1924.

NEW ZEALAND.

KELVIN HOSPITAL COMMISSION

(REPORT OF THE).

Presented to both Houses of the General Assembly by Command of His Excellency.

COMMISSION TO INQUIRE INTO AND REPORT UPON THE PREVENTION AND TREATMENT OF PUERPERAL SEPTICÆMIA AND LIKE DISEASES, IN PARTICULAR RELATION TO THE ILLNESS OF PATIENTS AT THE KELVIN MATERNITY HOSPITAL, AUCKLAND.

JELLICOE, Governor-General.

To all to whom these presents shall come, and to FREDERICK EARL, Esquire, K.C., O.B.E., of Auckland, Barrister; Sir DONALD JOHNSTONE MCGAVIN, C.M.G., D.S.O., M.D., F.R.C.S., Director-General of Medical Services; JAMES SANDS ELLIOTT, M.D., Wellington, Medical Practitioner; and Lady JACOBINA LUKE, C.B.E., 15 Burnell Avenue, Wellington, Married Woman: Greeting.

WHEREAS it is expedient that inquiry should be made into the conditions under which the disease of puerperal septicæmia, or like diseases, arise or is spread, and particularly into the occurrence of maternal deaths at the Kelvin Maternity Hospital, Auckland, during the year one thousand nine hundred and twenty-three, for the purpose of ascertaining the cause or causes of such deaths or illnesses; the circumstances thereof; whether there was any, and, if so, what, connection in their causes or origins; whether all necessary and desirable measures were taken to prevent their occurrence; and what steps, if any, are necessary or desirable to guard against, deal with, or prevent the recurrence of similar illnesses, or deaths, under like circumstances:

Now, therefore, I, John Rushworth, Viscount Jellicoe, Governor-General of the Dominion of New Zealand, in exercise of the powers conferred by the Health Act, 1920, the Commissions of Inquiry Act, 1908, and all other powers and authorities whatsoever enabling me in this behalf, and acting by and with the advice and consent of the Executive Council of the said Dominion, do hereby constitute and appoint you the said

FREDERICK EARL,
DONALD JOHNSTONE MCGAVIN,
JAMES SANDS ELLIOTT, and
JACOBINA LUKE

to be a Commission to investigate and report all such matters, and particularly—

(1.) The circumstances surrounding the illness of—

(*a.*) Mrs. Heather Hill Barker, who died at Kelvin Maternity Hospital on or about the twenty-second day of July, one thousand nine hundred and twenty-three, and whose cause of death was certified—childbirth two days, uræmia eight hours.

(*b.*) Mrs. Hazel Montgomery Morison, who died at Kelvin Maternity Hospital on or about the thirteenth day of September, one thousand nine hundred and twenty-three, and whose cause of death was certified as anæmia, thrombosis-veins, coronary embolism, heart-failure.

(*c.*) Mrs. Doris Elsie Jones, who died at the Auckland Hospital on or about the twenty-fifth September, one thousand nine hundred and twenty-three, and whose cause of death was certified as septic puerperal uterus.

(*d.*) Evelyn Maude Dacre, who died at Mater Misericordia Hospital on or about the tenth October, one thousand nine hundred and twenty-three, and whose cause of death was certified as septicæmia.

(*e.*) Mrs. Emma Caroline Ada Delamore, who died in the Kelvin Maternity Hospital on the nineteenth November, one thousand nine hundred and twenty-three, and whose cause of death was certified as puerperal fever ten days, pneumonia three days, heart-failure.

(*f.*) Mrs. Muir, who developed a disease diagnosed as septicæmia while under treatment in the Kelvin Maternity Hospital on or about the ninth November, one thousand nine hundred and twenty-three, and who subsequently recovered.

(2.) Whether any other persons who were patients in the Kelvin Maternity Hospital during the year one thousand nine hundred and twenty-three died or became ill during or following confinement, and, if so, what were the causes of such deaths or illnesses.

(3.) Whether the steps taken in regard to the diagnosis and treatment of these cases at the hands of the medical practitioners and nurses in charge at the Kelvin Maternity Hospital were proper and sufficient.

(4.) Whether adequate precautions were taken by the medical practitioners and nurses in charge of such cases at the Kelvin Maternity Hospital, and by officers of the Department of Health, to prevent infection in each of such cases and to limit its spread to other cases.

(5.) Whether any further precautionary measures, whether usual or not, were desirable in such or will be desirable in similar cases in future.

(6.) Generally to investigate and report upon all matters concerning these cases with a view to the future safeguarding of the public health, particularly in the treatment of maternity cases; and to make such recommendations as to additions or amendments to the existing legislation, statutory regulations, or departmental instructions affecting licensed maternity hospitals, and generally the prevention of puerperal septicæmia or like diseases, as may seem desirable to the Commission as a result of this investigation.

And, with the like advice and consent, I do further appoint you, the said

FREDERICK EARL,

to be Chairman of the said Commission.

And, for the better enabling you, the said Commission, to carry these presents into effect, you are hereby authorized and empowered to make and conduct any inquiry under these presents, at such times and places in the said Dominion as you deem expedient; with power to adjourn from time to time and place to place as you think fit, and to call before you and to examine on oath, or otherwise as may be allowed by law, such person or persons as you think capable of affording you information on the subjects of this Commission; and you are also hereby empowered to call for and examine all such books, papers, plans, documents, or records as you deem likely to afford you any information on the subject-matter of the inquiry hereby directed to be made, and to inquire of and concerning the premises by all lawful means whatsoever.

And, using all diligence, you are required to report to me the result of your inquiry, with any recommendations you think fit to make in respect of the matters and things inquired into by you, under and by virtue of these presents, under your hands and seals, not later than the thirty-first day of March, one thousand nine hundred and twenty-four, and your opinion as to the aforesaid matters.

And it is hereby declared that these presents shall continue in full force and virtue although the inquiry is not regularly continued from time to time or from place to place by adjournment.

And, lastly, it is hereby declared that these presents are issued under and subject to the provisions of the Commissions of Inquiry Act, 1908, and the Health Act, 1920.

Given under the hand of His Excellency the Governor-General of the Dominion of New Zealand, and issued under the Seal of that Dominion, this 12th day of February, 1924.

M. POMARE, Minister of Health.

Approved in Council.

F. D. THOMSON,
Clerk of the Executive Council.

EXTENDING PERIOD WITHIN WHICH THE COMMISSION CONSTITUTED TO INQUIRE INTO AND REPORTU PON THE PREVENTION AND TREATMENT OF PUERPERAL SEPTICÆMIA AND LIKE DISEASES, IN PARTICULAR RELATION TO THE ILLNESS OF PATIENTS AT THE KELVIN MATERNITY HOSPITAL, AUCKLAND, SHALL REPORT.

JELLICOE, Governor-General.

To all to whom these presents shall come, and to FREDERICK EARL, Esquire, K.C., O.B.E., of Auckland, Barrister; Sir DONALD JOHNSTONE MCGAVIN, C.M.G., D.S.O., M.D., F.R.C.S., Director-General of Medical Services; JAMES SANDS ELLIOTT, M.D., Wellington, Medical Practitioner; and Lady JACOBINA LUKE, C.B.E., 46 Hiropi Street, Wellington, Married Woman: Greeting.

WHEREAS by Warrant dated the twelfth day of February, one thousand nine hundred and twenty-four, you, the said Frederick Earl, Donald Johnstone McGavin, James Sands Elliott, and Jacobina Luke, were appointed to be a Commission under the Commissions of Inquiry Act, 1908, for the purposes set out in the said Warrant:

And whereas by the said Warrant you were required to report to me, under your hands and seals, not later than the thirty-first day of March, one thousand nine hundred and twenty-four, the result of your inquiry, with any recommendations you think fit to make in respect of the matters and things inquired into by you, and your opinion as to the aforesaid matters:

And whereas it is expedient that the time in which you are required to report to me should be extended:

Now, therefore, I, John Rushworth, Viscount Jellicoe, Governor-General of the Dominion of New Zealand, in exercise of the powers conferred by the Commissions of Inquiry Act, 1908, and of all other powers and authorities enabling me in this behalf, and acting by and with the advice and consent of the Executive Council of the said Dominion, do hereby extend the period within which you shall report to me as by the said Commission provided to the thirtieth day of April, one thousand nine hundred and twenty-four.

And, in further pursuance of the powers vested in me by the said Act, and with the like advice and consent, I do hereby confirm the said Commission except as altered by these presents.

Given under the hand of His Excellency the Governor-General of the Dominion of New Zealand, and issued under the Seal of that Dominion, at the Government Buildings at Wellington, this 28th day of March, 1924.

M. POMARE, Minister of Health.

Approved in Council.

F. D. THOMSON,
Clerk of the Executive Council.

REPORT.

To His Excellency the Right Honourable John Rushworth, Viscount Jellicoe, Admiral of the Fleet, Governor-General and Commander-in-Chief in and over His Majesty's Dominion of New Zealand and its Dependencies.

