it is of definite value as a preventive measure, and until such time as more is known regarding the role of diet in the prevention of dental caries, and the public is educated accordingly, prophylactic fillings will continue to fulfil a useful function.



A Clinic of the usual stationary Type.

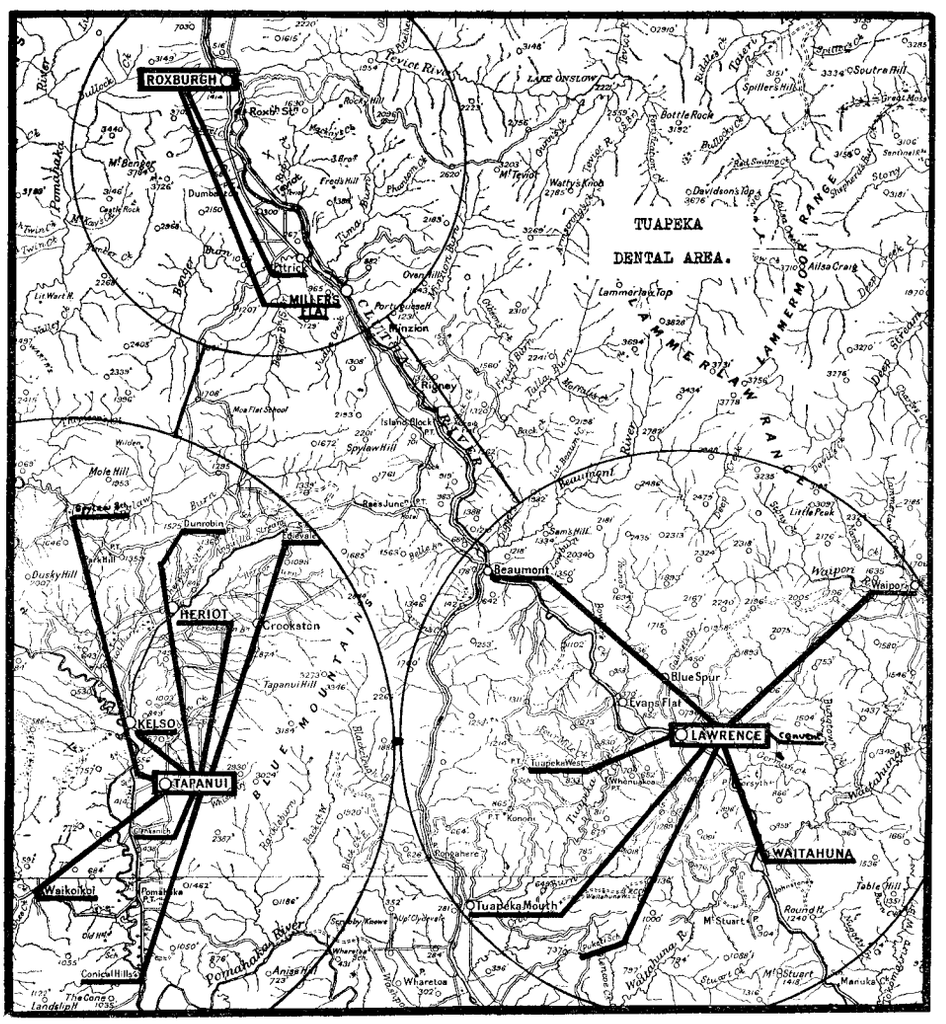
Such clinics are established in central positions, where the children from surrounding schools attend for treatment. (See map on page 48 illustrating the organization of dental "areas" and "groups.")

### Dental Health Education.

During the year under review, an appeal was made to all officers in the Service for increased activity in the matter of dental health education, and the response was very encouraging. Whereas during the previous year talks and addresses numbered 286, this year they increased to 425. In addition to these more formal activities, chair-side talks, surprise dental inspections, and the distribution of leaflets were carried out as matters of routine procedure.

It is interesting to note that during the year some 90,000 educational leaflets were issued to clinics for distribution to patients. It is impossible to assess the result of this activity, but it is hoped that the majority of the leaflets found their way into the homes, and that they came to the notice of parents. The work of a School Dental Service would show surprising results if only it were fully supported in the homes. The first leaflet to be issued as a routine is an invitation to parents to be present when their children are first examined. The value of personal contact and mutual understanding at that particular time is incalculable, and might well have lasting results as far as the dental health of a child is concerned. The result, however, is disappointing: the number of parents who accept the invitation is comparatively small. The last leaflet of the series is issued to the children when they pass out of

the care of the clinic on leaving the Fourth Standard. It urges the desirability of consulting a private practitioner without delay, with a view to continuing regular dental supervision. There is room for a closer liaison at this point between the Service and the private practitioner, in order that a much larger proportion of ex-clinic patients might be encouraged to continue the habit of regular dental attention, to which they have been trained during a period of at least six years. It would go a long way towards bridging this gap if the parents as a whole had a better understanding of the real benefits to health arising from a sound and healthy dentition, and were able to see beyond the merely superficial benefits, such as freedom from pain. In this connection, it would not be inappropriate to quote the following words of Sir George Newman, Chief Medical Officer of the Board of Education of England and Wales ("The Health of the School Child," published 1934): "There is still great need of a wider appreciation among mothers and children, and indeed among the whole population, of the value of the care of the teeth in childhood, adolescence, and adult life. The loss of teeth is in itself a serious disadvantage, particularly in youth and also subsequently, but the process of decay which produces such loss entails an exceptional extension and degree of infection, local or general. Septic conditions in various parts of the body are in this way engendered, and are liable to lead to personal ill-health, and even to disease and mortality. The burden of disease and death due directly and indirectly to dental defect cannot be measured or estimated, but it is certainly one of the most prevalent of the causes of physical deterioration and incapacity. Dental disease is perhaps the most common of all physical defects among children."




MAP ILLUSTRATING THE ORGANIZATION OF AN "AREA."

In this case the "area" (the whole of the portion within the square) comprises three "groups" (each shown within a circle), centred on Tapanui, Lawrence, and Roxburgh respectively. There is a clinic at each of these three centres, and the pupils of the schools underlined attend at the appropriate clinic for treatment, the dental nurse completing the treatment at the three centres twice each year. A separate Dental Clinic Committee is established for each group. The number of groups in an area depends on the size of the schools and also on geographical and other considerations. The centre where there are most patients is the main treatment centre (in this case Tapanui), and the others are graded as sub-bases.

## General.

*Dental Clinic Committees.*—Dental Clinic Committees, and also the School Committees associated with them, have continued to co-operate whole-heartedly with the Department and to support its officers in their efforts to maintain the efficiency of the School Dental Service. It is pleasing to note that during the year a number of committees have acted on the suggestions put forward in my last annual report in regard to improving local administration, and the results have fully justified their action. The matter is considered to be one of sufficient importance to warrant repeating the suggestions referred to. The following is therefore quoted from the last annual report:—

> "Experience has shown that the most successful committees are those that decentralize, and work through School Committees. Under this system a Dental Clinic Committee estimates its financial requirements for the year, and then debits each School Committee in the dental group with a proportion of the sum required, according to the roll number. (Note.—Each School Committee in a group is entitled to representation on the Dental Clinic Committee.) The responsibility then devolves on the various School Committees to find the sum debited against them by the central body, the Dental Clinic Committee. Schools that fail to meet their obligations are liable to be excluded from the service, as also are individuals who fail to pay the charge that Committees are authorized to make. The only exception to the latter is in the case of children whose parents are genuinely unable to pay the charge. School Committees are usually in the best position to judge of such cases, but they mostly require applications for exemption to be made in writing. Generally speaking, those committees that have adopted a firm business-like attitude in their local administration have been the most successful. Although frequently the tightening-up process has been accompanied at first by a drop in the number of patients, this has invariably been made good later, with the added advantage that the local organization has been established on a sound basis."

The amount paid to the Department by Dental Clinic Committees during the year under review was £4,946 12s. 1d. In addition the sum of £387 5s. was received from the Wellington Clinic, making a total of £5,333 17s. 1d., as compared with £5,208 3s. 1d. for the previous year.

## Acknowledgment.

I would again take this opportunity of acknowledging the assistance and co-operation of Dental Clinic Committees, teachers, and Education Boards and their staffs. The officers of the Division are grateful for the invaluable support and help of head teachers and their staffs. The loyal service given by all officers of the Division calls for the warmest acknowledgment.

J. Ll. Saunders,
Director, Division of Dental Hygiene.

CENTRES AT WHICH SCHOOL DENTAL CLINICS WERE ESTABLISHED AS AT 31ST MARCH, 1935.

| Main Treatment Centres. | Authorized Sub-bases. | Main Treatment Centres. | Authorized Sub-bases. |
|---|---|---|---|
| | *Auckland District.* | | |
| Avondale | Avondale South. | Ngatea | Kaihere, Kerepehi, Turua, Waitakaruru. |
| Birkenhead | .. | | |
| Cambridge | .. | Onehunga | .. |
| Dargaville | .. | Opotiki | Maraenui, Taneatua, Torere. |
| Devonport | .. | Otahuhu | .. |
| Ellerslie | .. | Paeroa | .. |
| Normal School, Mount Eden | .. | Papakura | .. |
| | | Ponsonby | .. |
| Gisborne No. 1 | .. | Pukekohe | .. |
| Gisborne No. 2 | .. | Rotorua | .. |
| Gladstone Road, Auckland | Mount Albert. | Sandringham | .. |
| | | Tauranga | Te Puke. |
| Grey Lynn | .. | Te Aroha | .. |
| Hamilton East | .. | Te Kopuru | Ruawai. |
| Helensville | Huapai. | Te Paroa – Totara | Maketu, Matata, Poroporo, Pukehina, Ruatoki, Tawera, Te Teko, Waiohau. |
| Henderson | .. | | |
| Huntly | Pukemiro, Te Kauwhata. | | |
| Manurewa | .. | | |
| Matamata | .. | Thames | Coromandel. |
| Maungawhau, Auckland | .. | Tikitiki | Ruatoria, Te Araroa. |
| Morrinsville | .. | Waihi | .. |
| Mount Eden | .. | Warkworth | Wellsford. |
| Mount Roskill | .. | Whangarei | Hora Hora, Whau Valley. |
| New Lynn | .. | Whangarei | .. |
| Ngaruawahia | Glen Massey, Raglan. | Whitiora, Hamilton | .. |
| | *Wellington District.* | | |
| Blenheim | .. | Pahiatua | Pongaroa. |
| Carterton | Greytown. | Palmerston North (Kingsway) | .. |
| Dannevirke | .. | | |
| Eketahuna | Tiraumea, Woodville. | Palmerston North (College Street) | .. |
| Eltham | .. | | |
| Featherston | Martinborough. | Patea | Waverley. |
| Feilding | .. | Petone | .. |
| Gonville | .. | Picton | Havelock, Rai Valley. |
| Hastings | .. | St. John Hill, Wanganui (Mobile Clinic) | Country schools from Turakina to Nukumaru. |
| Hastings (Country) | .. | | |
| Hawera | .. | Shannon | Eastbourne. |
| Inglewood | .. | Stratford | .. |
| Levin | .. | Taihape | Mangaweka. |
| Lower Hutt | .. | Taumarunui | Kakahi. |
| Manaia | .. | Te Awamutu | .. |
| Marton | Hunterville. | Te Kuiti | Waimiha. |
| Masterton | .. | Upper Hutt | .. |
| Masterton (Country) | .. | Waipawa | Otane. |
| Napier | .. | Waipukurau | Porangahau. |
| New Plymouth | .. | Wairoa | .. |
| New Plymouth (Country) | .. | Waitara | Awakino. |
| Ohakune | Raetihi. | Wanganui (Keith Street) | .. |
| Ormondville | Takapau, Otaki. | Wanganui East | .. |
| Otorohanga | Pio Pio. | Wellington | .. |
| | *Canterbury District.* | | |
| Ashburton West | .. | Rakaia | Methven. |
| Ashburton East | Tinwald. | Rangiora | .. |
| Beckenham | Opawa. | Reefton | Inangahua Junction, Murchison, Waiuta. |
| Brightwater | Richmond, Stoke, Tahunanui, Wakefield. | Runanga | Blackball, Taylorville. |
| | | St. Albans | Shirley. |
| Christchurch East | .. | Somerfield School, Christchurch | .. |
| Fairlie | Pleasant Point. | | |
| Geraldine | .. | | |
| Greymouth | .. | Southbridge | Leeston. |
| Hawarden | Hanmer Spring, Kaikoura. | Sumner | .. |
| Hokitika | Harihari, Kokatahi, Ross, Waiho Gorge, Wataroa, Weheka. | Sydenham | .. |
| | | Takaka | Collingwood. |
| | | Temuka | Winchester. |
| Hornby | .. | Timaru (Main) | West School. |
| Kaiapoi | Waimairi. | Timaru (Waimataitai) | .. |
| Linwood | .. | Waimate | .. |
| Lyttelton | .. | Westport | Denniston, Granity, Hector, Karamea, Millerton, Seddonville, Stockton, Waimangaroa. |
| Motueka | Upper Moutere. | | |
| Nelson | .. | | |
| New Brighton | .. | | |
| Papanui | .. | Woolston | .. |
| | *Otago District.* | | |
| Alexandra | Clyde, Cromwell, Pembroke, Queenstown. | Oamaru | .. |
| | | Oamaru (Country) | Kurow. |
| Balclutha | .. | Otautau | Nightcaps, Ohai. |
| Dunedin (Central) | .. | Palmerston, Otago | Seacliff. |
| Dunedin (Macandrew Road) | .. | Port Chalmers | .. |
| Forbury | .. | Ranfurly | Middlemarch, Naseby, Omakau, Oturehua. |
| Gore | Mataura. | | |
| Invercargill | .. | Tapanui | Lawrence, Roxburgh. |
| Kaitangata | Clinton. | Winton | .. |
| Milton | .. | Woodlands | Bluff, Stewart Island. |
| Mosgiel | Green Island. | Wyndham | Edendale. |

# PART VI.—DIVISION OF NURSING.

I have the honour to submit the report of the Division of Nursing for the year ending 31st March, 1935. Several important new developments have occurred during the year which have entailed a good deal of correspondence and personal negotiation.

