

1928.



THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA.

*Presented to the Senate by  
Senator Barnes*

Pursuant to Statute

By Command

In return to Order

*J.M.*

PARLIAMENTARY STANDING COMMITTEE  
ON PUBLIC WORKS.

of the Senate  
JUN 12 1928

REPORT

TOGETHER WITH

MINUTES OF EVIDENCE

RELATING TO THE PROPOSED ERECTION OF A

SCHOOL OF PUBLIC HEALTH,  
SYDNEY.

## MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

(Fifth Committee.)

GEORGE HUGH MACKAY, Esq., M.P., Chairman.

## Senate.

Senator John Barnes.  
 Senator Patrick Joseph Lynch.\*  
 Senator Herbert James Mockford Payne.†  
 Senator Matthew Reid.

\* Resigned 30th June, 1925.

† Appointed 1st July, 1925.

## House of Representatives.

Malcolm Duncan Cameron, Esq., M.P.‡  
 Robert Cook, Esq., M.P.  
 The Honorable Henry Gregory, M.P.‡  
 Andrew William Lacey, Esq., M.P.  
 David Charles McGrath, Esq., M.P.  
 Alfred Charles Seabrook, Esq., M.P.

‡ Resigned 2nd March, 1927.

§ Appointed 24th March, 1927.

## INDEX.

	PAGE
Report .. .. .	v
Minutes of Evidence .. .. .	1

EXTRACT FROM THE VOTES AND PROCEEDINGS OF THE HOUSE OF REPRESENTATIVES—No. 150,  
DATED, 7TH MARCH, 1928.

6. PUBLIC WORKS COMMITTEE—REFERENCE OF WORK—SCHOOL OF PUBLIC HEALTH, SYDNEY.—Mr. Hill (Minister for Works and Railways) moved, pursuant to notice, That, in accordance with the provisions of the *Commonwealth Public Works Committee Act 1915-21*, the following proposed work be referred to the Parliamentary Standing Committee on Public Works for investigation and report, viz. :—Sydney—Erection of School of Public Health. Mr. Hill having laid on the Table plan, &c., in connexion with the proposed work—Debate ensued.  
 Question—put and passed.

## LIST OF WITNESSES.

	PAGE
Chapman, Dr. Henry George, Professor of Physiology, University of Sydney .. .. .	9
Cumpston, Dr. John Howard Lidgett, Director-General of Health for the Commonwealth .. .. .	1, 3, 9
Dale, Dr. John, Medical Officer of Health, City of Melbourne .. .. .	35
Dick, Dr. Robert, Director-General of Public Health, New South Wales .. .. .	21
Hook, Professor Alfred Samuel, Associate Professor of Architecture, University of Sydney .. .. .	9
MacCallum, Sir Mungo William, Professor Emeritus and Deputy Chancellor, University of Sydney .. .. .	15
Morris, Dr. Emanuel Sydney, Senior Medical Officer of Health, New South Wales .. .. .	19
Murdoch, John Smith, Director-General of Works and Chief Architect, Department of Works and Railways .. .. .	33
Nott, Dr. Lewis Windermere, Medical Practitioner, Canberra .. .. .	24
Penfold, Dr. William James, Director of the Baker Institute of Medical Research, Alfred Hospital, Melbourne .. .. .	28
Ross, Herbert Ernest, Architect and Civil Engineer .. .. .	8
Welsh, Dr. David Arthur, Professor of Pathology, University of Sydney .. .. .	14
Wilkinson, Professor Leslie, Professor of Architecture, University of Sydney .. .. .	13
Willis, Dr. Henry Hastings, Secretary of the Public Medical Officers' Association of New South Wales .. .. .	20
Woodruff, Dr. Harold Addison, Professor of Veterinary Pathology, Melbourne University .. .. .	37

# ERECTION OF A SCHOOL OF PUBLIC HEALTH, SYDNEY.

## REPORT.

THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS, to which the House of Representatives referred for investigation and Report, the question of the erection of a School of Public Health, Sydney, has the honour to report as follows :—

### INTRODUCTORY.

1. In the course of the Report issued by the Royal Commission on Health in 1925 it was stated :—

*“ The Commonwealth could be of great assistance to State and local authorities by providing a training school where prospective medical officers of health could receive post-graduate training in different fields of health administration, and where the inspectorial staff and other personnel could also be trained. At present there is a great lack of facilities for such training.”*

2. That report as a whole was considered by a conference of Ministers of Health of the Commonwealth and of various States, and as a result a resolution was passed :—

*“ That Conference recommends that the Commonwealth take steps with regard to a school of preventive medicine and tropical hygiene to consult the various medical schools and universities of the States with a view to the establishment of such a school and to the teaching of preventive medicine on an improved basis to all medical students and other public health personnel.”*

3. That resolution was circulated to the State Governments and approved by them. Universities were also consulted and likewise endorsed the proposal.

### PRESENT PROPOSAL.

4. The proposal now submitted for investigation by the Committee aims at the establishment at the Sydney University of a School of Public Health. The arrangement proposed is set out in the following agreement drawn up between the Commonwealth Government and the University of Sydney :—

AGREEMENT made the 15th day of November, 1927, between the Commonwealth of Australia (in this agreement called “ The Commonwealth ”) and the University of Sydney (in this agreement called “ The University ”):—

WHEREAS with a view to establishing a training school of public health and tropical medicine the Commonwealth and the University have agreed to enter into this agreement:

Now it is hereby agreed as follows :—

1.—(1) The University shall set apart the land described in the schedule hereto for the purposes of the erection of and hereby authorizes the Commonwealth to erect thereon the buildings mentioned in clause 2 of this agreement.

(2) The University shall not be entitled to or demand from the Commonwealth any payment whatever whether by way of rent or otherwise for or in respect of the said land or buildings.

2.—(1) The Commonwealth will at its own expense and in accordance with a design approved by the University erect or cause to be erected on the said land buildings suitable in the opinion of the Minister for a school of public health and tropical medicine.

(2) During the continuance of this agreement the Commonwealth will, at its own expense, keep the said buildings in good repair and condition.

(3) The said buildings shall at all times during the continuance of this agreement be used by the University only for purposes of or incidental to the performance of this agreement.

3.—(1) The Commonwealth will, at its own expense, provide all equipment necessary in the opinion of the Director-General for the said school.

(2) The said equipment (including all books and journals provided by the Commonwealth) shall at all times be and remain the property of the Commonwealth and shall not at any time be removed by the University from the said buildings.

(9) Upon the determination of this agreement the Commonwealth may, unless otherwise agreed upon with the University, remove all such equipment (including books and journals provided by the Commonwealth.

4.—(1) Subject to the necessary appropriations being made by the Parliament of the Commonwealth, the Commonwealth will from time to time during the continuance of this agreement provide moneys sufficient for—

(i) The training of post-graduate students for the diploma of public health and/or the diploma of tropical medicine to a standard of qualification not less than that now recognized by the General Medical Council of Great Britain.

(ii) Research work into problems of tropical hygiene and hygiene generally.

(2) The manner in which all such moneys shall be expended and the expenditure thereof shall be in the exclusive control of the Minister.

5.—(1) All revenue of the school except as in this clause provided shall be paid to and become the property of the Commonwealth absolutely.

(2) All fees paid by students and all gifts received by the University for or in connexion with the school shall be paid or delivered to and become the property of the University absolutely. The fees to be paid by the students shall be as prescribed by the Senate of the University.

6.—(1) Subject to sub-clause 2 of this clause, the Commonwealth will appoint the staff of the said school, including professors, teachers and research officers.

(2) All such appointments other than those of persons appointed to engage exclusively upon research shall be subject to the approval of the said Senate.

(3) Subject to the provisions of this sub-clause, the Minister shall have the exclusive right to suspend or remove any member of the staff of the school. The said Senate may make representations to the Minister as to the suspension or removal of any member of the staff of the school. In cases of urgency the Senate may suspend any member of the staff and in any such case shall within fourteen days report such suspension to the Minister for his confirmation or disallowance, as the case may be. In the event of the Senate being dissatisfied with any action of the Minister in suspending or removing, or failing to suspend or to confirm the suspension of or to remove any member of the staff, the question in dispute shall be referred for determination to a person mutually agreed upon between the Minister and the Chancellor of the University.

7. Subject to clause 6 of this agreement, the discipline of the students and the teaching staff shall be under the control of the said Senate.

8. The instruction at the said school shall be directed, prescribed and supervised by the Faculty of Medicine of the University, in accordance with the by-laws and regulations of the University.

9.—(1) The University agrees to confer on each student who has received the prescribed instruction in the school and passed the appropriate examinations prescribed by and has otherwise complied with the by-laws and regulations of the University, the diploma of public health and/or the diploma of tropical medicine as the case may be.

(2) The appointment of examiners and the standard of knowledge required and the whole method of examination of students shall be in the exclusive control of the University.

10. Except where otherwise specifically provided herein, in the event of any dispute arising under this agreement, between the parties, the matter in dispute shall be referred to the Minister and the Chancellor of the University or their respective nominees for determination, and in case they are unable to agree upon the settlement of the matter in dispute the matter shall be referred to and determined by a person mutually agreed upon between the Minister and the said Chancellor.

11.—(1) The Minister shall appoint an advisory council of five members for the purpose of advising the Minister on all matters relating to the administration of the said school.

(2) The said advisory council shall be constituted as follows:—

(i) The Director-General, who shall be chairman;

(ii) Two members who shall be nominated by the Minister; and

(iii) Two members who shall be nominated by the Chancellor of the University.

(3) Upon any vacancy occurring in the said council the vacancy shall be filled by the appointment of a person nominated by the Minister or the Chancellor as the case may be.

(4) The said council shall meet at such times and places as may from time to time be fixed by the Director-General and notified in writing to the other members of the advisory council.

(5) Three members of the advisory council shall constitute a quorum of the advisory council for the conduct of its business at any meeting, and if the Director-General be absent may appoint one of their number to be chairman of such meetings.

12.—(1) Subject to earlier determination by the Commonwealth, as provided in sub-clause (2) of this clause, this agreement shall remain in force for a period of 25 years from the date thereof.

(2) The Commonwealth may after the expiration of ten years from the date hereof by twelve calendar months' notice in writing terminating at any time served on the University determine this agreement.

13. Upon the determination of this agreement the buildings erected by the Commonwealth in pursuance of clause 2 of this agreement shall become the property of the University, absolutely.

14. Any notice approval requirement or other communication to be given to or served upon the University by the Minister, or the Commonwealth under this agreement shall be deemed to have been duly given or served if signed by or on behalf of the Director-General and sent by pre-paid post addressed to the Vice-Chancellor of the University at Sydney.

15. In this agreement the "Minister" means the Minister for Health for the Commonwealth for the time being, and includes the member of the Federal Executive Council for the time being performing the duties of the Minister.

16. "Director-General" means the Director-General of Health of the Commonwealth and includes any officer for the time being performing the duties of the Director-General.

SCHEDULE.  
All that piece or parcel of land in the parish of Petersham, county of Cumberland, State of New South Wales, containing an area of 3 roods, 154 perches more or less, commencing at a north-eastern corner of the land occupied by St. Paul's College within the University reserve and bounded thence by a fenced line being a north-western boundary of that land boundary of that land 262 deg. 17 min. 162 ft. 8 in.; thence by part of a north-eastern boundary of St. Paul's College being partly a fenced line, 327 deg. 58 min. 180 ft.; thence by lines bearing 352 deg. 17 min. 15 ft. 11 in., 82 deg. 17 min. 235 ft. 9 in.; and thence by a line bearing 172 deg. 17 min. 180 ft. to the point of commencement.

In witness whereof the parties hereto have executed this agreement the day and year first above-written.

Signed by the Minister of State for Health of the Commonwealth for and on behalf of the Commonwealth in the presence of—

(Sgd.) S. M. BRUCE.

(Sgd.) G. B. COOKS.

The Common Seal of the University of Sydney was hereunto affixed by us on the 16th day of November, 1927, in pursuance of authority given by the Senate at a meeting held on the fourteenth day of November, 1927.

(Sgd.) WALTER A. SELLE,  
Registrar.

(Sgd.) W. M. MACCALLUM,  
Vice-Chancellor.

### REASONS FOR THE PROPOSAL.

5. The considerations put forward as rendering the establishment of such a school as is proposed urgently necessary are given as:—

(a) the rapid development in the field of public health;

(b) the fact that it is necessary for graduates to proceed abroad to obtain proper training in public health;

(c) the very great importance of a proper scientific centre in Australia for tropical medicine and the growing importance of this in association with Australia's tropical possessions.

### SITE.

6. The site which it is suggested the building should occupy is a prominent one in the University group close to the new Physics School lately erected, and comprises an area of a little over 3 roods.

### DESCRIPTION OF THE BUILDING.

7. The building suggested has been designed to conform with the physical features of the land and to harmonize with the adjacent existing buildings. The building is to be T-shaped, the long leg of the T lying east and west and the short leg north and south. Owing to the unusual nature of the site, access to the building on the eastern end is from the level of the road on the higher ground to the upper ground floor, while, from the north and south, access will be from the road on the lower level to the lower ground floor.

8. The construction will be of brick with lower external walls 18 inches in thickness plastered externally with cement plaster, excepting in certain places where a quantity of sandstone already in possession of the University will be used to give added beauty to the building. The upper external walls will be 14 inches in thickness; and internal walls will be 9 inches thick.

9. The foundations will be of reinforced concrete. The floors will be of concrete throughout; the lower floor solid and the upper floor 7 inches thick. The roof framing will be of timber covered with tiles and a tower rising 23 feet above the roof will be added to bring the school into harmony with existing University buildings.

10. The height of the ceiling of the higher and lower ground floors in the small leg of the T will be 12 feet, and the height of the ceiling in the first floor 11 feet. The height of ceilings of the rooms in the long leg of the T will be 14 feet 6 inches; the height of the ceilings in the upper ground floor of the long leg of the T will be 11 feet 6 inches; and the height of the ceiling in the museum and lecture room will be 17 feet. The window frames will be of steel and the glazing of 32 oz. sheet glass.

11. The short leg of the T will be approximately 110 feet long by 42 feet 7 inches wide, and will consist of 3 floors; the long leg of the T will be approximately 111 feet 6 inches long by 45 feet wide, and will be of two floors. The various floors will be subdivided to provide laboratories, lecture room, library, offices, &c., with necessary cloak rooms and lavatories.

## ESTIMATED COST.

12. The estimated cost of the proposal as submitted to the Committee is set down at £30,000, and the time fixed for completion about sixteen months from date of commencement. After the school is established it is estimated that the cost of maintaining it will be in the vicinity of £9,000 per annum.

## COMMITTEE'S INVESTIGATIONS.

13. The Committee visited Sydney and inspected some of the existing University buildings and the site suggested for the proposed School of Public Health, and carefully examined the plans of the proposed building. Evidence was taken from the Director-General of Health for the Commonwealth, the Director-General of Public Health of New South Wales, the Deputy Chancellor and other Professors of the Sydney University, the Director-General of Works, representative medical men and others.

14. In the course of the Committee's investigations it was shown that modern development was tending to the greater study of preventive medicine, thus lessening the necessity for curative treatment, and that there had been a considerable awakening of the conscience of the community in the matter of public health. At present many medical men acting as public health officers are not possessed of the diploma of public health and, in view of the lack of facilities for obtaining such diploma in Australia it is difficult to insist on the possession of such diploma as a preliminary to appointment.

15. It was represented that to keep Australia abreast of progress in other parts of the world, and cater for the better health of the community generally, it is imperative that our medical men should be given opportunities to qualify in the departments of public health and preventive medicine. All witnesses were emphatic as to the advantages that would follow from a wider dissemination of knowledge in this direction, although some differ as to the means by which it should be obtained.

16. It was suggested for instance that sufficient training in tropical diseases might be obtained by establishing scholarships enabling successful students to undergo a period of training at the School of Tropical Medicine, London, or at a similar establishment in Calcutta; it was also held that a greater number of students would benefit in the matter of public health and medical research if, instead of spending money on the erection of this proposed school, a system of endowments of those Universities having medical schools were adopted.

17. Misunderstanding has apparently arisen in some quarters that this establishment is to be purely one of medical research. It was stated in evidence, however, that it was to be rather a teaching school at which very little research would be carried out. After further investigations on this head the Committee was convinced that under existing conditions it would be in the best interests of the people of the Commonwealth that the school be established as proposed and it recommends accordingly.

18. Inquiries were made as to the reasons which led to the proposal that the establishment should be located within the reserve of the University of Sydney, and the Committee was informed that to obtain the requisite standard of instruction, and insure that the diplomas issued would be recognized abroad, it is essential that the establishment shall be associated with one of our Universities. It is claimed that Sydney offers more advantages than either of the other Universities, principally for the reasons that it is the senior medical school in Australia and has for many years given much attention to developing its public health course of instruction. Moreover Sydney is a large seaport, having considerable traffic with oriental countries and the tropical islands, and as the city of the largest population, presents more general problems in preventive medicine.

19. After hearing all the evidence adduced the Committee agrees that the most suitable place for the establishment of the school is Sydney.

## SITE.

20. The site, forming portion of the University reserve, has an area of 3 roods 13 $\frac{1}{2}$  perches, and has been placed at the disposal of the Commonwealth by the University of Sydney for the purpose of this building under an agreement stipulating that the University shall not be entitled to any payment whatever, whether by rent or otherwise for or in respect of the land or buildings to be erected thereon. Although of a somewhat unusual nature, being bounded by high land on two sides, it is reported to be good building land, and to present no difficulties in the matter of drainage. The large Physics School recently completed occupies similar land on the same level a few feet away from the boundary of this area.