MAY IT PLEASE YOUR EXCELLENCY,—

We, Frederick Earl, Donald Johnstone McGavin, James Sands Elliott, and Jacobina Luke, the Commissioners appointed by Your Excellency on the 12th November, 1923, to be a Commission under the Commissions of Inquiry Act, 1908, to investigate and report upon the conditions under which the disease of puerperal septicæmia or like diseases arise or are spread, and particularly into the occurrence of maternal deaths at the Kelvin Maternity Hospital, Auckland, during the year 1923, for the purpose of ascertaining the cause or causes of such deaths or illnesses; the circumstances thereof; whether there was any, and, if so, what, connection in their causes or origins; whether all necessary and desirable measures were taken to prevent their occurrence; and what steps, if any, are necessary or desirable to guard against, deal with, or prevent the recurrence of similar illnesses or deaths under like circumstances; and particularly to investigate and report upon the following matters—viz., the circumstances surrounding the illnesses of (*a*) Mrs. Heather Hill Barker, (*b*) Mrs. Hazel Montgomery Morison, (*c*) Mrs. Doris Elsie Jones, (*d*) Mrs. Evelyn Maude Dacre, (*e*) Mrs. Emma Caroline Ada Delamore, (*f*) Mrs. Muir, and certain other matters specifically set out in paragraphs numbered 2, 3, 4, 5, and 6 of the order of reference of the 12th February, 1924, have the honour to report as follows:—

We have made a full and exhaustive investigation of all those the several matters committed to us for that purpose by Your Excellency as aforesaid, and in the course of our investigation we have taken the evidence upon oath of several officers of the Department of Health, of all the medical practitioners who were in anywise concerned in the several specific cases inquired into, and of the Matron of the said Kelvin Maternity Hospital, and of all other persons ascertained or believed to be able to afford information affecting the said specific cases, or other cases demanding inquiry occurring in the same hospital in the year 1923, and we have inquired into and examined the legislation, statutory regulations, and departmental instructions affecting licensed maternity hospitals and other matters pertaining to the subject of investigation.

1. (*a*.) The circumstances surrounding the illness of Mrs. Heather Hill Barker.

The patient was admitted to the hospital on the 17th July, 1923, at about 9 p.m. She was confined on the morning of the 19th July, early. The other cases in the hospital were normal. The medical practitioner in charge of the case was Dr. Sydney Charles Allen, of Remuera, Auckland. Her illness developed on the 21st, and she became unconscious at 3 a.m. on the 22nd, and died at 2 p.m. the same day.

This was not a case of puerperal septicæmia or any like disease. It was clearly one of those cases grouped as "toxæmias of pregnancy"—possibly uræmic. No fault can be found with the medical attention or the nursing of this case. Mrs. Barker could not have been a source of infection to other patients.

(*b*.) The circumstances surrounding the illness of Mrs. Hazel Montgomery Morison.

The patient was admitted to the hospital on the 23rd August. She was confined on the following day. The medical practitioner in charge of the case was Dr. Ernest Williams, of Remuera, Auckland.

This, in the opinion of the Commission, was a case of primary local septic infection, and death resulted from embolism, causing heart-failure. In all probability this embolism arose from septic thrombosis of the pelvic veins. No bacteriological examination was made, so that it is impossible to determine the

exact nature of the infecting organism, or to trace the relationship of this case to others, with any degree of accuracy; but in this connection Mrs. Dacre's case, described in paragraph (*d*) below, must be seriously considered. Septic thrombosis of the pelvic veins is a form of puerperal fever (supræmia), and, although not usually regarded by medical practitioners as notifiable, is expressly included in the First Schedule to the Health Act, 1920, as a notifiable infectious disease.

(*c.*) **The circumstances surrounding the illness of Mrs. Doris Elsie Jones.**

The patient was admitted to the hospital on the 14th September, and was confined on the same day. The medical practitioner in charge of the case was Dr. William Norman Abbott, of Epsom, Auckland.

There was a previous history of influenza in this case, and the diagnosis throughout was pneumonia. On the 21st September the patient was removed to the General Hospital, and the case notified to the District Health Office as pneumonia. She was treated at the General Hospital for pneumonia. On the 25th September death took place. A *post-mortem* examination revealed a septic uterus, and septicæmia was returned as the cause of death. The whole history of the case and the *post-mortem* report irresistibly point to this being a case of puerperal fever (septicæmia) of the common type. It has been found impossible to ascertain definitely the exact source of infection in this case, but it is noteworthy that concurrently with Mrs. Jones's illness there were several other patients in Kelvin Hospital showing abnormal temperatures.

(*d.*) **The circumstances surrounding the illness of Mrs. Evelyn Maude Dacre.**

The patient was admitted to Kelvin Hospital on the 19th September, 1923, and was confined on the same day. The medical practitioner in charge of the case was Dr. Ernest Williams.

Progress after confinement was fairly satisfactory, but when ready and expecting to leave hospital on the 3rd October she showed high temperature and was ill. The consultant who was called in on the 5th strongly suspected staphylococcal septicæmia. Blood test was made, and the result, which reached Dr. Williams on the 6th, confirming the suspicion of the consultant, the patient was removed to the Mater Misericordia Hospital, where she died on the 10th October, the cause being certified as puerperal septicæmia.

The organism (staphylococcus) found in this case was different from the organism (streptococcus) in Mrs. Jones's case, which conclusively proves that Mrs. Dacre was not infected from Mrs. Jones; but in view of the fact that Mrs. Dacre was confined in the same room Mrs. Morison had occupied, and in which she had died about six days previously, the possibility that Mrs. Dacre may have been infected from Mrs. Morison cannot be altogether excluded.

(*e.*) **The circumstances surrounding the illness of Mrs. Emma Caroline Ada Delamore.**

This patient was admitted to the hospital on the 4th November, and was confined on that day.

Dr. Ernest Williams had been engaged several months previously to attend her confinement, and had seen her more than once. He, however, left the Dominion before she entered the hospital, after he had made arrangements with Dr. W. M. McCormick, of Remuera, an experienced obstetrician of many years' standing, to take over his cases, including this one. No communication as to the change in her medical attendant was communicated to the patient or her mother, Mrs. Rhodes, and both were surprised to find Dr. McCormick in charge of the case after the confinement had taken place.

On the 6th November the patient became ill, with sudden rise of temperature, and this condition continued. Dr. Bull was called in consultation on the 8th. Dr. Tracy Inglis was called in consultation on the 9th, and diagnosed puerperal septicæmia. From this date special trained nurses were procured, and the Matron and the Kelvin staff relinquished direct charge of the case. Bacteriological examination subsequently revealed streptococcus hæmalyticus, an organism of the type found in Mrs. Jones's case. Mrs. Delamore died on the 19th November of puerperal fever (septicæmia).

(*f.*) **The circumstances surrounding the illness of Mrs. Muir.**

The patient was admitted to Kelvin Hospital on the 29th October, 1923, and was confined on the day following. The medical practitioner in charge of the case was Dr. J. B. MacDiarmid.

She was perfectly well until the 8th November, when her condition became unsatisfactory. On the 9th septicæmia was suspected and treatment commenced, and a swab was procured for bacteriological examination, the result of which came to hand on the morning of the 12th, and revealed streptococcal infection. This patient made a good recovery.

This was undoubtedly a case of puerperal fever (sapræmia). The infecting organism being identical with that in Mrs. Delamore's case, and both patients having been attended for a few days by the same nurse, there is reasonable probability of a connection between these two cases.

2. Whether any other persons who were patients in the Kelvin Maternity Hospital during the year 1923 died or became ill during or following confinement, and what were the causes of such deaths or illnesses.

According to statistics supplied by the Medical Officer of Health, from the 1st September, 1922, to the 5th November, 1923, 231 maternity patients and fifteen minor gynecological and other cases were admitted to the hospital. The only deaths were those referred to above in detail. There were twelve abnormal confinements.

During the latter part of the year 1923 a considerable number of patients developed a rise of temperature, indicating illness in the puerperal period. All of these temperatures with one exception (Mrs. Carter) seemingly arose from common complications of the puerperium, such as inflammation of the breasts, pyelitis, and other septic conditions. The case of Mrs. Carter is somewhat perplexing. The medical attendant was Dr. W. M. McCormick. There was a history of influenza prior to confinement. She was confined on the 23rd October, 1923, and her illness, accompanied by high temperature, was diagnosed and treated as pneumonia up to the 3rd November, when puerperal fever was suspected by a consultant, who advised a special nurse and gave appropriate treatment. In the light of concurrent events it is not unlikely that this was in fact a case of puerperal fever, but it is only fair to state that on the day following the consultation other signs were noted which strongly indicated pyelitis as the cause of the temperature, which steadily declined, and the patient recovered.

3. Whether the steps taken in regard to the diagnosis and treatment of these cases at the hands of the medical practitioners and nurses in charge were proper and sufficient.

DIAGNOSIS AND MEDICAL TREATMENT.

The case of Mrs. Barker calls for no comment.

In the case of Mrs. Morison, the Commission, while holding that a diagnosis of puerperal fever might reasonably have been made, considers that, in view of the difficult position the symptoms presented, the view taken by the medical attendant of the case was not unreasonable. Apart from the question of diagnosis, the medical attention in this case was skilful and assiduous.

In the case of Mrs. Jones the diagnosis of pneumonia, although there were some grounds for it, was insufficient and inaccurate. Puerperal fever should have been suspected almost from the inception of the illness.

In the case of Mrs. Dacre the delay in the diagnosis of puerperal fever was but slight, and no fault can be found with the treatment given and the action taken when the diagnosis was settled.

In the case of Mrs. Delamore there was a reluctance, which is typical but none the less to be deprecated, to suspect puerperal fever, and as a natural consequence regrettable delay in diagnosing the illness as due to that cause. Even the first consultant seemingly shared in this reluctance. Apart from the delay in diagnosis the patient was skilfully and assiduously treated by the medical practitioner in charge of the case, and by the consultants.

In the case of Mrs. Muir suspicion of puerperal fever was commendably prompt, and action equally so.

In the case of Mrs. Carter no serious criticism of the medical practitioner is called for, except that here again the reluctance to suspect puerperal fever is exemplified. The patient was treated by the medical practitioner in charge of the case skilfully and assiduously.

Bacteriological Examination.

In the case of Mrs. Morison no bacteriological examination was made.

In the case of Mrs. Jones no bacteriological examination was made until after her death.

In the case of Mrs. Dacre the bacteriological examination might reasonably have been made two days earlier.

In the case of Mrs. Delamore the bacteriological examination might and should have been made several days earlier.

In the case of Mrs. Carter no bacteriological examination was made.

In the case of Mrs. Muir bacteriological examination was promptly made.