## Exchange of Nurses.

For some time New Zealand nurses have been very interested in the development of an exchange system between this country and overseas on the basis of the exchange between teachers. Definite agreements have been entered into during the past year, and in each case the approach has come from without New Zealand :

(*a*) *Melbourne.*—Largely through the interest of Professor Marshall Allan, of Melbourne, and the New Zealand Obstetrical Society, an exchange between senior obstetrical sisters of the Melbourne Woman's Hospital and the larger New Zealand Obstetrical Hospitals has been arranged. The period of exchange is for six months ; each sister remains on the pay-roll of her own hospital and pays her own fare, the shipping companies allowing a 25-per-cent. reduction. Applications will be received for this exchange by the Health Department, who will be responsible for finalizing the agreement. The first exchange has actually taken place, and it is hoped to make the experience mutually beneficial.

(*b*) *Fiji.*—Early in the year the Fijian Government approached New Zealand to know whether this country would be willing—

(1) To supply a New Zealand matron for the Colonial War Memorial Hospital at Suva :
(2) To supply sisters for the Nursing Service of Fiji either on a basis of exchange or on loan :
(3) To permit European nurses trained at the Colonial War Memorial Hospital, Suva, to sit for the New Zealand Nurses State Examinations and be registered in New Zealand.

An agreement has been entered into by which the Fijian Government pay the passage of nurses proceeding to Fiji ; New Zealand nurses are given leave of absence without pay from their controlling authority for their period of service in Fiji, and the Fijian Government pay the nurses' superannuation contributions to the New Zealand Fund, so preserving their superannuation and seniority rights in New Zealand.

The Nurses and Midwives Registration Board agreed to allow nurses trained in Fiji to sit for the State Examination provided the syllabus laid down by the Board was followed and that the training-school was inspected from time to time by an Inspector on behalf of the Registration Board.

Miss Lea, a Nurse Inspector from the Department's staff, was appointed matron and already one sister has been granted leave of absence for this service by the Marlborough Hospital Board.

(*c*) *Shanghai.*—The most recent agreement is one between the Shanghai Municipal Council and New Zealand, whereby sisters may be selected for this service. The Shanghai Municipal Council undertakes to pay the passage and will be prepared to pay the superannuation contributions in the same way as the Fijian Government. Two nurses with general and mental certificates have been selected, and proceed to Shanghai at an early date.

In both instances applications for these services will be received by the Health Department, who will be responsible for the selection in a similar manner to the Melbourne exchange.

## Tropical Nursing Service.

Now that New Zealand is definitely linked with Fiji in regard to its nursing service, our responsibilities in the South Pacific have been definitely increased, as Samoa, Niue, Rarotonga, Aitutaki, and at present Norfolk Island, are all staffed with New Zealand sisters. The problem of training native nurses among the Polynesians to the best advantage is a most important one and one to which it behoves us to give much thought. It is essential from many aspects, both racial and economical, that native staffs should be employed, and it is hoped by extending our field of service that sisters who are interested in this aspect of nursing will be prepared to specialize in this work and yet be given an opportunity for refreshing their knowledge in New Zealand from time to time.

## Scholarships.

During the year scholarships have been awarded by both the Rockefeller and Carnegie Foundations. This is the first time that these American Foundations, which have done so much to assist nursing in other countries, have helped New Zealand nurses. The Rockefeller Foundation granted a scholarship to the Assistant Matron of the Colonial War Memorial Hospital, Suva, to take the post-graduate course in hospital administration and public health in New Zealand. The Carnegie Foundation granted a scholarship to a Maori nurse to take a special course in arts and crafts and public health at Otago University to equip her to assist with health teaching among the Maoris.

The Florence Nightingale Memorial Committee, composed of equal representation from the New Zealand Registered Nurses' Association and the New Zealand Red Cross Society, has raised £250 towards a scholarship to send a nurse to take the post-graduate course at Bedford College, London. At a meeting of this committee held in March it was agreed to hand this money over to the Health Department, provided it was subsidized, to select and send a nurse abroad to be trained to fill a senior position on the staff of the Department.

STUDIES.

*Health of Nurses.*—During the year the Committee of the International Council of Nurses issued to all training-schools for nurses throughout its member countries a most detailed questionnaire on the subject "Health of Nursing Staffs." This questionnaire was to form the basis of a five-year study. A fresh questionnaire will be issued each year and the compilation will be undertaken at Geneva under the guidance of the International Committee, of which Oberin Dominika Pietzcker, of Vienna, is chairwoman.

In New Zealand it has been decided to carry out a five-year study of our own along similar lines. In view of this the questionnaires, after being filled in by the matrons of our training-schools, were returned to my office, where the answers were summarized before being sent to Geneva. The results obtained show definite weaknesses, for instance:—

(*a*) Of 350 applicants for training examined only 12 per cent. were rejected and these rejections were confined practically to three hospitals:

(*b*) Only eight out of the twenty-one training-schools, as a routine, X-ray the chest of all applicants for training:

(*c*) Only five out of the same number carry out a tuberculosis skin test:

(*d*) The average number of days' sickness per pupil nurse is seven and per trained nurse six. When it is considered that there is a nursing staff of approximately 2,000 in the training-schools of the Dominion it will be seen what a very big economic problem this is, quite apart from its humanitarian point of view.

This study already emphasizes the points made in a previous report that if satisfactory results are to be obtained in regard to the health of our nurses it is necessary to provide for—

(1) A detailed health examination at the commencement of training by a member of the Hospital Board's stipendary medical staff, together with a careful X-ray of the chest and preferably with tuberculin skin test;

(2) Better supervision during the nurses' training which should include—Monthly weighing; Medical examination at yearly intrevals or as often as thought necessary; innoculation with T.A.B.

A further measure is being carried out in one training-school where a Mantoux skin test is performed on all entrants. Those showing a negative reaction at the commencement of their training are retested every three months, and those acquiring a marked positive reaction are then given a detailed physical examination and kept under observation. At least one nurse was found during the year who had obviously had a heavy dose of infection, and who was thus put under strict supervision and treatment in the beginning with excellent results.

(3) The need for a more varied dietary, with an allowance of at least one pint of milk per day per nurse, fresh fruit, and an allowance of at least 2,500–2,800 calories per day per nurse. One or two hospitals endeavour to cater for choice by having alternative dishes for each section of the meal.

During the recent hot summer one matron found her nursing staff not attending meals, and consequently flagging. Lunch at midday, with principally a salad meal, and dinner at night was instituted, with a marvellous response.

*Nursing Technique.*—The same method as in previous years was adopted of preparing very detailed questionnaires covering different aspects of nursing technique. These were circulated and the results were summarized. The subjects selected this year were—(*a*) The technique for a surgical dressing; (*b*) a vaginal douche; and (*c*) an enema. The answers displayed great disparity.

As it was felt that a medical committee to which these questionnaires and their findings might be submitted would be of great assistance, the New Zealand Branch of the British Medical Association and the New Zealand Branch of the Royal Australasian College of Surgeons were each asked to nominate a physician and a surgeon respectively, and the Health Department to nominate a bacteriologist who will, together with Dr. Shore, act as an advisory committee.

There is no doubt that the issuing of these questionnaires stimulates matrons to examine their own technique, and that the work of the past three years has made for marked improvements is evidenced in visits of inspection.

NURSES AND MIDWIVES REGISTRATION BOARD.

The personnel of the Nurses and Midwives Registration Board has remained the same. The New Zealand Registered Nurses' Association again nominated Miss Tennent and Miss Morgan, whose periods of office terminated in October, and who were duly appointed.

This year there were only two meetings of the Board—in August and again in November. The August meeting was postponed from July to suit the convenience of some of the Board members, and the March meeting, for a similar reason, was postponed until the first week in April, 1935.

Reports covering the inspection of eighteen general hospitals, twelve maternity training-schools, and four midwifery training-schools were considered by the Board and appropriate action taken in each case. This action covered hours of work where pupil nurses were employed in the operating-theatre in addition to their regular hours of duty in the wards; additional staff when it was considered the proportion of nurses to the occupied bed-rate of the hospital was insufficient; additional teaching equipment where the requirements of the Registration Board had not been met.

Patea Hospital was cancelled as a training-school, and with the assistance of the Health Department arrangements were made to absorb the pupil nurses from this hospital at Wanganui.

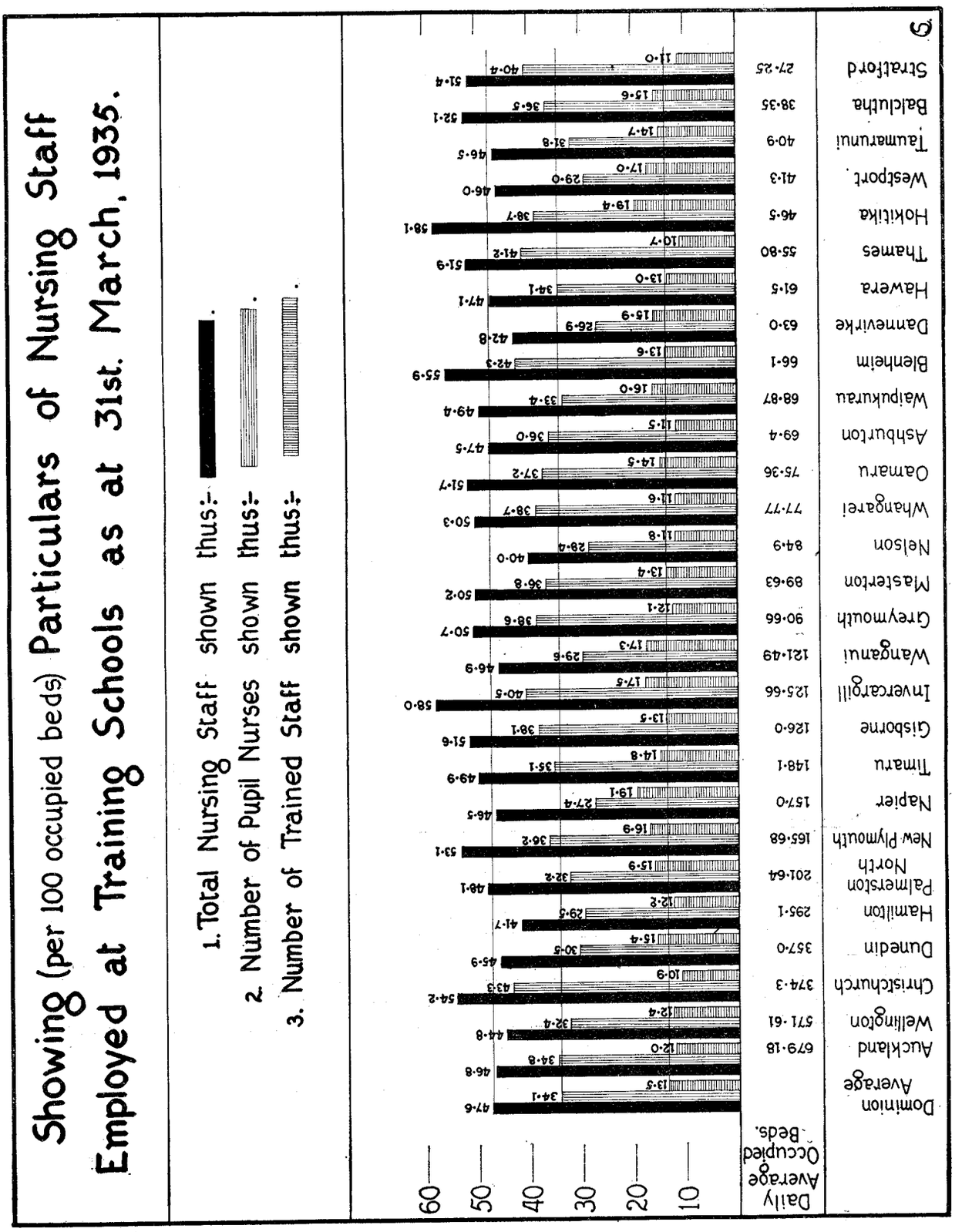
Owing to the insufficient amount of clinical experience, the Stratford Hospital was regraded to a "B" grade hospital, and it was left to the Health Department to assist this Board to arrange an affiliation with an "A" grade hospital where the pupil nurses from Stratford could gain the additional experience necessary.

