1919.

NEW ZEALAND.

INFLUENZA EPIDEMIC COMMISSION

(REPORT OF THE).

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

COMMISSION.

LIVERPOOL, Governor-General.

To all to whom these presents shall come, and to the Hon. Sir John Edward Denniston, Knight, of Christchurch; the Hon. Edward Mitchelson, of Auckland; and David McLaren, Esquire, of Wellington: Greeting.

WHEREAS it is expedient that inquiry should be made regarding the recent epidemic of influenza in New Zealand:

Now, therefore, I, Arthur William de Brito Savile, Earl of Liverpool, the 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 constitute and appoint you, the said

Sir JOHN EDWARD DENNISTON,
EDWARD MITCHELSON, and
DAVID MCLAREN,

to be a Commission to inquire into and report as to the following matters, namely:—

(1.) The causes of the introduction and extension of the recent epidemic of influenza in New Zealand.

(2.) The best methods of preventing or dealing with such occurrences in future.

(3.) All matters connected with the arrival in New Zealand waters of the s.s. "Niagara" and the s.s. "Makura" in respect to their bearing on the introduction or extension of the epidemic.

(4.) The administration of the Public Health Department and of local authorities with regard to their responsibilities in relation to the epidemic, and generally in regard to public health.

(5.) The proper relation of local authorities to the Public Health Department in respect of the prevention or suppression of infectious diseases, and generally in regard to public health.

(6.) The efficiency of the quarantine arrangements in New Zealand.

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

Sir JOHN EDWARD DENNISTON,

to be Chairman of the said Commission.

And for the better enabling you to carry these presents into effect you are hereby authorized and empowered to 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 examine on oath or otherwise, as may be allowed by law, such persons as you think capable of affording you information as to the matters aforesaid; and you are also hereby empowered to call for and examine all such documents as you deem likely to afford you information on any such matters. And, using all diligence, you are required to report to me under your hands and seals, not later than the fourteenth day of March, one thousand nine hundred and nineteen, your opinion as to the aforesaid matters.

And you are hereby strictly charged and directed that you shall not at any time publish or otherwise disclose, save to me in pursuance of these presents or by my direction, the contents or purport of any report so made or to be made by you.

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

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

Given under the hand of His Excellency the Right Honourable Arthur William de Brito Savile, Earl of Liverpool, Member of His Majesty's Most Honourable Privy Council, Knight Grand Cross of the Most Distinguished Order of Saint Michael and Saint George, Knight Grand Cross of the Most Excellent Order of the British Empire, Member of the Royal Victorian Order, Knight of Grace of the Order of Saint John of Jerusalem, Governor-General and Commander-in-Chief in and over His Majesty's Dominion of New Zealand and its Dependencies; and issued under the Seal of the said Dominion, at the Government House at Wellington, this twenty-eighth day of January, in the year of our Lord one thousand nine hundred and nineteen.

G. W. RUSSELL,
Minister of Public Health.

Approved in Council.

J. F. ANDREWS,
Clerk of the Executive Council.

GOD SAVE THE KING!

EXTENDING TIME FOR REPORT OF COMMISSION.

LIVERPOOL, Governor-General.

To all to whom these presents shall come, and to the Hon. Sir John Edward Denniston, Knight, of Christchurch; the Hon. Edward Mitchelson, of Auckland; and David McLaren, Esquire, of Wellington: Greeting.

WHEREAS by a Warrant dated the twenty-eighth day of January, one thousand nine hundred and nineteen, and issued under my hand and the Public Seal of the Dominion, you were appointed a Commission to inquire into and report upon the recent epidemic of influenza in New Zealand: And whereas you were required to report to me not later than the fourteenth day of March, one thousand nine hundred and nineteen, your opinion touching the matters mentioned in the said Warrant: And whereas it is expedient that the said period should be extended as hereinafter provided:

Now, therefore, I, Arthur William de Brito Savile, Earl of Liverpool, the 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 declare and appoint that the time at or before which you shall present to me your report aforesaid is hereby extended to the thirtieth day of April, one thousand nine hundred and nineteen.

And I do hereby further declare that the powers conferred upon you by the said Warrant may be exercised either by all of you or by any two of you jointly.

And I do hereby confirm the said Warrant as extended and amended by these presents.

Given under the hand of His Excellency the Right Honourable Arthur William de Brito Savile, Earl of Liverpool, Member of His Majesty's Most Honourable Privy Council, Knight Grand Cross of the Most Distinguished Order of Saint Michael and Saint George, Knight Grand Cross of the Most Excellent Order of the British Empire, Member of the Royal Victorian Order, Knight of Grace of the Order of Saint John of Jerusalem, Governor-General and Commander-in-Chief in and over His Majesty's Dominion of New Zealand and its Dependencies; and issued under the Seal of the said Dominion, at the Government House at Wellington, this eleventh day of March, in the year of our Lord one thousand nine hundred and nineteen.

G. W. RUSSELL,
Minister of Public Health.

Approved in Council.

J. F. ANDREWS,
Clerk of the Executive Council.

FURTHER EXTENDING TIME FOR REPORT OF COMMISSION.

LIVERPOOL, Governor-General.

To all to whom these presents shall come, and to the Hon. Sir John Edward Denniston, Knight, of Christchurch; the Hon. Edward Mitchelson, of Auckland; and David McLaren, Esquire, of Wellington: Greeting.

WHEREAS by a Warrant dated the twenty-eighth day of January, one thousand nine hundred and nineteen, and issued under my hand and the Public Seal of the Dominion, you were appointed a Commission to inquire into and report upon the recent epidemic of influenza in New Zealand: And whereas you were required to report to me not later than the fourteenth day of March, one thousand nine hundred and nineteen, your opinion touching the matters mentioned in the said Warrant: And whereas by a further Warrant dated the eleventh day of March, one thousand nine hundred and nineteen, the time at or before which you were directed and required to report to me was extended to the thirtieth day of April, one thousand nine hundred and nineteen: And whereas it is expedient that the said period should be further extended as hereinafter provided:

Now, therefore, I, Arthur William de Brito Savile, Earl of Liverpool, the 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 declare and appoint that the time at or before which you shall present to me your report aforesaid is hereby extended to the fourteenth day of May, one thousand nine hundred and nineteen.

And I do hereby confirm the said Warrant of the twenty-eighth day of January, one thousand nine hundred and nineteen, as extended and amended by the said Warrant of the eleventh day of March, one thousand nine hundred and nineteen, and as extended by these presents.

Given under the hand of His Excellency the Right Honourable Arthur William de Brito Savile, Earl of Liverpool, Member of His Majesty's Most Honourable Privy Council, Knight Grand Cross of the Most Distinguished Order of Saint Michael and Saint George, Knight Grand Cross of the Most Excellent Order of the British Empire, Member of the Royal Victorian Order, Knight of Grace of the Order of Saint John of Jerusalem, Governor-General and Commander-in-Chief in and over Mis Majesty's Dominion of New Zealand and its Dependencies; and issued under the Seal of the said Dominion, at the Government House at Wellington, this thirtieth day of April, in the year of our Lord one thousand nine hundred and nineteen.

G. W. RUSSELL,
Minister of Public Health.

Approved in Council.

J. F. ANDREWS,
Clerk of the Executive Council.

INTERIM REPORT.

To His Excellency the Governor-General.

May it please Your Excellency,—

The Honourable the Minister of Public Health has on 11th April advised us that indications point to something in the nature of a recrudescence of the recent epidemic, and has suggested that, if possible, our report under the terms of our Commission should be forwarded to Your Excellency as soon as possible, in order that any suggestions which we may make for future epidemics may be immediately available.

As we have only recently finished taking evidence under our Commission it is impossible for us to submit to Your Excellency our complete report. We have, however, thought it right to submit at once the following interim report on the second subject-matter under our order of reference—"The best methods of preventing or dealing with such occurrence in the future"—in order that, should Your Excellency think fit, any of the suggestions in such report may be brought to the notice of the authorities interested therein.

When early in October the explosive outbreak in Auckland brought home to the Dominion the fact that it had to face the pandemic influenza which had wrought so much havoc on the other side of the world there was naturally a considerable degree of unreadiness, and, consequently, of confusion and overlapping among the authorities, the medical profession, and the general public. Later on, with the co-operation of all public bodies and of the great majority of individual citizens, there were created organized methods for dealing with the epidemic, to the details of which we shall later refer. The main features of this organization remain, and would be at once available in the not improbable event of the recurrence of the epidemic. Among their functions was the compilation and distribution of information of the nature and character of the disease, and, to use the words of our order of reference, "The best methods of preventing or dealing with such occurrence in the future."

Medical Advice.

At the date of the epidemic the Dominion had not the benefit of the experiences of the English medical men with this pandemic outbreak. Since then such has been supplied. A memorandum on the subject was issued by the Royal College of Physicians, London, in November last. Much of its subject-matter is familiar to our own practitioners, and has been adopted by them in the various directions and notices issued during the epidemic campaign. It may be well, however, to embody its main suggestions:—

"Infection is conveyed from the sick to the healthy by the secretions of the respiratory surface. In coughing, sneezing, and even in loud talking these are transmitted through the air for considerable distances in the form of a fine spray. The channels of reception are normally the nose and throat.

"It is manifest that the closer the contact the more readily will this transmission occur; hence the paramount importance of avoiding overcrowding and thronging of any sort, whether in places of public resort, public conveyances, factories, camps, dwelling-rooms, or dormitories.

"The sum of available evidence favours the belief that the period of incubation is about forty-eight hours, or even somewhat less.

"The dangers of influenza are gravely increased by the complications, and much can be done to avoid or to mitigate these. Such complications may develop insidiously and without previous signs of severe illness.

"Carefulness does undoubtedly decrease, and carelessness increase, both morbidity and mortality; it is important, therefore, that the public should have a clear idea of such measures of personal prophylaxis as are available against infection. Larger measures of public health administered by the Government

or local authorities stand outside the scope of the present memorandum. The individual must be taught to realize and acquiesce in his duty to the community.

"Well-ventilated, airy rooms promote well-being, and to that extent, at any rate, are inimical to infection; draughts are due to unskilful ventilation, and are harmful; chilling of the body-surface should be prevented by wearing warm clothing out-of-doors. Good nourishing food and enough of it is desirable. There is no virtue in more than this. Alcoholic excess invites disaster. Within the limits of moderation each person will be wise to maintain unaltered whatever habit experience has proved to be most agreeable to his own health. The throat should be gargled every four to six hours if possible, or at least morning and evening, with a disinfectant gargle, of which one of the most potent is a solution of twenty drops of liquid soda chlorinate in a tumbler of warm water. A solution of common salt, one teaspoonful to a pint of warm water, is suitable for the nasal passage; a little may be poured into the palm of the hand and snuffed up the nostrils two or three times a day.

"Since we are uncertain of the primary cause of influenza, no form of inoculation can be guaranteed to protect against the disease itself. From what we know as to lack of enduring protection after an attack, it might, in any case, be assumed that no vaccine could protect for more than a short period. But the chief dangers of influenza lie in its complications, and it is probable that much may be done to mitigate the severity of the affection and to diminish its mortality by raising the resistance of the body against the chief secondary infecting agents. No vaccine should be administered except under competent medical advice. No drug has as yet been proved to have any specific influence as a preventive of influenza.

"At the first feeling of illness or rise of temperature the patient should go to bed at once and summon his medical attendant. The early stages of the attack are the most infectious, but infection may persist throughout the illness, and segregation should be maintained at least till the temperature is normal.

"Relapses and complications are much less likely to occur if the patient goes to bed at once, and remains there till all fever has gone for two or three days; much harm may be done by getting about too early. Chill and over-exertion during convalescence are fruitful of evil consequences.

"The virus of influenza is very easily destroyed, and extensive measures of disinfection are not called for. Expectoration should be received, when possible, in a glazed receptacle, in which is a solution of chlorate of lime. Discarded handkerchiefs should be immediately placed in disinfectant or, if of paper, burnt. The liability of the immediate attendants to infection may be materially diminished by avoiding inhalation of the patient's breath, and particularly when he is coughing, sneezing, or talking. A handkerchief should be held before the mouth, and the head turned aside during coughing and sneezing. The risk of conveyance of infection by the fingers must be constantly remembered, and the hands should be washed at once after contact with the patient or with mucus from the nose or throat."

All these suggestions have been dealt with by the medical men of the Dominion in their evidence before us. There is difference of opinion in minor points, but there is a general accordance on the main points.

Inoculation.

On the important question of inoculation there appears to be a definite tendency both at Home and in the Dominion to take a more favourable view of its value as a prophylactic, although its use as a therapeutic agency is still doubted. In a communication dated the 8th July, 1918, from the Secretary of State for the Colonies to Your Excellency, and forwarded to us by the Health Department, there is this paragraph:—

"In spite of a good deal of research on the subject of epidemic influenza both in this country and elsewhere there is not at present, the Board state, any completely effective means of controlling the spread of the disease, but that amongst measures advocated as likely to minimize its incidence and severity are careful hygiene of nose and throat, fresh air, free ventilation, avoidance of overcrowding,

and, particularly for those in attendance on the sick, the use of face-masks and prophylactic vaccination."

Dr. Champtaloup, Professor of Bacteriology and Public Health, Otago University, says (p. 1093),—

"I am of opinion, judging from the published experience of others and from our own limited experience here, that protective inoculation against influenza gives in many of those inoculated a very brief or slight degree of protection, sufficient in some cases to make all the difference between a mild attack on the one hand and a severe or fatal attack on the other. . . . The ideal condition would be to administer the vaccine before the epidemic appeared in any community, for there is a certain amount of risk in giving it to persons who might be incubating the disease. For this reason—the reason that the protection afforded was problematical—I did not recommend wholesale inoculation during the last epidemic. There were two classes of people, however, for whom vaccine should be available as soon as the likelihood of an epidemic is apparent. First, doctors, nurses, and voluntary workers who from their close contact with the disease are liable to suffer severely. These could be inoculated under the best conditions, and the protection afforded, slight though it may be, would tend to minimize the difficulty of maintaining medical and nursing aid. We are taking steps to have that carried out in Dunedin in connection with our whole organization. We have a large supply of vaccine here. Protective inoculation should be available prior to and during an epidemic for those who for any reason have an unusual dread of the disease. In these people the mere fact of having received a protective inoculation would give them confidence apart from any possible specific protection, and this confidence would be one of their chief assets. There was no doubt in the minds of those whose work had brought them into contact with numbers of fatal cases in the last epidemic that 'fright' had contributed to that result in a number of cases."

All opinion is against, without further experience, the use of inoculation otherwise than as a prophylactic.

Inhalation.

There seems to be a difference of opinion among medical men in the Dominion on the question of inhalation as a preventive as it has hitherto been applied. Dr. Makgill, Assistant Director of Medical Services, claims a very high place for this method of protection, supporting his view by a number of instances. Dr. Valintine, Chief Health Officer, says,—

"Though the value of inhalation-chambers is not absolutely proved, the experience of their use in military camps would certainly justify the Department using them in the future."

Dr. Colquhoun (Dunedin) says,—

"Any method of inhaling poisonous vapours, I think, is bad, because if the vapour is strong enough to kill the organism it is strong enough to damage the mucous membrane. I know many cases of people going straight out of the inhalation-chamber and getting attacks of influenza directly afterwards."

Inhalation is not mentioned as a prophylactic in the memorandum of the Royal College of Physicians, London, before cited, or amongst the measures advised in the letter from the Secretary of State for the Colonies referred to. It may, we think, be safely said that inhalation is only advisable, if at all, in properly constructed chambers, and with as little contact as possible with others during the process.

Masks.

There is complete agreement in the value of masks in the cases of medical men, nurses, and attendants who are by their occupations brought closely into contact with influenza patients. As to their general use indoors or in the street there is some difference of opinion. They are not mentioned in the London memorandum (quoted before), but they are recommended in the Secretary of State's letter. They were apparently not in use in England in the early days of the epidemic. Dr. Valintine, in a memo attached to his evidence, advocates their use "in public

places, such as in railway trains, trams, shops, &c." He does not advocate their universal use. He concludes,—

"I think I can say that the profession is quite confident that the infection is only transmitted by contact, and I do not consider it necessary for people to wear masks out-of-doors unless they happen to be in crowded streets or where there are large numbers of people assembled."

Dr. Bowie says,—

"A mask is an exceedingly good thing if used intelligently, and dangerous if used without intelligence. If you are in the open air I do not see why you should wear a mask if you are not coming into close contact with crowds of people. But V.A.D.s and doctors who are in close contact with disease and have to move amongst the patients might use them."

Alcohol.

The question of the value of alcohol in combating the epidemic was not dealt with by many witnesses. In an interesting and valuable report by four professors, lecturers, and tutors in the Medical School, Otago University, it is stated,—

"*To support the Circulation.*—Alcohol was used as a stimulant, chiefly in the form of brandy, in doses 6–8 oz. in the twenty-four hours. Transient improvement often followed, but there was no enduring effect. It served best as an explosive stimulant. It was also used for its narcotic action and food value in delirious and convalescent cases. The delirium was so violent that the mild narcotic effect of alcohol was of little avail; but in convalescent cases a beneficial action was evident. The patients experienced a feeling of well-being, ate more heartily, slept more soundly, and progressed more rapidly towards recovery under its influence. Alcohol had no apparent effect in combating the toxæmia of the disease."

