1913.

NEW ZEALAND.

ADMINISTRATIVE CONTROL AND TREATMENT OF TUBERCULOSIS

(REPORT OF CONFERENCE ON THE).

Laid on the Table of the House of Representatives by Leave.

Department of Public Health, Hospitals, and Charitable Aid,
19th November, 1912.

The Honourable the Minister of Public Health, Wellington.

SIR,—

I have the honour to lay before you the report of the Conference convened at your instance for the purpose of inquiring into the prevalence of tubercular diseases in the Dominion, particularly with regard to the measures considered necessary to prevent their spread.

The Conference was thoroughly representative, consisting of medical men who have had special experience relating to the administrative control or treatment of tuberculosis.

The Conference was fortunate in having the assistance of the Chief Veterinarian, and the President and Secretary of the Wellington Branch of the British Medical Association, the latter adequately representing the views of members of the medical profession engaged in private practice.

The Conference sat on 22nd and 23rd October, and during that time carried many important resolutions, which I respectfully submit for your favourable consideration.

I have the honour to be,
Sir,
Your obedient servant,

T. H. A. VALINTINE,
Chief Health Officer and Inspector-General of Hospitals.

REPORT.

SIR,— Wellington, 19th November, 1912.

We have the honour to submit the following report on certain matters relating to the prevalence of tubercular diseases in this Dominion, especially with regard to those measures which we consider necessary to prevent their dissemination :—

I. In the first place we would take this opportunity to correct an impression to the effect that tubercular diseases are gaining ground in this country. Such is not the case; on the contrary, there is evidence to show that during the last ten years there has been a steady decline in the mortality-rate from these diseases, particularly with regard to the death-rate from pulmonary consumption. For further details we would refer you to the statistics attached to the report, provided by the Government Statistician.

II. In making recommendations for your consideration we must not omit to mention that during the last ten years a great deal has been done in this country with a view to prevent the spread of consumption and other forms of tubercular disease. We believe there are few, if any, countries which have so large a proportion of beds available to the population (one bed to every 3,500 persons) for the special treatment of these diseases. Moreover, the legislative machinery has enabled the Public Health Department to initiate many of those measures which in the light of modern knowledge are considered essential for a campaign of this nature, and this machinery will be the more effective when the Hospital Boards and other responsible authorities co-operate with the central Department in a campaign conducted on well-considered and uniform lines.

III. If the opinions of the delegates to the recent Hospital Conference can be taken as a gauge, there is little doubt but that the Hospital Boards will enter upon the campaign with vigour. Under the present law the duty of these authorities is to endeavour to prevent as well as to provide for the treatment of disease, and afford relief to the poor. This threefold duty on the part of the Boards should greatly simplify the conduct of the campaign.

IV. It will be noted, however, that in the opinion of the Conference little can really be accomplished unless the public are thoroughly aroused as to the need for the measures which are outlined in this report. An educated public is the most formidable weapon that can be used against the common enemy, and every effort must be taken—by dissemination of literature, lectures, and demonstrations—to inform the public of the nature of the foe against whom we are waging war. Of necessity the campaign must be a long and protracted one, and possibly for some years the good results will not be very obvious; nevertheless, it must not be allowed to languish, as has been the case in the past. The central and local health authorities will be powerless unless the public are behind them and in sympathy with their efforts.

V. The Conference was unanimous that the campaign must be conducted on uniform lines. The same methods, the same mode of attack, must be observed throughout the Dominion, whether by central Department, Hospital Boards, or other authorities interested.

VI. Though we must be ruthless in our warfare against the common foe, we must not be unmindful of the private interests of those who are its victims. The Conference agreed with Dr. Blackmore that "restrictive measures must not be pushed too far," and that "tuberculosis is not a highly infectious disease." We are not likely to conduct the campaign with any success if, from fear of interference with personal liberty, patients neglect to seek the assistance of the authorities. The success of the campaign largely depends on persons in the early stages of the disease seeking advice and treatment; and if such persons find that in their efforts to benefit themselves and the community methods are adopted that cause them to be regarded as pariahs of society, and their personal liberty to be thereby involved, the campaign will be productive of more harm than good. Without doubt, strong methods should be taken with regard to those patients who neglect to conform to precautions considered necessary in the interests of the public; but, with these exceptions, we consider it our duty to state with every emphasis that we will not be party to any restriction of the personal liberty of those who may without danger to the community obtain treatment in their own homes. The home treatment of consumptive patients is an important factor in the campaign that has been outlined.

VII. Though home treatment of many consumptive patients can be carried out with advantage to the patient and with safety to the community, we are strongly of opinion that every possible facility should be provided for those patients needing treatment in special institutions. We have already referred to the fact that the Dominion is particularly fortunate in having available so high a proportion of beds for the special treatment of this disease; nevertheless, we are of opinion that this accommodation should be materially increased, so that some 700 beds (double the present number) may be available for victims of this disease in its varying stages. In connection with the proposed increase in the accommodation, we would point out that the Conference was unanimous that when the Auckland Sanatorium is ready for the patients of that district it will not be necessary to erect any additional institutions for this purpose. The increased accommodation should be provided in connection with existing institutions (including the Auckland Sanatorium), or by means of annexes attached to our general hospitals. Opinions were unanimous to the effect that little good could be obtained by dotting the Dominion with small

sanatoria. To be of real use to the community such institutions should be large enough to engage the whole-time services of a medical man who has had special experience in the treatment of the disease.

VIII. We would particularly draw your attention to our opinion that consumptive patients could be treated in our general hospitals without detriment to other patients. We recognize that of necessity a certain number of consumptive patients must be accommodated in our general hospitals, and we deplore the fact that alarming statements are sometimes made—even by members of the medical profession—that such patients are a danger to others. The reason we object to treatment of consumptive patients in our general hospitals is that, beyond getting relief for their immediate wants, it is practically impossible for them to be provided with the special treatment that this disease needs. Hospitals, and annexes attached thereto, must be recognized as "half-way houses" where patients can be treated until they can be admitted to special institutions.

IX. We would also draw your attention to the fact that the Conference was of opinion that the institutions for early cases of the disease, for chronic and advanced patients, and for after-treatment—the farm colonies—could with advantage be erected on sites immediately adjoining each other, so that the various institutions could be under one medical and nursing administration. In view of the statements that have appeared in the public Press, to the effect that it is not desirable that such institutions should be under one administration, we would respectfully draw your attention to this decision.

X. We are of opinion that the Public Health and Hospital machinery provides for the appointment of sufficient officers—District Health Officers, Medical Superintendents and other medical officers, Sanitary Inspectors, district nurses, &c.—for the efficient conduct of the campaign, and in many districts no additional officers are required; but we would strongly impress on you the advisability of the appointment of Bacteriologists by the Hospital Boards of our four chief centres —their work to be entirely confined to those duties for which they were primarily appointed. For the success of the campaign a Bacteriologist in each of our large centres is absolutely essential, and we have every confidence that those Hospital Boards who have not yet made these necessary appointments will do so without delay.

XI. We have discussed the various parts in the campaign that may be undertaken by officers appointed or about to be appointed with a view to prevent overlapping of effort, and we are glad to report that there is no evidence that such overlapping exists or is likely to exist. We are of opinion that District Health Officers are working in unison with the Medical Superintendents of sanatoria (where such have been appointed), and that those officers are in touch with each other with regard to the patients notified. It is to be hoped that the larger Hospital Boards will provide at least one district nurse to take a special place in the campaign in connection with the following-up of those cases that are receiving or have received treatment in the various institutions under the control of the Boards. The smaller Boards might with advantage combine for this purpose.

XII. It is early yet to forecast the part that the Medical Inspectors of Schools can take in the campaign, but we look to these officers to take a very prominent part in the discovery of the "early cases." Arrangements have been made whereby these officers will be in close touch with the District Health Officers of the Public Health Department, and we note with satisfaction that they have been attached to that Department. By this means overlapping will be prevented and unity in effort assured. In connection with this subject we must ask you to use your influence in the direction of the establishment of open-air schools in the Dominion as suggested by members of the Conference, so that it may be possible for children who are predisposed to consumption to pursue their studies under an environment less prejudicial to their health than in some of the more-crowded schools in our larger centres. We feel sure that arrangements of this kind can be made—as has been the case in other countries—without altogether dislocating the educational machinery that some would have us believe must be the case if such provisions are made

XIII. We are of opinion that special dispensaries for the treatment of chest-diseases should be established in our chief centres, and where possible in other hospital districts. The dispensary, with its attendant officers—the Medical Superintendent of the sanatorium, the Bacteriologist, the district nurse, and the Sanitary Inspector—should be regarded as the headquarters of the campaign in each hospital district.

XIV. In paragraph IX mention was made of farm colonies for the after-treatment of patients who, though cured of the disease, would not be well advised in going back to indoor occupations. We are of opinion that the establishment of such colonies is a very essential matter, and consider that these farm colonies might with advantage be in close proximity to the sanatoria. It is not necessary here to go into details of the work that might be undertaken by ex-patients in these colonies, except to say that every effort should be made to fit these patients to earn their livelihood by outdoor occupations. It is to be hoped that a further recommendation of the Conference —that Government Departments give every facility for the employment of patients who are not financially able to embark on open-air occupations on their own responsibility—will be given every consideration. We may, however, take this opportunity to sound a warning note. There is, unfortunately, a strong tendency on the part of ex-sanatorium patients to consider that they have done their life-work, that they are not fit to maintain themselves, and that the State should keep them. That they have been maimed we do not deny, but that they should regard themselves as invalids for the rest of their lives is neither necessary nor desirable. If this is to be one of the results of sanatorium treatment the sooner a corrective is provided the better. Half the trouble that has arisen in connection with ex-sanatorium patients is owing to the fact that during their stay in institutions they had little to occupy their minds other than their symptoms. Sanatorium authorities the world over have recognized this, and a remedy was sought by giving those patients some sort of occupation graduated to their strength and capabilities. The results obtained in those sanatoria where such graduated work has been undertaken by patients are surprising. By working they were, in effect, manufacturing their own tuberculin. Unfortunately, the impression prevails among some patients and a certain section of the public that the former

have been induced to work with a view to cutting down the administrative expenses of the institution, but such is not the case. Though the Conference was of opinion that most of the domestic duties may be done by patients, we would lay stress on the fact that graduated work is for the actual benefit of the patients, though at the same time we would take this opportunity to say that the exploitation of patients' work for the pecuniary benefit of the institutions concerned must be strictly discouraged. Patients must work for their own sakes, not solely for the benefit of their institutions; and we look to the public to allow no false sentiment to hamper the efforts of our Medical Superintendents in building up the patients while in our sanatoria, so that they can return to take their places as effective citizens.

XV. The Conference was much interested in Mr. Reakes's statements with regard to the protection of the milk and meat supplies of the Dominion, and other matters relating to the subject which were introduced during his able address—notably his investigations with regard to the vitality of the tubercle bacillus in infected pastures. Unfortunately, so long as the public exhibits such apathy with regard to the quality of the milk supplied for human consumption, it will be difficult to effect any very drastic reforms with regard to the control of this industry. If the public really wants clean milk of good quality it must be prepared to pay for it. What the public demands the trade will supply. In the meantime the recommendation of the Conference—that Hospital Boards should obtain milk for their institutions only from those suppliers who submit their herds to periodical tests by responsible officers of the Veterinary Branch of the Agricultural Department—should have some effect, and impress the public with the importance of this aspect of the problem. The enforcement of the regulations under the Sale of Food and Drugs Act, which are now before Cabinet, will give the central Department an opportunity of effecting reforms in connection with our food-supplies that are much needed. You will note that, though a resolution was carried to the effect that the milk from factories should be pasteurized, the Conference did not make any recommendation with regard to the pasteurization of milk intended for human consumption, the members being of the opinion that such pasteurization would largely minimize its food-value, and would engender a feeling of false security that would be of more real danger to the public than a milk-supply which was subject to a careful and regular supervision by responsible officers. If the public considers that the question can be settled by pasteurization of milk intended for direct human consumption—which it cannot—it will not be likely to insist on those reforms in the trade that we so earnestly desire.

XVI. Particular attention may be well directed to the decisions that led to the resolution with regard to the use of tuberculin. We feel that we can rely on the good sense of the medical profession to refrain from using this form of treatment unless individual members are thoroughly *au fait* with the properties and action of tuberculin, and the technique necessary for its proper exhibition. It will be the duty of the Department—as suggested by Dr. Champtaloup—to make arrangements with Bacteriologists to give demonstrations on this and other matters of vaccine therapy to practitioners who may not have had the advantages of obtaining experience in that particular form of treatment.

XVII. The only question on which the Conference was not unanimous was that with regard to the restriction of immigration. Though the members were as one with regard to the restriction of immigrants in the advanced stages of the disease, much sympathy was expressed for those immigrants in the early stages of the disease who might be denied the advantages of our climate and social conditions. It was urged by more than one speaker that such persons were British subjects, and should not be denied the advantages that were available to their more-robust fellow-countrymen. The question is indeed a very vexed one, and we feel sure that it may be left to your clemency to decide whether it may not be possible to permit the immigration of persons in the early stages of the disease, provided that they can show that they are willing to submit to certain conditions compatible with the interests of the country where they hope to become effective citizens. The Conference was, however, unanimous in its approval of the measures about to be taken by the Government to prevent persons in advanced stages of the disease from landing on these shores, and was confident that the most effective means to this end could be brought about by rigid inspection prior to immigration and during the voyage, it being contended that more responsibility might with advantage be thrown on the shipping companies.