*General Hospital.*—Particular attention was given this year to the standardizing of the nursing records in the various training-schools. Certain records have been made compulsory, but, in addition, an endeavour has been made to provide for a more complete system of filing the personal records so that a detailed history of each nurse's experience—both practical and theoretical—is part of the hospitals records.

The following return shows the number sitting for the State Examination and the number passing for the past four years:—

| | 1931. | 1932. | 1933. | 1934. |
|---|---|---|---|---|
| Number of nurses sitting .. .. | 412 | 385 | 448 | 403 |
| Number of nurses passed .. .. | 328 | 272 | 338 | 280 |

The examiners, after each examination, have provided a detailed report covering the examination. Their comments stress the need for more detailed nursing care being emphasized in the teaching of nurses.



A return showing the nursing staffs of training-schools for the past four years follows, together with a graph illustrating the position for the year ended March, 1935 :—

*Dominion Average Nursing Staff per One Hundred Occupied Beds.*

| | 1931. | 1932. | 1933. | 1934. |
|---|---|---|---|---|
| Total nursing staff .. .. | 45·4 | 45·26 | 46·97 | 47·60 |
| Total trained staff .. .. | 14·1 | 12·95 | 12·09 | 13·49 |
| Total pupil nurses .. .. | 31·3 | 32·31 | 34·28 | 34·10 |

Wellington, Christchurch, and Dunedin Hospitals are all willing to take nurses for a refresher course. Those taking such a course do observation duty in the wards and special departments as wished. Residence is not provided, but there is no fee required.

Auckland Hospital is prepared to take six nurses a year who are trained in smaller hospitals as staff nurses for a period of six months. The matron endeavours to give these nurses experience in whichever department they have had least experience. These arrangements are generous and provide a means by which nurses may keep themselves up to date in their profession. Unfortunately the number of nurses availing themselves of this privilege is not many.

*Obstetrical Hospitals.*—At two or three of the maternity training-schools where it was considered that the ante-natal care given to waiting patients was insufficient, endeavours have been made by departmental officers to improve the position by interviewing the local medical men to enlist their support or by arranging for better co-operation with the local Plunket nurses. The result of these efforts has been very gratifying.

Gradually the number of unregistered women qualifying as maternity nurses is becoming smaller; there are only six hospitals—including the four midwifery training-schools—which train these women. Provided registered nurses who are also registered maternity nurses are willing to practise as such this change should mean a better qualified maternity nurse, but it is possible the position may require reviewing from time to time.

Midwifery training is attracting a larger number of applicants, but a proportion of these are still nurses who do not want to practise obstetrics on the completion of their training, so that it is frequently difficult to obtain a well-qualified midwife. It is quite possible in the future that salaries for positions, where a midwifery certificate is essential, will have to be raised if suitable nurses are to be obtained.

*Examination Results :—*

MATERNITY NURSES.

*Registered Nurses.*

| | 1932. | 1933. | 1934. |
|---|---|---|---|
| Number sitting .. .. .. .. | 152 | 158 | 170 |
| Number passed .. .. .. .. | 143 | 148 | 168 |

*Unregistered Women.*

| | 1932. | 1933. | 1934. |
|---|---|---|---|
| Number sitting .. .. .. .. | 35 | 43 | 33 |
| Number passed .. .. .. .. | 30 | 35 | 30 |

MIDWIVES.

*Registered Nurses who are Registered Maternity Nurses.*

| | 1932. | 1933. | 1934. |
|---|---|---|---|
| Number sitting .. .. .. .. | 45 | 48 | 53 |
| Number passed .. .. .. .. | 39 | 44 | 47 |

*Registered Maternity Nurses who are not Registered Nurses.*

| | 1932. | 1933. | 1934. |
|---|---|---|---|
| Number sitting .. .. .. .. | 14 | 14 | 18 |
| Number passed .. .. .. .. | 11 | 12 | 13 |

During the year an agreement was entered into with the Royal New Zealand Society for the Health of Women and Children whereby short refresher courses of two weeks would be given to Plunket nurses at St. Helens Hospitals. Those nurses who are in charge of ante-natal clinics particularly are to be given consideration, and already several have availed themselves of this opportunity. Several sisters from maternity training-schools under the Hospital Boards have also taken a refresher course at St. Helens Hospitals and have appreciated the experience.

The Jessie Hope Gibbons Hospital at Wanganui has also performed a most useful function in providing a month's refresher for any practising midwife or maternity nurse. In this case free board and lodging is given in return for the nurse undertaking a definite duty.

Practically every maternity annexe which is a training-school has in charge a sister with her Plunket certificate, and nearly all the senior staffs of St. Helens Hospitals have also this same certificate. The Plunket Society have been most generous in giving vacancies to sisters from the obstetrical hospitals to take this training, and there is no doubt that this should lead to uniformity in standards and methods of infant welfare.

In a recent report published in England on the training and work of midwives great stress is laid on the need for (*a*) refresher courses for practising midwives, (*b*) further training in the methods of infant welfare, and (*c*) the careful supervision of the practising midwife by a member of her own profession. Therefore, in planning the above-mentioned means for keeping the staffs of obstetrical hospitals in touch with new developments, New Zealand is definitely working along approved lines. Much more, however, remains to be done, and it is hoped to further interest nurses specializing in this important branch of nursing.

### The Nursing Staff.

*St. Helens Hospitals.*—Miss Broadley, who had been matron of Auckland St. Helens Hospital for fifteen years, and a member of the staff for twenty-two years, was, after a long illness, retired in January of this year. It was with great regret that the Department released her from duty, and it is the hope of all members of the staff that she may enjoy a happy and useful retirement. Miss Broadley was replaced by Miss V. Oppenheim, who had been matron in Dunedin for six years; Miss A. Joyce, sub-matron at Wellington being transferred to Dunedin as matron.

Two or three other senior members of the staff have been off duty for long periods owing to sickness. This has meant a good deal of unavoidable change of personnel.

Renovations have taken place at all of the hospitals with the exception of Dunedin. These have added largely to the comfort of both the patients and the staff.

*Queen Mary Hospital, Hanmer Springs.*—Amongst the more junior members of the staff there have been a great many changes; many of the sisters only remaining for a few months. This is due to a variety of reasons, one being that many wish to be released to take further training or to take positions leading to wider experience.

The problem of training nurses willing and sufficiently interested to specialize in nervous diseases is one which will have to be faced, particularly as the hospital is situated in a comparatively isolated country district.

*Field Staff.*—During the year Miss Lea, Nurse Inspector, Wellington, was seconded for service in Fiji. Miss Comrie was transferred to Wellington to take her place. Miss R. A. Knight, from Whangarei, was transferred to the South Auckland district as Nurse Inspector, with headquarters at Hamilton, and Miss E. Leslie was appointed to fill the vacancy at Whangarei.

Among the district nurses there have also been several changes. Mrs. Oliphant, who was district nurse at Hastings since July, 1928, after an illness of some months, died on 12th May, 1935. Previous to her appointment to Hastings, before her marriage, Mrs. Oliphant had been matron at St. Helens Hospital, Auckland, and also matron of Auckland Hospital. She was a woman of particularly fine character, kind and generous to a fault, and tremendously beloved by all who came in contact with her.

Although the funeral took place at very short notice and was intended to be of a private character, over two hundred Maoris led by Bishop Bennett, representing the district to which she had given so much thought, followed in the cortege.

The sympathy of the Department is extended to her young family, who have a wonderful example in the life of their mother.

An interesting development has also been requests from two Hospital Boards asking for the Department to take over the control of the district nurses employed by them. It was realized in each case that departmental control provides better professional supervision and makes exchanges of staff possible.

These requests were particularly interesting, as another Hospital Board refused to continue to provide a cottage and its quota towards the district nurse's transport unless the Board controlled the nurse. In view of previous experience the Department refused this request, and the nurse was removed to an area where the hospital and medical services were not so adequate.

Group meetings of district nurses were held at Whangarei and Gisborne with the object of bringing the staff together so as to make for a co-ordinated plan of action. An endeavour is being made to encourage each nurse to plan her work in such a way that she visits certain areas on certain days of the week so that definite group meetings can be held. It is only possible to carry out a health-teaching programme where a system of this kind is in operation. Its adoption means that calls for sickness must be dealt with differently, and that the nurse cannot answer every call by a visit in person. To ensure that no one is neglected it is essential that a responsible person should be taught in each settlement who can be depended upon to tell the nurse whether it is urgent she should go at once. Where this plan is in operation the nurse does a round of the settlement at the time of her meeting, and much illness can be prevented by seeing it in its early stages, and the urgent calls become much fewer. A system of this kind ultimately benefits far more people and makes for better organization and economy in travelling. Some nurses have been reluctant to adopt it for fear of neglecting some one who is ill, but those who are carrying it out speak highly of it.

The problem of making group meetings attractive has turned the staff's attention to the Women's Institute. This organization is particularly attractive to the Maori, and through it not only can health education be undertaken but also all forms of housecrafts on which, after all, health education must be based. It further provides a means by which the pride of race is stimulated through Native arts and crafts. This is a most important aspect, and no race can progress unless it is conscious of its own ability and aware of its own defects.

Some districts have been particularly successful in this type of work, the principal problem being demonstration material. Maori funds are very limited, and it has often meant the district nurses buying material and equipment themselves, which is not fair. An appeal has been made to the Provincial Federations of the Women's Institutes for help in this matter.

Young married Maori women make excellent students, they are conscious of the need in their own homes, and at this stage appreciate help more than at an earlier age in their lives when what they are being taught is not being put into immediate practice.

An endeavour has also been made to introduce lessons in infant welfare to the older girls in the primary and secondary schools. A pamphlet printed in English and Maori has been published this year, and provides an excellent text from which these lessons can be taught. In some instances the lessons are given by the senior women school-teacher, and the class is examined by the district nurse; in other instances the classes are taught and examined by the district nurses.

In future the infant death-rate is to be compiled in health districts, and, if possible, in individual nurses' areas, with the object of seeing whether staffing affects the position.

The regulations governing the registration of Maori deaths has been altered, and in future it is required that all registrations of births and deaths must take place within fourteen days in the North Island, and within three days in a borough, and seven days not in a borough in the South Island. Further, district nurses are required to notify a death and give a possible cause. It is hoped by the tightening of these regulations to acquire more accurate information.

The record of the work carried out throughout the year has been very encouraging. Increased facilities for transport have made it possible for each nurse to be more effective.

| | | |
|---|---|---|
| Total number of nurses | 25 | |
| | European. | Maori. |
| Total number of individuals treated | 884 | 30,023 |
| Total number of treatments given | 1,369 | 41,733 |
| Maternity cases— | | |
| Confinements | | 255 |
| During puerperium | | 483 |
| Complicated maternity cases | | 49 |
| Maternal deaths | | 5 |
| Ante-natal and post-natal— | | |
| Number of ante-natal cases | 1,782 | |
| Number of post-natal cases | 1,924 | |
| Infant welfare— | | |
| Number of infants seen | 5,404 | |
| Number of attendances | 7,318 | |
| Number of pas visited | 5,445 | |
| Schools visited— | European. | Maori. |
| With doctor | 248 | 43 |
| Without doctor | 943 | 633 |

*Post-graduate Course.*—The 1934 class comprised seventeen nurses—ten taking hospital administration and teaching of nurses, and seven taking public-health nursing. Unfortunately, during the second term Miss Moore, who is in charge of the course, became seriously ill. She was relieved by Miss Lea and myself. It is very necessary to have some assistance for the teaching of this course, and this year it has been arranged that Miss Comrie, one of the Nurse Inspectors, should give some part-time assistance.

An analysis of the course provides an excellent record. Since 1928 some eighty nurses have taken this course. Of this number—15 are matrons, 4 are assistant matrons, 12 are tutor sisters, 20 are ward sisters, and 17 are in the Public Health Service. Several have married, and a few, owing to home circumstances, have relinquished active professional work.

In practically every instance these nurses take an active and leading part in the affairs of their profession, and it is very gratifying to those who struggled so hard to establish this course to see the excellent work that is being done.

*Unemployment.*—Unemployment amongst nurses as it was known two years ago in New Zealand is practically over. It is true that there is the problem of the older women, whom it is not easy to absorb, and there are always some nurses who, on account perhaps of temperament, find it difficult to find their niche.