Dr. Fyffe (president of the Wellington Branch of the Royal British Medical Association) claimed alcohol "as the most invaluable drug we had in the epidemic not only to reduce temperature, but to keep the patients' strength up." "It did not," he adds, "make them sick like ammonia, which upsets the digestion considerably." In reply to a question, "Do you consider it useful as a prophylactic?" he says, "It is my experience that men who take a reasonable amount of alcohol —two or three whiskies and soda a day—did not get the disease in the way that other people got it. I could never have got through the epidemic without it." (The witness had himself, like very many other medical men, survived an attack.) On the other hand, Dr. Elizabeth Platts-Mills, describing and commending the treatment in the emergency hospital, Karori, from which alcohol was practically excluded, condemns in the strongest manner what she considers the lavish use of alcohol as a medicine, adding her belief that many lived not because but in spite of the alcohol given to them.

The weight of medical evidence was undoubtedly in favour of alcohol judiciously administered as a stimulant during an attack and in convalescence.

Ventilation.

The medical men whose opinions we have received are unanimous as to the paramount importance of fresh air in combating the epidemic. Excellent results have been obtained from almost a practically absolute fresh-air treatment. We have an interesting account from a Mr. Carmine, who, although not a professional man, appears to have secured very good results in the treatment, practically in the open air, of 150 patients; these being a camp of railway workers in a district north of Auckland, where no doctor or nurse was available. An instance was cited by one medical witness in the case of the Matron of St. Helens Hospital, who was nursing at Hawera during the epidemic, when owing to the overcrowding of wards many of the patients, some of them being the severest cases, were treated in outside shelters. They took children out on balconies, and put others into tents with open flies, putting wooden floors in the tents. It was stated that the results were so satisfactory that the Hospital Board were determined, in the event of another epidemic, to treat all their patients by fresh-air methods. The same witness gave us the experience reported to him by Dr. Wishart, a house surgeon of the Dunedin

Hospital, as surgeon of the "Remuera," which carried a large number of troops to Liverpool. He put some cases in the Social Hall, with air going freely through, and the others he treated on deck by the open-air treatment, and he had no deaths at all. A further instance was that of a similar experience by Dr. Moore, surgeon of another troopship. Good results were reported to us as to outdoor treatment in Timaru Hospital. All these instances suggest the importance, where possible, of at least testing the open-air treatment, with shelter from wind and rain.

The necessity of open windows and the freest ventilation is as generally realized as it is habitually ignored. In this connection the importance of the avoidance of crowds or any unnecessary aggregation of groups of individuals must be fully impressed upon all. The packed crowds of the "Carnival Week" in Christchurch, made up of visitors from all parts of the Dominion, and the premature Armistice rejoicings were largely responsible for the extraordinarily rapid spread of the epidemic.

Quarantine.

The general question of quarantine is not one that the Commission considers can be fully dealt with in an interim report. By recent issuing of departmental instructions and providing regulations the Minister is taking steps to avert immediate danger from intercolonial and oversea ships arriving in New Zealand.

Part III of the Public Health Act, 1908, deals with the matter of quarantine, and the powers vested in the Governor and the Minister give absolute control in respect to quarantining of ships arriving from an "infected place," or that took on board passengers or goods from an infected place, or on which an infectious disease broke out, or which communicates with any other ship as aforesaid. By section 115 the Governor may, by Proclamation, notify that any place in or beyond New Zealand is an "infected place" for the purpose of the Act. By subsection (*e*), section 120, the Governor or the Minister may determine the time of the quarantine to be performed by any ships, or persons, or goods, and the absolute or conditional releasing of them or any of them.

Considering the subject of quarantine as a means of preventing or dealing with the epidemic of influenza, it must be evident that, as the disease is highly infectious and spreads very rapidly in a community chiefly by personal contact, every reasonable precaution should be taken by the Health authorities in the direction of enforcing—

(1.) The strictest examination of all ships, passengers, and goods arriving from infected places.

(2.) The placing of all ships, passengers, and goods in quarantine which are liable under the provisions of the Public Health Act, 1908.

(3.) Such medical treatment as may be necessary of all persons placed in quarantine, and their release from quarantine only on the certificate of an authorized Medical Officer.

(4.) The fumigation of all goods to be discharged from any infected ship.

(5.) Special attention to the health conditions of all ships' crews and passengers arriving at New Zealand ports, and similarly to ships engaged in our coastal trade.

As further precautionary measures the Commission counsels that all convalescents and contacts in quarantine should be released only on terms of their reporting and submitting themselves to the examination of a Health Officer until he certifies that all danger is past. The District Health Officers should at once be given whatever assistance is necessary to have the work herein referred to fully carried out.

Provision should at once be made for improved accommodation, equipment, supplies of stores, and extra services at the quarantine-stations, particularly of Auckland and Wellington. The question of the efficiency of the existing stations at Auckland, Wellington, Lyttelton, and Port Chalmers is many-sided and must be deferred for consideration in our main report, but we urge that there is need for temporary improvement, which would not interfere with any general plan adopted later on.

From all the evidence and knowledge we can gather upon the subject it does not appear that we can look for absolute immunity as the result of strict quarantin-

ing. In Australia the disease appears to have gained admittance under very strict quarantine conditions. The medical testimony throughout favours the isolation of persons infected by this disease, and where isolation has been applied to a place it appears to have in a degree prevented the spread of infection and, consequently, minimized the evil. The Commission has heard strong views expressed in favour of applying practically quarantine conditions to all infected districts within the country, but is not prepared at this time to advise such a course of action as being necessary.

Health Department Initiative.

We recommend that in order to meet a possible recurrence of the epidemic the Department be added to in the administrative, medical, and sanitary branches. A strong policy of definite initiative on the part of the Head Office and of all district centres is essential. The services which the Department will undertake in the way of advising or directing the local authorities, and the specific tasks which it will carry out by means of its own officers, should be fully and clearly defined. All departmental branches, the several local authorities, and the citizens organizations directly concerned should be early informed of the scheme of operations to be followed, and the specific services required of each of them. The Minister and the Department should concentrate their attention upon co-ordinating the whole of the forces required to combat the epidemic, and lead the country in creating precautionary safeguards before the attack has reached the stage of virulent intensity.

The Duties of Local Authorities.

The first, if unwritten, duty of the local authorities is to energetically assist the Minister of Public Health and his Department in all measures necessary to combat this grave danger to the Dominion.

Though by section 5 of the Hospital and Charitable Institutions Amendment Act, 1910, the Hospital Boards are constituted local authorities for "the prevention of infectious diseases," and the Boards are therefore legally placed in a leading position as regards the duty of combating any infectious disease, yet it should be clearly understood that in dealing with an epidemic the duty falls upon every local authority to help in stemming the torrent of disaster. The Borough Councils, Town Boards, and County Councils should each appoint a Health Committee, and be ready to act with the Government and voluntary organizations. The important matters of sanitation, house inspection, ventilation, and general hygiene should have special attention. The Councils and Boards referred to might also consider what monetary or other assistance they can give to the associations carrying on nursing or other special work within their district.

Hospital Board Work.

A Special Epidemic Committee should be appointed by each Board, and each such Committee should make arrangement with respect to—

(1.) Auxiliary and temporary hospitals throughout their district.
(2.) The providing of full nursing staffs.
(3.) The securing of medical services for all institutions.
(4.) Establishing of dispensaries where required.
(5.) Assisting in regard to transport.
(6.) Co-operation with the general organization throughout their district.
(7.) Give special attention to relief and supply of reserve assistance in respect to the medical and nursing services.

To the credit of the Hospital Boards it can be said that from the earliest stage they entered fully into the work of combating the recent epidemic, and we have been informed that the Boards in several districts have appointed Committees as herein suggested, and made tentative arrangements. Each Board should, as early as possible, compile a list of its various requirements, and copies of these lists be supplied to the Health Department in order to secure general supervision over the whole Dominion.

General Organization.

The form of organization that is required amongst the citizens of each community is that which will best operate as a whole in assisting the Health authorities both local and general, and co-operate throughout as a disciplined if not a trained force. Weaknesses were discovered in the methods adopted during the recent epidemic which should be avoided on any other occasion if the service is required. The specific duties of each section should, as far as possible, be clearly defined at the commencement and made generally known. In the earlier stages of the last campaign two mistakes were manifested, having considerable effect for a time. The first was in the direction of having all activities centralized in the one depot, and the other was in the opposite direction of having scarcely any centralized oversight or control. It is desirable to avoid extremes in either centralization or decentralization. In October and November last all districts had to create their organization in the stress of actual conflict, and it was necessarily incomplete in various respects. Now the opportunity should be taken to perfect the organization before a general outbreak of the disease takes place. It is specially important to take all steps necessary in order to prevent any needless expenditure of the time, energies, and skill of all those engaged in professional or trained services, such as doctors, nurses, chemists, transport officers, and public officials. The organization best suited for the more sparsely settled portions of the country would be in the direction of having special country Committees formed, each under the direction of an officer of the Health Department, to deal with all wants within their defined sub-health district. The officer of each subdistrict would keep in constant touch with his District Health Officer and, through him, with the Central Executive Committee of the health district.

Maori Settlements.

Particular attention should be given to the case of Maori settlements by bringing into operation the provisions of section 68 of the Public Health Act, 1908, relating to the sanitation of Maori settlements. In addition to the Committees referred to in subsection (*b*) of that section there should be appointed some Europeans to assist the Maori Committees in each special district established. The work in each of these districts should be under the direction of an officer of the Health Department.

Existing Organization.

At the time of taking evidence the cities had adopted the following organization :—

Auckland.—Central Executive appointed. Group Committees formed. Order of St. John Association and Brigade ready to act. Block system agreed to. Central bureau at Hospital Board offices. Hospital Board acting. The district organization not consolidated, but the separate bodies could be brought into operation in a short time.

Wellington.—Hospital Board taking control, and has Committee appointed. Held meetings with representatives of Group Committees. Board Committee to arrange for medical services, nursing, ambulance, and transport, and the establishment of auxiliary or temporary hospitals. Four buildings prospectively selected for temporary hospitals. Doctors agree to work on block system.

Christchurch.—Executive appointed consisting of the Mayor and a representative of the Health Department, the Hospital Board, the City Council, the Nursing Association, St. John Ambulance Association and Brigade, the Automobile Association.

The block system was agreed to. Medical services under the British Medical Association ; nursing services under the Nursing Association ; transport services under the Automobile Association ; general relief and V.A.D. work under St. John Ambulance Association. Registers being compiled of nurses in practice and retired, and those only partially trained as assistants.

Dunedin.—General Executive: The Mayor and representatives of the Hospital Board, the City Council, and the Order of St. John. Advisory Committee appointed by the Hospital Board, consisting of the Chairman of the Board, the Finance Committee, and the honorary staff, to report on hospital accommodation. Three representatives of St. John Ambulance Association and Brigade to report on V.A.D. work, transport services, and Red Cross relief. Medical services under the Medical Association; medical students to assist.

Work of Order of St. John under section Committees for nursing, ambulances, motor transport, V.A.D. services.

General relief with the Red Cross Society.

General Plan recommended.

As a summary of the valuable work already done in the way of organization, added to from the experience of members of the Commission, we submit these recommendations as a means of dealing with the epidemic should it recur.

Health Districts.

The boundaries of existing health districts to be defined and made known to the public.

Sub-health Districts.

Sub-health districts are to be constituted and the boundaries published.

The cities and chief towns, with the contiguous small boroughs and town districts, to be constituted sub-health districts.

Backblock districts and Maori settlements to be constituted special sub-health districts.

Ward Districts.

Each city and chief town subdistrict to be divided into wards for convenience of working. Each small borough and town district to be constituted a ward of the city or chief town which it adjoins.

The port, wharves, and shipping of each chief port of the Dominion to be constituted a ward of the city or town to which it is attached.

Central and Ward Bureaux.

A central bureau to be established in each city and chief town.

Each small borough and town district adjoining a city or chief town to have its own sub-bureau.

Each ward Committee, as may be required, to establish a depot for their ward.

Committees.

Each subdistrict and ward district shall be in charge of their own appointed Committee, with a Chairman, Secretary, and any other officers required attached to same.

City and chief town General Committees, consisting of the Mayor, the District Health Officer, and a representative from each of the following bodies—The Hospital Board, City Council, small boroughs and town districts adjoining, the Medical Association, the Nursing Association, the Order of St. John, the Red Cross Society, the Automobile Association, the Medical Students, and the Ward Committees—to be constituted.

Subdistrict Executive.

The Executive of the Central Subdistricts shall consist of the Mayor of the Chief Borough, the District Health Officer, the Chairman of the Hospital Board, a representative of the City Council, a representative of the Accountants' Association, a representative of the wards, and one representative for the Order of St. John, Red Cross, and other working associations.

Special Committees.

Attached to the central bureau and the ward depots, as may be required, the following Committees should be appointed:—

(1.) For the care of children, the aged, and disabled persons.
(2.) To take charge of the supply and dispensing of medicines and nursing requisites.
(3.) To supervise arrangements for kitchens, food-supplies, clothing, and general distribution.
(4.) To attend to all required arrangements *re* burials.

Medical and Nursing Services.

In agreement with the British Medical Association, doctors will be allotted to each ward district, and special requirements of service dealt with through the central bureau. Similar methods will apply to trained nurses by agreement with the Nursing Association.

Keeping of Records.

Each central and sub-bureau to appoint a Recording Clerk, who shall keep full and exact records of all cases, visits paid, assistance given, and general transactions of the Committees within its district.

General Instructions and Information.

1. Each ward may be divided into blocks, and a group of workers allotted to each block, in order to expedite attention to cases arising and prevent needless travelling and possible overlapping of services.

2. All block groups of workers shall report and be responsible to their Ward Committee.

Each Ward Committee shall similarly report to its Subdistrict Committee. All Subdistrict Committees shall report to the District Health Officer of their district, and all such officers shall report to the Chief Health Officer of the Dominion.

3. All calls for doctors and nurses within a city or chief town shall be received and dealt with by the central bureau, and within adjoining boroughs and town districts through the sub-bureaux acting in close co-operation with the central bureau.

4. All sub-bureaux and ward depots shall report constantly to the central bureau as to calls received.

5. The central bureau to supply the ward depots each morning, and as frequently in addition as is required, lists of cases reported, with any other information useful for the use of the doctors and nurses.

6. The duties of all voluntary workers engaged in the central bureau, sub-bureau, ward depots, and in special services to be classified and specifically allotted.

7. Central bureau: Provide a fairly large central bureau, to receive all calls for assistance of any kind. This central bureau would be the centre of the whole local organization to combat the epidemic, and some person in charge of each branch of work would be in attendance to arrange for prompt action in every matter respecting which the bureau received a call.

8. Nurses and home assistants: Compile a roll of all women willing to help in any capacity in homes of the sick or in hospitals. Such helpers should be classified—(*a*) certificated nurses, (*b*) women able to do unskilled nursing, (*c*) women willing to help in patients' homes generally. The roll should also specify whether the persons could give their services at once, or whether such services would be contingent upon their being released from business. With respect to home nursing, classes could be formed at once for the general instruction of untrained nurses, which would be valuable even if there is no recurrence of the epidemic.

9. Bureau, transport, and general assistance: A similar roll should be prepared with regard to men, specifying the nature of the assistance they could give and under what conditions.

10. Supplies: (*a.*) Medicines—Prescriptions of, say, three or four standard remedies should be agreed upon by the medical men and given to the wholesale druggist firms, who would supply required quantities at a few hours' notice. (*b.*) Supply of masks should be made speedily available, sufficient for all epidemic workers in the meantime. The Public Health Department will provide specimen

mask, and full supplies can be procured from firms. (*c.*) Food and clothing should be arranged to be provided for households if required. Lists should be compiled of persons willing to supply special foods for sick people.

11. Extra hospitals: Arrange for suitable buildings for extra hospitals, to be immediately available if required. Have list of all equipment and staff ready.

12. Temporary homes for children: Secure some large buildings to be used as children's homes, in which children from sick households could be kept.

13. Vigilance Committee: Appoint a Vigilance Committee, some of the duties of which would be to give special attention to the hotels and large boardinghouses, to see that no inmates were lacking attention, and to also inquire into reports from neighbours, &c., of uncared-for cases of sickness in private homes. In this connection residents should be instructed beforehand, through the newspapers, to fasten a small white flag to the gate-post or doorway as a signal for assistance, and the ambulance staff or the medical men could then inquire on seeing the signal when passing.

14. Funerals: Although there may probably be no real need for any Committee of this kind, still such may be advisable to deal with possible delays or other emergencies in hotels, boardinghouses, or in other directions.

