1924.

NEW ZEALAND.

# DEPARTMENT OF HEALTH.

ANNUAL REPORT OF DIRECTOR-GENERAL OF HEALTH.

*Presented in pursuance of Section 76 of the Hospitals and Charitable Institutions Act, 1909.*

HON. SIR MAUI POMARE, K.B.E., C.M.G., MINISTER OF HEALTH.

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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 1923–24.

## PART I.—GENERAL SURVEY.

### SECTION 1.—GENERAL ADMINISTRATION.

#### PUBLIC HEALTH.

Unfortunately, the year under consideration was affected by the special demand for economy in public expenditure, and this necessitated a certain measure of departmental reorganization. Among other measures taken with a view to bringing about the economy so urgently required was the decision to close the offices of the Department at Whangarei, Napier, and Wanganui, the districts administered from those centres being placed respectively under the control of the Auckland and Wellington office. It is obvious that the districts as now situated are too large to ensure efficient supervision, and it can only be hoped that in more prosperous times it may be possible to again establish offices outside the four chief centres of our population. At that time, also, it may be possible to make departmental positions more attractive to the medical profession than is possible under the existing circumstances. In this connection it is to be regretted that so far the proposals of the Department to the effect that the Councils of the larger centres should appoint whole-time Medical Officers has not been favoured by the Councils concerned, and though the Department must naturally conclude that the Corporations are satisfied with the present arrangements, the fact remains that the sanitation and general health work of the larger towns could be better supervised if the Councils would but agree

to the Department's proposal as to the appointment of whole-time Medical Officers. In the sanitary government of some of our larger cities there is certainly room for improvement.

As far as the present health districts are concerned, the work of the Department has been to some extent decentralized, inasmuch as the Medical Officers of Health have been given more direct powers of supervision and control over departmental activities within their districts.

During the past year Dr. Wilkins resigned his position as Director of the Division of School Hygiene, and Dr. Ada Paterson, who has been closely associated with the School Medical Service for many years, was appointed in his place.

Now that the economic outlook is brighter and the personnel of the Department has been somewhat strengthened, we can look forward with a certain degree of confidence to increased activity and better results in the cause of preventive medicine in this Dominion. However, the evolution of a healthy race can only be achieved when each citizen of the State bears his or her share of the responsibility; and here I may well quote a statement by Sir George Newman, Chief Medical Officer of the Ministry of Health, who wisely says, "The changes of disease, their effects on mankind, and the strengthening of the national physique to resist them are movements which are secular; and prevention is also a matter of long periods of time. Preventive medicine is an aspect of social evolution which involves wide and deep apprehension and practice in society as a whole. It concerns individual habit and communal custom. It must not only follow in the wake of growing knowledge and await that knowledge, but it is dependent on the readiness of the great mass of the people to accept, understand, and apply that knowledge, at least in substance and principle. All wise government no doubt depends on the assent of the governed, but in public and private medicine an even fuller assent is needful if the individual is to reap his full advantage, and at the same time act loyally as a member of the community. In fact, he is under obligation to cultivate his own health and capacity, and so to conduct himself as not to conduce to the hurt or risk of his neighbours. Hence the progress of preventive medicine depends in extraordinary degree upon the enlightenment and education of the people. There is no doubt that owing to the national system of education, to voluntary educational movements and societies, and to the valuable agency of the Press and public opinion, such enlightenment is proceeding apace; yet it has to go far."

Dr. M. H. Watt, Director of the Division of Public Hygiene, draws attention to certain features affecting the public health, which may be regarded as disquieting, chief of which is the very low birth-rate. It is to be regretted that little more can be said about this than has been said on previous occasions. It is, indeed, very hard to impress on mothers the fact that child-birth is not a disease, but a normal, physiological process. However, more will be said on this subject in another portion of this report.

The high rate of still-births and the mortality-rate of infants under one month is also a matter for concern. On the other hand, the crude death-rate of 9·03 places New Zealand in a more favourable light, as does indeed its infant mortality of 43·8 per thousand births. In this connection all thanks are due to the Plunket Society for its untiring efforts to make this infantile-mortality rate the lowest in the world.

*Tuberculosis.*—It is satisfactory to note that the death-rate from tuberculosis—6·21 per 10,000—still shows a tendency to decline. The gradual fall of this death-rate is certainly satisfactory. The value of early sanatorium treatment cannot be too strongly urged, and in this respect it is gratifying to read the remarks of Dr. H. Short, Medical Superintendent of the Pukeora Sanatorium. Dr. Curtis, of the Otaki Sanatorium, on the other hand, does not report so favourably as to the admission of female patients.

It is early yet to speak of the results of Professor Dreyer's vaccine treatment, which has been tried at Pukeora. We look forward to speaking more definitely as to the results of this treatment in the course of the ensuing year.

The Department awaits with great interest the report of the special medical committee set up to consider the Spahlinger treatment.

During the year there has been circulated to all medical practitioners copies of a revised issue of the departmental leaflet on "Consumption," for distribution where they might consider profitable. As members of the International Tuberculosis Union we have been kept advised of the most recent advances in the treatment and prevention of this disease. The opening of tuberculosis clinics in connection with the public hospitals of the chief centres, on similar lines to the Anti-Tuberculosis Dispensary at Sydney, should prove an invaluable aid in the fight against this scourge.

In answer to a questionnaire the Office of the League of Nations has been supplied with information as to tuberculosis in New Zealand. It is hoped that reliable international statistics will be available in the immediate future which will be most valuable for comparative purposes.

*Puerperal Fever.*—The remarks of the Director, Division of Public Hygiene, under this heading and that of "maternal mortality" are of special significance. Maternity—when two lives are at stake—should certainly be free from all reasonable danger. Evidently with the realization that many of the deaths from puerperal fever are preventable, the General Medical Council have taken steps in Great Britain to improve the education provided in the medical schools as regards obstetrics. I quite agree with Sir George Newman when he states "There has been an unfortunate tendency to regard practical midwifery as a subject inferior to medicine or surgery and scarcely worthy of the personal attention of a senior teacher." I have no doubt that the attention the medical profession are giving this question of maternal mortality will result in an appreciable lowering of the death-rate, and also the high rate of still-births and infant-death rate under one month, to which it bears so close a relationship. The reports of the Medical Officers of Health show that the Department has been giving this question very careful attention. The regulations gazetted for the conduct of private maternity hospitals should, if reasonably carried out, have a good effect.

*Influenza.*—This is a disease that recognizes no national frontiers, and reduces quarantine systems to expensive absurdities. Our only line of defence at present appears to be to raise the standard of life by strict observance to the fundamental laws of health. Not only must it be raised in our own country, but through the international work of such organizations as the Health Committee of the League of Nations there must be created a higher standard of sanitation and social conditions in other countries, for the conditions that exist elsewhere have a direct bearing on the health of the people of this Dominion. No country can live to itself.

*Non-notifiable Diseases.*—Of these, cancer still claims a high death-rate, there being 8·75 deaths per 10,000 persons living, in comparison with 8·52 for the previous year. The Office International d'Hygiene Publique and the Health Committee of the League of Nations have started special investigation into the cause of national differences in the mortality from cancer of certain regions of the body, which should throw some light on this problem. The Department have supplied them with certain data as to New Zealand incidence. The Empire cancer campaign inaugurated in London appears an excellent movement that promises to do much in the fight against this disease. We have circulated to all working medical practitioners a leaflet "Cancer—Is it curable?" for distribution among their patients and the general public. With the vast amount of research that is going on we should expect in the near future some further enlightenment as to its origin and treatment. The Department is fully alive to the seriousness of the matter, and is keeping in close touch with the Imperial Cancer Research Fund Committee in London, and other research bodies in various parts of the world. The use of radium is still in the experimental stage, and just yet does not justify any definite statement as to its curative value.

*Goitre.*—In reference to goitre, special mention must be made of the excellent work being carried out by the School Medical Officers, and by Professor Hercus, of the Medical School, Dunedin. The organized work of the Department in this direction has proved particularly valuable. The Health Committee of the League of Nations have been supplied with special information in regard to the incidence of this disease in New Zealand in answer to their questionnaire.

*Venereal Diseases.*—These preventable diseases are far too common. The V.D. clinics which have been placed under the control of the public hospitals continue to do good work. It is to be regretted that the Department and the medical profession have not more direct control over those who have contracted these diseases who can and do at present spread them with impunity. Legislation on the lines suggested by the V.D. Commission is long overdue, but is proposed for this session.

*Deaths under Anæsthetics.*—Thirteen deaths occurred in 1923, in comparison with twenty-two for the previous year, representing a satisfactory decrease. The majority were cases in which the expectation of life would have been short. However, three deaths took place during dental operations, and it is evident that the administration of general anæsthetics in such cases is accompanied by a certain amount of risk. This matter has been brought under the notice of the British Medical Association. On instruction from the Department, the Dominion Laboratory has carried out a number of analyses of standard anæsthetics on the market. Except in a few cases where there was no serious defect the result showed that the recognized standards are being observed. A proper Anæsthethics Register, prepared by the Department, has been introduced into the majority of our public hospitals, so that reliable records as to the administration of anæsthetics should in the future be available to the medical staffs and the Department.

## SECTION 2.—FINANCE.

### Departmental.

The position as regards the Department's appropriations from the Consolidated Fund is as follows:—

| | 1923–24. Voted. £ | 1923–24. Expended. £ | 1922–23. Expended. £ |
|---|---|---|---|
| Payments .. .. .. .. | 347,972 | 305,445 | 360,894 |
| Credits .. .. .. .. | 78,005 | 113,379 | 127,168 |
| Net expenditure .. .. .. | £269,967 | £192,066 | £233,726 |

Considerable further savings were effected in the administrative cost of the institutions taken over from the Defence Department, apart from the saving effected by the closing of the Trentham Hospital, and the recoveries considerably exceeded the estimates, particularly in regard to the collection of patients' fees.

### Hospital Boards' Finance.

In regard to the subsidies paid to Hospital Boards under the permanent appropriations, the amount of subsidies paid during the year was £407,447, or £12,553 less than that estimated and appropriated, but the amount of subsidies outstanding at the close of the year was £5,000 more than estimated. The expenditure on account of subsidies was £21,997 less than the previous year, which in turn was £42,267 less than the year preceding. The amount required for the current year will probably show an increase of about £120,000, some £60,000 of which will be due to the new maintenance subsidy rates, and some £30,000 will be represented by increased capital expenditure, many Boards showing a laudable desire to finance their capital undertakings by means of levy and subsidy instead of by lengthy loans. The increase in the maintenance subsidy rates permits them to do this without

any great increase in their rate of levy, but it naturally results in an increase in the subsidy during the year. Much of the remainder of the estimated increase is due to the amount of levy and subsidy that has to be raised to meet the heavy interest on loans which, during the preceding few years, showed a tendency to increase to an alarming extent, but has now reverted to more normal proportions. Further particulars in regard to Hospital Boards' finance will be found in the appendices to this report, which will be published after all the returns and balance-sheets are received from the various Boards. Further information in regard to the departmental income and expenditure will also be forthcoming upon the publication of the Department's balance-sheet.

### Accounting for Stores and Equipment.

The Department has always been alive to the necessity of stores-accounting being as accurate and reliable as accounting for cash, and during the year compiled in a handy pamphlet form its stores system for the guidance of officers concerned and others interested. In its inspectoral capacity also it is endeavouring to induce Hospital Boards to adopt, where such has not already been done, adequate and sufficient stores systems and records. Owing to the shortage of staff in the Inspecting House Manager's Department not as much has been done in this respect as is desired, but with the strengthening of the staff at Head Office a greater amount of inspection and education of institutional officers will be possible. A little tact and personal explanation is often required to induce Board officials to adopt a proper stores system, more particularly in the case of the small institutions in which there is no clerical staff available on the spot, necessitating the Matron having to undertake the stores accounting. Many of them, though realizing the necessity of properly accounting for cash, do not realize the necessity for the same care in accounting for stores passing through their hands.

### Patients' Fees.

The matter of the collection of patients' fees will be dealt with at greater length in the hospital appendices. Suffice it to say that, with the enlargement of our hospital service, the increase in medical knowledge, and the consequent elaboration of our institutions, with the natural tendency—and, in fact, desirability—of persons seeking treatment therein rather than in private hospitals, which cannot hope to compete with the general institutions in efficiency and equipment, it is all the more necessary that the matter of collection of patients' payments should be carefully watched and placed on a sound and satisfactory basis. A Hospital Board of any size dealing with a great number of patients' accounts would be well advised to set up, as the Wellington Board has already done, a separate Fees Committee to deal with all matters concerning patients' accounts. The mere sending-out of printed reminders or the engagement of a collector on a commission basis are of little good by themselves. The amount which the patient can pay, either at a certain date or by regular instalments, having been ascertained definitely, upon or before his discharge, then such patient's account should be brought up for review upon the dates on which payment is due as promised, and in cases where a collector is employed to collect such amounts, any failure to receive the amount undertaken to be paid should be reported immediately by him to the Board's Secretary or Accountant, and the matter immediately brought up for review by the Fees Committee. There is a clear distinction between sentiment and a businesslike method in such matters. It is not urged that undue pressure should be brought to bear upon those in poor circumstances; in fact, it is noticed that often a promise to pay an amount is accepted without question where, upon the slightest consideration of the circumstances, it would be evident that the patient could not possibly pay the amount promised. It is of little use a Board official accepting such a promise to pay, which only inevitably results in a bad debt. The whole question of the patient's finances should be gone into early in the proceedings, and the amount of the debt reduced, if necessary, and also the necessary concession given as regards the period and amount of instalments by which the amount can be paid. This having once been settled, the ex-patient should be expected to abide thereby, and any default in meeting such engagement could only be justified by a change in the patient's circumstances, full particulars of which should be placed before the Fees Committee for its consideration. The tendency of some Boards to allow accounts to accumulate on their books is an undesirable one. Though patients such as small farmers may not be in the same position as wage-earners as regards paying their accounts by regular instalments, but may be able to pay their accounts in full if given time to do so, there is yet a limit to the time for which an account should be allowed to run, and, generally speaking, something should be expected to be paid within twelve months. In fact, a patient who on discharge can show satisfactory reasons why he cannot pay his account within a twelvemonth presents a very good case for a very considerable reduction being made in his account; and, generally speaking, there is no warrant for sums amounting to many thousands of pounds being allowed to accumulate and be entered on a Board's books from one year to another.

### Constructional Inspections.

During the year plans were approved for the erection, addition, or alterations to hospital buildings estimated to cost £373,769.

The Technical Inspectors, by the careful checking of plans before approval is given, have effected many improvements which not only add to the efficiency of the hospital, but in many cases have considerably reduced the cost, to the extent even of as much as £10,000 each in two cases. Plans and specifications for new buildings, also for the engineering services, have been prepared and the work carried out in its entirety by the Department, to the complete satisfaction of the Boards concerned. The

following is a summary of the plans thus vised and approved or prepared by the Department during the year, involving new buildings or additions to existing buildings:—

| Description of Institution. | Number. | Estimated Cost. £ |
|---|---|---|
| New general hospitals .. .. .. .. .. | 3 | 118,275 |
| Additions to hospitals .. .. .. .. .. | 10 | 118,336 |
| Maternity hospitals .. .. .. .. .. | 7 | 33,370 |
| Infectious-disease hospitals .. .. .. .. .. | 1 | 1,600 |
| Tuberculosis sanatoria .. .. .. .. .. | 2 | 25,418 |
| Old People's Homes .. .. .. .. .. | 4 | 9,100 |
| Nurses' Homes .. .. .. .. .. .. | 6 | 38,712 |
| Engineering services .. .. .. .. .. | 10 | 28,958 |
| | | £373,769 |

In addition the purchase of land in six instances, amounting in all to £15,625, was approved.

### Hospital Districts.

The great advance in medical science which has been made in recent years, and the consequent elaboration of our hospital technique, reduces to obsolescence some of the existing methods of hospital administration. Thirty years ago it was to some extent immaterial that there were a great number of hospital districts, each supporting its own institution, comprising possibly little more than a ward each for male and female patients and an isolation ward for infectious cases. To-day the position is entirely different. To convert into a thoroughly equipped modern hospital at least one institution in each of the forty-four districts would cost more than the Dominion could afford—or would, indeed, be warranted. The tendency, therefore, is for patients from the smaller districts to enter the more up-to-date and efficiently equipped base hospitals of their neighbouring district, which results in innumerable disputes between the Boards concerned, the Board of the larger district naturally expecting to receive at least the full maintenance fee from the Board from whose district the patient has come. Moreover, this fee in no case represents the actual full cost of treatment. The Board receiving the account, on the other hand, resents the patient not having availed himself of the hospital facilities in his own district, but somewhat illogically objects either to become a contributory local authority to the larger district or to pay for such of its patients as enter the other Board's institution. However, to provide sufficient inducement for its own residents to patronize their own institution such Board would require to incur a great deal of expenditure upon the same, and the Department's consent is therefore frequently sought to expenditure which would not be contemplated if there were fewer districts. In districts of sufficient size to comprise both a base and secondary hospital we find little if any increase in expenditure or enlargement of the secondary institutions, which merely serve as feeders for the main institution. In neighbouring districts, however, where there is no base hospital, we find precisely similar secondary institutions developing into base hospitals, with all the resulting expensive buildings, equipment, staff, and technique. Nothing that the Department can do to keep hospital expenditure within reasonable limits, and so lighten the burden on the rates and the Consolidated Fund, can have any effect unless the clearly understood policy against the further splitting-up of districts is strongly adhered to. Further, this should be accompanied by a general recognition of the desirability of and a movement towards the amalgamation of many of the existing districts. The existing frame-work of our hospital organization is too massive for the needs of the Dominion, and even with a great increase in our population it is more than questionable whether some of the existing hospital districts could show any logical reason for an independent existence from the neighbouring district.

Amalgamations, however, are very difficult tasks to accomplish, and attempts in the past have resulted in failure. Local sentiment runs high, and the Department is expected to provide tangible facts and figures to support its proposals for amalgamation—arguments of a general nature, such as those above, not being sufficient, however obvious, to bring about the desired result. Briefly it may be stated that this is the only serious drawback and handicap to a hospital system which has been the subject of favourable comment the world over, and has been or is being adopted in other parts of the Empire.

## SECTION 3.—PROPAGANDA.

The officers of the Department again took a prominent part in the initiation and carrying out of the Health Week campaign in the various centres. Dunedin and Wellington are particularly to be congratulated on the outstanding success of the efforts of their citizens in this direction. In these centres the campaigns were run on much the same methods. Lectures and demonstrations were given daily at the Town Hall, schools, factories, &c., by medical practitioners, nurses, dentists, and other recognized authorities. An exhibition provided by the Department, Plunket Society, the Red Cross Society, St. John Ambulance, and other organizations, and various firms, was open to the public, and the local authorities took the opportunity to have a good "clean up" of the city under their control. The Department freely circulated literature dealing with cancer, consumption, dental hygiene, school hygiene, nursing, and so on, to the public. A very fine series of "Health Talks" compiled by officers of the Department were read in the schools during each day of the campaign. The Department has availed itself of every legitimate available means of propaganda. In this direction our school medical officers, school nurses, health nurses, and the nursing services generally have performed excellent work, besides various officers of the Department.

Health films are being obtained, and by this means we hope to bring before the general public the essential principles underlying good health in the child and adult.

### Research.

Professor Hercus, under a special grant by the Department, is initiating research work at the Otago Medical School in regard to goitre in New Zealand. The Government Bacteriologist, Auckland, Mr. F. L. Armitage, is to be congratulated on his investigations into ropy bread, water-supplies, &c. I think this aspect of laboratory-work merits extension and support. At present, with our limited bacteriological staff, we are handicapped in this direction.

## SECTION 4.—DIVISIONAL REPORTS.

### Child Welfare.

The report of Dr. Truby King, Director of Child Welfare, strikingly indicates the supreme value of the work carried out under his able administration in the interest of mother and child. The many branches of the Plunket Society throughout the Dominion are centres from which radiate social work of extreme importance to the community. Not only to city dwellers but to the country settlers it must be a consolation to know that a society exists to which they can look for guidance and assistance in the time of special need. Dr. King's remarks on maternal mortality and still-births should be of deep interest to those concerned in such important problems.

### Nursing.

The Council of the Otago University is to be congratulated on the institution of the Diploma of Nursing. It is to be hoped that legislation for the superannuation of nurses will be brought into operation at an early date. The St. Helens Maternity Hospitals continue to render a splendid service. The extent to which these institutions are used is a compliment to their administration, and the confidence the general public repose in those in charge. That this confidence is not misplaced is shown by the table below, giving the number of cases of and deaths from puerperal fever in these institutions for the five-year period ending 31st March, 1924, in comparison with New Zealand as a whole.

*Puerperal Fever in St. Helens Hospitals of New Zealand for Period 1920–24.*

| St. Helens Hospitals. | Aggregate of Live Births for Period 1920–24. | Puerperal-fever Cases notified, 1920–24. | | Puerperal-fever Deaths, 1920–24. | |
|---|---|---|---|---|---|
| | | Notifications. | Rate per 1,000 Live Births. | Number. | Rate per 1,000 Live Births. |
| Auckland .. .. .. .. | 1,928 | 5 | 2·59 | .. | .. |
| Gisborne .. .. .. .. | 476 | 1 | 2·10 | .. | .. |
| Wanganui* .. .. .. .. | 336 | .. | .. | .. | .. |
| Wellington .. .. .. .. | 1,497 | 3 | 2·00 | 1 | 0·67 |
| Christchurch .. .. .. .. | 1,300 | 4 | 3·08 | 1 | 0·77 |
| Dunedin .. .. . .. | 717 | 7 | 9·76 | 2 | 2·79 |
| Invercargill .. .. .. .. | 659 | .. | .. | .. | .. |
| All St. Helens .. .. .. | 6,913 | 20 | 2·89 | 4 | 0·58 |
| All New Zealand .. .. .. | 139,944 | 819 | 5·85 | 271 | 1·94 |

* St. Helens Hospital, Wanganui, was opened at beginning of 1922.

Note i.—Figures for St. Helens Hospitals are quoted for year ending 31st March in each year of the period 1920–24.

Note ii.—Figures for all New Zealand are quoted for the calendar years 1919 to 1923 inclusive.

### School Hygiene.

The report of Dr. Ada Paterson, the Director of the Division of School Hygiene, shows a record of work achieved on behalf of the rising generation. One cannot sufficiently emphasize the value of the services performed by this Division of the Department. They represent preventive medicine in one of its best and most productive forms. The results outlined in this report reflect great credit on the school medical officers and their assistants. The problems before them are great, and so is their enthusiasm and loyalty. In view of the somewhat doleful statements one at times reads of the physique of the New Zealand children, it is reassuring to find, according to the Director's report, that it compares more than favourably with that of the children of Great Britain. This report should be read by all those actively concerned in the welfare of our school-children.

### Dental Hygiene.

The work of this branch is still developing, as indicated in the brief but instructive report of the Director, and the comments of recognized authorities on the Department's scheme of dental hygiene signify its excellent basis.

A noteworthy event in the campaign against oral sepsis in New Zealand was the placing in the field of twenty-five dental nurses, trained at the Department's clinic. The Director must be congratulated on this achievement. It is gratifying to learn of the success of these nurses, and I feel sure that the probationers in training will in turn perform such an essential service to the community, according to the high traditions of their training-school. The readiness with which the people have helped the Department in providing surgeries at various centres is a pleasing feature of the report.

### Maori Hygiene.

The report of the Director of the Division of Maori hygiene is very well worth reading, and testifies to the work of Dr. Te Rangi Hiroa, D.S.O. The fine work of the Maori health nurses calls for special mention as also that of the Maori Councils. The investigations into the physique of the Maoris are of much interest.

### Government Hospitals and Sanatoria.

*Queen Mary Hospital, Hanmer Springs.*—It is hoped that with the erection of new quarters for women (now in progress) the work of this institution will be considerably expanded under Dr. Chisholm's very able and economical administration.

*King George V Hospital, Rotorua.*—The report of this hospital again reflects great credit on Dr. Wallis, the Medical Superintendent, and his staff. It is hoped that the institution will be considerably developed in the course of the ensuing year.

*Pukeora Sanatorium, Waipukurau.*—Dr. H. Short, the Medical Superintendent, and his staff still continue to perform most useful work. I regret that the Department is losing the services of Dr. Short, but it is to be hoped that we may still avail ourselves of his services at his present headquarters in Wellington.

*Otaki Sanatorium and Otaki Hospital.*—These institutions do good work. It is regretted that the cases still continue to be admitted to the sanatorium when the disease is in a rather advanced stage after unsuccessful home treatment. I entirely agree with the Medical Superintendent that the sanatorium should be the line of first defence, and in this direction the experience of Dr. Short, Pukeora Sanatorium, is more encouraging.

## SECTION 5.—BOARD OF HEALTH, ETC.

The Board of Health continues to perform good work. Several meetings were held during the year, and a mass of business dealt with. Requisitions were served upon a number of local bodies, requiring the performance of sanitary works. Early in the year the Board set up a committee to inquire and report regarding the private maternity hospitals of the Dominion. A report containing many useful recommendations was received and adopted by the Board. Later in the year three members of the Board were appointed members of a Commission which investigated and reported upon an outbreak of puerperal septicæmia in an Auckland private hospital, and at the present time the Board is represented by three of its members upon the committee which is taking evidence with a view to reporting upon mental defectives and sexual offenders.

### Medical Practitioners Act, 1914.

Four meetings of the Medical Board were held during the year under review. The following table, covering the past five years, summarizes the Board's work so far as the granting of applications by medical men for registration, &c., are concerned :—

| —— | 1919. | 1920. | 1921. | 1922. | 1923. |
|---|---|---|---|---|---|
| Number on register on 1st January .. .. .. | 985 | 1,015 | 1,064 | 1,071 | 1,073 |
| Number added during year by registration .. .. | 48 | 71* | 60† | 33‡ | 76§ |
| Number added during year by restoration .. .. | 3 | 5 | 4 | 1 | 1 |
| Number removed during year on evidence of death .. | 20 | 25 | 10 | 8 | 11 |
| Number removed during year by direction of Medical Board— | | | | | |
| Ceased to practise .. .. .. .. .. | .. | .. | .. | 1 | .. |
| Letter not delivered and returned to Registrar-General .. | 1 | .. | 40 | 21 | .. |
| Reported dead .. .. .. .. .. | .. | .. | 7 | 2 | .. |
| Number removed during year by direction of Supreme Court | .. | 2 | .. | .. | 1 |
| | 1,015 | 1,064 | 1,071 | 1,073 | 1,138 |

* Includes 36 with New Zealand qualifications. † Includes 28 with New Zealand qualifications. ‡ Includes 21 with New Zealand qualifications. § Includes 59 with New Zealand qualifications.

The work of the Medical Board is largely of a confidential nature, and involves inquiries into charges of misconduct which from time to time are made against medical practitioners. A number of such cases have been dealt with during the year.

The Board has under consideration at the moment some suggested amendments to the Act which, if passed into law, should improve the present statute.

### Masseurs Registration Act, 1920.

The Masseurs Registration Board, having completed the rush of work associated with the introduction of a registration law, has found it unnecessary to hold many meetings during the past year.

The Board deserves to be congratulated on the smooth manner in which it has administered the Act. There has been only one appeal from the Board's decisions, and this appeal has not yet been disposed of. The Board has submitted suggestions for an amendment to the Act, and it is hoped that these will be given effect to during the present session of Parliament.

The Register of Masseurs contains 397 names.

### Plumbers Registration Act, 1912.

Two meetings of the Plumbers Board constituted under the above Act were held during the year.

Examinations under the Act were held in June and November. At the June examination 157 candidates presented themselves for examination, the results being that twenty-one candidates passed

in the theoretical and thirty-six in the practical, whilst twenty-five qualified for registration, and their names were duly placed on the register. At the November examination 220 candidates presented themselves for examination, the results being forty-nine candidates passed in the theoretical and seventy-nine in the practical, sixty qualified for registration and had their names duly recorded on the register.

To date the names of 1,519 plumbers have been entered in the register, and thirty-three names removed through death.

During the year 1,210 pocket certificates of registration were issued.

It is with deep regret that I have to record the death of Mr. H. W. Morton, a member of the Board. The late Mr. Morton has been a member of the Board since its inception, and the valuable services rendered by him have been much appreciated. Mr. J. M. Morice, Engineer of the Wellington City Council, has been appointed to the Board in place of the late Mr. H. W. Morton.

STAFF.

Staff changes other than noted above include the appointment of Dr. Henry Jellett, until recently Master of the Rotunda Maternity Hospital, Dublin, and Dr. T. E. Paget, who has also the reputation of special knowledge in midwifery. The work of these officers should be of great help to the Department and Dominion generally, especially in the direction of reducing the maternal mortality which we have so much in mind. Miss J. Bicknell succeeded Miss H. Maclean as Director of Division of Nursing, while Dr. Monk, Medical Officer of Health, retired.

It is with much regret, which I am sure will be shared by all, that I have to record the absence through illness of Dr. J. P. Frengley. The help that I have received from this officer during many past years I cannot sufficiently acknowledge, and I am sure one and all look forward to his speedy return to work with his health and energy unimpaired.

In a Department such as ours, where a very high standard of loyalty exists, it is difficult to single out individual members of the staff for special recognition, so I may be pardoned for omitting personal thanks by expressing my very sincere appreciation of the work of these men and women who have so splendidly helped me during the past year.

T. H. A. VALINTINE,
Director-General of Health.

## PART II.—PUBLIC HYGIENE.

I have the honour to submit my annual report for the year ended 31st March, 1924.

### SECTION 1.—VITAL STATISTICS.

#### POPULATION.

The population of New Zealand at the census of 17th April, 1921, was 1,218,913. This total does not include Maoris, whose numbers were separately determined as 52,751.

The mean population for 1923 (exclusive of Maoris) was estimated to be 1,274,551. This total represents an increase over the corresponding figure for the previous year of 22,656, or a percentage increase of 1·81.

#### BIRTHS.

The births of 27,967 living children were registered in the Dominion during 1923, as against 29,006 in 1922, and a yearly average of 27,223 during the pre-war period, 1910–14. The birth-rate for 1923 was thus 21·94 per 1,000 of mean population.

The general course of the birth-rate during the last ten years is shown in the following table:—

*Births (Number and Rate) in New Zealand, 1914–23.*

| Year. | Total Number of Births registered. | Birth-rate per 1,000 of Mean Population. |
|---|---|---|
| 1914 | 28,338 | 25·99 |
| 1915 | 27,850 | 25·33 |
| 1916 | 28,509 | 25·94 |
| 1917 | 28,239 | 25·69 |
| 1918 | 25,860 | 23·44 |
| 1919 | 24,483 | 21·54 |
| 1920 | 29,921 | 25·36 |
| 1921 | 28,567 | 23·34 |
| 1922 | 29,006 | 23·17 |
| 1923 | 27,967 | 21·94 |

It will be seen that the birth-rate for 1923 is exceedingly low. Indeed, with the exception of 1919, when it was only 21·54, such a low rate has never before been experienced.

*Still-births.*—Still-births, which are defined by the Births and Deaths Registration Amendment Act of 1915 as "children which have issued from their mother after the expiration of the twenty-eighth week of pregnancy, and which were not alive at the time of such issue," are compulsorily registerable in the Dominion. The next table shows the number of such births, and their rate per 1,000 live births, in individual years for the quinquennium, 1919–23.