XVIII. Finally, it was unanimously decided that if time should show that the responsible authorities fail to act in concert the Government should take over the complete control of the tuberculosis campaign; and, though many members expressed the hope that the Boards would not fail in their duties to the State, it was recognized that if it proved necessary to vest the conduct of this campaign in the central Department it would ultimately involve reorganization of our hospital system on a similar basis—a change which in the opinion of many members present would not be altogether to the disadvantage of the people of the Dominion.

We have, &c.,

G. J. Blackmore, Medical Superintendent, North Canterbury Sanatorium.
Sydney T. Champtaloup, District Health Officer (Otago).
William E. Collins, Member of the Legislative Council.
H. E. Finch, District Health Officer (Canterbury).
Jos. P. Frengley, Medical Secretary, Department of Public Health, &c.
H. E. Gibbs, Secretary, British Medical Association.
H. Hardwick-Smith, Medical Superintendent, Wellington Hospital.
A. L. Lewis, Medical Superintendent, Te Waikato Sanatorium.
C. E. W. Lyth, Medical Superintendent, Pleasant Valley Sanatorium.
R. H. Makgill, District Health Officer (Auckland).
H. J. McLean, President, Wellington Division, British Medical Association.
J. A. Reakes, Chief Veterinarian.
T. H. A. Valintine, Inspector-General of Hospitals and Chief Health Officer for the Dominion.

The Hon. the Minister of Public Health, Wellington.

NEW ZEALAND—TUBERCULOSIS.

TABLE SHOWING NUMBER, AND RATE PER 10,000 OF MEAN POPULATION, OF DEATHS FROM TUBERCULOSIS IN NEW ZEALAND FOR EACH OF THE YEARS 1901 TO 1911 INCLUSIVE.

Year.	Tuberculosis (all Forms).		Tuberculosis of the Lungs (Phthisis).	
	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.
1901	775	9·96	596	7·661
1902	802	10·05	617	7·734
1903	769	9·38	570	6·949
1904	799	9·46	598	7·077
1905	678	7·79	496	5·701
1906	720	8·04	556	6·208
1907	856	9·31	612	6·659
1908	839	8·87	607	6·423
1909	800	8·23	588	6·051
1910	731	7·36	550	5·540
1911	738	7·27	536	5·281

M. FRASER, Government Statistician.

Registrar-General's Office, Wellington, 15th November, 1912.

NEW ZEALAND—TUBERCULOSIS OF THE LUNGS (PHTHISIS).

TABLE SHOWING NUMBER, AND RATE PER 10,000 OF POPULATION, OF DEATHS FROM TUBERCULOSIS OF THE LUNGS IN EACH PROVINCIAL DISTRICT FOR EACH OF THE YEARS 1901 TO 1911 INCLUSIVE.

Year.	Auckland.		Taranaki.		Hawke's Bay.		Wellington.		Marlborough.	
	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.
1901 ..	125	7·055	21	5·500	26	7·286	109	7·652	4	2·982
1902 ..	146	8·033	11	2·790	27	7·350	107	7·309	5	3·630
1903 ..	135	7·226	20	4·897	22	5·805	88	5·830	10	7·063
1904 ..	127	6·591	17	4·009	31	7·914	114	7·308	4	2·744
1905 ..	117	5·890	16	3·641	27	6·670	63	3·910	7	4·668
1906 ..	137	6·562	16	3·587	23	5·448	112	6·437	4	2·676
1907 ..	142	6·498	21	4·654	31	7·068	106	5·683	11	7·404
1908 ..	134	5·962	15	3·218	29	6·377	114	5·927	7	4·574
1909 ..	164	7·090	16	3·320	21	4·494	108	5·449	5	3·168
1910 ..	122	5·158	18	3·637	24	5·014	114	5·623	5	3·092
1911 ..	150	5·906	17	3·312	27	5·518	94	4·613	7	4·286

Year.	Nelson.		Westland.		Canterbury.		Otago.	
	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.
1901	27	7·080	11	7·562	113	7·847	160	9·185
1902	29	7·433	10	6·769	128	8·682	154	8·635
1903	23	5·746	20	13·273	120	7·932	132	7·213
1904	26	6·322	14	9·095	127	8·166	138	7·342
1905	29	6·867	5	3·171	101	6·318	131	6·794
1906	28	6·493	5	3·230	78	4·806	153	8·053
1907	27	6·152	11	7·282	135	8·216	128	6·855
1908	29	6·442	11	7·111	122	7·232	146	7·626
1909	25	5·414	14	8·817	108	6·236	127	6·470
1910	26	5·524	13	8·028	113	6·396	115	5·752
1911	32	6·623	7	4·333	84	4·743	118	5·962

M. FRASER, Government Statistician.

Registrar-General's Office, Wellington, 15th November, 1912.

NEW ZEALAND—TUBERCULOSIS OF THE LUNGS (PHTHISIS).

TABLE SHOWING NUMBER, AND RATE PER 10,000 OF POPULATION, OF DEATHS FROM TUBERCULOSIS OF THE LUNGS IN EACH OF THE FOUR CHIEF CITIES, WITH THEIR SUBURBS, FOR EACH OF THE YEARS 1901 TO 1911 INCLUSIVE.

Year.	Auckland and Suburbs.		Wellington and Suburbs.		Christchurch and Suburbs.		Dunedin and Suburbs.	
	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.
1901	41	8·169	55	11·145	43	9·516	68	12·887
1902	42	8·036	49	9·614	57	12·096	44	8·222
1903	38	6·843	46	8·665	37	7·318	53	9·527
1904	45	7·901	50	8·989	42	8·118	51	8·826
1905	37	6·337	28	4·797	44	8·345	47	7·877
1906	40	6·118	49	7·620	28	5·249	59	10·432
1907	46	6·565	45	6·499	52	9·257	49	8·344
1908	38	5·122	57	7·881	49	8·056	45	7·452
1909	43	5·577	56	7·462	36	5·734	30	4·844
1910	26	3·239	61	7·889	40	6·235	37	5·827
1911	36	4·322	41	5·845	41	6·408	43	6·877

M. FRASER, Government Statistician.

Registrar-General's Office, Wellington, 15th November, 1912.

NEW ZEALAND—TUBERCULOSIS (ALL FORMS).

TABLE SHOWING NUMBER, AND RATE PER 10,000 OF POPULATION, OF DEATHS FROM ALL FORMS OF TUBERCULOSIS IN EACH PROVINCIAL DISTRICT FOR EACH OF THE YEARS 1901 TO 1911 INCLUSIVE.

Year.	Auckland.		Taranaki.		Hawke's Bay.		Wellington.		Marlborough.	
	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.
1901 ..	158	8·918	28	7·333	41	11·490	146	10·250	5	3·727
1902 ..	181	9·960	17	4·312	32	8·712	148	10·110	8	5·808
1903 ..	182	9·741	26	6·366	25	6·597	119	7·890	15	10·595
1904 ..	156	8·096	26	6·132	40	10·212	149	9·552	7	4·803
1905 ..	153	7·703	29	6·601	34	8·400	99	6·144	11	7·336
1906 ..	173	8·287	24	5·381	31	7·343	142	8·162	4	2·677
1907 ..	190	8·694	29	6·427	42	9·576	159	8·525	11	7·404
1908 ..	180	8·009	30	6·437	44	9·676	154	8·007	11	7·189
1909 ..	206	8·906	23	4·773	37	7·919	157	7·922	9	5·703
1910 ..	163	6·892	25	5·052	40	8·357	163	8·041	6	3·711
1911 ..	201	7·914	24	4·676	37	7·562	138	6·773	13	7·960

Year.	Nelson.		Westland.		Canterbury.		Otago.	
	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.
1901	34	8·915	11	7·563	142	9·861	210	12·056
1902	40	10·254	11	7·447	161	10·921	204	11·439
1903	32	7·995	25	16·591	151	9·982	194	10·602
1904	38	9·241	15	9·745	167	10·738	201	10·694
1905	37	8·762	9	5·709	124	7·758	182	9·440
1906	34	7·885	8	5·169	107	6·593	197	10·369
1907	36	8·203	15	9·930	179	10·894	195	10·444
1908	39	8·664	15	9·697	164	9·722	203	10·604
1909	35	7·580	20	12·597	139	8·026	177	9·018
1910	33	7·012	15	9·264	134	7·585	152	7·603
1911	33	6·831	12	7·429	122	6·889	158	7·983

M. FRASER, Government Statistician.

Registrar-General's Office, Wellington, 15th November, 1912.

NEW ZEALAND—TUBERCULOSIS (ALL FORMS).

TABLE SHOWING NUMBER, AND RATE PER 10,000 OF POPULATION, OF DEATHS FROM ALL FORMS OF TUBERCULOSIS IN EACH OF THE FOUR CHIEF CITIES, WITH THEIR SUBURBS, FOR EACH OF THE YEARS 1901 TO 1911 INCLUSIVE.

Year.	Auckland and Suburbs.		Wellington and Suburbs.		Christchurch and Suburbs.		Dunedin and Suburbs.	
	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.	Number of Deaths.	Rate per 10,000 of Population.
1901	50	9·963	80	16·212	54	11·951	79	14·972
1902	53	10·141	68	13·341	69	14·643	64	11·960
1903	61	10·985	57	10·738	47	9·296	80	14·380
1904	55	9·657	68	12·226	57	11·018	78	13·498
1905	49	8·393	42	7·196	54	10·242	66	11·062
1906	52	7·953	60	9·331	42	7·874	78	13·791
1907	66	9·419	69	9·695	77	13·708	77	13·112
1908	52	7·009	73	10·093	66	10·851	69	11·426
1909	58	7·523	78	10·394	45	7·168	43	6·943
1910	44	5·482	87	11·252	50	7·794	52	8·190
1911	51	6·124	60	8·554	54	7·699	57	9·116

M. FRASER, Government Statistician.

Registrar-General's Office, Wellington, 15th November, 1912.

RESOLUTIONS OF CONFERENCE: SUMMARY.

1. That compulsory notification of all cases of pulmonary tuberculosis be carried out.
2. That the medical practitioner be requested to state on the notification form whether a visit by the Sanitary Inspector is desirable or not.
3. That such intimation shall not prevent the District Health Officer taking such steps as he may deem necessary, by inspection or otherwise, but that in all such cases where he proposes further action the District Health Officer shall duly acquaint the notifying medical practitioner of his intention.
4. That where possible the medical practitioner to have the right to enlist the services of a district or dispensary nurse where such officer is appointed in the hospital district concerned.
5. That it be a recommendation to those controlling dispensaries to enlist the sympathies of medical practitioners in the direction of the examination of contacts.
6. That it be a recommendation of this Conference to Hospital Boards that they adopt a uniform form of inquiry, relating more particularly to family history of patients and their sanitary environments.
7. That by regulation under or amendment of the Public Health Act the onus of notifying the Department of the removal of a consumptive patient from one house to another to be placed on the householder, and that, pending such amendment or regulation, the District Health Officers take such steps as they may consider necessary to bring about this notification in a voluntary manner.
8. That the Public Health Act be amended to provide for the compulsory detention of a patient who refuses to conform to the health rules of an institution of which he is an inmate, such detention to be made on the order of a Magistrate on the representation of the Medical Superintendent concerned.
9. That the attention of the Railway Department be drawn to the insanitary condition of the carriages, owing to their lack of ventilation and cleanliness.
10. That it be a recommendation to the Licensing Committees that periodical cleansing of hotels be carried out.
11. That the Public Health Act be amended to provide for the inspection of boardinghouses, and their being subject to the same conditions now obtaining with regard to hotels under the Licensing Act as regards sanitation.
12. That this Conference recognizes the urgent necessity for a Town-planning Bill, and hopes that such an Act will be passed next session.
13. That the Public Health Act be amended to provide better facilities regarding removal or improvement of insanitary buildings.
14. That in the opinion of the Conference hospital accommodation for consumptives, either by means of special sanatoria, incurable wards, or annexes attached to our hospitals, be increased to 700 beds.
15. That in the opinion of the Conference it is advisable, where sanatoria are in the immediate neighbourhood of our chief centres, to erect institutions for incurable patients in connection therewith; but where the sanatoria are far removed from the centres the best means to provide for incurable patients would be by special institutions, to be erected as near to the chief centres as possible.

16. That every Hospital Board in the Dominion that has not a special institution or institutions for consumption under its control should provide at its hospital or hospitals suitable, sufficient, and comfortable accommodation, by way of hospital annexes or otherwise, for the reception and treatment of consumptives in any stage of the disease, and until such time as the Medical Superintendent is of opinion that such patients can be treated with more advantage at special institutions suitable to the patients' condition.

17. That the multiplication of sanatoria is not desirable, because sanatorium treatment cannot be carried out to the best advantage in small institutions. At the most, two sanatoria should be sufficient to serve the interests of each Island.

18. That the sanatoria be of sufficient size to warrant the appointment of a Medical Superintendent in charge, whose duty shall be limited to the control of the institution and such duties in connection with the treatment of tuberculosis as shall be decided upon.