15. Public advice: Placards should be prepared and posted outside the post-offices, newspaper offices, and telephone-boxes supplying information as to where to apply for any particular class of assistance required.

Leaflets should be prepared and printed for distribution giving advice to the general public as to precautionary measures to be taken in the way of personal hygiene, house-cleaning, the importance of ventilation, and the first steps to be taken in case of illness.

Public Responsibility.

The outstanding lesson to be drawn from the mass of evidence which the Commission has received is that we cannot hope to secure the best methods of preventing or dealing with any recurrence of an epidemic such as we have recently experienced unless we are prepared to lay aside the impediments of personal bias in favour of united co-operative action.

In combating the swift and insidious attack of this most serious disease it is quite as necessary to have ordered forces, disciplined and co-ordinated throughout from the Minister of the Crown to the smallest Boy Scout, as it was to have well-directed and disciplined Forces to meet the enemy in the recent war. Just as the war called for general recognition of responsibility on the part of all who wished for the preservation of justice and liberty, so does the warning of a great and devastating epidemic call upon all who desire the great benefits of health and well-being to bear their share ungrudgingly in any work that is necessary for the protection of the lives of our people. In the ultimate analysis we find that the responsibility rests upon the public for the existence of so many defects and weaknesses attached to our public-health system. Were there active public opinions upon health questions many of the evils that now exist could not long remain. It has been brought home to the Commission by the evidence given and by the general attitude of witnesses that we, as a people, have been too much disposed to regard affairs relating to public health as being almost exclusively the province of the medical expert and the specialist, instead of being the concern of the general body of citizens, as it should be.

Concurrence in Report.

Owing to the unavoidable absence in Auckland of the Hon. Edward Mitchelson, one of your Commissioners, it has not been found convenient to procure his signature to this report, but he has signified to the Chairman, by telegram received, his concurrence in the matter of submitting an interim report to Your Excellency on the subject-matter contained in clause (2) of the order of reference, and has forwarded his views to be embodied in such report.

In witness of the contents hereof we have hereunto set our hands this twenty-second day of April, one thousand nine hundred and nineteen.

J. E. Denniston, Chairman.
D. McLaren, Member.

REPORT.

To His Excellency the Governor-General.

May it please Your Excellency,—

We have the honour to report that we entered upon the duties imposed upon us by the Commission at as early a date as was practicable after its issue.

Sittings held.

Sittings at which evidence was taken were held in the four principal cities of the Dominion on the dates following :—

At *Auckland*, on the 17th, 19th, 20th, 21st, 24th, 25th, 27th, and 28th February, and on the 3rd and 4th March. On the 26th February the Commissioners visited and inspected various parts of the city, and on the 23rd February they made a visit of inspection to the quarantine-station at Motuihi Island.

At *Wellington* the sittings resumed on the 10th March, and were continued on the 11th, 12th, 13th, 14th, 17th, 18th, 19th, and 20th. The Commissioners inspected household property in various portions of the city on the 18th, and visited the quarantine-station at Somes Island on the morning of the 14th March.

At *Christchurch* the Commission took evidence on the 24th, 25th, 26th, 27th, and 28th March, and also visited the quarantine-station at Quail Island on the morning of the 28th March.

At *Dunedin* the sittings for the purpose of taking evidence were held on the 31st March and on the 1st, 2nd, and 3rd April. The Commissioners visited the Quarantine Island, Port Chalmers, on the 2nd April. On returning to Christchurch the Commissioners, for the purpose of investigating the evidence and preparing the report, sat from day to day from the 7th to the 26th April, and the final sittings in Wellington were from the 28th April to the 10th May, when the report as drafted was approved for presentation.

Notification of Sittings.

As a preliminary to our sittings in each city we caused advertisements to be inserted in the local daily newspapers announcing the Commission, and inviting all persons interested to attend and give evidence or make such representations as they desired. We also gave direct invitations to medical scientists and practitioners, representatives of the British Medical Association, Municipal Corporations, Hospital and Charitable Aid Boards, the Government Health Department, District Health Officers and Inspectors, the Order of St. John (Association and Brigade), Nursing Associations, Port Health Officers, Quarantine Officers, Harbour Boards, shipping companies, Federated Seamen's Union, Trades and Labour Councils, Citizens' Epidemic Committees, and other associated persons to attend and give evidence either orally or by way of official documents.

Course of Sittings.

At the first sitting in Auckland the question was submitted by Mr. J. Stanton, City Solicitor of Auckland, on behalf of the Mayor and Council, whether the Auckland City Corporation might be represented before the Commission by counsel. A similar request was made by the Hon. G. W. Russell, Minister of Public Health, at Wellington on behalf of the Department of Public Health. The Commission ruled upon both references that it could not allow representation by counsel, as statements of the issues referred to the Commission were unnecessary, and the Commission itself was fully competent to examine upon all evidence submitted to it. The Commission, however, in order that no information of material importance might be excluded, allowed any person interested to submit questions to the

Chairman, which, if deemed necessary, were put by him to any witness under examination.

In addition to those formally invited, a number of private citizens voluntarily attended and gave evidence before the Commission.

The evidence was taken partially on oath, but no direct and relevant information was excluded because the person conveying the information was not present or had not been sworn.

At Auckland, Wellington, Christchurch, and Dunedin suitable rooms were placed at the service of the Commissioners by the Public Departments, and the greatest courtesy was extended to them by the Mayors, District Health Officers, and all representatives of public bodies. At Dunedin special attention and courtesy was paid to the Commissioners by Professor Dr. Champtaloup and Dr. Lindo Fergusson, Dean of the Faculty of Medicine, in affording them full opportunity, by invitation, to inspect the new School of Medicine in Great King Street, when a number of bacteriological cultures were shown and explanations given by the gentlemen here referred to.

Thanks are due to the various witnesses for their attendance and the time given in verifying matters of information for the Commission. It should be added that all the witnesses attended and gave their evidence without fee.

A list of witnesses is contained in the Appendix herewith.

We have in the first instance to express our regret that we have been compelled to occupy a much longer time than we had expected in giving effect to Your Excellency's Commission. For this there have been two causes—

(1.) The very wide scope and general character of the subject-matter of the order of reference, dealing as it does in most cases not so much with the ascertaining of definite facts as with matters relating to public health generally, and concerning organization and administration. These cover much ground, and necessarily involve the examination of a large number of witnesses from all classes in the leading cities of the Dominion.

(2.) The fact that the Department of Public Health, including the Minister, avowedly considered the administration of the Department to be on its trial. In consequence much diligence and cost have been devoted to the preparation and presentation of numerous reports, accompanied by statistics, graphs, and suchlike, on a great variety of subjects, including departmental, military, scientific (bacteriological and pathological) information and opinion. This can be best illustrated by the following memorandum submitted to us by Colonel Valintine on behalf of his Department:—

SUGGESTED SUBJECTS FOR INVESTIGATION BY ROYAL COMMISSION REGARDING RECENT INFLUENZA EPIDEMIC AND FUTURE PRECAUTIONS.

Prior to Epidemic:—

General health of Dominion. Effect of the war. Departmental staff available when outbreak began.

Epidemiology of Influenza:—

History of previous outbreak throughout the world and in New Zealand. Experience in other countries as regards present epidemic.

Effect of Movements of Troops:—

General history of the disease and its spread in New Zealand in 1918. Evidence as to place of origin. Evidence from military camps.

Measures necessary to prevent the Introduction of the Epidemic:—

From present knowledge could any precaution have been taken which would have prevented effectually the introduction of influenza into New Zealand?

(1.) *Quarantine.*—(*a.*) When should this have been initiated, and to what extent? (*b.*) What ports should have been regarded as infected? (*c.*) With the facilities available, could effective quarantine have been established? (*d.*) Is it possible to establish effective quarantine against influenza? Experience in Australia—action taken and results. (*e.*) Are present quarantine facilities sufficient to deal with extensive shipping arriving in New Zealand ports.

(2.) *Vaccination.*—Would the prior use of a prophylactic vaccine have minimized the epidemic? What evidence was there in October that such a vaccine might be used?

Influence of the Arrival of "Niagara" and "Makura":—

(1.) "*Niagara*"—*Dates of Arrival.*—Ports called at. Was there evidence of the presence in New Zealand of the pneumonic type of disease before the arrival of the "Niagara"? Is there evidence that the severe type was spread in New Zealand or at other way ports by passengers or crew off the "Niagara"? With the knowledge existing at the time, would the quarantining of the "Niagara" have been reasonable: if so, to what extent? Disposal of "Niagara" patients—(*a*) On shore; (*b*) on the vessel.

Cargo. Difficulties as to working cargo. Labour conditions.

(2.) "*Makura.*"—Circumstances regarding the quarantining of this vessel. Difficulties as to working cargo and berthing. Difficulties as to opening the quarantine-station at Motuihi.

Influences affecting the Spread of Influenza in New Zealand:—

Possible influences on virulence of epidemic. (*a.*) Lack of natural immunity among the people of New Zealand. (*b.*) Weather conditions. (*c.*) Congested areas in town. (*d.*) Native population. (*e.*) Military camps. (*f.*) Seamen's quarters. (*g.*) Workers' dwellings, milk, "batches," &c.

Measures taken by Department to Control the Epidemic after it was established in New Zealand:—

Efficiency generally of such measures.

Measures in connection with Hospital Boards. Were Boards prepared for this emergency? Temporary emergency measures. Responsibilities of Boards.

Medical Profession.—Were the services of the medical profession used to the best advantage? Difficulties.

Nursing Service. Was it adequate? Voluntary aid nurses; Red Cross and St. John Ambulance workers.

Assistance from Outside Services generally.—Ambulance local Committees; voluntary sanitary Inspectors.

Measures necessary for strengthening Public Health Administration in the Dominion:—

Is the Department in a position to cope satisfactorily with (*a*) sanitary work in normal times; (*b*) epidemics such as the recent influenza outbreak?

Any Additions to Staff necessary:—

Clinical Medical Service.—*Local Government.*—Are the responsibilities of Department and the local authorities sufficiently defined? Did lack of definition affect the conduct of measures necessary to cope with epidemic? Possibility of effective sanitary administration by local bodies as at present constituted. Medical officers for local bodies. Position of Hospital Boards in scheme for sanitary administration.

Sanitary Inspectors.—Defective Public Health Act.

Congested Areas:—

Their existence. The remedy. The housing problem; its influence on the existence of insanitary areas. Amendments in law necessary for dealing with insanitary areas and houses. Is there need for special legislation as regards housing and town-planning?

Interim Report.

The Commission, fearing a possible recrudescence of the epidemic, thought it proper to prepare and submit to Your Excellency a report dealing with the second subject-matter under our order of reference—namely, "The best methods of preventing or dealing with such occurrence in the future." This report was forwarded to Mr. J. Hislop, Secretary to the Department of Internal Affairs, on the 23rd April, 1919, for submission to Your Excellency. We have nothing further to add upon that head, but desire that our Interim Report be read together with this our Final Report.

Introduction of Epidemic.

Dealing with the order of reference in detail we have,—

(1.) "The causes of the introduction and extension of the recent epidemic of influenza in New Zealand."

It is evident that the "introduction of the recent epidemic of influenza" must be taken to mean its introduction from outside the Dominion. It is admitted that the latest and virulent form of the local epidemic is practically identical in form, incidence, characteristics, and date of appearance (allowing for the time of travel, which is the same as that required for human travel) with the pandemic influenza which, originating in the east and travelling westward, has devastated the Continent of Europe, Great Britain, and America. Even if it were established—as seems to be contended for in some of the very able and interesting scientific reports supplied to us by two bacteriologists and pathologists of the Department, and by the members

of the staff of the Christchurch Hospital, and the Medical School of the Otago University—that the ordinary simple influenza, which we have always with us, could develop with the aid of some new organism into a more virulent form, it is incredible that this could take place in New Zealand coincidentally in time and character with the external pandemic invasion.

If it has been introduced from without it is admitted that it must be seaborne, and therefore that the only question we have, on this part of our reference, to consider is by what vessel or vessels it was introduced. That is further indicated by the terms of No. 3 of the order of reference: "All matters connected with the arrival in New Zealand waters of the s.s. 'Niagara' and s.s. 'Makura' in respect to their bearing on the introduction and extension of the epidemic."

The incident of the "Makura" may be regarded as of very minor importance. She arrived at Auckland on the 30th November, a message having been previously received that she had measles on board. When she arrived it was found that the measles cases had recovered, but several cases of influenza were reported. As influenza had on the 6th November been proclaimed an infectious disease, she was on her arrival not permitted to be berthed, and was rightly quarantined at Motuihi, all infected passengers being landed there. Three of her patients died, and were buried on the island. One of the voluntary nurses who was attending the patients also died, and was buried on the island. There is no evidence that the arrival of the "Makura" in any degree affected the introduction or extension of the epidemic.

This leaves us with only this question: Was the "Niagara" the cause, or a cause, of the introduction and extension of the epidemic into New Zealand?

The facts as to the arrival of her at Auckland, and the incidents immediately preceding and following such arrival, are not disputed. The following memorandum from Paymaster (Lieutenant-Commander) Brown, R.N., Assistant Naval Intelligence Officer, Wellington, records the origin of the first intimation on the subject:—

The Secretary, Royal Commission on Influenza, Wellington.

At the request of Dr. Frengley, I desire to inform you as follows in regard to the wireless message received from the s.s. "Niagara" on the 11th October last reporting influenza on board:—

(*a.*) The message reached this office from Radio-Awanui about 2.45 p.m. on the date above mentioned, and was addressed to "Naval, Wellington," which is the telegraphic address of the Naval Intelligence Officer (Admiralty).

(*b.*) The text of the message was as follows: "Please advise Health Department Spanish influenza cases on board; increasing daily. Present time over 100 crew down. Urgently required hospital assistance and accommodation for 25 serious cases. Arriving schedule. 0020."

(*c.*) The figures "0020" indicate that the message was received in the "Niagara's" wireless-room at 11.50 a.m. on the 11th October; the message left Awanui-Radio at 12.12 p.m. on that date.

(*d.*) Immediately on receipt the message was communicated by me personally, over the telephone, to Mr. Neale, of the Wellington Branch of the Union S.S. Company, and Mr. Neale told me that he would take all necessary action, including notification on behalf of the owners to the Health Department.

(*e.*) The sender of the message was the master of the ship.

Of this there is no doubt, as at the time the master of the ship was the only person authorized to send wireless messages, all of which were addressed to the Naval authorities.

D. J. Brown,
Paymaster (Lieutenant-Commander), R.N.,
Assistant Naval Intelligence Officer.

Parliament Buildings, Wellington, 1st May, 1919.

The next we hear of this telegram is from Dr. Hughes, District Health Officer, Auckland, who says, "The following copy of a wireless from the Union S.S. Company, Auckland, was telephoned to me on the 11th October: 'Wireless received by Mr. Irvine, Union Company: Navy advises received following message, "Please advise Health Department 'Niagara' arriving with Spanish influenza cases on board; increasing daily. Present time over 100 crew down. Urgently requiring hospital assistance and accommodation for 25 serious cases. Arriving schedule."'" I wired Wellington stating I had received this information concerning the 'Niagara,' and asking what steps were required for dealing with the case. This is the wire: 'I am given to understand that probably large number of cases of influenza on

the "Niagara" expected to-morrow morning. Public reception postponed by wireless from the Premier. What steps *re* dealing with the "Niagara's" case do you require? Oct. 11th.'"

On the 12th October this telegram was sent by the Health Department, Wellington, to Dr. Hughes, Health Department, Auckland:—

> Health Department, Auckland.—"Niagara" arriving to-morrow noon. Notified Spanish influenza on board increasing. Over a hundred crew down. Urgently requires hospital accommodation for cases. Administer inhalation of two parts zinc-sulphate to all on board before disembarking. Instruct those disembarking to report to Health authorities in home towns for further treatment.—HEALTH.

This telegram was marked "Seen.—G. W. R. 11/10/18."

On Saturday morning, 12th October, before the ship came alongside, the Minister cleared the wires and sent the following message "Take precedence":—

> Health, Auckland.—Before Port Officer clears "Niagara" see no communication with the ship is permitted. He is to report to me through you and await instructions—(1.) Number of deaths, if any, on ship since leaving Vancouver, and if from influenza. (2.) Whether disease is not pure influenza, presenting same indications as that which has prevailed in Dominion for some time past.—G. W. RUSSELL.

Dr. Hughes says that while the gangway was being put down he received the above telegram.

Having despatched this telegram the Minister rang up His Excellency the Governor-General, whom he had previously notified of the conditions on the "Niagara" as regards disease, and informed him that influenza was not notifiable as a dangerous infectious disease, and that consequently we could not quarantine the ship on account of having influenza on board, but if the reports received made it desirable that influenza should be made a quarantinable disease he would request His Excellency to immediately sign a Proclamation, and the ship would go into quarantine. His Excellency, the Minister states, was good enough to say that while he himself would regret, if it became necessary in the public interest it would have to be done.