*Still-births (Number and Rate) in New Zealand, 1919–23.*

| Year. | Total Number of Still-births registered. | Rate of Still-births per 1,000 Live Births. |
|---|---|---|
| 1919 | 680 | 27·8 |
| 1920 | 840 | 28·1 |
| 1921 | 903 | 31·6 |
| 1922 | 842 | 22·1 |
| 1923 | 894 | 32·0 |

A noticeable feature of the table is the high rate of still-births for the year under review.

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

## Deaths.

The number of deaths recorded during 1923 was 11,511, as compared with 10,977 in 1922, and a yearly average of 9,370 in the period 1910–14. The Government Statistician gives the crude death-rate for 1923 as 9·03 per 1,000 of mean population, and the standardized death-rate (International Index of Mortality) as 11·12.

The following table gives the number of deaths and the death-rate in the Dominion for the decennium 1914–23 :—

*Deaths (Number and Rate) in New Zealand, 1914–23.*

| Year. | Total Number of Deaths. | Crude (Actual) Death-rate. | Standardized Death-rate. (Index of Mortality.) |
|---|---|---|---|
| 1914 .. .. .. | 10,148 | 9·31 | 11·85 |
| 1915 .. .. .. | 9,965 | 9·06 | 11·38 |
| 1916 .. .. .. | 10,596 | 9·64 | 11·88 |
| 1917 .. .. .. | 10,528 | 9·58 | 11·66 |
| 1918 .. .. .. | 16,364 | 14·84 | 16·80 |
| 1919 .. .. .. | 10,808 | 9·51 | 11·75 |
| 1920 .. .. .. | 12,109 | 10·27 | 12·80 |
| 1921 .. .. .. | 10,682 | 8·73 | 10·93 |
| 1922 .. .. .. | 10,977 | 8·77 | 10·70 |
| 1923 .. .. .. | 11,511 | 9·03 | 11·12 |

The crude death-rate for the year (9·03 per 1,000 of mean population) is below the average rate for the decennium, and, indeed, is not much above that of 1921, which is the lowest on record.

*Infant Mortality.*—The infant-mortality rate for 1923 was 43·8 per 1,000 births. This rate is the second-lowest recorded in the Dominion, and has only been excelled by the figure for 1922 (41·9 per 1,000 births).

The next table enables an estimate to be formed of the progress in infant-welfare work in New Zealand, and shows the relative obstinacy of the first-month mortality to react to the administrative measures which have proved so successful at later ages.

*Infant Mortality in New Zealand, 1900–23.—Proportion of Deaths of Infants under Twelve Months to every 1,000 Births in Individual Years.*

| 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. |
|---|---|---|---|---|---|---|---|
| 1900 .. | 31·1 | 44·1 | 75·2 | 1912 .. | 30·1 | 21·1 | 51·2 |
| 1901 .. | 29·8 | 41·6 | 71·4 | 1913 .. | 29·7 | 29·5 | 59·2 |
| 1902 .. | 32·2 | 50·7 | 82·9 | 1914 .. | 28·9 | 22·5 | 51·4 |
| 1903 .. | 31·7 | 49·4 | 81·1 | 1915 .. | 29·2 | 20·8 | 50·0 |
| 1904 .. | 29·4 | 41·6 | 71·0 | 1916 .. | 27·0 | 23·7 | 50·7 |
| 1905 .. | 30·1 | 37·4 | 67·5 | 1917 .. | 27·9 | 20·3 | 48·2 |
| 1906 .. | 29·6 | 32·5 | 62·1 | 1918 .. | 26·7 | 21·7 | 48·4 |
| 1907 .. | 30·4 | 58·4 | 88·8 | 1919 .. | 28·4 | 16·9 | 45·3 |
| 1908 .. | 31·2 | 36·7 | 67·9 | 1920 .. | 30·8 | 19·7 | 50·5 |
| 1909 .. | 29·9 | 31·7 | 61·6 | 1921 .. | 30·7 | 17·1 | 47·8 |
| 1910 .. | 30·2 | 37·5 | 67·7 | 1922 .. | 27·2 | 14·7 | 41·9 |
| 1911 .. | 28·5 | 27·8 | 56·3 | 1923 .. | 29·1 | 14·7 | 43·8 |

*Maternal Mortality.* The next table shows the number of deaths from puerperal causes, and the rate of such deaths per 1,000 births, for the five-yearly period 1919–23 :—

*Deaths from Puerperal Causes (Number and Rate) in New Zealand, 1919–23.*

| Year. | Total Number of Deaths from Puerperal Causes. | Rate per 1,000 Births. |
|---|---|---|
| 1919 .. .. .. .. .. | .. 124 | 5·06 |
| 1920 .. .. .. .. .. | .. 194 | 6·48 |
| 1921 .. .. .. .. .. | .. 145 | 5·08 |
| 1922 .. .. .. .. .. | .. 149 | 5·14 |
| 1923 .. .. .. .. .. | .. 143 | 5·11 |

While the vital statistics of New Zealand generally compare more than favourably with those of other countries, in certain respects the Dominion does not occupy a particularly sound position, and, indeed, seems to be lagging behind. For some time it has been known, to our shame, that, despite many advantages—climatic, social, and economic—the Dominion labours under the stigma of a comparatively high maternal-mortality rate. In proportion to its population, more women die

as a result of child-birth in this country than in many other countries which have not the advantages that we possess. The following table shows the position clearly:—

*Maternal-mortality Rates.*

| Country and Year. | Maternal Rate per 1,000. | Country and Year. | Maternal Rate per 1,000. |
|---|---|---|---|
| Denmark, 1921 .. .. | .. 2·0 | Germany, 1918 .. .. | .. 4·9 |
| Netherlands, 1921 .. | .. 2·3 | New Zealand, 1923 .. | .. 5·1 |
| Sweden, 1917 .. .. | .. 2·5 | Spain, 1915 .. .. | .. 5·2 |
| Italy, 1917 .. .. | .. 3·0 | Ireland, 1920 .. .. | .. 5·5 |
| Norway, 1917 .. .. | .. 3·0 | Switzerland, 1915 .. | .. 5·5 |
| Uruguay, 1920 .. .. | .. 3·4 | France, 1914 .. .. | .. 5·7 |
| Japan, 1921 .. .. | .. 3·6 | Scotland, 1919 .. .. | .. 6·2 |
| England and Wales, 1922.. | .. 3·8 | United States Birth-registration Area, 1923 | 6·8 |
| Union of South Africa, 1919 | .. 3·9 | | |
| Hungary, 1915 .. .. | .. 4·0 | Belgium, 1919 .. .. | .. 7·2 |
| Finland, 1918 .. .. | .. 4·4 | Chile, 1920 .. .. | .. 7·5 |
| Australia, 1921 .. .. | .. 4·7 | | |

Again, while New Zealand is justly proud of its record that it possesses the lowest infant-mortality rate in the world, a close inspection of the figures shows that there is still much to be done. The reduction in the infant-mortality rate in New Zealand has been wholly due to the saving of infant life after the age of one month, an accomplishment due in no small measure to the excellent work inaugurated and directed by Dr. Truby King. The death-rate of infants under one month in this country, however, is still 29 per 1,000 live births, and has shown practically no reduction since the Plunket Society commenced its work in 1907, when the rate was 30 per 1,000. In a recent report which the Health Department received from Dr. C. J. Brenkman, Chief of the Medical Statistical Department of the Municipal Health Service of Amsterdam, it is shown that the death-rate of infants under one month in that city has fallen from 23 per 1,000 births in 1905 to 13 per 1,000 births in 1922. Differences in the methods of compiling the figures forbid any strict comparison between the two countries in regard to first-month mortality. The fact remains that in Amsterdam the first-month mortality is a rapidly falling quantity, while in New Zealand it is practically stationary.

Closely allied in its causes with the death-rate under one month is the mass of still-births which occurs annually in the Dominion. Still-births have been notifiable since 1915. The rate of still-births for the year 1923 was 32 per 1,000 live births, a higher figure than any previously recorded.

These three groups of figures show New Zealand in a most unfavourable light. It is obvious that present methods are not effective and do not provide the solution of the problem. New measures must be devised. The problem is one which concerns primarily the general public and the medical and nursing professions, and the remedy would appear to lie rather in their hands than with the Department of Health. It can be reasonably expected that better treatment of the expectant mother and higher skill on the part of the attendants at the time of birth and immediately afterwards would reduce these rates very materially.

## SECTION 2.—NOTIFIABLE DISEASES.

The outstanding feature of the year under review was a widespread but comparatively mild prevalence of influenza during the winter months. In other respects the year was exceptionally favourable. The death-rate from tuberculosis (all forms) was lower than in any year previously; scarlet fever, diphtheria, and enteric fever were less prevalent than they have been for many years.

### Scarlet Fever.

The course of scarlet fever in New Zealand during the last five years is briefly shown in the tables below. The notifications for 1923 reveal a satisfactory decline as compared with the previous year; the death-rate, however, while low, shows a slight increase over the preceding year.

*Scarlet Fever in New Zealand, 1919–23.*

| Year. | Notifications. | | Deaths. | |
|---|---|---|---|---|
| | Number. | Rate per 10,000 of Mean Population. | Number. | Rate per 10,000 of Mean Population. |
| 1919 .. .. .. | 1,521 | 13·31 | 23 | 0·20 |
| 1920 .. .. .. | 1,248 | 10·46 | 15 | 0·13 |
| 1921 .. .. .. | 1,845 | 15·07 | 24 | 0·19 |
| 1922 .. .. .. | 1,449 | 11·58 | 10 | 0·08 |
| 1923 .. .. .. | 1,201 | 9·42 | 13 | 0·10 |

### Diphtheria.

As the next table shows, there is a continuing decline in diphtheria. Both incidence-rate and death-rate from this disease are now lower than they have been since 1912. The disease, however, is much too prevalent. The lack of staff has militated against the adoption to any extent of methods of control based upon active immunization with toxin-antitoxin mixtures. It is hoped, however, that it may be possible to push on with this very important measure during the coming year.

*Diphtheria in New Zealand, 1919–23.*

| Year. | Notifications. | | Deaths.* | |
|---|---|---|---|---|
| | Number. | Rate per 10,000 of Mean Population. | Number. | Rate per 10,000 of Mean Population. |
| 1919 .. .. .. | 3,499 | 30·61 | 157 | 1·37 |
| 1920 .. .. .. | 2,442 | 20·48 | 95 | 0·81 |
| 1921 .. .. .. | 2,611 | 21·33 | 107 | 0·87 |
| 1922 .. .. .. | 1,989 | 15·89 | 78 | 0·62 |
| 1923 .. .. .. | 1,951 | 15·31 | 68 | 0·53 |

* Figures include deaths from croup.

ENTERIC FEVER.

The position as regards this disease for the period 1919–23 is shown in the table below :—

*Enteric Fever in New Zealand, 1919–23.*

| Year. | Notifications. | | Deaths. | |
|---|---|---|---|---|
| | Number. | Rate per 10,000 of Mean Population. | Number. | Rate per 10,000 of Mean Population. |
| 1919 .. .. .. | 477 | 4·17 | 34 | 0·30 |
| 1920 .. .. .. | 389 | 3·26 | 40 | 0·34 |
| 1921 .. .. .. | 451 | 3·68 | 24 | 0·19 |
| 1922 .. .. .. | 539 | 4·31 | 67 | 0·54 |
| 1923 .. .. .. | 276 | 2·17 | 23 | 0·18 |

The position with regard to enteric fever is most gratifying. As the table discloses, both incidence and death-rate in 1923 are lower than for any other year of the quinquennium.

TUBERCULOSIS.

The notifications for 1923 show a decline in comparison with the preceding year, the figures being respectively 1,002 and 1,129.

The next table, based upon death returns, gives a truer idea of the variations in the prevalence of this disease during the period 1914–23.

*Tuberculosis in New Zealand, 1914–23.*

| Year. | Number of Deaths from Tuberculosis | Death-rate from Tuberculosis per 10,000 of Mean Population | Percentage of Total Deaths from all Causes. |
|---|---|---|---|
| 1914 .. .. .. .. | 728 | 6·67 | 7·17 |
| 1915 .. .. .. .. | 693 | 6·30 | 6·95 |
| 1916 .. .. .. .. | 742 | 6·74 | 7·00 |
| 1917 .. .. .. .. | 755 | 6·87 | 7·17 |
| 1918 .. .. .. .. | 832 | 7·54 | 5·08 |
| 1919 .. .. .. .. | 762 | 6·71 | 7·05 |
| 1920 .. .. .. .. | 851 | 7·21 | 7·03 |
| 1921 .. .. .. .. | 793 | 6·48 | 7·42 |
| 1922 .. .. .. .. | 821 | 6·56 | 7·48 |
| 1923 .. .. .. .. | 792 | 6·21 | 6·88 |

The position disclosed by the table is, on the whole, a satisfactory one. It will be seen that the death-rate from tuberculosis for the year was exceptionally low, and, indeed, constitutes a record.

Of the total of 792 deaths in 1923, 619 were assigned to pulmonary tuberculosis, and the remaining 173 to other forms of tuberculosis.

INFLUENZA.

The year under review was an influenza year. The outbreak began in the Otago Health District about June, and gradually worked its way north through the Dominion, lasting some three months, in each locality. The brunt of the disease, contrary to the experience of 1918, fell mainly upon the age-groups 30–50. For the whole of New Zealand 1,144 cases and 223 deaths were reported, as against 216 and 23 deaths in 1922, which may be regarded as a more or less normal year. The only types of the disease notifiable are, of course, the severe forms (pneumonic, septicæmic, and fulminant), so the figure 1,144 for notifications by no means represents the true prevalence for the year. Mild influenza was widespread and caused much minor illness.

The following extract from the report of the Medical Officer of Health, Otago, is of very considerable interest as showing the pathology and bacteriology of the disease, and the lack of success which attended the prophylactic use of a mixed influenza vaccine :—

"During the epidemic, inoculation of the contacts of acute influenzal pneumonia cases with mixed influenza vaccine supplied by the Government Bacteriologist was performed in Dunedin and Invercargill. It cannot be said that this was attended with any proved benefits. On the contrary, many inoculated persons later contracted the disease in severe form.

"Some of the post-mortems held on very acute cases in young adults showed septic lobular invasion of both lungs, intense inflammation of the whole of both lungs breaking down in patches into pus; and an interesting point was that in some of these cases wherein practically the whole of both lungs was intensely congested the medical attendant was confident prior to death that the base of one lung only was involved. Percussion and the stethoscope indicated to him one-sided lobar distribution.

"The Government Bacteriologist informs me that bacteriologically the outstanding feature was the presence of the mixed infections of which a hæmolytic staphylococcus aureus was the most constant finding. Several of the fatal cases showed staphylococcal septicæmia before death, apparently in pure culture. During the period April to August, 1923, also, there were indications of a general exaltation in virulence of the staphylococcus, causing, for example, virulent osteomyelitis and fatal septicæmia following boils, &c.

"The Pfeiffer bacillus was a very constant finding, always associated with staphylococcus aureus, pneumococcus, streptococcus, and micrococcus catarrhalis in this order of frequency. Pneumococcus plus Pfeiffer was much less common than staphylococcus plus Pfeiffer. Of those which occurred type 1 was the commonest, but the other types occurred.

"In view of recurrences in the future, the disturbing feature is the absence of any vaccine or serum prophylaxis or treatment of proved value, excepting type 1, pneumococcus serum, in the few cases in which this bacillus predominates."

### Acute Primary Pneumonia.

The notifications for this disease show a considerable decline. In 1923, 788 cases were notified as compared with 946 cases in 1922 and 1,029 cases in 1921. It is difficult to say to what extent this lessened number of notifications represents a real decline in the disease. It may be that cases which in ordinary times would be called acute primary pneumonia were in an influenza year notified as pneumonic influenza.

### Puerperal Fever.

The following table shows the course of this disease for the quinquennium 1919–1923:—

*Puerperal Fever in New Zealand, 1919–23.*

| Year. | Notifications. | | Deaths. | |
|---|---|---|---|---|
| | Number. | Rate per 1,000 Live Births. | Number. | Rate per 1,000 Live Births. |
| 1919 .. .. .. | 79 | 3·23 | 52 | 2·12 |
| 1920 .. .. .. | 124 | 4·14 | 67 | 2·22 |
| 1921 .. .. .. | 178 | 6·23 | 48 | 1·68 |
| 1922 .. .. .. | 262 | 9·03 | 52 | 1·79 |
| 1923 .. .. .. | 176 | 6·93 | 52 | 1·86 |

It is well known that the returns of notifications in puerperal fever are, as a general rule, far from complete, and that for this reason the returns of deaths provide a more accurate presentation of the position. The position disclosed by the above table is not satisfactory, and indicates the need for review and overhaul of the present methods. The Department has prepared and proposes to issue more stringent regulations in regard to midwives and private hospitals, which it is hoped will exercise some influence in reducing the undue incidence of this disease.

Fuller information concerning the distribution of the above diseases, together with details of the remaining notifiable diseases, is contained in the subjoined tables.

Table A.—Notifiable Diseases in New Zealand, 1923, showing Distribution by Months.

| Month. | Scarlet Fever. | Diphtheria. | Enteric Fever. | Tuberculosis. | C.S. Meningitis. | Poliomyelitis. | Puerperal Fever. | Influenza. | Pneumonia. | Erysipelas. | Eclampsia. | Hydatids. | Tetanus. | Trachoma. | Ophthalmia Neonatorum. | Lethargic Encephalitis. | Anthrax. | Food Poisoning. | Actinomycosis. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| January .. | 62 | 125 | 44 | 89 | 1 | 5 | 14 | 5 | 45 | 18 | .. | 3 | 1 | .. | 5 | 2 | .. | .. | .. | 419 |
| February .. | 64 | 163 | 33 | 70 | 1 | 1 | 17 | 4 | 23 | 11 | .. | 4 | 3 | 1 | 4 | .. | .. | 1 | 1 | 401 |
| March .. | 114 | 175 | 21 | 93 | 5 | 4 | 16 | 6 | 48 | 15 | .. | 3 | 2 | 2 | .. | 2 | .. | .. | .. | 506 |
| April .. | 133 | 192 | 26 | 79 | 1 | .. | 8 | 7 | 26 | 18 | .. | .. | 2 | 2 | 6 | .. | .. | .. | .. | 500 |
| May .. | 137 | 199 | 20 | 88 | 2 | 3 | 20 | 7 | 54 | 18 | 3 | 3 | .. | 1 | 3 | 2 | .. | .. | .. | 560 |
| June .. | 136 | 240 | 20 | 75 | 4 | 1 | 23 | 34 | 56 | 29 | 10 | 5 | 1 | 2 | 2 | .. | .. | .. | 1 | 639 |
| July .. | 120 | 233 | 18 | 88 | 3 | .. | 11 | 473 | 138 | 27 | 4 | 1 | 1 | .. | .. | 2 | .. | .. | .. | 1,119 |
| August .. | 86 | 141 | 18 | 95 | 1 | .. | 16 | 487 | 145 | 15 | 5 | 2 | .. | .. | 1 | 1 | .. | .. | .. | 1,013 |
| September | 99 | 107 | 11 | 75 | 2 | 1 | 10 | 72 | 86 | 12 | 4 | 2 | 2 | .. | 2 | 4 | .. | .. | .. | 489 |
| October .. | 93 | 129 | 22 | 103 | 6 | 2 | 11 | 18 | 62 | 19 | 4 | 3 | 3 | .. | 2 | 12 | .. | 10 | .. | 499 |
| November | 88 | 126 | 19 | 83 | 7 | .. | 13 | 27 | 62 | 17 | 2 | 2 | 2 | .. | 2 | 8 | .. | .. | .. | 458 |
| December | 69 | 121 | 24 | 64 | 3 | .. | 17 | 4 | 43 | 14 | 6 | 1 | 3 | .. | .. | 3 | .. | 2 | .. | 374 |
| Totals, 1923 | 1,201 | 1,951 | 276 | 1,002 | 36 | 17 | 176 | 1144 | 788 | 213 | 38 | 29 | 20 | 8 | 27 | 36 | .. | 13 | 2 | 6,977 |
| Totals, 1922 | 1,449 | 1,989 | 539 | 1,129 | 42 | 98 | 262 | 216 | 946 | 271 | .. | 36 | 22 | 7 | 26 | 36 | 2 | 4 | 1 | 7,075 |

Note.—Eclampsia first became notifiable in May, 1923.

TABLE B.—INFECTIOUS DISEASES NOTIFIED IN NEW ZEALAND DURING 1923, SHOWING DISTRIBUTION BY HOSPITAL DISTRICTS.

| Hospital District. | Estimated Population (excluding Maoris). | Estimated Maori Population. | Scarlet Fever. | Diphtheria. | Enteric Fever. | Tuberculosis. | Cerebro-spinal Meningitis. | Poliomyelitis. | Puerperal Fever. | Influenza (Pn. Fulm. and Sept). | Pneumonia. | Erysipelas. | Eclampsia. | Hydatids. | Tetanus. | Trachoma. | Ophthalmia Neonatorum. | Lethargic Encephalitis. | Anthrax. | Food Poisoning. | Actinomycosis. | Totals. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mangonui | 4,014 | 2,860 | .. | .. | .. | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 |
| Whangaroa | 920 | 691 | 2 | .. | 12 | 2 | .. | .. | 1 | 1 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 20 |
| Bay of Islands | 4,403 | 2,852 | .. | 8 | 9 | 6 | .. | .. | 3 | 5 | 3 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 35 |
| Hokianga | 2,837 | 3,277 | 3 | 1 | 12 | 5 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 21 |
| Kaipara | 10,995 | 1,366 | 17 | 12 | 7 | 5 | 1 | .. | .. | 2 | 3 | .. | .. | .. | .. | .. | 2 | 1 | .. | .. | .. | 50 |
| Whangarei | 14,498 | 1,183 | 2 | 12 | 10 | 22 | 1 | 1 | 5 | 4 | 7 | 6 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | 71 |
| Auckland | 202,420 | 1,733 | 197 | 355 | 49 | 118 | 2 | 3 | 36 | 154 | 139 | 51 | 10 | .. | 8 | 4 | 6 | 4 | .. | .. | .. | 1,136 |
| Waikato | 77,214 | 9,234 | 44 | 174 | 13 | 144 | 1 | .. | 6 | 50 | 44 | 15 | 6 | .. | 2 | 1 | 1 | 2 | .. | .. | .. | 503 |
| Thames | 14,602 | 1,360 | 3 | 21 | 5 | 14 | 6 | .. | .. | 2 | 8 | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 62 |
| Waihi | 3,939 | .. | 2 | 3 | .. | 3 | .. | .. | 1 | 2 | 2 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 14 |
| Coromandel | 2,143 | 300 | .. | 4 | .. | 4 | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | 9 |
| Tauranga | 8,240 | 2,226 | 15 | 7 | 1 | 3 | 2 | .. | 1 | 4 | 1 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 36 |
| Bay of Plenty | 8,358 | 4,151 | 13 | 14 | 4 | 7 | .. | .. | .. | 2 | .. | 2 | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 43 |
| Taumarunui | 10,033 | 774 | .. | 4 | .. | 3 | .. | .. | .. | 13 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 20 |
| AUCKLAND | 364,616 | 32,007 | 298 | 615 | 122 | 340 | 13 | 4 | 53 | 239 | 209 | 80 | 16 | .. | 12 | 5 | 11 | 7 | .. | .. | .. | 2,024 |
| Waiapu | 2,473 | 3,643 | 5 | .. | 38 | 3 | .. | .. | 1 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 49 |
| Cook | 23,506 | 2,293 | 9 | 13 | 36 | 17 | .. | 1 | 4 | 1 | 9 | 8 | .. | 2 | .. | .. | 1 | .. | .. | .. | .. | 101 |
| Wairoa | 4,591 | 2,954 | 4 | .. | 1 | 9 | .. | 1 | 3 | 3 | 18 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 40 |
| Hawke's Bay | 38,671 | 1,419 | 53 | 50 | 6 | 39 | 1 | 4 | 15 | 65 | 51 | 9 | 1 | 1 | 1 | .. | 1 | .. | .. | .. | 1 | 298 |
| Waipawa | 21,389 | 590 | 46 | 12 | 2 | 16 | 1 | .. | 1 | 22 | 26 | 5 | .. | 1 | 1 | .. | .. | 2 | .. | .. | 1 | 136 |
| HAWKE'S BAY | 90,630 | 10,899 | 117 | 75 | 83 | 84 | 2 | 6 | 24 | 91 | 106 | 22 | 2 | 4 | 2 | .. | 2 | 2 | .. | .. | 2 | 624 |
| Taranaki | 29,072 | 1,760 | 14 | 64 | 6 | 8 | 1 | .. | 2 | 54 | 10 | 1 | 1 | 2 | .. | .. | 1 | .. | .. | .. | .. | 164 |
| Stratford | 9,830 | 38 | 13 | 20 | .. | 2 | .. | .. | .. | 27 | 10 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 72 |
| Hawera | 18,822 | 965 | 12 | 57 | 1 | 2 | .. | .. | .. | 34 | 10 | .. | 1 | .. | .. | .. | .. | 1 | .. | .. | .. | 118 |
| Patea | 5,131 | 316 | 8 | 2 | 2 | 1 | .. | .. | 1 | .. | 5 | 2 | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | 23 |
| Wanganui | 49,046 | 2,083 | 42 | 88 | 11 | 25 | 1 | .. | 2 | 40 | 42 | 12 | 7 | 1 | .. | .. | 1 | .. | .. | .. | .. | 272 |
| WANGANUI | 111,901 | 5,162 | 89 | 231 | 20 | 38 | 2 | .. | 5 | 155 | 77 | 15 | 9 | 3 | .. | .. | 3 | 2 | .. | .. | .. | 649 |
| Palmerston North | 49,717 | 2,021 | 30 | 106 | 12 | 35 | 5 | 4 | 12 | 28 | 45 | 3 | 1 | 2 | .. | .. | 1 | .. | .. | 4 | .. | 288 |
| Wellington | 122,118 | 555 | 101 | 388 | 1 | 66 | 1 | .. | 18 | 77 | 51 | 26 | 2 | 2 | 1 | 3 | 2 | 5 | .. | 8 | .. | 752 |
| Wairarapa | 33,135 | 824 | 34 | 43 | 1 | 14 | .. | .. | 4 | 40 | 10 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 146 |
| Wairau | 13,025 | 219 | 3 | 1 | .. | 3 | .. | .. | 1 | 11 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 20 |
| Picton | 3,314 | 199 | 1 | .. | .. | .. | .. | .. | .. | 4 | 5 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 10 |
| Nelson | 26,889 | 97 | 5 | 23 | 3 | 3 | .. | .. | 2 | 8 | 6 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 51 |
| WELLINGTON | 248,198 | 3,915 | 174 | 561 | 17 | 121 | 6 | 4 | 37 | 168 | 118 | 29 | 3 | 4 | 1 | 3 | 4 | 5 | .. | 12 | .. | 1,267 |
| Westland | 7,530 | 70 | 17 | 15 | 8 | 17 | .. | .. | .. | 2 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 61 |
| Buller | 9,384 | 4 | 12 | 34 | .. | 3 | 2 | .. | .. | 5 | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 58 |

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Inangahua | 3,458 | .. | 4 | 17 | .. | 6 | 1 | .. | .. | 17 | 10 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 55 |
| Grey | 12,258 | 6 | 5 | 50 | 5 | 6 | .. | .. | .. | 6 | 1 | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | 75 |
| North Canterbury | 154,446 | 791 | 301 | 165 | 12 | 181 | 1 | 2 | 28 | 195 | 149 | 27 | 3 | 8 | 1 | .. | 4 | 15 | .. | .. | .. | 1,092 |
| Ashburton | 17,963 | 17 | 22 | 14 | .. | 14 | .. | .. | 4 | 19 | 21 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 95 |
| South Canterbury | 42,650 | 237 | 34 | 69 | 3 | 19 | 1 | .. | 2 | 30 | 19 | 7 | 2 | 4 | 1 | .. | .. | .. | .. | .. | .. | 191 |
| CANTERBURY | 247,689 | 1,125 | 395 | 364 | 28 | 246 | 5 | 2 | 34 | 274 | 203 | 35 | 5 | 13 | 2 | .. | 4 | 16 | .. | 1 | .. | 1,627 |
| Waitaki | 17,232 | 48 | 9 | 1 | .. | 13 | 2 | .. | 1 | 22 | 13 | 2 | .. | .. | 3 | .. | .. | .. | .. | .. | .. | 66 |
| Otago | 96,225 | 113 | 33 | 64 | 5 | 94 | 2 | .. | 16 | 91 | 28 | 20 | .. | 2 | .. | .. | 3 | 3 | .. | .. | .. | 361 |
| South Otago | 17,061 | 24 | 29 | 1 | .. | 12 | .. | .. | 4 | 23 | 6 | 1 | 2 | 1 | .. | .. | .. | .. | .. | .. | .. | 79 |
| Vincent | 5,216 | .. | .. | 2 | .. | 6 | .. | .. | .. | 4 | 3 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 16 |
| Maniototo | 2,877 | .. | .. | 2 | .. | 1 | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 |
| Southland | 55,598 | 259 | 54 | 28 | 1 | 41 | 3 | 1 | 2 | 60 | 17 | 3 | 1 | 2 | .. | .. | .. | 1 | .. | .. | .. | 214 |
| Wallace and Fiord | 11,507 | 38 | 3 | 7 | .. | 6 | 1 | . | .. | 16 | 8 | 5 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 46 |
| OTAGO | 205,716 | 482 | 128 | 105 | 6 | 173 | 8 | 1 | 23 | 217 | 75 | 32 | 3 | 5 | 3 | .. | 3 | 4 | .. | .. | .. | 786 |
| DOMINION TOTALS, 1923 | 1,268,750 | 53,590 | 1,201 | 1,951 | 276 | 1,002 | 36 | 17 | 176 | 1,144 | 788 | 213 | 38 | 29 | 20 | 8 | 27 | 36 | .. | 13 | 2 | 6,977 |
| DOMINION TOTALS, 1922 | 1,244,265 | 52,721 | 1,449 | 1,989 | 539 | 1,129 | 42 | 98 | 262 | 216 | 946 | 271 | .. | 36 | 22 | 7 | 26 | 36 | 2 | 4 | 1 | 7,075 |