21. During the course of the Committee's investigations, it was ascertained that an old sewer main crosses under portion of the site. In the opinion of the Committee it will be necessary to deviate this main at a cost estimated at approximately £1,150. Provided this be done the Committee is assured that the site will be suitable for the building proposed.

## BUILDING.

22. The design of the building was prepared by officers of the Department of Works and Railways working in collaboration with officials of the Commonwealth Department of Health, and the University of Sydney represented by L. Wilkinson, Professor of Architecture, and the considered opinion of the Department of Health is that the building as designed will be eminently suitable for its requirements.

23. The main University buildings of Gothic architecture are erected in sandstone, and inquiries were made as to whether this proposed structure would be out of harmony and detract from the beauty of the older building. It was pointed out, however, that the proposed School of Public Health will be not inferior to many of the other existing buildings in the University area, and from a working point of view will have more modern facilities and better light than the stone building; that it will be in harmony with the Physics School with which it is most nearly associated, that the present day cost of providing a building of similar material and architecture to the main building would be prohibitive, and, moreover, that in the ultimate scheme of development of the University the main Gothic building will be extended to constitute the only portion of the University visible from the main front.

24. Some criticism was offered that from an architectural and aesthetic point of view too large an area of windows was provided in the School of Public Health, but it was represented that for the purpose of close work, including microscopic examinations, &c., a definite request was made for this extensive window lighting. At the suggestion of the Committee, however, it was promised that further consideration should be given to the matter to insure that no greater window space than was necessary should be provided.

25. It was noticed that no provision is included in the present proposal for the housing of animals to be used in connexion with the establishment, but it was explained in evidence that a suggestion is now under consideration that a general block of up-to-date animal houses should be erected for the use of all departments of the University requiring them, in which event the Commonwealth would no doubt be called upon to bear some portion of the expenditure.

26. After hearing the evidence of all the witnesses examined the Committee is of opinion that the building has been designed with due regard for economy and for the requirements of those who will occupy it, and will be quite satisfactory for the purpose for which it is intended.

## METHOD OF CONTROL.

27. The agreement arrived at between the Commonwealth and the University of Sydney provides, *inter alia* :—

"11.—(1) The Minister shall appoint an advisory council of five members for the purpose of advising the Minister on all matters relating to the administration of the said school.

(2) The said advisory council shall be constituted as follows :—

(i) The Director-General, who shall be chairman.

(ii) Two members who shall be nominated by the Minister; and

(iii) Two members who shall be nominated by the Chancellor of the University.

(3) Upon any vacancy occurring in the said council the vacancy shall be filled by the appointment of a person nominated by the Minister or the Chancellor as the case may be."

Criticism was offered by some witnesses, to the effect that this arrangement virtually placed the control of the School in the hands of the Commonwealth Department of Health, and it was argued that departmental control might have the effect of hampering research work, and the Townsville Institute of Tropical Medicine was quoted as a Commonwealth-controlled establishment from which the results attained had not been commensurate with the money spent on it. It was, therefore, urged that the control of the School should be vested in the University, and the research work controlled by a medical research council.

28. It was pointed out, however, that as already indicated the proposal for a medical research council was advanced under the erroneous impression that this establishment would be a research institute; as a matter of fact it was stated that the Government has had the matter of research under consideration as a separate problem unrelated to this teaching school.

29. As regards control by the University it is claimed that this is already provided for in regard to matters of tuition, but that to conform to Treasury Regulations, as the Commonwealth is providing the money, the administrative control of the establishment must be in the hands of the Commonwealth.

30. It was further pointed out that the complete removal of the Commonwealth from the field of administration is not desirable, as it was held that those who have had most experience in public health administration, and have been in charge of public health for many years, know best what should be taught to the next generation of health officers. In any case provision is included in the agreement that after the project is definitely launched the establishment can, if thought advisable, be wholly handed over to University control.

31. After hearing all the evidence adduced; therefore, the Committee is unanimously of opinion that the scheme of control proposed will be satisfactory.

#### TOWNSVILLE INSTITUTE.

32. In regard to the criticism of the Townsville Institute of Tropical Medicine it was pointed out that the Commonwealth assumed control of that establishment in March, 1921, and that since that period there have been associated with the Institute men of outstanding attainments who have held their own in competition with others in all parts of the world.

33. The papers issued show that the Institute concerned itself with tropical diseases, human and animal parasites, the adaptation of white people to tropical conditions, climatic features, and mosquitoes, and other insect parasites and carriers of disease. It is claimed that some of these publications, including those on "Malaria" and "Filaria," and "The White Man in the Tropics," by Mr. Cilento; two papers on "Mosquitoes" by Mr. Cooling; one on "Australian Ticks" by Mr. Fielding; and "Some studies on Tropical Acclimatization" by E. S. Sunderstrom, have excited the interest and appreciation of the scientific workers of the world.

34. Taking all the circumstances into consideration, therefore, the Committee is unanimously of opinion that the establishment and maintenance of the Townsville Institute of Tropical Medicine has been amply justified.

35. It may be added that when the new school is established the library at Townsville, which is said to be one of the best in the Commonwealth, will be transferred to the school, and the greater part of the Townsville staff will be employed in Sydney. The Committee was informed that it will be necessary to maintain the Townsville Institute because it is doing a great deal of public health laboratory work; but the expenditure on the Institute will be reduced by probably £4,000 to £5,000 per annum.

*E. H. Mackay*  
G. H. MACKAY,  
Chairman.

Office of the Parliamentary Standing Committee on Public Works,  
Parliament House, Canberra, 6th June, 1928.

## MINUTES OF EVIDENCE.

(Taken at Melbourne.)

WEDNESDAY, 4th APRIL, 1928.

Present:

Mr. MACKAY, Chairman;  
Senator Barnes | Mr. Cook  
Senator Payne | Mr. Leacy  
Senator Reid | Mr. McGrath  
Mr. M. Cameron | Mr. Stanbrook.

John Howard Lidgett Cumpston, Director-General of Health for the Commonwealth, sworn and examined.

1. To the Chairman.—I am aware of the reference to this committee to investigate the proposal to establish a school of public health in Sydney. I am immediately responsible for this proposal, but it arose from the report of the Royal Commission on Health. It was one of the recommendations of that commission. The proposal has at times been discussed by various authorities even prior to the appointment of the royal commission, and the views of the various States were placed before the commission. As a result of investigations the royal commission expressed itself in these terms:—

That the success of health administration is more dependent on the personality of the officers directing it than on any other single factor has been impressed on us very strongly during our inquiries. We are satisfied that a greater number of experts highly trained in public health is needed in Australia. It is essential that these should be provided and given such status and salary as would attract medical practitioners of exceptional ability and efficiency. The appointment of highly trained experts in public health by the Commonwealth in such numbers as may be necessary, to advise and help local authorities when desired by State health administrations, would give opportunities for further co-operation between Commonwealth and States. Facilities for training these experts in Australia are very inadequate and ought to be increased. The responsibility of the Commonwealth to the Mandated Territory makes it essential that adequate training should be provided by the Commonwealth for the medical officers who will be required for duty in these territories. The Commonwealth could be of great assistance to State and local authorities by providing a training school where prospective medical officers of health could receive post-graduate training in different fields of health administration, and where the inspectorial staff and other personnel could also be trained. At present there is a great lack of facilities for such training.

A scheme has been submitted to us for the endowment by the Commonwealth of chairs and schools of preventive medicine and tropical hygiene in the Sydney University. We are of opinion that these schools should be established, but consider at the present juncture it would be sufficient to provide a chair of preventive medicine with an adequate department of tropical hygiene which, if necessary, could be later expanded into a chair. The arguments put forward in favour of the selection of Sydney University for this purpose are to us convincing. One feature in the work of schools of tropical medicine or hygiene should be the collection and condensation of the records of the medical administration of the Pacific Islands, with a view to their distribution. Valuable reports from the Pacific Islands are wasted, as there is no central place at which they can be correlated and collated.

That report as a whole was considered by a conference of Ministers of Health of the Commonwealth and of various States, and as a result this resolution was passed:—

That conference recommends that the Commonwealth take steps, with regard to a school of preventive medicine and tropical hygiene, to consult the various medical schools and universities of the States, with a view to the establishment of such a school and to the teaching of preventive medicine on an improved basis to all medical students and other public health personnel.

That resolution was circulated to the State Governments and endorsed by them. The resolution also suggests the universities should be consulted. They were consulted, and the proposal was endorsed. The Melbourne university considered that there were certain aspects which suggested that it might be possible for some of the earlier stages of training to be carried out at that university, and that suggestion fitted in very well with the proposal. The general discussion leading to the proposal might well be considered. The royal commission recognized that public health has become of more importance than it used to be, and that there is imperative necessity for paying greater attention to it, and particularly in regard to the extreme and pressing lack of specifically trained medical men. There are six State chief health officers and only one of them took the medical degree at an Australian university. I believe that only one of them was born in Australia. Of three full-time metropolitan officers of health none took medical degrees in Australia and not one was born in Australia. It is obvious that our administration posts relating to public health at present are in the first place not all filled by Australian born, and secondly not filled by the products of our own universities. That is a wrong position for a community which is anxious to bring about its own development. I feel strongly that, so far as our public health is concerned, we have up to the present progressed very little. We have accepted our ideas from England and we have to a large extent accepted our personnel from that country. There has been no devotion to the local problems which are now becoming increasingly urgent and important. It is therefore necessary that we should consider filling our administration posts with products of our own universities, not only because of a natural patriotic desire to have our own men doing our work but also because men trained in other countries study aspects of disease foreign to this country. Take one illustration: In a medical school abroad there is no teaching with respect to hydatids, because it is a disease unknown outside Australia. Our medical students must learn about hydatids, because scores of cases come under our notice at the hospitals. It has become absolutely necessary to bring the general practitioner into closer relationship with the public health systems. Hitherto public health has been regarded as an isolated function of medicine in respect of which the Government has passed certain legislation and appointed a certain number of officers to carry out that legislation. To-day it is recognized that public health is almost as much the function of the general practitioner to understand the treatment of the disease as it is of the public official. That has been definitely expressed in an official report by the head of the British Ministry of Health. He says—

The prevention of disease is as much the role of the practitioner as the cure and care of patients. The foundation of a medical service is the medical practitioner. He is its instrument. If he is competent it is the first surely of success; if he is ineffective or ill-equipped, it must fail.

He develops that aspect which, I think, I need not further elaborate, because it is obvious that the medical practitioner is becoming more and more a factor in the prevention of disease. Disease cannot be prevented by administration alone. It must be prevented by the co-operation of all the agencies associated with the prevention and treatment of disease. I shall now deal with the nature of the

qualifications which are to-day required by public health officers, and this is becoming an increasingly complex problem. When the diploma of public health was first instituted all that was necessary was six months' training. The subject became increasingly difficult, and nine months' training was considered necessary. Now the latest provision by the General Medical Council of Great Britain requires a training period of twelve months consisting of 280 hours of practical instruction and more than 30 hours of set lectures. That training has to be undertaken after the student has taken his medical degree, and is necessary in order to obtain the diploma of public health and to enable the student to be recognized in England as being fitted for any public health position. I hand to the committee details of the course of lectures and laboratory instruction undertaken at the University of Cambridge, which institution I have taken as affording the best example of the English system. Part I deals with physics and chemistry. Then follow lectures on meteorology and climate in relation to public health; bacteriology and preventive medicine; immunology, parasitology (including medical entomology); hygiene and methods of sanitation applicable to tropical climates; lectures on sanitary law; vital statistics, &c.; practical public health administration; infectious diseases hospital; venereal diseases, tuberculosis, and ophthalmology. These subjects are all covered in the twelve months' course at the Cambridge University, and it is a very extensive course. I shall now deal with the course for the corresponding diploma in America, and as illustrations I shall take the two large American universities, Harvard and Johns Hopkins. I have taken out lists of subjects and the university staff as follow:—

#### HARVARD.

##### Bacteriology—

- 1 Professor.
- 2 Assistant Professors.
- 3 Instructors.

##### State Laboratory Work—

- 1 Lecturer.

##### Parasitology—

- 1 Professor.
- 1 Assistant Professor.
- 1 Assistant.

##### Preventive Medicine and Epidemiology—

- 1 Professor.
- 2 Assistant Professors.
- 3 Associates.
- 3 Instructors.
- 2 Assistants.

##### Communicable Diseases—

- 1 Professor.

##### Tropical Medicine—

- 1 Professor.
- 3 Assistant Professors.
- 1 Instructor.

##### Public Health Administration—

- 2 Lecturers.
- 1 Associate.
- 5 Special Lecturers.

##### Physiology—

- 1 Professor.
- 5 Instructors.
- 1 Assistant.

##### Ventilation and Illumination—

- 2 Instructors.
- 1 Assistant.

##### Industrial Medicine—

- 2 Professors.
- 6 Instructors.
- 1 Assistant.

##### Vital Statistics—

- 1 Professor.
- 1 Assistant.
- 1 Instructor.

##### Sanitary Engineering—

- 1 Professor.
- 2 Instructors.

##### Mental Hygiene—

- 1 Professor.

##### Child Hygiene—

- 1 Assistant Professor.
- 1 Instructor.
- 17 Special Lecturers.

##### Total—

- 11 Professors.
- 9 Assistant Professors.
- 4 Associates.
- 22 Instructors.
- 7 Assistants.
- 3 Lecturers.
- 22 Special Lecturers.

JOHNS HOPKINS.

##### Bacteriology—

- 1 Professor.
- 3 Associate Professors.
- 2 Instructors.

##### Immunology—

- 1 Professor.
- 1 Associate Professor.
- 1 Instructor.
- 1 Assistant.

##### Sanitary Engineering—

- 1 Professor.
- 1 Instructor.

##### Chemical Hygiene—

- 1 Professor.
- 3 Associates.
- 1 Assistant.

##### Medical Zoology.

- 1 Professor.
- 1 Resident Lecturer.
- 3 Associate Professors.
- 4 Assistants.

##### Physiological Hygiene—

- 1 Professor.
- 3 Associate Professors.
- 1 Instructor.

##### Biometry—Vital Statistics—

- 1 Professor.
- 2 Associate Professors.
- 1 Lecturer.
- 1 Instructor.
- 2 Assistants.

##### Epidemiology and Public Health Administration

- 3 Professors.
- 1 Associate Professor.
- 1 Lecturer.
- 1 Instructor.

##### Total—

- 9 Professors.
- 16 Associate Professors.
- 6 Instructors.
- 8 Assistants.
- 1 Resident Lecturer.
- 2 Lecturers.

I shall also leave with the committee the syllabus of the Johns Hopkins university, the Harvard school of public health, the Pennsylvania school of hygiene and public health, and the Canadian school of public health. There is no necessity to do anything more than to glance at these books in order to obtain an idea of the curriculum which is in force in the different countries.

I do not wish to put to the committee any proposal which is new to the world, or which, if given effect, would be taking steps in advance of other countries. I wish to show that we are many years behind the standard of education required in Canada, United States of America and England. I could have strengthened my argument considerably by quoting the work carried out in France and Germany, but I think that what I have given to the committee is quite sufficient for my purpose. I have with me another interesting document respecting public health institutions which have been erected in Jugo-Slavia. One illustration shows the central institution at Belgrade, the capital of the country, and there is another establishment at one of the provincial towns. Instead of two similar establishments, we propose to have one institution, which will be smaller than either of them. Jugo-Slavia has a population of 12,000,000, and its work in public health is about five times as extensive as we propose to do. The award of the Public Service Arbitrator in connection with the Medical Officers' Association reads as follows:—

Medical officers who have been in receipt of their maximum salary for twelve months and who have obtained the diploma of Public Health or the diploma of Tropical Medicine, or, where attached to the serum laboratory or country laboratories of the Health Department, have completed such courses of study and passed such examination as are prescribed by the Director-General, which courses and examination shall be, in the opinion of the Director-General, of a standard not lower than that required for the diploma of public health, shall advance to the maximum of £98 by two annual increments of £48, subject to the conditions mentioned in clause 2.

Briefly, the medical officers in my department may proceed by automatic increases to the maximum salary, but before they can obtain that maximum they must pass the examination for the diploma of public health or tropical medicine. There are certain facilities in Australia for obtaining the diploma of public health. The Melbourne and Sydney universities have since 1906 been carrying on partial courses. A training of nine months was required until the new regulations of the General Medical Council came into force, which require a twelve months course of lectures and laboratory instruction. The Melbourne university when faced with the necessity for a complete course had to discontinue its work. Funds were not available and the scope of the instruction was beyond its resources. The Sydney university is continuing its work although it is generally recognized that it is inadequate. I come now to the question of tropical medicine. I have dealt so far with public health and its application throughout Australia. Public health has a special feature in Australia. There is no sharp sub-division between tropical public health, and temperate public health. The conditions of living are the same, and we cannot find any actual geographical or climatic border over which we may pass to any new problem of public health. The sanitation of Thursday Island is precisely the same as at Hobart, with minor differences, particularly in regard to temperature. With respect to tropical medicine, we have a joint responsibility. First we have the whole of the tropical belt of northern Australia, including Western Australia, Northern Australia, Central Queensland, and Papua and New Guinea. In those territories we have not only the responsibility of the general protection of the natives, including the provision of various methods of sanitation, but also the additional responsibility of justifying to the world the white Australia policy, which introduces a new feature. Up to the present it has not been possible to train medical men attached to the tropical territories in tropical medicine. We have been fortunate some times in getting men with some tropical training, but for the most part men have been sent to Papua and New Guinea without any training at all in that respect.