Subsequently the Minister of Public Health sent the following telegram to the Right Hon. Mr. Massey and the Right Hon. Sir J. G. Ward, who were passengers by the "Niagara":—

> Regret there should be any delay in your landing. Union Company reports 100 crew down, and hospital accommodation required for 25 severe cases. Cables report 250 deaths at Cape Town and 466 in Kimberley from influenza on Wednesday. In view of these facts and the deaths from influenza on one of our troopships it is considered necessary to ascertain if any deaths on your ship, and whether disease is pure influenza, such as has been prevalent in New Zealand for some time past. I sincerely hope answers will be satisfactory and that there will be no delay.

We take this opportunity of stating that there is no ground for suggesting that either of these Ministers interfered directly or indirectly in the decision of the visiting doctors, or otherwise in the matter.

In reply to the Minister's "Urgent take precedence" telegram Dr. Hughes wired as follows:—

> On "Niagara" one death last night, broncho-pneumonia after influenza. Disease purely simple influenza. Only two passengers for New Zealand with it on board. Reply Dr. Hughes, care "Niagara."

And the following also "Take precedence" message was sent by the Minister:—

> Dr. Hughes, care "Niagara."—Ship may be cleared.

The account of the circumstances in which he sent his final telegram are thus described in evidence.

The "Niagara" was moored, and the Port Health Officer and Dr. Hughes proceeded on board and met the doctors who were on board, Dr. Mackenzie and Dr. Barnett. The ship's doctor, Dr. Latchmore, had not been well, and was laid up, and Drs. Mackenzie and Barnett were really in charge. The patients on the ship were in various conditions, and the Port Health Officer and Dr. Mackenzie proceeded after a time to go over the vessel and to see all of them. Dr. Mackenzie undertook to take the Port Health Officer round those he was treating as patients. Dr. Hughes continues,—

I had a talk with the doctor myself, and went down and saw the patients, where I found Drs. Mackenzie and Russell. The position was discussed as regards the diagnoses, and we went into the question as to whether it was pure influenza or simple influenza. As to the position on the boat, there were two definite cases of pneumonia, and one or two with slight crepitation in the lungs. Dr. Russell was in private practice as well as being Port Health Officer, and he holds that he had on shore before the "Niagara" arrived a case of pneumonic influenza which was worse than any of those cases on the ship. . . According to Dr. Russell there was very little difference in the symptoms of what we were having on shore at the time and the cases on the ship.

He must have had in his mind the interpretation in the Minister's telegram of pure influenza, "if the disease is or is not pure influenza, presenting the same indications as that which has been prevailing in the Dominion for some time past."

In answer to the question, "Did you find any difference?" Dr. Hughes said,—

Practically none at all, but the three of us discussed the position, and came to the conclusion that it was purely simple influenza. It did not go through the passengers. There were only those two definite cases of pneumonia, and some of the nurses had gone down during the trip, but none of the doctors; and under the conditions those men were living in or being nursed I would quite expect to find two pneumonias out of the influenzas.

It was after this that he sent the telegram to the Minister telling him that one death had occurred on the "Niagara" from bronchial pneumonia after influenza—purely simple influenza—and received the Minister's reply, "Ship may be cleared." In reply to questions Dr. Hughes said he had made inquiries as regards troubles on the way across, and as to whether there was any disease at the ports at which the ships called; but when asked if he had had communication with any one else than Drs. Mackenzie and Barnett on these subjects he said, "No; I relied on the doctors on the ship"; and, questioned as to whether none of the passengers were asked, he said, "No; I relied absolutely on the doctors in making a diagnosis. I had no discussion with other persons on board with regard to the state of health on board." In answer to the question, "After you declared the ship clear, were the passengers and crew allowed to go ashore and backwards and forwards?" he said, "I asked that any of the crew who had been sick at all during the voyage should not be given passes to the shore, but that all the others could go."

Dr. Hughes in evidence says, "The Minister's wire is dated 12th October, 1.25 p.m."; and when being questioned as to when the removal of patients from the ship took place he replied, "The ambulance was waiting from 10 o'clock to take them away, but they were being taken when I left the boat at about 3 o'clock, I think." Further, in answer to the question, "At what time were the first of them taken off the boat?" replied, "I cannot say absolutely. The two bad cases were allowed to be taken away as soon as possible—I suppose, between 12 and 1 o'clock. The others were taken as soon as possible after that." Patients were being taken away when Dr. Hughes left the boat about 3 o'clock. With regard to the two severe cases, he says the case of the fireman was pretty bad, and adds, "One of these cases was delirious, and the other was pretty seriously ill. One died, and the other recovered." In reply to the question, "Were you aware at the time the ship came in of the existence of a severe form of influenza in England?" he said, "We had very little information about the influenza at all at that time."

What had you?—That there was influenza of a serious nature and many deaths in South Africa.

What about England?—I cannot remember having heard about it there.

You were not aware of the pandemic influenza in England?—I do not think so.

Were there any reports of a very virulent form of influenza in Europe?—There was, I believe, some word from Europe, but South Africa was the only place I had in my mind.

* * * * *

How many cases of influenza were there among the passengers?—There were about half a dozen during the voyage, but most of them had recovered. There were two passengers for New Zealand suffering from the complaint when the boat arrived.

What became of those passengers?—They were sent to private hospitals.

Did they survive?—Yes. . .

In the wire you received about the vessel before she arrived it was stated there had been a hundred cases on board. Were you surprised to find there were only twenty-eight cases when she came alongside?—There were more than that; there were fifty-eight altogether; there were twenty-eight in the hospital.

Were they all passengers?—Passengers and crew.

* * * * *

Did you treat them as quite recovered ?—Yes.

When you say you did not know of the existence of influenza in England, do you refer mere'y to the severe type ?—No ; I cannot remember that I heard concerning England at all.

It did not impress you ?—I cannot remember it.

With regard to the isolation at the hospital, in your opinion was it satisfactory ?—Special accommodation was provided for the cases in the isolation block. As far as I know, there was no means of infection other than through the nurses, and precautions were taken, I am informed, to keep the nurses in that block. I may say I have nothing to do with the hospital.

As far as you know, were there any cases from the ship treated in the general ward ?—No.

Dr. Russell, Port Health Officer, Auckland, said, *inter alia*,—

The Minister wired to Dr. Hughes to the effect that I was to go on board the boat alone for my diagnosis. Then followed the telegrams referred to by Dr. Hughes in his evidence.

Was there a telegram sent to you by the Minister ?—Not direct. Dr. Hughes handed me the telegram. . . . We were met in the gangway by Dr. Mackenzie and Dr. Barnett. Dr. Mackenzie, Dr. Hughes, and I went all round the patients and examined them. I formed my diagnosis that the case was one of simple influenza, and that there was no pneumonic influenza on board the ship.

Will you tell us fully the steps you took before you formed that opinion ?—I got from Dr. Mackenzie a full list of the cases, and I went round and examined each case separately and carefully, and I noted particularly the condition of the lungs. I found two bad cases. One was a Mr. Thomas—the second steward, I think—whom I know pretty well. He recognized me. It was a case of pneumonia, but not from the history of the case pneumonic influenza.

Who communicated to you the history of the case ?—Dr. Mackenzie. The patient is a man who is particularly energetic, and is always keeping the men under him up to their work. He persisted in getting up and going about his work until he eventually went down with pneumonia. I questioned other men on board about the cases of men reported to have fallen down with a sudden attack, and from the information I received there was no such case on board. Men did fall down, but not suddenly from an attack. They fell down from exhaustion through carrying on their work when suffering from the disease. I was informed of that by Dr. Mackenzie and several of the passengers. It was brought home to me all the more forcibly by the fact that the passengers made a collection for presentation to the stewards for the noble way in which they had carried on during the disease.

Then you had conversations with the passengers and others ?—Yes ; I obtained all the information I could. Both Dr. Mackenzie and Dr. Barnett agreed that the complaint was simple influenza. I communicated that to Dr. Hughes, and that information was passed along to the Minister. I have had no occasion to alter my opinions since. So far as I am aware, no contact with the "Niagara" has developed anything more than simple influenza.

With further reference to the patients, he says,—

There were fifty-eight the first day left on board the ship with us. These were properly isolated in the second-class smoke-room, which was converted into a hospital. The second-class cabins were also so converted. These temporary hospitals were barricaded off, and no one was allowed to go in or out. I attended to those patients.

What was the result of your observations of them ?—My notes of the temperatures went away with the ship. I thought they had a right to them. I gave them to the nurse who was going over with the "Niagara" to carry on with.

Did you keep a copy ?—No, I did not. I was at that time working night and day.

During the first day or two I could not allow any of the patients out. I allowed none out before three days. By the fourth or fifth day I had about twenty out and about working on the ship. I retained a certain number in hospital to act as orderlies, as I had only three nurses.

He draws special attention to the ship "Cluny Castle."

Then I want to draw attention to another cause of contagion. The ship "Cluny Castle" had about four cases of influenza. I was called to that vessel during the night. The "Cluny Castle" was about two ships' lengths away from the "Niagara"—both tied up to the wharf. The "Cluny Castle" came in on the 14th, a clean ship.

Dr. Mackenzie, who was a passenger on the "Niagara," with Dr. Barnett, also a passenger (who was not in Auckland when we sat there), took charge of the cases unofficially. This is his evidence :—

Will you give us as full an account as you can of the health conditions on the "Niagara" during her voyage ?—We left Vancouver on the 21st September. There had then been no mention in the Press of any influenza either in the United States or in Canada. Two days after sailing I saw a passenger who was suffering from an ordinary type of influenza. She was a first-class passenger. There was nothing special about her case. She was ill for some four or five days, and then became convalescent. So far as I know, there were no other cases of sickness until ten days after sailing from Vancouver, when we had left Honolulu. Then illness began to appear among the stewards, and that increased from day to day until a considerable number were down. The trouble reached its climax about the day we arrived at Suva—that is, about fourteen days after we left Vancouver. It was then that the ship's doctor became ill.

Dr. Barnett and I took over the cases. I had seen some cases with the ship's doctor a few days before that. There were none of them that showed any particularly serious symptoms. They were all cases with a certain amount of fever such as one usually expects in influenza, also headache and sore throat.

Was there any sickness in Honolulu when you were passing through ?—I heard of none there.

How long did you stay there ?—One night.

Did people go on board ?—Yes, freely. By the time we reached Suva the trouble had increased, and, of course, there was no egress from the ship, and only officials of the Health Department came on board. On that day I first saw a really serious case. That would be on about the 5th.

Have you a record of those cases ?—No ; I kept no record. If any one kept a record it would be the ship's mate.

No record has ever been produced ?—No. The next day there was another serious case. Up to that time there were practically no cases amongst the passengers. The disease was confined almost entirely to the stewards, though there were a few cases among the crew. Many of the stewards had been up and down again, doing work for a day or two and then succumbing again. They mixed freely with the passengers. Two or three days before we reached New Zealand a number of cases showed much higher temperatures than they had done previously, and we thought it would be wise to remove ten or twelve of them to the ship's hospital. But of those cases only three gave us any anxiety. The worst case was that of the boatswain's mate, a man of stout, heavy build. He had bronchial pneumonia at the time of his admission to the hospital.

Would it not be the duty of the Medical Officer to keep a record ?—I did not keep a record. That man became progressively worse, and died on the midnight before we arrived in Auckland. The next most serious case was that of one of the firemen, a man who had been a member of the Australian Expeditionary Force and who had been gassed in France. He had severe bronchitis, which developed into pneumonic condition. That did not surprise us, because gas-poisoning creates a susceptibility to lung trouble.

Did you connect that with influenza ?—We described it as severe bronchitis following influenza. The only other case that caused anxiety was one of the stewards who suffered from delirium. Other cases had high fever, but none of them appeared to be in any special danger. The total number of cases we had when we reached Auckland was 110 to 120.

Confined to the crew ?—Not entirely. There were five or six cases amongst the first-class passengers, and four or five amongst the second-class passengers, but they were cases of ordinary mild influenza. That was the state of the ship when the Health Officer came on board at Auckland.

At what stage of the journey did you take charge with Dr. Barnett ?—The day we were at Suva.

What took place when you arrived in Auckland ?—The District Health Officer and his assistant and the Port Health Officer boarded the ship at the wharf.

Was the boat lying off ?—No ; she was attached to the wharf. Dr. Russell came round the whole ship with me. The passengers who were well were taken to their respective saloons. I had a full list of all those who were patients, and we went round the crew's quarters, the passengers' cabins, and the ship's hospital. I described the conditions to Dr. Russell, and showed him the cases and the charts of those who were seriously ill in the hospital. Then I went with him to the saloon where the other passengers were. Then my duty practically finished. At that time Dr. Barnett was arranging for transfer to the hospital.

Who authorized the admission of other people to the ship ?—I could not say. I simply reported to the Health Officer.

You considered then that the onus was with him ?—He asked me for my diagnosis and the details, and I gave them to him.

What was your diagnosis ?—Influenza.

In all cases ?—Yes ; influenza with complications such as one might expect.

We should like you to give as nearly as possible the exact language you used in giving your diagnosis to the Health Officer ?—As far as my memory goes, I said to Dr. Russell that these were cases of what I would look upon as ordinary influenza ; that one or two of them had developed serious complications which in neither case was unexpected to us. One member of the crew had come on deck when in high fever, complaining of the heat, and he had developed pneumonic complications, and the other, owing to his predisposition to chest trouble from his war history, had developed complications ; also that the amount of complication was no more than we should have looked for amongst any similar number of cases of ordinary influenza.

Then that ends your connection with the matter ?—Yes.

There was no discussion on board, I suppose, with any of the passengers or others as to the condition of the ship ?—None whatever.

None of the passengers said anything about the condition of the ship ?—I had not personally any discussion with any of them.

The passengers were not in any way interrogated ?—Not to my knowledge.

How was the illness communicated from one to another ?—I believe it to be by close contact.

Do you refer to close contact in the men's quarters ?—Yes, that impressed me very much. The quarters of the men were very crowded. Their condition was very miserable when we had so many sick men in the tropical heat.

Were they in hospital ?—No ; we had room for only about ten cases in hospital.

Was there any attempt to segregate the sick people ?—No, practically none.

No effort made ?—No ; the sickness was in practically every portion of the ship.

How many cases were there at Suva when you took charge ?—I should think, between fifty and sixty.

When a person is attacked in this way when do the first symptoms develop ?—The incubation period is from one to four days.

It is possible, I suppose, that there might be amongst those who were well a person who might have the germ of the disease ?—It is possible.

Of course, we know that this form of influenza was not notifiable at that time, and unless there were some definite symptoms people were free to go ashore ?—Yes.

How do you attribute the disease being largely confined to the stewards ?—They appeared to me to be more closely housed together than were the people in any of the other quarters. Their quarters were down in the stern of the ship.

It is singular that throughout the whole of the proceedings apparently hardly any mention is made of this ominous "wireless" with which all the persons interested must have been familiar. Apparently it was ignored, and no explanation asked or tendered as to the discrepancy between its description of the situation and that given in the evidence of the medical men on the ships and in the telegram finally forwarded to the Minister. The first step directed towards the disembarkation of passengers was stayed by the Minister at a late hour, and he then, apparently without any further information as to the condition of matters on board, telegraphed to his representative to report not in general terms, but by answering categorically two questions :—

(*a.*) Number of deaths, if any, on ship since leaving Vancouver.

(*b.*) Whether disease is not pure influenza, presenting same indications as that which prevailed in the Dominion for some time.

To this telegram the Health Office replied :—

On Niagara one death last night, broncho-pneumonia after influenza. Disease purely simple influenza. Only two passengers for New Zealand on board with it.

The Minister telegraphed at once, "Ship may be cleared."

It is difficult to see how the Minister could be satisfied by these communications in the face of the earlier official information from the ship as to a condition of things which, if true, made her a menace to the health of the city. It is also difficult to understand how the Health Officers on board the vessel accepted the diagnosis of the acting ship's doctor as to the form and character of the sickness without (as far as appears) any reference to or explanation of the compromising telegram.

We have next to consider the condition of the patients landed from the "Niagara" and lodged in a special ward in the Auckland Hospital.

Dr. Maguire, Medical Superintendent of the Auckland Hospital, asked what was the position with regard to influenza in Auckland prior to the arrival of the "Niagara," says,—

The date of her arrival was the 12th October, and prior to that date I do not know of any case of influenza that had been admitted to the Hospital for some months.

Later he mentions two cases in June—they were simple cases. He said he had not heard of any cases prior to the 12th October. As to the "Niagara" cases, he says,—

The first cases of influenza admitted to the Hospital were on the 12th October, the date of the arrival of the "Niagara," from which we got twenty-eight patients on that date. . . . Of these cases three men were suffering from a virulent form in the shape of bronchial pneumonia. On the 13th October six further cases were admitted, but only one of those men was very bad with the bronchial stage. Then on the 17th October a stewardess was admitted. On the 21st two further cases, both nurses, were admitted. Apparently they had been in attendance on the patients on the vessel. These were all the patients admitted from the "Niagara"—thirty-seven in all.