## TABLE C.—NOTIFIABLE DISEASES IN NEW ZEALAND, 1923, 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. |
| Scarlet fever | 3 | 7 | 101 | 126 | 164 | 284 | 72 | 142 | 28 | 63 | 10 | 38 | 17 | 39 | 8 | 31 | 8 | 23 | 3 | 16 | 2 | 3 | 1 | 5 | 2 | 2 | 2 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 421 | 780 |
| Diphtheria | 12 | 6 | 303 | 232 | 367 | 365 | 99 | 145 | 30 | 70 | 32 | 69 | 21 | 48 | 22 | 41 | 17 | 24 | 8 | 10 | 7 | 6 | 2 | 6 | 1 | 4 | 1 | .. | 1 | 1 | 1 | .. | .. | .. | .. | .. | 924 | 1,027 |
| Enteric fever | .. | .. | 6 | 9 | 21 | 30 | 19 | 21 | 19 | 18 | 17 | 19 | 14 | 9 | 9 | 10 | 17 | 1 | 6 | 4 | 7 | 3 | 3 | 6 | 2 | .. | 2 | 1 | 1 | 1 | .. | .. | 1 | .. | .. | .. | 144 | 132 |
| Tuberculosis (pulmonary) | .. | .. | 4 | 3 | 9 | 9 | 8 | 16 | 40 | 61 | 65 | 84 | 124 | 64 | 97 | 69 | 75 | 42 | 68 | 21 | 39 | 15 | 25 | 11 | 9 | 7 | 12 | 9 | 3 | 2 | 6 | 2 | 1 | 1 | 1 | .. | 586 | 416 |
| Cerebro-spinal fever | 2 | 1 | 3 | 3 | 8 | 3 | 2 | 1 | 2 | 1 | .. | 1 | 3 | 1 | .. | 1 | 1 | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 23 | 13 |
| Acute poliomyelitis | .. | 2 | 3 | 5 | 2 | 1 | .. | 1 | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 8 | 9 |
| Puerperal fever | .. | .. | .. | .. | .. | .. | .. | .. | .. | 10 | .. | 44 | .. | 53 | .. | 32 | .. | 28 | .. | 7 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 176 |
| Erysipelas | 4 | 2 | 3 | 5 | 6 | 1 | 2 | 5 | 4 | 4 | 4 | 10 | 7 | 9 | 5 | 15 | 13 | 12 | 10 | 15 | 9 | 6 | 12 | 12 | 8 | 7 | 3 | 1 | 2 | 6 | 5 | 1 | 1 | 2 | .. | 2 | 98 | 115 |
| Ophthalmia neoratorum | 11 | 16 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 11 | 16 |
| Influenza (pneumonic, &c.) | 6 | 2 | 44 | 35 | 46 | 38 | 38 | 42 | 52 | 32 | 57 | 42 | 27 | 54 | 52 | 53 | 58 | 67 | 72 | 38 | 48 | 46 | 34 | 18 | 24 | 8 | 25 | 15 | 17 | 11 | 8 | 12 | 6 | 7 | 4 | 6 | 618 | 526 |
| Acute primary pneumonia | 10 | 7 | 69 | 58 | 70 | 56 | 32 | 26 | 47 | 9 | 31 | 16 | 22 | 26 | 33 | 20 | 34 | 20 | 36 | 17 | 35 | 13 | 14 | 10 | 11 | 6 | 7 | 6 | 14 | 6 | 7 | 2 | 8 | 2 | 8 | .. | 488 | 300 |
| Lethargic encephalitis | .. | .. | 1 | .. | 3 | 1 | 3 | 4 | 3 | 2 | 5 | 1 | 1 | 1 | 1 | .. | 2 | 1 | 1 | 1 | 2 | .. | 2 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 24 | 12 |
| Trachoma | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | 1 | .. | 1 | .. | 2 | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 7 | 1 |
| Hydatids | .. | .. | .. | 1 | .. | 1 | .. | 2 | 1 | 1 | 5 | 2 | .. | 1 | 1 | 4 | 1 | 1 | 3 | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | 1 | 1 | 1 | .. | .. | .. | 14 | 15 |
| Tetanus | .. | .. | 2 | .. | 3 | 1 | 3 | 3 | 1 | 1 | .. | .. | 1 | .. | .. | 1 | .. | .. | .. | 1 | 1 | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 13 | 7 |
| Eclampsia | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 12 | .. | 8 | .. | 7 | .. | 5 | .. | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 37 |
| Food poisoning | .. | .. | .. | .. | 2 | .. | 3 | .. | 1 | .. | .. | 1 | .. | .. | .. | 1 | .. | 1 | 3 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 10 | 3 |
| Actinomycosis | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. |
| Totals | 48 | 43 | 539 | 477 | 701 | 790 | 282 | 409 | 232 | 273 | 227 | 339 | 238 | 313 | 230 | 285 | 228 | 225 | 210 | 135 | 153 | 94 | 95 | 68 | 59 | 36 | 52 | 33 | 39 | 27 | 28 | 18 | 18 | 12 | 13 | 8 | 3,392 | 3,585 |

## SECTION 3.—NON-NOTIFIABLE DISEASES.

### Cancer.

The following table, taken from the "New Zealand Official Year-book," shows the cancer death-rate in the Dominion for the last ten years:—

*Number of Persons who died from Cancer, the Proportion per 10,000 Persons living, and the Percentage of all Deaths, 1914–23.*

| Year. | Deaths from Cancer. | Total Deaths: All Causes. | Deaths from Cancer per 10,000 of Living Persons. | Deaths from Cancer per 100 of all Deaths. |
|---|---|---|---|---|
| 1914 | 904 | 10,148 | 8·29 | 8·91 |
| 1915 | 900 | 9,965 | 8·19 | 9·03 |
| 1916 | 909 | 10,596 | 8·27 | 8·50 |
| 1917 | 957 | 10,528 | 8·71 | 9·09 |
| 1918 | 936 | 16,364 | 8·49 | 5·72 |
| 1919 | 1,031 | 10,808 | 9·07 | 9·54 |
| 1920 | 1,029 | 12,109 | 8·72 | 8·50 |
| 1921 | 1,044 | 10,682 | 8·53 | 9·77 |
| 1922 | 1,066 | 10,977 | 8·52 | 9·71 |
| 1923 | 1,115 | 11,511 | 8·75 | 9·69 |

Fuller information upon this subject, together with a discussion upon the causes which have contributed to the rising cancer death-rate in the Dominion, will be found in an article by the Chief Compiler, Census and Statistics Office, in the Year-book for 1917.

### Venereal Diseases.

The venereal clinics established in the four main centres in 1919 continue to do good work. The following table shows in concise form the results of their operations during the past year:—

*Venereal Clinics—Cases treated during Year ended 31st December, 1923.*

| — | Auckland. | | Wellington. | | Christchurch. | | Dunedin. | | Total. | |
|---|---|---|---|---|---|---|---|---|---|---|
| Number of persons dealt with at or in connection with the out-patient clinic for the first time and found to be suffering from— | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. |
| Syphilis | 116 | 40 | 61 | 17 | 39 | 14 | 27 | 9 | 243 | 80 |
| Soft sore | 17 | .. | 2 | .. | 4 | .. | .. | .. | 23 | .. |
| Gonorrhœa | 344 | 37 | 269 | 27 | 178 | 36 | 87 | 8 | 878 | 108 |
| No venereal disease | 43 | 11 | 79 | 38 | 42 | 10 | 3 | .. | 167 | 59 |
| Total attendances of all persons at the out-patient clinic who were suffering from— | | | | | | | | | | |
| Syphilis | 1,484 | 618 | 2,006 | 854 | 1,157 | 447 | 484 | 165 | 5,131 | 2,084 |
| Soft sore | 55 | .. | 185 | .. | 69 | .. | .. | .. | 309 | .. |
| Gonorrhœa | 5,750 | 413 | 30,073 | 1,001 | 5,472 | 487 | 1,511 | 78 | 42,806 | 1,979 |
| No venereal disease | 98 | 30 | 156 | 78 | 152 | 47 | 4 | .. | 410 | 155 |
| Aggregate number of in-patient days of treatment given to persons suffering from | | | | | | | | | | |
| Syphilis | .. | .. | 1,887 | 180 | 612 | 58 | .. | .. | 2,499 | 238 |
| Gonorrhœa | .. | .. | 5,051 | .. | 496 | 204 | .. | .. | 5,547 | 204 |
| Number of doses of salvarsan substitutes given | 906 | 378 | 1,101 | 438 | 525 | 151 | 382 | 130 | 2,914 | 1,097 |
| Examination of pathological material: Specimens from persons attending at treatment centre which were examined for— | | | | | | | | | | |
| Detection of spirochætes | 25 | .. | 12 | .. | 22 | .. | 2 | .. | 61 | .. |
| Detection of gonococci | 1,183 | 202 | 1,050 | 219 | 489 | 130 | 98 | 7 | 2,820 | 558 |
| Wasserman reaction | 169 | 35 | 416 | 155 | 397 | 180 | 83 | 27 | 1,065 | 397 |
| Others | 44 | .. | 25 | 2 | 88 | 30 | 123 | 2 | 280 | 34 |

SECTION 4.—QUARANTINE AND PORT SANITARY WORK.

Details concerning the port health inspection of overseas ships are contained in the next table.

PORT HEALTH INSPECTION OF OVERSEAS VESSELS DURING THE YEAR ENDED 31ST DECEMBER, 1923.

| Port. | Number of Vessels inspected. | Remarks as to Cases of Infectious Disease on Board or Persons not allowed to land. |
|---|---|---|
| Dargaville .. .. | 3 | |
| Auckland .. .. | 337 | 157 prohibited immigrants reported; 19 cases infectious disease reported. |
| Thames .. .. | 1 | |
| Tauranga .. .. | 2 | |
| New Plymouth .. | 13 | |
| Wanganui .. .. | 16 | |
| Wellington .. .. | 164 | 40 infirm and 2 prohibited immigrants reported; 26 cases infectious disease and 5 cases contagious disease reported. |
| Picton .. .. | 5 | |
| Nelson .. .. | 1 | |
| Westport .. .. | 6 | |
| Lyttelton .. .. | 40 | 3 cases contagious disease reported. |
| Timaru .. .. | 2 | |
| Oamaru .. .. | 1 | |
| Port Chalmers .. .. | 23 | |
| Bluff .. .. .. | 41 | |
| Total .. .. | 655 | |

## SECTION 5.—BACTERIOLOGICAL LABORATORIES.

The facilities available in the Dominion for the bacteriological investigation of disease are being gradually extended. Apart from the main laboratories in the four centres, there are now six branch laboratories established in connection with the public hospitals of the subsidiary centres of the Dominion.

The table below, which summarizes the work of a definite public-health nature performed in these laboratories, shows the importance and wide range of the examinations undertaken in these institutions.

TABLE SHOWING PUBLIC-HEALTH WORK PERFORMED IN BACTERIOLOGICAL LABORATORIES DURING THE YEAR ENDED 31ST DECEMBER, 1923.

| Specimens. | Number of Examinations carried out. | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Positive. | | | | | | | | | | Negative. | | | | | | | | | |
| | Whangarei. | Auckland. | Hamilton. | Gisborne. | Napier. | Palmerston North.* | Wellington. | Christchurch. | Dunedin. | Invercargill. | Whangarei. | Auckland. | Hamilton. | Gisborne. | Napier. | Palmerston North.* | Wellington. | Christchurch. | Dunedin. | Invercargill. |
| Diphtheria diagnosis .. | 18 | 226 | 78 | 13 | 54 | 138 | 1,728 | 147 | 55 | 35 | 88 | 880 | 287 | 39 | 438 | 360 | 8,566 | 1,330 | 381 | 273 |
| Diphtheria clearance .. | 22 | 27 | 158 | 4 | 161 | 117 | .. | 439 | 208 | 22 | 52 | 131 | 735 | 40 | 210 | 486 | .. | 2,740 | 328 | 70 |
| Tuberculosis— | | | | | | | | | | | | | | | | | | | | |
| Sputum .. .. | 42 | 99 | 46 | 13 | 108 | 45 | 225 | 63 | 93 | 39 | 135 | 464 | 386 | 81 | 509 | 210 | 730 | 646 | 343 | 204 |
| Cerebro-spinal fluid .. | .. | .. | .. | .. | 2 | .. | 2 | 3 | 1 | 1 | 2 | .. | 12 | 1 | 43 | 7 | 29 | 19 | 20 | 13 |
| Urine .. .. | .. | 1 | .. | 1 | .. | 5 | 10 | 15 | 10 | 2 | 21 | 11 | 33 | 5 | 116 | 33 | 64 | 220 | 98 | 92 |
| Pleuritic fluid .. | .. | .. | .. | .. | 7 | .. | 8 | 1 | .. | 1 | 3 | 2 | 22 | 2 | 73 | .. | 17 | 94 | .. | 32 |
| Fæces .. .. | .. | .. | .. | .. | .. | .. | 7 | .. | .. | .. | 3 | 1 | 2 | 1 | 19 | .. | 15 | 11 | .. | 1 |
| Other material .. | .. | .. | .. | .. | 11 | .. | 1 | 3 | 4 | .. | 5 | .. | 3 | 3 | 37 | 6 | 47 | 17 | 69 | 18 |
| Typhoid fever diagnosis— | | | | | | | | | | | | | | | | | | | | |
| Agglutination tests .. | 10 | 10 | 12 | 33 | 14 | 6 | 23 | 17 | 5 | .. | 24 | 52 | 62 | 27 | 157 | 25 | 349 | 45 | 16 | 12 |
| Blood-culture .. | 1 | 1 | 2 | 6 | 2 | .. | .. | .. | 1 | .. | 5 | 5 | 47 | 8 | 10 | .. | .. | .. | 12 | .. |
| Fæces .. .. | .. | .. | .. | .. | 3 | .. | .. | 5 | .. | .. | 12 | 15 | 10 | 3 | 27 | .. | 6 | 36 | 11 | 2 |
| Typhoid fever clearance— | | | | | | | | | | | | | | | | | | | | |
| Fæces .. .. | .. | .. | .. | 11 | 2 | .. | .. | 1 | .. | .. | 25 | 5 | 12 | 121 | 14 | 21 | 30 | 22 | 12 | .. |
| Urine .. .. | .. | .. | .. | 7 | .. | .. | .. | 1 | .. | .. | 3 | 5 | 13 | 95 | 5 | 18 | 28 | 21 | .. | .. |
| Cerebro-spinal-fever diagnosis— | | | | | | | | | | | | | | | | | | | | |
| Swabs .. .. | .. | .. | .. | .. | .. | 2 | .. | .. | 2 | .. | 4 | 2 | .. | 2 | .. | 5 | 4 | 1 | 10 | 6 |
| Cerebro-spinal fluid .. | 1 | .. | .. | .. | .. | .. | 3 | .. | .. | 1 | 7 | 1 | 2 | .. | 1 | .. | 46 | 5 | .. | 7 |
| Cerebro-spinal-fever clearance swabs | .. | .. | .. | 14 | .. | .. | .. | .. | .. | .. | 5 | 2 | .. | .. | .. | .. | .. | .. | 1 | .. |
| Gonorrhœa .. .. | 12 | 41 | 7 | 2 | 31 | 40 | 775 | 121 | 74 | 14 | 23 | 164 | 60 | 26 | 117 | 52 | 934 | 254 | 151 | 14 |
| Opthalmia neonatorum for gonococcus | .. | 3 | 2 | .. | .. | .. | 13 | .. | 1 | .. | .. | 5 | 15 | 1 | 1 | .. | 21 | .. | 3 | .. |
| Syphilis, spironema, pallidum | .. | .. | .. | .. | .. | 1 | 2 | .. | .. | .. | .. | 1 | 1 | .. | 3 | 4 | 12 | .. | 2 | 3 |
| Syphilis, Wasserman reaction | .. | 113 | .. | .. | 80 | .. | 191 | 125 | 137 | .. | .. | 431 | .. | .. | 351 | .. | 929 | 416 | 673 | .. |
| Hydatid disease .. | .. | .. | 1 | 2 | 23 | .. | 2 | 7 | 21 | 2 | .. | .. | 1 | 2 | 40 | 1 | 6 | 26 | 76 | 2 |
| Plague: Extermination of rats | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 10,486 | .. | .. | .. | .. | 1,102 | 5 | .. | .. |
| Vincent's angina .. | .. | 5 | 3 | .. | 11 | .. | 7 | .. | .. | 1 | .. | 8 | 1 | .. | .. | .. | 10 | .. | .. | .. |
| Leprosy .. .. | .. | .. | .. | .. | .. | 3 | .. | 4 | .. | .. | .. | .. | .. | .. | .. | 2 | 5 | 8 | .. | .. |
| Anthrax .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. |
| Tetanus .. .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | 2 | .. | 1 | .. |
| Lethargic encephalitis .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Actinomycosis .. .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 2 | .. | .. | .. |
| Others .. .. | .. | 18 | 4 | 3 | 81 | .. | 18 | 9 | .. | 15 | 24 | 25 | 11 | 4 | 27 | .. | 32 | 6 | .. | 4 |

* Returns for nine-monthly period only shown for Palmerston North Laboratory.

NOTE.—This report represents only part of the work performed at the above laboratories. It does not include instructional work, investigations, or reports on specimens other than those of a public-health nature.

## SECTION 6.—WORKING OF THE SALE OF FOOD AND DRUGS ACT.

The following tables enable a rapid survey to be made of the activities of the Department in the direction of ensuring compliance with the above Act. The corresponding figures for 1922 are supplied for the purposes of comparison.

TABLE 1.—SHOWING SAMPLES RESPECTIVELY OF MILK AND OTHER FOODSTUFFS TAKEN AND DEALT WITH DURING THE YEAR ENDED 31ST DECEMBER, 1923.

| Hospital District. | Number of Samples taken. | | Samples not complying. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Number of Samples. | | Number of Vendors. | | Number of Warnings issued. | | Number of Prosecutions recommended. | |
| | Milk. | Other. | Milk. | Other. | Milk. | Other. | Milk. | Other. | Milk. | Other. |
| Mangonui | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Whangaroa | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bay of Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hokianga | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Kaipara | 7 | 3 | .. | .. | .. | .. | .. | .. | .. | .. |
| Whangarei | 22 | 7 | .. | 1 | .. | 1 | .. | 1 | .. | .. |
| Auckland | 249 | 52 | 11 | 5 | 9 | 5 | 1 | 4 | 8 | .. |
| Waikato | 55 | 10 | 5 | 2 | 5 | 2 | 4 | 1 | 1 | 1 |
| Thames | 4 | 2 | 2 | .. | 2 | .. | .. | .. | 2 | .. |
| Waihi | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Coromandel | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tauranga | 4 | .. | 1 | .. | 1 | .. | .. | .. | 1 | .. |
| Bay of Plenty | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Taumarunui | 49 | 3 | 3 | 1 | 3 | 1 | 2 | .. | 1 | 1 |
| Waiapu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Cook | 54 | 4 | 1 | .. | 1 | .. | 1 | .. | .. | .. |
| Wairoa | 15 | 4 | 1 | .. | 1 | .. | .. | .. | 1 | .. |
| Hawke's Bay | 114 | 31 | 3 | 2 | 3 | 2 | 1 | .. | 2 | 2 |
| Waipawa | 31 | 2 | 3 | .. | 3 | .. | 1 | .. | 2 | .. |
| Taranaki | 51 | 25 | 2 | .. | 2 | .. | .. | .. | 2 | .. |
| Stratford | 32 | 27 | 1 | .. | 1 | .. | .. | .. | 1 | .. |
| Hawera | 49 | 55 | 1 | 3 | 1 | 3 | .. | 1 | 1 | 2 |
| Patea | 1 | 3 | .. | .. | .. | .. | .. | .. | .. | .. |
| Wanganui | 28 | 86 | 2 | 6 | 2 | 3 | .. | 1 | 2 | 1 |
| Palmerston North | 48 | 5 | 3 | .. | 3 | .. | .. | .. | 3 | .. |
| Wellington | 1,736 | 51 | 62 | 2 | 59 | 2 | 25 | .. | 27 | 2 |
| Wairarapa | 42 | 13 | .. | 1 | .. | 1 | .. | .. | .. | 1 |
| Wairau-Picton | 36 | 4 | .. | .. | .. | .. | .. | .. | .. | .. |
| Nelson | 52 | 14 | .. | 2 | .. | 2 | .. | .. | .. | 2 |
| Westland | 22 | 38 | 7 | 5 | 6 | 5 | 2 | 1 | 4 | 4 |
| Buller | 21 | 8 | 3 | .. | 3 | .. | 2 | .. | 1 | .. |
| Inangahua | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Grey | 53 | 14 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 |
| North Canterbury | 257 | 67 | 85 | 2 | 78 | 2 | 39 | 2 | 35 | .. |
| Ashburton | 16 | .. | 1 | .. | 1 | .. | 1 | .. | .. | .. |
| South Canterbury | 62 | 8 | 16 | 3 | 16 | 3 | 6 | 3 | 10 | .. |
| Waitaki | 44 | 1 | 2 | .. | 2 | .. | 1 | .. | 1 | .. |
| Otago | 48 | 13 | 2 | 1 | 2 | 1 | 2 | .. | .. | 1 |
| South Otago | 41 | 1 | 3 | .. | 3 | .. | 3 | .. | .. | .. |
| Vincent | 10 | .. | 2 | .. | 2 | .. | 2 | .. | .. | .. |
| Maniototo | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Southland | 85 | 7 | 12 | .. | 12 | .. | 8 | .. | 4 | .. |
| Wallace and Fiord | 15 | 1 | 2 | .. | 2 | .. | 2 | .. | .. | .. |
| Totals, 1923 | 3,363 | 559 | 239 | 39 | 226 | 36 | 105 | 16 | 110 | 18 |
| Totals, 1922 | 3,077 | 532 | 163 | 63 | 149 | 47 | 83 | 19 | 64 | 27 |

TABLE 2.—SHOWING THE RESULTS OF WEIGHINGS OF BREAD, BUTTER, AND OTHER FOODSTUFFS RESPECTIVELY DURING THE YEAR ENDED 31ST DECEMBER, 1923.

| Hospital District. | Number of Samples weighed. | | | Samples not complying. Number of Samples. | | | Number of Vendors. | | | Number of Warnings issued. | | | Number of Prosecutions recommended. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bread. | Butter. | Other. | Bread. | Butter. | Other. | Bread. | Butter. | Other. | Bread. | Butter. | Other. | Bread. | Butter. | Other. |
| Mangonui | 24 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Whangaroa | .. | 12 | .. | .. | 1 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. |
| Bay of Islands | 45 | 6 | .. | 6 | 1 | .. | 3 | 1 | .. | 3 | 1 | .. | .. | .. | .. |
| Hokianga | 15 | 6 | .. | 8 | 2 | .. | 2 | 1 | .. | .. | .. | .. | .. | .. | .. |
| Kaipara | 70 | 12 | 7 | 20 | 1 | .. | 5 | 1 | .. | 2 | .. | .. | .. | .. | .. |
| Whangarei | 39 | 22 | .. | 5 | 2 | .. | 2 | 1 | .. | .. | 1 | .. | .. | .. | .. |
| Auckland | 997 | 308 | 176 | 180 | 37 | 30 | 49 | 3 | 4 | 18 | 2 | 3 | 6 | .. | 1 |
| Waikato | 260 | 412 | 26 | 4 | 2 | .. | 4 | 1 | .. | .. | .. | .. | .. | .. | .. |
| Thames | 144 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Waihi | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Coromandel | 12 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tauranga | 62 | 24 | 13 | 13 | 1 | .. | 5 | 1 | .. | .. | .. | .. | 1 | .. | .. |
| Bay of Plenty | 282 | 36 | .. | 12 | 2 | .. | 4 | 2 | .. | .. | .. | .. | .. | .. | .. |
| Taumarunui | 908 | 147 | .. | 124 | 35 | .. | 33 | 10 | .. | 2 | 1 | .. | 4 | .. | .. |
| Waiapu | 61 | 6 | 12 | 9 | .. | .. | 2 | .. | .. | 1 | .. | .. | 1 | .. | .. |
| Cook | 254 | 90 | 79 | 11 | .. | .. | 3 | .. | .. | 3 | .. | .. | .. | .. | .. |
| Wairoa | 71 | 25 | 2 | 1 | .. | .. | 1 | .. | .. | 1 | .. | .. | .. | .. | .. |
| Hawke's Bay | 365 | 170 | 7 | 33 | .. | .. | 10 | .. | .. | 10 | .. | .. | .. | .. | .. |
| Waipawa | 312 | 354 | 14 | 10 | .. | .. | 1 | .. | .. | 1 | .. | .. | .. | .. | .. |
| Taranaki | 402 | 593 | 65 | 20 | 34 | 5 | 4 | 1 | 1 | 1 | 1 | 1 | 3 | .. | .. |
| Stratford | 100 | 77 | 24 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hawera | 270 | 335 | 136 | 30 | 1 | 105 | 5 | 1 | 1 | 3 | 1 | .. | 2 | .. | .. |
| Patea | 51 | 18 | 26 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Wanganui | 450 | 343 | 190 | 11 | .. | .. | 3 | .. | .. | 2 | .. | .. | 1 | .. | .. |
| Palmerston North | 50 | 18 | .. | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. |
| Wellington | 323 | 81 | .. | 80 | .. | .. | 13 | .. | .. | 8 | .. | .. | .. | .. | .. |
| Wairarapa | 176 | 98 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Wairau-Picton | 110 | 46 | 8 | 10 | .. | .. | 1 | .. | .. | 1 | .. | .. | .. | .. | .. |
| Nelson | 197 | 122 | 5 | 25 | 2 | .. | 2 | 1 | .. | 1 | 1 | .. | 1 | .. | .. |
| Westland | 301 | 108 | .. | .. | 48 | .. | .. | 1 | .. | .. | 1 | .. | .. | .. | .. |
| Buller | 54 | 6 | .. | 6 | .. | .. | 1 | .. | .. | 1 | .. | .. | .. | .. | .. |
| Inangahua | 12 | .. | .. | 12 | .. | .. | 2 | .. | .. | 2 | .. | .. | .. | .. | .. |
| Grey | 48 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| North Canterbury | 405 | 30 | .. | 71 | .. | .. | 9 | .. | .. | 7 | .. | .. | 2 | .. | .. |
| Ashburton | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| South Canterbury | .. | 156 | 136 | .. | .. | 43 | .. | .. | 7 | .. | .. | 7 | .. | .. | .. |
| Waitaki | 174 | 66 | 6 | 38 | .. | .. | 3 | .. | .. | 3 | .. | .. | .. | .. | .. |
| Otago | 136 | 75 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| South Otago | 24 | 43 | 20 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Vincent | 98 | 257 | .. | .. | 41 | .. | .. | 4 | .. | .. | 4 | .. | .. | .. | .. |
| Maniototo | 38 | 119 | .. | 6 | 12 | .. | 1 | 2 | .. | 1 | 2 | .. | .. | .. | .. |
| Southland | 263 | 175 | .. | 1 | 6 | .. | 1 | 1 | .. | 1 | 1 | .. | .. | .. | .. |
| Wallace and Fiord | 121 | 28 | .. | 21 | .. | .. | 3 | .. | .. | 3 | .. | .. | .. | .. | .. |
| Totals, 1923 | 7,724 | 4,424 | 952 | 767 | 230 | 183 | 172 | 33 | 13 | 75 | 16 | 11 | 21 | 2 | 1 |
| Totals, 1922 | 7,661 | 5,859 | 915 | 543 | 439 | 37 | 123 | 63 | 12 | 42 | 24 | 9 | 24 | 12 | 2 |

TABLE 3.—SHOWING INSPECTIONS OF PREMISES ENGAGED IN SELLING OR MANUFACTURING FOODSTUFFS DURING THE YEAR ENDED 31ST DECEMBER, 1923.

| Hospital District. | Number of Premises Inspected* engaged in Selling or Manufacturing Foodstuffs. | Number of Instances Articles were "seized" or "destroyed." | Number of such Premises requiring Sanitary Action. | Hospital District. | Number of Premises inspected* engaged in Selling and Manufacturing Foodstuffs. | Number of Instances Articles were "seized" or "destroyed." | Number of such Premises requiring Sanitary Action. |
|---|---|---|---|---|---|---|---|
| Mangonui | 120 | 18 | 14 | Wellington | 1,869 | 14 | 2 |
| Whangaroa | 35 | .. | 4 | Wairarapa | 1,112 | 3 | 15 |
| Bay of Islands | 64 | 7 | 11 | Wairau-Picton | 184 | .. | .. |
| Hokianga | 69 | 4 | 8 | Nelson | 474 | 1 | 9 |
| Kaipara | 128 | 15 | 20 | Westland | 123 | 10 | 14 |
| Whangarei | 60 | 4 | 11 | Buller | 164 | 2 | .. |
| Auckland | 2,059 | 54 | 319 | Inangahua | 68 | 5 | 21 |
| Waikato | 1,726 | 15 | 97 | Grey | 187 | 20 | 45 |
| Thames | 1,391 | 5 | 340 | North Canterbury | 934 | 19 | 108 |
| Tauranga | 716 | 4 | 47 | Ashburton | 2 | .. | .. |
| Bay of Plenty | 590 | .. | 93 | South Canterbury | 314 | 22 | 7 |
| Taumarunui | 702 | 3 | 98 | Waitaki | 559 | 15 | 78 |
| Waiapu | 127 | 7 | 9 | Otago | 482 | 38 | 73 |
| Cook | 666 | 28 | 20 | South Otago | 418 | 1 | 43 |
| Wairoa | 297 | 2 | 30 | Vincent | 81 | 3 | 10 |
| Hawke's Bay | 669 | 20 | 39 | Maniototo | 43 | 2 | 4 |
| Waipawa | 440 | 8 | 49 | Southland | 627 | 11 | 93 |
| Taranaki | 685 | 12 | 8 | Wallace and Fiord | 88 | .. | 19 |
| Stratford | 182 | 3 | 14 | | | | |
| Hawera | 295 | 14 | 31 | Totals, 1923 | 19,690 | 404 | 1,833 |
| Patea | 93 | .. | 3 | | | | |
| Wanganui | 565 | 9 | 20 | Totals, 1922 | 20,866 | 337 | 1,794 |
| Palmerston North | 279 | 6 | 7 | | | | |

* Not number of inspections.

### SECTION 7.—GENERAL.

During the year the usual routine work of the Department has been carried out in the direction of supervision of water-supplies and of refuse and sewage-disposal schemes, inspection of buildings, abatement of nuisances, &c. Comprehensive sets of regulations have been prepared and issued by the Department dealing with—(1) Drainage and plumbing; (2) the manufacture and sale of flock; (3) the cleansing, ventilation, sanitation, and disinfection of theatres, picture-halls, and concert-rooms; (4) the registration, construction, and sanitation of cattle sale-yards; (5) the importation into New Zealand of second-hand rugs and clothing, flock, shaving-brushes, wool or hair from certain specified countries in which anthrax is endemic, and any toilet-brushes or toilet articles made from such hair; (6) the treatment and sale of second-hand clothing and bedding; (7) the registration of eating-houses by local authorities. At the time of writing a very full and complete series of regulations under the Sale of Food and Drugs Act is in the course of preparation.

In connection with the operation of the Sale of Food and Drugs Act and the vigilance necessary in carrying out the regulations, I desire to place on record my great appreciation of the work of the Comptroller of Customs and his officers. It is due certainly in no small degree to the watchfulness at ports of entry that much imported foodstuff which offends in some way against the regulations is located, and its distribution throughout the country thereby prevented.

The Department is also specially indebted to the Dominion Analyst, in whose laboratory a very large number of samples are dealt with annually. The advice received by our officers in connection with the framing of regulations is of inestimable value, and with the co-operation of the Dominion Analyst we are able to deal more efficiently and effectively with the various phases of food sophistication that develop from time to time.

During the year it was decided to revert once more to the old system whereunder New Zealand was divided into four health districts with headquarters in the four main centres. In this way the available Medical Officers are concentrated where their services are most valuable. Pursuant to this policy the North Auckland Health District was merged in the Auckland District as from the beginning of 1924, while the Hawke's Bay and Wanganui-Taranaki Districts have been incorporated in the Wellington Health District as from the 1st April, 1924.

The discovery of insulin and the development of laboratory methods as an aid in the diagnosis and treatment of diabetes necessitated the Assistant Bacteriologists located at the hospitals in the secondary centres being sent to Dunedin for a short course in blood-chemistry. Thanks are due to the staff of the Otago Medical School, and particularly to Professors Drennan and Hercus, for their ready assistance in undertaking this task at short notice. The course proved an undoubted boon to and was much appreciated by those officers who went to Dunedin.