19. That it be a recommendation to Hospital Boards that they erect and equip tuberculosis dispensaries for the special treatment of chest-diseases; that the staff should consist of a medical officer and one or more nurses, according to the size of the district; and that the tuberculosis officer should be associated with the dispensary where such an officer has been appointed. The equipment of the dispensaries to consist, in addition to the ordinary furniture, of a microscope and weighing-machine, and means for examining sputum and urine.

20. That the fullest use be made of the ground surrounding the sanatoria at Palmerston South, Otaki, and the proposed Auckland site for farm-colony purposes, and that in Christchurch an attempt be made to acquire land adjacent to the sanatorium for this purpose.

21. That it be a recommendation to the Government to establish tree-planting colonies or other forms of suitable employment for ex-consumptives who are not able to establish themselves in farms, orchards, and gardens.

22. That all Hospital Boards make it a condition, prior to the acceptance of any tender for the supply of milk to their institutions, that the supplying herds be examined and passed as free from tuberculosis by officers under the direction and control of the Chief Veterinarian.

23. That it be a recommendation of the Conference that pasteurization of skim-milk and whey be carried out at all dairy factories.

24. That in any regulations that may be contemplated under the Sale of Food and Drugs Act this Conference is of opinion that it should be laid down that no person suffering from tuberculosis in any form should be permitted to collect, or assist in the collection, conveyance, or distribution of milk intended for sale for human consumption.

25. That the report of the Education Committee of the Conference be adopted.

26. That it be a recommendation of the Conference that a Bacteriologist be appointed in each of the four centres, and that his duties should be confined entirely to bacteriological and pathological work.

27. That this Conference desires to express the opinion that it is advisable, in the interests of patients, for medical practitioners who propose giving tuberculin treatment to make themselves conversant with the properties and action of tuberculin, as its injudicious use is likely to do great harm.

28. That in the opinion of this Conference graduated work and exercise is a most essential part of the treatment of consumption, and that most of the domestic work of a sanatorium can with advantage be done by the patients.

29. That it be a recommendation of this Conference that facilities be provided at sanatoria with a view to the employment of the patients in useful occupations.

30. That as open-air teaching of children is a measure of considerable importance in helping to control the spread of tuberculosis, the various Education Boards throughout the Dominion be recommended to earnestly consider the advisability of establishing open-air schools, or open-air teaching, in connection with the present schools; that their attention be also drawn to the extreme usefulness, from a health point of view, of open-air residential schools in suitable situations, where delicate children and those showing evidence of incipient tuberculosis can be sent for shorter or longer periods, and where their lives can be regulated and their studies carried on under medical supervision.

31. That the Conference approves of the decision of the Government to appoint medical men to inspect emigrants at the ports of departure, and trusts that more stringent measures will be taken with a view to prevent consumptive patients landing on these shores.

32. That this Conference is of opinion that sterilization of tubercular persons is unjustifiable.

33. That it is of vital importance to the success of the movement that the campaign against tuberculosis should be carried on by uniform and concerted action throughout the whole Dominion; that with a view to secure such action the local authorities to combine wherever necessary to enable the chief measures which have been recommended by this Conference to be carried into effect, viz.:—

The search for early cases;
The proper treatment of cases amenable to treatment;
The removal from their homes to suitable institutions of those persons suffering from consumption who are unable to take the precautions necessary to prevent the spread of the disease;
The education of the public;
The after-care of persons who have been under treatment for consumption.

34. That in the event of failure to secure such unity of action the Government be urged to take over complete control of the tuberculosis campaign, and, if considered advisable, to recover the cost of administration from the various Hospital Boards.

TUBERCULOSIS CONFERENCE.—AGENDA PAPER.

It is proposed to discuss the details of the proposed campaign against consumption under the following headings:—

1. Educational:—
   - (*a.*) Dissemination of literature; the nature of the pamphlets to be issued.
   - (*b.*) Lectures; syllabus considered desirable, by whom such lectures should be given, and by what means.
2. Administrative: What measures are needed in addition to the present methods of administration?—
   - (*a.*) Compulsory notification.
   - (*b.*) Compulsory detention of refractory patients.
   - (*c.*) Prohibition of spitting.
   - (*d.*) Consumptives in public institutions and conveyances.
   - (*e.*) Town-planning.
   - (*f.*) Condemnation of insanitary areas.
3. Institutional: What institutions are required?—
   - (*a.*) The dispensary; suggestions with regard to staff and equipment.
   - (*b.*) The consumptive sanatorium; number of beds required.
   - (*c.*) Instructions for incurables; number of beds required
   - (*d.*) The hospital annexe.
   - (*e.*) The farm colony; suggestions with regard to scope and situation.
4. Professional and technical: Officials required and *rôle* to be assumed by each class:—
   - (*a.*) The District Health Officer.
   - (*b.*) The Medical Inspector of Schools.
   - (*c.*) The Bacteriologist.
   - (*d.*) The District Nurse.
   - (*e.*) The Sanitary Inspector.

   The part to be assumed by the medical practitioner in conjunction with the above.
5. General:—
   - (*a.*) The efficacy of the tuberculin treatment.
   - (*b.*) Co-operation with private philanthropic agencies; what agencies are available, and what part may they be asked to take in the campaign?
   - (*c.*) The employment of consumptives—(1) at the sanatorium, (2) at the farm colony.
6. Protection of food-supplies: The conveyance, storage, and distribution of milk; co-operation with the Agricultural Department.
7. Financial.

MINUTES OF PROCEEDINGS AND RESOLUTIONS PASSED IN CONNECTION WITH THE TUBERCULOSIS CONFERENCE HELD IN THE PARLIAMENTARY BUILDINGS, WELLINGTON.

TUESDAY, 22ND OCTOBER, 1912.

Present: Hon. R. Rhodes, Minister of Public Health; Hon. Dr. Pomare, Member of the Executive Council representing the Native Race; T. H. A. Valintine, M.R.C.S., D.P.H., &c., Chief Health Officer and Inspector-General of Hospitals; Jos. P. Frengley, M.D., F.R.C.S., I., D.P.H., &c., Medical Secretary; H. E. Finch, M.B., D.P.H., &c., District Health Officer (Canterbury); Sydney T. Champtaloup, M.B., B.Sc. (Pub.Hlth.), &c., District Health Officer (Otago); G. J. Blackmore, M.B., M.D., D.P.H., &c., Medical Superintendent, Cashmere Hills Sanatorium, Christchurch; H. Hardwick-Smith, M.B., F.R.C.S., &c., Medical Superintendent, Wellington Hospital; A. L. Lewis, M.B., &c., Medical Superintendent, Te Waikato Sanatorium, Cambridge; C. E. W. Lyth, M.B., M.R.C.S., &c., Medical Superintendent, Pleasant Valley Sanatorium; C. J. Reakes, D.V.Sc., M.R.C.V.S., Chief Veterinarian.

Later in the proceedings the Conference was also attended by—R. H. Makgill, M.D., D.P.H., &c., District Health Officer and Bacteriologist, Auckland; Hon. W. E. Collins, Bach. Med., M.R.C.S.; H. E. Gibbs, M.B., F.R.C.S., &c.; and H. J. McLean, M.D., M.B., &c., representatives of the New Zealand Branch, British Medical Association.

The Hon. Mr. Rhodes addressed the Conference.

In the temporary absence of Dr. Valintine, Dr. Frengley read an address intended to be given by the former.

It was unanimously agreed to first deal with items 2 and 3 on the agenda paper.

2. *Administrative: What Measures are needed in Addition to the Present Methods of Administration?*

(a.) Compulsory Notification.

After some discussion Dr. Hardwick-Smith moved, That compulsory notification of all cases of pulmonary tuberculosis be carried out. Seconded by Dr. Blackmore. Carried unanimously.

Moved and seconded, That the medical practitioner be requested to state on the notification form whether a visit by the Sanitary Inspector is desirable or not.

Dr. Frengley stated that he would like to propose an addition from a departmental point of view: That no such intimation to the District Health Officer shall prevent his taking such steps as he may deem necessary, by inspection or otherwise, but that in all such cases where he proposes further action the District Health Officer shall duly acquaint the notifying medical practitioner of his intention. Carried.

Further discussion on compulsory notification was deferred for the time being.

(At this stage of the proceedings the Hon. Mr. Rhodes withdrew from the Conference, and Dr. Valintine took the chair.)

It was suggested that there should be some means of enabling the medical practitioner to indicate whether or not he would like his patient visited by the district nurse, if such nurse were available. Dr. Hardwick-Smith thought such visits important from an educational point of view.

Moved and seconded, That where possible the medical practitioner shall have the right to enlist the services of a district or dispensary nurse where such officer is appointed in the hospital district concerned. Carried.

The question of dealing with the examination of contacts was introduced, and the Conference decided that full discussion of the matter had better be deferred until a practising member of the profession was present. It was, however, resolved, That it be a recommendation to those controlling dispensaries to enlist the sympathies of medical practitioners in the direction of the examination of contacts.

Dr. Hardwick-Smith stated that his Hospital Board wished to know if the Conference would draw up a special form of notification with regard to cases of tuberculosis which would do for the whole Dominion.

Resolved, That it be a recommendation of this Conference to Hospital Boards that they adopt a uniform form of inquiry, relating more particularly to the family history of patients and their sanitary environments.

Dr. Finch asked whether the Act could be amended to compel a patient or the person in charge of a patient to notify change of address.

Dr. Champtaloup stated that it was the opinion of the Otago Branch of the B.M.A. that, rather than lay stress on compulsory notification, some control should be given with regard to removal of patients from one house to another, also in the matter of deaths from consumption.

Moved by Dr. Champtaloup, That by regulation under or amendment to the Public Health Act the onus of notifying the Department of the removal of a consumptive patient from one house to another be placed on the householder, and that, pending such amendment or regulation, the District Health Officers take such steps as they may consider necessary to bring about this notification in a voluntary manner. Seconded by Dr. Finch and carried.

The difficulty experienced by Medical Superintendents of sanatoria as regards late cases being sent to them for treatment was next discussed. The Chairman said that those responsible were much handicapped by the fact that they did not get the early cases. The Conference decided that it would not be wise to have an expression of opinion on this point, but that in the general *résumé* of the report of the Conference the matter would be stressed.

Dr. Lyth was of opinion that some form of classification of cases might be adopted and distributed among the profession. He was also of opinion that notification should be compulsory in the case of consumptives in hotels. With this Dr. Lewis concurred, and also considered that some steps should be taken as regards consumptives when travelling. Dr. Champtaloup thought the Railway Department should provide a special carriage in which such patients could travel without paying exorbitant charges or being labelled in any way.

Dr. Blackmore was of opinion that education would have to be relied on, and that restrictive measures should follow such education rather than precede it; further, that restrictive measures should not be pushed too far, as the public would be against it. To this the Conference unanimously agreed.

The Conference was agreed that tuberculosis was not a highly infectious disease.

(b.) Compulsory Detention of Refractory Patients.

The Chairman thought that there was no doubt that an amendment to the law was necessary in this respect. Machinery was provided in the Act, but it was not sufficient. From what Dr. Hardwick-Smith told him, some patients under treatment in institutions occasionally broke bounds, visited public places, &c., returning to the institution at will. The only punishment for this was to discharge the offender, and thus accentuate the danger.

It was considered by the Conference that a separate institution must be provided for this class of patient, and that such patients would have to be committed thereto by a Magistrate's order.

Dr. Blackmore thought it would be necessary to define what was exactly meant by this class of patient. A man might be objectionable, but might be carrying out the regulations, &c.

Moved, That the Public Health Act be amended to provide for the compulsory detention of a patient who refuses to conform to the health rules of an institution of which he is an inmate, such detention to be made on the order of a Magistrate on the representation of the Medical Superintendent concerned. Carried.

Recommended, That the special attention of the practising medical profession be called to this matter, in the hope that every assistance will be given to the Department in bringing about the compulsory detention of patients.

The Chairman took it that a ward for refractory cases should be provided in connection with all our sanatoria.

(c.) Prohibition of Spitting.

The Conference was of opinion that prohibition of spitting should be enforced, and that from an educative point of view reasons for such prohibition should be given in the placards placed in public places.

Suggested, That local authorities be circularized on this subject; that regulations be drawn up prohibiting spitting, and pointing out the dangers of the practice; and that placards ready for placing in public places be sent to the local authorities.

Dr. Hardwick-Smith considered that railway-carriages, &c., should be much more rigorously cleaned and better ventilated.

It was resolved that the attention of the Railway Department be drawn to the insanitary condition of the carriages, owing to their lack of ventilation and cleanliness.

Dr. Hardwick-Smith raised the question as to whether placards relating to infectious disease should be placed in public conveniences. Decided that this would be discussed under "Education."

Dr. Lyth inquired as to the responsibilities of hotelkeeping in regard to cleansing public rooms, bedrooms, &c. The Chairman thought something might be done in this direction under the Licensing Act.

Resolved, That it be a recommendation to the Licensing Committee that periodical cleansing of hotels be carried out.

It was stated that boardinghouses were worse offenders in this respect.

Moved and carried, That the Public Health Act be amended to provide for the inspection of boardinghouses and their being subject to the same conditions now obtaining with regard to hotels under the Licensing Act as regards sanitation.