The scheme adopted in Wellington to provide a visiting nursing service to the homes of relief workers has proved of invaluable assistance both to the patients and to the nursing profession, and is to be highly commended to other centres. The patients are attended on a visiting basis, the nurses being expected to do light housework (for heavy work help is given) and are paid on the same basis as the unemployed teachers, free transport being granted.

*For the Future.*—There are still several aspects of hospital work where New Zealand lags behind the older countries. We have reached a stage in our development when attention must be given, and if the nursing profession is not prepared with the necessary qualifications it will be found that others have specialized.

*The Dietitian.*—For several years our hospitals have been reluctant to employ dietitians who are university graduates and who are not registered nurses largely because these women have not had the long experience the ward sister has in handling and controlling people.

Further, the university graduate has demanded that her position should in no sense come under the matron's jurisdiction. The matrons have felt this separates them from a most important aspect of hospital work—the feeding of the patient and the nursing staff. For the latter she is responsible and the first forms such a definite part of the nurse's duty it is regarded as important that she should be considered. On the other hand no nurse during her ordinary course of instruction receives sufficient instruction to give her the scientific background which a university course gives, and which is essential to the position of a dietitian.

It is too much to expect women to undergo a four-years university course leading to a degree in home science and then a four-years course leading to State registration as a nurse. Further, this does not give the experience in handling staffs, which only experience in an administrative position will give. In Great Britain courses varying in length from six months to two years are now available, and many nurses are by these means qualifying themselves. The trouble in New Zealand is there are not enough positions to make the holding of such a course successful here.

*The Almoner.*—Hospital social service as known in New Zealand at present simply deals with the relief of distress due to varying causes. Hospital social service as carried out by the almoner—that is, the interpretation of the home circumstances to the hospital in order to assist in the treatment and discharge of the patient—is unknown except in a modified form as carried out by the visiting out-patient service of the Auckland Hospital. This is another field that the nurse is very fitted for provided she has special training. It may be possible to extend the present post-graduate course to include such a course as would train workers for this type of work.

*Occupational Therapy and Hospital Libraries.*—For the child and the chronic patient occupation is essential. Every nurse who has had experience in a sanatorium for tuberculosis, for instance, knows that providing she can keep her patient interested half the battle is won. But every patient is not interested in the same type of thing, and it is rarely that a nurse is highly trained in handcrafts.

In the same way the library forms a most important part of the hospital. It should be both fictional and technical, and should provide for the interests of both patients and staff. In Denmark an excellent system has been established by co-operating with the local district libraries ; in Great Britian an endeavour has been made to set up a separate hospital library system.

These spheres lie beyond the work of the nurse, and require skilled assistance, but they are aspects which nurses should be interested in and should plan for future development.

*Preliminary Training.*—Gradually the value of preliminary training is being realized by Hospital Boards, but much yet remains to be done. It is the foundation of a good training and from an economic point of view alone will prove its value. One month, though better than nothing, is too short. Three months allows for better teaching, more careful observation of the pupil, and gives time to cover much of the subject material which must be given during the first year of training and so relieves the pupil when she is adapting herself to ward routine.

I would again emphasize that if the smaller hospitals would co-operate with the main centres in regard to this matter a great improvement would be brought about.

In conclusion, I would desire to thank all the members of the Health Department staff for their ready co-operation and assistance, without which it would be impossible to carry out much of my work. I would also like to thank the staffs of the various Hospital Boards, particularly the matrons, and also the various voluntary organizations such as the Royal New Zealand Society for the Health of Women and Children, the New Zealand Red Cross Society, and the various voluntary district nursing organizations. Their close working agreements have made possible various developments which otherwise would have failed.

M. I. Lambie,
Director, Division of Nursing.

# PART VII.—MATERNAL WELFARE.

## REPORT OF INSPECTOR OF MATERNITY AND PRIVATE HOSPITALS.

T. L. Paget, L.R.C.P. (Lond.), M.R.C.S. (Eng.).

I have the honour to present my annual report for the year ended 31st March, 1935.

## PART I.—MATERNAL WELFARE.

This year completed the tenth year of the campaign instituted by the Health Department in 1924 to improve the maternity services for the women of New Zealand and by that and other means to promote material welfare and reduce maternal mortality. It is therefore appropriate to give a résumé of the maternity services now established by the Health Department, the Hospital Boards, the Plunket Society, and other kindred societies.

### Maternity Services.

The maternal welfare of any country depends primarily on the quality of the maternity services generally available to all women irrespective of social position, financial means, and rural or urban residence. The basis of a good maternity service is a sufficiency of medical men with sound knowledge of obstetric practice not only for the purpose of giving attention but of educating their assistants on the right lines. The assistance they require to enable them to give the full benefits of their knowledge are, firstly, a sufficiency of well-trained midwives and maternity nurses to assist in the ante-natal care of women, attendance on normal labour, and attendance during the puerperium; secondly, efficiently planned and equipped hospitals providing the necessary facilities for attending patients whose homes are unsuitable for even normal cases and for the more skilled attention required in abnormal cases; thirdly, free public ante-natal clinics where women can be educated in the care of their own health during pregnancy and where advice, in all cases supervised and supplemented by an experienced obstetrician, can be given by well-trained nurses who will relieve the general practitioner of a considerable amount of the work for which he has insufficient time and for which the patient often cannot pay. New Zealand has the following services so evenly distributed over its area of 103,285 square miles that in spite of the widely scattered population of 1,557,100 there are few who are beyond the reach of these services.

The past deficiency of a maternity hospital designed for obstetrical teaching at the Otago University Medical School is now being removed. Plans are all but completed and finance arranged for a 26-bed hospital and residential quarters for students at that school. This much-needed provision, it may be confidently anticipated, will enable those responsible for teaching of obstetrics to obtain even better results than at present.

### Public Maternity Services.

The maternity services provided by the Health Department and Hospital Boards subsidized by the Government consist of—

(*a*) Five State (St. Helens) hospitals providing 98 beds and admitting 2,164 women as in-patients, of whom 1,967 were confined therein and 233 women attended as district cases during the year. (For details of patients attended see Table I and Group III of Table II.)

(*b*) Sixty-eight Hospital Board maternity hospitals or wards, providing 489 beds and admitting during the year 7,010 patients, of whom 6,716 were confined therein.

(*c*) Accessory to the hospital services, there are 25 district nurses under the Health Department, who were responsible for the delivery of 255 Maori women and 7 Europeans.

(*d*) Twenty-eight district nurses under the control of Hospital Boards attended 250 confinements.

(*e*) In addition to the above usual provisions for maternity patients, the medical and surgical wards of public hospitals are on occasion used for maternity services, and to these wards 299 maternity patients were admitted during the past year, of whom 22 were patients requiring special ante-natal care, 277 were delivered, 122 normally; 55 by induction, Cæsarean section or other operative procedure; 20 were transferred to maternity hospitals for delivery, and 2 died undelivered.

All the public maternity hospitals give ante-natal attention to their own patients, and a number of them have public ante-natal clinics at which any pregnant woman is given free attention by the nurse in charge in conjunction with the attention given by the medical man engaged to attend her.

### Private Maternity Services.

In addition to the public maternity services there are 194 private maternity hospitals, providing 1,179 beds. In these hospitals 10,029 patients were attended in their confinements.

Among these hospitals are 35 mixed hospitals, supplying 126 maternity beds and 116 medical and surgical beds. The problem of preventing danger to maternity patients in such hospitals by the transfer of infection to maternity patients has been solved to a large extent by excluding septic surgical

cases fron all of these hospitals in which the nursing staff is insufficient in numbers to provide for separate nursing for each class of patient. The death-rate in this group in 1929 was 8·23 per 1,000 confinements as compared with 3·19 for maternity hospitals not admitting medical and surgical cases. The death-rate in the mixed hospitals has now fallen to 3·58 per 1,000, which must be regarded as fairly satisfactory.

The detailed results of maternity patients admitted to all maternity hospitals are given in Table II.

*Table I.—St. Helens Hospitals, General Statistics, 1934.*

| — | Auckland. | Wellington. | Christchurch. | Dunedin. | Invercargill. | Total. | Percentage to Total Confinements. |
|---|---|---|---|---|---|---|---|
| A.—Intern Department. | | | | | | | |
| Total deliveries | 630 | 564 | 337 | 166 | 270 | 1,967 | .. |
| Primiparæ | 225 | 140 | 95 | 41 | 57 | 558 | 28·37 |
| Multiparæ | 405 | 424 | 242 | 125 | 213 | 1,409 | 71·63 |
| Presentations— | | | | | | | |
| Vertex normal rotation | 593 | 552 | 312 | 155 | 256 | 1,868 | 94·97 |
| Occipito posterior (persistent) | 19 | 13 | 19 | 6 | 6 | 63 | 3·20 |
| Face | 2 | .. | 1 | 1 | .. | 4 | 0·20 |
| Brow | 1 | .. | 2 | 1 | .. | 4 | 0·20 |
| Breech | 23 | 11 | 9 | 2 | 9 | 54 | 2·75 |
| Transverse | 1 | .. | 1 | 1 | 1 | 4 | 0·20 |
| Twins (sets) | 6 | 9 | 7 | .. | 2 | 24 | 1·22 |
| Complications of pregnancy— | | | | | | | |
| Hyperemesis | 1 | .. | .. | .. | .. | 1 | 0·05 |
| Hydramnios | 2 | 3 | .. | 11 | 1 | 17 | 0·86 |
| Pre-eclamptic toxæmia | 19 | 22 | 4 | 2 | 10 | 57 | 2·90 |
| Eclampsia | 7 | 2 | 1 | .. | 2 | 12 | 0·61 |
| Nephritic toxæmia | 1 | .. | 6 | 1 | 2 | 10 | 0·51 |
| Hæmorrhages— | | | | | | | |
| Unavoidable | 2 | 3 | 4 | 2 | 1 | 12 | 0·61 |
| Accidental, external | 3 | 1 | 3 | 1 | .. | 8 | 0·41 |
| Accidental, internal | .. | 1 | .. | .. | .. | 1 | 0·05 |
| Post-partum, atonic | 30 | 1 | 8 | 4 | 3 | 46 | 2·34 |
| Post-partum, traumatic | .. | .. | .. | .. | .. | .. | .. |
| Lacerations of genital tract— | | | | | | | |
| Perinæum | 170 | 63 | 35 | 16 | 26 | 310 | 15·76 |
| Cervix | 3 | .. | .. | .. | 2 | 5 | 0·25 |
| Uterus | .. | 1 | .. | .. | .. | 1 | 0·05 |
| Contracted pelvis, inlet | 3 | .. | 4 | 1 | .. | 8 | 0·41 |
| Contracted pelvis, outlet | 2 | .. | 4 | .. | 1 | 7 | 0·36 |
| Prolapse of cord | 1 | 1 | .. | 1 | 2 | 5 | 0·25 |
| Complications of puerperium— | | | | | | | |
| Sepsis, local | 2 | 5 | .. | .. | 2 | 9 | 0·46 |
| Sepsis, general | .. | 2 | .. | .. | 2 | 4 | 0·20 |
| Pulmonary embolism | .. | 2 | .. | .. | 2 | 4 | 0·20 |
| Insanity | .. | 1 | .. | .. | 1 | 2 | 0·10 |
| Crural phlegmasia, venous | 2 | 6 | .. | .. | 1 | 9 | 0·46 |
| Crural phlegmasia, lymphatic | .. | .. | .. | .. | .. | .. | .. |
| Mastitis | 8 | 1 | .. | .. | .. | 9 | 0·46 |
| Operations— | | | | | | | |
| Internal pelvimetry | .. | .. | .. | .. | .. | .. | .. |
| Induction of labour | 12 | .. | 31 | 11 | 1 | 65 | 3·30 |
| Episiotomy | 2 | 3 | 2 | 2 | 1 | 10 | 0·51 |
| Impacted shoulders | .. | 2 | .. | .. | .. | 2 | 0·10 |
| Suture of perinæal lacerations | 170 | 65 | 35 | 16 | 26 | 312 | 15·86 |
| Complete | 2 | .. | .. | .. | .. | 2 | 0·10 |
| Incomplete | 168 | 65 | 35 | 16 | 26 | 310 | 15·76 |
| Suture of cervical lacerations | 3 | .. | .. | .. | 2 | 5 | 0·25 |
| Forceps | 50 | 18 | 20 | 3 | 13 | 104 | 5·29 |
| Version, external | 2 | 4 | 2 | 3 | 1 | 12 | 0·61 |
| Version, internal | 3 | 2 | 9 | 1 | 1 | 16 | 0·81 |
| Version, combined | 2 | .. | 1 | .. | .. | 3 | 0·15 |
| Manual removal of placenta | 4 | 2 | 1 | 1 | 1 | 9 | 0·46 |
| Cæsarean section— | | | | | | | |
| Abdominal conservative | 2 | 3 | .. | .. | .. | 5 | 0·25 |
| Abdominal radical | .. | .. | .. | .. | .. | .. | .. |
| Pubiotomy | .. | .. | .. | .. | .. | .. | .. |
| Craniotomy | .. | 1 | 1 | .. | .. | 2 | 0·10 |
| Cleidotomy | .. | .. | .. | .. | .. | .. | .. |
| Decapitation | .. | .. | .. | .. | .. | .. | .. |