Only two patients from the "Niagara" died—a man admitted on the 12th October. Having been previously gassed, he was therefore more liable to contract the virulent form of infection than another person, as his lungs were not normal. The point, however, is that he did in fact contract this virulent form when he was on the "Niagara." Asked when the first influenza cases began to come in, Dr. Maguire replied, "From the same date as the arrival of the 'Niagara,' when an ordinary case was admitted—I think, of a woman. After that the cases began to

mount up." Asked if he would say that the arrival of the "Niagara" was the date when the outburst spread over the community, he said, "Yes, that was my opinion."

Immediately before closing our Auckland sitting, Dr. Milsom, of Auckland, president of the Auckland Branch of the New Zealand Division of the British Medical Association, recalled for another purpose, stated, as part of the grounds of the opinion (conveyed by him to us) of the association that the "Niagara" was the cause of the epidemic, the fact that on Saturday night of the 12th October he went to the Hospital to do some surgical work, and Dr. Hall (Resident Medical Officer of the Auckland Hospital) told him they had some cases in from the "Niagara." He described the cases, and said he would very much like Dr. Milsom to see them because they were such extraordinary cases. Later he saw them, and he says he never saw the like before. He stated later that he had had a case of a woman in a private hospital—of a patient similar to this; but, he adds, this was not in the usual run of those cases. She had a bronchitis and a pneumonia, but nothing like those serious cyanosed cases we had in the epidemic, the dreadful toxæmia or poisoning cases.

At our request Dr. Hall forwarded a memorandum on these cases, which is as follows:—

Auckland Hospital, Park Road, 27th March, 1919.

Memorandum for the Secretary, Epidemic Commission.

On the 12th October, 1918, I was called by Dr. Grant, Senior Medical Officer of the Auckland Hospital, then Acting Medical Superintendent, to assist with the examinations and treatment of the "Niagara" patients admitted on that date.

Among the cases I was struck in several instances by the peculiar conditions found while examining.

1. *Owen Quinn, Oil-burner.*—On admission, mottled cyanosis, face and upper limbs. Pneumonia present. Sounds in chest, suggesting a capillary bronchitis, as though the patient was being drowned by his own secretions. This patient had been ill for ten days previous to admission to the Hospital, and he died eight days later. I heard subsequently that he had been gassed in France.

2. *William Thomas, Steward.*—This patient was ill about ten days before admission. On admission he was delirious and cyanosed. Pneumonia present; peculiar bubbling sounds in chest, but not so marked as in the previous case. Nine days later this man was discharged from Hospital apparently relieved. He died either in Australia or on the "Niagara."

3. *Walter Dalziel, Gunner.*—Ill nine days before admission. Epistaxis severe. Delirious and comatose on admission. Severe gastro-intestinal disturbance; vomiting; diarrhœa; foul breath. Widal reaction for typhoid was negative.

4. *Reginald Anrep, Steward.*—Ill nine days before admission. On admission he had a frightful cough of a hacking nature; cyanosed; capillary bronchitis; heart weakened.

5. *Frank Bull, Steward.*—Ill seven days previous to admission. On admission, capillary bronchitis in left lung. High temperature. Crisised quickly. Discharged nine or ten days later. Went to Sydney and back to Vancouver. On the way across he was landed at Honolulu, and put in hospital there, complaining of pain behind the eyes. Was picked up again by the "Niagara" and brought to Hospital in Auckland on the 30th December, 1918, and he died on the 19th February, 1919. A post-mortem examination showed a large cerebral abscess present.

6. *James Smith, Fireman.*—Ill ten days before admission. On admission he had a cough. Not a very severe case; few pneumonic symptoms. Case of pure influenza, and was one of the mildest in Hospital.

The onset was practically the same in all cases—viz., headache, pains in back and limbs, feverishness, shivering, loss of appetite, vomiting. The disease ran its course in about three weeks, the patients being ill about ten days before admission and about ten days afterwards. Cases on discharge required some convalescence, although by this time all constitutional symptoms of the disease had disappeared. On examination nearly all the men complained of the insanitary state of their surroundings, the foul air they had to breathe, the unpalatable nature of the food provided, and the lack of necessities. The cases above detailed represent the general type of case met with during the epidemic in November. In the bad cases mentioned I had never seen anything so severe before.

On the evening of the 12th October I mentioned to Dr. Milsom the peculiar symptomatology of the cases, and while discussing the causation of the symptoms in so far as the diagnosis was in doubt, and inasmuch as there had been discussion as to the nature of the disease which had then recently caused a great percentage of deaths on a transport bound for England, I merely, as a matter of scientific interest, asked him if he would care to have a look at the cases.

Dr. Milsom saw these cases two or three days later, and the symptoms were then much the same as on the admission of the patients to Hospital.

RICHARD J. B. HALL,
Resident Medical Officer.

Dr. Grant, the Officer in Charge of the Hospital, was himself attacked. He was not able to attend the Commission. There was one death on the "Niagara" the night before arriving in Auckland, two deaths at the Auckland Hospital, and one death on the "Niagara" the night before she left Auckland.

It is obvious that the condition of the "Niagara" patients on the morning of the 12th could not by any reasonable imagination be properly described as "pure influenza," especially as defined by the Minister in his telegram, to which Dr. Hughes's was an answer, as "presenting same indications as that which has prevailed in Dominion for some time past."

It does not, however, follow that they were cases of the epidemic influenza, which has been popularly called "Spanish influenza."

There have been several sporadic cases deposed to before us as occurring at times and places inconsistent with foreign infection which are practically identical with these just cited — the same expression being used, "drowned in their own secretions." It has been suggested—it seems to us reasonably—that these patients had contracted ordinary influenza in the usual way, and that the pneumonic complications were due to some condition or weakness in the patients themselves rendering them more liable than others to complications. The three most serious of the "Niagara" cases appear to have been of this class.

Twenty-five of the cases had been reported by the wireless message as serious.

The explosive outbreak of the epidemic influenza seems to have begun at a time which would practically synchronize with the admission of the "Niagara" patients—twenty-eight on the 12th October, six on the 13th, one on the 17th, two nurses on the 21st. We have already cited Dr. Maguire as giving the arrival of the "Niagara" as, in his opinion, the date when the outbreak spread over the community. From the 12th October till the 14th December there were 845 admissions to the Auckland Hospital and 188 deaths. Two nurses who nursed the "Niagara" patients died of the epidemic influenza. Out of a staff of 180 nurses 140 were affected by the epidemic at one time and 160 altogether. Wharf labourers and others had been occupied in unloading and working the steamer from the 12th onward. We have no satisfactory evidence of the extent or character of the isolation of the remaining patients. There had been influenza among the passengers who had landed, and were potential "carriers," although on this point we should mention that no instance of illness of any passenger after landing, or any attack referable to contact with any such patient, has been found, notwithstanding careful inquiries having been made.

We have now to consider on this question if there is evidence of other sources from which, prior to or contemporaneous with the arrival of the "Niagara," the epidemic could reasonably be said to have been introduced. We have had the evidence of several medical men practising in Auckland of the existence antecedent to the arrival of the "Niagara" of cases in which, amongst the ordinary sporadic cases of influenza, were found bronchial or pneumonic complications. We are not satisfied that any of these have been shown to be cases of the epidemic form of the disease. On the other hand, we have the opinion in a resolution by the Auckland Branch of the New Zealand Division of the British Medical Association, which is stated to comprise practically the whole of the Auckland medical profession, that in their experience the influenza cases prior to the "Niagara" were not of that type. We have already considered the other sporadic cases of a virulent character in other parts of the Dominion.

Another suggested source is the military camps, particularly at Narrow Neck Camp, about three miles distant from Auckland. On this matter also we have been provided with a number of full, able, and carefully prepared reports, statistics, and graphs. The relevant evidence of Dr. Andrew on the point is,—

> The only evidence I can give you is with regard to the outbreak at Narrow Neck. The first case of influenza was noticed about the 30th September. Between that and the 10th October 169 cases were reported, of whom thirty-nine were recorded as being fairly severe. Then there seems to have been a break in the disease till the 19th October, when fresh cases arose, increasing in number until the height of the epidemic.
>
> Do you know anything about the pneumonic form?—Yes. It appeared first of all between the 30th September and the 10th October. There were three cases of influenza, which we sent to the annexe. That was in the pre "Niagara" days, and they were among the 169 cases. In the

outbreak which started on the 19th October I suppose quite 50 per cent. of the patients developed pneumonic symptoms. That continued until the 18th November. It was septic pneumonia. The symptoms have been described to you.

To what do you attribute that pneumonic form as distinct from the other?—I attributed it to the sudden increase in the virulency of the germ already present in New Zealand. I had seen the same thing happen before at Trentham Camp, where I was the P.M.O. at the time. I can recollect that at Trentham Camp in 1916 there were similar pneumonic symptoms. I think as many as sixteen cases died.

What do you attribute that increased virulence to?—Possibly to a fresh strain of the same bacillus arriving in New Zealand by some means in October, and the fresh blood increased the virulency of the existing bacillus.

Do you think it came overseas?—Undoubtedly it did. It arrived some time about the beginning of October, because the first very severe cases that came in were observed in the middle of that month.

Could it have arrived, from your point of view, in the "Niagara"?—It could as far as the dates are concerned, or it may have arrived in other boats arriving about that time.

You think it could have arrived at an earlier period?—I think it certainly could have arrived before the "Niagara." There is no particular reason to suppose that it came in her. She arrived on the 12th, and there was a pretty general "go" of influenza a few days after that in Auckland, which means that it must have spread remarkably quickly if it came by her.

How early after the 12th October did a number of these virulent cases come under your notice?—Some virulent cases came under my notice about the 15th October in the Auckland District.

Did any of them result fatally?—No, I do not think that any of the early ones did, but about the 20th October we began to get the fatal cases. The first virulent case reported at Narrow Neck was on the 19th October.

Would there have been time for any contact with the "Niagara" to have taken effect?—Yes. The virulent type developed in the third week, and there would have been time for that development, as it spread very quickly indeed.

Is it your general experience that this disease does spread very rapidly?—Not so rapidly as it spread in this epidemic.

Dr. Sharman says, as to the conditions at Narrow Neck,—

I was in charge of Narrow Neck Camp from the 20th December, 1916, to the 12th November, 1918. . . I can say there were odd cases of influenza of a mild type up to the latter part of September.

Ordinary influenza?—Yes, typical mild influenza. Then, at the end of September or the beginning of October we had a severe outbreak, or, at any rate, an outbreak of a severe kind. There were, roughly, 230 cases.

Approximately, about what date did that outbreak start?—I should say, the last day of September or the first day of October. It came very suddenly, and it lasted, roughly, nine or ten days. . . I closed down the huts by degrees as I did not require them, and the last to close down was the Y.M.C.A., and as it was more or less a private concern I acknowledged the courtesy of the Y.M.C.A. for lending it. This is my memorandum to the Camp Adjutant 12th October, 1918:—

"For your information please. *Re* Y.M.C.A. hut. I am glad to inform you that I do not require the Y.M.C.A. hut any longer. It has been thoroughly fumigated with a strong solution of formalin, and it will be quite ready to-morrow morning to be scrubbed out and handed back to the Y.M.C.A., to whom I should be glad if you would express my gratitude for its loan."

That is a clear indication that the epidemic was over.

With regard to the portion that you had charge of from August to the 12th October, can you say, roughly, how many cases of influenza there were?—Roughly, 230. As I mentioned earlier, it started very suddenly, and collapsed just as suddenly. On the 9th October I wrote the following memorandum to Colonel Andrews, A.D.M.S., Auckland:—

"For your information please. The following is the sick-state as it exists in camp up to 4.30 p.m. this day, 9th October, 1918:—

Under Treatment.

In hospital	9 patients.
In detention	34 "
In convalescent-hut	48 "
Excused duty (in lines)	52 "
Europeans—	
Officers	1 "
Staff	3 "
General cases	5 "
N.D. cases (convalescent)	2 "
Total	154 "

"This does not include patients in Auckland Hospital.

"EDWARD W. SHARMAN,
Major, N.Z.M.C., P.M.O."

Did those include the pneumonic cases ?—Two of them were pneumonic. I have a distinct recollection of those two chest cases.

Were there only two out of that 154 that showed pneumonic symptoms ?—No ; all of those in hospital showed pneumonic symptoms.

What was the general nature of the complaint they suffered from ?—I should like to differentiate between the general cases and the severer cases.

How many do you class as ordinary cases out of those 230 ?—Roughly, 200.

Then, there were thirty which might be classed as severe cases ?—Well, yes, if you are going to divide them into two classes only. Some of those cases were severe, and some dangerous.

How many would you class as dangerous ?—The two I have referred to, and, if my memory serves me, three others. But all those thirty undoubtedly showed early pneumonic symptoms, which seemed to develop no further, and cleared up.

Will you describe what were the symptoms in the severe cases ?—High temperature ; hard, harsh, dry skin ; breath-sounds varied ; dirty tongue ; and symptoms of general malaise and out of sorts ; shortness of breath ; increased respiration and increased pulse.

Pains in the head ?—Well, the pains were general. I think every patient who developed the trouble suffered general pain. I was very particular to observe the patients carefully, especially in reference to pain in the neck, the reason being that I had not lost sight of the fact that there might possibly be some cerebro-spinal meningitis ; but of all the cases I examined I did not see a case even approaching mild symptoms of that disease. It was pure influenza, which in the severer cases developed into pneumonia.

Were there any cases of bleeding there ?—I do not remember one in that epidemic. There may have been, but I may say I had no assistance of any kind.

Would you regard the disease as you witnessed it as infectious ?—I would say, highly infectious.

Were the severe cases—the twenty or thirty of them—isolated ?—Yes ; every case was isolated—every case showing a temperature of over 100.

He described the isolation, and says,—

The Maoris were very good, and never attempted to break the isolation. . . They were only allowed to leave the huts to obey the necessary calls of nature, and I think they carried out their instructions. All these cases seemed to indicate a comparatively mild stage of influenza, the ordinary type, with some pneumonic complications, but to fall short of the "epidemic influenza."

The witness then speaks of a second and severer attack which began about the 29th October, as to which he says in answer to a question :—

So that the second attack was more general, and the cases were more virulent ?—Absolutely ; and the second attack was more acute and more severe at the onset. The early symptoms were about the same, but they rapidly became more severe until we had that large number. All the soldiers in camp were Maoris, Rarotongans, and Gilbert-Islanders. They were kept together and strictly isolated.

We do not think that it has been shown that the early attack was more than the ordinary influenza with pneumonic complications, which perhaps may be accounted for by the susceptibility of this class of people to suffer from pulmonary complaints. The date of the second and virulent attack makes it inapplicable to the incidents attendant on the question of the "Niagara."

There must be considered the possibility of the conveyance of infection by soldiers and others conveyed by vessels known to have arrived at Auckland about the same period as the "Niagara." This, of course, is entirely conjectural.

Findings on Clauses (1) and (3).

On the evidence before us we find, in answer to paragraph (1) in the order of reference,—

(*a.*) That the cause of the introduction of the recent epidemic of influenza in New Zealand was the conveyance by sea of the infective element of the "epidemic influenza" lately prevalent in Europe, Great Britain, South Africa, and America.

(*b.*) That the extension of the epidemic from its first appearance in Auckland was largely the result of a general disregard of precautionary measures in the initial stages, due to want of knowledge regarding the nature of the disease. The infection was largely spread by the congregation of large crowds of people in the various centres in connection with the Armistice celebrations, race meetings, the "Carnival Week" in Christchurch, (which large numbers of visitors from all parts of the Dominion attended), and the fact that no restriction was placed upon the movements of the people in travelling, even when they had individually been in contact with infected persons.

As to order of reference No. (3),—

(*a.*) That, although the matter is not one capable of absolute demonstration, the evidence before us raises a very strong presumption that a substantial factor in the introduction of the epidemic was the arrival in Auckland on the 12th October of the s.s. "Niagara" with patients infected with the epidemic disease.

(*b.*) The evidence does not exclude the possibility of other sources, such as the presence of infection from other vessels arriving in Auckland at the same time or shortly before the arrival of the "Niagara."

(*c.*) The foregoing evidence proves, in our opinion, that the official action before, in, and about the release of the "Niagara" showed either non-recognition or a disregard of the gravity of the position described by the wireless message of the 11th October.

Health Department Administration as relating to the Epidemic.

Owing in some measure to the war conditions existing the Headquarters Staff of the Health Department was sadly depleted during the greater part of last year. When the epidemic appeared Dr. Valintine, Chief Health Officer, was engaged with the Defence Department, and Dr. Makgill, Assistant Director of Medical Services, was absent with the Expeditionary Forces. There was only Dr. Frengley, Acting Chief Health Officer, and Dr. Watt, District Health Officer, in charge. In addition to this circumstance there were only four District Health Officers for the entire Dominion. It is proper that the administration shown by the Department should be considered with due regard to the facts mentioned.