(e.) Town-planning; and (f) Condemnation of Insanitary Areas.

The Chairman stated that the Department had done a good deal in this direction; a great number of houses had been condemned, and by-laws adopted by local authorities had all been in the direction of enlarging the areas of house-sites. The Town-planning Bill had not been passed, but the country was very well alive to the necessity for such an Act, and it would be quite competent for the Conference to make a recommendation in this direction.

Dr. Finch expressed the opinion that the size of sites for houses should certainly be defined by Act of Parliament and not by by-law.

Dr. Finch moved, That a resolution be passed to the effect that this Conference recognizes the urgent necessity for a Town-planning Bill, and hopes that such an Act will be passed next session. Seconded and carried.

Dr. Champtaloup drew attention to the difficulty under the present reading of the Act in getting Magistrates to condemn buildings.

Proposed by Dr. Champtaloup and seconded by Dr. Lyth, That the Public Health Act be amended to provide better facilities regarding the removal or improvement of insanitary buildings. Carried.

The Chairman was of opinion that it would be as well to set up a sub-committee to discuss the agenda paper, and that an Educational Sub-committee should also be set up.

Agreed, That Drs. Blackmore, Lyth, Champtaloup, and Lewis be members of the Educational Sub-committee; Drs. Hardwick-Smith, Finch, Frengley, Mr. Reakes, and the mover be on the Committee to consider the agenda paper: the committees to report to the Conference the following morning.

Agreed to deal with item No. 6 the following morning, in order to have the advantage of Mr. Reakes's attendance.

Adjourned until 3 p.m.

The Conference reassembled at 3 p.m.

The Chairman informed the Conference that, including one at Nelson, there were five sanatoria in the Dominion. Auckland had just decided to erect a sanatorium of fifty beds, and when that was done accommodation would be available for 350 patients, including those in advanced stages of the disease—or, roughly, one bed for every 3,500 of the population. This number included the annexes attached to our hospitals. He would ask the Conference to state whether it considered this a sufficiency of beds. He believed he was perfectly right in saying that no country had, proportionately, as many beds for the special treatment of consumption as New Zealand.

Dr. Lewis thought it would be something to aim at to accommodate all the advanced cases in institutions. The Chairman stated that if advanced and all kinds of cases were provided for a thousand beds could be filled, but was it right at this juncture to ask the Government to grant the amount that would be involved?

Dr. Blackmore moved, That in the opinion of this Conference hospital accommodation for consumptives, either by means of special sanatoria, wards for advanced cases, or annexes attached to our hospitals, be increased to 700 beds. Seconded by Dr. Lyth. Carried.

With regard to the proportion of beds to be reserved for advanced cases, the Chairman said that the vital question was as to where these institutions should be erected—should they be separate institutions, or should they be erected in connection with our general hospitals or our sanatoria? Personally, from an administrative as well as an economic point of view, he did not think it would be justifiable to ask Hospital Boards to erect separate institutions and therefore provide separate staffs. He did not think sentiment could be ignored altogether in the matter, but nevertheless he believed that arrangements could be made whereby patients could be saved distress occasioned by seeing others in the later stages of the disease. Personally, he had to consider the purse-strings of the Dominion, and he would ask the Conference to consider the matter from that point of view also.

Dr. Lyth considered that if accommodation for advanced cases could be effectually provided in connection with hospitals in the city it would be more satisfactory, as patients would be more likely to seek treatment there than if they had to go a long distance for it.

Dr. Blackmore thought that the institution for advanced cases should always be as near as possible to the chief centre that had to be served; otherwise patients would not go to it. Advanced cases should be encouraged to go to an institution of that kind to prevent them from spreading the disease amongst others. He also considered—for economic and administrative reasons, as well as in the interests of the patients—that the home for such cases should, whenever possible, be under the same administration as the sanatorium. If the institutions were under the same management cases could be transferred from the one institution to the other as appeared necessary. In his opinion, where a sanatorium was in the immediate neighbourhood of the town, it would be advisable to erect the institution for advanced cases in connection with it, but where the sanatorium was far removed then the institution for such cases should be in the immediate neighbourhood of the town. The only alternative suggestion he had to make was that, when the sanatorium was far removed from a centre, the advanced cases should be treated in the same place as other infectious diseases, and dealt with by the officer who was in charge of such an institution, though he did not think this altogether satisfactory.

Dr. Lewis indorsed Dr. Blackmore's remarks with regard to the disinclination on the part of those patients in advanced stages of the disease to go any great distance from the towns for treatment.

Dr. Blackmore moved, That in the opinion of this Conference it is advisable, where sanatoria are in the immediate neighbourhood of our chief centres, to erect institutions for advanced patients in connection therewith; but where the sanatoria are far removed from the centres the best means to provide for advanced cases would be by special institutions, to be erected as near to the chief centres as possible. Carried.

It was agreed that in smaller places different arrangements would have to be made, such as the erection of annexes, &c.

In reply to a question by Dr. Frengley as to the objection to consumptive cases being treated on the hospital grounds, it was stated that the chief reason was that in a general hospital they were looked upon as perfectly hopeless cases, and nothing much was done for them; but if they were put in institutions such as were suggested the patients were looked after by the medical officer in charge of the sanatorium, and thus got a much better chance.

As a result of a discussion as to whether it was considered that actual danger resulted to other patients if cases were treated in general hospitals, the Conference agreed that the resolution in favour of separate institutions was passed in the interests of patients, and not from the view of there being any danger to patients suffering from other forms of disease, &c.

Further discussion on this subject was deferred until later.

The Chairman stated that as a general principle the Conference had decided that it was necessary to increase the accommodation for consumptives to 700 beds, and he asked for an expression of opinion as to whether it would not be better to have the bulk of this accommodation erected in conjunction with our existing accommodation rather than have institutions dotted all over the country.

In agreeing with a suggestion made by Dr. Blackmore to the effect that it might be advisable to have one sanatorium for each Island—each local body to look after its own advanced cases—the Chairman pointed out that one great difficulty in the way of this would be the extreme parochialism so characteristic of New Zealand towns and townships—they would not combine. Then there was the difficulty, already referred to, with regard to the advanced cases objecting to go any distance away from their relatives.

Dr. Blackmore advocated compulsion being put on local bodies to combine for the purpose of dealing with consumption in the best manner possible.

The Conference was of opinion that the extra accommodation required should be erected in conjunction with existing sanatoria.

After further discussion the following recommendation, moved by Dr. Frengley and seconded by Dr. Finch, was carried: That every Hospital Board in the Dominion that has not a special institution or institutions for consumption under its control should provide at its hospital or hospitals suitable, sufficient, and comfortable accommodation, by way of hospital annexes or otherwise, for the reception and treatment of consumptives in any stage of the disease, and until such time as the Medical Superintendent is of opinion that such patients can be treated with more advantage at special institutions suitable to the patients' condition.

In moving this Dr. Frengley stated that he thought such a step was necessary because of a tendency on the part of Hospital Boards—in the past, not so much now—to regard consumptive patients as a danger, and an emphatic statement such as was suggested would remove the objection some Hospital Boards had with regard to putting up accommodation for consumptives in connection with their institutions.

In connection with the question of limiting the number of sanatoria, Dr. Finch raised a point as to the effect on patients returning to a rigorous climate after having received treatment in a milder one. Dr. Lyth did not think that climatic conditions need be taken into account to any serious extent; it depended much more on the suitability of a patient for treatment.

Proposed by Dr. Blackmore and seconded by Dr. Hardwick-Smith, That the multiplication of sanatoria is not desirable, because sanatorium treatment cannot be carried out to the best advantage in small institutions. At the most two sanatoria should be sufficient to serve the interests of each Island. Carried.

The Conference was of opinion that it would be advisable to have resident medical officers at all sanatoria, and the following resolution was moved by Dr. Makgill and seconded by Dr. Lewis: That the sanatoria be of sufficient size to warrant the appointment of a Medical Superintendent in charge, whose duty shall be limited to the control of the institution and such duties in connection with the treatment of tuberculosis as shall be decided upon. Carried.

Dispensaries.

The Chairman stated that the establishment of dispensaries was a matter which very considerably affected the practising members of the profession. Such dispensaries had been started in Christchurch and Dunedin, and one was about to be started here in Wellington. In Christchurch the management of the dispensary was practically in the hands of Dr. Blackmore, the Medical Superintendent of the Christchurch Sanatorium; and the management of the Dunedin dispensary was in the hands of Dr. Lyth, but the latter was assisted in his work by members of the honorary staff of the Dunedin Hospital. It was generally agreed that it would be advisable, where possible, to obtain the services of the honorary staffs of the hospitals in this movement.

Dr. McLean asked whether the resident in charge of a sanatorium was to have charge of the dispensary. This was answered in the affirmative, and Dr. Lyth pointed out that it was desirable to have one man responsible in a hospital district for tuberculosis.

Dr. Blackmore stated that it was not intended that the dispensary should take any paying patient from a medical practitioner; it was intended for those patients who could not afford treatment, and to try and catch the early cases.

Dr. McLean did not think the establishment of dispensaries could affect the interests of the medical profession from a purely financial point of view; it might even save the profession a lot of trouble. He thought any possible source of friction with the profession could easily be avoided by proper arrangements.

The Chairman did not think there was any need for the Conference to pass a resolution in connection with this matter; he took it that the Conference was to have the co-operation of the medical profession, and that every possible assistance would be given by the profession in the campaign which it was proposed to initiate.

In connection with the question of dispensaries, Dr. Lyth pointed out the disadvantages of the country districts in this respect, and asked whether something could not be done in the matter. The Chairman agreed that arrangements might possibly be made whereby either the Bacteriologists attached to the different hospitals or the Medical Superintendents of the sanatoria could visit certain townships, taking an outfit with them, and giving demonstrations, &c.

Dr. Frengley suggested that some name be given to these institutions other than tuberculosis dispensaries, which, in his opinion, seemed to once again put consumptive patients into a marked class.

After further discussion it was resolved, That it be a recommendation to Hospital Boards that they erect and equip tuberculosis dispensaries for the special treatment of chest-diseases; that the staff should consist of a medical officer and one or more nurses, according to the size of the district; and that the tuberculosis officer should be associated with the dispensary where such an officer has been appointed. The equipment of the dispensaries to consist, in addition to the ordinary furniture, of a microscope and weighing-machine, and means of examining sputum and urine.

It was agreed that the Hospital Boards should be asked to provide sputum-flasks free to those patients who could not afford them, and the possibility of providing special tents was discussed, arrangements to be made with local firms to supply them at a fixed cost.

Farm Colonies.

The Chairman thought the Conference was agreed as to the advisability of establishing farm colonies, but not as to where they should be erected, and he asked for an expression of opinion in this regard.

Dr. Blackmore was of opinion that one farm colony for each Island would be the best arrangement, and after some discussion the Conference agreed to the following resolution: That it be a recommendation to establish two farm colonies if possible—one for the North and one for the South Island.

During further discussion of the subject, however, the fact was emphasized that, with but one exception (Christchurch), there was sufficient land available in connection with all the existing sanatoria to run small farm colonies without buying additional land. Dr. Frengley therefore proposed the following, to be substituted for the previous resolution: That the fullest use be made of the ground surrounding the sanatoria at Palmerston South, Otaki, and at the proposed Auckland site for farm-colony purposes, and that in Christchurch an attempt be made to acquire land adjacent to the sanatorium for this purpose. Seconded by Dr. Makgill. Carried.

The Chairman stated that the onus of filtering cases for farm-colony treatment should rest entirely with Medical Superintendents of sanatoria. He agreed with Dr. Frengley that the institutions should be erected by the Boards. The Hospital Boards were asking for special assistance in this matter, and he thought such assistance might be granted on certain conditions: (1) That the farm colony is controlled by the Hospital Board in whose district it is established; (2) that the Medical Superintendents of the four sanatoria shall be the sole judges as to the eligibility of the patients that are to be treated therein.

As to the class of work that should be done in these institutions, Dr. Makgill held that tree-planting was the best way in which this class of patient could be utilized. He advocated the Taupo district as eminently suited for this purpose.

Dr. Blackmore pointed out that the farm colony was simply an extension of the sanatorium; it was intended to complete the treatment begun and carried on in the sanatorium. He considered it essential that it should be made clear that patients were not sent to these institutions for the purpose of exploiting their labour; farm colonies must not be looked upon as places out of which money was going to be made, but as places where patients might be sent to fit themselves for work in the world again. He advocated fruitgrowing and the teaching of other small industries, such as bee and poultry keeping.

In view of the hysteria on the part of a certain section of the public, the Chairman did not think there would be much advantage in growing vegetables at the farm colonies for selling purposes, but they could grow enough to supply their own institutions.

Mr. Reakes did not consider poultry-keeping a suitable occupation for consumptive patients, as, though avian tuberculosis was not transmissible to humans, he was strongly of opinion that human tuberculosis was transmissible to birds.

After much discussion Dr. Makgill moved, That it be a recommendation to the Government to establish tree-planting colonies or other forms of suitable employment for ex-consumptives who are not able to establish themselves in farms, orchards, and gardens. Seconded by Dr. Blackmore and carried.