Extracts from the reports of the various Medical Officers of Health which appear in another part of this report show a progressive improvement in the sanitary conditions generally throughout the Dominion, and an ever-growing appreciation on the part of local authorities of their responsibilities and duties under the Health Act.

In conclusion, I desire to put on record my appreciation of the very loyal co-operation afforded me by the Medical Officers of Health and the staff under their control in what was in many respects a particularly onerous and trying year.

M. H. WATT,
Director, Division of Public Hygiene.

## PART III.—CHILD WELFARE.

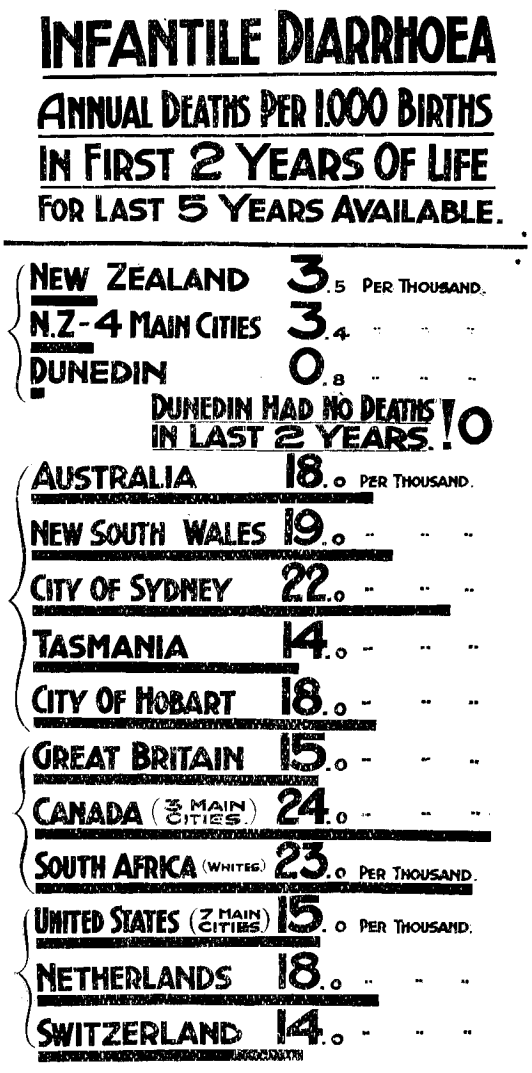
### SECTION 1.—PROGRESS IN INFANT-WELFARE WORK.

During the year progress in child welfare throughout New Zealand has been fully maintained. The more our statistics for the last twenty years dealing with the infant from one month to a year or two years of age are studied and investigated, the more encouraging are the results seen to be. This will be realized by a glance at the following statistical table and approximate comparative graph:—

DEATHS FROM INFANTILE DIARRHŒA AND ENTERITIS OF CHILDREN UNDER TWO YEARS OF AGE: ANNUAL MORTALITY PER 1,000 BIRTHS FOR THE LAST FIVE YEARS (1918–22), ACCORDING TO THE LATEST AVAILABLE STATISTICS.

| | | Deaths per 1,000 Births. | Remarks. |
|---|---|---|---|
| New Zealand | | 3·5 | |
| New Zealand (four main cities) | | 3·4 | |
| Dunedin | | 0·8 | No deaths in last two years. |
| Australian Commonwealth | | 18 | Dunedin is the seat of the longest and most intensive education of mothers in New Zealand. |
| New South Wales | | 19 | |
| Sydney | | 22 | |
| Tasmania | | 14 | |
| Hobart | | 18 | |
| Great Britain | For the last three years available | 15 | |
| English cities— | | | |
| Liverpool (highest) | | 21 | |
| Bournemouth (lowest)* | | 5 | *Ideal residential centre for the south of England. A kind of garden city for the well-to-do. |
| Canada (Ottawa, Toronto, Vancouver) | Only two to three years' statistics available. | 24 | |
| South Africa (White) | | 23 | |
| Netherlands | | 18 | |
| Switzerland | | 14 | |
| United States of America—Average of seven cities: Boston, New York, Philadelphia, Washington, Seattle, Los Angeles, San Francisco | | 15 | No returns available for U.S.A. as a whole, or for States. |

Viewed broadly, the most striking feature of the total infantile-mortality rate of the Dominion and the infantile mortality from gastro-enteritis and diarrhœa, is that there has been a remarkable wiping-out of oscillations from year to year, compared with what obtained prior to 1907—the year in which the New Zealand system of organized education and training of nurses and mothers in the care and feeding of children was commenced. (See graphs on opposite page.)




**The relative lengths of the thick horizontal lines show the proportionate death rates from Infantile Diarrhœa.**

The significance of this "stabilization" can scarcely be over-emphasized, because it is in accord with a well-recognized principle of inference from vital statistics. It means that New Zealand mothers, having been properly taught and trained, know not only how to rear their children safely and soundly, but also how to render them proof against such chance adverse factors as so-called "bad years" or "bad seasons"—including the influence of extremes of heat and cold, floods, droughts, &c., and including also dangers arising from the milk-supply and alimentary or respiratory epidemics.

Young children used to be regarded as the natural prey of any and all such adverse conditions in their environment, and the New Zealand "infantile diarrhœa death-rate" and the "colds and bronchitis death-rate" used to rise and fall, seemingly inevitably, in peaks and valleys—as seen when charted and viewed over a series of years. (See the annual reports on child welfare for 1921-22 and 1922-23, and the graphs opposite reduced therefrom.

From fifteen to twenty years ago the city infantile diarrhœa mortality-rate would rise in a given year as high as 30 or even 45 per 1,000 births, and in other years would fall to 20, or occasionally as low as 10. In Christchurch the rate for 1907 was 15, and for Dunedin was 25; yet in the last five years the average Christchurch rate has been under 3½ (with 5 as the highest and 2 as the lowest), while the Dunedin average has been less than 1—the highest rate in the last five years being 2 in 1920, and the lowest nil for the last two years. Surely no clearer or more convincing proof could be given as to the supreme value of sustained systematic education and training of the mother, in the interests of the family and the race.

Turning now to the annual infantile-mortality rate from all causes, we see here again that the most striking change has been "stabilization"—the wiping-out of variations in the death-rate from year to year. The total infantile mortality has fallen practically to a half—namely, from 8 per cent. to just over 4 per cent. of the annual birth-rate, and has remained for several years about the latter figure, varying very little from year to year—as if the attainable zero had been almost reached. Of course, there must be a limit below which the prevention of deaths in the first year cannot be brought. However perfect we may make our ante-natal, natal, and post-natal provisions, some babies are bound to perish before reaching twelve months of age from disabilities or disease preceding birth, or incidental to the process of birth, or else acquired subsequently.

The Plunket Society continues to play an important and progressive part in this work, and its increasingly intimate association with the Department of Health and with the general and maternity hospital systems of the Dominion not only makes for efficiency and economy of working, but also goes a long way towards ensuring uniform authoritative advice in regard to matters bearing on family life and the rearing and treatment of children in health and disease.

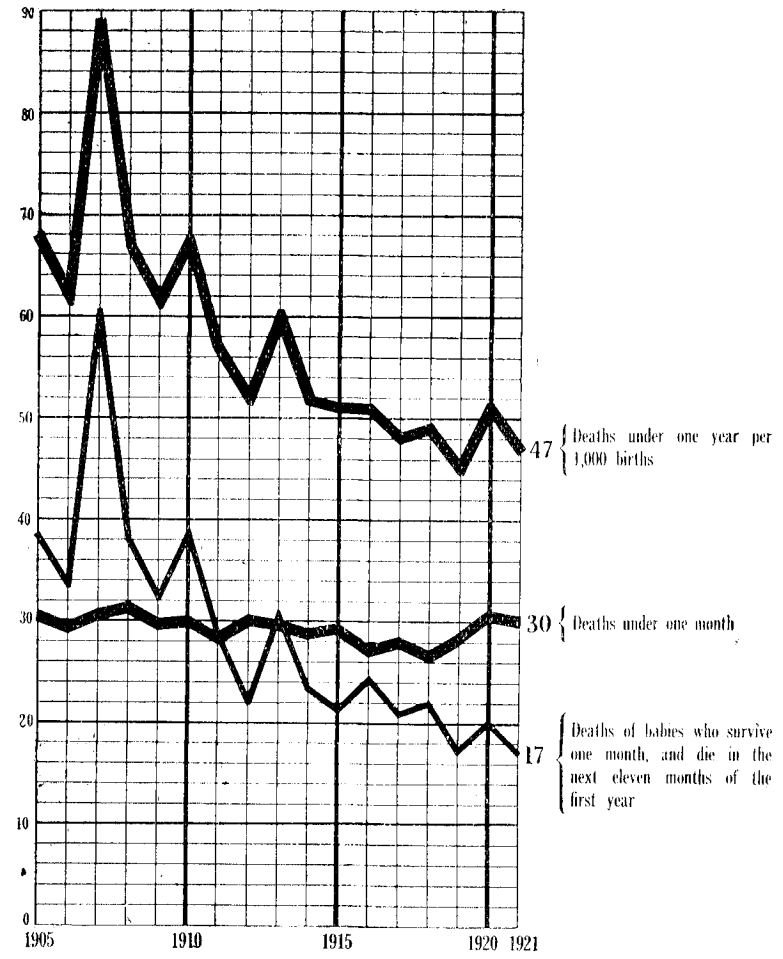
The direct control which can be exercised by specially educating and training the mother herself will obviously operate mainly from the time when her child is practically dependent on her and on her alone, not only for care and feeding, but for the very food itself. In the actual process of birth mother and child are both entrusted to the care of others, and the mother herself cannot control the immediate issue; this is also true, to a considerable extent, for a week or two after the birth of the baby.

The above facts establish the following position, as regards the immediate and direct power of the mother to keep her child well or let it fail, from birth to twelve months of age—it being, of course, recognized that prior to birth mother and child are one and indivisible, and that the child depends solely on the mother's health and the care she takes to keep herself well.

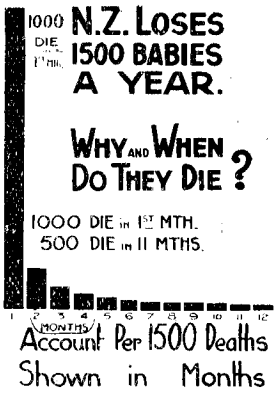
SECTION 2.—EXTENT TO WHICH THE HEALTH AND LIFE OF THE BABY DEPEND ON THE KNOWLEDGE AND PERSONAL CARE AND ATTENTION OF THE MOTHER, RATHER THAN ON OUTSIDE AID.

STAGE I.

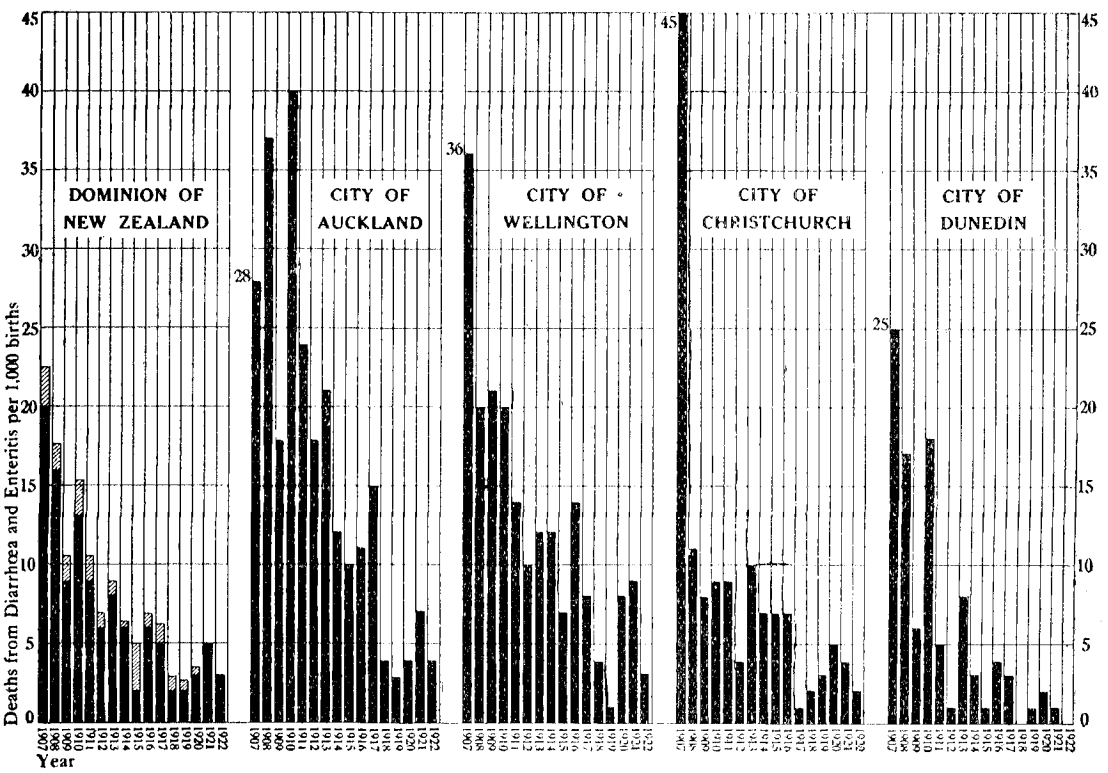
*At and about the time of childbirth doctor and nurse are generally all in all for the time being—they are in sole charge.* Throughout the ante-natal period the mother may or may not have had help and advice, may have acted wisely or foolishly, and may have kept herself fit or unfit; now she and her child are in the hands of others, who control the immediate issue for both.




New Zealand Total Infantile Mortality for 15 Years, and Analysis.




The above graph is no longer strictly applicable—the total deaths of infants in their first year having been for the last two years 1,215 and 1,225. However, the proportions lost in the first month and in the rest of the year remain practically unchanged, viz., 2 to 1. More than half the deaths occur in the first eight days! This is associated with our unduly high Maternal Mortality of 5 per 1,000.




New Zealand Annual Mortality Rates from Gastro-enteritis and Diarrhœa per 1000 Births.

STAGE II.

*For some weeks after birth the child is generally more or less entrusted to others.* There is divided care, control, and responsibility. For the most part the mother does as she is told to do by the nurse in attendance, and the issue is largely in the hands of the nurse and the medical attendant.

STAGE III.

*After a few weeks the mother is generally in sole charge, and everything depends on her.* Is she ignorant, or has she been well prepared in body, mind, and habits to do the best for her child? If not, is she, at the eleventh hour, sensible enough to seek sound reliable guidance and advice from a competent doctor or nurse, and to act on the advice and help offered? The records already given show that the New Zealand mother does avail herself, sooner or later, of her opportunities, otherwise the death-rate from infantile diarrhœa could not have been brought down nearly to zero, nor would the total infantile mortality have been reduced to 4 per cent.

## SECTION 3.—INFANTILE MORTALITY IN FIRST MONTH OF LIFE.

In spite of the more than encouraging reduction in the total infantile-death rate after one month, and in the death-rate due to what was formerly the one great scourge of early life, in New Zealand as elsewhere—viz., infantile diarrhœa—we still have to face the painful fact that our loss of mothers and babies within a few weeks of childbirth (the natal and early post-natal stages referred to above) is still quite unjustifiably high, and utterly out of proportion to the singularly low infantile-death rate from the end of the first to the twelfth month. More than half our total infantile mortality actually occurs within eight days of birth—say, 620 deaths out of a total of 1,200 deaths in the course of a year. Nothing could possibly be more significant and suggestive than this fact, coupled with our disproportionately high maternal-death rate. Mother and child are indeed one and indivisible at the start: anything that injures the mother injures and imperils her child. Indeed, our attention has just been forcibly drawn to our anomalous statistics in this connection by Dr. C. J. Brenkman, Chief of the Medical Statistical Department of Amsterdam, who, on investigating the relative figures for the Dutch capital and New Zealand, found that while our total infantile-mortality rate was not much lower than theirs, our death-rate among babies after a month was less than half the Amsterdam rate; and yet before a month of age the very reverse was true—their deaths in the first month showing less than half the New Zealand rate, their maternal mortality being only two-fifths, or possibly only a third of ours. (See footnote farther on.) He naturally seeks an explanation.

The following are extracts from Dr. Brenkman's letter to the Department of Health, New Zealand, dated Amsterdam, 9th February, 1924:—

"Your Reports on Public Health we have read with much interest: those bearing on child welfare are specially interesting for us here in Amsterdam. I myself made a comparison between infant mortality in New Zealand and in Amsterdam, and I wrote an article on that subject in the monthly *Tydschrift voor Sociale Geneeskunde*. I send you a copy of the journal and a translation of my article, thinking it may be of interest to yourself and your co-workers. I also enclose copies of graphs we have made.

"C. J. BRENKMAN,

"Chief of the Medical Statistical Department of the Municipal Health Service of Amsterdam."

CONDENSED EXTRACTS FROM DR. BRENKMAN'S ARTICLE.

The Annual Report on Child Welfare for New Zealand (1920–21) contains two graphs dealing with infantile mortality. "The first graph," so the report says, "was prepared for lecturing purposes, in order to impress on nurses, midwives, and others the urgent need for reducing the deaths of infants in the first month after birth. . . ." It seemed interesting to make a graph on the same subject for Amsterdam, and this work was done by our Medical Statistical Department (see Graph No. II). . . . In New Zealand 29,006 babies were born in 1922, and 1,215 died (*i.e.*, 4·2 per cent., or 42 per 1,000). In Amsterdam 14,143 children were born in 1922, and in the same year 676 infants died (*i.e.*, 4·7 per cent., or 47 per 1,000). Our population is 700,000.

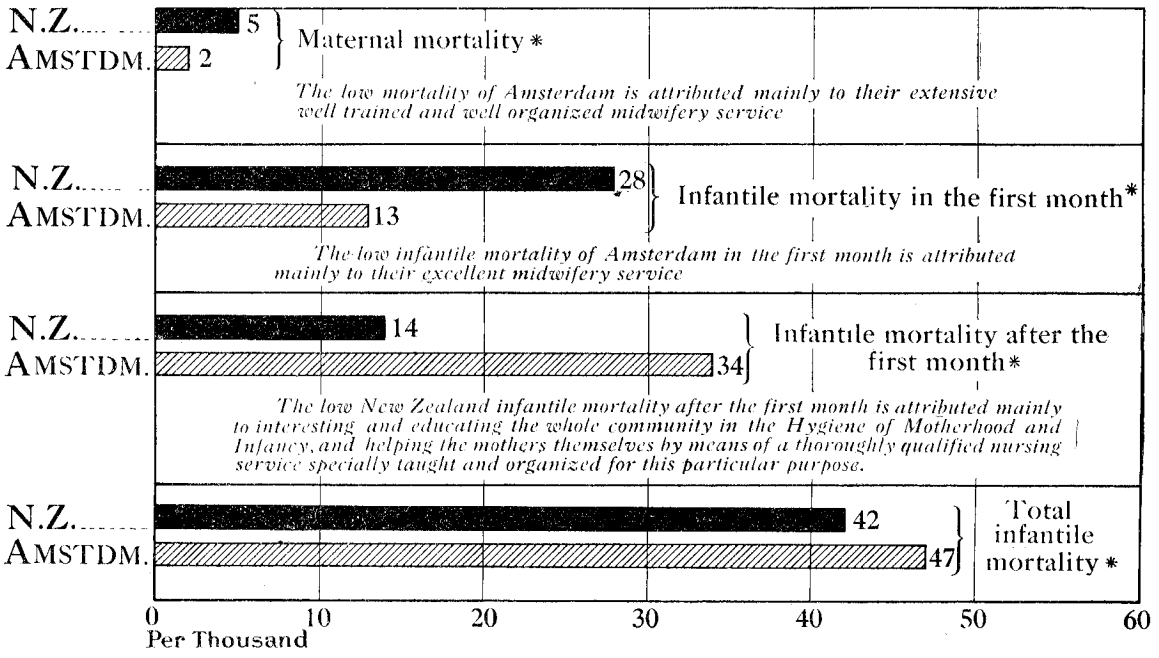
The New Zealand graphs show that the fall in their infantile-mortality rate during the last fifteen years has been due solely to the saving of lives *after* the first month: the mortality of infants in their first month did not fall throughout this period, and has remained high—*i.e.*, 30 per 1,000 births.

In Amsterdam the mortality of infants in their first year, after reaching one month of age, is more than twice that of New Zealand. For New Zealand it is under 2 per cent. [actually only 1·5 per cent. for last two years], while for Amsterdam it is nearly 4 per cent.

In New Zealand the mortality of very young infants . . . under the age of one month . . . was formerly 3 per cent., or 30 per 1,000, and now it is practically the same; in Amsterdam, on the other hand, it was 2·3 per cent., or 23 per 1,000, in 1905, and now it is only 1·3 per cent., or 13 per 1,000. These data and this fall we notify with some pride; but while our data for the older infants are such that we may say that we are on the right track, yet, comparing our data and results with those of New Zealand, it is clear we can work with much more success.

We agree with Dr. Truby King, Director of Child Welfare for New Zealand, when he says, "There is every ground for confidence that with the further growth of knowledge on the part of mothers, nurses, and midwives, the deaths of babies after the first month of age will be brought down in New Zealand another third in the near future, and that a much greater reduction will be effected in the inordinately high death-rate in the first month." For Amsterdam our midwives should be highly satisfied with the result of this comparison; their advice to the young mothers is of very great importance, and they generally have the first opportunity to promote and spread breast-feeding.

The following graphic chart is based on the Amsterdam statistics for 1922, supplied by Dr. Brenkman, contrasted with the New Zealand figures for the same year.




If we study this graph and consider it along with Dr. Brenkman's remarks we are bound to agree with his inference that, while more can be done in Amsterdam in the way of teaching, training, and helping the mothers to rear and safeguard their children after the first month on some such lines as ours, New Zealand has everything to gain by giving earnest consideration to the lead of Holland and other countries, which have brought down their maternal-mortality rate to less than half our rate, and possibly as low as a third; and have apparently reduced their "infantile-mortality rate in the first month" to about half the New Zealand rate.*

The following extract from a recent editorial in the journal *Maternity and Child Welfare* is highly suggestive:—

MATERNAL MORTALITY IN CHILDBIRTH.

During the last twenty years the mortality of mothers in childbirth (English) has remained almost unchanged. There was, indeed, during the years 1920 21 a menacing rise in the maternal-mortality rate. . . .

In two American cities the death-rate of motherless babies proved to be three times and five times as great as for babies with mothers. We simply must prevent this lamentable loss of life and energy. . . .

One thing seems fairly certain—that there is a definite connection between hurried midwifery and sepsis. The midwife is bound by her rules to stand by during the whole of the third stage of labour; the busy practitioner is often inclined to save time and trouble to his patient and himself by quickening this stage of labour. A correspondent sends us the following comparison: Maternal mortality is highest in the United States, in Australia, in Canada, and, till a year or two ago, in Scotland, where there are practically no midwives; *it is lowest in Denmark, Italy, Germany, Russia, and Holland, where the midwives deliver nearly all normal cases.*

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* Dr. L. H. Watt, Acting Deputy Director-General of Health, has drawn my attention to the following remark in the admirable report of over one hundred pages on "Maternal Mortality," by Dr. Janet Campbell, Senior Medical Officer for Maternity and Child Welfare, Ministry of Health (Great Britain), just published by the Department. Dr. Campbell says, under the heading "International Comparisons"—

"We may consider briefly a comparison between the mortality-rate in England and Wales and that of other countries. The difficulty of direct comparison is that in some countries—for instance, France, Holland, and Spain—the annual statistics of live births exclude not only births of infants who never had a separate existence—still-births in the ordinary sense of the word—but also the births of children who, although born alive, did not survive beyond a certain number of days, and whose births were not registered before death. Consequently, the ratio of deaths in childbirth to total live births, deduced from the statistics of these countries, overestimates their rates of maternal mortality in comparison with our own, because the divisor in our case includes a number of births which would be excluded from their divisors. It is also possible—in some instances even probable—that neither the record of maternal deaths nor that of births is as exhaustive as in England and Wales. This criticism, however, assuredly does not apply to Holland, nor, probably, to Italy. . . . The general sense of this brief and summary international comparison is plainly to confirm the impression derived from an historical retrospect—viz., that our national position in this matter is unsatisfactory."

In a table comparing the English maternal-mortality rate with the European figures Dr. Campbell says, in a footnote concerning Holland, "Their heading 'Still-born' covers a certain number of births which would be registered as live births in England and Wales, so that *the Dutch rates of maternal mortality are slight overstatements* [taking the English statistical basis]."

Seeing that the English maternal-mortality rate is only 39 per 1,000, compared with New Zealand's 50 per 1,000, our position is more than unsatisfactory. But this is accentuated by the fact that the Dutch rate should be given as below 2 per 1,000 for direct comparison with England or New Zealand. *It may be assumed, therefore, that the Dutch maternal-mortality rate is in reality only about a third of ours—not two-fifths, as shown in the above table.*

On the other hand, the Dutch "rate of infantile mortality in the first month" should be shown higher, for comparison with ours: probably they lose more than half as many babies as New Zealand in the first month—not less than half, as shown in the table. However, the important point to note is that Holland's infantile mortality in the first month has been practically reduced to a half in the course of the last twenty years, while ours has remained stationary. *On the other hand the Dutch registered total infantile mortality (viz., 47) is too low for comparison with our 42 per 1,000; it should be, say, between 50 and 60.*

The suggestion has indeed been made that all normal midwifery, whether for rich or poor, should be conducted by midwives, supervised and assisted in abnormal cases by competent consultants, the role of the general practitioner being limited to that of anæsthetist, &c. The same end would be reached by making the general practitioner a competent consultant, hence the insistence laid by the General Medical Council upon the improved education of the medical student in the principles and practice of obstetrics and gynæcology.

The suggestions made by Dr. Janet Campbell herself [in her report as Senior Medical Officer for Maternity and Child Welfare, British Ministry of Health] for securing a reduction in the excessive maternal mortality, group themselves under three headings :—

(1.) An improvement in the quality of the professional attendance, as regards both medical students and midwives.
(2.) Action through the Public Health Department of the local authority with a view chiefly to securing adequate ante-natal and post-natal care of all pregnant women, whether in an institution or in their own homes.
(3.) Various social and educational measures in which the help of the community as a whole is called in.

## SECTION 4.—INJURY TO THE INFANT INCIDENTAL TO CHILDBIRTH.

Until the last few years there has been singularly little professional interest manifested in the fate of the child during and soon after delivery: still-births have passed almost unnoticed, and deaths soon after birth have been generally recorded as due to prematurity or congenital debility, and regarded as not worth serious consideration. Leading authorities on midwifery and gynæcology have admitted this attitude—notably Sir Alexander Simpson, who said that nothing in his long professional and professorial career at Edinburgh University stung him in the retrospect with more sharp regret than the fact that in his preoccupation with the mother he had virtually forgotten the child. Yet for half his life Sir Alexander was the sole lecturer on children, as well as teacher of obstetrics to the medical students, and the yearly hordes of doctors graduating at Edinburgh naturally entered on practice sharing the views of their teacher. Such views are cleverly, though cuttingly, conveyed in a remark which occurs in the preface to the exhaustive and authoritative monograph on "Birth Injuries of the Child," by Dr. Hugo Ehrenfest, of St. Louis University, published recently in America. He says :—

There is much evidence rapidly accumulating which tends to show that many of the conditions, still rather loosely classified as congenital, as a matter of fact are but the later manifestations of traumatic lesions [injuries] sustained at birth, lesions which remain unrecognized in the new-born, possibly because their symptoms were insignificant, and more probably because the obstetrician failed to examine the new-born with the necessary care, or left, as is the custom, the observation of the behaviour of the infant during the first few days of life entirely to a more or less competent nurse.

Modern conceptions of the causation of birth injuries of the child place on the obstetrician not only the task of preventing them so far as this is possible, but also the responsibility for recognition of their presence at the earliest possible moment. He must cease to regard the new-born as the *unavoidable by-product of his essential function of separating the mother from the fœtus*, as facetiously but with a justification recently remarked by a leading pediatrician. . . .

### Injuries of the Skull-bones.

Dr. Ehrenfest introduces this chapter, which deals solely with injuries incurred in the course of delivery, with the following extremely significant paragraph :—

The elasticity of the flat cranial bones, and their mobility against each other within the extent of the sutures, afford to them unusual protection against serious traumatic injury, even if a definite disproportion between pelvis and head necessitates an excessive degree of moulding. Therefore, *the more serious traumatic lesions, as a rule, are seen only after labours terminated by forcible means.* Cranial-bone injuries usually are divided into indentations, fissures, and actual fractures. In the individual case such exact differentiation may be impossible. Deeper indentations, probably more often than suspected, are associated with fissures or fractures, recognizable only during a subsequent operation or at autopsy. *Fissures really are only special types of fractures.* . . .

### Intracranial Injuries.

*Of all injuries to the head caused by the trauma of birth those affecting the contents of the skull, brain, and meninges are most important.* This fact is duly appreciated in older medical literature. It always seemed obvious that all severer injuries of the cranial bones, such as deep indentations and guttered fractures, as a rule, will also damage intracranial structures. . . . In considering this topic historically it seems striking that it was not the obstetrician but the neurologist who first manifested interest in the clinical aspect of the problem.

Dr. Little, of London, in a paper published in 1862, asserted that cerebral spastic palsy in children is a result of an intracranial hæmorrhage in about three-fourths of all instances.

We shall consider further on, in detail, the views of other neurologists concerning the relation of brain trauma at birth to the later physical and mental development of the child. It suffices to say here that the neurologist manifested a keen interest in this problem early, and has maintained it ever since. In chronological order the pediatrician came next. The last to enter the field was the obstetrician. . . . Without fear of contradiction I make the assertion that in a large number of cases to-day definite symptoms of intracranial injuries during childbirth are overlooked. The obstetrician of to-day still fails to appreciate his responsibility in this matter.

The student of the extensive literature devoted to these lesions must keep in mind the important fact that exact and reliable knowledge concerning the intracranial hæmorrhages of the new-born infant has been gained only within the last ten years, and that many of the older contributions, still extensively and rather indiscriminately quoted by recent writers, often express nothing but mere surmise or theory. *It is a deplorable fact that modern text-books of obstetrics in this question of the cranial birth trauma express entirely erroneous views, and in elaborate statistics of neonatal mortality practically never mention or classify the one important and common cause—viz., intracranial traumatic lesions.* . . .

Regarding the use of pituitrin, Ehrenfest says :—

When a large dose is given the fœtal head is often quickly forced through a not fully effaced cervix. In studying the numerous detailed records of severer brain-injuries in literature one cannot fail to notice the frequency with which the administration of pituitrin is mentioned in these histories. . . . We find Sidbury, Neff, and Porter, among others, expressing their belief that pituitrin was undeniably responsible for many fatal hæmorrhages that they had seen in new-born infants.

A study of these recorded cases of fatal intracephalic injuries (the majority to be found in German literature) also reveals the frequent mention of twilight sleep. Again, this might be only the incidental result of the greater popularity of twilight sleep a decade ago among some of the German obstetricians. The fact, however, cannot be overlooked that this method of pain-relief lengthens the second stage of labour, and in a large number of cases requires termination of labour by forceps, and may impair the life or future health of the child in that it supplies two definite factors [viz., prolongation of labour and resorting to forceps] which are commonly held responsible for intracranial injuries.