It is universally admitted that bacteriological examination is a valuable aid to early and accurate diagnosis, the obvious advantage of which, especially in puerperal-fever cases, is that appropriate treatment may be commenced in the early stages of the disease, when the probability of its being effective is greatest.

The Nursing and Attention.

As to whether the nursing was proper and sufficient, the Commission is of opinion that, having regard to the limitation of facilities common to practically all private maternity hospitals, it was so in every case. Minor complaints were made as to the quality of the attention to certain of the patients at the hands of the Matron and her staff, but the evidence before the Commission did not substantiate these complaints. Counsel for Mrs. Rhodes, who was at first understood to be dissatisfied with the conduct of the Matron and the nurses, and generally in regard to the treatment of her daughter, Mrs. Delamore, at the close of the inquiry explained that the complaints of his client were not of inattention to the patient; and Mrs. Rhodes herself volunteered the following statement: "May I say, gentlemen, that never at any time have I said there was actual neglect in the case of my daughter. I never have said it or wished to say it. There were many things I did not like, but I have never wished to say there was any actual neglect."

4. Whether adequate precautions were taken by the medical practitioners and nurses in charge of these cases, and by officers of the Department of Health, to prevent infection in each of these cases and to limit its spread to other cases.

The statutory duties and obligations of medical practitioners, proprietors of private hospitals, and officers of the Department of Health with regard to such precautions are set forth in—

(1.) *The Health Act, 1920.*—Under this Act puerperal fever (puerperal septicæmia, puerperal sapræmia) is a notifiable infectious disease. By virtue of section 79, "Every medical practitioner who becomes aware that any person professionally attended by him is suffering from a notifiable disease, or from any sickness the symptoms of which create a reasonable suspicion that it is a notifiable disease, shall in case of a notifiable infectious disease forthwith inform the occupant of the premises, and any person nursing or in immediate attendance on the patient, of the infectious nature of the disease and the precautions to be taken, and forthwith shall furnish written notices in the prescribed form to the local authority of the district and to the Medical Officer of Health"; and "Every medical practitioner who by *post-mortem* examination or otherwise becomes aware that any deceased person was affected with a notifiable disease shall forthwith furnish notice in the prescribed form to the Medical Officer of Health."

Section 82 gives power to the Medical Officer of Health to enter any premises wherein he believes there is or recently has been any person suffering from a notifiable infectious disease and to medically examine such person.

Section 87 gives power to the local authority to disinfect premises in case of infectious disease, and to authorize any Inspector to carry out such disinfection.

Section 132 gives power to make regulations for (*inter alia*) the isolation, disinfection, and treatment of persons suffering from any infectious disease, for the isolation or medical observation and surveillance of persons suspected to be suffering from any infectious disease, of persons in attendance on such persons, and of persons who have been exposed to infection, for the prevention of the spread of infectious disease by contacts or carriers, and generally for the purpose of carrying into effect the provisions of the section, and for the conservation and promotion of the public health.

(2.) *Regulations under the Health Act, 1920, as to Infectious and Notifiable Diseases.*—Such of these regulations as are applicable to this branch of the inquiry provide (*inter alia*) that the form of notification required by section 79 shall be that in the schedule, and that—

Every Inspector charged with the investigation and control of cases of infectious disease—

(*a.*) Shall forthwith on becoming aware in any way of a case or suspected case of notifiable infectious disease visit the infected premises and inquire into the causes and circumstances of the case, and take such steps as are necessary or desirable for preventing the spread of infection and for removing conditions favourable to infection.

(*b.*) Shall forthwith report to the Medical Officer of Health, in such form as the Director-General of Health may require, the results of the investigation of every case or suspected case of notifiable infectious disease.

(*d.*) Shall attend to the removal to hospital of any person suffering from any notifiable infectious disease if and when such is required.

(*e.*) Shall, if such person is not removed to hospital, from time to time visit the premises and see that the necessary precautions for the prevention of the spread of infection are carried out.

(*g.*) Shall, upon termination of the case by recovery, removal to hospital, or death, disinfect any premises in which any notifiable infectious disease has occurred; and also disinfect any bedding, clothing, or other things which have been exposed to infection from any notifiable infectious disease.

(*h.*) Shall carry out all disinfecting-work in accordance with instructions to be from time to time issued by the Medical Officer of Health.

(*j.*) Shall duly notify the Medical Officer of Health when disinfection has been carried out.

(*k.*) Shall enter from day to day, in a book provided by the Department, such particulars regarding cases of infectious disease as may be required.

(*l.*) Shall, at all reasonable hours, when applied to by the Medical Officer of Health, produce to him his books, or any of them, and render to him such information as he may be able to furnish with regard to his duties under these regulations.

(*m.*) Generally shall, in all circumstances, be guided by and carry out the instructions of the Medical Officer of Health with respect to any measures which can be lawfully taken by an Inspector for preventing the outbreak or checking the spread of any infectious disease.

It has been explained by Dr. M. H. Watt, Director of Hygiene in the Department of Health, that the usual procedure under the foregoing regulations is that the Inspector of the local authority, upon receipt of notification, visits the premises concerned, investigates the circumstances of the case, and carries out the several duties imposed upon him. In certain areas (of which the City of Auckland is one) the local authority, instead of appointing its own Inspector, contributes to the salary and expenses of a departmental Inspector, the latter officer in such cases having all the powers and performing all the functions and duties of the local-body officer.

Dr. Watt further reports the departmental practice to be as follows:—

The Medical Officer of Health receives all notices and reports in regard to cases of notifiable infectious disease, and it is his duty to take all steps in his power to prevent, limit, and suppress the disease.

Where cases of puerperal sepsis are notified, the Medical Officers of Health make special investigation into the origin of the disease, either personally or by deputy (Nurse Inspector).

Where cases of puerperal sepsis are notified from maternity hospitals, special inquiry is made into the technique, facilities for carrying out disinfection and the practice in this respect, sufficiency or otherwise of staff, and accommodation, &c.

No specific regulations have been issued or specific instructions laid down by the Department with regard to the circumstances under which closure of maternity hospitals shall be enforced on account of sepsis, or the length of such closure. It is obvious this must depend upon the needs of the special case. The departmental view is that where only a single case has been reported from a maternity hospital, and other cases in the institution are normal, closure is not indicated provided the case is immediately isolated, the room, bedding, and equipment disinfected, and the nurse attendants abstain from duty for a period to enable adequate personal disinfection and elimination of any focus of infection in hands, throat, nose, &c.

(3.) *The Hospitals and Charitable Institutions Act, 1909, Part III, under the heading "Private Hospitals," and the Hospitals and Charitable Institutions Amendment Act, 1923, which came into force on the 1st April, 1924.*

(4.) *Regulations made under the Private Hospitals Act, 1906, published in* New Zealand Gazette, *1907, p. 1660.*—These regulations, although made under an Act now repealed, are still in force, as the regulations applicable to Part III of the Hospitals and Charitable Institutions Act, 1909. Such of them as are material for the purposes of this branch of the inquiry are as follows:—

PRIVATE HOSPITALS.

7. (1.) In every private hospital there shall be kept, in the prescribed form, a Register of Patients, in which shall from time to time be entered—

(*a.*) The name, age, and usual place of abode of every patient admitted, and the date of admission:

(*b.*) The nature of the ailment or disease, and the nature of any operation which has been performed:

(*c.*) The name of the medical practitioner (if any) in attendance:

(*d.*) The date when the patient left the hospital, or, in the event of death, the date thereof:

(*e.*) Such other particulars as may be prescribed.

(2.) The manager shall enter such particulars in the register at least once in every week in the manner and form prescribed, and no one shall be allowed to inspect such register but the person or persons authorized so to do under the Hospitals and Charitable Institutions Act, 1885.

(3.) Every person required by regulations to make any such entry who knowingly suppresses any material fact, or enters any particulars that are untrue, is liable to a fine not exceeding £100.

8. Every private hospital, and every part thereof, together with the Register of Patients hereinbefore mentioned, shall at all times be open to inspection in the same manner and by the same persons as in the case of institutions under the Hospitals and Charitable Institutions Act, 1885. Such persons shall have the power to make inquiries, visit, and thoroughly inspect any house suspected or reported to take in cases for gain.

9. (1.) A private hospital shall not during the currency of its license be used for any other purpose than that for which it is licensed.

(2.) No part of a licensed hospital in which patients are suffering from an infectious disease shall be used for the reception of patients during or immediately after confinement.

(3.) Whenever a case of puerperal fever or other form of septic disease occurs or is admitted to a hospital, no lying-in patient shall be admitted until the medical officer certifies that in his opinion there is no risk of further infection.

(4.) Complete disinfection of every room which has been occupied by any case of infectious disease shall be performed immediately the patient leaves the room.

(5.) It shall be unlawful for a nurse attending on such a case to attend any other case without undergoing complete disinfection, *and without the written authority of a medical practitioner that he (or she) is satisfied with the precautions taken to prevent the further spread of infection.*

In addition to the foregoing statutory requirements a leaflet, H. 628, undated, unsigned, and not disclosing by what or whose authority it is issued, has been circulated by the Department as "Information for the Guidance of Persons conducting or contemplating the Establishment of a Private Hospital, with Extracts from the Hospitals and Charitable Institutions Act, 1909." This leaflet is practically in accord with the regulations referred to in the preceding paragraph, with one notable exception—viz., that the words italicized in Regulation 9 (5) are omitted. The precautions enjoined upon the medical practitioners and the nurses in charge of cases consist in the main of those prescribed by the statutes and the regulations above referred to, "District Health Officer" being substituted for "Medical Officer."

(5.) *The Midwives Act, 1908, and the Regulations made thereunder.*

NOTIFICATION.

The Commission is of opinion that the statutory requirement of notification "*forthwith*," which is obviously designed for the purpose of securing immediate isolation, disinfection, and such other safeguards as may in the circumstances of each case be deemed necessary, and which therefore is of the highest importance, was not appreciated as it should have been by the medical practitioners concerned in certain of these cases. It may here be noted that the obligation to notify in each of these cases was upon the medical practitioner and not upon the Matron or manager of the hospital.