*Table I.—St. Helens Hospitals.—General Statistics, 1934*—continued.

| — | Auckland. | Wellington. | Christchurch. | Dunedin. | Invercargill. | Total. | Percentage to Total Confinements. |
|---|---|---|---|---|---|---|---|
| **A.—Intern Department—*continued.*** | | | | | | | |
| Morbidity | 26 | 27 | 15 | 3 | 15 | 86 | 4·37 |
| Mortality | 2 | 2 | .. | .. | 2 | 6 | 0·31 |
| Infant statistics— | | | | | | | |
| Total births | 640 | 576 | 344 | 166 | 272 | 1,998 | 101·58 |
| Premature | 26 | 18 | 15 | 4 | 10 | 73 | 3·71 |
| Alive | 21 | 11 | 6 | 3 | 10 | 51 | 2·59 |
| Dead | 5 | 7 | 9 | 1 | .. | 22 | 1·12 |
| Recent | 3 | 3 | 9 | 1 | .. | 16 | 0·81 |
| Macerated | 2 | 3 | .. | .. | .. | 5 | 0·25 |
| Putrid | .. | 1 | .. | .. | .. | 1 | 0·05 |
| Full term | 615 | 559 | 329 | 162 | 262 | 1,927 | 97·97 |
| Alive | 603 | 547 | 325 | 160 | 256 | 1,891 | 96·14 |
| Dead | 12 | 12 | 4 | 2 | 6 | 36 | 1·83 |
| Recent | 9 | 9 | 4 | 1 | 5 | 28 | 1·42 |
| Macerated | 3 | 3 | .. | 1 | 1 | 8 | 0·41 |
| Putrid | .. | .. | .. | .. | .. | .. | .. |
| Children born alive who died in hospital | 16 | 5 | 5 | 3 | 2 | 31 | 1·58 |
| Total born dead or died in hospital | 33 | 24 | 14 | 6 | 8 | 85 | 4·32 |
| **B.—Extern Department.** | | | | | | | |
| Total attendance | 136 | 15 | 81 | 1 | .. | 233 | .. |
| Primiparæ | .. | .. | .. | 1 | .. | 1 | 0·43 |
| Multiparæ | 136 | 15 | 81 | .. | .. | 232 | 99·57 |
| Forceps application | 5 | .. | 2 | .. | .. | 7 | 3·00 |
| Morbidity | .. | .. | 2 | .. | .. | 2 | 0·86 |
| Mortality | .. | .. | .. | .. | .. | .. | .. |
| **C.—Ante-natal Clinics.** | | | | | | | |
| First visits— | | | | | | | |
| Primiparæ | 234 | 155 | 110 | 49 | 62 | 610 | .. |
| Multiparæ | 595 | 503 | 331 | 116 | 191 | 1,736 | .. |
| Return visits | 3,856 | 2,709 | 2,762 | 492 | 764 | 10,583 | .. |
| Outside visits | 188 | 516 | 522 | 2 | 2 | 1,230 | .. |
| Outfits, sterilized | 168 | 72 | 173 | 88 | 37 | 538 | .. |

## STATISTICS OF MATERNITY HOSPITALS.

*Table II.—Summary of Maternity Cases in all Hospitals, 1934.*

| — | Number of Hospitals. | Patients admitted. | Confined at Full Term. | Number of Patients confined between Seventh Month and Full Term. | Total Confinements. | Number of Abortions—i.e., Delivery before the Seventh Month. | Number of Operations. | | | | | | | Hæmorrhages. | | | Eclampsia. | Number of Deaths of Mothers. | Number of Deaths of Infants who were born alive. | Number of Infants born dead. | | Number of Patients transferred to other Hospitals. | | Deaths of Transferred Adult Patients. | Maternal Mortality. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Instrumental Delivery. | Version. | | Dilation of Cervix. | Manual Removal of Placenta. | Cæsarian Section. | Craniotomy, &c. | Accidental Hæmorrhage. | Unavoidable Hæmorrhage (Placenta prævia). | Post-partum Hæmorrhage. | | | | Probably before Labour. | Probably during Labour. | Before Delivery. | After Delivery (Mothers only). | | Puerperal Causes. | Non-puerperal Causes. | Total Maternal Mortality. |
| | | | | | | | | External. | Internal. | | | | | | | | | | | | | | | | | | |
| (*a*) *Maternity Hospitals—i.e.*, admitting maternity cases and urgent miscarriage cases only— | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Group I: 1–100 cases per annum— | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Totals | 116 | 7,073 | 6,620 | 336 | 6,956 | 36 | 739 | 17 | 31 | 23 | 59 | 4 | 3 | 20 | 23 | 81 | 25 | 11 | 119 | 118 | 74 | 26 | 53 | 2 | 12 | 1 | 13 |
| Percentages to total confinements | .. | .. | .. | .. | .. | .. | 10·62 | 0·24 | 0·45 | 0·33 | 0·85 | 0·06 | 0·04 | 0·29 | 0·33 | 1·16 | 0·36 | 0·158 | 1·71 | 1·70 | 1·06 | 0·37 | 0·76 | 0·029 | 0·173 | 0·014 | 0·187 |
| Group II: Over 100 cases per annum— | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Totals | 48 | 7,860 | 7,206 | 349 | 7,555 | 32 | 786 | 35 | 28 | 33 | 60 | 20 | 2 | 30 | 37 | 87 | 32 | 7 | 138 | 140 | 99 | 37 | 111 | 12 | 15 | 4 | 19 |
| Percentages to total confinements | .. | .. | .. | .. | .. | .. | 10·40 | 0·46 | 0·37 | 0·44 | 0·79 | 0·26 | 0·03 | 0·40 | 0·49 | 1·15 | 0·42 | 0·093 | 1·83 | 1·85 | 1·31 | 0·49 | 1·47 | 0·159 | 0·199 | 0·053 | 0·251 |
| Group III: St. Helens Hospitals— | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Totals | 5 | 2,164 | 1,902 | 65 | 1,967 | 6 | 104 | 13 | 17 | 11 | 9 | 5 | 2 | 8 | 12 | 47 | 12 | 4 | 31 | 34 | 20 | 17 | 29 | 2 | 6 | .. | 6 |
| Percentages to total confinements | .. | .. | .. | .. | .. | .. | 5·29 | 0·66 | 0·86 | 0·56 | 0·46 | 0·25 | 0·10 | 0·41 | 0·61 | 2·39 | 0·61 | 0·203 | 1·58 | 1·73 | 1·02 | 0·86 | 1·47 | 0·102 | 0·305 | .. | 0·305 |
| Totals, Groups I, II, and III— | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Totals | 169 | 17,097 | 15,728 | 750 | 16,478 | 74 | 1,629 | 65 | 76 | 67 | 128 | 29 | 7 | 58 | 72 | 215 | 69 | 22 | 288 | 292 | 193 | 80 | 193 | 16 | 33 | 5 | 38 |
| Percentages to total confinements | .. | .. | .. | .. | .. | .. | 9·89 | 0·39 | 0·46 | 0·41 | 0·78 | 0·18 | 0·05 | 0·35 | 0·44 | 1·30 | 0·42 | 0·134 | 1·75 | 1·77 | 1·17 | 0·49 | 1·77 | 0·097 | 0·200 | 0·030 | 0·230 |
| (*b*) *Mixed Hospitals—i.e.*, admitting maternity and medical and surgical cases— | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Group IV: Mixed Hospitals— | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Totals | 59 | 2,357 | 2,142 | 92 | 2,234 | 53 | 187 | 3 | 4 | 11 | 15 | 8 | .. | 7 | 7 | 29 | 18 | 8 | 45 | 39 | 20 | 6 | 21 | .. | 8 | .. | 8 |
| Percentages to total confinements | .. | .. | .. | .. | .. | .. | 8·37 | 0·13 | 0·18 | 0·49 | 0·67 | 0·36 | .. | 0·31 | 0·31 | 1·30 | 0·81 | 0·358 | 2·01 | 1·75 | 0·90 | 0·27 | 0·94 | .. | 0·358 | .. | 0·358 |
| (*c*) *All Hospitals*— | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Totals | 228 | 19,454 | 17,870 | 842 | 18,712 | 127 | 1,816 | 68 | 80 | 78 | 143 | 37 | 7 | 65 | 79 | 244 | 87 | 30 | 333 | 331 | 213 | 86 | 214 | 16 | 41 | 5 | 46 |
| Percentages to total confinements | .. | .. | .. | .. | .. | .. | 9·71 | 0·36 | 0·43 | 0·42 | 0·76 | 0·20 | 0·04 | 0·35 | 0·42 | 1·30 | 0·46 | 0·160 | 1·78 | 1·77 | 1·14 | 0·46 | 1·14 | 0·086 | 0·219 | 0·027 | 0·246 |
| (*d*) *Cases confined in Private Houses and/or General Wards of Public Hospitals*— | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Totals | .. | .. | .. | 6,043 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 25 | .. | .. |
| Percentages to total confinements | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0·414 | .. | .. |

### Private Nursing Services.

There are at the present time in New Zealand approximately 2,250 registered midwives and maternity nurses in active practice either in hospitals or otherwise, besides a large number who having these qualifications are engaged in general nursing. Practically the whole of 5,764 patients confined in private houses, Group (*d*), Table II, had the services of trained women to attend them, mostly in conjunction with the patient's own private practitioner. The emergency complications in this group requiring hospital treatment were for the most part transferred to the medical and surgical wards of public hospitals. It will be to the advantage of this class of patient to have the benefit of treatment in obstetric hospitals.

### Ante-natal Services.

In addition to the services set out above the Plunket Society conducts eleven ante-natal centres. Table III sets out the work conducted in these centres and in the public clinics connected with maternity hospitals from whom returns have been received.

### ANTE-NATAL CLINICS.

*Table III.—Ante-Natal Clinics.*

| Year. | Number of Clinics. | New Cases. | Total Attendances. | Average Number of Attendances by each Patient. | Outfits sterilized. |
|---|---|---|---|---|---|
| 1925 .. .. | 16 | 2,289 | 7,816 | 3·0 | .. |
| 1926 .. .. | 20 | 3,238 | 12,554 | 3·8 | 401 |
| 1927 .. .. | 20 | 3,919 | 15,406 | 4·5 | 515 |
| 1928 .. .. | 21 | 5,050 | 20,740 | 4·11 | 728 |
| 1929 .. .. | 24 | 5,177 | 17,555 | 3·39 | 924 |
| 1930 .. .. | 25 | 6,027 | 22,078 | 3·66 | 1,106 |
| 1931 .. .. | 28 | 6,306 | 22,869 | 3·63 | 1,221 |
| 1932 .. .. | 31 | 5,882 | 22,594 | 3·84 | 986 |
| 1933 .. .. | 33 | 5,978 | 23,794 | 3·98 | 914 |
| 1934 .. .. | 34 | 6,191 | 24,929 | 4·04 | 859 |

### Training-schools for Midwives and Maternity Nurses.

Four of the St. Helens Hospitals undertake the whole of the training of midwives in New Zealand and twenty-six maternity hospitals are training-schools for maternity nurses. The training in these hospitals is controlled by the Nurses and Midwives Registration Board, and a very high standard of teaching in midwifery and maternity nursing is assured.

### Refresher Courses.

The very necessary development of refresher courses for midwives is proceeding satisfactorily. Courses of lectures are arranged from time to time on matters of interest. The Jessie Hope-Gibbons Hospital, Wanganui, affords opportunities for refresher courses in practical work. These lectures and classes are obviously being more and more appreciated by the practising members of the nursing profession engaged in obstetrical nursing, and the information imparted through the above agencies has been supplemented by the issue to all practising midwives and maternity nurses of the Department's pamphlet on "The General Principles of Maternity Nursing, including the Aseptic Technique of Labour." This pamphlet, which was first issued in 1925, has been completely revised.

### Inspection of Hospitals.

Inspection of all maternity hospitals has been systematically carried out by the Nurse Inspectors of the different health districts, aided when necessary by the Medical Officer of Health. From the reports received and from my own inspections of the majority of these hospitals made during the year I am satisfied that the standard of nursing and conduct in nearly all of them is satisfactory, and the less well conducted of them are being slowly but surely improved or eliminated. The aim is to make all inspections instructive and helpful to the licensees, and I can state that the work of inspection is being performed with tact and ability. The result is that the relationship between the licensees, the Nurse Inspectors, the Medical Officers of Health, and myself is one of helpful co-operation. The almost infinitely varied conditions regarding population, finance, &c., which applies to different private hospitals requires something more than the rigid application of regulations to maintain efficiency. Only in those cases where appeal to reason fails is it necessary to enforce them. Such cases are, I am glad to say, increasingly rare.