It is unavoidable, but no one will contend that it is all desirable. These men are now being trained under difficulties and their training is imperfect. Some training has been given at Townsville, but it has been impossible to institute any regular system, although that has been recognized for years past as being desirable. The training that we have been able to give at Townsville has enabled us to issue only five certificates for passing examinations, and only one diploma of tropical medicine has been issued by the Sydney university. I wish now to refer to the official conference which was held in December, 1920, at which attended accredited representatives from the Straits Settlements, Fiji, Western Pacific, Philippine Islands, Indo-China, Japan, New Zealand, Samoa, and Australia, including Papua and New Guinea, the League of Nations and the British Ministry of Health. We discussed at that conference all the problems that have presented themselves in respect of international intelligence, that is to say, an immediate exchange of information as to the occurrence of disease and the possibility of collaboration and co-operation, so that a qualified official might be sent from one group of islands to another, giving a continuous service, instead of each administration acting separately. It is recognized that there should be some form of co-ordination of research. I hand to the committee a copy of the report of the International Pacific Health Conference, and I wish to quote from it this resolution:—

The conference considers that, while it must rest with the respective territorial administrations to decide what is practicable in the way of research for the purposes above-mentioned, an endeavour should be made to secure some sort of co-ordination in the objects of research and the distribution of information among all the centres of research as to the results obtained at each. Accordingly the conference recommends that:—

(a) the several medical services of the Pacific Islands and the countries in close communication with them should interchange information for the purposes above-mentioned, as freely as possible in regard to any research work which they purpose to undertake or have undertaken; and

(b) The League of Nations health organization, including the committee of the Office International d'Hygiene Publique, be invited to give all practical assistance to epidemiological and preventive work in the Austral-Pacific zone and in particular to consider the possibility of initiating or promoting schemes of co-ordinated research in the Austral-Pacific zone.

That resolution was accepted by all the governments represented at the conference and was forwarded officially to the League of Nations health organizations. It was considered at the last Assembly of the League, and was endorsed. The medical director was instructed to take steps accordingly. The actual position at the moment is that I have received unofficial advice that the necessary steps will be taken as early as possible to appoint a small commission to visit the Islands in proximity to Australia and to make a survey of their problems in order to decide upon a scheme of co-ordinated research for this section of the Pacific. If such a scheme is instituted, it will be necessary to establish a base at Sydney as is now contemplated. Clearly this proposal opens up the prospect, in the near future, of all medical and research matters throughout the Pacific Islands, having their base at Sydney under the authority of the Sydney university. I shall now give a brief outline of the Townsville institute. It was started in 1909, as a joint enterprise to which contributed the Commonwealth Government, the Queensland Government, and the Sydney, Melbourne and Adelaide universities. In 1911 the control was transferred to the Commonwealth Department of External Affairs, and some of the parties ceased to contribute to the scheme. Then in 1921 the whole establishment was vested in my department, and it became a departmental function. By that time there had

we can collect a considerable degree of knowledge as to the possibilities of the institute and of its scope in respect of tropical medicine. Dr. Heiser, one of the leading international authorities on public health, and a representative of the Rockefeller foundation, came out here to give the Commonwealth Government his views as to the best means of using the institute. His report reads—

My stay at Townsville was entirely too short to warrant any definite conclusions as to the ways in which the Australian Institute of Tropical Medicine could best be utilized in the future to advance the interests of the tropical parts of Australia and its dependencies. In response to your request, I venture to submit, however, a few suggestions which occur to me as to the direction in which the institute might turn its activities to further advantage. It would seem that the institute for the time being should cease to be primarily a research institute, and should become a central laboratory and administrative headquarters for dealing with the principal health problems of tropical Australia, Papua and late German New Guinea. A continuance of research work would not seem a sufficient function for the one important laboratory in the north of Australia at a time when the people of the region are not receiving the benefits of the ordinary laboratory services now regarded as essential to satisfactory public health work and adequate medical practice.

Dr. Heiser, as well as stating that the institute should attempt research work and also serve public health purposes, suggested some slight change in the activities of the institute, without interfering with the scope of research. The scope of its research was necessarily determined by the material available, and the position is that very valuable contributions have been made in respect of the various parasites, both from men and animals, and their habits and distributions, including disease-bearing mosquitoes in Australia, the occurrence of certain fevers, lead poisoning, physiology, diseases which normally attack aborigines, and certain obscure fevers which are to be found along the tropical Queensland coastal area, north of Mackay. Information has also been collected respecting the statistical and physiological phases of tropical settlement and the sociological conditions of women in tropical areas. That represents the scope of work which it has been able to achieve during the last nineteen years, but that research work has been somewhat limited, because of the difficulty and expense of obtaining clinical material since tropical Australia is so unusually free from characteristic tropical diseases. The position in that regard should be somewhat interesting to the committee. So far as characteristic tropical diseases are concerned, malaria, although it has been introduced into Australia on a number of occasions, has never persisted and obtained a permanent hold in this country. It occurred on the goldfields, particularly in Queensland, in the eighties and early nineties, and in the Northern Territory at a later date. But although it persisted in a scattered form in the Gulf country, it is not now a disease prevalent in portions of Australia. Notwithstanding the fact that nearly 10,000 men returned from Palestine affected with malaria, no epidemic resulted, and Cairns, which used to be affected by malaria was, at the beginning of 1927, certified to be free from persons suffering from malaria, as being free from persons suffering from malaria. Respecting filariasis, it is known that this disease occurs in Queensland, more especially south of Townsville. Very little is known of the extent or intensity of its distribution. From surveys made at Brisbane and Townsville hospitals it would seem that the percentage of all persons, who harbour microfilariae, admitted to these hospitals is roughly between five and ten per cent. A considerable majority of these apparently showed no ill effects from these diseases. We are now actively engaged in extending our knowledge of the distribution of this disease in order to determine the possibilities of reducing its prevalence, if not to eradicate it entirely. Certain tropical ulcers exist among aborigines along the northern seaboard, but

these diseases occur in scattered cases only, and attack aborigines exclusively. Leprosy occurs amongst white persons in Queensland, with somewhat undue frequency, but only rarely amongst whites in Western Australia and the Northern Territory. Few cases only have been reported from year to year. Dengue fever, from time to time, occurs as an epidemic and sweeps over the whole of the north-eastern coastal portions of Queensland. This disease is carried by a common mosquito existing from Newcastle northwards along the coast. Research is not required in connexion with this disease so much as is organized control of the mosquito vector. Sprue is known to exist along the valley at Babinda, Queensland. This is the only known centre of the disease in Australia. Research into this disease is proceeding all over the tropical world. Sarina fever is an unusual fever occurring at intervals in isolated cases at Sarina, Queensland. It has practically disappeared since 1923. Mosman fever is a febrile condition of somewhat prolonged duration characterized by pluri-glandular enlargement, and seen in the northern sugar-growing areas. Its aetiology is obscure and further research is required. I have given a complete list of tropical diseases with the exception of hookworm, which is fairly generally distributed over certain portions of Queensland, the northern parts of New South Wales, the Northern Territory, and a limited area in Western Australia. These are the only diseases that tropical Australia has, and none of them, except dengue fever, attacks white people except in scattered places, and then only in isolated cases. It is clear also that most of the investigational work in pathology has been done, and the fields in which future research work is possible are becoming more restricted. Therefore so far as the Townsville institution is concerned, the scope of the work is limited. The question of the adaptation of the white man to a tropical environment, when that environment is free from disease, is not yet finally settled. Many observations have been made and detached additions to our knowledge have been registered. This question has been closely followed for more than ten years and every avenue known to physiologists has been exploited. The results may be summarized briefly in this way: There is no known physiological reason or evidence that the white man should not thrive as well in tropical areas as in temperate regions. There is a possibility that there are some obscure influences at work which have not yet been discovered, but they must be minor in their effect. There is also the possibility that certain persons may be more adapted to life in the tropics than others. So far as the first possibility is concerned, it is a matter of physiological research. The best work has been done in the University of California where persons and animals have been kept under conditions of tropical diseases. I shall now outline the position of the Townsville institute, the lack of material there and other disabilities. First of all, the staff generally will not stay at Townsville. The first factor is the cost and difficulty of obtaining accommodation. The second factor is the absence of association with other scientists, and I suppose that is the most important. There is also the lack of access to other scientific material. Few entomologists that visit Australia go to Townsville, and therefore there is no opportunity for the staff at Townsville to compare their work with that of other countries. All lecturing has to be done by a limited staff. At Townsville it is not practicable to appoint more than a comparatively restricted staff, and a staff which should be engaged all of its time on scientific work is insufficient to give a proper course of lectures. I have already quoted the list of lectures at the Cambridge university, and it is obvious that if the new school of health and tropical medicine is associated with the Sydney university it

will be possible to get a full and satisfactory teaching staff by the assistance of the university teaching staff generally, instead of being dependent upon three or four men who are part-time teachers. The staff consists of the Director, four medical officers, an entomologist, two technical assistants, one clerk, two typists, a messenger, an assistant, and a laboratory assistant. The working costs were—in 1924-25, £6,573; in 1925-26, £9,398; in 1926-27, £9,278; and to the 31st March this year, £6,050. These are the maintenance costs of the establishment. The cost of the buildings were—

Main laboratory buildings	..	..	£2,786
Furniture and fittings	..	..	525
Alterations and additions	..	..	406
Animal house	..	..	309
Installation of refrigerator and provision of cool store	..	..	1,142
Erection of wardman's cottage	..	..	933
Dwelling house for director	..	..	1,900
Fencing	..	..	140
Roadway and gates	..	..	80
Infective laboratory	..	..	774
			£8,889

When the new school is established, the greater part of the Townsville staff would be employed at Sydney, but it would be necessary to maintain the Townsville institution, because it is doing a great deal of public health laboratory work, similar to what is being done by our laboratories at Toowoomba, Rockhampton and Launceston. That work must continue, because it is local work. It is so important that we have just let a contract for another laboratory at Cairns. The research work would be done at the new school. The Townsville institution should be maintained for field research work. From time to time it may be necessary to send out officers to cope with an outbreak of a new disease in the north, and we must have some base from which to work. For some years to come the activities in connexion with hookworm must have a base. That really does not affect the general question, because the Townsville institution is a separate organization. Five men have taken certificates there and one man has obtained the diploma of tropical medicine. The results which have been obtained from the Townsville institution have been very good and have excited the interest and appreciation of the scientific workers of the world, but its activities have been restricted and the staff has changed frequently. There has been a lack of continuity in personnel, and, but for that and a scarcity of disease material, a great deal more might have been done. Take, for example, the case of malaria: We decided to endeavour to clear up certain phases of malaria, and we arranged for two officers to go to Cairns to carry out the work during the malarial season, but we find that no trace can be found of any person suffering from malaria. That is an excellent thing for Australia, but it restricts the material and scope of scientific work. It is likely that at Sydney there will be cases of malaria upon which to work, because Sydney is an international shipping port. There has been no difficulty in obtaining money to carry out our work. Our difficulties are—First, the lack of clinical material; secondly, the difficulty in respect of the scientific isolation of the staff; and thirdly, the lack of association with other scientists. I wish to make clear that one school only is necessary. A number of people have advocated that there should be a school of public health and a school of tropical medicine. That has been reflected in the royal commission's recommendation, and it has been suggested that the school of public health should be at Melbourne and the school of tropical medicine at Sydney. I state definitely and emphatically that that

would be a ridiculous arrangement. In America the schools are schools of public health and tropical medicine. In England for a number of years there were schools of public health and schools of tropical medicine, but recently the whole matter was reviewed, in consequence of an offer from the Rockefeller Foundation, and it was decided that the new school should be a school of public health and tropical medicine. So it is in every country. More than half the subjects are common to both prescribed courses. It is obvious that it would be ridiculous to have two schools at which to teach these specialized subjects. Public health is the same in tropical Australia as it is in temperate Australia. I have already mentioned the advantages of the association with the Sydney university. It would mean access to the laboratories there, greater facilities for obtaining scientific material, and the use of the teaching staff for many of the subjects. The next point is that it is our ambition to have preventive medicine made really part of the scientific knowledge of every general practitioner, and that can be achieved only by teaching the medical student. We propose to make a start at the Sydney university by putting every medical student through a course of the preventive aspects of diseases. If that is a success it will be possible to devise similar courses at the Melbourne and Adelaide universities. No country is as yet doing that. It will be an experiment. While abroad a little while ago I collected a considerable amount of material, and it is intended to make an early start with this arrangement. Then we have the difficulty, in an isolated country like Australia, of getting scientists who come here for health reasons to inspect the Townsville institution and to give the staff there the benefit of their knowledge. These scientists would automatically call at Sydney, and in due course, at the university, and so come into contact with this special institution. The association of the Sydney university with this school, would give a better status to the public health workers. Clinical material will also be available from international shipping, and this will be a decided advantage. There are just one or two minor aspects which I wish to mention. Such a school as this would be a practical school for auxiliary public health personnel. It would be a training school for inspectors of the higher grade, such as factory inspectors, and industrial nurses. Training in these vocations is at present badly needed. Factory inspectors have a considerable responsibility placed upon them. They have to interpret legislation involving considerable expenditure by employers. They must have a considerable knowledge respecting the health and well-being of employees. At present there are not sufficient training facilities to enable them to obtain that knowledge. Another important aspect is the recognition of the British Medical Association, which body, two years ago, drew up a draft memorandum of agreement in relation to medical men who are employed by industrial corporations as industrial physicians. That is a practice which is becoming increasingly general. Large firms now employ medical men. This medical agreement contains these two clauses:—

The duties of the industrial medical officer shall include the following:—(VI) Periodical inspection of all buildings and working places with a view to the establishment and maintenance of a high standard of sanitation and hygiene; (VII) The investigation of occupational diseases existing amongst employees and of their causes and remedies. It is obvious from those two clauses that the industrial medical officer must have a high standard of knowledge. In actual fact, the medical men employed by corporations have not that knowledge and they have no place at which to obtain it. In the industrial hygiene field, the position is becoming increasingly important. The Federal Arbitration Court has recently referred to my department two questions for scientific settlement. One is the effect of coal gasworks upon



the health of employees, and the other is the effect of mining conditions upon miners in Victoria and Tasmania. We had to extemporize conditions for our investigation. The results would have been much more satisfactory had we an establishment in Australia at which hygiene problems that come under our consideration could be studied. Such problems are considerably coming before the Arbitration Court. The ice workers at the refrigerators now contend that the temperature is detrimental to their health. Grocers' employees contend that working over steam vats is detrimental to their health. The tram conductors of Sydney contend that the dust arising from the roadway is detrimental to their health. The Arbitration Court is constantly facing these problems, which means the expenditure of thousands of pounds, and clearly the necessity for having an institution at which these investigations could be properly carried out is becoming increasingly evident. In a number of other directions we find that these public health problems, especially in the industrial field, have an important economic value. For example, let me allude to the action taken by the Queensland Government recently in prohibiting the use of lead paint upon health of certain specified levels because of the effect upon health of slow-drying paints. Another problem is the payment of compensation to persons suffering from miners' silicosis, and this work depends upon the taking of X-ray films. Those are typical examples of problems that have been put to us, and they were all considered by the royal commission before it made its recommendations. To provide for a school of public health and tropical medicine, an agreement was made with the Sydney university, reading as follows:

AGREEMENT made the 16th day of November, 1927, between the Commonwealth of Australia (in this agreement called "the Commonwealth"), and the University of Sydney (in this agreement called "the University")—

WHEREAS with a view to establishing a training school of public health and tropical medicine the Commonwealth and the University have agreed to enter into this agreement:

Now it is hereby agreed as follows:—

1.—(1) The University shall set apart the land described in the schedule hereto for the purpose of the erection of and hereby authorizes the Commonwealth to erect thereon the buildings mentioned in clause 2 of this agreement.

(2) The University shall not be entitled to or demand from the Commonwealth any payment whatever whether by way of rent or otherwise for or in respect of the said land or buildings.

2.—(1) The Commonwealth will at its own expense and in accordance with a design approved by the University erect or cause to be erected on the said land buildings suitable in the opinion of the Minister for a school of public health and tropical medicine.

(2) During the continuance of this agreement the Commonwealth will, at its own expense, keep the said buildings in good repair and condition.

(3) The said buildings shall at all times during the continuance of this agreement be used by the University only for the purposes of or incidental to the performance of this agreement.

3.—(1) The Commonwealth will, at its own expense, provide all equipment necessary in the opinion of the Director-General for the said school.

(2) The said equipment (including all books and journals provided by the Commonwealth) shall at all times be and remain the property of the Commonwealth and shall not at any time be removed by the University from the said building.

(3) Upon the determination of this agreement the Commonwealth may, unless otherwise agreed upon with the University, remove all such equipment (including books and journals provided by the Commonwealth).

4.—(1) Subject to the necessary appropriations being made by the Parliament of the Commonwealth, the Commonwealth will from time to time during the continuance of this agreement provide money sufficient for:—

(1) The training of post-graduate students for the diploma in medicine to a standard of quality not less than that now recognized by the General Medical Council of Great Britain.

(2) Research work into problems of tropical hygiene and hygiene generally.

(2) The manner in which all such money shall be expended and the expenditure thereof shall be in the exclusive control of the Minister.

5.—(1) All revenue of the school except as in this clause provided shall be paid to and become the property of the Commonwealth absolutely.