Mrs. Morison's case was not notified at any time, but it is proper to add that the medical practitioner did not view this as, and still declines to admit this was, a case of notifiable puerperal fever.

Mrs. Jones's case was not notified as puerperal septicæmia until after her death at the public hospital, obviously for the reason that the medical practitioner in charge had not earlier recognized that the case was one of puerperal fever.

Mrs. Dacre's case was notified, not in the form prescribed by law, but by a letter from the medical practitioner dated the 8th November, 1923, two days before her death at the private hospital to which she had been removed. There was good reason for suspecting puerperal septicæmia in this case on the 5th November, and it was definitely ascertained on the 6th November.

In Mrs. Delamore's case a reasonable suspicion should have arisen in the mind of the medical practitioner in charge on the 8th November, if not earlier, but notification was not made until noon of the 10th November.

In Mrs. Carter's case a reasonable suspicion clearly arose on the 4th November, whereupon notification should have been made. There is, however, some excuse here, as the patient improved almost immediately, and the medical practitioner apparently abandoned whatever suspicion he had previously entertained in view of the discovery of signs of pyelitis.

In Mrs. Muir's case notification was prompt.

Isolation and Disinfection.

As to isolation in each of these cases, all that was possible in such a building as the Kelvin Maternity Hospital was done, but no thoroughly satisfactory isolation was possible in that building, a disability common to most private maternity hospitals in the Dominion. Dr. Makgill, who has held and still holds high office in the Department of Health, stated, "We have never asked private hospitals to make special provision or convenience for isolation."

With regard to the method of disinfection employed, the Commission cannot fairly take exception to the steps taken by the Matron of the hospital, as they in each case complied with all the requirements of the Department of Health. The Department has no standardized plan of disinfection, and has not officially laid down its requirements.

The Commission is, however, of opinion that the use of sulphur, which was employed at Kelvin, should be discontinued, and the more generally approved and effective disinfection by formalin insisted upon.

The requirement, under Regulation 9 (5) of the regulations of 1907, of written authority from a medical practitioner before a nurse who has been attending a septic patient be permitted to resume duty was not in any case fulfilled, but it seems abundantly clear that the fault here, if there be any fault, is with the Department of Health, which has deliberately omitted this requirement in its leaflet H. 628.

The Department of Health (Precautions by).

The Auckland District Health Office staff consisted, at the time of the happenings at Kelvin Maternity Hospital, of the following: Dr. Hughes, Medical Officer of Health; Dr. Boyd, Assistant Medical Officer of Health; Miss Bagley, Assistant Inspector of Hospitals, Superintendent of District Nurses, Inspector of Midwives; Miss Mirams, Nurse Inspector, Assistant to Miss Bagley; Chief Clerk, Accounts Clerk, three other clerks, cadet, and three typists.

Dr. Hughes went to Rotorua on the 6th November, returning by train on the 9th November, arriving in Auckland at about 4.15 p.m. Dr. Boyd was absent on annual leave from the 29th October to the 12th November. Miss Mirams was on annual leave from the 29th October to the 20th November.

As to the precautions taken, and the action generally of the officers of the Auckland Health Office in the direction of controlling and preventing the spread of the infection revealed to them at the Kelvin Hospital, it is obvious there was a complete, and, having regard to the exceptional circumstances, an amazing, absence of vigour. This hospital was subjected to the routine inspection by Assistant Inspector Miss Bagley on the 16th February, 1923. Although there had been a death in July, two in September, and one on the 10th October, of patients of this hospital, it was not again visited by any officer of the Department of Health until the 16th October, 1923.

Assistant Inspector Miss Bagley's evidence is that the deaths of Mrs. Barker and Mrs. Morison were not known to her, and that when Mrs. Jones's death was notified from the Auckland Hospital it was not known for a day or two that this was a patient removed from Kelvin Hospital.

In Mrs. Jones's case Miss Bagley telephoned Kelvin Hospital and apparently satisfied herself from the Matron's statement that the room used by the patient and its contents were properly disinfected, equipment sterilized, and nurses in attendance disinfected. She then minuted the notification for the information of the Medical Officer of Health that "all precautions seemed to have been taken against further infection." This comprised all that was done by the officers of the Department of Health regarding this case.

In Mrs. Dacre's case the medical practitioner concerned had written informally notifying and describing the case (letter dated 8th October). To this letter Dr. Hughes replied next day: "From your history of the case it certainly is suggestive of trouble prior to confinement, and there does not appear to be any necessity for any action on the part of this Department as in an ordinary case of septicæmia." The letter of the practitioner was minuted "No action."

Miss Bagley again telephoned the hospital regarding the precautions taken, and, notwithstanding the patient's death on the 10th October, nothing further was done until the 16th October, when Miss Bagley visited the hospital and made general inquiry, following this by minuting the papers as to the precautions taken, and expressing the opinion that there was "nothing to show that the infection of the second case had been carried from the first." This comprised all that was done in Mrs. Dacre's case.

The provisions of Regulation 9 (3) of the regulations concerning private hospitals set out above, requiring the certificate of the District Health Officer that in his opinion there is no risk of further infection before a lying-in patient is admitted after the occurrence of puerperal or other forms of septic disease, and repeated in the leaflet H. 628, seems to have been entirely ignored. The same remark applies to the recommendations 2 and 3 of the 1921 report of the Special Committee of the Board of Health on Maternal Mortality in New Zealand, requiring every case of maternal death and every case of a notified puerperal sepsis to be forthwith personally investigated by the Medical Officer of Health. These recommendations were conveyed to all Medical Officers of Health, with instructions from the Department to act upon them.

As illustrating the extraordinary languor characterizing the actions of the Auckland District Health Office, and the continuous failure to appreciate the gravity of the position at Kelvin Hospital, it is sufficient to take the case of Mrs. Delamore. The evidence discloses that on Friday, the 9th November, the medical practitioner concerned telephoned the office of the Medical Officer of Health. It is clear that the message expressly mentioned Kelvin Hospital, septicæmia, and a question as to notifying a case which the speaker desired to discuss with Dr. Hughes. The message was taken by the Chief Clerk, Dr. Hughes being on his way from Rotorua that day. Dr. Boyd was at the time absent on leave; but, although Assistant Inspector Miss Bagley was available, she was not communicated with that day. Next morning (Saturday, 10th November) Dr. Hughes, having been telephoned at his house by the Chief Clerk, made an appointment to meet the medical practitioner, and duly met him some time about midday, and was apprised of the facts. At about the same time a message was received from the Sanitary Department of the Auckland City Council concerning a "mysterious disease among Maoris in Parnell." Dr. Hughes immediately set out to investigate this matter (which turned out to be trivial), but, instead of proceeding from Parnell to Kelvin Hospital (less than three miles away), he went home. On this day Miss Bagley, of her own motion, telephoned to the Matron of Kelvin, advising that no fresh admissions be made, and inquiring as to precautions, &c., and was informed that fresh cases had already been refused. Nothing beyond this was done on the 10th.

On Sunday, the 11th, Dr. Hughes, being ill, remained at home and in bed. Nothing whatever was done on the 11th, and it was not until after 2 p.m. on the 12th that Dr. Hughes, in company with Miss Bagley, visited Kelvin Hospital for purposes of investigation, by which time another case—viz., Mrs. Muir—had been notified. This was Dr. Hughes's first and only visit during the whole series of events.

It is submitted that Dr. Hughes and his assistants, in the light of the happenings of September and October, should have been, in the early part of November, most keenly on the alert for trouble at Kelvin Hospital, and that the delay in visiting this hospital for the purpose of investigation from the 9th till the afternoon of the 12th it is impossible to defend. It is, however, fair to emphasize that at this particular time Dr. Hughes was sick, Dr. Boyd was absent on leave, Nurse Inspector Miss Mirams was also on leave, and Assistant Inspector Miss Bagley, already overworked, was carrying almost the whole burden of the office.

It is inconceivable to the Commission, seeing that it was found by the Medical Officer of Health, upon Mrs. Delamore's condition becoming known to him, necessary personally to inspect and thereupon promptly to close the hospital and evacuate the patients, why these steps were not taken upon the death of Mrs. Jones on the 26th September, and, if not then, upon the death of Mrs. Dacre on the 10th October.

It was urged by counsel for the Department that failure to inspect this hospital more than once during its period of stress—viz., July to November—was attributable to the understaffed and overworked condition of the District Health Office. The Commission, while admitting the disabilities under which that office laboured, and making all proper allowances, cannot accept this contention. Kelvin is one of the largest private maternity hospitals in the district, and is situate within four miles of the District Health Office. The evidence did not establish that more frequent inspection of this hospital was impracticable during the period in question.

The Commission takes no exception to the issue of authority to reopen Kelvin Maternity Hospital, six weeks having lapsed since Mrs. Delamore's death, and very full precautions having been taken as to disinfection and sterilization under the supervision of Assistant Inspector Miss Bagley.

Sources of Infection.

It is difficult in the majority of epidemics to determine the source of infection in the first of a series of cases of infectious disease. This applies to the cases of puerperal fever which are the subject of this inquiry. The difficulty is exaggerated with the lapse of time. The problem generally resolves itself into connecting subsequent cases with the original one. In the cases under review, while the possibility of auto-infection cannot be entirely excluded, yet past experience, and the fact that at least four cases occurred within a few months, no deaths from puerperal fever having occurred in Kelvin Hospital during the previous nine years, overwhelmingly point to the conclusion that these cases are connected one with the other.

The usual modes of transference of infection in these cases are the following:—

(1.) Conveyance by the doctor—but this cannot apply to all these cases, as they were not all attended by the same medical man.

(2.) Conveyance by nurses: this also will not apply to all these cases.