The epidemic appears to have been first brought under the notice of the Minister by a letter from Mr. W. T. Young, secretary of the New Zealand Federated Seamen's Union, dated the 27th September, 1918. This was referred to the Chief Health Officer on the 7th October, which, considering the serious nature of the complaint, does not show proper expedition. A reply was sent on the 9th October, based on a report received by the Minister from Dr. Watt, acting in the absence of Dr. Frengley, in which the words are used, "The epidemic which New Zealand is at present experiencing is by no means a new disease. Influenza in its epidemic form presents certain peculiarities, the most striking being the rapidity of extension and the large number of people attacked in a short time." The practical substance of this report was to advise that there was no absolute immunity from the disease, to take steps towards allaying public anxiety, and to wait. It is most difficult to understand why advice of this negative character was given at that time, in face of the statement that influenza was present in its epidemic form, and that this disease spreads with great rapidity. This matter is cited for the reason that it is an example of the method of delay that was followed by similar actions on several occasions by more than one officer of the Health Department. It is a course of action that should not be repeated in the future, because it weakens public confidence in the guidance of the Department, which is established to lead the country in regard to health matters. We know that when Dr. Frengley proceeded to Auckland on the 2nd November all the assistance the Minister had in Wellington was Miss MacLean and a cadet officer, the District Health Officer and the Secretary for the Department being both laid aside ill. It is most evident from a brief recital of these facts that the Department ought to be strengthened by additions, or by providing some qualified Reserve Officers who might be called upon in case of the leading officers being temporarily disabled. The District Health Officers were in a similar situation to that of the Head Office, and also at Christchurch and Dunedin (also probably elsewhere) laymen had to come to the assistance of the Department. The Minister says, "Under the law the responsibility with regard to infectious diseases rested with the Hospital Boards, and we took steps to endeavour to awaken the country in order to get the whole machine moving outside the Hospital Boards." We find, however, that the Hospital Boards and much of the country appears to have been more awake than the Department itself. On the 6th November the Department wired all Hospital Boards, "Get into touch with the Medical Superintendent with view to providing extra accommodation in case needed for influenza"; but Dr. Falconer, Medical Superintendent, Dunedin Hospital, had taken precautionary measures during the week preceding the 2nd

November. Admissions to the Dunedin Hospital were limited to urgent cases only. Of this all medical practitioners were advised; it was also published in the *Evening Star* of the 2nd November, and the District Health Officer was written to urging him to get reports from his Inspectors as to the buildings suitable for auxiliary hospitals, to be ready if necessary. This was attended to by Dr. Faris, and he replied on the 6th recommending a building for that purpose.

In wiring the District Health Officers on the 5th November describing the serious nature of the disease at Auckland, Dr. Frengley, Acting Chief Health Officer, marked his telegram "Confidential." Similarly on the 7th November the District Health Officer at Dunedin issued a "Confidential" memorandum stating that influenza had been gazetted a dangerous and infectious disease. This course of marking documents "Confidential" when the information which they contain must shortly be a matter of common knowledge ought to be changed, as in the case of Christchurch the Mayor of the city appears to have failed to realize the full seriousness of the situation from the information in the telegram of the 5th November being withheld when he in private met the District Health Officer to discuss the situation. A distinction in future should be made between matter not intended for general publication and matter which all responsible public officials and authorities ought to be in possession of. Important information should not at any stage be withheld as between any authorities charged with the duty of administering affairs relating to the public health.

We have in judging of the administration of the Health Department not only to consider the strength of the Department at the time of the epidemic, but also what was its then state of knowledge. Dr. Makgill has supplied information as to influenza in the camps. We present a summary of what Dr. Makgill found to obtain.

Influenza in Camps.

"In 1918 there were two distinct waves, one reaching its maximum crest in September with fairly gradual rise, while the other rose very suddenly in the latter days of October, spread with remarkable rapidity, and reached its crest at the end of the first week in November. The virulence of this second wave was very much greater than that of the first, since in the first only two deaths occurred which were directly attributable to influenza among 3,170 cases, while there were 260 deaths among the 4,794 cases forming the second wave. The greater number of deaths were due to pneumonic complications, as is usual in influenza, and the remainder were from cerebro-spinal fever, another complication arising where catarrhal diseases are massed together.

"The rise in general death-rate from catarrhal diseases throughout the Dominion in August, September, and October is peculiar to the year 1918, for, although there is a seasonal rise in the winter months, in most years it falls as the spring advances. The following table shows the deaths from these causes in 1917 as compared to 1918:—

	1917.	1918.
August	127	213
September	160	157
October	87	174
November	86	3,631
December	49	2,338"

The second wave was manifested first among Native troops (Rarotongans and Gilbert-Islanders) in Narrow Neck Camp, these Natives being specially susceptible to that form of disease. On the 7th October there were 130 cases, and two days later 226. This reached its zenith about the 28th October. The death-rate was 10 per cent.

Dr. Makgill:—

"Then, again, we find that the average deaths from pulmonary and catarrhal diseases in New Zealand for the previous five years was 769, the worst year being 1915 with 829 deaths. In 1918, however, there were in the first nine months alone 843 deaths from these causes. Thus, quite apart from the second epidemic wave there were causes at work making for a high death-rate from pulmonary complaints. We must consider, then, that the influenza epidemic, even the first wave in 1918,

was not the simple influenzal wave of normal years, but was complicated by factors making for a more virulent and fatal type of disease."

It is difficult to consider that the Minister and the departmental officers had arrived at the same conclusion as here presented by Dr. Makgill, "that the influenza epidemic, even the first wave in 1918, was not the simple influenzal wave of normal years, but was complicated by factors making for a more virulent and fatal type of disease," when we remember how the Minister and his officer used the term "simple influenza" as the reason for (*a*) not instituting precautions when asked to do so by the executive of the Federated Seamen's Union on the 27th September, (*b*) not taking steps towards quarantining the "Niagara" on the 12th October, and (*c*) delaying the gazetting of the disease as a notifiable disease until the 6th November.

If the Department was in receipt of the data respecting the camps presented by Dr. Makgill, then the Department appears to have lacked sound judgment in assuming, as it did, that the epidemic was merely "simple influenza," and basing its advice to the Minister and its earlier administrative acts on that assumption. If, on the other hand, the Department was not possessed of this information in respect to the camps there was a want of co-ordination, knowledge, and foresight which could but cripple any attempts at sound administration.

On the 16th October Dr. Hughes met the members of the Auckland Hospital Board and endeavoured to arrange accommodation for the patients; he also wrote to the Board urging it "to consider the whole question of accommodation of cases of infectious diseases," and sent a copy of his memo to the Acting Chief Health Officer. On the 19th the Acting Chief Health Officer informed Dr. Hughes by telephone that "he would be visiting Auckland the next week." Dr. Hughes thus describes the further course of events:—

"About the 26th October I informed the Acting Chief Health Officer by telephone that cases were occurring here with pneumonia, and asking what powers he intended giving to deal with influenza, especially if influenza of the pneumonic type. He replied there were few cases of pneumonia occurring in Wellington, and that he would be in Auckland next week, as I asked when he was coming up. I was expecting Dr. Frengley would be in Auckland any day. About the 29th the epidemic seemed to burst out, and the doctors were being laid up. By the latter end of the week six were ill, and on the 31st October the Mayor informed me a meeting was being held at the Town Hall, and asked if I would be present. . . . On the 1st November I wired the Acting Chief Health Officer as follows: 'Strongly recommend medical men on Military Service Boards be released to assist medical practitioners in Auckland, as at present six laid up and remainder unable to cope with numbers requiring urgent medical attention. Severity increasing, and recommend Chief Health Officer visit Auckland immediately.' I attended a further meeting at the Town Hall and discussed the block system. . . . I also met members of the Hospital Board again on the 2nd November at the Hospital concerning their extra accommodation. . . . Dr. Frengley arrived the next day, 3rd November, together with military doctors, and within the next two days I removed to the Hospital Board's office."

It is evident that Dr. Hughes laboured most energetically, and gave attention to all means possible of dealing with the outbreak. He does not appear, however, to have had sufficient powers to cope with the situation, and the epidemic was well advanced when Dr. Frengley arrived.

We find that the military doctors did most excellent work; they visited 6,112 houses with an average of three patients per house, so that at least 18,336 patients were attended.

There can be no question that any officers at Auckland neglected their duty, for undoubtedly they worked night and day almost to the point of exhaustion to cope with the disease once its acute virulence was recognized.

The chief faults of the administration arose from,—

(*a.*) The local branch of the Department being understaffed;

(*b.*) The Chief Officer not having sufficient powers of direction; and

(*c.*) The official attitude towards the disease in postulating a distinction between "simple influenza" and "virulent," as if only the latter were infectious or of danger to the community.

Examining the administration of the Department at the various centres it appears to us that generally there was delay in taking precautionary action at the earliest period. The District Health Officers seemed to wait for directions from the Head Office, which commenced to arrive about the 5th November. In Dunedin Dr. Faris had been busy taking prophylactic measures for some days before the 5th. There seems to have been doubt in the mind of the Health Officers as to the action required of them. When the trouble became serious in each district the Health Officer had more to do than he could possibly accomplish, and in several districts the assistance of laymen from outside the Department had to be accepted in order to carry on the administration. There is no doubt but that all officers worked unceasingly when the trouble became acute, but the Department as a whole seemed to have lacked the foresight which should have impelled it to initiate general organization in October.

Port Sanitary Arrangements.

From the evidence given before the Commission it would appear that during the time of the epidemic a great deal more attention was given to sanitary and hygienic conditions attaching to ships and wharves, especially at the principal ports, than ever previously occurred. Very strong reflections had been made upon the health conditions of the crews' quarters on a number of ships. Through correspondence and consultation with the general secretary of the Federated Seamen's Union, Mr. W. T. Young, the Union Steamship Company took the matter up very actively, and we were assured that considerable improvements were being effected in that company's vessels. It still remains to institute a regular procedure of constant supervision over the sanitary and hgyienic conditions of the wharves and shipping, and in this connection it might be well to extend the provisions of section 5 of the Public Health Amendment Act, 1918, and appoint special Advisory Committees to report from time to time on the health conditions of the ports—at least, the chief ports of the Dominion.

It would appear that the duties of the Port Health Officers have consisted chiefly in examining the passengers and crews of ships for the purpose of knowing whether any infectious disease is on board same, but so far as the general sanitary and hygienic conditions are concerned it does not appear to be the specific duty of any officer to overlook these matters. Of course, such matters may be said to be under the control of the District Health Officer, but that officer has so many widely scattered and varied affairs to look after that we cannot be surprised if the health condition of our ports and shipping is not given very direct and regular attention. We urge in respect to the chief ports, at least, that constant inspection should be made of the ships, wharves, and adjuncts of the waterfronts under the direction of a Medical Officer of Health.

Mr. W. T. Young, secretary of the New Zealand Federated Seamen's Union, submitted to the Commission a schedule of detailed recommendations which might be considered by the Health Department as to whether these are of practical application and could be adopted.

Administration of Local Authorities in relation to the Epidemic.

Hospital Boards.

The Hospital Boards, as the chief local authorities charged with the safeguarding of the public against infectious diseases, were not wanting in the fulfilment of their duty at the time of the epidemic. The Boards were amongst the first to take practical steps towards combating the disease, and though in connection with many of the hospitals both doctors and nurses were stricken down in comparatively large numbers, those remaining gave heroic service. The Auckland Board found the accommodation of their main hospital too restricted. Mr. Wallace, Chairman of the Board, says they differed with the Health Department over the using of the building at Point Chevalier, as "it was in a state of dilapidation." "The Board has under consideration at the present time the erection of an infectious diseases hospital." To meet the special demand the Board had six temporary hospitals established within the city and outside the city, in various localities as far north

as Helensville. The Boards in other centres acted promptly and energetically in providing for patients in their main hospitals and in auxiliary and temporary. They further showed all readiness in co-operation with the Health Department, the other local authorities, and with voluntary organizations.

Borough Councils.

The Mayors and Borough Councils took a most active part in fighting the epidemic. In some instances, however, it was the private citizens that first moved the authorities before action was taken. We find that the general attitude of the municipal authorities was just the same as that of the Health Department in taking slow action until the full charge of the epidemic was upon the community. In nearly all boroughs the Mayor or Deputy Mayor acted as Chairman of the Citizens' Committees, which did a great amount of good work in visiting; supplying medicines, food, clothing, and other necessities; and in conveying doctors, nurses, and patients as required. The local authorities took very substantial liabilities, both financial and otherwise, and all of them spared nothing in order to cope with the epidemic when its virulence became manifest. In certain directions advantage was taken of the urgent demand for services and commodities, so that in some instances higher charges had to be paid than were ordinarily demanded. A recurrence of such excessive charging can be avoided by taking the course recommended by the Minister of Public Health in his evidence (p. 704–5)—that is, to amend the Public Health Act by adding what might be termed "epidemic clauses," and making regulations under these clauses to provide payment at specified rates for the use of buildings for doctors and nurses, the use of motor-cars and other vehicles, or for any services commandeered for the purposes required. In addition the Board of Trade should be empowered to fix prices of food, fruit, drugs, medicines, hospital supplies, and other necessaries required, whether these are commandeered or not. Advantage should never be allowed to be taken of any stricken community during an epidemic, or at any other time of special distress.

On the evidence presented to us it is clear that the Borough Councils and other local authorities worked in amicable agreement with the Health Department, and were ready at all times to carry out the wishes expressed to them by the District Health Officers.

Sanitation and Housing.

The administration of the local authorities as relating to public health generally was commented on in evidence with special relation to the sanitation and housing of work-people. During the time of the epidemic some Borough Councils carried out special investigations into the sanitary conditions of the more thickly populated portions of their boroughs, even appointing a number of temporary Inspectors for that purpose. The special cleaning-up of quarters and removal of rubbish was instituted in the cities, and at wharves, and on board ships. We can say that next to a settled plan of procedure the best guard against an epidemic is cleanliness—keeping town and country as clean as possible. It might be well if instead of taking pride in spasmodic efforts to make our towns clean we were to spend our energies in keeping them clean. The Commissioners made direct investigation of the more congested districts of the cities, commencing with Auckland. From our inspections and the evidence submitted we are confident that considerable improvements are required in respect to the conditions in which large numbers of people in our cities are required to live. It was most evident that the bad conditions existing were due to an inheritance of wrong subdivisions of land; the continued habitation of old, dilapidated, worm-eaten, vermin-infested, and in some instances really rotten structures; the economic factors of short supply of decent houses and excessively high rents, and the personal habits of uncleanliness of a proportion of the tenants. Whilst the Borough Councils appear to give very full attention to the general sanitary requirements, there is no doubt that in all centres groups of houses, and in some places nearly whole streets, stand as a constant menace to public health, in that the houses are quite unsuitable for habitation with proper regard to the health, particularly of the women and children. In these congested areas, and in the case of a large number of single houses scattered throughout the cities, there

is a very serious want of the ordinary requirements attached to really healthy dwellinghouses, such as properly placed water-supply, flushed closets, proper ventilation, baths, washhouses, and yard-space.

Evidence was supplied to us that in Auckland and Wellington over an extended period of time a considerable number of old houses had been demolished and many repairs effected. In Auckland at the close of this last year some thirty houses were condemned. It was acknowledged by sanitary experts that there are hundreds of houses standing in the cities which might with advantage to the public health be demolished, and that many more demolitions would take place but for the acute difficulty of rehousing displaced tenants. We find that there has hitherto been practically nothing done in the way of carrying out any large improvement schemes by the municipalities, though the matter of adopting schemes has been discussed by the Auckland, Wellington, and other Borough Councils. In considering the great importance of proper housing and sanitary conditions as affecting the general health of our people, how the constitutions of mothers and their offspring are subject to degeneration in unhealthy environment, and having in mind the lesson conveyed in the military returns showing the high proportion of unfits under medical examination of recruits, we urge most strongly that there is need for the closest combination between the General Government and the local authorities towards the institution of complete national plans for dealing promptly with this most serious national and municipal problem. In connection with this we draw attention to the policy that is being projected by the British authorities, according to a short report which appeared in the London *Weekly Times* of the 7th February, 1919, which states "that plans are being prepared by the Local Government Board for 300,000 houses. The Government are to lend the money to the local authority, and at the end of seven years the houses are to be valued, and if any loss is sustained the State is to provide 75 per cent. of such loss, and 25 per cent. of the loss is to be provided for out of the local rates." It would be well if some similar steps were taken in New Zealand.

As the general health of our people is undoubtedly the Dominion's greatest asset, reform of existing bad conditions should be entered upon even if the initial financial cost is great, as the added efficiency of a completely healthy people would replace the expenditure entailed in carrying out the much-delayed schemes of reconstruction.

General Questions arising out of the Evidence and Information placed before the Commission.

Our order of reference being very wide in its scope has necessarily elicited a great variety of valuable information from many sources, and in this connection the Health Department has supplied the Commission with many important returns and reports. In this mass of information there are special questions relating to the influenza epidemic and to public health generally which merit particular consideration, and these we here present:—

Personal Habits and Education.