(2) All fees paid by students and all gifts received by the University for or in connexion with the school shall be paid or delivered to and become the property of the University absolutely. The fees to be paid by the students shall be as prescribed by the Senate of the University.

(3) Subject to sub-clause 2 of this clause, the Commonwealth will appoint the staff of the said school, including professors, teachers and research officers.

(4) All such appointments other than those of persons nominated to engage exclusively upon research shall be subject to the approval of the said Senate.

(5) Subject to the provisions of this sub-clause, the Minister shall have the exclusive right to suspend or remove any member of the staff of the school. The said Senate may make representations to the Minister as to the suspension or removal of any member of the staff of the school. In cases of urgency the Senate may suspend any member of the staff suspension to the Minister for his confirmation or his disapproval, as the case may be. In the event of the Senate being unable to do so, the Minister may suspend or remove any member of the staff of the school. In the event of the Minister suspending or removing, or failing to suspend or remove, any member of the staff of the school, the question in dispute shall be referred for determination to a person mutually agreed upon between the Minister and the Chancellor of the University.

7. Subject to clause 6 of this agreement, the discipline of the students and the teaching staff shall be under the control of the said Senate.

8. The instruction at the said school shall be directed, prescribed and supervised by the Faculty of Medicine of the University, in accordance with the by-laws and regulations of the University.

9.—(1) The University agrees to confer on each student who has received the prescribed instruction in the school and who has passed the appropriate examinations prescribed by and in pursuance of authority given by the Senate at a meeting held on the 14th day of November, 1927, the diploma of public health and/or the diploma of tropical medicine as the by-laws may be.

(2) The appointment of examiners and the standard of knowledge required and the whole method of examination of students shall be in the exclusive control of the University.

10.—(1) Except where otherwise specifically provided herein, in the event of any dispute arising under this agreement between the Minister and the Chancellor of the University or their respective nominees for determination, and in case they are unable to agree upon the method of the matter in dispute, the matter shall be referred to and determined by a person mutually agreed upon between the Minister and the said Chancellor.

11.—(1) The Minister shall appoint an advisory council of five members for the purpose of advising the Minister on all matters relating to the administration of the said school.

(2) The said advisory council shall be constituted as follows:—

(i) The Director-General, who shall be chairman.

(ii) Two members who shall be nominated by the Minister.

(iii) Two members who shall be nominated by the Chancellor of the University.

(3) Upon any vacancy occurring in the said council the Minister or the Chancellor as the case may be shall fill the vacancy.

(4) The said council shall meet at such times and places as may from time to time be fixed by the Director-General and notified in writing to the other members of the advisory council.

(5) Three members of the advisory council shall constitute a quorum of the advisory council for the conduct of its business at any meeting, and if the Director-General be absent may appoint one of their number to be chairman of such meetings.

12.—(1) Subject to earlier determination by the Commonwealth, as provided in sub-clause (2) of this clause, this agreement shall remain in force for a period of 25 years from the date thereof.

(2) The Commonwealth may after the expiration of ten years from the date hereof by twelve calendar months' notice in writing terminating at any time served on the University determine this agreement.

(3) Upon the determination of this agreement the buildings erected by the Commonwealth in pursuance of clause 2 of this agreement shall become the property of the University absolutely.

14. Any notice approval requirement or other communication to be given to or served upon the University by the Minister, or the Commonwealth, under this agreement shall be deemed to have been duly given or served if signed by or on behalf of the Director-General and sent by pre-paid post to the address of the Vice-Chancellor of the University of Sydney.

15. In this agreement the "Minister" means the Minister for Health for the Commonwealth for the time being, and the time being performing the duties of the Minister.

16. "Director-General" means the Director-General of Health of the Commonwealth and includes any officer for the time being performing the duties of the Director-General.

#### SCHEDULE

All that piece or parcel of land in the parish of Petersham, county of Cumberland, State of New South Wales, containing an area of 3 rods, 194 perches more or less. Commencing at a north-eastern corner of the land occupied by St. Paul's college within the university reserve and bounded thence by a fence line being a north-western boundary of that land 202 deg. 17 min. 102 ft. 8 in.; thence by part of a north-eastern boundary of St. Paul's college being partly a fence 175 deg. 27 deg. 56 min. 180 ft.; thence by lines bearing 352 deg. 15 min. 113 in. 82 deg. 17 min. 526 ft. 9 in.; and thence by a line bearing 172 deg. 17 min. 180 ft. to the point of commencement.

In witness whereof the parties hereto have executed this agreement the day and year first above-written.

Signed by the Minister of State for Health of the Commonwealth for and on behalf of the Commonwealth in the presence of:

(Sgd.) S. M. BRUCE.

(Sgd.) G. B. COOKE.

The Common Seal of the University of Sydney was hereunto affixed by us on the 15th day of November, 1927, in pursuance of authority given by the Senate at a meeting held on the 14th day of November, 1927.

(Sgd.) W. J. McCALLUM, Vice-Chancellor.

(Sgd.) WALTER A. SHELLE, Registrar.

It has been estimated that the cost of running the school would be somewhere between £8,600 and £9,500 per annum. That is not a considerable variation of the annual cost of running the Townsville institution. There would be no revenue from the school except fees who are working in public health that the main thing is to have a higher standard of training for our public health officers. The Federal Health Council which is considering all the aspects of public health in Australia passed a resolution last week that each State should undertake to introduce without delay a system of whole-time district health officers. The necessity for a higher standard of training especially concerns the prevention of cancer. Modern knowledge makes it clear that cancer depends on factors which are common to all diseases to a certain extent, but we have yet much to learn about cancer. The demands upon the human frame by the increase in civilization has raised many public health problems, including the prevention of cancer. If the medical man of to-day is to do anything at all to reduce the prevalence of cancer, he must be fully conversant with modern methods in relation to obstetrics, maternal after-care, child welfare work, infectious diseases and their prevention. The time has come in Australia for such history when we should have a properly qualified staff especially for the teaching of public health. The institute at Townsville is the only one of its kind in Australia, and the new school would be the only school of its kind in Australia. It is absolutely essential that the new school should be established in Sydney. It was largely upon my urgent recommendation that the royal commission favored the Sydney base. All the arguments are in favour of making Sydney essentially the place at which the school should be established. The control of the school, according to the agreement, is vested in the Minister

for Health for the next 25 years, but at the end of ten years the Minister himself may determine the agreement. Our department has the administrative control of the establishment subject to, as specified in the agreement, its general relationship to the University Senate. The medical profession was consulted by the royal commission and by myself. The faculty of medicine was consulted before the senate itself as a whole dealt with the matter. There is now no difficulty in regard to paying sufficient salaries for highly qualified officers. The Public Service Arbitrator has given an award, and we anticipate no difficulty in that respect. Should it become necessary to make special arrangements for a highly qualified officer, I do not think that the Commonwealth Government would find it impracticable to hand the control of the school to the medical research council. This is to be a teaching school and the medical research council would not be composed of persons having any administrative relationship to public health. It would be like handing over a military training school to a body of university professors. The Medical Research Council in Great Britain has nothing to do with the School of Health and Tropical Medicine. I should like to state my conviction that such an arrangement would entirely destroy the whole value of the establishment. There is no Medical Research Council in the United States. When this school is established the expenditure at the Townsville institution would be reduced by more than half. The expenditure of about £9,000 in maintaining the new school would be principally for salaries. That expenditure would not grow to any extent, except as it becomes necessary to include other functions. I cannot see any reason for that expenditure growing materially. I am familiar only in a general way with the work of the Council for Scientific and Industrial Research. The work at this school would not in any way duplicate the work of that council. The Commonwealth architect estimates that the cost of the new school would be about £30,000. The plans were drawn up by the Department of Works and Railways in association with myself and an officer acceptable to us as providing for three storeys at the front and two storeys at the back. We estimate that the accommodation would be sufficient for 20 years, and possibly longer. All the suggestions that we made have been incorporated in the plans and they meet with our entire approval.

2. To Senator Payne.—One of the features of the new school would be the study of tropical problems so far as it is possible to study them at Sydney. It will certainly be necessary to have a branch of the establishment in my territory that is under observation. We have at present a laboratory at Rabaul which is acting as the local laboratory, and it deals with all matters that can be dealt with on the spot. The inauguration of the new school will be a great assistance to the officers at Rabaul in dealing with diseases.

3. To Mr. Lacey.—The number of students at the school would be limited only by the demand. It would be possible to take as many students as were offering. Every year a certain number of students would leave the institution. If a large number of students were offering, it would mean increasing the number of lectures for the time being. The students would have to pay their own expenses, because they would be obtaining valuable qualifications. The staff would be paid salaries, but any doctor who joined the staff for the purpose of obtaining tuition might possibly have to pay for that tuition. The work of the school would be devoted to the prevention of disease of any kind in Australia as well as tropical diseases, in fact to all aspects of public health.

4. To Mr. McGrath.—The fact that public positions in Australia have been filled by other than Australians

would be due to an efficient course not being available in Australia. Many officers like myself have had to go to England to obtain proper training. Of course the allurements of private practice have prevented many medical practitioners from taking up this class of work. In America and England a student after qualifying for his degree as a doctor has to undergo a twelve months' course of training in public health and tropical medicine. At present students can undertake only a partial course. There are no lectures at the Melbourne university and few lectures at the Sydney university. I myself had nine months of lectures in London. Examinations have been held and diplomas given by the Melbourne university without those lectures being given. This arrangement is very unsatisfactory and because of the new British regulations we have now decided to terminate it.

5. *To Mr. M. Cameron.*—I am quite satisfied with the plans of the building. America has three such establishments and, glancing at the illustration of the Baltimore establishment it would be seen that our requirements are rather modest. The Baltimore establishment is bigger than the Commonwealth bank, being ten storeys high. There is also an establishment at Pennsylvania and one at Boston. The establishment at Porto Rica which is quite a small place is bigger than the building which we propose to erect at Sydney. One of the main reasons for the school at Sydney has been the serious loss of the Townsville institution and this new school would give a great impetus to the study of tropical medicine.

6. *To Mr. Seabrook.*—Each student would have to study all the subjects included in the curriculum. There would not be a teacher for each subject. There is a distinction between the development of tropical medicine and the development of public health. Both include certain basic subjects, but for public health there are certain aspects of administration which do not apply to tropical medicine. Each student will have to go through the full course. My department consists of between 30 and 40 medical men. The establishment of this school would not increase my staff at all, except that it may be necessary to employ some additional non-medical assistants for laboratory work. Some of my staff would be utilized for lecturing at the school at Sydney, such as the industrial health expert, who will lecture on industrial health. Others will lecture on various aspects of epidemics. No additional teaching staff would be required. The whole course would be undertaken in Australia. Most of the investigation referred to us by the Arbitration Court has been in relation to underground work. We have had nothing concerning manufacturing industries referred to us.

7. *To Senator Reid.*—I have already handed in reports respecting Harvard and Johns Hopkins Universities. There are no institutions similar to those in Australia. The new school will be somewhat similar in proportion to the size of this country and will give us all the facilities that we require at present. It is difficult to ascertain why malaria does not take hold of people in Australia. There are two known mosquitoes that may carry malaria in Australia, one of which is very prevalent and the other comparatively rare. It may be that the latter is the principal factor in malaria. That is one point which we are trying to ascertain at Cairns. The mosquito is to be found fairly freely in shallow swamps, but it is difficult to give any general information concerning it. Any new information that we obtain we distribute to the State Governments. We have a complete publication on malaria now, which is available to any one who cares to read it. Any clinical material, such as mosquitoes, collected at Townsville, can be sent intact to Sydney. When we are in

difficulties here we send our material to the British Museum for report, and it carries quite well. A person with hookworm when walking barefooted is infested with the larvae from the soil. These larvae burrow through the skin eventually making their way into the intestines. The aborigines at the Beagle Bay Mission contracted hookworm in that way. The human agent is the only carrier. We do not know whether the Chinese brought hookworm to this country in the fifties or sixties, or whether the Kanakas introduced it in the sixties or seventies. Both forms are present in Queensland. Tropical regions of Australia are absolutely suitable for the white race, including women. There is no physiological reason to indicate that the white man does not function so well in the tropics as in the temperate region. I have seen women after the second and third child, become invalids in the temperate portions of Australia, and it is possible that the tropics have no special action in this direction.

8. *To the Chairman.*—We have arrived at a stage in public health in Australia where it is a most urgent question. We have been carrying on under a system which in effect means that we are trying to control public health in Queensland from Brisbane or in New South Wales from Sydney. There has been no adequate provision made for proper attention to public health outside of metropolitan areas. The royal commission was most emphatic, as was also the Federal Health Council that a decentralized system of public health administration was long overdue. That means trained men, and without them we cannot do anything. Australia has reached the stage in its development when it should have a training school for health. If I were asked to indicate one thing more than another which would improve the public health of Australia, I should say that it would be the provision of this training school.

9. *To Mr. Lacey.*—If an outbreak of lead poisoning occurred at Port Pirie, the staff at the laboratory there would collaborate with the central institution at Sydney. At present that is not possible, and in the event of such an outbreak the staff at Port Pirie would be seriously handicapped in its investigations.

10. *To Mr. McGrath.*—We have given consideration to the establishment of this institution at Canberra, but there are two objections. The first is that there is no university there with all its attendant facilities, and secondly we would not get any human clinical material upon which to work.

(Taken at Sydney.)

THURSDAY, 12TH APRIL, 1928.

Present:

Mr. MACKAY, Chairman;	
Senator Reid	Mr. Lacey
Mr. Cameron	Mr. McGrath.
Mr. Cook	

Herbert Ernest Ross, Architect and Civil Engineer, sworn and examined.

11. *To the Chairman.*—I have this morning seen the plans of the proposed school of public health. It follows the policy of the University authorities of erecting a lot of buildings which have no architectural merit. Architecturally the proposed building is superior to the physics school, but it is out of sympathy with the original scheme proposed for the university buildings. It is a pity that the original Gothic type has not been continued. The proposed building will simply perpetuate the fatal mistake of erecting on the university grounds a heterogeneous mass of buildings. The new building will be the best looking

building in the particular neighbourhood in which it will be erected. In any other environment it would be an excellent building. I feel, however, that the Gothic type should be retained.

12. *To Senator Reid.*—A building of the same dimensions, but of Gothic design, could not be built for the same money. The design is attractive, but I regret that it introduces another type of architecture into the university area.

(Taken at Sydney.)

FRIDAY, 13TH APRIL, 1928.

Present:

Mr. MACKAY, Chairman;	
Senator Reid	Mr. Lacey
Mr. Cameron	Mr. McGrath.
Mr. Cook	

Alfred Samuel Hook, Associate Professor of Architecture at the University of Sydney, and President of the Institute of Architects of New South Wales, sworn and examined.

13. *To the Chairman.*—I have seen the plans of the proposed school of medicine building to be erected in the university grounds, Sydney. The main University group consists of sandstone buildings in the Gothic style. The older portion is a very charming work. The medical school which stands alongside the main group is also built of sandstone in the Gothic style. Behind the main block, buildings of brick and other materials have been erected. No one is proud of those buildings. The reason for their erection has been shortage of sufficient funds to continue the Gothic style. The older buildings of the universities of the world are built along Gothic lines, although in the United States of America some of the universities have erected buildings similar to our physics building. In one instance a concrete building faced with marble slabs has been erected. The suitability of the proposed building will depend largely on whether it will belong to the physics building group or the main group. I understand its position to be such that it will be taken to be a continuation of the main building. In that case it should follow the lines of the medical school rather than those of the physics building which is at the rear and on a lower level. If the new building is to be in the position I have suggested, it would act as a blanket to block the physics building. It should, therefore, be in the Gothic style to harmonize with the original structures for the purpose for which it is used. The Gothic design was departed from for considerations of economy. If the new building is to be grouped with the physics building and not with the main building, the proposed design is satisfactory. Nevertheless, I view with regret the erection of additional buildings of that type. I am, however, resigned to having the University grow along the lines of the physics school. It is a satisfactory type, and probably the cheapest. To construct the new building in the Gothic type would probably cost more than £60,000. Much as I should like to see the Gothic type continued, we must face conditions as they are. I regret that much of the atmosphere that attaches to Old World universities is being lost in these days. The tendency to-day is for universities to be more and more commercial institutions—modern and efficient along card index lines, but lacking in what might be termed spiritual atmosphere. With the disappearance of the Gothic style, the stone and the ivy, we are losing also the atmosphere associated with them. The universities of to-day are becoming merely commercial training institutions. I

should like to see something more artistic than is proposed, but I realize that it is useless to expect it.

14. *To Senator Reid.*—I do not think that the Government, as the custodian of the public purse, would be justified in incurring the additional expenditure necessary to erect the building in the Gothic style. Moreover, it would be difficult to obtain the necessary skilled artisans to do the work. The former difficulty might be overcome if some of our rich citizens were to come to the rescue.

(Taken at Sydney.)

MONDAY, 16TH APRIL, 1928.

Present:

Mr. MACKAY, Chairman.	
Senator Reid	Mr. Lacey
Mr. Cameron	Mr. McGrath
Mr. Cook	Mr. Seabrook.

Henry George Chapman, legally qualified Medical Practitioner, acting as Professor of Physiology at the University of Sydney, sworn and examined.