(3.) Contamination of appliances and equipment: this would not appear to apply to these cases, as it is upon the evidence that each patient had her own utensils with which she would come intimately in contact. It is possible that a common source of infection may have been the bath sink-room, in which the bed-pans and other utensils were washed for the patients on the ground floor.

(4.) Conveyance by flies, a possible but not a common source of infection in such cases as these.

The principal data upon which the transmission of infection depends are bacteriological, and it is a fair assumption that patients infected by the same organism have been infected from the same source or from one another. In the cases of Mrs. Jones, Mrs. Muir, and Mrs. Delamore the infecting organism was the streptococcus. In the case of Mrs. Dacre, however, the organism was the staphylococcus.

It is evident that there was more than one source of infection and of transference. The paucity of bacteriological evidence has rendered this part of the investigation unduly difficult.

5. Whether any further precautionary measures, whether usual or not, were desirable in such or will be desirable in similar cases in future.

NOTIFICATION AND PRECAUTIONS.

As has been indicated in the preceding paragraph, further precautionary measures were desirable in the cases at Kelvin Hospital—viz., on the part of certain of the medical practitioners, notification, in terms of statutory requirements, "forthwith upon "reasonable suspicion" of puerperal fever; and, on the part of the officers of the District Health Office, frequent inspection of this hospital, during the period of infection, by the Medical Officer of Health personally; supervision by an officer of the Department of the disinfection, &c., after each case of infection became known; and, upon the death of Mrs. Jones, and if not then certainly upon the death of Mrs. Dacre, such closure, evacuation of patients, and disinfection of premises as were respectively found necessary upon the illness of Mrs. Delamore being notified.

The Commission cannot refrain from here remarking that leaving so important an office of Public Health as that of Auckland with a Medical Officer in charge admittedly known to his superior officers to be both ill and overworked, and with his skilled staff of three reduced to one by the absence of the others on leave, is exceedingly difficult to justify.

CLOSURE OF HOSPITALS.

The objects of closure are twofold: (*a*) to avoid exposure of fresh patients to the danger of infection; (*b*) when all patients have been evacuated, to enable, under expert supervision, a complete disinfection of the whole of the premises, such as would be impracticable while any of the rooms are occupied.

It is recommended that all Medical Officers of Health and managers of private maternity hospitals have their attention drawn to Regulation 9 (3) of the regulations of 1907, and to the necessity of the issue of a certificate from the Medical Officer of Health before the hospital can lawfully receive patients after the occurrence of septic disease.

INSPECTION AND INVESTIGATION.

Upon receipt of notification of so serious a disease as puerperal fever occurring in a maternity hospital it is imperative that a Medical Officer of Health, and not an Assistant or Nurse Inspector, should personally proceed forthwith to the hospital concerned, make full investigation, and ensure the taking of adequate precautions to prevent the spread of infection. The Report (1921) of the Special Committee of the Board of Health upon Maternal Mortality in New Zealand contains (*inter alia*) the following recommendations:—

"(1.) That every case of maternal death shall be forthwith personally investigated by the Medical Officer of Health, who shall report to the Director-General of Health.

"(2.) That every case of notified puerperal sepsis shall be forthwith personally investigated by the Medical Officer of Health, who shall report to the Director-General of Health."

With these recommendations the Commission entirely agrees, and it would appear that the Department of Health is also in accord, Dr. Makgill's evidence being, "We have no right to expect of a trained nurse the scientific knowledge necessary to question the diagnosis of a doctor, for this is what adequate supervision may entail."

It should be explained that in accordance with the practice of the Department Nurse Inspectors perform the duties of inspection and report to the Medical Officer of Health, who is himself not called upon by statute or regulation personally to inspect, however grave the position may be.

It is understood that all Medical Officers of Health have been officially acquainted with the terms of this report, but it is evident the recommendations thereof have only to a partial extent been made operative, and no regulations have yet been issued giving them statutory effect.

ISOLATION.

As regards the isolation of infectious cases, it appears that the management of Kelvin Hospital complied with the general requirements of the Department. The Commission considers that these requirements are insufficient. The only satisfactory means of isolation is the provision of accommodation detached from the main building, and this should in future be insisted upon by regulation. Were such detached accommodation provided it might frequently render unnecessary the closure of the hospital, thereby avoiding the loss of revenue consequent upon closure, and thus to some extent compensating the licensee for the capital cost of such accommodation.

DISINFECTION.

It is recommended that a standardized plan of disinfection both as regards contacts and premises be formulated, and compliance therewith insisted upon by regulation.

Disinfection of premises and equipment should be carried out under the supervision of a sanitary officer of the Department of Health.

It is recommended that Regulation 9 (5) of the regulations of 1907, requiring written authority from a medical practitioner before a nurse who has been in contact with an infectious case can lawfully resume duty, which regulation, apparently with the consent of the Department, has been treated as obsolete, be again put into operation, and all managers of maternity hospitals notified accordingly.

6. General comments and recommendations.

(A.) *The Legislation, and the Regulations made by authority thereof.*—The Commission is of opinion that the several statutes dealing with private hospitals, and also with notifiable infectious diseases occurring therein, referred to in paragraph 4 of this report, contain all that is necessary for the purpose of governing and regulating these matters. The regulations also referred to in the same paragraph are, however, sadly in want of reconsideration.

The Commission was astonished to hear from counsel for the Department that the regulations of 1907 were out of print, and, further, to hear from Dr. Hughes that he had never been supplied with a copy and knew nothing of them. After this it was not surprising to learn that neither the Manager of Kelvin Hospital nor any of the medical practitioners had heard of these regulations. It is fair, however, to say that the leaflet referred to in paragragh 4, which purports to expound "the law as regards private hospitals," contains with some exceptions all that appears in the regulations, together with several requirements which are not law but merely expressions of the departmental will. This state of things cannot be deemed otherwise than most unsatisfactory.

It is recommended that all regulations and departmental requirements, instructions, and recommendations pertaining to private hospitals, maternity and otherwise, be collated, revised, brought up to date, and, together with the recommendations on this subject of the Maternity Mortality Committee of 1921, and the Private Maternity Hospital Committee of 1923, gazetted in the form of regulations under the statutes affecting hospitals now in force.

(B.) *Staffing of Private Maternity Hospitals.*—Kelvin Hospital was staffed apparently to the satisfaction of the Medical Officer of Health, guided as he would be by the provisions set out in the leaflet above referred to, which prescribed that for every six patients there must be a registered midwife. It was in fact licensed for fifteen patients. Generally the number did not exceed twelve, but there were occasions when fourteen were on the books. The Commission is convinced that the proportion of one registered midwife to six patients is inadequate, and recommends the proportion of one to four. This is in accordance with the recommendation in the report of the Maternity Mortality Commission of 1921. Further, it is recommended in this connection that in hospitals licensed for more than six patients the person charged with the duty of housekeeping, although a registered midwife, be not counted in the required proportion.

(C.) *Staffing of District Health Offices.*—The position at present as exemplified in the Auckland Office is absurd. The multifarious duties devolving upon the Medical Officer of Health are overwhelming. His assistant, Dr. Boyd, has had but little experience, and has only recently obtained his diploma of Public Health. The departmental witnesses admit that the supervision of private hospitals by the Medical Officer of Health is "necessarily superficial," and that his personal investigation of maternal deaths and suspicious illnesses in maternity hospitals, although most desirable, is impossible under present conditions. Assistant Inspector Miss Bagley and Nurse Inspector Miss Mirams have more work than they can efficiently cope with. It is admitted by the Department that were these two officers not very energetic and devoted to their work the position would be quite impossible. The inspection of private hospitals is only one of the many duties of these officers. There are eighty-two private hospitals in the Auckland District, which extends from Taumarunui to the extreme north, and eastwards to Opotiki. The amount of inspection these hospitals can receive under present conditions is negligible.

Adequate inspection of private maternity hospitals is the right of the women of this country. Expectant mothers should not be deluded into a sense of security, which the assurance of Government inspection induces, when that security does not in fact exist. The staff of such District Health Offices as that of Auckland should be immediately and substantially strengthened, and the inspection of private maternity hospitals rendered a real protection to maternity patients, which at present it is not.

(D.) *Co-ordination.*—The absence of skilled co-ordination in private maternity hospitals was generally admitted throughout the inquiry proceedings to be a grave danger. A remark of Dr. Makgill's in this connection illustrates the position. He said in evidence, "One must consider whether the absence of this supervision [referring to the supervision which it was urged the Medical Officer of Health could not give] is not the weak point in all private hospitals, since the various medical attendants have no knowledge of what is occurring in the wards other than those occupied by their own patients unless through chance conversations. . . . The recent trouble at Kelvin Maternity Hospital appears to me to suggest the lack of such skilled co-ordination."

This defect may be remedied by making it compulsory, when a case of puerperal fever or suspected puerperal fever is notified, for the manager of the private hospital concerned to inform all medical practitioners attending the patients in the institution or proposing to attend patients shortly to be admitted. Further, the temperature-charts of all patients in the hospital should be always readily available for inspection by medical practitioners attending patients, or expecting to attend patients, at the hospital.

(E.) *Use of Anæsthetics.*—Notwithstanding the express statutory prohibition (Regulations under the Midwives Act, 1908) of the administration of chloroform or any other anæsthetic except in the presence of and under direction of a medical practitioner, it transpired in the course of this inquiry that Matrons of private maternity hospitals are by some medical practitioners occasionally instructed to give what was termed a "whiff" of chloroform in the absence of the medical practitioner, and also to administer by hypodermic injection the drug hyoscin in like conditions. This unlawful practice cannot be too strongly discouraged, and it is recommended that publicity be given, for the information of midwives and medical practitioners, of the statutory prohibition and the penalty for breach.