However, it is gratifying to our national *amour propre* that we do not have to depend solely on American or Continental authorities for original and authoritative pronouncements regarding the fundamental principles underlying the science and practice of midwifery, particularly as regards safeguarding mother and child. I shall refer presently to the remarkable practical and scientific pioneering work done in London by Dr. Herbert Spencer some thirty-five years ago. But one has to go more than half a century back to find the sound eternal foundations of the science of safe midwifery, laid down for all time by the greatest and most far-seeing obstetrician the world has ever produced. In his classic book on "The Mortality of Child-bed and Maternity Hospitals," published in 1870, Dr. Matthews Duncan said:—

There is no obstetrical doctrine more deeply impressed on all the valuable literature of our profession than this: that the mere duration of labour, considered in itself and apart from other causes of danger likely to spring up as the process becomes protracted, is of little importance, so far, at least, as recovery of the mother is concerned. This doctrine is embodied in the ever-recurring inculcation of patience, as the highest virtue of both mother and attendant, in many and various circumstances of distress during labour. Sometimes it is expressed in an apophthegm, "***Meddlesome midwifery is bad***"; at all times it is diligently instilled into the minds of young midwives and accoucheurs. . . . This is one of the best-recognized and most valuable doctrines in obstetrics. It is therefore of the utmost consequence to defend and confirm it.

The proposition does not affirm that the mere duration of labour is of no importance—quite the reverse. . . . It says nothing in regard to the very important effects of the duration of labour after bad symptoms or dangerous complications have supervened. It asserts that the duration of labour is in itself (*per se*) only an inconsiderable part (probably a very inconsiderable part) of the many causes of the mortality of women from parturition and its consequences.

Perhaps the strongest evidence in favour of this proposition is the fact that it is the ancient and generally received opinion of the profession. It rests upon what may be called the instincts of all experienced accoucheurs. In a science like medicine, where so little is capable of absolute demonstration, ancient traditions, especially if supported by the opinions of the great and wise, are among the most valuable and trustworthy guides of practice.

It was reserved for later British investigators, such as Dr. Herbert Spencer and Dr. Eardley Holland, not only to confirm what Matthews Duncan laid down concerning the safety of the mother, but to more than justify his anxieties for the child. They have shown us that modern "meddlesome midwifery"—from unnecessary and undue handling and internal examination of the mother, to the abuse of twilight sleep or chloroform, and forced, rapid delivery through the agency of drugs, forceps, &c.—is responsible for an infinity of harm, quite apart from the risks of puerperal fever. If there were no such things in the world as microbes or sepsis it would still be incumbent on us to reduce to a minimum the protraction of labour by twilight sleep, &c., or its sudden termination by forceps or other artificial means. Until then, large numbers of children will continue to be damaged by undue delay or by grave mechanical injuries to their internal organs—especially the brain and nervous system—inflicted in the course of forcible delivery; and the minds and stability of many children will suffer along with their bodies.

With supreme fairness and common-sense, Dr. Janet Campbell says in her report on "Maternal Mortality,"—

Closer co-operation between midwife and doctor is obviously all to the good, and deserves every encouragement; but if the doctor is summoned mainly to secure the speedy termination of labour for the convenience of those concerned, the practice needs discriminative vigilance. Operative intervention often entails increased risk to mother and child, especially as usually carried out in working-class homes, and if the doctor is summoned to apply forceps merely because the second stage is somewhat prolonged and the patient clamours for relief, much of the advantage of employing a midwife with time to watch the case and facilitate natural delivery disappears.

This has an important bearing on a suggestion made recently by Dr. Paget, Inspector of Maternity Hospitals, at the opening of the Health Department's campaign against maternal mortality, that, with due precaution, qualified midwives should be allowed to administer chloroform, where necessary, in the absence of a doctor. The reasonableness of this is obvious, because without such provision there must necessarily be anxiety on the part of the mother not to let the doctor out of her sight, lest she should be compelled to bear pain beyond her power of endurance, and the result in too many cases would continue to be delivery by forceps. It is only fair to mention Dr. Paget's suggestion, because it is in keeping with the fact that no member of the Health Department's medical staff has ever suggested that the mitigation of pain by means of anæsthetics in confinement should be cut off: the phrase "Back to Nature" in this particular connection, attributed to myself and my colleagues, has never been used by any of us—it is the gratuitous invention and imputation of persons stubbornly and bitterly opposed to reform and determined to maintain the utterly unjustifiable *status quo*.

We have in New Zealand an utterly unjustifiable still-born rate and infantile-mortality rate within a week of birth, but the large number of survivors who are more or less gravely damaged for life involves really a much graver wrong. After detailing various grave injuries to the skull, brain, and nervous system, &c., resulting from precipitate delivery, Dr. Ehrenfest proceeds:—

It will be well to remember that these represent injuries observed in obstetrical clinics, where surely the majority of operations are in expert hands, and performed in general only under well-defined indications. A reduction in the number of these injuries . . . can be achieved only by limitations in the number of forceps applications.

Forceps must be applied only under definite indications. When the operation seems desirable in the interests of the mother the possible mutilation of the infant should be taken into account more seriously than is the prevailing custom. This applies particularly to the obvious readiness of many practitioners to apply the forceps on account of assumed exhaustion of the patient, which more critical analysis in many cases would reveal to be rather impatience of the parturient or weariness of the attendant.

In considering a forceps extraction in the [supposed] interests of the child one must keep in mind the fact that prolonged [natural] compression of the head no doubt is less harmful to the infant than a difficult extraction [by artificial means understood].

*Effect of Early Injuries to the Brain and Nervous System on the Mind and Stability of the Individual later in Life.*—Looked at from the point of view of the neurologist and alienist, all recent investigations and research tend to confirm conclusions forced on me long ago in connection with brain histology, pathology, and mental practice. One felt that it could not be merely a coincidence that the backward or defective children about whom one was often consulted had so frequently the history of forceps delivery; and it was on this account that I wrote as follows in the first English edition of the "Feeding and Care of Baby" (1913):—

It is now generally agreed that a large proportion of cases of so-called "born idiocy" or "congenital imbecility" are really due to injuries inflicted during delivery, or to illnesses arising after birth, and I can only repeat now, with added conviction, what I wrote eight years ago [now nineteen years ago]: "If women in general were rendered more fit for maternity, if instrumental deliveries were obviated as far as possible, if infants were nourished by their mothers, and boys and girls were given a rational education, the main supplies of population for our asylums, hospitals, benevolent institutions, gaols, and slums would be cut off at the sources. Further, I do not hesitate to say that a very remarkable improvement would take place in the physical, mental, and moral condition of the whole community."—(From New Zealand Mental Hospital Report for 1905–6.)

In 1913, as Government delegate to the great Infant Welfare Conference held in London, and also to the International Medical Congress, I had many opportunities of discussing intimately with world-wide authorities the bearings of labour unduly protracted on the one hand through twilight sleep or chloroform, and on the other hand cut short by the use of forceps in either case. These questions were being much discussed at the time (just before the Great War), and I found among leading authorities a strong and growing feeling against routine drugging, and especially against the use of forceps, except in a very small minority of cases. This was almost entirely in the interests of the mother—the child being for the most part left out of account. However, Dr. Herbert Spencer, Professor of Obstetrics and Gynæcology at University College Hospital, and President of the Obstetrical and Gynæcological Section of the Conference, was a marked exception.

Some twenty-five years previously Dr. Spencer had made post-mortem investigations, extending over three or four years, into the state of the skull, brain, and spinal cord in particular, and the other parts and organs of the body, in the case of 130 still-born babies drawn from over six thousand deliveries conducted under his care and supervision in the outdoor maternity department. His findings were dead against the unnecessary use of forceps, or any other means of precipitate delivery. He found, as he says in the admirable and detailed description of his cases, extending to nearly a hundred printed pages, "the interesting and remarkable fact that cerebral hæmorrhage was present in every case in which forceps was employed to deliver living children who died during or shortly after child-birth." No wonder he laid down as the result of his classic research that "*the use of forceps should be absolutely limited to cases in which there exists some present danger to mother and child, and should never be used to shorten the time of labour.*"

Professor Spencer specially demonstrated his specimens to me, and pleaded earnestly that I should do what I could to lessen this great and growing evil. Later I discussed the matter with leading neurologists and brain surgeons, including Dr. James Taylor, Sir Thomas Clouston, and Professor J. B. Murphy, of Chicago, and they all agreed as to the gravity and great importance of the matter. Indeed, Sir Thomas Clouston was so deeply impressed with the obvious bearings of what I presented to him in connection with the start of life that he asked me to his house to discuss matters with himself, Dr. Cossar Ewart (professor of zoology), Dr. Berry Hart (the noted obstetrician and gynæcologist), Dr. Chalmers Watson, and several others. At the close of the evening Sir Thomas said that the matter appeared to him of such transcendent importance, as bearing on the mind and stability of the individual, that he hoped I could return to Edinburgh so that they could make it the subject of discussion at the next meeting of their Medical Association. He remarked that, had he undertaken to deliver a paper himself on any subject, he would put it aside as secondary to the issue in question. It proved impossible to arrange the meeting on short notice, and I mention the remark merely as emphasizing the gravity of injuries to the brain and nervous system inflicted at the dawn of life, in the opinion of persons of the highest standing and authority.

Professor J. B. Murphy, the great Chicago surgeon, who had recently written in the American *Journal of Surgery and Gynaecology*, "I would sooner be dead myself than suffer from concussion of the brain," said in the course of an evening's conversation which I had the privilege of holding with him, "Yes, that is quite true. I do dread concussion of the brain, because I have seen so much of nervous instability, and even epilepsy, arising out of concussion which was not regarded at all seriously at the time. You never know what the after-result will be; and in the case of infants it is inconceivable that gross violence, often causing fractures and generally causing hæmorrhages within the skull, can be used without more or less seriously affecting the stability and personality of the individual to a greater or less extent."

As bearing on the effects of precipitate delivery, the latest fundamental research with which I came in close personal contact when at Home was that of Dr. Eardley Holland, Obstetrician at St. Bartholomew's Hospital, whose work has just been accorded well-merited recognition through the publication of his monograph on "The Causation of Fœtal Death" by the British Government, with an introduction by Sir George Newman. In this book Dr. Holland shows what he had explained and

demonstrated to us intimately in 1919 at the last monthly meeting I was able to attend of a club composed of leading gynæcologists and pediatricians. This club had been formed in 1918 for the coming-together every month of the representatives of the two sections of the medical profession which are often on common territory for a fortnight after the birth of the child. The object of these meetings was to discuss, after dinner, in an informal and friendly way, difficult problems bearing on the welfare of mother and child, and in order that the members might enlighten one another, and connect the history of what takes place during pregnancy and at and about the time of childbirth, and couple it up with the subsequent history and fate of the child, as matters of cause and effect: in other words, to get out of the bad professional habit of living in watertight compartments. Being elected an honorary member of this club, I had the privilege of attending their meetings and taking part in their discussions throughout my sojourn in England.

Dr. Holland more than confirmed Dr. Herbert Spencer's conclusions, saying that the death-rate due to precipitate delivery is specially serious because, with few exceptions, the victims are normal, healthy children; but that a much graver concern is the fact that the high mortality-rate constitutes only a fraction of the injury-rate. Using colloquially the language of the camp, Dr. Holland said, "The casualty-rate is infinitely greater than the mortality-rate"—that enormous numbers of children are more or less gravely damaged for life through hasty delivery. This is sufficient answer to the exception which has been taken to my estimate that for every hundred mothers who die needlessly during childbirth in New Zealand there are probably one thousand babies (and say one thousand mothers) more or less gravely damaged—in other words, 4 per cent. on about twenty-five thousand annual confinements.

Like Herbert Spencer and Ehrenfest, Dr. Holland finds that while more or less serious injuries to the child sometimes take place in the course of natural delivery, his investigations show, as quoted previously from Ehrenfest, "the more serious traumatic lesions, as a rule, are seen only after labours terminated by forcible means," and that the common cause of grave injury to the brain and nervous system of the child is delivery by forceps.

*The Urgent Need for Immediate Reform without further Delay.*—Obstetricians in general have always tended to make light of birth injuries to the child, but such views are not seriously tenable in the light of modern investigations and knowledge. I feel bound to insist on these points, in the interest of the child, which have been so strangely ignored when dealing with the saving of some immediate pain to the mother and hastening delivery. It may well be asked why due prominence has not been given to this matter sooner in New Zealand—why there has been so much delay on our part. The only answer to this question is that until now there never appeared to be a suitable opportunity for dealing adequately with a subject bristling with so many difficulties and complications, and bound to arouse opposition and misunderstandings. The first stumbling-block was war. Early in the war, Dr. Valintine, as Chief Health Officer, wrote and drew my attention to the infrequent use of forceps in the St. Helens Hospitals, and the very great frequency in private practice. He said that this appeared to him very serious from the point of view of the mothers; and, knowing my opinion as to the harm done to the child by routine forcible delivery, he wanted to confer with me on the matter. Unfortunately, there were too many issues before the public at that time, and far too much strain and shortage in the medical and nursing professions to warrant any attempt at remedy while the war continued, or for a considerable time afterwards. Even when matters had settled down, and the question of our high rate of maternal mortality and of infant mortality during, or soon after, childbirth came prominently before the public three years ago, and was made the subject of special investigation, it was found that little or no headway could be made. Matters have remained practically at a standstill ever since; but, now that it has become possible for the whole force of the Public Health Department to concentrate in the interests of reform, there need be no doubt that this country will soon occupy its rightful position as a safe place for mother and child.

In the meantime, all other questions bearing on child welfare are so insignificant as compared with the transcendently important issue under consideration that there is no call for dwelling on them at the moment; but I feel bound to draw attention again to the small progress made in the development of open-air schools, and in the provision of adequate playgrounds and due facilities for bathing and swimming. These defects, and the failure of the parents and the schools to make any appreciable effort in the direction of preventing wrong feeding-habits (including the taking of food and sweets between meals, and the lack of brown bread, raw fruit, and green vegetables in the daily diet) are serious evils. Unfortunately the public is more than apathetic, in spite of the devoted efforts of the Director of Dental Hygiene to bring about reform for the sake of saving the teeth. One ray of light in this connection must be acknowledged, and that is the yearly illumination which comes from Health Week, in which the municipal and Government authorities and the public in general take an increasing interest. The individuals who have thrown themselves wholeheartedly into this work, and gone to endless personal pains to make it a success, certainly deserve every possible encouragement and backing.

F. Truby King,
Director of Child Welfare.

## PART IV.—NURSING.

I have the honour to submit my annual report for the year ending 31st December, 1923.

### SECTION 1.—NURSES REGISTRATION ACT.

Two examinations were held during the year—in June and December—when 256 candidates presented themselves, of whom 243 were successful and are now registered. Thirty nurses from overseas have also been admitted to the register.

By arrangement with the Council of the Otago University, a Diploma of Nursing has been instituted, which it is hoped will bridge over the period between a girl's leaving school and entering into a hospital for training. The course will be of five years' duration, and will include the statutory term of three years' training in a hospital. Better-educated girls who are desirous of taking administrative or other responsible posts in their profession should take advantage of this course. It should be possible, also, to combine with the diploma course post-graduate instructions for registered nurses who may wish to take up some special branch of nursing or administrative work.

While in England I found that such courses in connection with various universities were open to nurses, and the time seems ripe for New Zealand nurses to have similar advantages placed at their disposal in their own country to enable them to keep pace with the trend of modern progress.

Our nurses have an excellent reputation among the nurses of other countries, as I found when attending the meeting of the International Council of Nurses in Copenhagen in August. It would be deplorable if, through lack of opportunity, they were allowed to remain stationary while others advanced.

During my absence of eight months in England Miss Maclean continued in office, so that on my return it was possible to take up the threads more easily than would otherwise have been the case. The nurses of New Zealand owe much to her devotion to their interests and to the work she has accomplished on their behalf during her long term of office.

*Nurses in Government Positions.*—No new appointments of Nurse Inspectors have yet been made, though the need for these officers is great if the inspection of private hospitals and midwives is to be carried out efficiently. At present it is only possible to touch the fringe of the work with the staff available, and it is to be hoped that the recommendation of the Maternal Mortality Commission with regard to these officers may be shortly carried out.

There have been few changes in the personnel of the staffs of Government hospitals during the year. It is suggested that the three Matrons of the King George V Hospital, Rotorua, Pukeora Sanatorium, Waipukurau, and Queen Mary Hospital, Hanmer, should be interchanged, in order that each may have an insight into the administration of a different hospital for special cases, and incidentally be relieved of the monotony inseparable, in the case of Hanmer and Pukeora, from a somewhat isolated position. This change it is proposed to effect at an early date.

*District Health Nurses for Natives.*—One or two changes have taken place in this service. Nurse Crawford, Tauranga, having met with an accident in the course of her duty, was granted extended leave, and, later, treatment at Rotorua, Nurse Whitaker taking her place. Two new nurses are to be appointed, one being a Maori nurse trained in Palmerston North Hospital and St. Helens Hospital, Wellington. Another Maori nurse will probably be appointed later as assistant to a pakeha nurse, as in most cases it is found better to arrange in this way until the necessary experience to manage a district successfully has been gained.

There are at present two nurses at Napier Hospital and one at Hamilton in training for work among their own people.

*School Nurses* and *Plunket Nurses* will be fully reported on by the heads of their respective divisions.

*Superannuation for Nurses.*—It is hoped that during next session, some scheme may be adopted whereby nurses may be enabled to make provision for their old age. Fortunately, Hospital Boards are usually ready to take advantage of the power given them under the Hospitals Amendment Act, 1920, to provide pensions for Matrons of ten years' service, but these form a very small proportion of those in need of some assistance when their days of active work must cease.

### SECTION 2.—MIDWIVES ACT.

At the two examinations held during the year under the Midwives Act 150 candidates presented themselves, of whom 136 were successful and are now registered. Twenty-one midwives from overseas were registered.

Reciprocity of registration with the Central Midwives Board has not been accomplished, the Board still requiring that our midwives shall sit for the Board's examination, though recognizing the New Zealand course of training as sufficient. On the other hand, the term of training in the Dominion is longer than that laid down by the Central Midwives Board, so that overseas midwives may only be registered on showing proof of additional training to bring it up to the time required here.

While in London I interviewed the Central Midwives Board with a view to arrange a basis of reciprocity of registration, but was unable to convince the Board that the New Zealand qualifying examination was practically of as high a standard as that held by them. Later I attended an oral examination under the Board, which appeared to be similar to ours except that very little practical work was done and there were no nurse-examiners—a feature strongly insisted upon in our State Midwifery Examinations.

Trained nurses are now recognizing the importance of training in midwifery, not so much with the idea of practising but rather as a means of securing better positions either in the Department or under Hospital Boards.

ST. HELENS HOSPITALS.—STATISTICS FOR 1923.

| Town. | Births (Living Children.) | Still-births. | Deaths of Mothers. | Deaths of Infants. | Outdoor Cases. | Pupil Midwives qualified. |
|---|---|---|---|---|---|---|
| Auckland .. .. | 511 | 8 | 2 | 8 | 235 | 17 |
| Wellington .. .. | 311 | 3 | 3 | 5 | 70 | 19 |
| Christchurch .. .. | 286 | 9 | 1 | 8 | 155 | 14 |
| Dunedin .. .. | 164 | 5 | 0 | 2 | 70 | 10 |
| Invercargill .. .. | 139 | 6 | 0 | 3 | 11 | 7 |
| Gisborne .. .. | 118 | 6 | 0 | 1 | 4 | 6 |
| Wanganui .. .. | 137 | 8 | 1 | 4 | 9 | 6 |
| Totals .. | 1,666 | 45 | 7 | 31 | 554 | 79 |

STATE MATERNITY HOSPITALS.

*St. Helens Hospital, Wellington.*—Miss Newman, formerly Matron of St. Helens Hospital, Christchurch, took up duty as Matron in January, 1923. Dr. Agnes Bennett reports: "The value of ante-natal care is again emphasized in the history of albuminurias. All supervised cases did well. Two deaths of the three were bad emergency cases; the other was an elderly multipara who had an extremely bad history, was poorly nourished, and overworked. She collapsed and died during labour. There is no doubt that the small morbidity list reflects the care and successful technique of the staff."

*St. Helens Hospital, Dunedin.*—The number of cases in this hospital has increased. Dr. Siedeberg reports that twenty-eight were admitted for ante-natal treatment, many having toxic symptoms showing as excessive sickness, jaundice, or fainting attacks. After hospital treatment and advice they returned home and carried out the treatment there, later returning in labour and going through normally. All cases of morbidity were slight except one case of staphylococcus infection. Ante-natal treatment received special attention and has been very successful this year.

*St. Helens Hospital, Auckland.*—This hospital has more than justified its existence with a record of over 500 births inside, compared with the 370 reported last year as having taken place in the old building.

Dr. Inglis reports a successful year. He states that owing to better conditions the morbidity list was the lowest since 1906, when the Hospital was opened, in spite of two influenza epidemics. The ante-natal and baby clinics have been well attended. It is now possible to perform any required obstetrical operation on the premises. There was a complete absence of septicæmia throughout the year. The two deaths recorded were due to—(1) Heart-disease, the patient being moribund on admission and dying immediately after confinement; (2) albuminuria and fatty heart—sudden heart-failure ten minutes after completion of labour.

He again pays a high tribute to the work of Miss Broadley, the Matron, and states more trained help will be required in the near future.

*St. Helens Hospital, Christchurch.*—This hospital has also had a change of Matron, Miss Bagley succeeding Miss McLeod on the appointment of the latter to the Cashmere Hills Sanatorium.

There is still urgent need for an isolation ward, and further accommodation for ante-natal patients is also required.

Dr. Anderson remarks upon the large number of cases of albuminuria who had disregarded their medical attendant's instructions *re* ante-natal diet—one patient died suddenly in an eclamptic fit having refused to carry out her doctor's instructions.

*Townley St. Helens Hospital, Gisborne.*—There has been a decided increase in numbers here. The staff still labours under certain disabilities with regards to conveniences, but it is hoped that with a few necessary additions in the near future better conditions will prevail.

*St. Helens Hospital, Invercargill.*—Of this Hospital Dr. MacGibbon reports: "This has been a particularly successful year, free from complications, although interesting work has been done. There have been no real morbidity cases, no death of a mother, and no death of a full-time child."

*St. Helens Hospital, Wanganui.*—The admissions here are increasing to such an extent that it is likely additional accommodation will be required in the near future. Dr. Wilson states that the work throughout the whole year has been satisfactorily conducted. The buildings outside and in are in need of attention.

MATERNITY HOSPITALS UNDER BOARDS AND ASSOCIATIONS.

| Hospital. | Births. | Deaths of Mothers. | Deaths of Infants. | Attended Outside. | Pupils trained. |
|---|---|---|---|---|---|
| Batchelor .. .. | 169 | .. | 1 | 25 | 8 |
| Lawrence .. .. | 40 | .. | .. | .. | .. |
| McHardy Home .. .. | 111 | .. | .. | .. | 5 |
| Wairau .. .. .. | 154 | .. | 3 | 2 | 7 |
| Picton .. .. .. | 35 | .. | 3* | .. | .. |
| Alexandra Home .. .. | 174 | .. | 2 | 117 | 12 |
| Essex Home .. .. | 110 | .. | 4 | .. | 2 |
| Cromwell .. .. | 43 | .. | 1 and 4* | .. | 1 |
| Mangonui .. .. | 24 | .. | 1 | .. | .. |
| Hokianga .. .. | 42 | .. | 3* | .. | 1 |
| Whangarei .. .. | 182 | .. | 4 and 4* | .. | 7 |
| Kawakawa .. .. | 63 | .. | 3* | .. | 1 |
| Kaikoura .. .. | 68 | 1 | 2* | 2 | 2 |
| Oxford .. .. .. | 25 | .. | 1 | .. | 1 |
| Waikari .. .. .. | 34 | .. | 2 and 1* | 6 | 2 |
| Naseby .. .. .. | 44 | .. | 2* | 3 | 2 |
| Masterton .. .. | 50 | 1 | .. | 3 | 3 |
| Rangiora .. .. | 95 | .. | 2 and 3* | 1 | 2 |
| Methven .. .. .. | 59 | .. | .. | .. | 1 |
| Ashburton .. .. | 94 | 1 | 4 | .. | .. |
| Geraldine .. .. | 46 | .. | 1 | .. | .. |
| Te Puke .. .. | 50 | 1 | .. | .. | .. |
| Whangaroa .. .. | 26 | .. | 2 | 2 | .. |
| Rakaia .. .. | 22 | .. | 1* | 3 | .. |
| Waiuku .. .. | 31 | .. | .. | .. | .. |
| Salvation Army— | | | | | |
| Dunedin .. .. | 81 | .. | 2 | .. | .. |
| Christchurch .. .. | 56 | .. | 4 and 2* | .. | .. |
| Wellington .. .. | 65 | .. | 7 | .. | 1 |
| Gisborne .. .. | 60 | .. | 3 | .. | .. |
| Auckland .. .. | 66 | .. | 3 | .. | .. |
| Napier .. .. | 89 | .. | 2 | .. | 1 |

* Still-births.

Special provision for treatment of maternity cases has also been recently provided by Hospital Boards at Stratford, Opunake, Matamata, and Roxburgh. At Ellesmere, Akaroa, Milton, Owaka, Tolaga Bay, and Otamatea accommodation will be available at an early date.

### SECTION 3.—PRIVATE HOSPITALS.

There are now 295 licensed private hospitals. Of the fifty-eight new licenses issued forty-six were for maternity, eight for medical and surgical, and four for medical, surgical, and maternity cases.

I endorse Miss Maclean's remarks in her last annual report with regard to the existing law which allows of one case at a time being treated in unlicensed premises. With the increasing demands made upon licensees in the interests of the public safety it will soon be very difficult for private hospitals to exist, while these unqualified women can still carry on in unsuitable and often insanitary premises, and medical practitioners are content to have it so. The very efforts made to secure greater efficiency and better equipment may have the effect of constituting a further hardship to the public, by making it impossible for qualified nurses to compete with these unlicensed homes.

J. BICKNELL,
Director, Division of Nursing.

## PART V.—SCHOOL HYGIENE.

### SECTION 1.—ADMINISTRATION AND MEDICAL INSPECTION.

I have the honour to report upon the work of the School Hygiene Division to the end of March, 1924.

#### (1.) STAFF.

There are at present eleven school medical officers and twenty-seven school nurses on the permanent staff. Dr. Baker has been on leave since August, 1923. Dr. Henderson has been on leave since the end of Feburary, his place being taken by Dr. Mary Wilson (appointed in a temporary capacity). Dr. Helen Bakewell was appointed to the Wellington District in August, 1923. Drs. Marjorie Barclay (Wellington) and Kathleen Todd (Dunedin) have been acting as junior school medical officers (temporary appointments).

There have been during the year several resignations and fresh appointments in the school-nursing service.

The routine work of school medical officers and school nurses was interrupted for several weeks during the winter by epidemics of influenza and of diphtheria.

### (2.) Figures relating to Work accomplished.

The following summary serves to indicate the extent of the work accomplished during the year:—

| | | |
|---|---|---|
| Schools inspected— | | |
| Of roll under 100 | 711 | |
| Of roll 100 to 500 | 262 | |
| Of roll 500 and over | 127 | |
| | —— | 1,100 |
| Children examined:— | | |
| Complete examinations | 64,446 | |
| Partial examinations | 38,497 | |
| | ——— | 102,943 |
| Notifications sent to parents relating to defects requiring treatment | | 32,364 |
| Health talks given to school-children | | 1,032 |
| Parents interviewed | | 6,659 |
| Public lectures and addresses to parents | | 39 |
| The figures for the work of the school nurses are as follows:— | | |
| Number of days assisted medical officer in schools | | 1,535 |
| Number of days engaged wholly in clerical work | | 1,553 |
| Number of children examined for medical schedule | | 66,003 |
| Number of children re-examined after inspection of medical officer | | 35,201 |
| Number of visits to homes in— | | |
| Large towns | | 11,047 |
| Small country districts | | 2,839 |
| Scattered districts | | 2,547 |
| Number of children taken personally to hospital | | 316 |
| Number of children taken personally to dental clinic | | 1,182 |

### (3.) Findings of Medical Inspection.

| | |
|---|---|
| Total number of children examined | 64,446 |
| Percentage found to have no defects | 12·13 |
| Percentage found to have defects | 87·87 |
| Percentage with defects other than dental | 65·78 |
| Percentage showing evidence of— | |
| Subnormal nutrition | 6·39 |
| Pediculosis | 3·26 |
| Uncleanliness | 2·29 |
| Skin— | |
| Impetigo | 1·13 |
| Scabies | 1·04 |
| Ringworm | 0·18 |
| Other skin-diseases | 0·67 |
| Non-vaccination | 84·74 |
| Heart abnormality | 1·03 |
| Respiratory diseases | 0·59 |
| Total deformities of trunk and chest | 21·96 |
| Stooped shoulders | 5·78 |
| Flat chest— | |
| Undefined | 0·30 |
| True | 0·69 |
| Postural | 1·68 |
| Scoliosis | 1·08 |
| Pigeon breast | 5·03 |
| Depressed ribs | 3·22 |
| Depressed sternum | 4·14 |
| Assymmetrical chest | 0·54 |
| Other deformities | 0·85 |
| Deformation of jaw and palate | 11·18 |
| Mouth, teeth— | |
| Dental caries | 68·98 |
| Extraction of permanent teeth | 7·65 |
| Mouth, teeth— | |
| Fillings | 18·52 |
| Perfect sets of teeth | 4·74 |
| Nose and throat | |
| Enlarged tonsils | 11·97 |
| Obstructed nasal breathing | 1·07 |
| Enlarged cervical glands | 13·74 |
| Goitre, all degrees | 13·81 |
| Incipient | 10·57 |
| Small | 2·72 |
| Medium | 0·47 |
| Large | 0·05 |
| Eye, external eye-disease | 1·07 |
| Vision— | |
| Total | 4·78 |
| Corrected | 1·61 |
| Uncorrected | 3·17 |
| Ear— | |
| Middle-ear disease | 0·25 |
| Defective hearing | 0·55 |
| Defective speech | 0·82 |
| Mental— | |
| Feeble-mindedness | 0·15 |
| Imbecility | 0·01 |
| Epilepsy | 0·05 |
| Tuberculosis | 0·06 |

These results do not differ greatly from those found in previous years. An analysis of the figures affords favourable comparison with other countries in the percentage of children found to be suffering from conditions such as defective eyesight, defective hearing, obstruction to breathing from pressure of enlarged tonsils, adenoids, &c.; also in the numbers found to be suffering from heart and respiratory diseases.

*Tuberculosis.*—Our experience goes to confirm that of other countries in that children suffering from pulmonary tuberculosis are not often found in the schools. The illness caused by this disease is usually too severe and its action too rapid in the young to permit of attendance. This does not apply to more chronic tubercular affections, as of bone or glands, where, in spite of depressed vitality and limited activity, the sufferer may not be completely incapacitated. The percentage found thus suffering is, however, very low.

*Goitre.*—The amount of goitre recorded is much greater this year, but it is to be assumed that the extra amount of attention devoted to noting and obtaining treatment for this defect is responsible for the increased percentage shown.