15. *To the Chairman.*—I am aware of the present proposal for the erection of a school of health at the Sydney University. For some years past I have resided at the university for the Diploma of Public Health. I have inspected the plans of this proposed building, and have been consulted in regard to the lay-out. Dr. Cumpston showed me the plans about eighteen months ago, and I have also discussed the matter with Professor Wilkinson, who is, I understand, acting in consultation with Mr. Murdoch in drawing up the final plans. I have a knowledge of the requirements of this building, and I think it is conveniently designed, and that the situation will be suitable. It would be used in connection with work that goes on in the medical school, and also with work being done in the physics building. At present the Cancer research work which is being done at the Sydney University is being carried on in the Department of Physics. It is desirable that the new building should not be far distant either from the medical school or from the physics building. The medical school will be extended towards the south, so that it will eventually be nearer to the proposed building than now. From an architectural point of view it is perhaps desirable to erect this building of stone, but from the point of view of its utility as a laboratory it would be better built of some material other than stone. The stone buildings now at the university are very badly lighted. The lighting of the medical school, for instance, was sacrificed to produce a Gothic style of architecture and it is only recently that we have endeavoured to overcome this defect. In the more newly erected parts the lighting is much better, but in the part built in 1887 the lighting is very bad indeed. I think that such an institution as is here proposed is urgently needed in the Commonwealth. One reason is that it would assist in the development of a better health service, which involves the training of health officials. The ordinary medical man who takes the complete course as now established is not by that qualified to do the necessary work in preventive medicine as well as it could be done. He requires some special training in addition. In this connexion the amount of time given to this special training all over the world is being increased. For instance, for the Diploma of Public Health, the General Medical Council of Great Britain has increased by three times the minimum number of hours required for study. Furthermore, in addition to providing better training for a qualified medical practitioner, the school

would also train such officials as health and factory inspectors. Up to the present, hardly any facilities are available in the Commonwealth for the systematic training of these officials. When this proposal was put before the Royal Commission of Health, it was suggested that the school, in addition to training persons who were to become university graduates, it should also provide a course of instruction for those inspectors. This, as a matter of fact, was one of the reasons advanced for starting the school. It is very advantageous to train inspectors in a school in which the higher forms of training are also provided. It is also desirable that this school should be founded because preventive medicine is a science in the making at the present time, and many of the problems on which decisions must be made in Australia require careful examination. Take, for instance, such a very simple example as the provision of ventilation in factories. The provisions that have been in use all over the world are taken from Europe. The climate in Europe is different from that in Australia, and very often, even in the open air, conditions are actually unfavorable from the health point of view. In Australia, open air conditions are quite healthy and rescue work must be done here in order to evolve a system of ventilation which will be suitable for local conditions. White men in the warmer regions of Australia where there is a high temperature and low humidity rapidly become acclimatized, and can live healthy lives under these conditions. So, however, very little scientific work has been done in regard to dust in factories and mines. One reason for placing this school in Sydney is that some of us here have devoted a good deal of attention to the hygiene of dust for many years past, and it would be very convenient for the school to be in communication with those who are still working on this problem. It may be taken, then, that the school will provide training for officials who will carry out the work of the Commonwealth Department of Health, and it is further needed to provide research laboratories for investigating those problems with which the department comes in contact. I am of opinion that the department comes in contact. I am of opinion that Sydney is the most suitable site for such a school, which should be in proximity to a medical school. The medical school already has a considerable number of teachers, and has the necessary equipment. It is desirable also to have the school close to an institution where certain of the cognate subjects are taught. Inspectors need teachers in a certain amount of preliminary training, and not only that, but a school of this kind, with its highly trained teachers, would be extremely useful for training ordinary medical men. These medical men at present take a course in Sydney of 50 lectures in preventive medicine, and it would be very valuable to any medical school to have an institution of this kind in its immediate vicinity. There are only three medical schools in Australia, situated at the Universities of Adelaide, Melbourne and Sydney. As regards the choice between these three, the argument put to the Royal Commission of Health was that in Sydney we gave more attention to the training of persons for the Diploma of Public Health than was given anywhere else. For the last 25 years we have given a systematic course in this subject, and we are the only university in Australia which has done this work. I do not think that any course of instruction in public health has been given at the University of Adelaide, but in Melbourne such courses have been given from time to time. We have more men taking this post-graduate course in Sydney than in other centres, and we have been able to provide a permanent staff for that purpose. We have been able to get enough students to encourage the university to get the public

analyst to give courses of instruction regarding the adulteration of foods, and kindred subjects. Many members of our staff have been very much interested in public hygiene. I, myself, as you know, went to Broken Hill and worked there for two years on the Technical Commission of Inquiry on dust diseases. That was in 1919 and 1922. We have also been much interested here in the problem of lead poisoning. Since we were more especially interested in these matters than they were in Melbourne or Adelaide, it was suggested that this institution might be most conveniently placed in Sydney. I know something of the work that has been done in Townsville in medical research. My associate professor was a member of the staff at Townsville for over nine years. Some useful inspiration was accomplished there, but I think it lacked initiative, and I think the institution was unfortunate in its direction. The man in charge was a foreigner, and, personally, I do not think it would be conducive to the production of good work to have a foreigner at the head, say of the Sydney medical school. That was the main difficulty. This man lacked the power to inspire young men to work in that laboratory. I do not think the lack of success was due, to any great extent, to scientific isolation. I believe that certain problems could be studied there better than anywhere else. I often wondered why that school did not set out disease most prevalent in Queensland, which is the tropical is the great infection known as hookworm, concerning which we had to wait for the Americans to make discoveries. Townsville would be quite useless as the situation for the school we now propose. This is not a school of tropical medicine, but of preventive medicine. I think there will be more material to work on in Sydney than in any of the other centres. Having its situation in a large city, the school will be well suited for the study of general problems in preventive medicine. Another point is that Sydney is the port into which the greatest amount of shipping comes, and this applies also to ships from the areas of tropical infection, namely, Polynesia and Melanesia. I am school not aware of the conditions under which the site of this school has been made available. As it is for teaching the University Senate, but the detailed administration could be left with the Department of Health. Public health is a subject of growing importance throughout the Commonwealth. I do not think that this institution would conflict with any of the work now being done towards training people for this class of work. There are already a few courses held for medical inspectors, but the work is of an elementary kind. I have tried to get the Technical College to institute a course of health inspectors, but without success, and I have tried to get the Department of Labour to arrange for the things which will come in time, but they have not yet been provided, and this school, which will provide such courses of instruction, will be very welcome. We have some idea that when the school is in full operation that in the initial stages all the students would be at any rate, to be private practitioners. The first school was a training ground mostly for State and Federal purposes. We should like to see every medical officer present there is only a few places in the Commonwealth where medical officers of health are trained in this science. In New South Wales there is a specially trained man in Newcastle, and another at Broken Hill. Usually the ordinary health officer is the senior medical

man practising in a community. If he is not available, then the man next in seniority is chosen. We hope in time to induce a sufficient number of persons to take these courses to ensure that every medical officer will be properly trained. Even now we get four or five young men each year to take up the course for the Diploma of Public Health. I have heard of no suggestions for having this institution controlled by a medical research council. I approve of the plan that the Department of Health should control the school. I have heard no criticism to the effect that the school should be placed outside Government control altogether. I think, however, that the appointments made by the Department of Public Health should be subject to ratification by the University Senate. The department should administer the institution, but its decisions should be subject to review by the Senate. Not that the Senate is likely to interfere very much, but I think that it should have a voice as to who should be director, for instance. I do not think that Government control would lessen the usefulness of the school. In my opinion administration by the Commonwealth Department of Health will be entirely satisfactory. There are some people who think that the department would not carry out the administration successfully, but for my part I should be quite prepared to allow the department to carry out the whole of the administration, and make the necessary appointments. I take it that the most pressing problem confronting the Health Department of the Commonwealth is the problem of cancer. At the present time, one person in ten dies of cancer, and the rate of mortality is increasing. We can state from our present knowledge that a certain amount of that mortality is preventable, and the situation would be helped if medical men were properly trained in the best ways of preventing the disease. The second most important general problem in preventive medicine is in regard to the infective diseases of young children. It is desirable that the greatest intellects should be selected for this work. I do not think that this school could take the place of the medical research council. Some two or three years ago the Prime Minister asked a number of us to meet together and draw up a proposal for a Medical Research Council. I was one of those persons who were invited to attend this conference. We went to Melbourne and drew up some proposals, but that is the last we have heard of the council. As a matter of fact, a bill was drafted to carry the proposals into effect, but I understand that there is opposition to it in certain directions for the reason that the department is associated with the administration. I am satisfied that this proposed school will not take the place of that council, nor would it duplicate any of the work now being done either by State or Federal authorities. I think it is very desirable that this proposed building should be erected. Not one-fifth of the work which would be done in such an institution is now being carried out elsewhere. All that work associated with medical entomology, parasitology, and medical zoology is not being done anywhere else in Australia. Bacteriological work is being done in part in other places, but most of the laboratories have so much to do in pure teaching that little bacteriological work can be attempted. At Melbourne they did a little outside work, but they were working on a water supply. As far as Adelaide is concerned I do not remember any work of that kind being done. Australia is very backward in this respect, for the reason that the only laboratories we have are associated with the medical schools. The universities are very short of money, and their whole effort is associated with teaching. They have neither the time nor the money to carry out research work.

16. To Mr. Lacey.—I think that laboratories distributed over the country and engaged in research work

would be a good thing, and that it would be a good idea to have such institutions established in industrial centres. The laboratory which we are now considering would carry out research in industrial diseases. I think that Sydney and Melbourne provide more examples of industrial disease than any other part of Australia, they being the largest industrial centres. Recommendations will be made by this school to the owners of industry if it is found that disease is prevalent in the industry. I myself do quite a lot of industrial hygiene, and I have always found the persons connected with industry anxious to make use of any information we can give. Already the beginnings of this work are being undertaken, but not half enough has yet been done.

17. To Mr. McGrath.—In regard to the suggestion that the lack of success achieved by the Townsville School was due to its isolation, it is true that had the school been situated, say, in Sydney, it would not have been dependent entirely on the Department. To that extent its isolation may have hindered it. If it had been in Sydney there would have been other men interested in research who would have encouraged the students to carry on. I should be very sorry to see the University Senate place a foreigner in charge of our medical school here. I do not think that he would inspire the men. I think it would be necessary to keep the school open at Townsville even after this proposed school is established. The study of certain tropical diseases can be carried on satisfactorily only in places where they occur. It would not, however, require such a large staff as it now has. When the bill was prepared previously for the establishment of a Council of Research, its essential feature was a provision for £30,000 a year for carrying on medical research throughout Australia. The proposal of the committee was that £30,000 per annum should be made available for medical research, this work to be administered by the council. In our minds, this money was to be used, firstly to encourage certain plans of research, so that we might take up a particular subject and build an organization to study it. Take, for example, the infective diseases of young children. Such an organization would be necessary to study them properly. Secondly, it was desired that a certain amount of money should be available to help persons who had started on research work, who had planned it out, but were not able to work on it continuously. It was proposed that we should endow such persons for a few years to enable them to carry on. Thirdly, it was proposed that a comparatively small amount of the money should be spent in taking promising students, and giving them an opportunity of working for a year or two in order to see whether they would develop into first class research workers. I do not think it would be possible to embody the idea of that Council of Research in the present proposals. The one is general, the other particular. This school would be concerned with only a small division of research work. When the Medical Council was discussing medical education two years ago it was decided that whereas medicine and surgery represented the two ends of medical education in former times, modern conditions had added another consideration, namely, preventive medicine. It was thought that in future there should be three recognized ends—medicine, surgery, and preventive medicine. This school is required to give training in disease prevention, but the Council of Research would cover the whole field of medical research. We hope that ultimately all medical practitioners will be fully trained in preventive medicine.

18. To Mr. Seabrook.—The badly lighted stone building at the University were built in 1887. Evidently lighting was not considered so essential then as now. Schools similar to that which is now proposed are already in existence in other parts of the world. All

the large medical schools in Europe are better equipped than we are in regard to this department. In Sydney we have the fourth largest University in the British Empire, and until a few years ago we had the second largest medical school, but as far as our departments are concerned, we are not anything like so well equipped as they are at Cambridge and Oxford, and at Edinburgh and Liverpool, to say nothing of the continental universities. Provision for medical education in Australia is very much behind that in other parts of the world, and compared with American universities we have very little equipment indeed. This school might concern itself with the investigation of cancer. It is hoped that we will be able to conduct experiments which will result in reducing the volume of this disease.

19. *To Senator Reid.*—I take it that the instruction to the students will be of a practical character, as is the work done in a medical school. A second year of medical student works on the blood, on the tissues, and on foods, &c. These students will be trained in the same way. They will work actually on the materials with which they will ultimately come in contact. If you wish to teach a person about ventilation, you supply him with a thermometer and let him measure temperatures, humidity, &c. In studying tropical diseases the students will have actual cases to deal with. We always get sufficient cases at the Prince Alfred and St. Vincent's Hospitals for training our students. Many of these cases come from the Islands. It would be a school from which persons with expert knowledge of tropical diseases would be able to go to the Islands and take up practice there. A great many of the cases and of this disease are found amongst seamen. At one time at St. Vincent's they were able to keep one ward almost entirely for seamen and tropical cases. These are teaching hospitals, and all the cases are open to students. That work will still go on in the hospitals, and it will be supplemented by the work done in this school. We have frequently dealt with cases of malaria and filaria in Sydney hospitals. Many people go to New Guinea, and come back here with malaria. I think there are also some cases contracted in Australia, some of them being from the north of New South Wales. There is some evidence that malaria may be contracted in the south. I have on several occasions examined people who undoubtedly had malaria, and who insisted that they had never been away from the south. I have had cases of that kind at Adelaide, and at Henley Beach when it was very marshy. We have also had cases from the Gosford area. I have myself studied hookworm, and conducted inquiries regarding it at Broken Hill. Most of the cases have been dealt with at Mackay and other northern towns. It is found in the Northern Rivers district of New South Wales; but does not come down to the mining centres. The research into hookworm is being carried out separately in the north, much of the funds being supplied by the Rockefeller establishment. It is quite outside our administration. Our school has specialized in industrial diseases since 1919, and before that we were interested in lead poisoning. We went to Broken Hill in 1919, and during 1920 and 1921 we examined the conditions underground in the mines. As a result of that we instituted certain conditions of mining. We have not yet had quite long enough to be sure on the point, but it looks as if we have cut out silicosis at Broken Hill. So far there are no new cases of this disease occurring in Broken Hill mines. Our success there was entirely the result of information we obtained in consequence of our inquiries. We went sent there by the New South Wales Government. Post mortem examinations at the hospital had revealed the presence of many cases, and when we arrived we found others. We examined

all the men working there, and established a medical bureau which is still in operation. We examined the mines, and set up a new method of mining which is quite satisfactory. It was alleged at first that this system would be uneconomical, but as a matter of fact, it has turned out to be more economical than the old system. A system of continual inspection is being carried out, but there do not seem to be any new cases developing. We also dealt with lead poisoning. There is practically no lead poisoning in Broken Hill now, though it used to be very prevalent. We do not claim the credit in connexion with this, however, because the changes which lead to a lessening in the number of cases antedated the work of the Commission. We went to Port Pirie, where there were a lot of cases, and we are working on them now. We come in contact with industrial cases mainly through people coming to us and asking advice. Medical interest in these cases arose from arbitration awards. Even before I went to Broken Hill I became interested in lead poisoning because the painters complained about being affected by the disease, and printers complaining that Australia suffered a good deal from the complaint, we were not able to discover a single case in Australia. Evidently printing works in Australia are better ventilated than in other places. We examined the bath enamelling industry, and found it to be a very dangerous one from the point of view of lead poisoning. The making of accumulators is another dangerous industry in this respect. We have done a little in connexion with flour workers. The school would be able to undertake any investigation required by the Arbitration Court to enable it to arrive at a decision. I take it that the school will work in conjunction with health officers generally, but I do not know how far we can become associated with the State health authorities. I think that the States would make use of the school. There are about ten departments arranged for in the building, and about ten senior lecturers or professors would be required in addition to assistants and demonstrators. The school will be the best medical department connected with any Australian university. We are to have a government subsidy, a certain sum has been guaranteed to us. Generally, health officers throughout the Commonwealth have had no special training apart from their training as medical officers. Since 1915 we had conducted a short course of about 20 lectures, and since 1922 a longer course of 50 lectures for medical students. A whole year should be devoted to the subject. That period is necessary in the case of students for the diploma. Already about 40 persons in Australia have gained the diploma. In connexion with children's diseases the students would be shown, first, the causes of infection, and then the remedies.

20. *To Mr. Cameron.*—I have not studied the plans with a view to determining whether sufficient lighting is proposed, but I understand that the new building will be well lighted and ventilated. Professor Wilkinson is aware of the disabilities of the present buildings as regards lighting. It would not be possible for a medical student to take his health diploma as a part of the ordinary course. Before entering on the course he must be qualified in medicine. The school will be open to laymen as well as medical men. Health and factory inspectors would, no doubt, avail themselves of the course. The school was designed to provide courses of instruction for laymen as well as medical men. I do not think the fees have yet been determined. Probably in the case of men being trained by the Commonwealth, no fees will be charged; but, later, should the school be handed over to the university authorities, fees will have to be charged. A certain number of medical practitioners will always desire to take the special course. About five per cent. of those who pass

the medical course take the special diploma course. So far as I am aware the Federal and State health authorities are now working in harmony.