In all four centres evidence was given by voluntary workers and professional witnesses indicating that there exists very widespread ignorance of the simplest rules of personal hygiene and ordinary housekeeping, including therein cooking, cleaning, attention to bedrooms, or care of members of family suffering the slightest illness. It would appear that a large proportion of girls are not receiving in their homes that teaching which would enable them to maintain a well-directed healthy home life in the later period which must follow. As the nation is built on the homes of its people, this neglect of teaching both boys and girls the rules necessary for living clean healthy domestic lives must seriously affect our standard of public health. Whilst nothing can fully take the place of good home teaching, we counsel that both in the primary and secondary schools much more attention should be given to domestic science, hygiene, first aid, and home nursing as subjects for girls, and in respect to the last three for boys also. In the secondary schools these subjects should be made compulsory for girls. We note that the South African

Influenza Epidemic Commission recommends "that instruction in hygiene, first aid, and home nursing be made compulsory in schools for girls above the age of thirteen, and the first two for boys of the same age, and that thorough courses in hygiene and home nursing be given in teachers' training colleges."

In connection with the general question of education of the public on health matters, we draw attention to the suggestion of the leading health authorities in England that the Press might assist in this important work by the publication of a "Health Page" in our daily newspapers. The Press of New Zealand is well advanced in enterprise, and we trust will see the utility of this suggestion put to the test in our Dominion.

Health of Children.

The loss of so many valuable lives in the recent war and the disablement of many returned men, taken in conjunction with the returns of unfitness as shown by the medical examinations of recruits, point strongly to the need for giving full attention to the care of the health of our children from babyhood upwards. Whilst much has already been done in the Dominion for the saving of child-life, largely through the activities of the Plunket Nurses, and though first steps have been taken in regard to the health examination of school-children, yet the matter of attention to school clinics is as yet scarcely entered upon. If an educational section of the Health Department is established, as recommended in another part of this report, we submit that one of its duties will be to collect and collate all available information that can be procured dealing with this question of the health of children, in order to assist the Education Department towards adopting the very best plans of operation. It is very unwise economy to spend time and money upon the examination of the school-children—possible defects of sight, hearing, dentistry, or other—if the work is not to be proceeded with to the stage of curing, if possible, the defects found. As one of the best means of preserving the general health of our people we urge greater attention being given to the health and constitutions of the children attending the schools, and the appointment of doctors and nurses by the Government to afford the advice and treatment which may be required.

Assistance to the Order of St. John and Nursing Associations.

The very great importance of nursing in all its branches, from the highly trained nurse to those receiving only minor training in home nursing, and the value of training in first aid, was very fully brought before us in evidence. During the time of the epidemic the Order of St. John (Association and Brigade) did heroic work all over the Dominion, and the Nursing Associations existing in several districts gave equally good service. These associations, year in and year out, devote great energy and time in giving lessons and special training in home nursing and first aid and ambulance work. Out of their limited funds they have in most instances to rent buildings. They provide all furnishing, equipment, and materials, pay for medical lectures, and the financing of this work has to be met out of the small fees received from learners and small subscriptions from the general public.

It is a serious matter to think how the people would have fared during the epidemic had it not been for the great and valued help of these associations. The Commission urges upon the Government that the educational section of the Health Department should directly concern itself with the education of the public—girls and women particularly—in the principles of hygiene, first aid, and home nursing, through such agencies as the schools, the Order of St. John, the Red Cross Societies, the Nursing Associations, and the Women's National Reserve. In this connection we strongly recommend for the favourable consideration of the Government the advisability of subsidizing organizations teaching first aid and home nursing, and specially placing the St. John Ambulance Association and Brigade on a financially strong-enough basis to enable it to extend its most useful work.

One direction in which many of the branches of the Order of St. John are in want is in not possessing buildings of their own where classes can be held, demonstrations given, and all the work of the Order carried on. In the case of the City of Auckland we find that it possesses a very fine building for these purposes. The site, we understand, was given by the municipality, and it seems

to us that it would be a very proper course of action for other municipalities of the large centres likewise to make such contribution to the humane work in which this Order is so successfully engaged.

It was wisely presented to us "that there is a great number of women in the community who, though they have no desire to become trained nurses, yet show great natural aptitude for tending the sick. Would it not be a great benefit to the community if women of this type could receive limited but practical training in home nursing?"

South African Commission.

We have read with considerable interest the valuable report of a Royal Commission appointed in South Africa on the 4th December, 1918. It is worthy of consideration that in this report the South African Commission in describing the nature of the disease, its incidence, progress, and effects, uses the exact terms which we would apply to our own experience of the disease in New Zealand. In addition to this we find that a number of conclusions arrived at by the Commission herein referred to relating to questions of administrative, precautionary, and educational courses of action are such as will equally apply to conditions existing in New Zealand.

International Health Supervision.

A great deal of evidence which we received had relation to the existing conveyance of information from one country to another upon matters vital to the guidance of national and local authorities in dealing with any attacks of an infectious disease in the earliest stages of an epidemic which may prove to be pandemic later on.

At present there does not appear to be sufficient promptitude or exact direction shown in the conveyance of important details of information. Captain Thomas Carnwath, D.S.O., M.B., lecturing on "Lessons of the Influenza Epidemic" at the Royal Institute of Public Health, London, with Sir Arthur Newsholme in the chair, said, "The first appearance of the disease in Great Britain seemed to have been at Glasgow in May, and as early as April it had been prevalent in our own armies in France." To the lay mind it appears strange that with this early experience in 1918 the authorities in New Zealand should not have had fuller information apprising them of what was to be guarded against some time before October. The South African Commission reports thus on this question:—

"It is to be regretted that no concerted international action was taken at an early date in connection with this disease, and it is to be hoped that one of the results of the epidemic will be the establishment of an international organization for the rapid dissemination of authoritative information regarding epidemics. Pending the inauguration of such an international organization, the Commission is of opinion that it should be one of the functions of the Union Health Department to obtain as full information as possible regarding the outbreak of epidemic diseases in other parts of the world, and the best methods of dealing therewith, with a view to enabling the Government to consider possible measures for preventing their entrance into the Union, and organizing the methods of combating them in the event of an outbreak in the Union."

The regret here expressed and the recommendations are just what we had determined on before the report we are quoting from came into our possession, and we strongly recommend that the Government of our Dominion immediately enter into negotiations with the Governments of other countries with a view to establishing and participating in an International Bureau for the collection and dissemination of information bearing on the prevention and limitation of disease, more particularly with the object of obtaining information in regard to epidemics.

Medical Research.

In Dunedin strong representations were made to the Commission in the direction of emphasizing the importance of medical-research work throughout the Empire. It was urged that a medical representative in England should be attached to the

British Medical Research Committee, who would report on public-health matters and research work to the New Zealand Government. The view was also expressed that in addition to advising the New Zealand Government on all matters relating to the control of disease such a representative might act as Commissioner for New Zealand hospitals. If given effect to this plan would, we recognize, be of material advantage to the Health Department in New Zealand, and we recommend the suggestion to the Government for consideration.

Administration of Health Department in relation to Public Health generally.

The administration of the Department in relation to public health generally rests upon the state of the law, and the general plan upon which the Department exists and operates, on both of which subjects we submit some recommendations. There has been no evidence presented which indicates neglect in the administration of any officers of the Department. The defects manifested are grounded in the Department being understaffed, the time of Medical Officers being taken up in administrative duties for which they have no special qualification, whilst debarred from the proper studies of their profession, and the powers and duties of Chief Sanitary Inspectors being ill defined.

Public-health Law.

To rightly consider the question of administration, both local and general, referred to in clause (4) of the Commission's order of reference—viz., "The administration of the Public Health Department and the local authorities with regard to their responsibilities in relation to the epidemic, and generally in regard to public health"—it is necessary first of all to examine the character and provision of the law that has to be administered. The New Zealand statutes relating to public health, like those of England, have undergone considerable changes during the last thirty years, and are still subject to very frequent revision and amendment. From evidence taken the Commission is strongly of opinion that many of the defects in the existing law are due to hasty and ill-considered action on the part of our Legislature, and, considering the manifold evils which result from defective public-health legislation, we counsel that all future amendments of the law shall be entered upon and dealt with in a comprehensive manner, and with full regard to the present state of science relating to matters of public health. The general scheme of English public-health law, which rests mainly on the Public Health Act, 1875, establishes two authorities of public health within the Kingdom—viz., the general authority represented by the Local Government Board, and the district authority represented by the local authority (urban and rural). It is only this last year that there has been brought forward in England a Bill to establish a Ministry of Public Health.

The English Ministries of Health Bill, 1918, is of interest to us in that it provides for the setting-up of "Consultative Councils," with functions similar to those of the "Board of Health" and "District Advisory Committees" established by the Public Health Amendment Act, 1918, of New Zealand. The English Bill requires that the Consultative Councils shall be composed of "persons of both sexes," which principle might with benefit be applied in our Dominion. In New Zealand a Ministry and Department of Public Health was constituted by the Public Health Act, 1900. The charter of public health in New Zealand is mainly contained in the Public Health Act, 1908, which is a consolidation of the Public Health Acts from 1900 till 1908. Whilst there is only one Public Health Act, with three short amending Acts, we find that the Public Health Department in its administration has to keep track of provisions existing in at least fifteen other Acts. Here is a list of Acts which the Department has to administer: Hospital and Charitable Institutions Act, Public Health Act, Sale of Food and Drugs Act, Plumbers Registration Act, Midwives Act, Nurses Registration Act, Immigration Restriction Act, Social Hygiene Act, Medical Practitioners Act, Poisons Act, Quackery Prevention Act, Destitute Persons Act, Pharmacy Act, and Dentists Act. In addition to these

as a whole or in part there are also parts of the Municipal Corporations Act and the Shipping and Seamen Act dealing with matters relating to public health.

The local authorities are also called upon to administer various parts of a number of the above-named Acts. It is found that there are provisions dealing with several matters in more than one Act which run concurrently, and it is by no means clear as to whether the duty is cast upon the local authority or the Health Department to carry out certain very important duties. As an example, section 279 of the Municipal Corporations Act reads, "The Council may do all things necessary from time to time for the preservation of the public health and convenience, and for carrying into effect the provisions of the Public Health Act, 1908, so far as they apply to boroughs"; while several sections of the Public Health Act, 1908, provide that the District Health Officer may do practically the same things. By section 79 of the Public Health Act, 1908, both authorities are empowered and directed to do the same work. In this regard there exists a dual authority which probably results in overlapping at times, and possibly neglect on other occasions. Evidence of both results have been given by witnesses.

In a special report submitted to the City Council of Wellington Mr. W. H. Morton, City Engineer, recommends, "That the local as well as the other authorities should have their duties more clearly defined," and this view is endorsed by the other experienced witnesses who appeared before the Commission. Section 7 of the Public Health Act, 1908, is quoted as an instance of the seeming overlapping of the powers of the District Officer and the local authority. As one witness puts it, "The present system is one of divided control, doubtful initiative, and joint responsibility." Section 28 of the Public Health Act, 1918, gives power for the Minister to delegate to the local authority the powers conferred by the principal Act on the District Health Officer, or on the Hospital and Charitable Aid Boards' officer, but this appears to the Commission to be an entirely unsatisfactory manner of dealing with these important matters. There will be less likelihood of neglect where the whole responsibility for a course of action is placed directly upon one authority. It is of interest to note that whereas the English Public Health Act, 1875, says, "Every local authority shall appoint fit and proper persons to be Medical Officers or Officers of Health," in the New Zealand statute the word used is "may," and in practice the section of our Act has been non-operative. In England the local government may constitute contiguous local authorities the sanitary authority for a port, but in New Zealand we have apparently neglected the matter of establishing any port sanitary authorities.

There is need for amendment of our public-health law in the following, among other, directions:—

(1.) To make provision for stricter regulation of the movement of persons resident or employed in premises or on ships where an infectious disease had appeared.

(2.) To extend the right of entry for the inspection of dwellinghouses beyond the hours now fixed—"11 a.m. till 4 p.m."

(3.) To make provision for the definite appointment of women as Health Inspectors.

(4.) To require the making of model by-laws and regulations by the Health Department for the guidance of local authorities.

(5.) To require all cities to make and apply a lodginghouse by-law or by-laws.

(6.) To empower the Health authorities to require the cleansing of the interiors of private dwellings and lodginghouses where such may be dangerous to the public health.

(7.) To make clear in sections 7 and 12 of the Public Health Amendment Act, 1918, what authority shall make the regulations therein referred to.

What has impressed the Commission, after taking a good deal of evidence on the subject, is the extreme complexity and diffuseness in this department of law, making it most difficult for any but specialists to have a knowledge of the requirements and obligations of the various statutes. This is undoubtedly an undesirable state of affairs, seeing that matters of public health affect and ought to concern

every person within the Dominion. There is urgent need for reform in the following directions:—

(1.) To bring together and consolidate in one statute all Acts, parts of Acts, and sections which directly relate to matters of public health.

(2.) To remodel and, as far as practicable, simplify the general scheme and distinct provisions of the public-health law.

(3.) To confine the legislation to matters which are likely to be put into actual operation, and exclude as far as possible what may be fairly termed stillborn enactments.

(4.) Where it is found necessary to deal with any matters by way of by-laws or regulation, to make it obligatory for the authority that is to administer the Act or part of the Act that relates to such matter to make the required by-law or regulation.

(5.) To empower the Board of Health to direct inquiries into any matters relating to the administration of public-health affairs.

(6.) To amend subsection (1) of section 2 of the Public Health Amendment Act, 1918, by adding to the *ex officio* members "the Government Statistician."

(7.) To clearly define the powers and duties of the Health Department and each and every local authority in relation to public health.

NOTE.—In very many instances the powers are ill-defined or may be exercised by more than one authority, and the carrying-out of important duties is often left as a matter of inference instead of being specifically allotted and directed.

(8.) To make it obligatory on the part of the Borough Councils to submit improvement schemes relating to housing-conditions to the Board of Health.

(9.) To review section 7 of the Public Health Amendment Act, 1918, in respect to—(*a.*) Whether it is intended by section 2 that the District Health Officer shall give notice to the owner requiring "structural alterations," and not the local authority as provided in section 1. (*b.*) As to what is the position with regard to proceedings pending under section 291 of the Municipal Corporations Act, 1908, and section 90 of the Public Health Act, 1908 (repealed).

(10.) To make clear as to what section 8 of the Public Health Amendment Act, 1918, really means, as the local authorities are in doubt as to—(*a.*) Who is to take the initiative—whether it is the District Health Officer, as in section 29 of the Municipal Corporations Amendment Act, 1910, without a certificate. (*b.*) Whether it applies to hotels and all other places of residence.

(11.) To review section 31 of the Municipal Corporations Amendment Act, 1910, as to how the proviso affects the public interest in respect to the power to make by-laws "prescribing a minimum of frontage and area on which a dwellinghouse may be erected," when it is required to clear congested areas and erect new houses thereon, if plans of the subdivision have at an earlier period been "deposited" or "approved" as defined in that section.

General Scheme for the Administration of Public-health Affairs.

All the evidence taken by the Commission points to the need for materially strengthening the Health Department both in respect to the Head Office and to the District Offices. It is very clear that each and all of the health districts are far too extensive for any one District Health Officer to properly supervise. The Canterbury Health District comprises an area of 24,517 square miles, with a population of 217,046 Europeans and 1,047 Maoris. Within this district there are seven Hospital Boards, four ports of entry, one city, twenty-one boroughs, thirty counties, five Town Boards, and eleven Road Boards. To expect a Medical Officer in charge of such a district to devote time to scientific work is to look for

the impossible. We would advise that the general scheme of health administration requires considerable amendments, and to that end we submit these recommendations:—

Head Office.

(1.) That the Chief Health Officer have full powers of supervision over all scientific, medical, and sanitary public-health matters within the Dominion.

(2.) That an officer, to be named the Inspector-General of Health Institutions, be appointed, to have powers of supervision over all public-health institutions.

(3.) That a Chief Sanitary Inspector for the Dominion be appointed who shall be responsible to the Director-General.

(4.) That a Business Directory be established at the Head Office of the Health Department, under the charge of an expert business administrative officer to be named the Director of Public Health.

(5.) That an educational section be attached to the Business Directory charged with the duty of supplying knowledge and information to the public upon questions relating to public health.

Districts.

(6.) That from the existing health districts there be created subdistricts.

(7.) That Assistant District Health Officers be appointed to be in charge of the subdistricts under the direction of the District Health Officers.

(8.) That a Chief Sanitary Inspector be appointed for each health district, with power to instruct the other Sanitary Inspectors within their district; he to be responsible to the Dominion Chief Sanitary Inspector.

(9.) That the powers and duties of the officers herein named be clearly defined and the same published.

(10.) That all health matters, outside the care of hospital and charitable institutions in town districts and counties, and in boroughs apart from those referred to in the succeeding clause, be placed within the control of the Health Department.