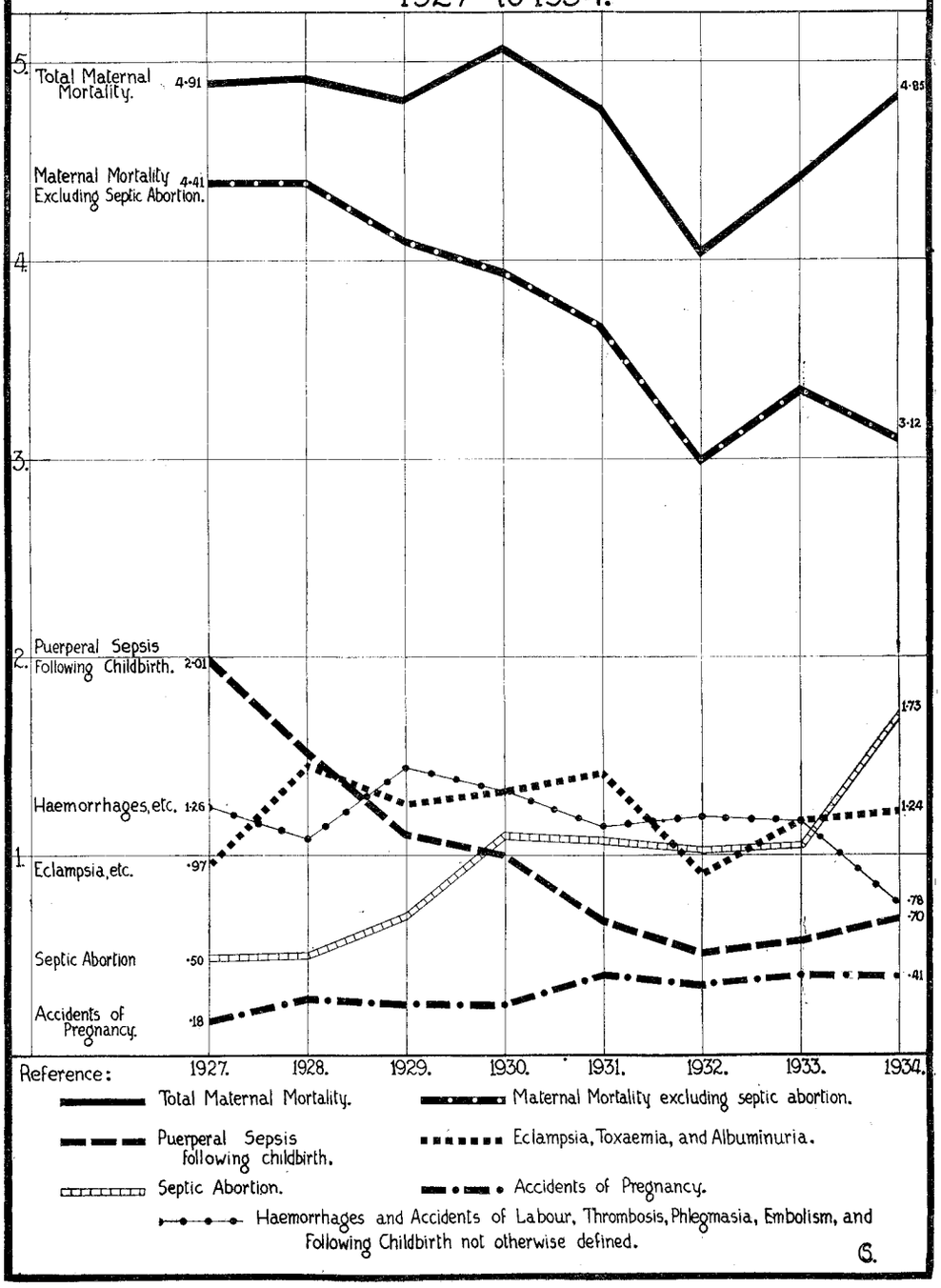
*Table IV.*

# Maternal Mortality.

*Showing the Number of Deaths from all Puerperal Causes, 1927-34.*

| | 1927. | 1928. | 1929. | 1930. | 1931. | 1932. | 1933. | 1934. |
|---|---|---|---|---|---|---|---|---|
| Puerperal sepsis following childbirth ... ... ... | 56 | 42 | 30 | 27 | 18 | 13 | 14 | 17 |
| Hæmorrhages, accidents of labour, thrombosis, phlegmasia, embolism, and following childbirth not otherwise defined | 35 | 30 | 39 | 36 | 31 | 30 | 29 | 19 |
| Toxæmia, albuminuria, and eclampsia ... ... ... | 27 | 40 | 34 | 36 | 38 | 23 | 29 | 30 |
| Puerperal sepsis following abortion or miscarriage ... | 14 | 14 | 19 | 30 | 29 | 26 | 26 | 42 |
| Accidents of pregnancy (non-septic abortions and ectopic gestation) | 5 | 8 | 7 | 7 | 11 | 9 | 10 | 10 |
| Total ... ... ... ... ... | 137 | 134 | 129 | 136 | 127 | 101 | 108 | 118 |
| Total maternal deaths, excluding septic abortion ... | 123 | 120 | 110 | 106 | 98 | 75 | 82 | 76 |

## Showing the Death-rate per 1,000 live births 1927 to 1934.




6.

## PART II.—MATERNAL MORTALITY.

### European Maternal Mortality.

The total maternal deaths, including those from septic abortion as shown in detail in Table IV, with graph, were 118, giving a rate of 4·85 per 1,000 live births, which, when compared with the average yearly number of deaths for the previous seven years, 124·5, gives a reduction of approximately 5 per cent. This figure is of no value in estimating the results of the maternal-welfare campaign from the point of view of obstetric efficiency, as 42 out of 118 deaths were due to septic abortion, which, as pointed out in previous years, are probably all due to artificially induced abortions and are an attempt to avoid motherhood. The deaths from this cause are a social and economic problem as opposed to an obstetric problem. Of the 42 deaths, 29 were those of married and 13 of unmarried women.

The true maternal mortality is represented by the 76 remaining deaths, giving a rate of 3·12 per 1,000 live births. Table IV, and its accompanying graph, shows the position for the eight-year period 1927–1934. On the whole the result must be regarded as satisfactory, though improvement is possible, and, with continued effort, should be realized.

### Puerperal Sepsis following Childbirth.

Puerperal sepsis following childbirth has not quite maintained its position gained in 1932 (see Table V), when New Zealand had the lowest rate of the eight countries selected by the Government Statistician as all using the same classification as that used in New Zealand; the rise is not material. Three of the deaths followed Cæsarean section.

*Table V.—Extract from Report on the Vital Statistics of the Dominion of New Zealand for the Year 1933.*

| Country. | Death-rates per 1,000 Live Births. | | | |
|---|---|---|---|---|
| | Septic Abortion. | Puerperal Septis following Childbirth. | Total Puerperal Sepsis. | All Pueperal Causes. |
| Irish Free State .. .. .. .. | 0·07 | 1·32 | 1·39 | 4·55 |
| Netherlands .. .. .. .. | 0·35 | 0·56 | 0·91 | 3·02 |
| Scotland .. .. .. .. | 0·36 | 2·31 | 2·67 | 6·33 |
| England and Wales .. .. .. | 0·43 | 1·19 | 1·62 | 4·21 |
| Canada (1931) .. .. .. .. | 0·52 | 1·29 | 1·81 | 5·05 |
| Australia .. .. .. .. | 0·64 | 0·76 | 1·40 | 5·57 |
| United States of America* .. .. | 0·89 | 1·21 | 2·10 | 5·78 |
| New Zealand .. .. .. .. | 1·04 | 0·52 | 1·56 | 4·06 |

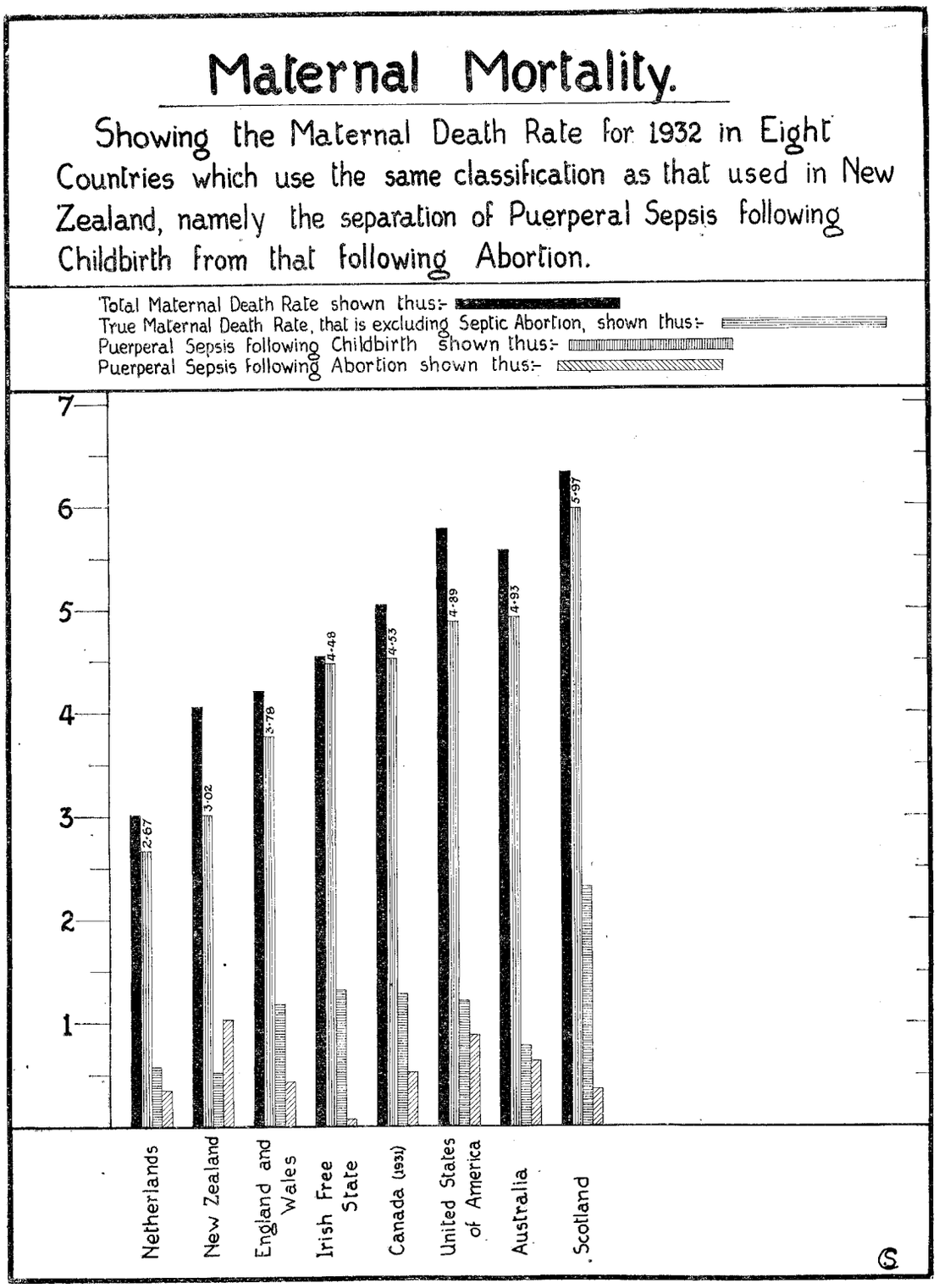
* Preliminary figures.

The Government Statistician states:—

> "Of the eight countries shown, New Zealand in 1932 had the second lowest total puerperal mortality-rate, but was about half-way as far as the death-rate from puerperal septicæmia is concerned. On analysing these deaths into septic abortion and other puerperal sepsis, however, it is found that New Zealand has the highest death-rate for the former and the lowest for the latter. It is also significant that New Zealand is the only country in which the rate for septic abortion is higher than for other puerperal sepsis. Undoubtedly the explanation lies to some extent in the probability that more detailed information is obtainable in this country regarding these deaths, as every case of puerperal septicæmia is closely investigated by the Health Department. The figures give some idea of the extent to which the official statistics of deaths from puerperal causes are inflated by the inclusion of cases which do not represent maternal deaths."

The rates as given above are illustrated in the accompanying graph—Table Va.

*Table VA.*




ANALYSIS OF NOTIFIED CASES OF PUERPERAL SEPSIS FOLLOWING CHILDBIRTH.

Of the 141 cases of puerperal sepsis notified, including Maoris, investigations were made and reports received on 127. Of this number 72·23 per cent. of them occurred in patients delivered in maternity hospitals and 27·77 in those delivered in private houses. As 75·59 per cent. of the total confinements occurring in New Zealand in the same period were delivered in maternity hospitals, the figures show, as in previous years, that the risk of sepsis to patients in New Zealand maternity hospitals is less than those delivered elsewhere. As hospitals automatically receive more abnormal cases than are delivered in private houses, it is evidence of our hospitals being conducted efficiently.