(F.) *The Private Maternity Hospital System.*—The Commission submits the following views:—

The private maternity hospital system in New Zealand is unsatisfactory at present from almost every standpoint, mainly because the provision of such hospitals rests entirely upon the usually slender financial resources of the licensees, who are, as a rule, registered midwives, and not often the owners but merely the licensees of the premises. It is, almost without exception, beyond the financial ability of these women to supply the class of building and equipment which the welfare of the patients and the national importance of the work urgently demand; and as a commercial venture the income generally derived from these hospitals presents no alluring prospect to the capitalist. The result, therefore, is that the

majority of these hospitals are private houses converted, as far as the finances of the persons concerned permit, to the important purposes of a hospital. This arrangement can never be quite satisfactory. While it must be recognized that the system now in operation has been of much service to the community, its defects cannot longer be endured, and a complete and drastic change is called for.

The only solution of the problem which presents itself to the Commission is that private maternity hospitals which do not completely comply with regulations to be formulated as to building, staffing, equipment, &c., should be subjected to a process of gradual extinguishment, and that in their place efficiently equipped accommodation for maternity cases be provided by the Government or Hospital Boards, or by both in conjunction, for all classes of the community—rich, poor, and those of moderate means—the patients being required to pay for the service rendered in accordance with their financial ability. The cost of maintenance would be relatively reduced in proportion to the size of the institution, and even if some permanent loss were incurred it would be reasonable to view this as perhaps more justifiable than any loss incurred in other State enterprises. It has transpired that as matters now stand the Department of Health, by the great and increasing demand for this class of service, is practically forced into the position of issuing licenses for private maternity hospitals in cases where it is realized the buildings and equipment are not entirely suitable. The Commission points out that the issue and the continuance of a license by a Government Department induces a natural assumption by the public that the institution concerned is suitable and safe. If in fact many of these institutions are not suitable and safe, then this sense of security is a false one.

(G.) *Note as to Kelvin Private Maternity Hospital.*—It seems necessary to report upon this hospital at some length. At the inception of the inquiry it became evident that the unhappy events which had taken place at this hospital, and the rumours and gossip following, had engendered a strong feeling of hostility towards the hospital itself, the Matron, and the medical practitioners concerned. A suspicion, and perhaps more than a suspicion, was widely disseminated that there had been something in the nature of a conspiracy of silence between the Matron and the medical practitioners, or between the medical practitioners themselves, to conceal or suppress information which might be detrimental to one or other of them. It is but right to say emphatically that the Commission found not the slightest sign of any such conspiracy, or anything approaching it; nor any desire at any time, on the part of any person concerned, to conceal or suppress any material information. On the contrary, it appeared that, apart from such errors of judgment on the part of certain of the medical practitioners as have been before referred to, the conduct of affairs at this hospital during its period of trouble was strictly in accordance with the usual practice. A further suspicion was that one or more medical practitioners were financially interested in this hospital. There was no evidence indicating any ground for that suspicion.

That the Matron was active, alert, and keenly desirous of doing her full duty there was abundant evidence. Although submitted to ample cross-examination by counsel, nothing to the detriment of her reputation or reflecting upon her attention to her patients was elicited.

The departmental view of Kelvin Hospital is expressed in Assistant Inspector Miss Bagley's evidence as follows: "Kelvin is the largest, and I think as efficient a private hospital as there is in my district. It is conducted by a trained general nurse of very long experience, as well as being a trained midwife; and for general equipment it now compares favourably with any other licensed maternity hospital in my district."

Dr. Makgill and Dr. Hughes both spoke to the same effect. Matron Gibbons is in fact a general trained nurse holding the Auckland Hospital certificate, and holds, in addition, certificates for midwifery and mental nursing. She is one of the Board of Examiners of candidates for midwifery certificates. She has held a license for Kelvin Hospital since 1913, but in respect of the present premises since 1918. The record of this hospital from the 1st September, 1913, to the 5th November, 1923, shows that 1,247 maternity cases were admitted. Up to July, 1923, there had been three deaths (occurring prior to 1922, and from causes other

than septicæmia); in July, 1923, one death (Mrs. Barker); and the only other deaths those of the four patients whose cases are among the subjects of this inquiry. Up to the happening of the events now reported upon there had been no cases of septicæmia in this hospital.

The hospital is a substantial and airy building, better appointed and equipped and set in more spacious and sunny grounds than a large majority of licensed private maternity hospitals in New Zealand. It, has, however, one outstanding defect. On the upper floor the bathroom is separate from the W.C. and sink-room in which utensils are emptied and disinfected, and this is a proper arrangement. On the ground floor, however, bath, W.C., hand-basin, and sink are all contained in one small and inconvenient room. It is not difficult to conceive, under these conditions, the possibility of infection being conveyed to the bath which expectant or convalescent mothers use. The waste-pipe from this sink discharges into an open gully-trap instead of into the soil-pipe, which is also objectionable. These conditions existed when the hospital was licensed. Dr. Hughes was not satisfied as to these features in the sanitary arrangements, and brought his objection under notice of his superior departmental officers; but it seems he was not encouraged to insist upon any alteration. Upon the question of the sink, also, there appears to have been a misunderstanding between the Auckland Health Office and the Sanitary Department of the City Council.

Apart from the impracticability of efficient isolation facilities before referred to, the only other matter calling for criticism is that in such an institution an efficient electric-bell system should have been part of the equipment, instead of hand-bells and other devices for summoning attendants.

(H.) There are two questions which arose in the course of the inquiry of considerable importance to expectant mothers, upon which it seems desirable the Commission should express its opinion.

Both refer to the extent of the obligation undertaken by a medical practitioner when he accepts engagement to attend a maternity case. The first is as to his right to transfer his engagement without notice to his patient. As to this, the Commission's unanimous opinion is that when a medical practitioner is engaged to attend a maternity case and finds that he has to leave his practice for a holiday or other necessary purpose, it is the duty of that practitioner to acquaint his patient of the fact that he is unable to attend her. He may recommend a substitute, or allow her freedom of choice, but he certainly is called upon to give her as much notice as is reasonably possible. This procedure was not followed in one of the cases under review at this inquiry, and it is clear that failure to notify the patient in such circumstances has been sanctioned to a large extent by the custom of the profession.

The Commission desires to emphasize that the procedure indicated above is obviously the only proper one in the circumstances, and that if there be a custom of the profession to the contrary it is an objectionable custom, and should be discontinued.

The other question is whether or not it is part of the trust reposed in the medical practitioner by his maternity patient that he shall satisfy himself by reasonable inquiry, assuming there be time and opportunity for such, that the hospital she contemplates entering for her confinement is free from any suspicion of infectious disease. In the course of the inquiry certain doctors were asked whether, had they known of the septic cases in Kelvin Hospital of September and October, they would have sanctioned a patient of theirs entering that hospital in the beginning of November; and they replied in the negative. Yet none of the medical practitioners would admit that it was part of his duty to make any inquiry, however slight, holding that inquiry of this sort was the exclusive duty of the Health Department: in other words, if the Health Department allowed the hospital to remain open, the medical practitioner was justified in assuming that there was no risk of infection. If the contention of the medical practitioners be sound, then the position of the maternity patient is pitiable. The safeguards she imagined she had do not exist. Her medical adviser will not inquire, and therefore cannot advise her; and the local Health Office, as matters stand, may not be at

the time able to inquire: the logical consequence of all this being that she incurs the risk of entering an infected hospital, in precisely the same circumstances as those of Mrs. Delamore's case.

Members of the Commission are not entirely unanimous upon this question, the Chairman and Lady Luke holding that under subsisting conditions it is part of the trust reposed in the medical adviser that he should satisfy himself in the circumstances stated, and the medical members of the Commission being of opinion that—(1) Inspection by the Department of Health should be thorough and efficient; (2) further sufficient safeguard is provided in terms of the recommendation of the Commission set out already in this report under the heading "(D.) Co-ordination."

(I.) Annexed to this report are the recommendations extracted from the report of the Maternal Mortality Commission of the Board of Health of 1921, to which special reference has been made, also the substance of the report of the Committee of the Board of Health of 1923, dealing with private maternity hospitals so far as it is applicable to the subject-matter of this inquiry.

(J.) Lest any statement or comment in the present report may cause undue alarm to expectant mothers, it may be desirable, for their reassurance, to say that the occurrence of septicæmia after childbirth is by no means frequent. Dr. Williams, whose name appears in connection with the cases investigated, stated that he had attended over three thousand confinements, and had met with only one such case previous to the outbreak at Kelvin Hospital. Dr. McCormick, with an extensive midwifery practice, had, previous to these cases, attended but one such case; and the Matron of Kelvin Hospital had no previous case of septicæmia in her long experience. Childbirth is a normal physiological process, and to the healthy woman in healthy surroundings is attended with very small risk.

(K.) With regard to the costs of the inquiry, the Commission is of opinion that the costs of Mrs. Rhodes and others represented by counsel (Mr. Johnston) at the hearing, to the extent of £100, and the costs of Matron Gibbons to the extent of £100, and the reasonable allowances and expenses of Sister Vazey, a witness, should be borne and paid by the Department of Health.

The Commission desires to place upon record its indebtedness to Mr. C. J. Drake, Secretary of the Board of Health, who acted as secretary to the Commission, for the zealous and very valuable assistance rendered by him throughout the proceedings.

In witness whereof we have hereunto set our hands, this 28th day of April, 1924.

FRED. EARL, Chairman.
D. MCGAVIN,
J. S. ELLIOTT,
JACOBINA LUKE,
} Commissioners.

Wellington, 22nd May, 1923.

Memorandum for the Chairman and members of Board of Health.

PRIVATE MATERNITY HOSPITALS.

THE committee set up by the Board to inquire and report respecting private maternity hospitals beg to submit their report :—

As suggested by the Board, the committee have conferred with the Nurse Inspectors located in Auckland, Wellington, Christchurch, and Dunedin, two meetings having been held in conference with these officers, who were given every opportunity of presenting their views.