The Conference adjourned at 5.45 p.m.

WEDNESDAY, 23RD OCTOBER, 1912.

The Conference reassembled at 10.15 a.m.

The Chairman informed the Conference that the following matters had been entered on the agenda paper for discussion: Open-air schools; night shelters for patients; restriction of immigration; sterilization of consumptive patients. And, under "Professional and Technical," Medical Superintendents of sanatoria had been added.

Protection of Food-supplies.

In introducing the subject for discussion the Chairman stated that the Conference had the advantage of having the Chief Veterinarian present, who, he had no doubt, would give all the assistance he could with regard to the many matters they had in common.

Mr. Reakes addressed the Conference as follows:—

In dealing with the question of tuberculosis in man the existence of the disease among the lower animals constitutes an important factor, seeing that meat and milk enter so largely into the everyday diet of mankind. Among domesticated animals those principally affected are cattle, pigs, and poultry. The bovine race has been the subject of tubercular disease for many centuries. Pigs, I believe, have not; but these animals become readily affected when exposed to direct sources of infection. Outbreaks of avian tuberculosis are common, but as the evidence available all goes to show that avian tuberculosis is not communicable to the human race I will not now take up time by speaking further upon it. In the case of tuberculosis of cattle and pigs, the flesh of animals of both these races is used largely for human food, and consequently it is necessary that steps be taken to prevent the possibility of human beings becoming infected through eating the flesh of badly affected animals. Seeing that in New Zealand this flesh is always cooked more or less before being consumed, I do not believe that the risk is at all serious. It is, however, necessary to ensure as absolute safety as possible, and thoroughly adequate steps are taken by the Department of Agriculture to safeguard the health of meat-consumers in the matter of tubercular disease.

The inspection of meat is dealt with on comprehensive lines so far as the principal centres of population are concerned, every city and borough with a population of over 2,000 being compelled by law to establish and maintain a public abattoir, where all animals killed are subjected to examination, on slaughter, by a Government Inspector. No meat except pigs killed by *bona fide* farmers can be sold in any such city or borough unless from stock killed and passed at the abattoir or a meat-export slaughterhouse, where Government inspection is also compulsory. Farmers' pigs coming in are inspected before being cut up and sold; also at all bacon-factories the pigs are inspected.

No meat is allowed to be exported unless it be from stock slaughtered under Government inspection at a meat-export slaughterhouse or an abattoir, thus ensuring that the consumers of New Zealand meat exported to other countries are protected as well as the consumers here. The system under which the carcases and viscera of slaughtered stock are inspected for tuberculosis is up to the highest standard of strictness and thoroughness considered by the best authorities throughout the world as being necessary for the safeguarding of the public health.

Then, as regards milk, it is obvious that thorough measures are necessary, seeing that it is largely consumed in the raw state, and moreover is relatively taken in the greatest quantity by infants or invalided adults, who naturally are less able to resist the attack of the specific organism. Our system of inspection of milk-supplies at the farm is, I venture to assert, a good one. In all centres of population, from small townships upwards, all dairy farms from which milk is sold for direct human consumption have to be registered. All registered dairies are under inspection. In the smaller centres the inspection is certainly not so complete as in the larger, but in these it is distinctly good, and I hope to see it improve year by year. In the larger cities I am satisfied that the work is carried out well, and it will compare more than favourably with any similar work carried out anywhere in the world. In this country we have a legislative measure—the Stock Act—which is very comprehensive and very far-reaching in its provisions, and it is utilized to its fullest extent in dealing with tubercular dairy cows. I have lately initiated the practice of placing city dairy-inspection directly under the control of properly qualified veterinarians. One is already at work in Wellington, another is about to take up duty at Auckland, and at Christchurch and Dunedin for some time past a veterinary officer, though also performing other duties, has given a good portion of his time to the direct supervision of dairy cows. These qualified officers are aided by a staff of efficient lay Inspectors, who devote the whole of their time to the work.

In carrying out inspection of dairy cows a careful clinical examination is made, special attention being devoted to the udder and its adjacent lymph-glands in order to detect any clinical indications of tubercular disease. Any cows showing clinical symptoms are at once condemned and slaughtered. But we do not trust entirely to a clinical examination. The additional precaution is taken to apply the tuberculin test to all cows whose appearance or condition raises the slightest doubt in the mind of the Inspector. Further, samples (about 1 pint) are taken from the mixed milk of individual herds and sent to the Wallaceville Laboratory for bacteriological and biological examination. The results of these laboratory examinations have, I must confess, rather pleasantly surprised me, for up to the present time we have been unable to detect the presence of the specific organism of tuberculosis in any one of them. For instance, from Dunedin eighty-one such samples were sent (five arrived broken and were useless), and every one examined proved free from infection, so far as could be ascertained. The *modus operandi* is to centrifugalize the milk, then pipette up that from the bottoms of the tubes, mix, centrifugalize again, then inoculate two guinea-pigs with the material pipetted from the bottoms of the tubes. In some cases a third centrifugalization is carried out. The guinea-pigs are inoculated intraperitoneally, and are killed and examined *post mortem* after an interval of about eight weeks. I do not pretend to say that the results of this method of milk-examination are always absolutely conclusive, but I do assert that they afford a valuable guide, and that when they are negative it can be accepted as a fact that the danger to human consumers of the milk is at any rate not serious.

As a result of clinical examination and the application of the tuberculin test there were condemned during last year from the Auckland supply thirty-six cows out of a total of 5,500; Wellington, ninety out of a total of 4,850; Christchurch, fifty out of a total of 5,380; and Dunedin, fifty-five out of a total of 2,407. In addition, owners of dairy herds were encouraged to voluntarily submit their herds to the test, and a number came under it, the average result not showing a large percentage affected. For instance, in the Wellington District, between May and November, 1911, 832 dairy cows were tested (many of these being suspected animals). Of these, forty-five or 5·4 per cent. reacted. It has been often suggested that all cows whose milk is directly used for human consumption should be compulsorily subjected to this test. I fully realize that if this were possible it would have the effect of ensuring an ideally clean milk-supply, so far as tubercular infection is concerned; but experience has shown that it would be most inexpedient to attempt it, and as I believe all those present understand the practical difficulties which are certain to arise were any attempt made to enforce it I will not occupy time by speaking further upon the point.

As it is, the methods now in operation do afford at least a very considerable degree of protection to consumers; and, as I have already stated, they compare, I believe, more than favourably with those in force in any other country in the world. In Great Britain, for instance, the percentage of tubercular cows in the herds is very much higher than here; yet in the City of Manchester, where during a visit to England in 1908 I was able to go carefully into the system of dairy-cow inspection in force, and which has one of the best systems of milk-inspection in the country, the work done does not in any way compare with that being done in New Zealand, so far as the elimination of dangerous cows from the herds is concerned. The following extract from the official report for 1907 of the Medical Officer of Health illustrates this when compared with the work done here in the condemnation of tubercular cows, as shown by the figures already given by me:—

"From returns supplied, chiefly by farmers themselves, the estimated number of cows at the 542 farms from which the milk was subjected to examination was 12,918, being an average of nearly twenty-four cows per farm. During the year the udders of 2,855 cows at the country farms have been examined for tuberculosis. Of the milk tested by Professor Delepine from 542 farms, forty-two were found to cause tuberculosis, giving a percentage of 7·7 farms sending tuberculous milk.

"As a result of following up the tuberculous mixed samples, thirty cows were found and proved to be suffering from tuberculosis of the udder; twenty-one of these cows were either slaughtered in my presence, or I examined the carcases soon after. In eight cases the entire carcase was found to be fit for food, in three instances half the carcase was passed, and in the remaining ten cases the entire carcase was condemned; in the remaining nine cases the disposal of the cows could not always be ascertained, although in three of these cases the farmers replied to the letters of inquiry, giving the names of the persons to whom the cows had been sold, but when these buyers were written to no reply was forthcoming, so that it is difficult to say what became of these cows."

That was five years since. At the present time the weeding-out of cows suffering from mammary tuberculosis is still going on, at an average rate of about thirty-six cows per annum. In the 1911 report on the health of the City of Manchester, the Corporation's Veterinary Inspector, Mr. J. W. Brittlebank, M.R.C.V.S., D.V.S.M., states,—

"It has been further stated that the main result of our operations is simply to remove the cows to other and unprotected areas. This no doubt does happen in some cases, but in so far as our own area is concerned every one of the forty-six cows found suffering from tuberculosis of the udder was slaughtered, and the carcase inspected by me as to its fitness for food either at the time of slaughter or shortly afterwards. Of these forty-six carcases, thirty-three were condemned as unfit for food, nine were passed, and in four cases part of the carcase only was passed. Thus in the past two years seventy-one cows were discovered, and every one slaughtered."

It should be noted that the population of Manchester is 637,520, or approximately 58·60 per cent. of the whole population of this Dominion. In Manchester approximately thirty-six tubercular cows per annum are condemned and slaughtered. In New Zealand, with less than double

the population, approximately 2,500 per annum are similarly dealt with. I have alluded to the difference in the percentage of tubercular cows in New Zealand as compared with Great Britain. There no accurate figures are obtainable, but I have had given me estimates which give varying figures—one being as high as 70 per cent., others lower—but all far above what we know to be the outside possible figure here. The best guide we have in New Zealand is furnished by the meat-inspection returns, which for the year 1911–12 gave the following percentages:—

	Examined.	Affected with Tuberculosis in Any Degree.	Per Cent.
Bullocks and heifers	105,356	5,180	4·91
Cows	43,395	5,295	12·20

It should be noted that a small proportion of the cows included in this return were condemned animals sent for slaughter to places where Inspectors were stationed, in order that the proper destruction of the carcases might be ensured, and also that they might be profitably utilized by conversion into manure. A further considerable proportion were old cows, past their usefulness for milking purposes.

That cow's milk can be a potent factor in the dissemination of tuberculosis is shown by the results of the inspection on slaughter of pigs fed upon the by-products of dairy factories—skim-milk and whey. The inspection of factory-supplying cows is not so consistent or so thorough as is that of cows whose milk is consumed direct, and this must be clearly borne in mind in connection with what I am going to say now. At the same time a great deal of good work is done. This is shown by the fact that during the past year 2,672 head of cattle were condemned and slaughtered for tubercular disease. By far the greater majority of these were dairy cows, and one would be quite safe in putting the number at about 2,500. In spite of this we find that a large percentage of the pigs fed upon skim-milk and whey are tubercular. The percentage in different districts varies, but it is always in ratio to the percentage of tubercular cows in the district. Where the cows are clean, as in Marlborough, the pigs are clean; and *vice versa*. Over the whole of New Zealand, out of 175,699 pigs examined, 14·36 per cent. were found affected in any degree. But I have known batches come down for slaughter from certain North Island districts where the percentage of affected animals has been 34·32 per cent., 35·22 per cent., 41·66 per cent., and in one lot of fifty pigs 100 per cent.

Pasteurization of skim-milk and whey has been recommended by the Department as a preventive measure, and where properly done, as in the official demonstration carried out at the Glen Oroua Factory in 1910, has proved to be most effective. Full particulars of the results of this were published in the *Journal of the Department of Agriculture* for June, 1911. One has to be careful in publishing abroad facts of this kind, as it might be inferred that dairy-factory butter is equally dangerous, but this is not so. Nearly every butter-factory now pasteurizes its cream before converting it into butter, this being done because pasteurized cream produces a butter of better quality. Further, the quantity of butter consumed at one time by the ordinary individual is so comparatively small that even if a few of the specific organisms of tuberculosis were present in it the consumer's phagocytes would probably be quite capable of effectively dealing with them. The evidence afforded by the number of dairy-factory by-product-fed pigs indicates clearly one important channel by which the disease is disseminated among cattle in dairying districts, seeing that calves are principally reared upon similar food and are naturally liable to infection also. Hence it is clearly necessary that all dairy-factory by-products should be properly pasteurized before being distributed to farmers. I do not believe that all this contamination of factory milk by the specific organism of tuberculosis arises from the existence of mammary tuberculosis in cows. It is a fact that most tubercular cattle discharge large numbers of these organisms with their fæces, and accidental contamination of milk by the fæces of such cows is probably responsible for some of the trouble.

As regards the question of the pasteurization of whole milk before distribution to consumers, you are better qualified to judge than I, seeing that, as I understand, there are points in connection with digestibility and assimilability which have to be considered. Apart from these, however, it is questionable whether there is anything tangible to be said against it.

You will perhaps have noticed that in alluding to the specific organism of tuberculosis I have not used the term "bacillus." I have done this advisedly, for I am very strongly inclined to the opinion this organism is not a bacillus. This is, of course, by no means a new idea. As long ago as 1881 Metchnikoff formed the opinion that the organism really should be classed among the fungi, and the arguments in favour of this are given in detail in a recently published work on Parasitology by J. Guiart, Professor of the Faculty of Medicine, Lyons. These are as follow:—

"Nevertheless, the question of the tubercular bacillus has entered on a new phase during these last years. It seems almost proved that it is not at all a question of a bacterium, but of a veritable fungus, filimentous and ramified, akin to that of actinomycosis. As this question is not treated in the works of bacteriology, and as it seems to us that the physician should ignore nothing concerning tuberculosis, we will state shortly the arguments in favour of the new ideas we have just mentioned.