*Pediculosis and Skin-disease.*—Though the general standard of cleanliness is very good throughout the Dominion, there was, especially during the winter months, an increase in the number of children suffering from verminous conditions and skin-diseases. The reason for this is not altogether apparent. Bad housing, with overcrowding, lack of sanitary conveniences, together with the diminished time spent out of doors owing to inclement weather, doubtless contributed. Maori children suffer to a greater extent than do white from both pediculosis and scabies. In some Native schools, scabies, or its equivalent hakehake, persists throughout the winter, but disappears for the summer months when bathing in sea or river becomes popular. School nurses do valuable work in detecting pediculosis and skin affections in the class-room, and in giving instructions as to the necessary treatment. Many teachers render assistance by holding a daily inspection for cleanliness of hands, nails, teeth, &c. This simple procedure assists greatly in preserving a good standard. An example of wrong educational values is quoted by one school medical officer. A child excluded suffering from vermin in the head during the year was, at the end of it, declared to be dux of the school.

### (4.) Nutrition and Posture, etc.

In taking a general view of the situation we find that New Zealand children are both taller and heavier than British children of the same age, and there is no doubt that their average general health and physique compare satisfactorily with those found in other countries. Nevertheless, we find that subnormal nutrition occurs in 6·39 per cent. and deformity of trunk and chest in 21·96 per cent. of the children examined. These conditions are interrelated, and for the most part preventable, coming as they do from a lack of observation of the simple rules of hygiene. There is undoubtedly a section of the people who cannot provide for their children suitable home conditions, and food adequate in quantity and quality. Bad housing in the cities entails sleep in overcrowded ill-ventilated rooms and lack of playground space and facilities for growing fresh garden-produce. However, the high price of land in the cities, and difficulty of transit into the suburbs, may justify to some degree flat or tenement life, the family living beyond the business area, in possession of its own cottage and garden-space, will always offer better opportunities to its children. The fundamental necessities of healthy growth are simple, and it is doubtful if there is any country in the world to-day where they are more universally procurable. Fresh air, sunlight, food of the right type and amount, adequate sleep and rest, wholesome exercise, are available for all but that small section of the people already mentioned. Sir Frederick Mott, in an address recently published in the *British Medical Journal*, quotes Voltaire: "Regime in diet is better than medicine. Eat moderately what you know by experience you can digest, for that which you can digest only is good for the body. What is the medicine that makes you digest? Exercise. What will repair your energy? Sleep. What will lessen incurable ills? Patience. What can change a bad constitution? Nothing." To this text he adds the benefits of sunlight and pure air.

Reports from school medical officers continue to record that tea, white bread, and meat play the chief part in the dietary of many homes. Fresh fruit and vegetables, even in rural areas, are not eaten sufficiently.

Frequent eating between meals takes away appetite and retards digestion. Many children bring to school substantial "play lunches" to be consumed at the mid-morning interval. Others consume large quantities of sweets. Healthy hunger they rarely know. A noteworthy fact is that in New Zealand the consumption of sugar per head per annum is 117 lb., as against rather more than half that quantity in Britain and much less in other countries. Apart from its directly deleterious influence on the teeth, the alteration of food values in the dietary necessitated by the inclusion of so much sugar results in digestive troubles and disturbed nutrition. In this country, with its many sources of supply, eggs, milk, cheese, butter, fresh fruit, and vegetables should be available in sufficient abundance and at low-enough prices to displace to a greater extent the meat that is such a prominent article of diet in many households.

The value of rest, both physical and mental, for children is not adequately recognized. In the country many children work early and late at farm-work, as milking, &c., and in the city children earn money as newsboys, message-boys, &c. Where the family exchequer needs to be augmented in this way excuse must be made, but in many confortable homes children do not rest sufficiently. Mr. Cyril Burt, phychologist for the London City Council, was recently reported as deploring the tendency in modern education to attach undue value to the dramatic and theatrical. Children who possess talent are made to drag it prematurely into the light of publicity. They are overtrained and overstimulated. Nearly all children are taught to regard frequent amusement as essential to happiness. To leave them to develop their own resources and allow them to find interest in simple and natural things would be to extend widely their chance of future happiness.

It is the wrongly fed, insufficiently rested child that most readily develops physical deformity. The fatigued nervous system is expressed in general bodily slackness. There is deficient muscular and ligamentous tone. The typical faulty posture is thus acquired, with drooping head, flat chest, wing shoulders, prominent abdomen. Vitality is depressed and the bodily mechanism out of gear.

The grosser bony deformities so often found in older lands associated with rickets are rarely seen in New Zealand, but less evident manifestations of faulty diet and regime are frequent. It is fortunate that in this country we cannot altogether escape, however we seek our pleasures in stuffy rooms or dark, ill-ventilated places of entertainment, those powerful and beneficial agents for promoting healthy growth—sunlight and fresh air. For the prevention of defect it is essential that the class-room should offer hygienic conditions—*e.g.*, good lighting and ventilation, suitable furniture, &c. Another contributory factor in poor physical development is the use of incorrect clothing and footwear. It is a common thing to find from six to eight layers of tight garments constricting the chest even in a child whose legs are scantily protected from cold. Shoes which are too tight or too short, or which have heels so high as to prevent correct body-balance, are very harmful. Clothing should offer adequate protection, but should not prevent the most absolute freedom of movement.

*Physical Culture.*—Physical drill and organized games are of great benefit to children suffering from postural defect. Dr. Irwin reports that selected children were given special exercises for flat feet in Dunedin Hospital with good results. The value of swimming as an exercise is recognized increasingly. The numerous teachers who devote hours taken from their own leisure in order to encourage interest in outdoor occupations and sports deserve our sincere thanks and admiration. One of the most satisfying observations is to see the delicate, nervous, self-conscious only child of anxious parents react to a good school environment, and become transformed into a cheerful, casual youngster happily absorbed in concerns not immediately related to himself. For many of these "highly trung" children school is literally a salvation.

*Organized School Lunch.*—It is satisfactory to note that there is an increased amount of attention given by teachers to the supervision not only of the character of the school lunch but also to the manner in which it is eaten. The custom of arranging for a supply of hot cocoa for children who lunch at school is excellent. In an increasing number of instances the teacher arranges that this meal shall be eaten under supervision, and with as much regard to the amenities as possible. An excellent opportunity is then afforded the conscientious teacher for practical education in dietetic matters.

*Nutrition Classes.*—For the benefit of children suffering from subnormal nutrition, nutrition classes have been established in two or three schools of the Wanganui and Auckland districts. The daily regime of children in these classes is supervised, special attention being given to the kind of food eaten, amount of rest taken, time spent out-of-doors, and so on. Results so far appear to be promising.

*Health Camp.*—The annual health camp conducted by Dr. Gunn at Turakina, Wanganui district, was again a marked success. The great improvement in physical and mental vitality of the children composing it is always a striking example of the benefit to be derived from a simple routine which provides those facilities for health previously mentioned—fresh air, sunlight, correct food, rest, and exercise. The educational value of such camps is great, not only to those who participate in them, but to all who have an opportunity of noting the effect of such treatment upon the children.

*Conditions of the Teeth.*—Dental caries exists in 68·98 per cent. of children. Only 4·74 per cent. of children have perfect sets of teeth. So much has been written about this subject that reiteration should be unnecessary. Reports of school medical officers stress repeatedly the importance of diet in relation to dental caries. To develop strong jaws and well-spaced teeth exercise is necessary. To keep the teeth in a healthy condition a considerable amount of food at every meal should be given in a form requiring vigorous mastication. The meal should always be finished with a cleansing food, such as fruit or vegetables—*e.g.*, apples, celery, lettuce, &c. Care should be observed that no sweets or starchy foods should be taken last thing at night. Eating between meals is to be deprecated. The amount of sweets consumed is indicated by the yearly consumption of sugar per head, quoted above. School medical officers report that children living in institutions such as orphanages, where simple regular meals are provided, tend to have better teeth than have those living in their own homes. A short time ago a mother came to the Department with her two children—the elder, a boy of six and a half years, who, for family reasons, had been brought up since birth in an institution; the younger, a child of four and a half years who had always lived at home. The teeth of the elder child were perfectly sound, white, and well spaced. His little brother shows only a series of decaying stumps. On questioning the mother one found that the younger child had been improperly and too frequently fed, and had consumed sweets freely. Thus an institution may offer greater advantages in certain respects than do many comfortable homes.

Dr. Mecredy found in his investigations that 13·2 per cent. of Maoris (that is, full Maoris and half-castes) show perfect teeth; that the jaws are broader and stronger among Maori children. A comparative return shows that Maori children average four carious or treated teeth per head, as against eight such in a white child. He considers this attributable to the less proportion of refined starchy foods, the higher proportion of vegetables, and the diminished consumption of sweets. Dr. Clark reports a large increase in the consumption of whole-meal bread in his district, and attributes to this fact a noticeable improvement in the teeth of the children.

*Tooth-brush Drill.*—Tooth-brush drill is carried out in the schools of the Wanganui and the Taranaki districts, and in scattered areas elsewhere. Dr. Wilkie reports its use in a few Auckland schools. There is no doubt that it ensures a higher standard of cleanliness than is, as a rule, otherwise attained, though many teachers succeed in achieving good results by a daily catechism of their pupils with appropriate remarks as to procedure, diet, &c.

*Dental Nurses.*—The work of dental nurses is the subject of frequent favourable comment by school medical officers, and the extension of their activities is generally desired. There is no doubt that where a dental clinic exists a higher standard of oral hgyiene is found, not only in those classes undergoing treatment but throughout the school.

(5.) Goitre.

Investigations into the incidence of goitre carried out in association with Professor Hercus, Otago Medical School, have been continued. It is now possible to map out the chief areas in New Zealand where this condition is endemic. The findings of school medical officers were placed before the conference of the New Zealand Branch of the British Medical Association recently held in Auckland, for consideration in conjunction with Professor Hercus's valuable paper upon the iodine content of soils. In the earlier years of school medical work comparatively little attention was paid to the subject. Only those cases of goitre were recommended for treatment which showed definite constitutional disturbance. In recent years the subject has been regarded from an altered point of view, owing to a growing comprehension in the medical world of the significance to be attached to the functions of the endocrine glands.

*Incidence in Schools.*—In the past three years, therefore, cases in schools have been recorded, with notes, as exactly as possible, of age, sex, incidence, family history, and environmental factors. Cases investigated by Professor Hercus and Dr. Baker in Canterbury have been classified according as they are incipient, slight, medium, or large. Using this classification, there are three classes of children of which statistics have been obtained throughout the Dominion—those in the primer classes, of whom 5,870 have been examined; those in Standard II, of whom 4,281 have been examined; those in Standard VI, 3,826 examined. In all, 19,930 children had been examined by December, 1923, the percentage of goitre in the three classes, and the aggregate under the various classifications, being as follows:—

| | Primer. | Standard II. | Standard VI. | Totals. |
|---|---|---|---|---|
| All degrees .. .. .. | 10·43 | 21·19 | 24·65 | 15·73 |
| Incipient .. .. .. | 9·30 | 17·10 | 15·10 | 11·91 |
| Small .. .. .. | 1·04 | 3·67 | 7·60 | 3·22 |
| Medium .. .. .. | 0·09 | 0·37 | 1·77 | 0·53 |
| Large .. .. .. | .. | 0·05 | 0·18 | 0·07 |

Attention has been drawn to the steady increase in the number of cases as the higher standards are reached, where also has been found a higher percentage of the larger goitres. One point of interest is the number of boys found to have visible goitre. Thus in Canterbury, where the incidence is highest, Professor Hercus and Dr. Baker found in the primer classes that there was little difference in the incidence in boys and girls. At adolescence the percentage of boys affected decreased, the incidence in girls being at least twice as great. Dr. Collier reports that in some Southland schools as many as 80 per cent. of the older girls are affected. Dr. Mecredy reports that Native children have a relative immunity as compared with white, the incidence of attack being in one area roughly as 7 : 16.

Attempts to treat children at school have given encouraging results. Facilities are now provided by which all schools in endemic areas may obtain treatment. This consists in the administration of minute doses of potassium iodide weekly for three school terms of eight weeks each. Advice is also given as to general health habits, more particularly as to the avoidance of constipation, the use of whole meal rather than white bread, and the presence in the dietary of plenty of green vegetables.

## SECTION 2.—MENTALLY-BACKWARD AND FEEBLE-MINDED CHILDREN.

One of the most striking features of the educational world to-day is the amount of attention bestowed on the problem of mentally-backward and feeble-minded children. Interwoven with this is the problem of the juvenile delinquent. In England and America fairly complete machinery exists for classifying and making special provision for these groups of children. Returns furnished by the New Zealand Education Department show that out of a number of 11,000 children attending the public schools in one city 7 per cent. are retarded two years and 2 per cent. are retarded three years and more. These numbers are probably representative.

It is the duty of school medical officers to eliminate remedial defects which may be a factor in promoting mental dullness. The child backward from lack of opportunity, as from illness, or because handicapped by physical defect such as deafness or defective vision, is thus distinguished from the child whose poor response to the education offered him is due to inherent limitation of mental capacity. For children whose lack of progress is due to defective mentality special educational methods are necessary. It is wasteful and ineffective to attempt to educate them with their normal fellows. Moreover, they are incapable of benefiting from the ordinary school curriculum, requiring as they do individual attention and special study.

In New Zealand we have to travel far before we deal as comprehensively as is done in Britain and America with the problem of mentally-backward and feeble-minded children. Effort is, however, being made in some schools to classify pupils according to their mental capacity, and to adapt instruction to their various needs. The establishment of special classes in the main centres provides for a small number of increased facilities for individual teaching, and this principle will doubtless be extended as opportunity offers. The large classes often found in elementary schools do not allow sufficient study of the difficulties and needs of individual children. The child with more than normal intelligence is kept back by its inferiors. These impede the general progress, form a discouraged minority, and receive disproportionately little benefit from the school curriculum. Academic attainment is not for them, and the most expert teacher in the most favourable circumstances is not able to develop them beyond their inherent mental capacity. What they require is education that will fit them to be self-supporting in later life. They must be taught to use their hands. Manual training will be found useful also in awakening interest and developing latent faculties. Their school curriculum should therefore encourage manual dexterity for vocational purposes.

*Feeble-minded.*—The two residential schools (Richmond and Otekaieke) provide for only a small proportion of the children that would be registered in a complete census of the feeble-minded. As our population is scattered, residential schools are a necessary provision, and they offer an advantage also in the training given to children in the habits and observances of ordinary society. Much effort is often expended in teaching a feeble-minded child to do badly what a normal child does easily and well. An ambitious school curriculum entails waste of energy, and is unproductive of any result to justify it. These children can never compete in the world. They will always require, to avoid disaster, the supervision of relatives or of some institution. To keep them happy and make them, if possible, self-supporting is the best that can be expected. Rhythmic exercises and much sense-training are necessary in order that they may acquire motor-control and precision.

Juvenile delinquency in its relationship to mental defect has not, so far, received consistent consideration in New Zealand. There is no regular provision, as in Britain and America, for the psychological study of youthful law-breakers. Following on the lines of these older countries, we must before long supply this want, and arrange for cases which come before our Juvenile Courts to receive individual consideration from the psychologist before being pronounced upon by the Magistrate.

*Epileptic Children.*—There is, so far, in New Zealand no adequate provision for the education of epileptic children. Where fits are nocturnal in incidence or slight in character there is no difficulty about the epileptic child attending the ordinary school. When, as often happens, severe attacks of epilepsy occur in schools, so that they are a source of terror to the children and of anxiety to the teacher, there is no satisfactory arrangement to meet the case. The epileptic must continue at school in spite of any bad effect on other children, or he must discontinue and his education cease. Either course is obviously undesirable, and provision must be made (by a residential school or special day classes) so that epileptic children may receive suitable instruction.

## SECTION 3.—TEACHING OF SEX HYGIENE IN SCHOOLS.

Considerable discussion has recently taken place upon the advisability of teaching sex hygiene in the schools. It is an established fact that many young people meet difficulty and perhaps disaster owing to an inadequate knowledge of the meaning of sex and its functions. Guidance which should primarily be given by parents is neglected, and children are left to find their own sources of information—often undesirable ones. The crises and problems incidental to school life may make it the duty of the teacher to give advice or instruction to the individual child on this matter, though the co-operation of parents should be, unless in extraordinary circumstances, first obtained. The teacher should therefore be equipped with a knowledge of how to deal with the subject. Nevertheless, the personality of the teacher and his or her own mental attitude must always be a much more important factor than any theoretical knowledge. There must be sympathetic relationship between teacher and pupil, and confidence and respect on the part of the child towards his instructor.

As a knowledge of facts is not a sufficient protection or guarantee of a right course of action, it has to be stressed that the atmosphere and environment in which the child grows up, and the attitude which he acquires towards any problem or difficulty, is of fundamental importance. Wholesomely acquired knowledge is certainly necessary for the adolescent, but by itself is inadequate. The attitude of the youth towards all moral problems, his own natural inclinations, the character of his ambitions and ideals, and his capability for self-discipline are important factors. An environment which promotes healthy interests and activities is essential for right growth.

Class teaching of this subject in our elementary schools appears to be undesirable. The effect of class instruction upon individual children cannot be calculated, and it must be destructive to the reticence with which it is desirable that children should discuss the subject. Instruction to be efficacious must proceed from good sources. Parents may be advised either by a pamphlet offering suggestions or by lectures from well-qualified people as to the best method of giving the necessary information to their children. A desirable step in any campaign for providing better knowledge of sex hygiene among the youth would be the education of training-college students, not primarily with a view to their giving general instruction, but in order that they may be better equipped to deal with the emergencies and individual problems of school life.

## SECTION 4.—OPEN-AIR CLASSES AND SCHOOLS.

The custom of holding classes out-of-doors where possible is fortunately extending, but can be with benefit much more widely adopted. Playground shelters and trees are frequently utilized for this purpose.

Much argument has ranged around the question of open-air schools. No one can deny the benefit of fresh air; and, though climatic conditions in some districts may make provision for shelter from wind necessary, there is no doubt that every class-room should be potentially an open-air room. Any one who has seen the extent to which, in climates much less favourable than ours, fresh air and sunlight are utilized to promote health in school-children cannot but hope for the time when all school-rooms are capable of affording free access to the world outside. Many of the more recently erected schools make excellent provision for this. Dr. Phillipps, of Canterbury, has been successful in arousing a large amount of public interest in the establishment of open-air schools.

## SECTION 5.—SCHOOL BUILDINGS AND SANITATION.

As remarked above, more recently erected schools give improved facilities for fresh air. In many of the older buildings, however, ventilation and lighting leave much to be desired. In some districts the old type of school furniture, with long desks and backless benches, still persists. Many class-rooms

would be improved by taking out the old-fashioned platforms and removing the long benches and desks which necessitate the children sitting with their backs to the windows; if tables and chairs were then installed, the whole room would be capable of reorganization, and conditions of seating accommodation and lighting greatly improved for both pupils and teacher.

School-cleaning is rarely adequate. The difficulty of securing labour is often great, and the work cannot be efficiently carried out under present conditions. The scheme adopted in Melbourne, Victoria, has much to commend it. The Education Department there employs a regular staff of school-cleaners, who twice yearly give each school a thorough "spring cleaning." If a similar plan were adopted here by various Education Boards the usual staff of cleaners should not have very much difficulty in keeping the buildings in a satisfactory state. Dr. Keith comments upon the good results obtained in several schools of his district where organized cleaning is carried out by the children.

*Outbuildings.*—Where the water-carriage system exists the condition of these is, as a rule, fairly satisfactory. In country districts there is often much to be desired both in the character of the building and the amount of cleanliness and supervision attained.

## SECTION 6.—LECTURES AND PROPAGANDA.

During the year courses of lectures have been given to training-college students, also many addresses to parents, to various societies, and to the general public. Addresses to children on health matters form part of the daily work of school medical officers. That the preventive and educational side of the work is of greater ultimate value than its remedial is recognized.

## SECTION 7.—WORK OF SCHOOL NURSES.

In a district where it has been possible for a nurse to concentrate her attention on a small group of schools the proportion of defects treated has greatly increased, in some cases extending to as high as 86 per cent. Where parents have not time or money or interest sufficient to ensure that their children receive necessary advice and treatment, the school nurse is invaluable. She rouses parental interest, and, where advisable, herself arranges for treatment to be carried out. In many cases she personally conducts children to the hospital, dental clinic, and convalescent home. By her supervision she inculcates a higher standard of personal cleanliness among pupils. An intelligent school nurse of good personality is a great blessing to the schools of her district, and an increase in the school nursing staff would add greatly to the efficiency of the work of medical inspection.

## SECTION 8.—SUMMARY OF TREATMENT RETURNS FOR ALL GROUPS FOR THE YEAR 1923.

TABLE I.—NUMBER OF DEFECTS NOTIFIED AND PERCENTAGE SUBSEQUENTLY TREATED: DISEASE GROUPS.

| Groups. | Total Children examined. | Total Defects notified to Parents. | Total Defects followed up. | Percentage of Defects treated to Defects followed up. | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Teeth. | Vision. | Nose, Throat, and Ear. | Skin. | Other Defects. |
| 1. Large towns .. .. | 24,114 | 8,350 | 7,668 | 50·50 | 58·37 | 54·44 | 96·15 | 62·19 |
| 2. Smaller towns .. .. | 14,524 | 6,384 | 5,429 | 43·19 | 46·22 | 47·35 | 90·71 | 57·61 |
| 3. More remote districts .. | 15,479 | 6,511 | 5,191 | 45·36 | 46·84 | 43·71 | 88·32 | 71·12 |
| Totals, nine officers .. | 62,181 | 28,479 | 24,476 | 50·22 | 56·35 | 47·40 | 95·08 | 68·36 |

TABLE II.—NATURE OF TREATMENT RECEIVED.

| Groups. | Total Defects treated. | Percentage of Defects treated by | | |
|---|---|---|---|---|
| | | Hospitals. | Private Practitioners. | Parents. |
| 1. Large towns .. .. .. .. | 4,146 | 31·57 | 54·82 | 13·60 |
| 2. Smaller towns .. .. .. .. | 2,553 | 10·58 | 70·78 | 18·64 |
| 3. More remote districts .. .. .. | 2,547 | 8·64 | 75·34 | 16·02 |
| Totals, nine officers .. .. | 13,009 | 23·25 | 60·14 | 16·61 |

NOTE.—Six officers only furnished returns in three separate groups, and the group totals above, therefore, show figures for these officers. The grand total, however, includes figures furnished by nine officers engaged in school hygiene work for the year. Other returns forwarded could not be included owing to a different grouping of the defects noted.

SECTION 9.—MEDICAL EXAMINATION OF TEACHERS.

During the year approximately 700 entrants to the teaching profession and 600 applicants for teachers' certificates were examined by school medical officers. The following are summaries of examination results in two districts, which serve to indicate the general position :—

(1.) Candidates examined, 89. Of these 78 were accepted, 3 deferred, and 8 rejected. Of those accepted, 25 were classed as excellent, 36 as average, and 17 as fair. Special defects observed were as follows: Defective vision, 7 (2 corrected 5 uncorrected); deformity of chest, 5; deformed jaw, 1; enlarged tonsils, 2; disordered action of heart, 1; defective hearing, 1; goitre, medium, 1; dysmenorrhœa, 2. All had dental defect—that is to say, none presented a perfect set of teeth.

(2.) Candidates examined, 109. Two were rejected. Of those accepted, 14 were classed as excellent, 85 as average, and 6 as fair. Of the candidates, 10 had defective vision, 1 had defective hearing, none had perfect teeth. The condition of the teeth was as follows: 34 had carious teeth, 77 showed fillings, 85 had had extractions of second teeth. Three had suffered from appendicitis, 1 from pleurisy, and 1 from tuberculosis of the lungs.

In view of the amount of sick-leave granted to teachers it becomes yearly more evident that a rigid exclusion of unsuitable candidates is an absolute necessity, and school medical officers are asked to take a high standard in deciding upon general fitness. Many candidates pass easily in those points where the standard is defined exactly, as vision and hearing, and may be free also from definite disease or deformity, but nevertheless are, in general physique, in probable resistance to disease, and in temperament quite unsuited for the profession. Under the most favourable conditions of life of a conscientious teacher is exceedingly arduous, and the strain is apt to become excessive when work must be carried out in overcrowded, wrongly planned schools. In addition, when not resident in their own homes, younger teachers are often obliged to live in an environment prejudicial to health. The hostels provided for training-college students are of great service.

*Physical Education.*—The work of the physical instructors is exceedingly valuable. Its influence on the physique of the children, by promoting correct posture and good carriage, and in affording education in the right habits of breathing, has been amply demonstrated.

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

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

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## PART VI.—DENTAL HYGIENE.

In connection with the work of my division I beg to submit a report for the year ending 31st March, 1924 :—

### SECTION 1.—STAFF, TREATMENT, ACCOMMODATION, ETC.

#### STAFF.

The allocation of the staff of the division is as follows: At the central training clinic Mr. Elliott is at present in charge, assisted by Miss Haines; while in the field there are eight qualified dental surgeons at the following centres: Two at Auckland, one at Wanganui, one at Nelson, one at Murchison, one at Christchurch, one at Timaru, one at Dunedin; together with twenty-five dental nurses, stationed as under: one at Auckland, one at Avondale, one at Whangarei, one at Hamilton, one at Huntly, one at Hunterville, two at New Plymouth, one at Wanganui, two at Napier; two at Palmerston North, one at Masterton, one at Lower Hutt, one at Motueka, one at Westport, one at Greymouth, one at Hokitika, one at Christchurch East, one at Clyde, one at Mosgiel, one at Dunedin, two at Invercargill.

Owing to the lack of patients at Rotorua it has been found necessary to transfer the nurses to New Plymouth temporarily. Miss West, dental nurse at Wanganui, has broken down in health and is at present on extended leave, while Miss Anderson, dental nurse at Clyde, has asked to be relieved of duty on account of her approaching marriage. This is very much to be regretted, as Miss Anderson is one of our most capable officers. The staff with very few exceptions have proved excellent officers, and the success of the nurses is very gratifying and is amply fulfilling expectations.

I regret to have to report the resignation of Mr. Dunn, who supervised the studies and training of the nurses, and has rendered very valuable service in this direction, and who, I feel, will be very difficult to replace.

*Staff in Training.*—At the present time we have two classes of probationers in training—(1) The class of fifteen (now reduced to thirteen), who commenced duty in October, 1922, and who will have completed their course in October next; these will be ready for drafting out at the end of the year or the beginning of 1925; (2) the new class of twenty-five students who commenced at the beginning of this month.

Of those who will complete training this year some will be required to fill vacancies occasioned by the loss of several of the officers placed last year, while no difficulty is anticipated in finding suitable locations for the remainder. These nurses, generally speaking, are quite up to the standard of the previous class, and there is no reason why they should not be equally successful in the field.

### Treatment performed during 1923.

The following is a summary of the operations performed from January, 1923, to December, 1923, by dental surgeons, dental nurses, and trainees: Fillings, 47,610; extractions, 37,978; minor operations, 19,171: total operations, 104,759.

Of the above amount the twenty-five dental nurses, the placing-out of whom was commenced in May, have performed the following: Fillings, 23,750; extractions, 18,674; minor operations, 8,110: total operations, 50,534.

Of the filling-work shown above, approximately 44 per cent. of the fillings were in permanent teeth.

### Accommodation.

Since my last report surgeries have been established at Murchison, Whangarei, Hamilton, Huntly, Hunterville, Palmerston North, Masterton, Lower Hutt, Christchurch East, Clyde, and Mosgiel. In each case the room has been supplied and fitted up free of charge to the Department by the local people, who, generally speaking, have responded in a very generous manner and have been only too willing to provide the facilities required. This has meant a great saving to the Department, and, apart from this, has the effect of stimulating a greater amount of interest on the part of the local people in the welfare and success of the scheme, and ensures their co-operation, so essential to smooth working, which I think would be lacking if the Government assumed the whole responsibility. Greater appreciation of our efforts is now being shown, and I do not anticipate any difficulty in finding suitable accommodation for the nurses when the next distribution is made.

### Equipment.

The stocks ordered last year are coming to hand regularly, and in practically every case the materials purchased have proved entirely satisfactory. Now that some accurate estimate of our requirements can be made there should be no difficulty in arranging for regular forward purchase from abroad, thus rendering ourselves practically independent of the local market. The Defence Medical Stores have recently closed down, and the whole of the issuing is now being done from the Department's own store.

## SECTION 2.—PROPAGANDA.

During Health Week in November last our exhibit at the Wellington Town Hall attracted considerable attention, and the dental nurses in attendance had the opportunity of imparting much useful information to a large number of inquirers. The giving of advice to parents at the chair-side on dental matters and in connection with diet, of course, forms an important and valuable part of the nurses' duties, and I am pleased to say that their efforts are being greatly appreciated and are, I am convinced, proving productive of much good.

When meeting the various committees and parents early in the year in connection with the establishment of surgeries I took the opportunity of addressing them upon the prevention of dental disease, and have at various times arranged for the publication in the newspapers of articles dealing with these matters. Several letters commenting favourably upon our scheme have been received from abroad, and during the year we have received visits at the clinic from many members of the dental and medical professions. Among the former was Dr. Nathan, of the dental staff at Harvard, who was very much impressed with our work, and requested an outline of the whole scheme. This was supplied him, and shortly after his return to the United States a very commendatory letter was received from Dr. Cooke, Professor of Preventive Dentistry at Harvard, who considered that our scheme was greatly in advance of those of either England or the United States. Among the distinguished medical men was Dr. E. Mayo, of Rochester, who was good enough to publicly express his approval of our methods.

Thos. A. Hunter,
Director, Division of Dental Hygiene.

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# PART VII.—MAORI HYGIENE.

I have the honour to submit herewith my annual report for the year ending 31st March, 1924.

## SECTION 1.—GENERAL HEALTH.

### Typhoid Fever.

The general health of the Maori people has shown a decided improvement even over last year. There have been no widespread epidemics entailing special provisions, except in the case of an outbreak of typhoid fever in the farthest north settlement of Te Mingi. Cases of typhoid have occurred in other parts, but the Maori District Health Nurse has been able to deal with them very effectively, and isolation and inoculation have checked their spread. In the case of Te Mingi, the people who were ardent followers of Ratana were adverse to calling in outside human aid. By the time news of the cases of sickness had reached the district nurse the disease had spread amongst several families. Prompt isolation prevented its spread to the nearby village of Te Hapua, and over thirty cases were nursed in their homes by District Nurse Fergusson and her assistant. It was impossible to remove cases to the too-far district hospital at Mangonui without serious danger. The services of the relatives of the patients were cheerfully given, and the nurse, by utilizing their assistance, not only coped with the epidemic with as little financial obligation to the Department and the Hospital Board as possible, but gave invaluable instruction to the people.

### Maori Health Councils.

These Councils continue to do good work. In some cases they are not so active as others, but the very fact of their existence is a potential factor that can be turned into an active force when special need arises. They form an organization which can be mobilized to deal with urgent circumstances in the way of assistance in epidemics. Council members and Village Committees render the greatest assistance in isolating epidemics by discouraging and opposing travelling to or from infected areas.

The administration of sanitary by-laws is carried on automatically by Village Committees. In cases of doubt and difficulty the advice of the Division of Maori Hygiene is always sought. The inauguration by my office of a system of supply of quarterly returns by the Chairman of these Councils has resulted in a proper supervision of their accounts, and thereby eliminated the haphazard methods of the past.

A conference of the Chairmen of all the northern Councils was held at Whangarei. It was unanimously held that the present by-laws met all requirements for the betterment of the health of the people. Further additions were discussed, and by-laws are being framed to give effect to them.