21. *To Mr. Cook.*—About 30 to 35 persons are now engaged in research work in the medical school of the Sydney University. The erection of the proposed building will relieve the pressure there to some extent. I regard the erection of this building as a national necessity. I expect that students will be attracted to it from all parts of Australia. In time it may be necessary to have similar schools in each of the capital cities. At present no university in Australia has a working department of preventive medicine. I am of the opinion that Sydney is the most suitable centre for this school. About six courses of instruction will be given in the building. The main course will be preventive medicine; there will also be courses in medical entomology, medical zoology, medical physiology, industrial hygiene, quarantine administration and foods. Dr. Harvey Sutton is the present instructor in preventive medicine. He attends the medical school and delivers a course of 50 lectures, and gives each student some practical instruction. He also gives a course of 90 lectures to the Department of Public Health students and arranges for them to have further instruction from medical officers of health, such as Dr. Purdie and Dr. Mitchell. Research work has been carried out in connexion with diseases contracted by children through the alimentary canal. At present very little is known of the source of infection. Infection through the alimentary canal is regarded as the principal cause of the infantile mortality. I am of the opinion that the proposed building will be large enough. Its situation is excellent.

22. *To Mr. Lacey.*—Inquiries into industrial diseases may be initiated by the school without any application being made by employers or employees. It will depend largely on the amount of money made available.

*The witness withdrew.*

Leslie Wilkinson, Architect, Professor of Architecture at the University of Sydney, sworn and examined.

23. *To the Chairman.*—I am aware of the proposal to erect a school of health within the grounds of the Sydney University. At the request of the Federal Public Works Department I made some sketches, based on some original sketches of Mr. Murdoch, which were prepared before the site was definitely decided upon. Mr. Murdoch's preliminary sketches were made with a view to finding out what accommodation was required, and the approximate cost. Later, when it was decided to erect the building in the grounds of the Sydney University, Mr. Murdoch asked me to prepare some sketches of a building to be erected on the site proposed. I did so. My small scale sketches have since been developed by the Public Works Department. When completed, the building will be similar in appearance to the physics school building, for which I was responsible. That building, without fittings, was erected for 1s. per-sq. foot. It had a greater number of large rooms than the proposed new building, which, as it will not be so large a building. The cost of building has not decreased within the last three years. The proposed building contains more detail work; it has steel windows instead of wood, and there will be more stone work. Bricks made in Sydney are wonderfully strong; but we have had trouble at which our brick walls facing in the direction from which our heavy rainstorms come. That, however, is not the primary reason for the proposed building being covered with stucco. That has been done to make it more in harmony with the existing buildings. I do not know

who was responsible for selecting the site for the proposed building. I think the site was decided upon about two years ago when I was in England. The Senate of the University considered that the site would be suitable owing to its proximity to the medical school and the physics building. I do not think that difficulties will be encountered in connexion with storm waters, drainage or sewerage. Although the land appears to be low, the lowest floor will be five feet above from damp. In my opinion more windows are provided than are required especially on the north side. I do not think that the building should necessarily be constructed of stone. The University authorities expect to extend the medical school in years to come. Those buildings, if erected, will hide the proposed building from the main terrace—that is, from the east. I think that brick and stucco are the most suitable materials for this building. If constructed, the Public Works Department will be responsible for supervising the work. I have been asked to act as consulting architect. I take that to mean that I shall be consulted regarding details connected with the equipment. So far as I know, the general lay-out of the building has the approval of the University authorities, but I am not certain whether these plans have been before the Senate. I have no doubt that the Senate would approve of them. I am not sure of the conditions on which the site is being made available to the Commonwealth Government. I made available to the Commonwealth for twenty years, and that thereafter it will become part of the medical school of the University. I do not know that officially. Without careful thought, I should not like to make an estimate of the value of the site. I think that eighteen months after the signing of the contract the building should be completed. The sewers on the site of the proposed building should either be covered or diverted. Possibly the pipe near one corner of the proposed building could with advantage be diverted around the corner, but I should not divert the pipe which passes practically beneath the centre of the building. It should be sufficient to cover it. Most city buildings have sewers under them. I am satisfied with the type of building proposed, with the exception that I think that the size of some of the windows is excessive. The doctors are of the opinion that they cannot have too much light for their work. It would be well if they would visit some of the laboratories in other portions of the University, where very much smaller windows have been partly blocked to keep out excessive light. I have discussed this matter with Mr. Murdoch, but he decided to give the doctors what they desired. The upper storey of the proposed building will be half glass. On the south side that does not matter, but on the north side it matters a great deal that too much window space is provided. Not only that, but there will also be difficulty in keeping out light, but there will also be difficulty in keeping out the rain. I suggest that the window space in the upper storey be reduced by 50 per cent.

24. *To Mr. McGrath.*—By having the School in Sydney, it will be nearer the Pacific Islands, from which most of the patients suffering from tropical diseases come. Its situation in the University grounds is satisfactory. Buildings in which similar subjects are dealt with should be situated close together.

25. *To Mr. Sealbrook.*—The front of the building will be in the three-storey portion facing a road. The main entrance will be on the first floor. There will not be a great deal of excavation necessary. I do not favour tuck-pointed brick buildings. The proposed building will be covered with Italian stucco, and will not pretend to imitate stone. It will be coloured a warm tint to blend with the stone in the building.

The stairs and the floors will be of fire-resisting material. The building has been designed to provide the accommodation asked for.

26. *To Senator Reid.*—I think that stucco is preferable to red brick. In exposed situations ordinary cavity walls cannot be guaranteed to keep out the weather. At the University we have found it necessary to oil some of the walls to keep out the rain. The cement finish, besides changing the appearance of the building, will tend to make it more damp-proof. The walls will be 2 feet thick in the basement, and 16 inches at the top storey. I do not think that it will cost £1,000 to divert the sewers from the site of the proposed building. I do not recommend that both sewers be diverted, but only the one near the corner of the building. After very heavy rain, water might lie on part of the site of the proposed building for a few hours; but there is adequate provision for getting rid of it. My experience of doctors and scientists leads me to the conclusion that frequently their ideas regarding the lighting of buildings are based on their experiences in Scotland and other countries, where there is not so much sunshine as in Australia.

27. *To Mr. Cameron.*—Future extension of the School of Medicine building will probably be in stone to conform to the main building. Probably the whole of the main terrace will be faced with stone buildings. Ultimately the proposed School of Public Health will not be visible from the front road, because any extensions of the medical school will hide it from view. In that case, a building of brick and plaster will not detract from the main group. Rather will it enhance the beauty of the stone buildings. It would not be possible, for the same expenditure, to provide similar facilities in a building of Gothic type. A stone building in the Gothic type would probably cost two and a half or three times as much. The stucco finish on the physics building has been obtained by rubbing the cement, while damp, with a bag. The objection to stucco is largely due to attempts to make it imitate stone. In my opinion, both that kind of stucco and rough-cast are objectionable.

28. *To Mr. Cook.*—It is not proposed to fill in the site other than to level it in places. Where the building runs into the ground at one corner, stores will be situated. The lowest room will be 12 feet from the road. There is no danger of other buildings which may be erected in the future blocking the light from this building.

29. *To the Chairman.*—Except that I consider that too much window space has been provided in the upper storey, the design is satisfactory.

(Taken at Sydney.)

TUESDAY, 17th APRIL, 1928.

Present:

Mr. MACKAY, Chairman;

Senator Reid.

Mr. Lacey.

Mr. Cameron.

Mr. McGrath.

Mr. Cook.

Mr. Seabrook.

David Arthur Welsh, Doctor of Medicine, Professor of Pathology at the University of Sydney, sworn and examined.

30. *To the Chairman.*—I have seen the plans of the proposed school of health buildings to be erected in the Sydney University grounds. I have not been consulted about the general lay-out of the building. I am acquainted with the purpose for which it is required. In my opinion, the building is necessary. The school

of public health is closely related to the medical school, and should, therefore, be situated near to it. If the building is to house research workers in tropical and preventive medicine, it will meet a long-felt want. Tropical medicine can be well served by a building such as that proposed. In my opinion the building should be erected in Sydney, rather than in Queensland, because more graduates in medicine will take advantage of it in Sydney. Moreover, the school would derive benefit from its close proximity to our medical school in Sydney. I am acquainted with the institution at Townsville, which is doing good work. There would not be more clinical material in Sydney than in Townsville, and better work could be done here than there because of the proximity of allied institutions. That is a big consideration. Sydney has more chance of getting the necessary students than have any of the other capital cities. In addition to a better teaching of tropical medicine and the greater opportunities for research in relation to it, the great advantage of this institution will be its relation to preventive medicine. My subject, pathology, is largely the scientific study of the cause of disease. When we know the cause of a disease, although we may not necessarily know its cure, we have at our disposal the means of prevention. Many diseases which are not easily cured can be prevented. For instance, typhoid fever, which cannot be cured—with good luck the patient cures himself—can easily be prevented. The same thing applies to diseases like tetanus and venereal diseases, although they are not easily cured. Tuberculosis is on the same footing. While it is curable, the cure is a long and tedious process. It would be better to prevent it. We know a great deal about the means of preventing tuberculosis, but we do not always put that knowledge into practice. An institution to deal with preventive medicine would consolidate that knowledge and enable it to be put to the best advantage. The institution would also be of great value in research matters. Research is of inestimable value in unearthing causes of disease, but in all our universities research is hampered by the amount of routine work which the most experienced men have to undertake. Most of my time is taken up with routine work. It would be better spent in research. I hope that the workers in this school will have time for research. Research work is carried on in Australia, but a great deal more could be done if there were greater co-ordination. The question resolves itself into one of finance and larger staffs. The trend of modern medicine is in the direction of prevention. We are, however, still heavily handicapped by the traditional outlook regarding disease. Disease is regarded as something inevitable—something to be cured. We are now trying to eliminate disease and thus to obviate the necessity for treatment or cure. I think that the school should be erected in the university grounds. Every medical school should have a chair of preventive medicine. At the university we are handicapped by tradition. The student of anatomy and physiology dominates most medical schools, with the result that not sufficient time is given for the more modern outlook on disease—prevention. Preventive medicine and pathology are closely allied. Every large medical school should have a school of public health associated with it. If the public conscience were more enlightened a great deal more money would be spent in connexion with preventive medicine. In my opinion the money would be well expended. An intensive campaign in preventive medicine would eliminate in one generation nearly all contagious diseases. Seeing that the birth-rate among the white races is decreasing, the prevention of disease is an urgent necessity in the interests of the human race. In the past profligate but indiscriminate breeding, with death taking the hindmost in health, was advocated. Economists tell us that there is a limit to the population which the earth can

carry, and that in many parts of the world the saturation point has been reached. That state of affairs emphasizes the necessity for something in the direction of preventive medicine being done quickly. The erection of this school is a step in the right direction. I do not think it matters a great deal whether the school remains under the control of the Department of Health or is handed over to a research council. In any case, the best intellects should have charge of its operations. I am satisfied to leave that matter in the hands of the Commonwealth Government. I hope that in time every student of medicine will receive some training in preventive medicine. At the Sydney University we now give the best teaching we can to graduates in medicine in two directions—tropical medicine and public health. Not many graduates avail themselves of the course in tropical medicine, but a very good percentage of graduates take the public health course, and obtain the diploma. Unfortunately, the amount of routine work required makes it impossible for us to give to graduates the training we should like to give. I feel sure that the institution will be welcomed by the medical profession. It will not duplicate any existing activity. It will probably relieve me from the necessity of giving instruction in public health matters; but, in any case, I should be glad to be relieved of that work, because I am unable to give it the attention it deserves. An institution like one proposed, staffed with enthusiastic workers, and equipped with well-furnished laboratories, helps adjacent or cognate laboratories. They do not work in opposition to one another, but in conjunction. I shall look forward to this school with great interest. I believe it will be a real help to my department and to the medical school generally.

31. *To Senator Reid.*—In the prevention of disease, particularly typhoid fever, care in connexion with sanitary arrangements is most important. Presently, however, Australian citizens leave Australia for countries where the sanitary arrangements are far from perfect. In such cases they can be protected against disease by immunizing doses. On the western front during the Great War, tetanus was practically eliminated, not because the bacilli were absent, but because the soldiers were immunised against them. That was done by means of injections. This institution should emphasize the need for greater attention to sanitary arrangements. The time is not far distant when all public officers will be required to possess a diploma in preventive medicine. The school will probably undertake investigations into the effect of noxious trades on the individuals employed in them and on the community generally. The problem of overcrowded countries is the regulating of their population. They would be better off with a smaller number of inhabitants possessing greater health than they are now with large numbers of low-grade ill-nourished people. The problem of overcrowding countries will be met not so much by preventive medicine as by a proper regulation of their population. The benefits which we shall obtain from research into tropical diseases will benefit the inhabitants of all tropical regions. Already we have done something in that direction particularly in connexion with malaria. If I were relieved of so much routine work I think it would be of advantage to the community generally. I should not, however, like to be relieved entirely of my teaching work. A man does better research work if he has to do some teaching also. It clarifies his ideas if he has to expound them to others. I do not desire to be freed entirely from teaching, but I should like to be freed from some of its drudgery in order to devote more time to research work. The new school will relieve my department of the diploma candidates.

32. *To Mr. Cook.*—Research work is hampered for want of money. The expenditure of more money would

be justified. Personally, I am specially interested in cancer and venereal diseases and some of the more obscure diseases, like asthma; but I have not sufficient time to devote to them. Cancer is responsible for a great many deaths in Australia, and venereal diseases cause many disabilities. I think that the cause of cancer will in time be traced; but there is a danger that interest in the subject will then be lost. For some time we have known the cause of tuberculosis, but interest in that disease and in venereal disease—the cause of which is also known—is not great. Probably the existence of a school might result in practical efforts being made to prevent these diseases. I think that Sydney is the best centre for a school to study tropical medicine. I should like to see attached to each medical school in Australia, a school of preventive medicine.

33. *To Mr. Cameron.*—I think that Australia is behind the rest of the world in research work connected with preventive medicine. During the war a Medical Research Council was established in Britain, and has been continued since then. We have nothing in Australia on similar lines. That is largely due to lack of funds. I think that the various Governments of Australia are alive to the necessity for active action, but they are hampered by lack of funds. I think, however, that money could better be spent in preventing disease than in any other directions in which it is spent. If sufficient money were available it would not be necessary to establish many schools of preventive medicine; but large sums would be required to give proper effect to the preventive measures which would be necessary to make them effective. To deal effectively with tuberculosis patients, several millions of pounds would be necessary. I should be in favour of making it obligatory for medical graduates to undertake a course of preventive medicine. Something along these lines is now being done. We give undergraduates a course in preventive medicine, but I should like to see the course extended. Medical science is so specialized to-day that there will always be men who will direct their energies along certain lines, such as obstetrics, and neurological research. To gain the Diploma of Public Health at least a twelve months' course is necessary.

The witness withdrew.

Sir Mungo William MacCallum, Professor Emeritus and Deputy Chancellor of the Sydney University, sworn and examined.

34. *To the Chairman.*—The site for the school of public health was suggested in the first place by the Chancellor, Sir William Cullen, and myself. The land available at the university is fairly considerable, but it is becoming filled up and this seemed to be the site most convenient for the purpose, as being the one which would interfere least with the developmental plans which we have in view. One of the reasons for the selection of the site is its proximity to the medical school and the physics building. It was considered that it should be near the medical school, and also in touch with the Physics Department which houses the work being done in connexion with cancer research. This building is not in a prominent position in the university grounds. It is visible from the park in front of the university, and to that extent would be in a fairly prominent position, so that we of the university would like it to be in a style of architecture and of a material that would match with the main front. On the other hand it is somewhat in a hollow. When I was going over the ground yesterday and to-day with Professor Hook, I came to the conclusion that even the top storey would only come to the height of the first storey of the medical school. Therefore, although the situation will in one sense be prominent, a large portion

of the building will not be visible from the park in front. That rather removes my objection to having other than a stone building, although it is true that a brick building would look cheap in its style of construction as compared with the other building. The present frontage is a very handsome one, and any building in a markedly different style, or in cheaper material would, to some extent, look incongruous. If the building is erected on the site suggested there is a possibility that at a later date another building will be erected fronting it. It was suggested that the second building might be of greater depth as the medical school, but I think it would have to be narrower. I regard the site selected as quite satisfactory from all points of view. The site is made available by the university on certain conditions which are set out in an agreement between the Commonwealth Government and the University Senate. I was myself concerned in the drafting of this agreement. Many drafts were suggested by both sides from time to time, and they were considered in detail, first of all by the Chancellor and myself, and afterwards by the Senate. The following is a copy of the agreement.—

#### CONDITIONS OF AGREEMENT.

##### School of Tropical Medicine, &c.

1. The University will lease to the Commonwealth Government an arranged area of land for twenty-five years at a nominal rent for the purpose of the erection thereon of buildings for the University as a school of public health and tropical medicine.

2. The Commonwealth Government will agree to erect a suitable building to a design approved by the University, and will undertake the structural maintenance of this building for the term of the lease.

3. The Commonwealth Government will agree to equip this building and provide funds sufficient for the training of post-graduate students for the diploma of public health and the diploma of tropical medicine to a standard of qualification at least as high as that now recognized by the General Medical Council of Great Britain, and will also provide for research into the problems of tropical hygiene and hygiene generally.

4. The administration of the school will be carried out by the Commonwealth Department of Health in accordance with the following conditions—

- (a) The department will control receipts, other than fees paid by students, and expenditure.
- (b) The department will supply equipment. This equipment, including books and journals, will remain the property of the department, and will not be available for transfer to any other department of the University.
- (c) The department will appoint the staff of the school, including professors, teachers, and research officers. All appointments, other than those of officers appointed to engage exclusively upon research, will be subject to the approval of the senate. The right of suspension or removal of a member of the staff shall be vested in the department subject to the right of the senate to make recommendations on the subject in any particular case. In the event of a conflict of opinion the matter shall be referred to an umpire selected by the Minister and the Chancellor as in cases of dispute provided for in clause 7.
- (d) The discipline of students and of the teaching staff at the school will be subject to the senate, and the teaching shall be directed and supervised by the Faculty of Medicine in accordance with the by-laws of the University.