"1. In the cultures, as in sputum, long and slender filaments with secondary ramifications may be found. This fact was discovered in 1887 by Metchnikoff, who henceforth considers the tubercular bacillus as a fungus, and calls it *Sclerothrix Kochi*. These filaments and ramified forms can, moreover, be obtained artificially (Arloing).

"2. In the cultures the ramified filamentous forms become more and more numerous in proportion as the microbe abandons parasitic life and becomes a saprophyte. Therefore it is undoubtedly a phenomenon of growth. At a certain stage these cultures resemble absolutely those of actinomycosis.

"3. Moreover, like the 'discomyces,' the tubercular filaments are easily disaggregated in small rods and in grains.

"4. These grains are often disposed of in the form of chaplets in the prolongation of a filament or of a rod, and very likely correspond to the 'oospore' form of reproduction of the parasite.

"5. These spores are destroyed in a temperature below 100°, like those of the 'discomyces' or the moulds.

"6. Contrary to the bacteria, which thrive best in an alkaline surrounding, the tubercular bacillus, like the fungus, thrives best in an acid surrounding.

"7. The tubercular bacillus is not the specific agent of the tubercle which is found also in actinomycosis, as pergillus and mucovmycosis.

"8. In tubercular lesions radiated formations may be found with peripheric 'massues' simulating absolutely actinomycosis granulations—a fact which was discovered in 1893 by Coppen-Jones.

"9. Moreover, identical formations can be obtained experimentally by the intravenous inoculation of the rabbit with slightly virulent tubercular bacilli; actinomycotic grains develop in the lungs, the brain, and especially in the kidneys (loins).

"10. The lesions are identical if, instead of tubercular bacilli, inoculations of cultures of *Aspergillus fumigatus* or of *Mucor* are made under the same conditions.

"11. Finally, actinomycosies would react strongly under the action of Koch's tuberculin (Poncet).

"From all these considerations the almost evident conclusion seems to be that the tubercular bacillus is a filamentous fungus akin to that of actinomycosis, which must be comprised in the same species under the name of *Discomyces tuberculosus*. It is probable that it exists as a saprophyte in the exterior surrounding."

Further, Dr. Foulerton, in the Milroy Lectures, reported fully in the *Lancet* (Vol. i, 1910, p. 551), definitely expressed the same opinion, and, further, gave detailed information regarding his own work, in which he had proved to his own satisfaction that the specific organism of tuberculosis was a streptothrix and not a bacillus. My own field observations in connection with the lower animals support this view, as there is clear evidence to show that tubercular infection can remain virulent on a pasture for a considerable time. It is a very common thing in New Zealand to find cattle which have never been under a roof in their lives showing more or less extensive tuberculosis. This being the case, it is extremely difficult to realize how they could possibly have become affected by inhalation, while there is every reason to believe that infection entered the body through the medium of the digestive track. A large number of these cattle are station-bred animals, and consequently were not exposed to infection through the medium of factory by-products, hence they must have become either infected through suckling station cows yielding tubercular milk, or through grazing upon pastures contaminated by the fæces of tubercular cattle. I do not believe that tubercular mother's milk is responsible to any marked extent for the spread of the disease among station cattle. That pastures can retain infection for some time is shown by an experiment I carried out at Wallaceville some time since.

I have on the Laboratory farm a small grass paddock of some 3 acres, which had been for some two years kept for the purpose of from time to time holding cows known to be tubercular. After it had on one occasion been unoccupied for at least four weeks a nine-months-old calf was placed in it. This animal was first subjected to the tuberculin test, to which it gave no reaction whatever. It remained in the paddock for three months, and was then again tested, this time giving a decided reaction. It was some weeks afterwards slaughtered for *post mortem* examination, which disclosed the presence of some well-marked tubercular lesions in the mesenteric glands, the fact being proved by microscopical examination. It should be noted that in this paddock the herbage was very short and not of dense growth, and that sunny days predominated during the period it was vacant before the calf was placed in it. It contained no trees or shrubs save one small dense clump of shrubs, hence good opportunity was offered for the exercise of the germicidal action of the sun's rays. No other cattle were in this or the adjoining paddock during this calf's occupation of it, and the animal remained in it right up to the time of slaughter.

Further, in the "Report of the Department of Agriculture" for 1899 Gilruth records an instance having a bearing on the question which occurred on a property in the South Island. In this case he applied the tuberculin test to nineteen stud bull calves, the test being carried out in July, 1897. Two only of these animals reacted, and were slaughtered. In June, 1898, the seventeen bulls which had not reacted were again tested, and on this occasion five out of the seventeen gave a definite reaction. In the intervening period between the two tests these animals had not been housed, and had not been in contact with any known tubercular animals, but had run out in an open paddock the whole period. The following remarks made by Gilruth are worthy of reproduction:—

"A number of stud bull calves, nineteen in all, were tested in July, 1897; two reacted and were slaughtered. In June, 1898, the seventeen bulls, rising two years old, were again tested by me. Since the last testing they had not been housed, nor in contact with any known tubercular animals. The rainfall on the property averaged per month meanwhile 1·2 in., and day had followed day with perfect sunshine. *A priori*, it might be asserted that those animals could not possibly have contracted the disease even though a tuberculous animal or two had been mixed with them; yet on the second testing no less than five out of the seventeen reacted. It may be said they were tubercular, but did not react the previous year. That may be so; the contrary cannot be proved. Yet the test was conducted with all possible care."

Further instances of infection from the pasture were furnished by the pasteurization experiments carried out at the Glen Oroua Factory. In these experiments all pigs fed from the time

of weaning upon pasteurized milk alone were specially marked, and records were kept of the results of the *post mortem* examination of them. The total number of these pigs examined was 331, and twenty-two of these were found affected with tuberculosis. As I was satisfied that they could not have contracted infection through the medium of the pasteurized separated milk, special investigation was made by Mr. W. W. H. Edwards, M.R.C.V.S., in order to determine if possible what was the source of infection. In every case evidence was afforded that the animals had been subjected to infection either through living in contact with tubercular breeding-pigs or through running in pastures wherein tubercular cows were grazing. The following are concise particulars of the pigs presumably infected from the pastures:—

Farm No. 1.—Four pigs affected, all killed the same day (batch No. 12). It was found that these pigs had been allowed to run in a paddock with cows. Examination of these cows resulted in two being found affected with tuberculosis, one being an especially bad case. No doubt the droppings of these cows infected the pasture, and the pigs thus acquired the infection.

Farm No. 4.—Two pigs included in batch No. 15 and one in batch No. 19 were found tubercular, but only very slightly affected. Investigation, so far as it has gone, shows that these pigs at an earlier period had access to a paddock where cows were running. This points to the probability of infection from the paddock produced by the droppings of tubercular cows.

Farm No. 6.—One pig (included in batch No. 20) was found to be slightly affected with tuberculosis. On inquiries being made as to whether the pigs on this farm were exposed to any other source of infection it was ascertained that one of the cows on the farm was suffering from tuberculosis. The pig, having had access to the paddock in which the cows were running, no doubt contracted the disease from the infected pasture.

In the case of the experimental steer at Wallaceville, it would be difficult to imagine how infection could have remained virulent in the unoccupied paddock for so long a period before the steer was placed in it if the specific organism were a non-sporulating bacillus, especially seeing that during the time it remained empty there were a considerable number of dry sunny days. Then again, with regard to the considerable number of station cattle which are found on *post mortem* to be the subjects of tuberculosis, it is reasonable to assume that, at any rate, a considerable proportion of them could not have become affected from their dams' milk, and consequently there is every probability that a number of them must have become infected from the pasture, and that the pasture was infected by the fæces of tubercular cows. Cows, even with pulmonary tuberculosis, rarely, if ever, when coughing, eject from the mouth sputum derived from the lung, only a light spray of mucus being ejected. This may certainly contain the specific organism, but we have no definite knowledge that it does. Even if this were the case, other cattle living under natural conditions would not be likely to directly contract infection from coughing tubercular animals running in the same paddock, and if the specific organisms are ejected from the mouth during the act of coughing the only way in which other cattle would be likely to become infected in consequence would be through the organisms being distributed on the pasture and afterwards ingested by the animal when grazing. Judged by laboratory experiments the specific organism is easily destroyed by exposure to the sun's rays; hence one would not expect paddock contamination to exist for any length of time in this country, where, as a rule, much sunny weather prevails. If, however, the organism is a streptothrix, and consequently capable of leading a saprophytic existence, propagating itself by sporulation, then it is easy to understand how paddock infection can persist for a considerable period. To my mind, the prevalence of tuberculosis in New Zealand among cattle living exclusively in the open air points very strongly indeed to the fact that the organism is not a bacillus. In any case, I am satisfied that among such cattle few, if any, become infected by inhalation, but that ingestion is the principal, if not the only, channel of infection. Even in cases where pulmonary lesions exist it is still possible that infection entered through the medium of the digestive system. We know that the specific organism can pass through the intestinal wall without any lesions resulting there, and it may even pass through a lymph-gland without producing lesions. Once the organisms gain entrance to the thoracic duct they have practically a clear passage to the lung *via* the anterior vena cava and the right heart. If it be accepted therefore that ingestion is at any rate the principal means by which cattle become infected, then it is reasonable to presume that a certain proportion become infected by grazing on contaminated pastures; and if pastures can retain contamination it is difficult to realize how a non-sporulating bacillus can be responsible, especially when it is realized that the number of cattle grazing on an average pasture will not be more than about one beast to 2 or 3 acres.

The Chairman stated that Mr. Reakes's remarks opened up a phase as to the possibility of the tubercle bacillus, or streptothrix, maintaining its vitality, and being possible, by infected pastures, to disseminate the disease among cattle.

Dr. Blackmore thought a good many people were now coming round to the conclusion that the tubercle bacillus is not a bacillus, but possibly a streptothrix. There was something very interesting in Mr. Reakes's experience with regard to infected pastures, because, if his experience were confirmed, we might learn something more than we knew at present about the life of the tubercle bacillus outside the animal body.

As regards the question of the milk-supply, Dr. Finch advocated a system of certified dairies, from which any one desirous of obtaining pure milk could be assured of getting what he required. Naturally, the charge would be more, but if there was a demand the supply would be available. Mr. Reakes stated, however, that he knew of a case in which this was done voluntarily—every possible care was taken to ensure that the public got clean milk—and the result was that the public would not pay for it.

Dr. Lyth thought the institutions might very well start by insisting on the certified-dairy system, and the public would in time follow suit.

In reply to a remark by Dr. Finch, Mr. Reakes stated that any man who had his whole herd tested could always be given a certificate by the Agricultural Department to that effect; but the trouble was that unless the matter were followed up and the herd tested every year the man would trade on that certificate.

Dr. Blackmore thought Mr. Reakes put his finger on the right spot when he spoke of the apathy of the public with regard to the provision of a pure milk-supply. The public should be educated in this respect.

Dr. Frengley considered it necessary to ensure that people entering institutions for treatment should get pure milk, and for this reason he proposed, That all Hospital Boards make it a condition, prior to the acceptance of any tender for the supply of milk to their institutions, that the supplying herds be examined and passed as free from tuberculosis by officers under the direction and control of the Chief Veterinarian. He considered that such a step as this would tend to evidence to the public the value of procuring tubercle-free milk, and would be educational in that sense.

Dr. Hardwick-Smith thought Dr. Frengley's suggestion a very excellent one, and one that would help the Hospital Boards very much.

The motion was carried.

The Hon. Dr. Collins stated that it had often occurred to him whether the pasteurization of all the milk supplied to individuals would have any effect in reducing the amount of consumption, but for many reasons he thought it would be inadvisable to adopt such a plan. If it were possible to get a pure milk-supply it would be very much more desirable. He had seen it demonstrated that a herd could be so cleansed by repeated tuberculin tests that no pigs or calves fed from the milk of these cows got tuberculosis. It was also a fact that pigs and calves get tuberculosis from the by-products of dairies, and that the sterilizing of these by-products had reduced the amount of tuberculosis in calves and pigs; and he thought that by a further process of eliminating all tubercular cattle from the dairy herds it would be possible after a time to get a pure milk-supply which would be absolutely safe for the people. He felt sure that if a campaign could be initiated to eliminate all cows with tubercular udders—in the first instance in the larger districts, at any rate—a very great advance would be made, and the next thing would be the elimination from the herds of cows which were obviously ill. With regard to the supply of milk from certified dairies, Dr. Collins thought this a very good idea. He considered, however, that it would tend to cause a rush by the public on a particular dairy, though he was inclined to think that the average person, who would not go within a quarter of a mile of a consumptive patient, would hesitate to take advantage of a pure milk-supply if the milk cost a little more. But what would happen if there was a rush on the dairy would be that, unless the owners were very honest people, they would supplement their supply from other sources, and the people would not be getting what they were paying for. He considered it an excellent idea to start by supplying institutions with milk from certified dairies, and thus educate the public.

In reply to the Hon. Dr. Collins the Chairman stated that it would, of course, be very necessary to have these dairies under very close and constant supervision.