### Water-supplies.

The inauguration of water-supplies has been receiving the attention of my division. The success attending the Maketu water-supply has led to the framing of special by-laws dealing with the maintenance and extension of the system. This further stimulated the villages in the district, which collected money and applied for £1-for-£1 subsidies, which were granted by the State. These subsidies were in most cases met by the Native Department, who so far have never declined assistance, and the gratitude of the Maori people is due to that Department for their recognition of the importance of good water-supplies in bettering the condition of the Native people.

A few items in this direction are appended:—Te Paamu Village: Bore, 170 ft.; subsidy, £48. Te Matai Village: Well and pump; subsidy, £23 19s. 3d. Manoeka No. 1 Village: Well and pump; subsidy, £24 1s. 3d. Manoeka No. 2 Village: Well and pump; subsidy, £22 2s. 8d. Te Kahika Village: Well and pump; subsidy, £17. Waitangi Village: Bore, 35 ft.; subsidy, £10.

In all the above settlements the question of water-supplies has been a difficult problem. Since installation, the Maoris themselves are well satisfied with the improved conditions. Details in connection with the location, ordering of material, and supervision of the work were controlled by my division.

The Tauranga Council, with £80 to credit of its own account, is going ahead with a water-supply scheme under my direction. The Matatua Council has spent £68 of its own money on installation of water-supplies. The Wairoa Council has installed two water-supplies at a cost of £40, and is proceeding with another.

In the far-north village of Te Hapua the Natives have collected £35, being half-cost of installing a central-tank system. The Department of Health has subsidized this amount £1 for £1, and a contract has been let for the completion of the work, amounting in all to £70, details of which are: six 600-gallon tanks, covers, &c., £28 10s.; spouting and plumbing, £4; timber for stands, £12; freight, £7; cartage and labour, £18 10s.: total, £70.

These various items show that the Natives are themselves helping to improve their condition, with the assistance of the Health Councils and the State Departments.

### Sanitary Improvements.

Attention has been directed to improving the sanitation of the villages, especially towards providing latrine accommodation for both sexes at the communal meeting-houses where tribal gatherings are held. The Councils which have funds are able to make these most necessary improvements, but a few of these bodies have insufficient funds to carry on. If a fund of £500 per annum could be devoted to assist the Councils in carrying out such sanitary improvement as this Department directed much good would result, and subsequent expense in dealing with epidemics such as typhoid would be greatly minimized.

### Inoculation.

Anti-typhoid inoculation is carried out as a routine procedure in districts where typhoid fever occurs. Already the improvement in the lessened incidence of the disease is marked. Districts that were previously rife with the disease season after season now give little trouble. Cases do occur, but never spread as in the past. The total inoculations done during the last year numbered 2,000, making the total for the last two years 4,317.

### Tangis and Huis.

We have very little reason to fear any ill results from these gatherings, owing to strict attention to sanitary detail having now become a routine matter. Extra latrine accommodation, disposal of rubbish and food-refuse is organized by the people themselves, and Village Committees realize their responsibility. Inspectors of Health, instead of meeting with passive indifference on the part of the Natives as in the past, now find the people ready to carry out any suggestions that will lead to the healthy conduct of the gathering. District nurses are also in attendance whenever possible, to deal with cases of illness that may arise. At the large gathering held in Wairoa in January to unveil a war memorial everything was conducted to my entire satisfaction, and the people are to be congratulated on the sanitary organization that prevailed.

### Maori Health Nurses.

I cannot speak too highly of the good work being done by this branch of the service. Though some of the followers of Ratana are averse to accepting skilled treatment, the nurses have earned the confidence and respect of the people. It may interest some of the conscientious objectors to know that Ratana in a public speech to me stated that he had not only no objections to the use of medicines,

but took cough mixtures and used a boracic lotion for bathing his eyes. In treating his parties for scabies to enable them to leave the country for England, he certainly assisted me in every way, so that under these particular circumstances he seemed to realize that there were limitations to his own system of treatment. If his followers in the remote areas would also realize those limitations there would not be the passive resistance in some quarters that obstructs the great work the nurses are doing.

I often wonder whether the general public realizes that the Health nurses to the Maoris, besides watching over the Maori population, are safeguarding them in preventing the spread of infection, and by so doing are easing the burden of the Hospital Boards and the ratepayers.

### Native Health Inspectors.

We have now, nominally, only one Inspector of Health devoted to Maori work, and even he does a considerable amount of European work. As an expert in dealing with Maori conditions, his services are utilized in special cases throughout the North Auckland Peninsula. However, the European Inspectors of Health are well acquainted with the organization of the Maori Councils, and utilize their assistance wherever necessary. The Maori Health Councils are also in touch with local Inspectors, and good co-operation exists between the two branches of the service.

## SECTION 2.—ANTHROPOLOGY.

### Physique of the Maori.

It is held in many quarters that the physique of the Maori race has deteriorated since contact with civilization. As the present-day full-blooded Maori lives in the same climate, with probably better housing and certainly a more plentiful food-supply, it is difficult to see why physical deterioration should exist. The statement, like many others of a similar nature, is at present incapable of scientific proof. This is due to the fact that in the past no physical measurements of the people were taken. There are no two sets of data to compare with one another. As the same question is sure to arise in the future, I endeavoured to supply data for the present generation by making anthropometrical measurements of 424 full-blooded Maoris of the Maori Battalion whilst returning from the war. This data has been worked up and published in the *Journal of the Polynesian Society*, the concluding article appearing last December in Vol. 32, No. 4. As it will be of scientific as well as sentimental value to note in the future what effect improved sanitation and health administration will have on the physique of the race, I have no diffidence in referring to a few of the following average measurements: Weight, 11 stone 10 lb.; height, 5 ft. 7·3 in.; sitting height, 36·2 in.; chest, anti-posterior diameter, 7·8 in.; chest, lateral diameter, 11·0 in.; chest circumference, 35·2 in.; Upper-arm circumference (uncontracted), 11·5 in.; thigh circumference (uncontracted), 21·1 in.; calf circumference (uncontracted), 14·9 in.

When it is remembered that the men weighed were in the "pink" of training, without much superfluous flesh (which the Polynesian readily puts on), the average of 11 stone 10 lb. is fairly high. The height of over 5 ft. 7 in. places the Maori, like his Polynesian kinsmen, amongst the taller races of the world. The proportion of sitting height to standing height (53·8) is high, and thus gives the Maori proportionally a longer body and shorter legs than is usual with his European fellow-colonists. The chest-measurements were taken with the chest at rest between full expiration and full inspiration. The three purely muscular measurements given were taken without contraction. It is obvious, of course, that contraction of the muscles would materially increase the measurements.

For the further measurements showing the proportions of the head, face, nose, and limbs, and the general characters as regards hair and skin colour, reference may be made to the articles mentioned. Their significance can only be appreciated after a sufficient number from each tribe has been measured.

As the sciences of anthropology and hygiene must be intimately associated in working for the proper understanding and betterment of Native races, I take it that it is the duty of the Division of Maori Hygiene to follow up the line of investigation already initiated by my division.

Te Rangi Hiroa,
Director, Division of Maori Hygiene.

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# PART VIII.—HEALTH DISTRICTS.—EXTRACTS FROM ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

## SECTION 1.—AUCKLAND HEALTH DISTRICT.

Dr. T. J. Hughes, Medical Officer of Health; Dr. J. Boyd, Assistant Medical Officer of Health; Dr. H. Chesson, Relieving Medical Officer of Health.

### Administration.

A great deal of work has been put in in the improvement of the general sanitary condition of the district, and local bodies have shown willingness to co-operate with the Department in this very necessary work. As a consequence an all-round improvement has been effected. Sanitary and rubbish collection and disposal services have received special attention, existing services being greatly

improved and new services installed. Some of the local bodies have installed incinerator services, but the old tip method of disposal is still much in evidence, although constant vigilance has greatly improved the sanitary condition of the tips themselves. Then there has been a good deal of work done in the organization of anti-rat campaigns and clean-up week, plague precautions, &c., all these necessary services playing their part in the general improvement noted in the district. The interest and activity displayed along these lines was well manifested throughout the district, and householders themselves seem to have been educated to a better standard of sanitary conditions owing to the publicity which was given to these matters by the Press, and by posters, &c., issued by the local authorities.

The offensive-trades area at Westfield has again proved a difficult proposition in regard to the satisfactory disposal of waste matters and the minimizing of smells arising therefrom. When it is considered that the offensive trades carried on in this area include tannery and fellmongery, wool-scouring, woollen-mills, glue-works, boiling-down works, two freezing-works, meat and manure works, four abattoirs, chemical works, and soap and candle works, it will be realized that the disposal of waste matters from these works presents quite a problem. Everything practicable has been done to minimize nuisance, however; storage tanks have been built, and effluent is discharged only at high tide. Several of the drainage outfalls have also been considerably extended at the request of the Department during the year. There is no doubt that in the future these outfalls must be dealt with by a comprehensive scheme of drainage, which will prove a very expensive matter to the companies concerned.

The supervision of the sale of foodstuffs and drugs under the provisions of the Food and Drugs Act, 1908, and regulations thereunder, has been well maintained throughout the year. Many samples of foodstuffs have been weighed, principally the staple foods, as bread, butter, tea, &c. Prosecutions have been instituted when necessary, and many warnings issued. Every effort has been made to complete action on every sample taken, and in the event of any sample being underweight and no prosecution issued the vendor was noted for a return weighing at a later date. Many samples have also been procured for analysis during the year. The results of actual weighings, sampling for analysis, and of legal proceedings have been summarized on the monthly return forms. A great deal of attention has been given to milk-supplies, particularly in Auckland and suburbs. Fifty-one bacteriological examinations of milk-samples were made. The samples were taken (1) at the farm, (2) on arrival at factory, (3) after pasteurization, and (4) from milkman on round. It was hoped by following samples through in this manner to detect where bacteriological contamination of the supply occurred, and, although this was done in some instances, and defects remedied at the factories, the results were not uniformly satisfactory. Tests are still proceeding, and better results are expected in the future.

### Milk-samples for Chemical Analysis.

During the year 362 milk-samples were chemically examined, and as a result thirteen prosecutions were recommended and five warnings issued.

### Infectious Diseases.

*Scarlet Fever.*—A total of 274 cases was notified during the year, being two less than the previous year. These cases were not confined to any particular area. Where practicable, cases were removed to hospital. Full precautions were taken by departmental Inspectors. The cases generally were mild.

*Diphtheria.*—This disease shows a decrease of 146 cases from the total for the preceding year—the total number notified being 585. The worst months were from February until July. Swabbing of contacts was carried out where necessary. Toxin-antitoxin immunization was employed in the case of one family, a member of which was a persistent carrier for some months. All cases were investigated and precautions taken.

*Enteric Fever.*—The position as regards this disease was fairly satisfactory throughout the year, only seventy-three cases being notified, as against 302 for the previous year. A pleasing feature was that the disease was practically non-existent amongst the Maoris. This is in some measure due to the routine inoculations carried out by the district nurses. I personally investigated suspected enteric-fever cases occurring in Auckland City and suburbs.

*Influenza.*—There was a total of 227 cases notified, showing an increase of 161 over previous year. A rather sharp outbreak occurred during July and August, the figures for the two months being 78 and 116 cases respectively. Deaths notified from this disease were—July, 15; and August, 31. This epidemic was widespread throughout the district.

*Tetanus.*—There were eleven cases notified, being two less than previous year. Each case was investigated as to possible sources of infection.

The position as regards other diseases not mentioned above has been fairly satisfactory.

*Puerperal Fever.*—There were forty-nine cases notified, being forty less than previous year. Full investigations were carried out in all cases of puerperal fever notified. Personal visits were made by the Medical Officers of Health where practicable. Suspension notices were issued to the nurses attending the patients, and instructions given as to personal disinfection. Fumigation of premises was also carried out.

Ordinary inspections of private hospitals, 88; new premises, 23; special *re* puerperal septicæmia, 12: total, 123.

Midwives visited, 118; investigations *re* septic cases, 14; investigations *re* ophthalmia neonatorium, 2; prosecutions for conducting illegal private hospitals, 5; district nurses interviewed, 23.

There were eighty-six licensed private hospitals in Auckland Health District. The majority of these are well equipped, and are found on inspection to be in excellent order and well managed. Several private hospitals in the country districts, however, are not up to the standard required by this Department, but these are being gradually improved and the necessary requirements are being added. The improvements effected are specially in regard to sanitary conveniences, labour-rooms, and nurseries in maternity hospitals.

## SECTION 2.—WANGANUI AND TARANAKI HEALTH DISTRICT.

Dr. H. G. H. Monk, Medical Officer of Health.

### Diphtheria.

This complaint has only a slight reduction to be noted, and the same remark may be made as in scarlet-fever cases—the cases were of the mild variety. Thanks to the almost universal use of diphtheria anti-toxin as soon as the case shows itself, the illness is cut short, and the lives of many persons saved. The earlier the treatment is commenced with the anti-toxin the better. The controversy as to how many units should be given seems to have more or less died out, and doses of six thousand to eight thousand are now freely given. When the very large doses of sixteen thousand to twenty thousand were given we frequently heard of the reaction that followed. Eight or ten days after the injection enlargement of the lymphatic glands and erythematous rashes appeared. First doses may be given without these reactions, but if a second dose is given the reaction may occur. These reactions are supposed to arise from antigen bodies in the serum and not from the anti-toxin itself. I have noted the above facts, as in two cases during the past year I saw the glandular enlargement which was put down to the diphtheria, but which was undoubtedly due to the two large doses of anti-toxin administered. At one time we received rather frequent notifications from the Hawera district, and I visited the school and obtained swabs from the throats of about one hundred and fifty children. This proceeding was effectual in spotting the carriers, who were isolated. The result was quite successful, and the cases ceased. Cases of diphtheria were reported from New Plymouth (all parts of the town), Inglewood, Waitara, Stratford, Tuna, Mahoe, Wharehuia, Hawera, Eltham, Kaponga, Waverley, Wanganui, Ohingaiti, Marton, Turakina Valley, Taihape, Bull's, Rata, and Raetihi. Of the above-named places the incidence of diphtheria was heaviest at New Plymouth. The sewerage arrangements at New Plymouth require a new system altogether to abolish the high number of so-called septic tanks at present in use, which are a danger to the health of inhabitants and visitors. The need of new sewers is well known to the New Plymouth Council, and I have been informed that as soon as the new hydro-electric works are finished the sewers are to be taken in hand.

### Enteric Fever.

The total number of cases of enteric fever keeps low, and the cases are about equally divided amongst Maoris and Europeans.

### Tuberculosis.

The number of cases notified during the past twelve months was thirty-eight, as compared with fifty and fifty-six in previous years. This is a very satisfactory condition, especially when the fact that a very great part of the district has very heavy rainfall and there is also an abundance of clay subsoil throughout. More use has been made of the sanatoria than in previous years, and the increased knowledge of precautionary measures thus disseminated must prove of value to relatives.

### Puerperal Fever.

During the year nine cases were notified of this disease, as compared with seven and twenty-one in the two previous years. Out of these nine, four certainly cannot be considered true puerperal fever, as there were causes other than puerperal to account for the rise in temperature. In one case, where the temperature was noticed within forty-eight hours of the time of confinement, it was exceedingly difficult to find a cause. The patient came from a clean home and was well cared for, and nothing out of the usual was noticed at the time of confinement. The home in which the birth took place is one of the most carefully run and cleanest in the district. The only clue that I could find, after asking a number of questions from the nurse, was that the husband had had to go home in a hurry, as he had a cow with milk-fever, which he had been attending for several days, and he had been coming into the house for ablution purposes. I do not know whether there could be any connection between the two cases, but it struck me as possible. In none of the cases notified did a second one occur in the same hospital.

In another connected with farm life a patient was brought into a nursing-home in a most filthy condition, and had to be cleansed thoroughly as quickly as possible before the birth of the child. From the description given to me by the nurse, the wonder would have been if no trouble had followed the confinement. An inspection of the house from which the patient came proved it to be of the dirtiest description. This was the only fatal case in the Wanganui-Taranaki District during the year.

The occurrence of a case of puerperal fever is a most serious happening in a nursing-home, as if it gets to be known it means the avoidance by expectant mothers of that home for months. For this reason medical men and nurses are very reluctant to notify a case until they are absolutely sure of their diagnosis, with the result that serious trouble probably follows. As a rule there is no isolation ward in any ordinary nursing-home, and the staff is not numerous enough to allow of a nurse being set apart for a special case. Hence the cases are sent to the public hospital. This always seems very

unfair to the public hospital, and I think something will have to be done in the way of compelling a suitable room to be provided for such a case, with accommodation for a nurse, so that no communication whatever need to be held with the main body of the nursing-home. As soon as there was the slightest suspicion of something wrong the patient could be isolated with her nurse, and the safety of the patients guarded. A rise of temperature in a patient on the third or fourth day and lasting over twenty-four hours should be reported to the Medical Officer of Health personally by the medical man, as it would enable the Medical Officer of Health to take such precautions at once as seemed to him necessary.

From conversations I have had with medical men I find that much less examining is done now than formerly, and it seems as if the very old saying that "meddlesome midwifery is bad" is rather coming into force again, but not quite as it was formerly meant. A great number of cases admitted to nursing-homes come from the country districts, where the patient has had heaps of room to roam about in the fresh air and thus take a moderate amount of exercise. At times they come into the house and sit about for a week or two before their time arrives. This, I consider, does not improve their general health and powers of resistance. Amongst the working-classes, if I may use the expression, it is quite a common thing for a mother to continue her daily occupation right up to the time of confinement. She has no facilities at home to take rest, and probably no one to look after the other members of her family whilst her husband is away at work. If arrangements could be made either for a district nurse, or what could be called "home helpers" employed, much worry would be saved the mother, who would go to her hospital with her mind easy that her children would be cared for and looked after. This work would very well come under the heading of child-welfare work, and would be of the greatest service to many poor homes. There is no doubt that many women go into nursing-homes more or less in fear and trembling from reports that they see in the papers about puerperal fever. When, in addition to this, there is worry as to who will look after the children, the mother is not in the best condition to battle with her trouble. Up to the present I have not said much about the condition of nursing-homes. During the year I have visited and inspected them in all parts of the district. As a rule they are well kept, and comply with our sanitary requirements. The chief trouble is in small places where there are no public sewers, and sewerage has to be got rid of either by a septic tank or pan privy and broadcasting of the liquids. It is a question whether a license should be granted for more than two patients where no sewers exist. Personally, I am of opinion that two should be the limit.

Then, again, there is the question of one patient in a house run by an unqualified woman, who always declares that she never takes a case without a doctor. Some medical men seem to favour these houses, and on more than one occasion when I have visited them I have been told that Dr. So-and-so sent the second patient in knowing that there was already one in the house, and that he would make it right. This may be all very well, but we do not hear of these cases unless something goes wrong. I think the medical profession ought to set their faces against these unlicensed women, and give their aid to the Health Department and assist in making nursing-homes as safe as possible for patients. It will be said at once that St. Helens Hospital is always open for these cases, and the medical man's reply at once is, "Oh, if our patient goes to St. Helens we lose our fees." I have been told this numberless times, and one has not any argument to meet it. Perhaps in the near future it may be possible to do away with this system and enable medical practitioners to attend their regular patients. At any rate it would be a great forward step to abolish the one-case-a-month homes. The argument that it is cheaper than an ordinary nursing-home is not always correct, as in many of the places there is very little difference in the fees.

As stated, there has been a decline in the cases notified, but I would like to see cases notified much earlier, and also to have the medical men get into touch with the Health Office more promptly.

### Sewers.

In parts of the district good progress has been made in the construction of new sewers. Castlecliff especially has continued the work. In Wanganui there was a decided deadlock in connection with this work. Money had been borrowed to sewer certain streets, but, on account of rise of prices, the work was unfinished. This led to much trouble, as isolated houses which had been built on the understanding that the sewers were to be put in were left without facilities they expected. When asked about completing this work there was no money. I have added here the report that was presented to the Board of Health on the 21st November, 1923, when they were asked to make an order on the borough to complete these sewers. I may add that the Board made this order, and some of the work is now in hand.

The other large town in the district that wants much done in the sewering-line is New Plymouth. The present system was intended for a much smaller population than exists at present, and the whole of the present system wants rearranging, as the increased population has resulted in both the sewers being overcharged and the septic tank overworked. The remarks made about New Plymouth apply in a lesser respect to Marton Borough, where the Junction section has been added to the borough.

### Disposal of Rubbish.

The rubbish tips and dumps have been kept under notice, and have kept in fairly good condition in all parts of the district. In Wanganui the new refuse-destructor will probably be started within the next few weeks, thereby doing away with the present tip.

### Water-supply.

Works of this nature have been pushed on during the past year.

### Food and Drugs Regulations.

The furnishing of two guaranteed accurate pairs of scales during the year had led to much more weighing of packed foodstuffs and bread. From the subjoined table the number of inspections of foodstuffs, weighing of various articles, samples purchased and analysed, and fines will be readily seen in each district. A great improvement is noticeable in all the shops where food is sold, and I think the number of inspections made contributes largely to this result:—

| District. | Inspections. | Weighings. | Samples taken and dealt with. | Number. | Legal Proceedings. Fines. |
|---|---|---|---|---|---|
| | | | | | £ s. d. |
| Taranaki .. .. .. | 725 | 1,036 | 85 | 6 | 31 1 0 |
| Stratford .. .. .. | 182 | 201 | 66 | 1 | 4 1 9 |
| Hawera .. .. .. | 285 | 699 | 99 | 1 | 6 4 6 |
| Patea .. .. .. | 93 | 65 | 4 | .. | .. |
| Wanganui .. .. .. | 565 | 899 | 115 | 3 | 15 17 6 |
| Total .. .. | 1,850 | 2,900 | 369 | 11 | 57 4 9 |

During the year we have been assisted in the inspection of cow-sheds, &c, by some of the staff of the Agricultural Department, but up to the present we have not had to call in their aid with regard to fruit, &c. In one instance their help was most opportune, as it enabled us to deal with a proposition that might have had very expensive and far-reaching consequences. At Marton there is a large school the drainage from which goes to a septic tank. The effluent has for years been discharging into a stream. A farmer lost some sheep which he said had been poisoned by the effluent from the tank discharging into the water. Inquiries were made, and an analysis made of the water, which disclosed signs of impurity due to sewage. A very heavy claim was made on the school authorities. We got into touch with the veterinary expert of the Agricultural Department, and a post-mortem examination of a sheep was made. This did not reveal any sign of the usual symptoms that we should have expected to find, but instead pointed to a parasite. Further inquiries elicited the fact that some of the sheepowner's animals on quite a different part of the farm has suffered in the same way. The cause of the deaths of the sheep was thus cleared up, and the school authorities saved a very great expense.

## SECTION 3.—HAWKE'S BAY HEALTH DISTRICT.

Dr. W. B. Mercer, Medical Officer of Health.

### Administration.

During the year the sanitary work and all duties which our Inspectors are called upon to carry out have been done satisfactorily by the Inspectors of Health stationed in the different parts of the Hawke's Bay Health District. The work of the Sanitary Inspectors to local authorities, although it does not come directly under my supervision, has also, I know, been well done. The Sanitary Inspectors for the three larger towns, Napier, Hastings, and Gisborne, are men who take a keen interest in their work, and who work cordially in co-operation with our Department. This is undoubtedly of great assistance to the Medical Officer of Health in the performance of his duties.

The work of the Native Health Nurses is, I am afraid, not always appreciated as deservedly as it should be. It is not ostentatious, and results are not conspicuous; but by those who know a little of the rough and hard rides these nurses have daily to make in the winter months, and who also know their willingness to help in all cases of sickness, and their anxiety to get their patients well, and to do all this without any medical advice or assistance, a steady admiration of the work of the Native Health Nurses must be felt.

### Health Act and Local Authorities.

Each year shows that the local authorities are taking a keener interest in their responsibilities under the Health Act of 1920. Three years have passed since this Act came into force, and, although it has forced upon all local authorities many responsibilities and duties which they had not previously to concern themselves about, yet opposition is rare and co-operation with our Department is the rule. This, at any rate, is my experience at the present moment. To maintain co-operation and good understanding between our Department and the local authorities the Medical Officer of Health ought to keep as far as possible in touch with them and their officers. In some instances he may only be able to do this once or twice a year, but I find that it is always appreciated, how frequent or infrequent it may be. During the year several new regulations under the Health Act have come into force, viz., (1) Cleansing and ventilation of picture-theatres; (2) regulations governing eating-houses; (3) regulations governing the sale of second-hand bedding and clothing, &c. All these regulations have to be carried out and enforced by the Sanitary Inspector to the local authorities, and so far as the larger centres of population are concerned I think I may say that the Sanitary Inspectors have shown readiness and willingness to carry out the provisions of these regulations.

In my opinion it is advisable that these new regulations should be incorporated into local authorities' by-laws as far as possible, either by amendment or alteration to the existing by-law dealing

with the authorities' matters, or by adoption as a whole. If this is done there can be no question as to the responsibility of the enforcement. There is still a tendency—a diminishing one, I believe—to think that it is the duty of the Health Department rather than the local authority to carry out and enforce the provisions of the Health Act and the regulations framed under the Act.

### Infectious Disease.

The year 1923 is a record one for the Hawke's Bay Health District in regard to the notification of infectious diseases. In 1922 we had the lowest returns since the district was opened in 1920, but 1923 is even lower. Although this low return is in general with the figures throughout all the health districts in New Zealand, it is nevertheless satisfactory because it shows that the Inspectors, both departmental and local authority, are carrying out their duties in supervising and investigating all cases of infectious disease notified. It shows further that the public generally, and the parents in particular, are ready and willing to carry out the instructions laid down under the regulations as to infectious diseases.

### Puerperal Septicæmia and Maternal Mortality.

During the year twenty-five notifications of puerperal septicæmia were received. There were six deaths. In addition there were five maternal deaths from puerperal causes, making a total of eleven deaths. This is three less than the previous year. Since the time (July, 1922) these maternal deaths have been investigated by the Medical Officer of Health there has been a steady decrease in the Hawke's Bay Health District.

During the year 1923 we have been quite free from any outbreaks of puerperal septicæmia in private maternity hospitals.

### Private Hospitals.

I am pleased to report that the private hospitals in the Hawke's Bay Health District are well managed and maintained. The improvements that have been made in the last four years are noticeable in many ways. It is quite rare to find, when inspecting private hospitals, any serious defects either in the maintenance or sanitary conditions which would be liable to cause a spread of puerperal sepsis. Four years ago this was far from being the case; there were defects which would catch the eye at even a casual inspection. There are still, however, two or three maternity homes where structural improvements and renovations might be made, but the small amount of work and the remuneration derived from it prohibits the licensee from doing what should be done in the way of improvements. These licensed maternity homes, however, will probably in the course of a year or two cease to carry on, and it would be unreasonable to enforce requisitions which would probably compel the licensee to close down. If one is satisfied that the licensee is carrying on her midwifery carefully and to the best of her ability under the conditions which obtain, I think a reasonable latitude must be allowed.

## SECTION 4.—WELLINGTON HEALTH DISTRICT.

Dr. W. F. Findlay, Medical Officer of Health.

### Scarlet Fever.

This disease has again shown a considerable decrease as compared with the preceeding year.

### Diphtheria.

For the year 1923 an increase of 214 cases is shown as compared with 1922.

The cases in Wellington City developed chiefly in the Clyde Quay, Mount Cook, Newtown, and Kilbirnie areas. I am indebted to the School Medical Division for their close co-operation in this epidemic. Various schools were visited by school medical officers and nurses. Between the 25th June and the 1st August, 159 carriers were discovered and isolated. This threw considerable strain on doctors, nurses, Inspectors, the City Council Infectious-disease Branch, and the District Health Office. There is no question but that hardship and inconvenience was caused to many homes through the restrictions which the discovery of a "carrier" automatically imposed. It is noteworthy, however, that the incidence was considerably reduced in August. I am pleased to be able to state that from the very commencement of 1923 diphtheria in the city was closely watched and swabbing undertaken where necessary. The services of the school nurses were of the greatest advantage with regard to swabbing, which is frequently found necessary.

The introduction of toxin-antitoxin immunization would in time undoubtedly reduce the yearly expenditure and inconvenience at present caused by this disease. No disease figures so largely in the activities of the district staff as does diphtheria.

### Tuberculosis.

It is pleasing to be again able to chronicle a substantial decrease (forty) as compared with the previous year.

Viewed from the aspect of overcrowding, hereunder is an extract from the New Zealand Year-book, 1924. This indicates the position as regards housing at the 1921 census:—

| | Overcrowding Dwellings (Number). | Persons affected (Number). | Persons affected to Total. (per Cent.). |
|---|---|---|---|
| Auckland urban area .. .. | .. 2,321 | 16,899 | 11·97 |
| Wellington urban area .. .. | .. 1,920 | 12,828 | 13·62 |
| Christchurch urban area .. .. | .. 1,348 | 10,316 | 10·76 |
| Dunedin urban area .. .. | .. 933 | 117,676 | 10·85 |

The methods adopted for the supervision of all notified cases appear to be as effective as possible. Occasionally cases are lost trace of through change of address. It is noted that public hospitals are frequently negligent in notifying this department when T.B. cases are admitted and discharged. More closer co-operation is much to be desired. There is need for more frequent visitation by a nurse, however, in selected cases. The Superintendent of the Wellington Hospital has recommended that his Board employ a part-time medical T.B. officer as part of a clinic system. A real difficulty arises in some cases on discharge from sanatorium with regard to their return to occupations unsuitable for themselves and sometimes not desirable from the point of public health. Every effort is made to safeguard the public. Fifty-one cases were transferred to sanatorium through this office.

### Puerperal Fever.

It has been the custom for the Medical Officer of Health to personally investigate all cases of puerperal infection notified from private hospitals. Private hospitals and maternity hospitals have been inspected throughout the district by the Nurse Inspector and the Medical Officer of Health. As a general rule the premises have been found clean, and the general technique and methods under the circumstances good. On occasions fault has been apparent such as untidiness, crude methods, insufficient staff, poor equipment, or temperature-charts badly kept. To these the attention of the licensee was duly directed, and the home further supervised. More frequent inspections of private hospitals and visitations of midwives is, however, necessary. The appointment of a Nurse Inspector attached solely to this office for the purpose is a matter of urgency. Three prosecutions under the Midwives Act were taken during the year, and one under the Hospitals Act. Fines were inflicted in all. In all parts of the district unregistered women have been visited, advised, and reported upon by the Nurse Inspector.

### Equipment of Private Hospitals and Maternity Homes.

In accordance with past policy, pressure has been brought to bear upon all licensees *re* the provision (if not already supplied) of sink-rooms and other improvements. As a result quite a number have provided, or are providing, sink-rooms. A request for a transfer of license or a new building quite often provides in other cases an opportunity to enforce our requirements. A serious question in many maternity homes, especially in the more rural ones, is finance. In some of these the provision of a sink-room implies a septic-tank installation—the monetary savings of a few years sometimes being required to provide same. The lapse of time, however, is gradually eliminating the less desirable homes.