5. The University will recognize for instructional purposes the teaching in this school.

6. The University will grant diplomas to students after the successful passing of examinations at the close of an approved course of instruction. The appointment of examiners and the standard of knowledge required and the method of examination shall be entirely in the control of the University.

7. In the event of any dispute arising in the course of the lease upon a matter which is not by the terms of this agreement to be decided solely by the Commonwealth Minister for Health, or solely by the University, including the appointment of officers, such dispute shall be referred to and determined generally by the Minister for Health of the Commonwealth and the Chancellor of the University or their respective nominees, or in case they differ by an umpire selected by the Minister and the Chancellor.

8. The Commonwealth Government shall have the right to terminate the lease at any time after the completion of ten years upon giving one year's notice. In the event of such termination the University would assume control of the building. In the event of such termination the Commonwealth Government will have no further obligation or rights in respect of the school; but it may provide such subsidy as it considers necessary. This does not exclude the possibility of some mutually satisfactory arrangement between the Commonwealth Government and the University for the continued maintenance of the school, or for the reservation of the buildings for this purpose, or their allocation to some other purpose.

9. The Commonwealth Government will undertake to appoint an Advisory Council of five members of whom one shall be the Director-General of Health, two shall be nominated by the Commonwealth Government, and two by the University of Sydney. This council shall advise the Commonwealth Minister for Health on all matters relating to the administration of the school.

The area of the land which it is proposed to make available is 3 roads 1½ perches. The University will rent the land at a nominal rental to the Commonwealth Government, which undertakes to erect a building and maintain it during the currency of the agreement, or until notice of its termination is given. The term of the agreement is for 25 years, but after ten years it may lapse, provided notice of one year is given. If the Government gives notice of termination, the building becomes the property of the University. I should say that this is a handsome contribution by the Commonwealth Government to the whole of Australia, and not merely to the University of Sydney. I believe that the University of Melbourne intends to discontinue its course for the diploma of public health, in which case the medical officers of the Commonwealth and other graduates in medicine will, no doubt, come to Sydney to take this advanced course. The diploma in public health which we give was not very much in request until a few years ago. The number of candidates has been steadily increasing however, and more ample courses of instruction are now being given by the authorities than there used to be. The plans for this proposed building have not yet been submitted to the university authorities, nor have they been accepted by them. Professor Wilkinson, in a more or less private capacity, has been consulted by the Federal Government architect, and between them they have evolved the present proposal, but it has not been before either the Building and Grounds Committee of the senate, or the senate itself. There has been no formal approval of the plans. I speak subject to correction because during February, March and April I was not a member of the Building and Grounds Committee, having retired from the Vice-Chancellorship, and being not yet appointed to the position of deputy chancellor. There may have been some discussion of the plans at committee meetings, but I am almost certain that it has not been before the senate, because I have missed only one meeting of that body. Conditions for the working and control of the school are set down in clause 4 of the agreement which I have previously quoted. The teachers and professors will have to be approved by the senate, but with those appointed for research work pure and simple the senate will have nothing to do. The research work will be absolutely independent of any university control. The teachers will be appointed by the department, but the University Senate must approve of them. In regard to the instruction of students and the passing of examinations the University will have full control. This agreement has been completed, signed, and sealed by the University. I consider the establishment of this school as urgent. It seems to me that public health, or as I should prefer to call it, preventive medicine, is a matter of very great importance here. It is concerned with the rearing up of a healthy population, and of preventing, as far as possible, sickness, infirmity, and weakness. The study of tropical diseases comes under a different heading, but as Sydney is the port to which so

many vessels come from the East, it has long been thought desirable to have these diseases properly investigated here. I am satisfied that this school should be associated with the university, and I think that Sydney offers the best location for the school for several reasons. It was thought that as Sydney already had a medical school, and because it was a port which trafficked largely with Oriental countries, it was a suitable place for the investigation of tropical diseases. In regard to the general question of public health, the Sydney University has, for some years, as far as its resources permitted, given a good deal of attention to developing its public health course of instruction. The value of that course has been recognized by a largely increased number of candidates, so that already, even without this assistance from the Government, we are giving a fairly adequate course of instruction in public health. Further, the great size of Sydney, and the many very pressing problems of public health that are always coming up in so large a city, made us think that if there was to be only one school, Sydney was the place for it. I am aware that there is a school for the study of tropical diseases at Townsville, and in some ways that is a very suitable position for such a school, but its distance from a medical school and the difficulty encountered by graduates and research workers in going to Townsville, does not make it so useful in equipping the ordinary medical official as a school in a large centre would be. Townsville is a very suitable place for investigating some of the tropical diseases such as are found in Queensland, but it is not so suitable as Sydney for investigating imported tropical diseases. I do not see why the activities of the Queensland institution should be decreased as a result of the establishment of this school. At Townsville they have done good work in the past, and there is no reason why they should not continue to do so. It has to be remembered, however, that the Townsville school is practically confined to the study of tropical medicine and preventive medicine, while even in tropical medicine I think its activities are limited by its position. I do not wish to say a word against the Townsville school; I know it has done excellent work. Every science is so closely connected with every other science that I do think, however, that the distance of the Townsville school from a well organized and specialized medical school is a very serious disadvantage. Even in the study of tropical diseases students in Queensland are at a disadvantage as compared with those who have at their command the facilities for study provided in a large city. I think this institution should be established at a seaport, and Sydney offers advantages over both Adelaide and Melbourne. I do not want to seem to be magnifying my own university, but the fact remains that, on the whole, the Sydney medical school is more specialized already than those in the other centres, excepting, through their medical schools, etc. Furthermore, Sydney is not only the largest of the three cities at which medical schools are situated, but it has also the most contact with commerce and trade coming from Eastern countries. There is a great scope for carrying out research work in an institute such as this. That scope exists already, and it will be greater in the near future. I do not know what it is proposed to allocate for the upkeep of the school, the payment of teachers and researchers and the provision for material and equipment, so that I cannot say whether the school, as at present planned, will be on a scale adequate to meet present requirements, but even if it is not all that might be required such a school is bound to grow. The advantages arising from it will be so evident as the years go on that its work is certain to be extended. I understand from Dr. Cumpston that the building to be erected will be capable of extension. I believe that the Department of Health should have a large voice in the

control of the institution. If it is assisted by a medical council that might be a good thing. Undoubtedly, one of the reasons why the Commonwealth Government insisted upon having control of the institution was that it was providing the money. If it is paying the piper it is only proper that it should have the right to call the tune. I do not think that that shows any want of confidence in the University Senate. There are two distinct things which will be done in the school. One is the instruction of students, and so long as the University Senate has the right to approve the appointments of teachers its interests are quite sufficiently safeguarded. In regard to research it seems to me that the Commonwealth Government may have, from time to time, some particular branch or subject in which it wishes special investigation to be made. Why should it not make this investigation or arrange for it to be made? In my opinion, the subject of public health is becoming one of more and more importance in the life of the community. Not so many years ago it was never heard of, but it is now coming rapidly to the front in all civilized countries, and in Australia there is a splendid opportunity for ensuring that in so far as it lies within the power of the government and the university, there should be developed in this country a healthy race which will not, from the outset, be subject to certain illnesses that can be prevented by better ventilation, better instruction of the people in the ordinary rules of hygiene and the like. I do not think that the work of this school will duplicate the activities of any of the State Governments. I am better acquainted, of course, with what the State Government in New South Wales is doing than I am in what is being done elsewhere, but in so far as this school might anywhere, or in any degree, tend to cover common ground with other institutions, there would be no difficulty whatsoever in arranging for co-operation between them. I think that this school will be welcomed by the medical fraternity, and that it will also be of benefit to the people generally. Medical men are becoming more and more alive to the benefits of public health measures and preventive medicine. As for the municipal authorities, I hope they will take advantage of the facility provided for training health inspectors. As time went on, and the efficiency of those holding the diplomas was recognized, their services would be more in demand, and they would secure preference, whether through pressure of public opinion or by legislation. Our experience has been that it was expedient and almost necessary to enlarge the courses in public health, and they are now much fuller and more detailed than they were a few years ago. During the last two years Dr. Harvey Sutton has been giving much more of his time to this work than he used to do. There is a good deal still to be done, and as the University is, as you are aware, short of money, we cannot, from our own resources, do as much as we should like. I cannot say whether the school as at present planned is sufficiently large to meet the present urgency of the situation until I know how much money is available, and the amount of material and equipment that will be provided.

35. To Senator Reid.—The agreement between the Commonwealth Government and the University Senate was signed on behalf of the senate by myself as vice-chancellor, and the registrar witnessed it. I do not know who the signatory was on behalf of the government. This agreement was made on behalf of the senate for a specific purpose, namely the building of this school. The senate is quite well aware that the building is going to be put up, and the site has been granted by the senate for that purpose. All the senate will do is to approve of this particular form of structure. It would not, perhaps, be right to say that the Sydney University has been specializing in the subject of public

health, but it is true that Professor Harvey-Sutton has been doing much more of this class of work than was done before. Sydney University has been devoting more time to the study of public health than the other universities have, as far as I have been able to learn. Without exact information, however, I would not be prepared to make even that statement definitely. The benefits already derived from this class of study have drawn attention to the good which could be done by the establishing of such an institution as is now proposed. We have already a good many medical men who have had an adequate training in preventive medicine, and the number is increasing rapidly year by year, but in regard to the exact amount and nature of the work done I should strongly recommend the Committee to take evidence from Dr. Harvey Sutton who is responsible for it, and who knows the details in a way which I do not. I do believe that the study of public health has received more attention in Sydney than in the universities of Melbourne and Adelaide. That counted with the Commonwealth authorities when they were deciding where the school should be established. It is necessary that public health should be studied in connexion with other medical subjects. If six times were given for the proper training of the necessary number of men I should be in favour of legislation being passed to compel all municipalities to employ properly qualified medical officers holding diplomas. At present there would not be sufficient fully qualified men to go round, but such an institution as we are now considering would gradually make up the number required. I think that, for the sake of the general public, it would be an excellent thing to bring in such a compulsory provision at a later date. Of course, the ordinary medical graduate has some knowledge of public health matters, but the knowledge which they have differs from the fuller instruction that is given before the diploma is awarded. The diploma is a post-graduate course which may be taken up after the ordinary medical degree is obtained. I have been informed that there are about 40 persons holding the diploma at the present time, but even those who do not possess diplomas are not entirely ignorant of the subject of public health. From the point of view of combating industrial diseases, I think it is highly desirable that medical officers should go through a course of special training. It would be wise, however, to insist too strictly on this at first, nor to insist that all medical officers appointed should have these qualifications, as the opportunities for obtaining the special knowledge have not previously existed. When a medical graduate leaves the University he has obtained the principles and foundations in a good many of the branches of medicine, and he has to build up on these later. Of course, some health inspectors and factory inspectors are practically wholly ignorant of these matters, and I think they should have some general knowledge of the subject with which they have to deal, but they do not need such specialized knowledge as do medical graduates. I agree that it would be a good idea to issue them some kind of a certificate. In their case there will have to be special courses arranged which would not be so technical as for medical graduates. That would mean an increase in the teaching staff everywhere, because these staffs are fairly heavily taxed as it is. In regard to ships coming from the East, I can speak only in a general way, and cannot give definite information as to whether diseases coming here from that source are the subject of special study at the University. I would rather the committee consulted some of my medical colleagues on that point.

36. To Mr. Lacey.—The agreement between the University Senate and the Government in respect to this school was the outcome of a great deal of correspondence, and of numerous conferences between the parties

concerned. If I remember rightly the draft scheme was, in the first place, submitted by Dr. Cumpston at some informal conferences. This was laid before the Senate, which suggested some alterations. These were submitted to Dr. Cumpston, and I think he was more accepted and some were not, while a number of modifications were suggested. These modifications were before the Chancellor and myself on several occasions, and were twice before the Senate. They were, I understand, very thoroughly gone into by the Attorney-General, as well as by Dr. Cumpston. Then a document was drawn up by him, revised by the University solicitor, and considered again by Dr. Cumpston. The University Senate does not consider this an ideal agreement because it would, naturally, like to have control of everything. In all these matters, however, it is a question of give and take. After all, the Federal Government was helping the University, and we had to make the concessions. I suppose it is true that Sydney University has obtained something here that other universities would like to have, but I was led to believe that there was a fairly general consensus of opinion to the effect that if there was to be only one school Sydney was the best place for it. I have been told that by members of the staff in Melbourne.

37. To Mr. Cameron.—I do not think that there are sufficient research workers in public health at present operating in Australia. Some of the men working receive appointments under the State, and some find that their researches are of distinct advantage in their general practice. The general medical practitioner has not too much time for research work, and there is room for a great deal more to be done in Australia. Such research work would undoubtedly be for the benefit of the people generally, though they would benefit chiefly as the result of the spread of knowledge among medical men. The spread of such knowledge as would be useful to the public directly could only be brought about by popular lectures, and by comparatively elementary instruction. I think it is likely that in regard to tuberculosis and venereal disease, somebody has fallen down on his job in respect to the enforcement of the regulations. I should not like to say off-hand whose the responsibility is, whether that of the Government or of the medical men. I do not think that the medical men are to blame for any defect in the system of segregation of infectious patients. I think they do all they can in this respect. As far as my knowledge of medical men goes, I think they are very conscientious in doing their part. They are out to eradicate and prevent disease. In regard to this proposed building, the University authorities would naturally prefer to have a stone building in harmony with the style of the general frontage. In saying that I can speak for the University. Speaking for myself only, I can say that if the expense of such a building would be too great, I would not be so offensive as at first I feared. As to whether there are too many windows and too much light in this plan, that is a matter upon which the professors who use the building will have to speak. That should be discussed before the Buildings and Grounds Committee of the University Senate. Evidence can be taken from those who will be working in the building. I do not think that any disadvantage will arise from the low-lying position of the building. I have heard no complaints from the people in the physics building. If this building were placed on the level of the medical school my objection to the style of building would return. I suggest that the building be erected as near to the physics building as can be satisfactorily arranged.

(Taken at Sydney.)

THURSDAY, 19th APRIL, 1928.

Present:

Mr. MACKAY, Chairman;  
 Senator Reid.  
 Mr. Cameron  
 Mr. Cook  
 Mr. Lacey  
 Mr. McGrath  
 Mr. Stanbrook

Emmanuel Sydney Morris, Senior Medical Officer of Health and Director of Maternal and Baby Welfare, Public Health Department of New South Wales, sworn and examined.

38. To the Chairman.—I attend this morning on behalf of the New South Wales Public Medical Officers Association, a copy of whose rules I submit. The association represents practically all the medical officers in official positions in New South Wales, including Federal State and municipal officers. Speaking generally, my association supports the scheme for the erection of this school, and considers that it should be of great benefit to the whole Commonwealth. If I should disapprove of certain details it may be through lack of opportunity to consider them fully. My association has not been made acquainted with the details. We consider that the board of control should be representative of all the interests concerned rather than that the institution should be exclusively or preponderantly under the control of one department. We stand for co-operation rather than rivalry. We hope that the school will permit of co-operation. In our opinion it should be situated in Sydney, because of the greater material available for instruction in tropical medicine particularly. The school should give an impetus to medical research, but we feel strongly that such research should be independent of departmental control. We also are of the opinion that research workers should be adequately remunerated, and that their investigations should not be coloured or influenced by departmental or governmental considerations. The training of research students should be co-ordinated with the work of the State Health Department. It should not be kept in separate watertight compartments merely because the school is being financed by the Commonwealth Government. My association considers that a complete reference library, sufficiently well endowed to keep it up to date and in charge of competent librarians, is a necessary part of such an institution. I think it would have been an advantage to the public if the members of the medical profession had been acquainted with the objects of the institution. At present, probably not more than three or four members of the profession have any intimate knowledge of what is proposed. It is generally understood that a school of research into tropical and preventive medicine is to be established; but more than that is not known. The information that has been made available has been by means of newspaper paragraphs. The members of the profession generally are unacquainted with the details of the scheme. Our association does not view with enthusiasm the proposal to place the school under the control of the Commonwealth Department of Health. In our opinion, it would be better if the University had control, with the Government represented on the Board. My association agrees with the situation of the school in the University grounds. If it is a sound argument that the Commonwealth Government should have control because it finds the money for the building, its equipment, and the salaries of its officers, then it would be logical to contend that the State Government should control the University because of the contributions it makes towards that institution. My association considers that if the building is erected at the University it should be under the control of the University rather than of a government department. We think that the school should be

situated in Sydney, because of Sydney's big overseas trade with tropical countries. I am acquainted with the School of Tropical Medicine at Townsville. I hope that the new school in Sydney will be a greater success than the Townsville institution has been. I understand that its failure was due to departmental control rather than to scientific isolation. I do not care to express more fully my views as to the cause of the failure of the Townsville institution, but every one interested in the subject who is not connected with the Commonwealth Health Department knows the cause of its collapse. It may be sufficient if I say that its failure was largely due to departmental mismanagement. My association fears a repetition of that experience in connexion with the proposed school. We do not wish to see it killed, officialdom, and therefore we think that the predominant influence should be wielded by the University authorities, although the Commonwealth Government should have representation on the Board of Control. We do not think that the final decision should rest with the Commonwealth Government. I understand that it is proposed that the Commonwealth Government shall have three representatives and the University two representatives on the Board of Control. That will mean that the University can be out-voted on every occasion. My association considers that the University, in conjunction with the Commonwealth Government, should control the appointment of officers, rather than that the Commonwealth Government should have the final decision. We should prefer the University to have the majority of votes. The control of the Commonwealth Government is not influenced entirely by the fact that the Commonwealth Government is providing the money. Such an institution should be above financial considerations. The number of medical men who will avail themselves of the school will increase from time to time. At present there are 30 men in Sydney who may be expected to take the diploma course in public health. There are also some who would take a course in tropical medicine. It is essential that the school shall be linked up with existing State organizations. To allow it to become a water-tight department, divorced from the existing State health organizations, would not only cause duplication of services, but would also doom the institution to failure. It is all a matter of co-operation. I understand that the State and Federal Health Departments are now co-operating better than they did a few years ago.