(11.) That it be made obligatory on the part of each of the cities and large towns with their contiguous small boroughs and town districts to establish a Municipal Health Department under charge of a Medical Health Officer, and appoint Sanitary Inspectors proportionate to the area and population of the district concerned.

The Proper Relations of Local Authorities to the Public Health Department.

The proper relations of the local authorities to the Public Health Department, whether in respect to the prevention and suppression of infectious diseases or in relation to public health generally, appear to have been a matter of doubt for some considerable time. As a general principle we submit that the two authorities should stand in the relation of associates working together towards common ends. The Health Department as the authority having a responsibility of caring for the public health throughout the whole Dominion, and being constituted for the purpose of specializing in that direction alone, ought to possess powers of supervision over the acts of all local authorities relating to matters of public health. Whatever local authority is empowered or directed to deal with infectious diseases locally, its administration should be subject to conditions of reporting to, accepting guidance from, and, where neglect might occur, being directed by, the Health Department. The relation should be similar to the relation of junior to senior partner in a commercial firm. Though full power is given to a local authority in health matters within its district, the relation of each district to the country as a whole has ever to be borne in mind. The Health Department should, of course, respect the local authorities in the exercise of the powers vested in them, and refrain from issuing directions to any local authority that is actively endeavouring to carry out its responsibilities. We repeat that these separate authorities should regard themselves as partners, and stand not upon their respective rights but upon their common duty to the public, whom they are both called upon to serve. As the relations of the local and general authorities depend upon the general plan of health administration, we submit our ideas upon the subject of a general scheme.

General Scheme of Health Administration for Local Authorities.

A considerable amount of evidence was presented to the Commission bearing upon the question of what should be the position, powers, and responsibilities of local bodies, such as City Councils, Hospital Boards, and others, in a general scheme of public-health administration. Representatives of the City Councils and Hospital Boards at Auckland, Wellington, Christchurch, and Dunedin dealt more or less with this issue. From the representations made we find there are four distinct views of this matter, each of which may be upheld upon certain grounds of public policy. The four views submitted are the following:—

(1.) That all health matters should be placed under the control of the Health Department, which should direct the local authorities as to the steps to be taken by them for the preservation of public health.

(2.) That the City Councils should be vested with full power and responsibility, apart from the care of hospital and charitable institutions, in respect to the preservation of public health within their respective districts.

(3.) That the Hospital and Charitable Aid Boards should be constituted Boards of Health, and have general control of all health matters within their respective districts.

(4.) That local Boards of Health should be appointed, consisting of representatives from the City Councils, Hospital Boards, and other local bodies concerned in matters of public health.

The first of these views is upheld from the standpoint of public health being a matter that affects the whole people of the country; that there should be centralized control and direction, as the neglect of any local body may seriously injure other than its own ratepayers or citizens.

The second view is based partly on the local right of self-government exercised by municipalities, and also upheld on the ground that the large Corporations possess the means for carrying out inspections, sanitary works, and general administration affecting public health.

The third plan is presented from the viewpoint that the Hospital Boards are already dealing with matters of public health, and in addition to the management of health institutions the Boards are now charged with duties affecting the public health generally.

The fourth view was pressed very strongly by witnesses having a long experience of local-government affairs. It was urged that the creation of local Boards of Health would give more direct attention to health matters, and secure more independent and expeditious administration. Witnesses in Dunedin advocated giving such Boards distinct rating-powers.

This subject is an exceedingly difficult one, for the reason that from time to time precedents have been established in the way of vesting all these various authorities with some particular powers relating to public health, but no one authority has ever been charged with the full responsibility for the care of public health within their district.

The Commission is strongly of opinion that the existence of several authorities dealing with general health matters in these urban districts is very undesirable, as its effect is to divide responsibility, create delay, and in some instances produce actual neglect. We are not disposed to advise a change which would entail the creation of another local body. We urge that what is really required is to give definiteness in the matter of which authority shall be held responsible for the exercise of defined powers and the fulfilment of specific duties.

After full consideration the plan which we have to recommend is as follows:—

(1.) In respect to the cities and larger towns of the Dominion, the districts comprising these boroughs, together with the town districts and small boroughs adjoining, to be constituted sub-health districts.

(2.) That the chief borough in each such combined district be the controlling authority.

(3.) That each borough, town district, Hospital, Drainage, and Harbour Board within said district appoint one representative to a District Health Committee.

(4.) That such District Health Committee maintain a Local Department of Public Health under the direction of a Medical Officer of Health having the qualifications of a District Health Officer as defined in the Public Health Act, 1908.

(5.) That the Local Health Committee aforesaid appoint qualified Sanitary Inspectors in proportion as required by regulations made under the Public Health Act, 1908, such to be under the control of the Local Health Officer.

(6.) That the Local Health Department be empowered and directed to carry out all the duties necessary for the preservation of public health within its district, apart from the care and management of hospitals and other health institutions.

(7.) That the Local Health Officer report from time to time to the Government Health Officer of his district as to the work carried out or in progress by his Department.

(8.) That where the Local Health Department fails to exercise any power necessary to be exercised, or carry out any statutory duty laid upon it, the Government Health Department to have authority to exercise the power neglected, and to do what the Local Health Department has failed to do at the cost of the Local Health Department.

(9.) Each local body represented on the Local Health Committee to contribute its share of the costs of the Local Health Department in proportion to the interests served.

(10.) That an annual conference be held of representatives of the Government Health Department, the Local Health Committees, the Health Board, the Advisory Health Committees, and such private organizations as the Health Board may advise.

The Efficiency of Quarantine Arrangements in New Zealand.

The Commission visited the quarantine-stations at Auckland, Wellington, Lyttelton, and Port Chalmers, and found that in each of the four places visited the arrangements were most primitive and inefficient, the buildings being old, dilapidated, and quite unfitted to meet present-day requirements. The question whether the expenditure necessary to adapt the buildings to what is now required is one that can be fully justified, inasmuch as the health of the people is a matter that must receive first consideration irrespective of the cost to the community.

Motuihi at Auckland and Somes Island at Wellington are both good sites for quarantine-stations. The buildings on both islands were erected nearly half a century ago, and while at the time of erection they were well adapted for the purposes required of them, the great increase in population that has taken place since then, and the much greater number of passengers and crews that are now carried by the large modern and up-to-date steamers trading to the Dominion, render it necessary to immediately increase the accommodation, and, in addition, to adapt the buildings both regarding ward accommodation and sanitary arrangements, and in both cases to provide an infectious or isolation hospital in which to place all serious infectious cases. The water-supply on both islands is defective, as apparently by sinking it is difficult to obtain water that is not brackish. Boring at Motuihi may succeed in finding water that is not brackish; this should be done. Carrying water in tanks by steamers is far too unreliable and expensive. To overcome this difficulty large concrete reservoirs should be constructed as soon as possible near each of the large buildings, and if the roofs and spouting of all the buildings are kept in thorough repair so that no water will be allowed to run to waste an efficient rain-water supply should be by this means assured; and if an overhead concrete cistern were constructed, to which a windmill or oil-engine could pump the water from the main cisterns, water could by gravitation be carried to

the hospital and smaller buildings. With a plentiful supply of water the whole of the nightsoil and offensive liquid matter could be conveyed by pipes to the sea. A new wharf should be erected on a site at Motuihi accessible for large launches at all states of the tide. At Somes Island a good zigzag road is required, the present road being too steep and difficult to negotiate. An efficient caretaker and assistants should be appointed to each of these islands, and it is essential that such person should have a knowledge of carpentering, painting, and plumbing, so that any parts of the buildings could be always kept in an efficient state of repair. No timber should be allowed to be used in any of the new buildings that is not first class and durable in quality, as in examining the old buildings at each of the four quarantine-stations very inferior and defective timber was found almost in every part.

Motuihi and Somes Island are the only two quarantine-stations that at present require considerable alterations and much expenditure, though repairs and alterations in several directions are also required at Lyttelton and Port Chalmers. Any large steamers carrying a large number of persons arriving at either of these ports could be sent on to Somes Island. At present Auckland and Wellington are the only two first ports of call that require special attention, inasmuch as from a return prepared by the Customs Department it is shown that the number and net register tonnage of intercolonial and other oversea vessels (steam and sailing) entered inward at Auckland, Wellington, Lyttelton, and Dunedin (including Port Chalmers) as first ports of call during the years 1913 and 1918 respectively were—

	Vessels.	Tonnage.
1913.		
Auckland	301	856,317
Wellington	145	504,974
Lyttelton	40	69,881
Dunedin (including Port Chalmers) ..	35	84,695
1918.		
Auckland	214	541,124
Wellington	193	529,947
Lyttelton	35	66,352
Dunedin (including Port Chalmers) ..	25	35,259

The return embraces the United Kingdom, Australia, Canada, Pacific islands, and other countries. The figures exclude all vessels regularly engaged in the intercolonial trade, but include vessels cleared from Australian ports in ballast or with cargo loaded in Australia.

This return shows that it is not necessary to spend a great deal of money on the quarantine-stations either at Lyttelton or Port Chalmers, but the minor improvements required should be attended to.

Summary of various Recommendations made relating to the Epidemic and to Public Health generally.

(1.) That various amendments be made to the public-health law, as indicated in report.
(2.) That the public-health law be remodelled, consolidated, and simplified.
(3.) That clauses be added to the Public Health Act making provision for the regulation of prices of equipment, goods, and services required in combating an epidemic.
(4.) That a Business Directory be established in connection with the Health Department, under the charge of an expert business administrative officer to be named the Director of Public Health.
(5.) That a Chief Sanitary Inspector for the Dominion be appointed.
(6.) That the powers, duties, and relations of all Public Health Officers, medical, sanitary, and administrative, be fully and clearly defined, and same published for public information.
(7.) That an educational section be attached to the Business Directory for the dissemination of knowledge and information to the public relating to matters of public health.

(8.) That greater attention be given in the primary and secondary schools to domestic science, hygiene, first aid, and home nursing as subjects for girls. In the secondary schools these subjects to be made compulsory.

(9.) That the health of school-children be given increased attention through the establishment of school clinics under the charge of qualified Medical Officers.

(10.) That we strongly recommend for the favourable consideration of the Government the subsidizing of organizations teaching first aid and home nursing, and especially St. John Ambulance Brigade and Association to enable it to extend its most useful work.

(11.) That existing health districts be divided into subdistricts, and Assistant Health Officers placed in charge under the District Health Officer.

(12.) That the cities and large towns, with contiguous boroughs and town districts, form local Health Departments under the supervision of the Government Health Department.

(13.) That health matters in other boroughs and town districts than those referred to in clause (12) be administered by the Government Health Department.

(14.) That special Advisory Committees be appointed to report from time to time on the health conditions of the ports and shipping of the Dominion.

(15.) That constant inspection be made of the ships, wharves, and adjuncts of the waterfronts under direction of a Medical Officer of Health.

(16.) That combined action be taken by the General Government and local authorities to institute and carry into effect schemes for the provision of adequate housing-accommodation, and the renovation of localities at present encumbered with buildings unsuitable for habitation.

(17.) That the Government take part with other Governments in establishing an International Bureau for the collection and dissemination of information bearing on the prevention and limitation of disease.

(18.) That an annual conference of representatives from all Health authorities, Boards, and Committees be instituted as a means of public guidance.

Special Service.

The Commission desires to place on record its admiration of the high public spirit, devotion, and self-sacrifice displayed by medical men and nurses in combating the epidemic disease at very great personal inconvenience, risk, and even loss of life. The same commendations apply to members of the Police Force, and to members and officers of many public bodies, also the numerous body of private citizens who laid aside their own private affairs and devoted themselves wholeheartedly to the work of helping the Health authorities, both local and general, to save as many as possible of those affected by the epidemic.

The Commission wishes to record its appreciation of the constant attention and energetic services that the Secretary, Mr. Silas Spragg, has given to the Commission.

In witness of the contents hereof we have hereunto set our hands this thirteenth day of May, one thousand nine hundred and nineteen.

J. E. Denniston, Chairman.
E. Mitchelson, }
D. McLaren, } Members.

APPENDIX.

LIST OF WITNESSES.

AUCKLAND.

Dr. Hughes (District Health Officer).
Dr. Maguire (Resident Surgeon, Hospital).
Dr. H. C. P. Bennett.
Dr. E. N. Drier.
Dr. W. Horton.
William Murdock (waterside worker).
Dr. L. C. Cawkwell.
Dr. R. H. Makgill (Assistant Director Medical Services).
Dr. C. C. Russell (Port Health Officer).
Dr. P. O. Andrew.
Dr. De Clive Lowe.
Dr. E. W. Sharman.
W. L. Wilson (Superintendent, Fire Brigade).
T. F. Anderson (Seamen's Union).
Dr. Milsom (president, Auckland Branch New Zealand Division, B.M.A.).
Dr. C. B. Rossiter.
A. J. Entrican (Acting-Mayor).
William Wallace (Hospital and Charitable Aid Board).
Dr. Kenneth Mackenzie (passenger on "Niagara").
M. H. Boyle.
J. Stanton (City Solicitor).
Vernon Reed, M.P.
C. T. Haynes (Sanitary Inspector).
W. H. Wilson (Town Clerk).
C. J Tunks (St. John Ambulance).
F. J. Hutchinson (St. John Ambulance).
L. G. Dunn.
Miss Blanche Butler (Grammar School).
Dr. J. P. Frengley (Deputy Chief Health Officer).
J. H. Gunson (Mayor).
George T. Jones.
A. M. Hacket (*New Zealand Herald*).
Dr. T. H. A. Valintine (Chief Health Officer).
Dr. E. D. Mackellar.
Dr. Petitt (Motuihi Island).
M. O. Callaghan (St. John Ambulance).
D. McC. Gillies (Union S.S. Company).
Dr. P. M. Kellar.
Miss Bagley (Assistant Inspector of Hospitals).
Eliza McDowell (St. John Ambulance).
F. A. Hansard.
George Davis (secretary, Drivers' Union).
Thomas Ward (Customs service).
H. P. Heather (Chairman, Harbour Board).
Trevor Phillips.
Harry Hillier (secretary, waterside workers).

WELLINGTON.

John A. Hurley (Government Bacteriologist).
Dr. M. H. Watt (District Health Officer).
Dr. Frengley.
Dr. T. Ritchie (Assistant Bacteriologist).
Dr. Makgill.
Dr. Valintine.
Rev. Samuel Orr.
Archibald H. Munro (Harbour Board).
Henry Baldwin (Hospital and Charitable Aid Board).
John Pearce Luke (Mayor).
Hon. G. W. Russell (Minister of Public Health).
H. H. Seed (St. John Ambulance).
Mrs. Catherine Preston (St. John Ambulance).
William Fox.
Mrs. Mary Waters.
Miss Maud Robieson (Nursing Division).
M. J. Reardon (Trades and Labour Council).
Miss Hester McLean (Inspector, Health Department).
Dr. W. J. Barclay (Superintendent, Wellington Hospital).
Dr. D. L. Clay.
Rev. R. Wood.
Dr. H. C. Faulke.
W. T. Young (secretary, Seamen's Union).
W. Foster (Clyde Quay School).
Dr. Kington Fyffe (president, New Zealand Division, B.M.A.).
W. A. Kennedy (Union S.S. Company).
Dr. Elizabeth Platts-Mills.

CHRISTCHURCH.

Dr. H. Chesson (District Health Officer).
W. W. McKinney (St. John Ambulance).
Henry Cotterill.
Arthur F. Wright.
Dr. A. B. Pearson.
Dr. William Irving.
Dr. Walter Fox (Superintendent, Christchurch Hospital).
Leslie Hardy (Sanitary Inspector).
Dr. James F. Duncan.
G. Hutchison.
Sybella Emily Maud.
Dr. Edward Jennings.
C. W. Hervey (Automobile Association).
Edwin Cuthbert (Drainage Board).
Henry Holland (Mayor).
H. Rowe Smith (Town Clerk).
Maurice J. Gresson.
W. S. Warton.
Arthur W. Nicol.
L. A. Stringer (Town Clerk, Lyttelton).
Mark Kershaw (Sanitary Inspector).
Arthur Ford (Riccarton Borough Council).
Frank George (Riccarton Borough Council).

LIST OF WITNESSES—*continued.*

DUNEDIN.

Dr. Irwin Faris (District Health Officer).
Dr. Champtaloup (Professor of Bacteriology).
Dr. A. M. Drennan.
Dr. Frank Fitchett.
George A. Lewin (Town Clerk).
Ernest J. King.
Dr. Colquhoun.
Rev. V. G. B. King.
Dr. J. T. Bowie (Dunedin Hospital).
Miss Ethel Bulté (V.A.D.).
Kenneth Cameron (Sanitary Inspector).
Dr. A. R. Falconer (Medical Superintendent, Dunedin Hospital).
Robert Constable (Union S.S. Company).
W. E. S. Knight (Hospital and Charitable Aid Board).
John Dowie.

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