Mr. Reakes stated, in connection with the point raised by Dr. Collins with regard to the elimination of all cows with tubercular udders, that one point that was always insisted upon by himself and his supervising officers was that when examining cows the Inspectors should make a very thorough inspection of the udders, and if a cow were undoubtedly tubercular it was at once condemned and destroyed—no risks were taken; and if it had any abnormality of the udder at all the cow was always tested for tuberculosis. This especially referred to town and city milk-supplies. He pointed out that the inspection of the cows whose milk is consumed directly by the public as milk was very much more comprehensive than the inspection of the cows supplying dairy factories, this being a matter of ways and means. He thought it would be very difficult indeed to find any cow with udder tuberculosis at the present time. At the same time, however, he believed it was possible (though not common) for a cow to yield tubercular milk without having a tubercular udder. He stated that one factor in disseminating tuberculosis through milk was by accidental contamination of the milk by the faeces of cows. A careless dairyman could very easily allow his milk to become so contaminated.

In reply to a question asked by Dr. Frengley, Mr. Reakes stated that, though it had not been absolutely established, he was strongly of opinion that a considerable proportion of New Zealand cows contracted tuberculosis during their first year, and he considered that if all the dairy factories would agree to pasteurize their milk before it passed to the calves it would mean that each year's generation of calves started life free from infection.

Dr. Makgill asked if Mr. Reakes was aware of any information as to the effect of pasteurization on the food-value of milk. Mr. Reakes replied that he had made a great many inquiries with regard to this point, and in practically every case he had been quite satisfied that pasteurized skim-milk—and, even more so, pasteurized skim-whey—had, as regards the feeding of calves, proved of greater food-value than non-pasteurized. Pasteurization had the effect of rendering the milk absolutely pure from every point of view. He thought it was a matter for the medical men to decide as to the food-value of pasteurized milk for human consumption.

Moved by Dr. Hardwick-Smith, That it be a recommendation of the Conference that pasteurization of skim-milk and whey be carried out at all dairy factories. Seconded by Dr. Blackmore and carried.

The Chairman thought an expression of opinion should be given by the Conference as to the advisability of advocating the use of pasteurized milk for human beings.

Dr. Hardwick-Smith thought it very useful, provided additions were made—live cream, orange-juice, and so on.

Dr. Blackmore agreed with this, adding that there was no doubt that pasteurized milk produced scurvy rickets.

Dr. Hardwick-Smith drew attention to an instance of uncleanliness he had witnessed on the part of a milker in the country. He also stated that a member of his Board had spoken very strongly on the lack of facilities with regard to the storage of milk at railway-stations.

Mr. Reakes was asked whether he had any suggestions to make to the Conference in the direction of improving the milk-supply in connection with conveyance, storage, or distribution.

Mr. Reakes replied that, taking the point of the health of the cattle first, so far as he was concerned he of course intended to continue his present policy and extend it as much as possible. In his opinion it was a question as to whether it was worth while dealing with matters even more thoroughly than at present from the point of view of accidental contamination right from the time of collection at the farm. He knew the Health Department did a very great deal to help in this direction, but he thought it might be to the advantage of every one concerned if that work were amplified to some extent in the direction of doing everything possible to make the milk-vendors more careful as regards preventing contamination of their milk.

Dr. Frengley advocated that every effort should be made to prevent any person suffering from tuberculosis handling or distributing milk. There was a regulation under the Sale of Food and Drugs Act that would meet the case, and he thought the Conference would help the regulations (which were still in hand) by passing a resolution to the effect—That in any regulations that may be contemplated under the Sale of Food and Drugs Act, this Conference is of opinion that it should be laid down that no person suffering from tuberculosis in any form should be permitted to collect or assist in the collection, conveyance, or distribution of milk intended for sale for human consumption. Carried.

The Conference adjourned at 12.45.

The Conference reassembled at 2.30.

Subject for discussion, "Educational."

In reading the report of the sub-committee set up to inquire into this matter, Dr. Champtaloup stated that they had dealt with the subject under a few more headings than were on the agenda paper. The following were the suggestions of the Committee:—

(a.) Dissemination of Literature.—It is proposed under this heading that the following might act in this respect: (1) The dispensary; (2) school medical officers and school-teachers; (3) philanthropic bodies; (4) departmental and Hospital Board Inspectors; (5) the district or tuberculosis nurse; (6) friendly societies; (7) distribution of pamphlets on daily Press delivery.

(b.) Nature of Pamphlets to be issued.—(1.) A general pamphlet, short, concise, and readable, issued by the Health Department, showing briefly the cause, means of dissemination, and prevention. (2.) Ditto — an illustrated pamphlet for distribution to school-children — the school pamphlet. (3.) Local pamphlet issued by medical officers of sanatoria or Hospital Board, dealing with local questions, as "Facts for Employers, Hotels, Patients, Factories."

Alternative sub-title—"Other Means of disseminating Knowledge, including Lectures":—

(*a.*) That the Government should subsidize the coming Dunedin Exhibition, and retain the exhibits for use elsewhere. Also, that the Government should be asked to purchase a travelling exhibition suitable to the needs of the country, to which the Dunedin exhibits should be added; this to include lantern and cinematograph and necessary slides and films. The whole of the exhibition to be lent to the different main centres for them to arrange exhibitions and lectures and demonstrations in their district.

(*b.*) That special arrangements be made by the Department for holding these exhibitions and lectures in places outside the main centres.

(*c.*) Syllabus, and by whom lectures to be given: That each of the officers mentioned in section 4, (*a*), (*b*), and (*c*), including the Medical Superintendents of sanatoria, associated with local practitioners, should give the lectures in connection with the exhibits on branches of the subject with which they are specially qualified to speak. That special lectures and demonstrations might be given to architects, teachers, clergy, and local authorities. That this Conference urges the medical profession in the main centres to arrange for the tuberculosis numbers of a leading weekly illustrated paper, on the lines adopted by the *Otago Witness* and the Otago British Medical Association.

The Chairman moved the adoption of the report of the Education Committee. Seconded by Dr. Blackmore and carried.

The following letter was read, and was received by the Conference:—

"Dunedin, 21st October, 1912.

"The Otago Division of the British Medical Association are holding a Tuberculosis Exhibition in connection with the Agricultural Winter Show in Dunedin in June, 1913. We would be glad if you would kindly lay this project before the Minister of Hospitals, with a view to obtaining a money-grant in connection with the same. We would be prepared to hand the whole of the exhibition after June over to your Department, with a view to its being exhibited in other parts of New Zealand.

"Should your Department feel disposed itself to inaugurate a Tuberculosis Exhibition we will be glad to forego ours and assist you in every way, provided you could see your way to lend the exhibition to us in June, 1913.

"Yours, &c.,

"Eugene J. O'Neill,

"Hon. Secretary, Otago Division, New Zealand Branch, B.M.A."

In reply to the Chairman, Dr. Champtaloup stated that the suggestion was that the Government should subsidize the forthcoming exhibition to the extent of £50, this amount to ensure the purchase of all the exhibits. The Chairman stated that he would recommend that this be done.

The Chairman further stated that certain of the Hospital Boards were making representations to the Government in the direction of obtaining larger subsidies. He felt sure, from a conversation he had had with the Minister of the Department, that the Government was quite willing to give some substantial assistance to the campaign, but as to what form that assistance would take he was not yet prepared to say. He pointed out that the only check the Department had on local expenditure was by putting some of the expenditure on the rates. Some Hospital Boards considered every penny of expenditure, but there were others who did not; and, although there was no desire on the part of the Department to be mean in this respect, that side of the question had to be considered. The suggestion that the Department should find all this money, and the Hospital Boards administer it, could not be entertained.

Anti-tubercular Societies.

Dr. Hardwick-Smith suggested that something might be done in the way of anti-tuberculosis societies, to be comprised of educated women, who might visit people in their homes for the purpose of endeavouring to educate them how to live under the best possible sanitary conditions. On the suggestion of Dr. Frengley it was agreed that these societies might be called "health" and not "tuberculosis" societies.

After some discussion on the matter it was agreed that the calling-in of outside aid would tend to intrude too much on the privacy of the people; that it would be better to endeavour to obtain the assistance of some existing organization rather than create any new philanthropic body; and that the Salvation Army (which got at the very class of people it was desired to reach) was the best organization for the purpose.

Dr. Hardwick-Smith asked whether it was proposed to give a course of lectures in this connection, and it was agreed that this would be advisable.

It was generally agreed that friendly societies would be an excellent medium for disseminating literature.

Professional and Technical.

The Chairman thought it was necessary to have a general discussion as to the correlation between the various officers. A great deal of the success of the campaign hinged on the part the medical practitioner would take. He remarked to Dr. McLean that it was unfortunate that a representative of the British Medical Association was not present at the previous day's sitting, when the question of compulsory notification was brought up. He outlined the proposals which were the outcome of this discussion. Dr. McLean agreed that the medical profession would not be seriously affected thereby. (At a later stage of the proceedings Dr. McLean also expressed the opinion that the point brought up in connection with compulsory notification—that the medical practitioner should intimate on the notification form whether he desired the Inspector to visit—was an important one, and that such a system would tend largely not only to save friction but to make the public feel more confidence. In this connection the Chairman stated that the onus of seeing that everything necessary was done was put on the medical practitioner, but the Department reserved to itself the right of stepping in if it considered it necessary.)

The District Health Officer and the Medical Superintendent.

Continuing, the Chairman thought an expression of opinion should be given as to whether it was necessary to do anything to bring the Medical Superintendent of the sanatorium and the District Health Officer into better touch with regard to the patients.

Dr. Champtaloup advocated that the Medical Superintendent should be given the control of tuberculosis in the hospital district in which the sanatorium was situated; he should see the notifications, instruct the Inspector or the district nurse as to procedure, and generally control all that branch of infectious disease.

The Chairman objected that this would involve dual control; it would mean that the District Health Officer, who would be controlling ordinary infectious diseases, would be subject to control by the Medical Superintendent with regard to tuberculosis. An Inspector might consequently get orders from the tuberculosis officer to inspect certain premises, and might at the same time get instructions in another direction from the District Health Officer. He pointed out that it was not likely that there would be more than four dispensaries for some time, and he thought an endeavour should be made to put the suggestions of the Conference into operation so far as possible without dislocating the present machinery. At the present time all notifications under the Act went to the District Health Officer and the Board. He considered that all notifications of consumption should be sent on to the Medical Superintendent of the sanatorium; then the Medical Superintendent could get into touch with the District Health Officer, and by means of the Inspector obtain information as to the environment of the patient, and, generally, those details that he considered necessary.

Both Dr. Lyth and Dr. Blackmore stated that this was practically the scheme in existence in their district. Dr. Blackmore added that he thought it would be rather difficult to make any distinction with regard to the duties of the two officers in question—the Medical Superintendent and the District Health Officer. In his opinion these two officers should work together for the common good. This was done in his district, and the system worked well.

The Chairman agreed that it was necessary for the Medical Superintendent of a sanatorium to know all about the tubercular cases in the district, and so far as the Department was concerned every means possible would be taken to keep those officers acquainted with such cases, and probably they on their part would do their best to keep the Department acquainted as to how many beds were available in their respective institutions.

The Conference agreed that this was all that was required.

Medical Inspectors of Schools.

Dr. Lyth asked if Medical Inspectors could compel parents to send their children to a medical man. He was anxious to reach those parents who were too careless to send their children to a medical practitioner.

The question was raised by Dr. Finch as to whether there would be any objection on the part of the practising members of the medical profession if, on the report of the Medical Inspector of Schools that a certain child needed medical attention, the District Health Officer were to send the district nurse—say, in a week's time—to inquire if such child had been sent to a medical man. If the case were an indigent one then it could be sent to the dispensary. He emphasized the importance of getting the early case.

In reply to Dr. McLean it was stated that the case would not be one notified by a medical man, but would be in the pre-phthisical stages and discovered by the Medical Inspector.

After some discussion both Drs. McLean and Gibbs stated that they did not see any objection to the suggestion. Dr. McLean added, however, that he would like to know what would happen if the visiting nurse reported that the case had not been taken to a medical man.

The Chairman replied that if the case were not one of actual consumption nothing could be done but represent to the parents the importance of obtaining treatment; if, however, the case were a phthisical one, the Department could insist on its removal to an institution if the parents or those responsible still neglected to obtain medical advice for the child.

In connection with a suggestion made by Dr. Hardwick-Smith the Chairman stated that he had a scheme in mind whereby each hospital district should be provided with a nurse whose function it would be to visit and follow up consumptive cases.

The Bacteriologist.

The Chairman stated that he would like the Conference to emphasize the fact that a bacteriologist should be appointed in each of the four centres.

Dr. Champtaloup was emphatically of the opinion that the work devolving on a bacteriologist was so extensive, and the amount of literature necessary to be gone through in order to keep up with the times so great, that it was impossible for him to do good work unless his duties were specific—he must be a bacteriologist and nothing else.

From personal experience Dr. Makgill supported this.

The Conference generally was of opinion that a bacteriologist at each centre would be sufficient for the needs of the country for some time, and it was unanimously resolved, That it be a recommendation of this Conference that a bacteriologist be appointed in each of the four centres, and that his duties should be confined entirely to bacteriological and pathological work.

District Nurse: Sanitary Inspector.

No discussion considered necessary.

The Efficacy of Tuberculin Treatment.