With regard to the provision of satisfactory isolation facilities in private hospitals, this is in most cases impracticable. Almost invariably the practice in this district is to remove the infected case elsewhere. The removal of patients to an isolation block will not, as a general rule, abolish the need for the usual precautions, such as closure, &c., for the reason that infection may have been dispersed to other parts of the building before the case was recognized. In many localities it would appear that trained midwives as licensees of private maternity hospitals or in private practice do not receive the support from the local practitioners that is their due. Although admitted that the patient often prefers to go to Mrs. G. because she knew her, &c., there is a feeling that the medical attendant could do more to further the interests of the trained midwife. Such a tendency does not help in the elimination of untrained women, even quite apart from the suitability or otherwise of private hospitals. There are, of course, instances where the practitioner has reason to repose the highest confidence in certain unregistered women. From contact with medical men and the public my impression is that unless a certificated midwife can show a high standard of "nursing asepsis and tact" the obstacles to success against unregistered women are greatly increased.

### Ophthalmia Neonatorum.

Of the three cases notified, prophylactic solution was reported to have been used in two. I fear that in some instances the preparation of silver nitrate used may have deteriorated through having been kept too long.

### Influenza (Pneumonic, Septicæmic, and Fulminant).

The 1923 wave which commenced in the South Island appeared in this district in July and August. Thirty-five deaths resulted.

Influenza, principally mild, was very prevalent in all localities. Probably very few homes escaped without illness of respiratory type. In some country districts slight alarm was felt, but events proved this to be ill-founded. Hospital Boards were advised by this office *re* preparations, but fortunately no serious call was made upon them.

### Food Poisoning.

Three cases in one family were reported from Levin. Tinned salmon was suspected. No conclusive evidence was, however, forthcoming. I am of opinion that if the salmon was the cause such was infected after opening. Three cases at Feilding were stated to be due to the consumption of cheese. Bacteriological examination failed to discover organisms capable of producing symptoms. In November eight cases (two families) in Wellington became ill with symptoms of food poisoning. Indications pointed to pressed beef as the offender. Examination of fæces in one case demonstrated Bacillus Aertrycke. Drastic precautions were taken at the factory where the beef was produced.

In December nine persons in the city took ill after a Sunday afternoon repast. Cream was the common article partaken of. Evidence showed that the cream was above reproach prior to entering the house. Unfortunately, no cream was available for bacteriological examination. Exhaustive inquiry led to the conclusion that the cream was infected in the house where consumed. Several of the cases reported during the year were severely ill in bed for three to four days. No deaths resulted.

### Diarrhœa and Enteritis.

Diarrhœa and enteritis (under two years) in Wellington urban areas: The favourable position of Wellington may be noted. This may perhaps be due to some extent to the use of pasteurized milk. I understand that a certain proportion of milk is also pasteurized in Dunedin. In Wellington 66 per cent. is pasteurized. I am informed that Plunket nurses now notice a decreased prevalence of infantile diarrhœa in Wellington City. To the municipal milk-supply some credit is due.

### Hospital Accommodation for Infectious Disease.

With regard to phthisical cases generally, the provisions of more special accommodation at public hospitals is to be recommended. There are many cases of the disease too advanced for sanatorium treatment, and which should be more specially provided for in public hospitals.

Concerning sanatoria, it would appear that in the North Island better provision exists for male cases than for female.

### Wellington City.

*Sanitary Inspectors Staff.*—Since the death of Inspector Watson the City Council Sanitary Department has been to a certain extent disorganized. Inspector Parnell has been appointed Chief Plumbing and Sanitary Inspector. I have had various interviews with Councillors and officials, and communications with regard to increased efficiency. The attention of the Council has been especially drawn to the necessity for improved routine inspection, the supervision of stables, and the enforcement of requirements with regard to garbage-receptacles. As far as possible supervisory measures are being undertaken by officers of this Department. Throughout the year frequent inspections were made by the Medical Officer of Health in company with Inspectors of the Council. The condemnation of several buildings has been authorized. In the course of a year a considerable number of complaints concerning city matters are made to this office. These are invariably closely investigated, referred to the Council, and followed up by our Inspectors. This also gives quite an insight into sanitary matters in the metropolitan area.

*Garbage-disposal.*—The much-vexed question of improved garbage-carts has again been recently discussed. The difficulties in a city of hills like Wellington are enormous. The late Mr. Morton, whilst on a world tour some three years ago, apparently did not see a type of vehicle suitable to Wellington requirements. Some improvements may result as the result of a recent decision by the Council with reference to garbage vehicles. The attention of the Council has been directed to the probability that an improved system of routine inspection would to a great extent diminish the quantity of waste material collected during the annual clean-up days.

### Offensive Trades.

I am glad to state that local bodies are introducing effective by-laws with a view to registration. From personal inspection I can state that the standards are improving. The possible establishment of premises in undesirable localities is now well provided against.

### Sale of Food and Drugs.

In town and country considerable time has been given to this sphere of work. Inspections by the Medical Officer of Health have been made in all parts of the district. Particular attention was given to bakehouses; improvements of buildings, &c., are effected from time to time. In Wellington City certain bakehouses are not entirely satisfactory as regards premises. A list of these has been prepared, and it is hoped to require new buildings as the terms of lease expire. With the advent of electrical power the installation of fans is stressed, particularly in butchers' and cake shops.

### Milk.

As opportunity offered inspections of Wellington near-by farms have been made by the Medical Officer of Health. Inspector Cowdrey has co-operated with the Department of Agriculture. There is need for much improvement. It is noted that an increasing number of prosecutions are being brought forward by the Department of Agriculture with reference to unclean production.

It is to be remembered that about 50 per cent. of the city milk is now delivered in bottles, which it is safe to say comply with our standards. The near-by farmer has reaped a rich harvest and proved a most serious competitor, supplying at least 33 per cent. of the total milk consumed in city

and suburbs. Generally speaking, I cannot state that the high price of milk is having a deleterious effect upon health, but it is probable that certain families may be using other preparations, or certainly consuming a decreased quantity. It is imperative that the price be reduced at the earliest moment.

## SECTION 5.—CANTERBURY-WESTLAND HEALTH DISTRICT.

Dr. T. F. Telford, Medical Officer of Health.

One of the special features regarding the infectious group of diseases was the very marked outbreak occurring in June under the headings "Pneumonic Influenza" and "Acute Primary Pneumonia." This period started with marked incidence in the middle of June, and remained severe until about the end of August, after which it gradually died out. The pneumonic influenza was of a particularly severe type, in which those recovering remained invalided for a considerable period, recovery being very slow.

### Puerperal Sepsis.

I consider it necessary to make a few remarks upon this disease. The cases have decreased 33⅓ per cent. on the previous year. The medical men in this district are in the majority of cases affording me considerable assistance in the control of this disease by notifying me promptly. This being the case, it allows of effectual steps being taken to provide the proper isolation. I find that in some instances undertakers have failed to notify deaths occurring under this heading, but on going into the matter I find that the death-certificate as filled in in some cases gives no indication whatever to the undertaker that the deceased died of a notifiable infectious disease. For instance, to give a single illustration: The medical man may notify a case as puerperal sepsis in the ordinary way, but in filling in the death-certificate the primary cause would be filled in as thrombo-phlebitis (pelvic veins), and the secondary cause as tympanites and asthenia. In order that there may be no confusion in this matter for the future, I think it desirable that the profession as a whole should be instructed to report the death under the condition primarily notified.

### Food Poisoning.

An interesting case under this heading occurred in a family of eight. Unfortunately three of the members died as a result of this outbreak: twin children aged nineteen months, and a boy nine years of age. The infection was definitely established as due to the infection of milk by the bacillus aertrycke. This organism was recovered from the organs of the deceased, and also from the fæces of the remaining patients. The agglutination tests were positive for the bacillus aertrycke. The probable source of the infection was due to the father contaminating his hands and clothing with water which received the drainage from pigsties located near the point from which he drew water. As the father prepared the meal, it would appear to me that some of these organisms dropped from his person or his clothing into the milk, thereby infecting it, these organisms increasing in number during the period of storage. The father subsequently prepared a custard for the family personally, and used some of the milk in the container for use with this custard when the family partook of the meal.

### Private Hospitals.

A general improvement is noticeable in connection with the sanitary arrangements in most of these institutions. In regard to maternity hospitals, in most cases improvements recommended by instructions from the Director-General as to sink-rooms, &c., have been carried out.

## SECTION 6.—OTAGO-SOUTHLAND HEALTH DISTRICT.

Dr. T. McKibbin, Medical Officer of Health.

### Administration.

Health control by the local governing authorities has now been in operation for three years, and it may be said there is steady if slow progress in sanitary inspection and control, the installation of sanitary works, and the prevention of infectious disease.

There are eight Health Inspectors placed throughout the two provinces, each working for a defined group of local authorities averaging seven per Inspector. Their services appear to be appreciated by the local authorities, so far as I can judge; and, making due allowances for distances, reduced means of communication, and the call for economy, the Inspectors are in close and constant communication with their several local authorities to their mutual advantage.

On occasions some of the smaller local authorities and a few County Councils are averse to making advances recommended by the Inspector and the Medical Officer of Health, but in several instances the mild if tedious process of repeated application has eventually effected the desired reform.

Dunedin City and Invercargill Borough maintain steady, even rapid, progress in the installation of sanitary works; and Oamaru Borough in addition to draining South Oamaru, has now prepared loan proposals for a complete sewerage scheme for the whole borough.

### General.

Scarlet fever and typhoid fever show a steady reduction, in common with world-wide experience. The incidence and death-rate of both diphtheria and puerperal fever were exceptionally light. Hydatid

disease is probably not fully notified, but public-hospital records show a reduction in this disease of late years. The death-rate from tuberculosis is apparently steadily reducing, but as regards incidence notification is a varying factor, and the apparent incidence shown from notification cannot be taken as real.

### Influenza Outbreak of June, July, and August, 1923.

The peak of this epidemic was in mid-July. In June the Otago and Southland Hospital Boards were induced to open up special accommodation for pneumonia cases, and medical attendants urged to notify all pneumonia cases and isolate them in hospital. This made Dunedin compare unfavourably with other cities as regards the incidence and death-rate from pneumonic influenza, and many people who ordinarily would have been treated at home for pneumonia or senility plus broncho-pneumonia were included in the list. The epidemic, coupled with an unusually severe winter, killed off many old people. A return of interest, as giving an idea of the true state of affairs, would be one from the Registrars of the four Dominion cities of all deaths from chest-conditions, including influenzal conditions, during May, June, July, August, and September.

*Features of the Epidemic.*—From the return it is noticeable that, as with the 1898 outbreak, and unlike the 1918 one, the highest incidence and death-rate were in the age-groups 30 to 50 years.

During the epidemic inoculation of the contacts of acute influenzal pneumonia cases with mixed influenza vaccine supplied by the Government Bacteriologist was performed in Dunedin and Invercargill. It cannot be said that this was attended with any proved benefits. On the contrary, many inoculated persons later contracted the disease in severe form.

Some of the post-mortems held on very acute cases in young adults showed septic lobular invasion of both lungs, intense inflammation of the whole of both lungs breaking down in patches into pus; and an interesting point was that in some of these cases wherein practically the whole of both lungs was intensely congested the medical attendant was confident prior to death that the base of one lung only was involved. Percussion and the stethescope indicated to him one-sided lobar distribution.

The Government Bacteriologist informs me that bacteriologically the outstanding feature was the presence of the mixed infections of which a hæmolytic staphylococcus aureus was the most constant finding. Several of the fatal cases showed staphylococcal septicæmia before death, apparently in pure culture.

During the period April to August, 1923, also, there were indications of a general exaltation in virulence of the staphylococcal, causing, for example, virulent osteomyelitis and fatal septicæmia following boils, &c. The Pfeiffer bacillus was a very constant finding, always associated with staphylococcus aureus, pneumococcus, streptococcus, and micrococcus catarrhalis in this order of frequency. Pneumococcus plus Pfeiffer was much less common than staphylococcus plus Pfeiffer. Of those which occurred, type 1 was the commonest, but the other types occurred.

In view of recurrences in the future, the disturbing feature is the absence of any vaccine or serum prophylaxis or treatment of proved value, excepting type 1 pneumococcus serum in the few cases in which this bacillus predominates.

### Dunedin City: Infectious-disease Control.

The City Council pays the Department £500 per annum for the services of Inspector Craighead, assisted in disinfections by Inspector Freeman. With very rare exceptions acute infectious cases are promptly removed to hospital, but we have had no big epidemics of diphtheria or scarlet fever for several years. Should this occur the accommodation provided by the Otago Hospital Board would prove inadequate, and is unsatisfactory. Bacteriological swabs of diphtheria contacts are taken as a routine practice, and when two or more cases occur in one class-room of a city or suburban school swabs are taken of the whole class.

### Private Hospitals.

During the year the private hospitals of Otago and Southland have been visited on an average of three times in the towns and twice in the outlying districts, more often if necessary.

Improvements have been made in the equipment of the hospitals more recently established, and alterations made in many others to bring them into accord with the requirements of the Department.

There is a general improvement in the hospitals of the larger towns, where the average number of patients per bed is greater than in the outlying districts. It is in these smaller hospitals that one finds that, owing to financial difficulty, many are unable to install the necessary requirements of the Department.

Private hospitals in the district number forty-one; there were three new licenses issued during the year, and two transfers. Two licensees gave up owing to ill-health, and one owing to finance.

A great number of the midwives in private practice have been visited and their bags inspected, which are all in excellent order. A number of unregistered midwives have been visited, and when necessary warned about taking more than one patient at a time.

The incidence and death-rate of puerperal fever during the year were unusually low. Forty per cent. of puerperal-fever cases occurring during the year in private hospitals and homes were removed to public or surgical hospitals. This percentage is on the increase.

## *PART IX.—GOVERNMENT HOSPITALS AND SANATORIA: EXTRACTS FROM ANNUAL REPORTS OF MEDICAL SUPERINTENDENTS.

### SECTION 1.—QUEEN MARY HOSPITAL, HANMER.

Dr. P. Chisholm, Medical Superintendent; Dr. W. Sowerby; Miss Thurston, C.B.E., Matron.

*Male Patients.*—The number of service patients has steadily decreased, but there has been an equally steady increase in the ordinary paying patients. The majority of the paying patients are of the neurasthenic type, though there are a fair number of so-called "border-line" cases. The results obtained compare favourably with those obtained in similar institutions in England. This Hospital has very material advantages in the swimming-pools and the ample pleasure and playing grounds, which enable us to keep the patients employed in either some light work or in playing games. It is my opinion that institutional regime carefully supervised, exercise, and employment are of far greater curative value than some of the so-called modern treatments recently before the profession. Such modern treatments are no doubt of value, but without question they require backing up by the ordered life, the disciplinary regime of an institution, the encouragement of employment, and enforcement of games and exercise.

The service patients are particularly unsatisfactory to treat. Very little real success is achieved, and it appears impossible to get a service patient to admit any improvement. Physically they often are perfectly well, but continue to complain of various ills. Their psychology is very evident; they are quite aware the moment they state they are better they will cease receiving pension and be thrown on their own resources. This attitude is exactly similar to that found in England amongst pensioner patients of the same type. T. A. Ross, one of the senior members of the Neurological Pension Board in England, recently stated that in the years that he had been employed in treating service neurological patients he did not consider he had achieved any real success at all.

*Women's Section.*—The women's section has not had an empty bed since it was opened in November, 1922. There is a long waiting-list, and the greatest anxiety is experienced in trying to avoid irritating those who vainly demand admission. Treatment on the whole has been very successful. The women are treated under more advantageous conditions than the male patients.

The greatest fault in the male hospital is overcrowding in the wards, and this cannot occur in the women's section. The Women's Hospital has been under the control and administration of Sister Trott, and, as usual in dealing with such patients, the success achieved has depended on the personality of those in control of the patients.

*Bathhouses.*—Baths and swimming-pools have been used to a very large extent, and appear to be more popular with the public than in the past. Painting and repairs have been attended to. The bathhouses, however, are in such a state that it is only possible to carry out repairs to make them fit to carry on with for perhaps another year or two, and their condition does not warrant more than temporary patching. I consider that in the very near future a good bathhouse should be erected in Hanmer. What is required is a useful, serviceable, and plain building.

*Massage Department.*—This department has been hard-worked. A small staff has been employed, consisting of three masseuses and one masseur: some eighty to ninety patients pass through the hands of the department each day, and each masseuse deals with some twenty patients. A fair number of out-patients are dealt with; the staff are mostly employed in dealing with hospital patients.

*Water Services.*—The water services have been the greatest source of anxiety. Heavy floods caused considerable damage at the reservoir, and the river changed its course. Considerable amount of work had to be done, and the Hospital staff for some months spent a great deal of time and labour endeavouring to rectify the damage. Eventually the grant of £200 was applied for and spent under the direction of Mr. Allan, Technical Inspector. Since then the water-supply has been constant and satisfactory, excepting for breaks in the pipe-line. The wooden-stave pipe-line is practically useless, and at present one man is to be employed constantly mending breaks in the main line or in the village reticulation. A new pipe-line has been authorized, and I understand will be put down in the course of a few months. During the past week seventeen breaks in the pipe-line have been repaired in the Hospital grounds and village.

*Tea-kiosk.*—This building has been painted and redecorated. The best that can be said is that the receipts for the year are higher than in the past and the expenses are no greater. There is no doubt that the kiosk serves a useful purpose in respect to the public who visit Hanmer, and I should regret to see it closed at present.

*Garden.*—This has been fairly well cared for by the gardener. There is no doubt that the gardening staff are handicapped by the extremes of weather met with in Hanmer. In spite of the very dry summer the institution has been well supplied with fruit and vegetables. One new grass tennis-court has been laid down for the use of the public, and during the coming autumn and winter I intend, if possible, to lay down one more asphalt court.

*Recreation-room.*—The Red Cross Society has taken over the activities of the Y.M.C.A. in this direction. Without doubt the recreation-rooms run by the Red Cross are of great value and service to the male patients.

*Outside Patients.*—There has been the average amount of outside practice—at times it is heavy and at other times very light.

*Administration.*—Having reviewed the work of the year, I wish to record my appreciation of the work done by the staff who have been under my direction. In a Hospital such as this, with its

*As an appendix to this report full particulars in reference to hospitals administered by Hospital Boards are published as soon as the data is available.

outside interests which bring us in close daily contact with the public, with a staff which is frequently changing, it is hardly possible not at times for some members of the staff to cause dissatisfaction. Further, as this Hospital is a Government institution it is particularly open to attack on the part of certain sections of the public, who at times make demands upon us that they would not dream of doing if the institution were a private one or if we were in private practice.

## SECTION 2.—KING GEORGE V HOSPITAL, ROTORUA.

Dr. W. STANLEY WALLIS, Medical Superintendent; Dr. W. F. LUMSDEN; Dr. J. P. DONALD; Miss E. HODGES, Matron (A.R.R.C.).

*Staff.*—The work of the year has proceeded without any untoward incidents of a far-reaching nature, and I have to express my satisfaction to my officers for their continued loyalty and support.

*Surgical Operations.*—During the year 345 surgical operations have been performed, and a proportion of these have dealt with new fields in surgery, and we feel that during the last twelve months we have attempted to maintain steady progress towards greater proficiency in those types of procedures which have now become standardized throughout the country, and while yet maintaining an open mind towards newer procedures the elaboration of which we have successfully carried out. We have been paying particular attention to the surgery of the spastic palsies, and feel confident that the results achieved have demonstrated that this institution has been a satisfactory testing-ground for the furtherance of this difficult and intricate surgical study.

*Anæsthetics.*—There have been no anæsthetic deaths throughout the year, and in recording my appreciation of Dr. Lumsden's services as an anæsthetist I would thank the controlling officers for the way in which we have been well kept supplied with only the very best quality of anæsthetic supplies.

*Civilian Patients.*—Further and increasing use is being made of the Hospital by ordinary civilian patients, and we are receiving admirable support from the majority of the medical men in the district.

We beg to express our appreciation of the new Willys-Knight ambulance, a model of its kind, and are sure that the action of the Department in this matter will receive due appreciation and commendation from the whole of the district.

I would recommend that a policy be shortly laid down regarding the treatment of patients who are prepared to pay more than the current rates of fees for extra conveniences, and that Lowry Ward No. 2 be subdivided for this purpose.

The time is shortly approaching when the advisability of setting apart a certain number of beds, preferably in a separate block, for maternity cases must be considered, and I would recommend that this matter be gone into during the coming year.

*Service Patients.*—These patients are concentrated in Lowry Ward No. 1, and this ward has provided sufficient beds for their accommodation. During the year the Red Cross Institute has been closed, and a compartment in Lowry Ward No. 1 has been utilized as a recreation-room for the service patients. The Education Department has taken a temporary lease of the Red Cross Hut, and are holding classes therein for the senior standards.

*Physio-therapeutic Department.*—At the beginning of the year our staff at the massage department numbered fifteen. The present staff is eight, including the head masseuse. During the year 41,611 treatments have been given, with a daily average attendance of 108 patients.

*Laboratory and Dispensary.*—The number of prescriptions dispensed throughout the year is 1,027. Our dispensary now undertakes a supply of all dressings and drugs and sundries to the dental clinics and district nurses of the Auckland District.

*Plaster Department.*—1,142 plaster operations have been performed throughout the year, and this department, under the control of the theatre sister, has been run evenly and satisfactorily.

*X-Ray Department.*—The X-ray examinations for the year total 546. The Radiographer during the year has paid several visits to Pukeora Sanatorium, and has given advice both in Tauranga and Whakatane upon matters pertaining to the care and use of their plant and equipment.

*Splintmaker's Shop.*—The number of splints and appliances made during the year is 179, and the number of repairs 223.

*Surgical Bootmaker's Shop.*—The number of surgical boots made during the year is 155, and the number of repairs 365.

*Administration.*—In conclusion, I would record again the help I have received from my responsible officers, the Matron, and the nursing staff, and acknowledge our appreciation of the services rendered during the year by the Red Cross Society, the Rotorua Women's Club, and many other friends who have contributed time, money, or its equivalent, for the welfare of our patients. Finally, I beg to thank the Hon. Minister of Health and yourself for your criticism and help throughout the year, and the courtesy that has at all times been extended to us.

## SECTION 3.—OTAKI SANATORIUM AND HOSPITAL.

Dr. A. H. CURTIS, Medical Superintendent; Miss SEALY, Matron.

*Results of Treatment.*—In submitting an analysis of cases treated at the Sanatorium during 1923 the results may be considered satisfactory. The percentage of cases discharged with the disease arrested—55 per cent.—compares well with previous years. On the other hand the class of case admitted was not so good as last year, and we were handicapped by a large number of borderland cases—those that alternate between hours up and complete rest in bed. It was largely because of

these cases that the "deck" beds became congested, with the result that during the latter part of the year we showed an unusual number of empty beds. This trouble, moreover, was aggravated by an epidemic of influenza that made its appearance in August. Comparing the numbers admitted in the different stages of the disease, the obvious criticism must be made—namely, that the number in stage 2 is far too high. It is repeatedly found that patients in this stage have been on unsuccessful home treatment, and that the Sanatorium has been made the second line of defence instead of the first.

With regard to the Sanatorium itself, the routine and general running of the institution has been on the whole satisfactory. The good work done by the nursing staff has largely contributed to the good results obtained, and the patients have for the most part been contented during their period of treatment. Few complaints have been received with regard to the food, and the difficulties met by the kitchen staff are likely to be largely overcome by the reorganization of the kitchen staff and the addition of a new range.

The farm under the Department of Agriculture has done well during the year, and the supply of mutton and milk has been ample and of good quality. Additions to the fowl-run have enabled us to increase the stock of poultry, with the result that there has been a good supply of eggs and poultry for the table.

*Otaki Hospital.*—It speaks well for the results obtained that out of 173 cases treated 118 were discharged recovered, while a death-rate of 3·65 per cent. is a low one.

## SECTION 4.—PUKEORA SANATORIUM, WAIPUKURAU.

Dr. Hugh Short, Medical Superintendent; Dr. W. Fulton, Assistant Medical Superintendent; Miss I. Whyte, (R.R.C.) (Medaille de la Reine), Matron.

*General.*—Throughout the year it may be stated that the morale of the patients, which was referred to in my last report, has continued very definitely to improve. As years go by it may be expected that all patients, both service and civilian, will realize that the discipline and routine of a sanatorium of this character has only one object in view—viz., the improvement in health of those undergoing treatment—and consequently any animus which certain service patients may entertain towards any kind of discipline will gradually disappear. In fact, it may be stated now that the restrictions appertaining to military service and experience by such a large percentage of the patients have now no bearing whatever upon sanatorium routine.

It is gratifying to be able to report that on the whole there has been a distinct improvement in the character of the cases admitted during the period. It is true that occasionally a case arrives where no hope of recovery or prospect of improvement can be given, but the number of such cases has relatively diminished noticeably during the year.

*Treatment.*—Throughout the year all cot cases have been seen daily, as hitherto, and likewise the patients on exercise have been paraded prior to the exercise.

In addition to the existing advantages of an up-to-date sanatorium for the treatment of the tuberculous, two new methods of treatment have been tried at this institution.

In a few cases colloidal calcium has been exhibited, with, unfortunately, no definite evidence of success. The stated efficacy of this drug in hemorrhagic cases has not been confirmed at this institution.

A very fair trial of Dreyer's vaccine was also given. In all some forty cases were commenced upon this treatment, but of these some six or seven were taken off the treatment for various reasons before progressing to any material extent in the treatment. Speaking generally, in regard to the remaining patients it may be stated that no notable improvement has been observed in individuals. In regard to the pyrexial cases, of whom at least fifteen cases have been tried out, no improvement was noted at all. As regards the apyrexial cases, four patients have done very well indeed. Active signs have entirely disappeared, and tolerance to exercise has been increased considerably. All four cases showed very definite signs of tubercular infiltration, and the sputa were positive in each instance. I do not, however, consider that the efficacy of the preparation is established very firmly by the progress made by these four patients, as with the ordinary sanatorium methods alone one must expect to find a percentage of moderately affected cases to improve without any outside assistance.

One further note may be made regarding this preparation. It has been stated that in regard to its administration elsewhere complications have been frequent. I have not found that complications were an outstanding feature in the administration at this institution. A few have shown a minor degree of hæmoptysis; one case contracted broncho-pneumonia, and has since done well; and one case, shortly after the administration of minute doses, died following a profuse hæmorrage. In regard to the last-mentioned case, I do not consider that the vaccine had any effect whatever upon the progress of the case, as other pathological changes sufficiently account for the termination of the life of this patient.

Throughout the year it has been considered unnecessary to apply for a visit from the Dental Officer, as the policy of the Department in enforcing that all dental work is to be completed before the admission of patients has been successful in relieving the position so far as affects civilian patients. No difficulty has been experienced in the matter of dental treatment as regards the service patients, as it has always been possible for such patients to secure dental work locally wherever the need has arisen.

*X-Ray Department.*—During the year the X-ray department has been at the disposal of the staff and patients during the visits of the X-ray Assistant, kindly loaned by the Medical Superintendent, King George V Hospital, Rotorua. This assistant has paid two visits during the year, one in October and one in December, the total number of plates taken being sixty-one.

*Vocational Training.*—The vocational workshops have again been satisfactorily attended by patients, the details of the work done in this section being appended hereunder:—

| | Average Number attending per Month. | Total Average Hours per Month. |
|---|---|---|
| Carpentry .. .. .. .. .. | 8 | 343 |
| Leatherwork .. .. .. .. .. | 13 | 287 |
| Basketwork .. .. .. .. .. | 5 | 90 |
| Raffiawork .. .. .. .. .. | 6 | 173 |
| Bed patients—Knitting, &c. .. .. .. | 10 | .. |

The change in the policy regarding the disposal of the article made in the workshops, as suggested in my annual report of last year, was carried out without any comment of moment.

During the year a tennis-court has been constructed, and is now ready for use for the male and female staffs of the institution.

*Farm.*—The immediate control of the Pukeora Farm was, on the 12th October, 1923, vested in the Medical Superintendent. I am of the opinion that this change in policy has resulted in a smoother working of the institution and farm.

SECTION 5.—STATISTICS OF PATIENTS FOR THE YEARS 1922, 1923, 1924.

| — | King George V. Hospital. | | | Queen Mary Hospital. | | | Otaki Hospital. | | | Otaki Sanatorium. | | | Pukeora Sanatorium. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1922. | 1923. | 1924. | 1922. | 1923. | 1924. | 1922. | 1923. | 1924. | 1922. | 1923. | 1924. | 1922. | 1923. | 1924. |
| Number of patients in hospital at commencement of year | 234 | 180 | 150 | 80 | 82 | 102 | 8 | 9 | 4 | 36 | 36 | 40 | 137 | 144 | 119 |
| Number of patients admitted during year | 633 | 598 | 524 | 390 | 379 | 463 | 138 | 169 | 169 | 71 | 76 | 80 | 276 | 273 | 264 |
| Total admitted .. | 867 | 778 | 674 | 470 | 461 | 565 | 146 | 178 | 173 | 107 | 112 | 120 | 413 | 417 | 383 |
| Patients discharged cured .. | 251 | 177 | 225 | 102 | 136 | 152 | .. | 124 | 118 | .. | .. | 45 | 7 | 9 | 15 |
| Patients discharged relieved .. | 273 | 349 | 301 | 218 | 202 | 269 | 103 | 23 | 22 | 50 | 57 | 27 | 215 | 30 | 18 |
| Patients discharged unrelieved .. | 116 | 73 | 34 | 67 | 14 | 14 | 20 | 16 | 18 | 17 | 15 | 8 | 48 | 240 | 324 |
| Patients who died .. .. | 17 | 29 | 21 | 1 | .. | 3 | 14 | 11 | 6 | 2 | .. | 2 | 13 | 19 | 20 |
| Patients transferred to other hospitals | .. | .. | .. | .. | 7 | 22 | .. | .. | .. | .. | .. | 7* | .. | .. | .. |
| Patients remaining in hospital at end of year | 210 | 150 | .. | 82 | 102 | .. | 9 | 4 | 9 | 38 | 40 | 31 | 130 | 119 | 96 |
| Total patients treated .. | 867 | 778 | 674 | 470 | 461 | 565 | 146 | 178 | 173 | 107 | 112 | 120 | 413 | 417 | 383 |
| Average daily number of patients treated | 189 | 196 | 122 | 78 | 90 | 95 | 9·3 | 7·5 | .. | .. | .. | .. | 135 | 139 | 120 |
| Average mean residence (*d*=days; *m*=months) | 95*d.* | 73*d.* | 104*d.* | 71*d.* | 54*d.* | 61*d.* | 24*d.* | 15·3*d.* | .. | 6*m.* | 6½*m.* | 147*d* | 120·2*d.* | 118·4*d.* | 117·75*d.* |
| Total number of deaths within 24 hours of admission | 2 | 4 | 4 | Nil | Nil | Nil | 3 | 3 | 2 | Nil | Nil | Nil | Nil | Nil | Nil |
| Rate of mortality per cent. over total cases under treatment | 1·73 | 3·21 | 2·52 | 0·21 | .. | .. | 7·5 | 6·1 | 1·2 | 1·8 | .. | 6·09 | 3·14 | 0·04 | 0·19 |
| Total number of operations performed | 279 | 369 | 345 | Nil | Nil | Nil | 23 | 28 | 4 | Nil | .. | .. | Nil | Nil | Nil |
| Rate of mortality per cent. of operations | Nil | Nil | Nil | Nil | Nil | Nil | 4·25 | 3·5 | 3·65 | Nil | .. | .. | Nil | Nil | Nil |

* Readmissions after temporary discharge.

*Approximate Cost of Paper.*—Preparation, not given; printing (1,475 copies, including graphs), £92.

By Authority: W. A. G. Skinner, Government Printer, Wellington.—1924.

*Price 1s. 3d.*