Delivery of both infant and placenta was spontaneous in 78 (60·23 per cent.) of the above cases. In the remaining 49 cases (39·68 per cent.) the delivery was artificial in the case of either the infant, the placenta, or both—namely, delivery of infant artificial and placenta spontaneous in 27 cases, infant spontaneous and placenta manual in 14 cases, and both artificial in 8 cases.

The reports of the cases make it obvious that a considerable number of them were of a mild nature; in 60 of those who recovered the length of illness was stated to be from three to twenty-seven days. In the remainder the length of the illness was twenty-eight days or over. The total deaths including Maoris was 22, giving a case-fatality rate of 13·8 per cent.

### Haemorrhages and Accidents of Labour.

Deaths from hæmorrhages and other accidents of childbirth have fallen to 19 as compared with an average of 32·9 for the previous seven years, representing a reduction from this cause of 42·42 per cent. This is the most satisfactory improvement of 1934. If this is maintained it can probably be ascribed to better and more extensive ante-natal care by which abnormalities causing difficult labour are foreseen and provided for by the early admission of such cases to hospital. In the hospital the more difficult necessary obstetrical operations for such cases as version, induction, and Cæsarean section can be performed with skilled nursing assistance and under proper facilities. The treatment of unforeseen emergencies in unsuitable surroundings and with inadequate assistance is thus avoided. I particularly note in this connection a reduction in the number of Cæsarean sections following failed forceps and other inadequate attempts at delivery. An analysis of the deliveries by Cæsarean section is given elsewhere.

### Eclampsia and other Toxæmias of Pregnancy.

The disappointing feature of the maternal-mortality returns is the continued failure to materially reduce the deaths from eclampsia and other manifestations of toxæmia, which numbered 30, an insignificant drop from an average of 32·4 during the previous seven years. In an endeavour to discover the cause of this failure and to point out a remedy, a careful investigation of the 1933 reports of 82 cases of eclampsia was made. The result of this investigation was published in the *New Zealand Medical Journal* and is republished by kind permission of that Journal as an appendix to this report ("Ante-natal Care, New Zealand," Paget and Ewart). The most obvious remedies appear to be to pay closer attention to a raised blood pressure as an indication of toxæmia irrespective of the urine being free from albumin, and to persuade the patient to accept institutional treatment at an earlier date, unless the conditions are such that skilled nursing attention with adequate observation and control are otherwise available.

### Cæsarean Section.

One hundred and thirty patients out of the total of 24,755 deliveries are reported to have been delivered by Cæsarean section, giving a percentage of 0·56 as compared with 0·44 for the previous year. Detailed reports were supplied regarding 102 out of the 130 cases. These reports are tabulated as follows:—

| Reasons given for operating. | Number. | Deaths. |
|---|---|---|
| Contracted pelvis | 25 | 1 died from puerperal sepsis.<br>1 died from "myocardial degeneration." |
| Obstructed labour | 33 | 1 died from puerperal sepsis. |
| Placenta prævia | 14 | .. |
| Pre-eclamptic toxæmia | 12 | 1 died from acute gastric dilatation. |
| Eclampsia | 7 | .. |
| Failed forceps | 1 | Died from puerperal sepsis. |
| Accidental hæmorrhage | 4 | .. |
| Other conditions— | | |
| Acute empyema of gall bladder | 1 | Died from sepsis (non-puerperal). |
| Heart-disease | 3 | .. |
| Asthenia | 1 | .. |
| Prolapse of bladder | 1 | .. |

The six deaths of mothers gives a rate of 5·88 per cent. equivalent to about 60 per 1,000 live deaths. The results to infants were 8 stillbirths, including one set of twins; 12 died shortly after birth, giving the death-rate of 19·42 per cent.

The above figures appear to present a problem mentioned under the heading "Methods of Obstetic Practice" in an address given to the Royal Sanitary Institute in April, 1935, by Dr. Eardley Holland, whose opinion as a noted teacher must be regarded as of importance:—

> "There can be no doubt that a striking change in the last fifteen to twenty years is the remarkable widening of the indications for intervention during labour, and the great increase in the number of operative deliveries (induction of labour, forceps, and Cæsarean section). This has occurred in spite of the efforts to frustrate it on the part of leading teachers and text-books."

Further on in the same article Dr. Holland quotes the Newman report as follows:—

> "The report states that many of these operations were done after previous attempts at forceps delivery. The report states, with the characteristic courtesy and tact of official documents 'the committee's observation led them to believe that in some cases there may be a tendency to resort to Cæsarean section as treatment of complications of labour, perhaps without due consideration of other methods of obstetrical treatment.' (*c*) Uninstructed ante-natal work with its mistaken notions about 'disproportion,' 'post-maturity,' the 'unengaged head,' and the resort in consequence to unnecessary operations. (*d*) Any sort of interference with the course of normal pregnancy and labour by meeting the demand of the patients for shorter labours, or by extension of the indications for drug or operative induction to suit the convenience of the patient, her friends, the doctor, the nurse. (*e*) An exaggerated idea of the value of the infant's life as compared with the life or health of its mother—due to the fact that nowadays pregnancies are spaced, regulated, and relatively rare. This interesting social change in reproductive method is exerting a great influence on obstetrical procedure."

Summing up, Dr. Eardley Holland states,—

> "The great mistake that the central and local authorities of this country have made is in believing that the creation of an efficient obstetric service was merely an administrative problem. One need only recall the mistaken attitude towards ante-natal work which, prosecuted by an improvised personnel, has almost assuredly done more harm than good by leading to unnecessary interference with normal cases."

New Zealand can, I think, plead "Not guilty" to an excessive forceps rate, which for hospital cases in 1934 was 9·71 per cent., or to the common use of Cæsarean section following previous attempts at forceps delivery. The question of the advisability of the use of Cæsarean section as a method of delivery for the various complications for which returns show it to have been performed is one that I must leave for the consideration of our teachers and leaders in obstetric practice, particularly to the Obstetrical Society.

### MAORI MATERNAL MORTALITY.

Table VI shows the Maori maternal mortality by causes for the five years 1930–1934.

*Table VI.—Maori Maternal Mortality.*

| Cause of Death. | 1930. | | 1931. | | 1932. | | 1933. | | 1934. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Rate. | No. | Rate. | No. | Rate. | No. | Rate. | No. | Rate. |
| Puerperal sepis following childbirth .. .. .. | 5 | 2·35 | 5 | 2·16 | 5 | 1·82 | 7 | 2·37 | 3 | 1·01 |
| Hæmorrhage, accidents of labour, thrombosis, phlegmasia, embolism, and following childbirth not otherwise defined | 12 | 5·65 | 9 | 3·89 | 14 | 5·10 | 14 | 4·75 | 8 | 2·68 |
| Toxæmia, albuminuria, and eclampsia .. .. | .. | .. | .. | .. | 1 | 0·36 | 1 | 0·34 | .. | .. |
| Puerperal sepsis following abortion .. .. .. | .. | .. | .. | .. | .. | .. | 2 | 0·68 | 3 | 1·01 |
| Accidents of pregnancy .. .. .. .. | 3 | 1·41 | 2 | 0·87 | 1 | 0·36 | .. | .. | 4 | 1·34 |
| Total .. .. .. .. .. | 20 | 9·42 | 16 | 6·92 | 21 | 7·65 | 24 | 8·14 | 18 | 6·04 |

A much less degree of accuracy exists in the figures compiled for the Maori race, due to the greater part to lack of correct certification of the cause of death. The figures given above show that the Maori maternal death-rate is much higher than that of the European population. The death-rate from puerperal sepsis following childbirth is very high, due to a very large extent to the very unsatisfactory conditions under which the majority of the Maori confinements are conducted. During the five-years period over 50 per cent. of the deaths were caused by hæmorrhages, accidents of labour, &c., but of these a great number have been returned as due to "childbirth, not otherwise defined." It is possible that with more accurate certification of cause of death many of these would have been included under some other heading. In comparison with the European death-rates deaths from toxæmias of pregnancy and puerperal sepsis following abortion do not play such an important part in influencing the Maori death-rate, although in the past two years there has been an increase in the deaths from septic abortion. This increase is to a certain extent due no doubt to more accurate diagnosis and better certification of cause of death. In the past, great difficulty has been experienced in persuading the Maori to accept skilled treatment. While this aversion in the Maori mind has not been entirely overcome, the proportion of Maori maternity cases conducted in hospitals or by trained midwives is becoming greater, and as time goes on this factor should make a material reduction in the Maori maternal death-rate.

## PART III.—PRIVATE MEDICAL AND SURGICAL HOSPITALS.

Ninety-nine hospitals, providing 1,383 beds, are licensed for medical and surgical cases only. All these hospitals are efficiently equipped for the class of patients for which they are designed. The larger of them, which are mostly under the control of different religious orders, have from 40 to 87 beds each and include well-equipped X-ray and pathological departments. They compare favourably with the facilities given in public hospitals of a similar capacity, and provide an excellent service for those who are able and wish to pay for the full cost of treatment with the advantage of single wards.

The difficulty with regard to the establishment of these hospitals other than those established by various religious bodies is the difficulty of finance. I notice with satisfaction that the medical profession appear to be taking a more active part in establishing these hospitals, which in the past have been largely left to the enterprise of nurses. Modern hospital design and equipment have so greatly increased in cost that it is rare for a nurse to be able to arrange the necessary finance for a well-equipped hospital.

### The Economic Aspect of the Cottage Hospital.

Hospital Boards have at all times been concerned with the comparatively high cost of the small cottage hospital established in the remoter parts of their districts. Several Hospital Boards have adopted the plan of leasing such hospitals to nurses rent free. Except in the case of one Hospital Board, a subsidy is paid to compensate them for attending indigent patients. This plan has now been given a trial over several years, and there are now twelve hospitals conducted on this principle. The result has been satisfactory. The subsidized hospitals are licensed by the Health Department, and staffed and conducted in accordance with the Act and regulations governing private hospitals. The result in those cases in which comparison is possible has been an average saving in the annual cost to the Board of 61 per cent., and the result is proving satisfactory to the public, the medical practitioners, the Board concerned, and, in the majority of cases, to the licensee, though experience has shown that in some cases the subsidy has been somewhat too meagre. I anticipate that hospitals managed on these lines will go a long way towards solving the problem of providing hospitals in the remoter districts at a reasonable cost without sacrificing efficiency.

In conclusion, I wish to express my sincere thanks to Dr. Ian Ewart for his co-operation and valuable help in analysing the reports on eclampsia cases. To the many members of the medical and nursing professions, and particularly to Dr. T. L. Corkill and other officers of the New Zealand Obstetrical Society, I am also much indebted.

I appeal to all women's welfare organizations to use their influence to stem the highly dangerous practice of interfering with the normal functions of childbirth by inducing abortion. During the year under review forty-two women died from that cause, which represents a percentage of 35·5 of the total deaths assigned to maternal mortality.

# APPENDIX.

## ANTE-NATAL CARE IN NEW ZEALAND.

By T. L. Paget and Ian B. Ewart.

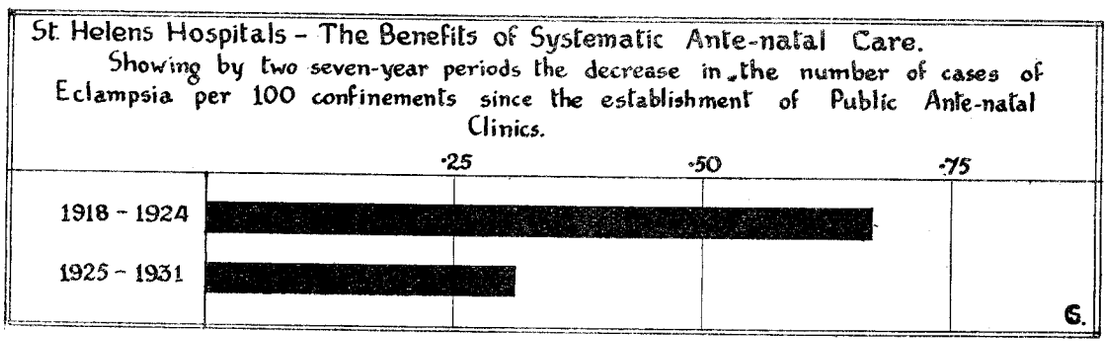
*(Extract from the New Zealand Medical Journal, Vol. XXXIV, No. 180, April, 1935.)*

It is a fact, in spite of a recently published statement to the contrary, that the death-rate from eclampsia in New Zealand is unduly high. The following table shows the death-rate from eclampsia and the toxæmias of pregnancy for the last ten years in New Zealand and in four other countries, a study of which will show that over a period of years Holland's death-rate is less than half that of England and Wales, and approximately one-third of New Zealand's death-rate from this cause.