The committee find that owing to the relative scarcity of trained registered midwives, especially in many of the country districts, the Nurse Inspectors have had to accept minimum requirements in many licensed maternity homes. To have insisted on stringent requirements would have tended to exclude such women, and to force patients into homes under the charge of unregistered women. The committee consider, however, that the time has now arrived when this difficulty is not so acute, and that the regulations should be administered with more and more stringency.

As the result of their deliberations the committee beg to submit for the Board's consideration the following recommendations and remarks :—

1. The committee suggest that the Government be recommended to give effect at the earliest opportunity to recommendation No. 6 of the Committee on Maternity Mortality, which reads as follows : "That the Hospitals and Charitable Institutions Act be amended to prevent the admission of one or more cases of confinement into any house for treatment in consideration of payment made unless such house be licensed for the purpose."

Evidence was placed before the committee showing that the number of these "one-bed homes" is considerable, and the committee are of the opinion that the time has arrived for such homes to be placed under definite control.

In this connection the committee desire to draw attention to the fact that under the Infant Life Protection Act (Infants Act) foster-homes which accommodate one child are required to be registered. It would appear to be anomalous that while all foster-homes have to be registered, maternity homes taking one case at a time are not subject to registration.

2. The committee found that recently the Medical Board established under the Medical Practitioners Act, 1914, passed the following resolution : "That, with a view to the reduction of maternal mortality, this Board recommends medical practitioners to use every endeavour to ensure that their midwifery cases shall be attended by registered midwives wherever practicable."

The committee wish to express their endorsement of this resolution of the Medical Board, and trust the members of the medical profession will as far as possible adopt it.

3. The committee wish to draw attention to another recommendation in the Report of the Committee of Maternal Mortality, which reads as follows : "The committee considers that efficiently equipped private midwifery wards for paying patients should be established as soon as possible in connection with public midwifery institutions, or in other suitable places."

The committee are of opinion that the importance of this suggestion warrants this recommendation being especially stressed, but would add the words "or public hospitals" after the word "institutions." A deterrent to the establishment of properly equipped maternity hospitals by private enterprise is the considerable capital outlay involved.

4. The committee find that at the present time the Department requires in the case of licensed maternity hospitals a proportion of one trained midwife to six patients. The committee would recommend the adoption of a proportion of one to four, an extra nurse to be engaged for every additional four patients or fraction thereof. It is to be pointed out that every patient, so soon as baby is born, becomes two persons. It is recommended that provision to this effect be embodied in the regulations.

By the use of bells or other facilities arrangements should be made whereby patients could obtain the services of a nurse when necessary, day or night.

5. The committee recommend that all maternity hospitals licensed for the accommodation of two or more patients should be required to have adequate domestic help, additional entirely to the nursing staff.

6. The committee are of opinion that in some cases it is desirable for the Government or local Hospital Board to subsidize or otherwise assist in the establishment and maintenance of satisfactory private maternity hospitals in outlying centres. The committee understand that this is already being done by some Hospital Boards. In some cases the Boards make a payment in consideration of a certain number of beds being always available for the use of their patients if required. This achieves the double purpose of assisting the private hospital and serving the public at the same time.

7. The committee are of opinion that in the case of all maternity hospitals the following conditions should be complied with in order to qualify for a license :—

(*a.*) Sufficient air-space, ventilation, and comfort in patients' room.

(*b.*) If applying for more than four beds, satisfactory provision to be made for a nursery and a labour-room.

(*c.*) If members of the licensee's family are to be resident on the premises, separate bath-rooms and privy accommodation should be provided for patients and family.

(*d.*) Provision for sink-room, or sufficient and suitable equivalent.

(*e.*) The building to be designed or altered so as to avoid the carriage of bed-pans or soiled clothing from patients' rooms through the kitchen or living-room.

(*f.*) Suitable staff quarters.

8. The committee would suggest that a scheme be put under way whereby registered maternity hospitals would be able to obtain sterilized packets for maternity cases. Such a scheme might be operated in conjunction with the public hospitals.

9. The committee consider that the sterilizing facilities in every registered maternity hospital should include as a *sine qua non* a fish-kettle large enough in size to contain midwifery forceps.

10. The committee are of opinion that there is in many cases considerable room for improvement in the dietary of private maternity hospitals. Without laying down any hard-and-fast rule on the matter, the committee consider that for the first two or three days following confinement patients should be given light food suitable to their condition, and after that should be afforded a full liberal and nourishing diet.

11. The committee would repeat the expressed opinion of the Committee on Maternal Mortality "That a more strict and regular inspection of private maternity hospitals is necessary, and for this purpose more Nurse Inspectors of approved competence and experience be obtained." This would enable a more rigid inspection to be carried out under section 121 of the Hospitals and Charitable Institutions Act, 1909, and would also have the beneficial effect of further protecting the public against illegal practices.

The committee would like to add that it found among the Nurse Inspectors a keen desire to assist in the inquiry, and the members wish to express their appreciation of the assistance rendered by these officers.

J. S. ELLIOTT.
D. MCGAVIN.
T. H. A. VALINTINE.

MATERNAL MORTALITY IN NEW ZEALAND.

REPORT OF SPECIAL COMMITTEE SET UP BY BOARD OF HEALTH TO CONSIDER AND REPORT ON THE QUESTION OF THE DEATHS OF MOTHERS IN CONNECTION WITH CHILDBIRTH.

Report of Special Committee set up by Board of Health as adopted by the Board at its Meeting held on 7th October, 1921.

THE committee appointed to consider and report on the question of the deaths of mothers in connection with childbirth have made careful inquiry and investigation, and have now the honour to submit the following report:—

The issue was raised in May last by the publication of certain statistics by the Children's Bureau of the United States Department of Labour. These figures place New Zealand second from the top of the list of nations in respect of maternal mortality in pregnancy and childbirth. The Minister of Health thereupon addressed three questions to the Director-General of Health: (1.) Were the figures for New Zealand correct? (2.) If correct, what were the causes of this excessive maternal mortality in New Zealand? (3.) How were these causes to be removed?

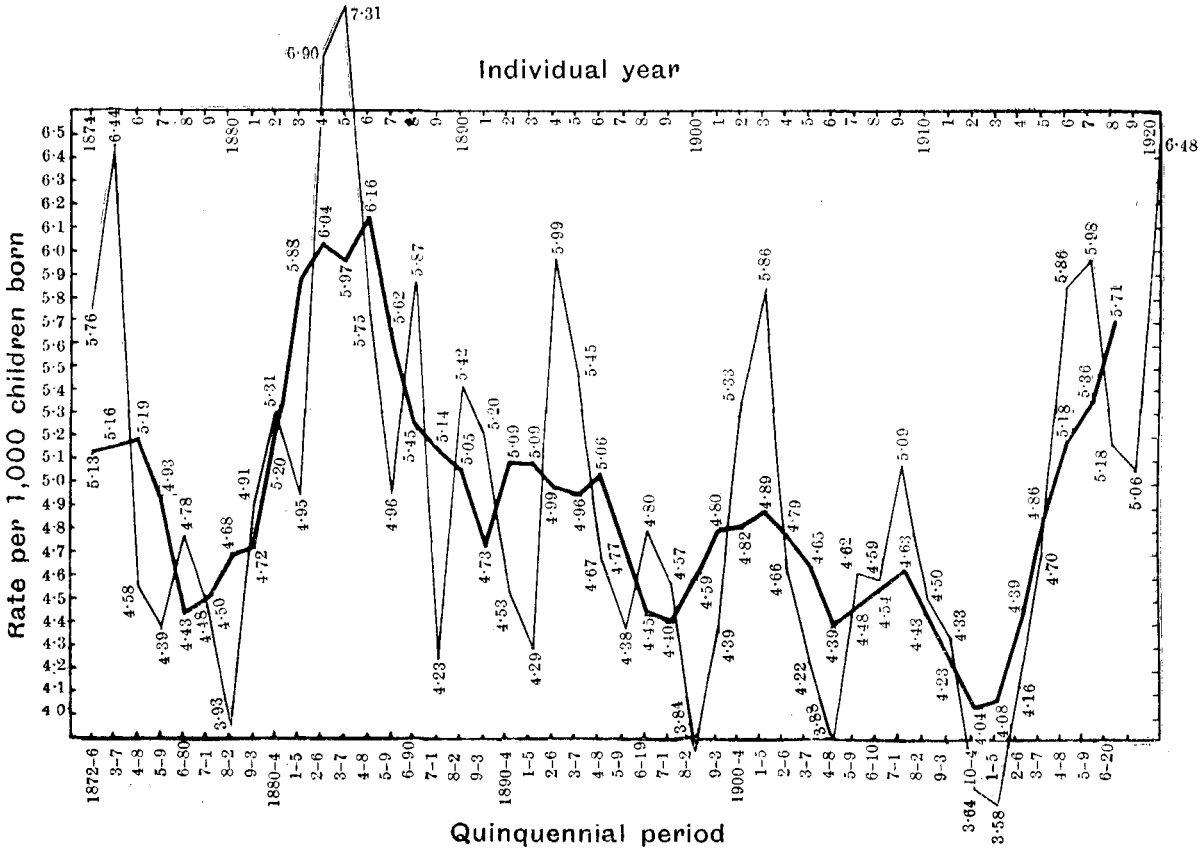
The Director-General of Health advised that as the matter was of grave importance the whole question should be referred to the Board of Health for its consideration. Accordingly, the Board of Health sat on the 27th July, 1921, and set up the present committee for the purpose of investigating the issues raised by the Minister in his memorandum to the Director-General of Health, and generally the committee was empowered to make such recommendations in the premises as it might consider reasonable and necessary.