The Chairman stated that there seemed to be a lot of difference of opinion with regard to the wisdom of applying tuberculin treatment, and he would like to hear those who had had experience express themselves definitely on this matter.

Dr. Blackmore then addressed the Conference as follows: I have no doubt of the efficacy of tuberculin in the treatment of tuberculosis if it is given properly and in selected cases. I have repeatedly seen marked and rapid improvement set in when tuberculin has been given after patients had come to a standstill under ordinary sanatorium treatment. Early cases and chronic cases where there is not much evidence of toxic absorption are the best for treatment with tuberculin. In the chronic cases brilliant and most gratifying results are sometimes obtained. Cases of mixed infection are not suitable for tuberculin treatment. I regard the combined sanatorium and tuberculin treatments as being the best means of combating the disease we possess at the present time; but in favourable cases treatment can be carried out by tuberculin alone without sending the patient to a sanatorium, and in a very few cases without interfering with the patient's work. I give from 2,500 to 3,000 injections a year, and have never seen any harm result. Nothing in the shape of an abscess has ever developed in my experience. Redness and swelling at the site of the injection are sometimes very marked, but invariably subside quickly. I also use tuberculin by injection in certain cases as a diagnostic, and have seen no harmful effects. But I am careful in its use, and do not employ it until all other means of diagnosis have been exhausted. Although tuberculin when properly given does no harm, it is an extremely powerful substance, and if used indiscriminately and given in unsuitable doses it is capable of doing much mischief. All the tuberculins are useful, but the cost of the new tuberculin militates against its general use in institutions. The bovine tuberculins are milder than those prepared from the human bacillus. I generally use the old bovine tuberculins P.T. and P.T.O. P.T. is made in the same way as Koch's old tuberculin—by growing the bovine bacillus in broth, reducing the culture to a tenth of its bulk by heat, and filtering out the bacilli.

It contains extra-cellular toxins and a small proportion of endo-toxins extracted by heat. P.T.O. is produced by growing bacilli in the same way, but no heat is applied, and there is no reduction in bulk. It is rendered germ-free by filtration. It contains extra-cellular toxins only, and is very much milder than P.T. Although good results are sometimes obtained by giving tuberculin in small doses at comparatively long intervals, I think in most cases of pulmonary tuberculosis the best results are obtained by the German method of giving the tuberculin at short intervals, increasing the dose rapidly, and going on until a massive dose has been reached. I generally begin with P.T.O., giving it twice a week, every dose if possible being larger than the preceding one. When a dose of 80 to 100 milligrammes has been reached I change to P.T., and try to work up to a dose of 800 to 1,000 milligrammes. I try to avoid reactions if possible. If these tuberculins do not agree it is sometimes possible to get good results by changing to new tuberculin or the bacillary emulsion. In these remarks I am referring to the treatment of pulmonary tuberculosis only. It is improbable that tuberculin has any prophylactic action against tuberculosis. Immunity to tuberculin is not the same thing as immunity to tuberculosis.

Dr. Champtaloup thought that most of those who had used tuberculin—whether diagnostically or for treatment—in connection with sanatorium treatment were more or less agreed that with sanatorium plus tuberculin treatment, given judiciously and by some one who understood it, better results were obtained than by sanatorium without tuberculin treatment. He quoted statistics which supported this. In his opinion medical officers of sanatoria and the bacteriologists of the four chief centres could, by reading papers, giving demonstrations, and contributing articles to the *New Zealand Medical Journal*, help the profession a great deal in this respect, especially those in country districts, who, as a rule, were kept very busy, and perhaps had not the opportunity of reading up literature on the subject. He pointed out the necessity for the tuberculin to be freshly diluted. The material put up by the different firms was in some cases probably a year old and practically of little value.

Dr. Frengley read the following extract from the Fifth Annual Report of the King Edward VII Sanatorium, Midhurst, which, he stated, supported the remarks made by Dr. Blackmore and Dr. Champtaloup with regard to the tuberculin treatment :—

"Treatment by tuberculin has now become an essential part of the scheme for dealing with the tuberculosis problem in Germany; and in the Beelitz Sanatorium, which deals with enormous numbers of insured workers in all stages of the disease, tuberculin is administered to the overwhelming majority of the cases. As a general rule, treatment is commenced with old tuberculin or the new albumose free variety mentioned later, and after toleration has been established treatment is continued with a bacillary emulsion. The method of administration is to begin with minute doses, and to increase the amount rapidly until large quantities can be borne. The opsonic index is not used as a control. Throughout the whole course of treatment febrile reactions are as far as possible avoided. After leaving the sanatorium, and also in the large numbers of patients for whom sanatorium treatment is not available, the tuberculin treatment can be carried out in ambulatory practice in dispensaries. This treatment is quite feasible, and in expert hands is free from any risk, though the increase of dosage is slower and more gradual than is necessary when the patient is under constant supervision. By this method, however, a long continuance of the treatment is possible, and this is regarded as most important for the attaining of permanent results."

Dr. Frengley wished to draw particular attention to the following extract, as showing the effect of tuberculin in reducing the tubercle in the sputum :—

"The influence of tuberculin can be well shown by a comparison of the number of patients who lose the tubercle bacilli from their sputum when treated by sanatorium methods alone, and when these methods are supplemented by the administration of tuberculin : (1.) King Edward VII Sanatorium—631 patients, of whom 147, or 23·3 per cent., lost their bacilli. (2.) Loewenstein reports from Beelitz that of 682 patients submitted to the combined treatment 361, or 52·93 per cent., were free from bacilli at the end of the cure. This includes patients of all stages."

As giving some idea of the work to be done by the bacteriologists in relation to the different strains of tubercle bacilli, he further quoted from the same report,—

"Characters of Tubercle Bacillus isolated from Sputum : This work has also been continued, and fifty additional strains of tubercle have been obtained. They had not yet been completely worked out, so that a report on this investigation is held over."

In conclusion, Dr. Frengley stated that it was known that in vaccine therapy autogenous treatment is very much better than any stock stuff, and this seemed to indicate the need for the bacteriologist of the future being able to make up the vaccine from the patients' own sputum; and in view of the task of the bacteriologist of the future in regard to sanatorium treatment he thought it well worth considering whether four bacteriologists would be sufficient for the needs of the Dominion.

In reply to a question asked by Dr. Hardwick-Smith, Dr. Blackmore and Dr. Champtaloup concurred that there was not sufficient evidence to warrant children of tuberculosis parents receiving vaccine treatment to raise their resisting-power.

In reply to a further question, Dr. Champtaloup stated that the best results would be obtained in cases of mixed infection by the use of a series of autogenous vaccines prior to or combined with tuberculin treatment. It was pointed out that two or three vaccines would be required in each case, involving a good deal of work.

Dr. Lyth stated that he had used a good deal of tuberculin, and agreed with what Dr. Blackmore had stated as to the circumstances under which tuberculin should be given. The sanatorium was an ideal place for starting a course of treatment, and if treatment were not carried out in a sanatorium supervision by a medical practitioner should be very strict. He had no doubt that tuberculin had done a good deal of harm through being given under circumstances which

permitted of a secondary reaction. In a sanatorium one avoided that absolutely. In general practice it would appear that tuberculin could only be given when plenty of time was available to attend to the patient.

The Chairman took it that in the opinion of the Conference the efficacy of tuberculin treatment was assured, provided there was a careful selection of cases, and that it was administered by those who had special experience of its use.

The following motion, moved by Dr. Blackmore and seconded by Dr. Champtaloup, was unanimously carried: That this Conference desires to express the opinion that it is advisable, in the interests of patients, for medical practitioners who propose giving tuberculin treatment to make themselves conversant with the properties and action of tuberculin, as its injudicious use is likely to do great harm.

Employment of Consumptives at the Sanatorium.

The Chairman stated that the Conference had already dealt with the employment of consumptives at the farm colony, but not at the sanatorium. He thought the matter a most important one for discussion, and that an expression of opinion from the Conference would be most useful. The fact that we were living in a very sentimental age would mean that we would be much handicapped in all measures of this description, and he knew that whatever was done in this direction would be subjected to a great deal of criticism. He was aware that a great deal of work was done by patients at Dr. Blackmore's sanatorium, and he believed that Dr. Lyth had initiated a similar work by patients at Palmerston South. He called attention to Dr. Blackmore's remarks at an earlier stage of the proceedings as regards the need for impressing upon the public that the project was not a money-making one. He thought this a most important point.

Dr. Lyth thought it should be very clearly laid down that the work done by patients in a sanatorium, though useful, was really part of the treatment. He found that patients had no objection to doing work for the sanatorium if it were made clear to them that they were doing it for their own benefit.

Dr. Blackmore thoroughly concurred with this. He looked upon the work the patients did as a most important part of their treatment.

The Conference resolved, That in the opinion of this Conference graduated work and exercise is a most essential part of the treatment of consumption, and that most of the domestic work of a sanatorium can with advantage be done by the patients.

Proposed by Dr. Lewis, That it be a recommendation of this Conference that facilities be provided at sanatoria with a view to the employment of the patients in useful occupations. Carried.

Open-air Schools.

Dr. Blackmore moved the following: That, as open-air teaching of children is a measure of considerable importance in helping to control the spread of tuberculosis, the various Education Boards throughout the Dominion be recommended to earnestly consider the advisability of establishing open-air schools, or open-air teaching in connection with the present schools; that their attention be also drawn to the extreme usefulness, from a health point of view, of open-air residential schools in suitable situations, where delicate children and those showing evidence of incipient tuberculosis can be sent for shorter or longer periods, and where their lives can be regulated and their studies carried on under medical supervision.

Dr. Blackmore did not think it was necessary to say very much in support of this motion, except that there were a considerable number of children at the present time who were in a poor state of health—one could not say definitely that they were tuberculous, but just the class of child to become tuberculous—and it was far better that something should be done for that child before it actually developed consumption. A very great deal could be done by seeing that during the daytime, at any rate, they had abundance of fresh air. There were a number of children who would with advantage to themselves be kept at school, provided they could be kept out of doors, but it certainly would not be to their advantage to send them to school knowing that they were going to be shut up all day. With regard to the second portion of the motion, Dr. Blackmore stated that this would benefit those children who could not, for financial reasons, be sent to the seaside, &c.; but by five or six months spent in a proper institution, where they would be properly fed and properly looked after, they would be so built up that they would have every chance of growing into strong men or women, instead of either dying or spending their lifetime as chronic invalids.

Dr. Blackmore's motion was seconded by Dr. Hardwick-Smith and carried unanimously.

Night Shelters for Consumptives.

Dr. Hardwick-Smith, in advocating these shelters, recommended that they be erected at the seaside or in the suburbs of a town, and that they should be for those patients without suitable homes, and who were not in a position to afford treatment in an institution. The patients would lead a semi-open-air life—they could go to their ordinary occupations during the day and return to the shelters at night—and they would be taught how to live and how to take proper care of themselves.

It was agreed that no resolution was necessary, but that the matter was one that could very well be considered.

The Conference was of opinion that the shelters should be under the Hospital Boards.

Restriction of Immigration.

The Chairman recommended the following resolution: That the Conference approves of the decision by the Government to appoint medical men to inspect emigrants at the port of departure, and trusts that more stringent measures will be taken with a view to preventing consumptive patients landing on these shores.

This motion was carried, but a discussion ensued in connection with a suggestion made by Dr. Makgill that the following should be added to the resolution: Provided that it be a recommendation that legislation should be adopted whereby the Minister of Public Health should have power, on the recommendation of the Chief Health Officer, to admit to the Dominion early cases of tuberculosis under such conditions of probation (*i.e.*, admission to a sanatorium for six months' treatment) as he may direct, so long as the patient shall undergo such probationary period at his own cost.

Both Drs. Makgill and Blackmore were of opinion that if a man had a good chance of recovery by coming to the Dominion it was scarcely humane to prohibit his admission, and that only those cases who were likely to become a charge on the country or who had no chance of recovery should be excluded.

The Chairman replied that the Minister already had power to allow a patient to land, provided such patient had means of support. Dr. Makgill considered the legislation very vague, and would like it made clearer that the Minister had such power.

In view of the fact that the Minister already had power to admit those persons who were not likely to become a charge on the rates of the Dominion Dr. Makgill's motion was negatived.

Sterilization of Consumptive Patients.

After a short discussion it was resolved, That this Conference is of opinion that sterilization of tubercular persons is unjustifiable.

The following motion, proposed by Dr. Blackmore and seconded by Dr. Hardwick-Smith, was carried: That it is of vital importance to the success of the movement that the campaign against tuberculosis should be carried on by uniform and concerted action throughout the whole Dominion. That, with a view to secure such action, the local authorities be urged to combine whenever necessary to enable the chief measures which have been recommended by this Conference to be carried into effect—viz., the search for early cases; the proper treatment of cases amenable to treatment; the removal from their homes to suitable institutions of those persons suffering from consumption who are unable to take the precautions necessary to prevent the spread of the disease; the education of the public; the after-care of persons who have been under treatment for consumption.

A further resolution, moved by Dr. Blackmore and seconded by Dr. Lyth, was also carried: That in the event of failure to secure such unity of action the Government be urged to take over complete control of the tuberculosis campaign, and, if considered advisable, to recover the cost of administration from the various Hospital Boards.

A vote of thanks to the Chairman terminated the proceedings.

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