*Death-rates per 1,000 Live Births from Puerperal Toxæmia, Albuminuria, and Eclampsia in certain Countries during the Ten Years 1924–1933.*

| Country. | 1924. | 1925. | 1926. | 1927. | 1928. | 1929. | 1930. | 1931. | 1932. | 1933. |
|---|---|---|---|---|---|---|---|---|---|---|
| Holland .. .. .. | .. | .. | 0·46 | 0·43 | 0·39 | 0·34 | 0·32 | 0·43 | 0·41 | .. |
| England and Wales .. | 0·72 | 0·70 | 0·75 | 0·82 | 0·84 | 0·81 | 0·82 | 0·80 | 0·85 | 0·84 |
| Australia .. .. .. | 1·13 | 1·30 | 1·22 | 1·27 | 1·18 | 0·84 | 0·93 | 1·05 | 1·29 | 1·09 |
| New Zealand .. .. | 1·29 | 1·14 | 1·12 | 0·93 | 1·40 | 1·27 | 1·23 | 1·31 | 0·88 | 1·19 |
| Canada .. .. .. | 1·39 | 1·21 | 1·32 | 1·33 | 1·39 | 1·21 | 1·25 | 1·21 | .. | .. |

It is proposed in this paper to review the cases of eclampsia reported to the Health Department, and then to attempt to discover any avoidable factors leading to the partial failure of our system of ante-natal care in New Zealand to influence the death-rate from this and allied conditions to the extent that had been expected. That this failure was not universal is proved by the results obtained in the St. Helens Hospitals in two seven-year periods. The first, 1918–1924, prior to the introduction of the present system of ante-natal observation and care; the second, from 1925–1931, during which the method had been revised and brought up to modern standards. The accompanying graph shows a reduction in the incidence of eclampsia from 0·67 to 0·31 per 100 confinements during the latter period.




The writers consider that this may be regarded as indicating that there is nothing fundamentally wrong with our system, and, given skilled and careful medical supervision of the nurses' work in the clinics, good results can be obtained. They hope that this review may lead to a partial solution of the question as to why the death-rate for the whole of New Zealand has not been similarly reduced.

In 1924 measures were taken by the Health Department to train nurses in ante-natal care, and to establish public ante-natal clinics in connection with the St. Helens Hospitals, and at the same time the Plunket Society also revised their methods of ante-natal care and extended the number of their clinics. All the public maternity hospitals established as training-schools also do public ante-natal work, both for their own patients and on behalf of any medical practitioners who choose to avail themselves of the facilities offered.

The cases taken for review are eighty-one in number, being all those reported in 1933. The writers have not covered a longer period in their investigation, because the report form in use prior to 1933 gave insufficient information for the purpose of this inquiry.

A review of the old reports for several years, dealing more particularly with the effects of the different methods of treatment of eclampsia rather than the reasons for the failure to prevent its occurrence, was made by Dr. Jamieson, of Nelson, and published in the *New Zealand Medical Journal*. It proved to be of great interest and value from that point of view.

It is proposed in this paper to review the recent reports in order to estimate the value of the ante-natal care given.

It is due to our readers to explain that eclampsia was made a notifiable disease at the request of the British Medical Association in 1923, and they trust that it will not be considered out of place to urge medical practitioners to take the trouble to notify every case and report as fully and accurately as possible on each one.

The eighty-one cases under review have been classified into "mild" and "severe" according to the method of classification printed on the report form :—

*Mild.*—Less than seven fits or less than two of the following symptoms.
*Severe.*—More than seven fits or two or more of the following symptoms.

### Symptoms of Classification.

Rapid succession of more than seven fits.
Deep coma.
Rising temperature, to 103° or above.
Urine solid on boiling.
Blood pressure over 200 millimeters.

### Standard of Efficient Ante-natal Care.

The interim report of the departmental committee on maternal mortality and morbidity issued by the Ministry of Health for England and Wales recommends (page 66) the following :—

> "A patient should attend first at the sixteenth week of pregnancy. . . . From this time routine examinations should take place . . . at the twenty-fourth and twenty-eighth weeks, and from then every fortnight until the thirty-sixth week, and thence weekly until she is confined. . . . It is advisable that where possible the blood pressure should be examined weekly during the last month, as a rise of pressure may be the first sign of a commencing toxæmia."

For the reasons that the above standard is probably impossible of general attainment at the present day, owing to the distance of many patients from their doctor or clinic and to other factors, the following somewhat lower standard has been adopted for the purpose of estimating the efficiency of the ante-natal care given in each individual case. It certainly errs on the side of being somewhat meagre :—

Minimum time for efficient ante-natal care : Two months prior to due date.
Number of visits in the last two months : Five.
Number of observations on blood pressure : Five.
Number of observations of urine for albuminuria : Five.
The standard of blood pressure indicating a toxæmic condition : 140 systolic.

The diastolic pressure was very seldom recorded, but in the opinion of the writers should be taken and recorded in all instances. Had this been done a reading of from 95 to 100 and above by the auscultatory method should have been regarded as indicating a pathological condition.

As the report form does not give the actual number of times that urine was tested, the writers have been forced to regard the number of visits as an indication of the number of times that this was done.

The cases have been divided into fifty-one mild cases and thirty severe. Cases reported as "fulminating" have been included in the severe, as on close investigation of the reports it became obvious that the distinction between the two could seldom be made with accuracy, and when possible usually had little significance.

### Review of Mild Cases.

The review of fifty-one mild cases shows that according to the standards adopted only sixteen had fully efficient ante-natal investigation. Of the remaining thirty-five no ante-natal investigation of any sort was given in three cases, and, in two cases the reports are insufficient to determine that point. The period before due date on which the first visit to the clinic or doctor was made is recorded as follows :—

In three cases one to ten days,
In two cases eleven to twenty days,
In one case twenty-one to thirty days,
In two cases thirty-one to sixty days,

making eight cases in which the time available for adequate care failed to reach the required standard of time. Inefficiency in ante-natal care by reason of failure to report as frequently as five times in the two months was indicated in seventeen cases, in which are included the thirteen cases mentioned above. There is no evidence in most cases whether the failure was due to neglect on the part of the patient to carry out instructions or due to lack of instructions by the doctor.

The outstanding feature of the investigation is that, out of thirty-seven cases in which there was sufficient time and opportunity to detect the toxæmic condition, there was a total failure to make observations on the patient's blood pressure for this purpose in seventeen cases. The importance of this failure is emphasized by the fact that in eight of the twenty remaining cases in which blood pressure was apparently efficiently taken and accurately recorded a rise in blood pressure and the occurrence of albuminuria were shown as occurring practically simultaneously, and in eleven cases hyperpiesis preceded the occurrence of albuminuria, while in the remaining case the record states that at no time was there albuminuria, and the blood pressure was recorded as 86/130.

### Review of Severe Cases.

A review of the thirty cases classed as severe shows that only three had fully efficient ante-natal investigation. In the remaining twenty-seven there was no ante-natal care in eight cases. Of the nineteen remaining cases the time available for making observations and carrying out treatment was as follows:—

In three cases: 1 to 10 days.
In one case: 11 to 20 days.
In one case: 24 days.

In the remaining fourteen cases ante-natal care began sixty days or more before onset of labour or eclampsia. Deficiency in the number of visits—that is, less than five in the last two months—was noted in seven cases. In fourteen cases in which time was sufficient the number of visits was insufficient in five.

Taking the observations of blood pressure as a guide to the efficiency of the ante-natal care, in nineteen cases in which there was some opportunity to make these observations there was an entire failure to do so in eight of them. Of the remaining eleven cases three had only one observation of the blood pressure, four had two, two had three, and two had four.

Examination of the urine was shown by the reports to be deficient in eight cases, all of which are included in those in which the observations of the blood pressure were deficient. Twelve of the thirty severe cases ended fatally, and the record shows that four of these had no ante-natal care whatsoever; in one case ante-natal began ten days prior to the onset, but no blood pressure was taken, probably due to the fact that the urine was found to be free of albumin on the first visit. This patient died undelivered. Ante-natal care was begun eleven days before onset in one case during which four visits were made. The blood pressure was recorded as being normal on the two occasions when it was taken. In four cases ante-natal care was begun sixty days or more before onset, but in three of these cases no blood-pressure readings are recorded. In the remaining cases there were two observations, the first being three days before onset, when the systolic pressure was 170. Of the remaining two fatal cases one had adequate care but refused hospital treatment, and the other had adequate care in all respects and received hospital treatment. This latter case was classed as "fulminating." Two of the fatal cases which had no ante-natal care died undelivered. A case was reported which has not been included in the above numbers, as strictly speaking it was not a case of eclampsia. This patient died comatose, having had no fits, and the cause of death was found by post-mortem examination to be cerebral hæmorrhage. It is worthy of note in connection with this case that Bethel Solomons reports that all the fatal cases of eclampsia which have occurred at The Rotunda were found on post-mortem examination to have died from cerebral hæmorrhage.

The writers of this paper believe that this investigation will be of value if, by making these facts known, the very great importance of frequent and accurate blood-pressure readings throughout pregnancy is realized. The auscultatory method is advocated as being the more accurate. They believe that this method should be used at all ante-natal clinics in preference to the palpatory.

In various recently published papers attention has been called to the fact that the term "albuminuria of pregnancy" has overstressed the clinical sign of albumin in the urine. This investigation emphasizes the correctness of this statement. The term "toxæmia of pregnancy" is to be preferred.

Professor F. J. Browne, of University College Hospital, in an instructive paper* stresses the fact that an elevation of blood pressure in toxæmia of later pregnancy may precede the appearance of albumin in the urine. At the ante-natal clinic of University College Hospital blood pressure is estimated and the urine examined once a month till the thirtieth week, fortnightly till the thirty-sixth week, and thereafter at weekly intervals till delivery. His paper is based upon a study of the records of about a hundred cases of toxæmia of late pregnancy. The majority of these cases were found to be actually or possibly chronic nephritic. Some, too, were cases of albuminuria without a rise of blood pressure at any time. The nephritic cases and the latter cases of which the toxæmic nature was in doubt, were excluded from the investigation. Forty-eight cases remained. Of these, raised blood pressure and albumin were found at the same time in thirty-five. He points out that this does not necessarily mean that they began at the same time. Then appeared an all-important finding. In thirteen—all the remaining cases—raised blood pressure preceded the albuminuria by periods ranging from eleven to eighty-nine days. He stresses the fact that in only four of those latter cases was there any symptom during the interval between the raised blood pressure finding and the appearance of albumin, to point to the patients' toxæmic state.

The result of the writer's investigations shows that the same condition is frequent in New Zealand.

It appears also that blood-pressure readings in the cases under review were seldom taken early in pregnancy. Professor Browne in his investigation found that sometimes the blood pressure began to rise comparatively early in pregnancy, with no other abnormal clinical finding, and later to fall to normal. Frequently, in these cases, the blood pressure again rose later in pregnancy and albumin appeared in the urine. This temporary rise of blood pressure he considers as a warning of the development of a toxæmic state in later pregnancy.

It is obvious that the first warning of toxæmia is to be obtained from early, frequent, and accurate blood-pressure readings. With the knowledge of a raised blood pressure immediate treatment of the toxæmic state can be carried out and probably its development arrested.

* Professor F. J. Browne, *British Medical Journal*, 20th February, 1932.

This report shows that in the majority of cases such early and accurate investigation had not been made. For this and other reasons obvious to our readers, the writers consider that our system of ante-natal care in this country is in danger of being held in disrepute, as has been shown to be the case in other countries, and that inasmuch as inefficient ante-natal care gives both the medical attendant and the patient a sense of false security, all sources of inefficiency must as far as possible be eliminated.

A reason frequently advanced for not detecting toxæmic conditions in their early stages is generally that the undetected cases are fulminating. In view of the above facts it is questionable whether many of the cases should be classed as such. It is surely correct to say that the absence of albuminuria until a late period, unless the blood pressure has been known to be normal throughout pregnancy, is an insufficient reason for such a classification. It is probable that with a better knowledge of the etiology of toxæmia and methods of its detection the present definition of the fulminating cases will have to be revised. The number of cases now being classified as "fulminating" on the present definition is probably considerably in excess of their true number.

The figures of St. Helens Hospitals show that the incidence of eclampsia can be and is being reduced by full ante-natal supervision. It has been found, too, that in cases that do occur, usually cases in which the stress of labour causes the onset of convulsions, the severity of the condition is much less than in those cases who received no ante-natal care.

It will be noted that the ante-natal care of the fifty-one mild cases was more complete than in the severe cases, and a further improvement in methods should have far-reaching results. It will probably be impossible for years to come to reach the outstanding results attained at the East End London Maternity Hospital, at which, under the care of Dr. Oxley, 10,000 consecutive cases were attended with only one case of eclampsia.

In conclusion, the writers wish to stress the usefulness of accurate reports being put on record for subsequent investigation of all cases of eclampsia in order that methods of prevention may be periodically analysed and reviewed. They trust that this article will stimulate interest in the prevention of what is at the present time in New Zealand the cause of more deaths attributable to pregnancy than any other, and which undoubtedly causes, in many cases not immediately fatal, life-long illness and a shortening of life.

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