As to the issue of whether the figures given in the American statistics of maternal mortality in different countries constitute a fair and just comparison, we regret that we are unable to obtain any definite proof one way or the other. Mr. Malcolm Fraser, the Government Statistician for New Zealand, commits himself to the statement that the figures so given are fairly comparable. Mr. Fraser, however, makes this proviso, that he has no means of ascertaining the completeness of the methods of other countries for carrying out Bertillon's international system of compiling maternal-mortality statistics. It is very possible that the countries may differ in the method of mortality returns. For example, in the event of a woman dying in the course of pregnancy of say, phthisis, one country might return such a death as due to phthisis, while another might attribute it to pregnancy. While Mr. Fraser, therefore, has no doubt as to the accuracy of our own mortality statistics, he is not in a position similarly to pledge himself with regard to the figures returned by other countries. There is, however, considerable doubt as to whether our own mortality is rightly classified. We consider that more definite instructions and information should be given to medical practitioners throughout the country, so that each death may be put under its appropriate heading, which does not appear to be always the case at present.

Dealing with the history of the matter, the committee has felt that it was its duty to go back over a considerable period of years, and we have had a graph of New Zealand maternal mortality prepared by the Statistician covering the period from 1872 to 1920. This graph is interesting. It goes to show that there are, with regard to maternal mortality in New Zealand, four varying phases or periods in our own history. The first phase or period runs from the year 1877 to 1881, when mortality was comparatively low in this country, reaching a minimum of 3·93 per 1,000 in 1880. The second cycle or period runs from 1882 to 1890, when there was a somewhat extraordinary increase in mortality, reaching a maximum of 7·31 in 1885. The third period may be assigned to the years 1890 to 1913, during which time, of some twenty years or more, there was on the whole a progressive decline from 5·42 in 1890 to 3·58 per 1,000 in 1913. The last and current period, beginning, say, from 1913 to 1920,

shows another abnormal increase, rising to the high figure 6·48 in the latter year. It has to be noted that, probably owing to greater statistical accuracy and more careful inquiry since about 1916, more cases have been included under puerperal mortality than before 1916. It has been suggested that an investigation of the mortality figures of other diseases, such as scarlet fever, rheumatic fever, phthisis, pneumonia, and diphtheria, would probably disclose similar fluctuations, and the committee has requested the Department to gather data and prepare graphs for comparison.

With reference to the published figures, it is fair to note that the mortality of the year 1917 was the highest since 1894. The one plain deduction from our investigation of these figures is that there has been a remarkable increase since 1914 in the New Zealand maternal death-rate. Our own figures establish this fact, notwithstanding any doubt as to their exact comparability with the statistics of other countries. We enclose a copy of the graph for the information of the Board.



Graph showing Death-rates of Women from Puerperal Causes (per 1,000 Children born) for Individual Years, and Moving Average for Quinquennial Period 1872–1920.

(Individual years shown by light line; quinquennial moving average by heavy line.)

We have endeavoured to investigate, so far as we were able, the causes of such high mortality. The principal causes of death are as follows: (1) Puerperal septicæmia; (2) puerperal albuminuria and convulsions; (3) puerperal hæmorrhage; (4) accidents of pregnancy and other accidents of labour.

During the last quinquennial period the average annual maternal mortality has been 157 deaths, and of this number fifty-seven are due to sepsis. The recommendations hereinafter contained, though having a special application to sepsis as a cause of death, are to a great extent of general application, and, it is hoped, will, if adopted, materially reduce the mortality due to other causes associated with pregnancy.

It should be noted that deaths from sepsis are largely preventible, and for this reason your committee has devoted special attention to this dominant cause. The factors which lead to the occurrence of sepsis in this country must be put down under three main heads.

(1.) Abnormal virulence of organisms and diminished resistance of individuals, due possibly to conditions during and subsequent to the war period. Dr. Jellett stated that from his own experience at Home sepsis seemed to be harder to deal with, and in a more virulent form than during the "nineties."

The committee feels that the lack of domestic help and the fact of housing difficulties may well be factors contributing to the diminished resistance which apparently affects women nowadays. There is another disturbing cause to which we must draw attention. Evidence was forthcoming clearly indicating that in this country there is an abnormally high death-rate due to septic conditions following on attempts to procure abortion, which deaths are included in our figures of general maternal mortality.

(2.) Unsuitable surroundings are another factor. Private houses are often quite unhealthy places for confinements. Moreover, some private maternity hospitals are not free from conditions which easily lead to septicæmia and allied troubles.

(3.) The medical witnesses were agreed that another reason of septic mortality was the unduly large use of instruments and other operative measures at confinements, and they stated with emphasis that the use of anæsthetics and instruments was urged and pressed on medical men by the patients and their friends. Medical witnesses were agreed that some reduction in instrumental delivery was urgently necessary.

Having in mind the above-mentioned matters, we have carefully considered what remedies and reforms may be necessary to eliminate, or, at least, materially reduce, the evils of an excessive maternal death-rate in this country, and we beg to make the following

RECOMMENDATIONS.

1. That the Health Department should consider the present form of certificate of cause of death with the view of seeing whether it could be amended so as to elicit from the medical man concerned a definite expression of opinion (*a*) as to the cause of death where there are associated diseases, and (*b*) as to associated causes, setting out primary, secondary, &c.

2. That every case of maternal death shall be forthwith personally investigated by the Medical Officer of Health, who shall report to the Director-General of Health.

3. That every case of notified puerperal sepsis shall be forthwith personally investigated by the Medical Officer of Health, who shall report to the Director-General of Health.

4. That all maternity hospitals, public and private, make a quarterly return to the Department of morbidity-rate as well as mortality-rate—a temperature of 100 degrees occurring on two different days between the second and the tenth days of the puerperium shall be included in morbidity conditions. Dr. Jellett's observations on this point are apposite. He says: "It would be very satisfactory if it was made a standard for a hospital to work on what was known as the morbidity-rate rather than the mortality-rate. By the morbidity-rate it was the practice to group the cases according to temperatures during the puerperal period. In an ordinary properly-run hospital they might have a rate of about 8 per cent., and if a hospital had a rate of 6 per cent. it would be considered that the hospital was working satisfactorily. If a hospital had a morbidity-rate of 20 per cent. it would be considered that there was something wrong with the administration of the institution. He might say that the British Medical Association in England had gone into the question, and they had laid down a standard of morbidity by which a temperature occurring in labour was to be regarded as morbid when it reached a height of 100 degrees Fahr. on any two occasions between the second and the tenth day. Such a system was generally recognized as being a proper criterion of a hospital's technique."

5. That, as it is absolutely essential that every mother should be attended during confinement by a reliable and highly trained midwifery nurse, the committee recommends that facilities should be given to all practising maternity nurses to take a refresher or post-graduate course at the various St. Helens Hospitals, or other approved institutions, at regular intervals of, say, two or three years, and that compliance be made compulsory. The Government should subsidize cost of transport and accommodation in the case of nurses taking such course.

6. That the Hospitals and Charitable Institutions Act be amended to prevent the admission of one or more cases of confinement into any house for treatment in consideration of payment made unless such house be licensed for the purpose.

7. That the committee is strongly of opinion that a more strict and regular inspection of private maternity hospitals is necessary, and that for this purpose more Nurse Inspectors of proved competence and experience be obtained. A very careful revision of technique should also take place, and inspection must be directed especially to seeing that recommendations are carried out, and that technique is kept up to date.

8. That the committee considers that efficiently equipped private midwifery wards for paying patients should be established as soon as possible in connection with public midwifery institutions or in other suitable places.

9. That while the committee has reason to believe that the system of training midwives pursued in New Zealand is not inferior to that obtaining in other countries, still the committee is impressed with the necessity of improving the present training, especially with regard to the supreme importance of a thorough knowledge of asepsis. The committee therefore recommends that the syllabus and course of training be revised so as to secure a greater efficiency than at present obtained.

10. That the importance of a sound training in midwifery at the Otago Medical School should be recognized by the creation of a professorship instead of the present lectureship, thus enhancing the status of this subject in the medical curriculum.

11. The committee finds on evidence before it that the use of instruments in midwifery practice is excessive, and suggests that the special attention of the medical profession be called to this fact, and that the co-operation and assistance of the profession be sought in this connection. The committee learns with satisfaction that the medical profession through its organization is alive to its responsibilities in this matter, and has already taken steps to investigate the question, and very shortly is holding a Dominion conference at which methods of technique are to be considered with the view of reducing to the lowest possible limit maternal mortality in this country.

The evidence shows that undue pressure is frequently brought by patients and friends to expedite the course of labour by the use of instruments. In this connection the committee believes that it should be widely known and clearly understood by the public that the great majority of cases of confinement do not require instrumental assistance.

12. The committee desires to stress the importance of the use of ante-natal clinics, and in private practice the serious importance of ante-natal examination. It cannot be too widely known that already ante-natal clinics have been established in each of the seven St. Helens Hospitals in New Zealand, and also at the maternity hospitals or wards under the control of Hospital Boards. An extension of these establishments, more especially as a function of the ordinary public hospital, is necessary, and the committee is pleased to recognize the fact that local hospital authorities are sympathetic to the cause of the further development of this work. The Health Department urges all pregnant women to seek skilled advice during the latter months of pregnancy at ante-natal clinics wherever available, or at the hands of the ordinary medical adviser. Such examinations should enable the medical man to detect many abnormalities, and consequently avert dangerous complications.

Concluding Remarks.

Before bringing this report to conclusion we desire to strike a note of reassurance. Childbirth is a normal physiological process, and to the healthy woman in healthy surroundings is attended with very small risk. Furthermore, there must not be undue alarm because of the statistics. It must not be overlooked that under the international "Bertillon" system of classification which is in use in New Zealand, and which has as its basis the maternal mortality-rate per thousand live births, our statistics of maternal mortality include not only deaths resulting at or after childbirth, but also those occurring during the whole course of pregnancy, and considered as essentially due to that condition.

Lastly, the committee strongly believes that if the preventive measures indicated in this report be adopted in this country, the reproach of an excessive maternal mortality under which New Zealand at present labours will early be removed.

C. J. Parr (Chairman).
D. McGavin.
J. S. Elliott.

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