39. To Mr. Cameron.—The failure of the Townsville institution was not due to its head being a foreigner. Under the control of Dr. Breinl the institution made its name, and did good work. That gentleman is one of the few in Australia who knows a great deal about tropical medicine. In its present condition the Townsville institution is hardly worth retaining. I am afraid that no institution guided by purely departmental or governmental considerations can be a success. An institution of this kind should exist in an academic, rather than a governmental atmosphere. I doubt whether many medical men in ordinary practice will be prepared to take a special course in public health; but I think that, as time goes on, and public health is given proper recognition in the community, there will be a constantly increasing number of men who will undertake the course, especially if the salaries of public health officers are made more commensurate with their responsibilities. At present public health officers do not receive a remuneration comparable with that paid in other branches of the profession. Public health is only now beginning to receive the recognition it deserves. A study of public health is a special branch of medicine. Unless a man proposes to work along those special lines he is not likely to devote twelve months to two years to a public health course. Very few medical men in ordinary practice have the

time to undertake research work. There is not sufficient medical research work carried out in Australia, although in the matter of public health there are unlimited opportunities for research. Australia is behind other countries in this matter. That is largely due to lack of funds, although our comparatively small population and the small remuneration paid to research workers also have their influence. All research work should be free and independent of governmental or departmental influence. The medical profession is aware of the cause and the means of eradicating certain diseases still in our midst; but their elimination means co-ordination between various authorities, which, in turn, requires a lot of money. We have an example of that in the case of hookworm. The means of eradicating hookworm are known, but sufficient money has not been made available to deal with the disease.

40. *To Senator Reid.*—With the exception of a small library in our department, there is no proper reference library dealing with preventive medicine. Without a proper library the proposed school will be hampered in its work. As a public servant of considerable experience, and acquainted with government from behind the scenes, I feel justified in saying that official actions are sometimes dictated by governmental considerations. The best results, from a purely scientific point of view, may not be compatible with government policy. For instance, a scientific investigation into malaria might lead to conclusions which are in opposition to the policy of a White Australia. If that were the case, it is possible that the result of the investigation would not be made public. That is a supposititious case; but it indicates how policy may influence scientific research. If the Government's imprimatur is placed upon every report, it may be hard to say how much of it is propaganda. A Government department is different from a University; it is not so easily influenced by pressure which may be brought to bear. In my opinion, the University Senate should have the final say in all appointments. I do not know the terms of the agreement, or the extent to which the Government representatives on the Board of Control may be able to dominate the decisions. Should it happen that the Government would not make funds available unless the decisions were favorable to its representatives, we should have a repetition of what occurred at Townsville. Very little research work is now being undertaken at Townsville. The general opinion among the profession is that the work done there now is of very little practical value.

41. *To Mr. Lacey.*—I should not go so far as to advocate the closing of the Townsville institution, although, from a research point of view, it has failed. It may, however, be doing good work in the treatment of local cases of tropical disease. From the research point of view, the opening of the Sydney school should render unnecessary the continuance of the one at Townsville. When that time comes the matter could be considered. Although the agreement may provide for a revision of conditions after ten years, I point out that in that much harm may be done. Before expressing an opinion as to the desirability of providing for a shorter term, I should need to study the agreement in detail. That, however, is more a matter for this committee.

42. *To Mr. Cook.*—There is no doubt that the Commonwealth is handicapped for want of a research institute such as the one proposed. The medical profession welcomes the establishment of this school. I do not think that its situation in Sydney will cause resentment in the other capital cities. There has been no conference of Australian doctors regarding the site of the institution. The negotiations appear to have been conducted in a confidential manner. The medical profession has only heard a little about it from time to time.

The medical press has contained no statement as to the objects of the institution or the means of attaining them. A great deal of valuable research work was carried out at Townsville in the early days of the institution there. No matter who is in charge of that institution, it will never be so satisfactory as an institution in Sydney, because it lacks the assistance which other allied institutions can give. I think that the proposed school will meet Australia's requirements for some years. Possibly medical men in Western Australia will be placed at some disadvantage if there is no school in that State. In my opinion, the Board of Control should be comprised of one representative of the Commonwealth Government, two representatives of the people appointed by the Commonwealth Government to represent interests other than those of a departmental nature, and two representatives of the University. A body composed of such men would be representative of all the interests concerned, and should eliminate the possibility of friction. I think that one of the outside representatives should be a professional man. I favour a term of three years with the right of renewal. If good men are secured, their appointment could be continued after the expiration of the three years' term, but an unsuitable man could be dropped. I think that the work of the Institute should be made public. My only reservation is that it should not be used for propaganda purposes. Its work should be purely scientific. For that reason I advocate that any publicity should come from the University authorities rather than from the Commonwealth Government. The best men available should be appointed to the board irrespective of States; but if suitable men, who would also represent State interests, could be found, their appointment by the Commonwealth would go a long way towards smooth working.

43. *To Mr. McGrath.*—I do not desire to enter into a controversy regarding interference by Government departments into research work. I have indicated how such interference is possible. My views regarding the danger of departmental influence are based on personal knowledge. The committee must decide whether there is anything in them. I do not want to be drawn into a controversy with Dr. Cumpston or anyone else. In broad terms, the views I have expressed are the views of my association. There is always the possibility of influence being exercised. Whether that has been done in the past is really a question of the interpretation of facts. Certain actions may lead colour to the suspicion that influence has been exerted.

44. *To the Chairman.*—The language appearing in the second half of paragraph (c) of the agreement appears to be satisfactory; but there may be a fly in the ointment. The school will be attached to the University in order to give it academic standing. If it were erected elsewhere it would not have the same status. In that case, I consider that the University should have the predominant influence. I should not go so far as to say that my opinion is equivalent to a want of confidence in the Commonwealth Department of Health. It is rather a want of confidence in the ability of any Government department, in certain circumstances, to do what is expected of it. I realize that it is sometimes difficult for a Government official to remain uninfluenced by Government policy. My remarks apply generally, and not particularly, to a school of medicine. I do not like Government control of scientific matters.

*The witness withdrew.*

Henry Hastings Willis, Medical Referee in the employ of the Department of Repatriation, and Secretary of the Public Medical Officers' Association of New South Wales, sworn and examined.

45. *To the Chairman.*—My association approves entirely of the proposal to establish a school of public health. We fear, however, that the school may be

started on wrong lines. Nevertheless, we are of the opinion that it is better to start the school than to remain as we are. Any objection I may express as to detail does not affect my association's approval of the scheme and is anxious that the school shall be started along proper lines. From a brief study of the agreement, it appears to perpetuate the worst features associated with the Townsville school. I was associated with that school for eighteen months in connexion with the hookworm campaign. I endorse the remarks of Dr. Morris regarding the effect of departmental control. The proposed scheme perpetuates the bad features associated with the Townsville school. I am therefore surprised that the University authorities have approved of the agreement. The late President Wilson, of United States of America, would have described this scheme as "an endorsement with unsatisfactory conditions attached." I consider that the school should be under the direct control of the University. My association stands for University control in preference to departmental control of bodies of this kind. The provision in the agreement that the Senate of the University may veto any appointment will, in my opinion, never be exercised. It is possible that the Senate will not know of the appointment until after it has been made, in which case it would be loath to veto the appointment. My association views this school primarily as a teaching institution and, secondly, as an institution for research. From the agreement it would appear that the appointment of professors and teachers will have to be approved by the University Senate, but I feel sure that in practice that will not be so. The original agreement in respect of the Townsville Institute was not so markedly departmental as this one. I fear that the experience at Townsville will be repeated in this case. The Townsville institution was not originally a purely government institution, but owing to the increasing financial liability of the Commonwealth in connexion with it, the institution came under departmental control. It was then that the research spirit was killed. As originally planned by the Bishop of North Queensland it was to be an institution attached to a university. The original board consisted of representatives of the universities of Sydney, Melbourne and Adelaide and of the Commonwealth and Queensland Governments. At first the influence of the Commonwealth Government was small, but as the Commonwealth grew and became more important, and provided more and more of the funds, the departmental influence also grew until the institution became entirely under departmental control. Evidently the University authorities accepted the agreement providing for the Commonwealth Government to have a majority vote because it is to provide the money, but I consider that the endowment is one with unsatisfactory conditions attached. My association does not object to the Commonwealth Government being represented on the Board of Control, but it feels that the University should have the controlling influence. The academic spirit should pervade the institution; for that reason it should be situated in the University grounds. Notwithstanding our objections to departmental control, we welcome the establishment of the school. We hope, however, that it will be started along the right lines.

46. *To Senator Reid.*—In my opinion the provision in the agreement for the appointment of an umpire in certain circumstances does not provide a sufficient safeguard. There would be a better spirit in the school if it were a purely academic institution associated with the University. The examinations will be controlled by the University authorities and in my opinion the teaching should also be under their control.

47. *To Mr. Cook.*—If there is to be a board of five, I think that three of the representatives should be

University men, though not necessarily from the Sydney Medical School—Melbourne and Adelaide might be entitled to representation. The other two persons should be appointed by the Federal Government, one being a departmental officer, and the other a non-departmental man. Seeing that this State employs a very large number of public health workers, the proportion being about eight to one of those employed by the Commonwealth Government, and as the States will provide most of the students, representation from the States would not be inappropriate.

48. *To Mr. McGrath.*—The money to be received from the Commonwealth is an endowment and the University authorities probably thought that it was not wise to lock a gift horse in the mouth. In regard to the Townsville school, it is true that isolation was a big factor which did mitigate against the success of that institution, but other factors which operated in the same direction were mental irritability in the Tropics, the censorship of published works in Melbourne, and departmental control in regard to appointments. I do not think that the isolation of the school entirely accounted for its lack of success. It should be possible to do good work even under isolated conditions, but it nevertheless remains true that an institution which is not isolated can do better work than one that is.

*The witness withdrew.*

Robert Dick, M.B., Ch.M. (Syd.) D.P.H. (Camb.), Director-General of Public Health in the State of New South Wales, sworn and examined.

49. *To the Chairman.*—I understand that this inquiry is in connexion with the establishment of a school of hygiene and tropical medicine in the University grounds in Sydney, the school to be in some way linked up with the University. I understand also that the Commonwealth Government proposes to erect the building. I was not consulted at all with regard to the proposal to establish this school, but I think that a step of this kind is very desirable. I certainly think that consultation with medical opinion outside the University would have been desirable in regard to the objects and pursuits of the institution. A school of hygiene and tropical medicine should be a most comprehensive organization. I have just returned from a trip abroad, during which I visited America and Britain, and I made a point of inquiring into schools of hygiene in those countries. Institutions of this character are to be met with in different parts of the world. During my recent visit abroad I had an opportunity of visiting and inquiring into establishments of this kind in the United States of America, Canada, and Great Britain. In the United States of America one finds the Harvard School of Hygiene at Boston, and the Johns Hopkins School of Hygiene and Public Health at Baltimore. In Canada there is a School of Hygiene associated with the Toronto University at Toronto. In Great Britain there is the London School of Hygiene and Tropical Medicine, situated in London. The establishment of these schools of hygiene has been brought about as a result of the recognition of the need for providing larger and better opportunities for training and investigation in the science and art of hygiene and public health. As I visited the Johns Hopkins School of Hygiene and had interviews with the Director and also with several of the professors in charge of different departments, I may perhaps briefly state the history of the movement as applied to me which led up to the establishment of this school, and also give an outline of the scope of its activities, since what applies to it practically applies to the other schools mentioned. In 1914, following on a conference of leading authorities in public health work to consider the general question of the training of qualified sanitarians and public health officials, a plan was prepared for an institution of public health and



hygiene, and a committee was appointed to determine where such an institution could be located most advantageously. Acting upon the information gathered by this committee, the Rockefeller Foundation decided largely by reason of the facilities, organization, and ideals of the Johns Hopkins Medical School, to cooperate with the University in the establishment of a School of Hygiene and Public Health. The main objects of the school are to carry on courses for the training of qualified persons for public health work, to promote investigational work in hygiene and preventive medicine, and to provide opportunities for the training of research workers in these subjects, and to develop adequate means for the dissemination of sound hygienic knowledge. Special and mutual advantages arise from the close relationship between the school and the International Health Division of the Rockefeller Foundation, particularly in field work and in the opportunities for investigation and training in tropical medicine and the control of special diseases. The work of the school is organized under a number of departments. Facilities for field work are provided through co-operation with State and City Departments of Health and various unofficial public health organizations. A new building of eight stories was erected in 1925 to house the various departments. The cost of this building was defrayed by the Rockefeller Foundation, and the school is endowed by this Foundation. The administration of the school is under a medical director. There is an executive committee composed of the President of the University, the Director and the Emeritus Director. There is also an advisory board composed of members of the teaching faculty of the school, which is required to report to the trustees of the University its suggestions, and to prepare and carry forward the proposed arrangements for the instruction and graduation of students of the school. The following is the history of the events which led up to the establishment of the London school, as obtained from the literature and from a personal interview I had with the present Medical Director, Dr. Andrew Balfour.—This school owes its origin to the report made by Lord Athlone's post-graduate medical committee. This committee, set up by the then Minister of Health (Sir A. Mond), issued its report in 1921, and pointed out that the teaching of public health to post-graduate students was in an unsatisfactory state. The committee suggested the concentration of instruction in all branches of preventive medicine at one institution. A central school of this kind, affiliated to the University of London and fully equipped, would, it was felt, provide for the needs of men proceeding to degrees and diplomas in public health. The Rockefeller Foundation offered £460,000 for the purchase of a suitable site and for the erection of the building and equipment, and the condition attached to the gift being that the British Government should undertake to provide the funds required for upkeep. The offer was accepted, and the British Treasury undertook to pay £25,000 a year towards maintenance. The building which is to house the various departments of the school is at present in course of construction. The London School of Tropical Medicine, which has been functioning for a number of years as a separate institution, has been linked up with the School of Hygiene, and now forms part of that establishment. The school has a court of governors comprising representatives nominated by the Ministry of Health and other governmental departments, together with representatives of various leading organizations which deal with research, hygiene, preventive medicine, &c. There is a small board of management. The staff comprises a medical director, with directors in charge of the various divisions into which the activities of the school are divided. For each of the schools which I have mentioned the Rockefeller Foundation has provided funds, either for their con-

struction and equipment or for their endowment, or both. There is no government control of any of the institutions, except that the London school receives a subsidy from the government. The Toronto school has been established in connexion with the University. It occupies a new building, in which are also housed the school of medicine, the school of preventive medicine, and the school of public health nursing. The Connaught laboratories are also housed in the same building, and are used in the manufacture of insulin and antitoxin. The Rockefeller Foundation gave \$50,000 dollars for this school, 400,000 dollars to be used in the construction of the building, and 250,000 dollars as an endowment. I take it that a school established here would carry on similar functions, and I regard it as a matter of urgency that such an institution should be set up. At the London school they carry on certain faculties which are operating already, including bacteriology, which is being carried on in a building near by, and the work in connexion with vital statistics is being done in another building. As the Commonwealth Government is providing the building and equipment, and is responsible for the appointments to the staff, it is advisable, I think, that the institution should be connected with the University. Some might ask why the school should be established in Sydney. Why not go to Melbourne or Canberra? I think there are advantages associated with Sydney which favour the establishment of such a school here. There are splendid opportunities for co-operation with the administration of State and municipal departments. There is a medical school and hospital adjacent, and there is a science department where quarantine and other marine hygiene measures are carried out. Then the city itself provides many problems in public health which can be studied. This is a large industrial centre, and the study of industrial diseases will, I presume, be one of the activities associated with the school. There are also here a number of voluntary organizations such as the Red Cross Society and District Nursing Associations, all of them associated with activities which will be dealt with by a school such as this. One of the most essential things for a school such as is proposed is to have it linked up with the living organizations which are associated with its own activities. It is no use having a watertight institution which will deal only with problems in an academic way. The teaching should be carried out by persons who are actively engaged in the work itself, otherwise the students will receive only theoretical instruction which will be of no value to them. The school must be linked up with the active, living administration of public health in the centre in which it is placed. I do not think that there is any lack of co-operation at the present time between State and Federal authorities. There has been created, on the recommendation of the Royal Commission on Health, a body called the Federal Health Council, composed of three representatives of the Commonwealth Department of Health, with Dr. Cumpston as chairman, and representatives from the various States, who are the chief health officers of those States. That council meets once a year, and met only three or four weeks ago in Melbourne. It deals with various matters which have for their object the co-ordination and co-operation of activities between the States and Commonwealth, and in this respect it is functioning very well. It has had only two meetings so far, but I think that it has done what it set out to do. The Toronto School of Hygiene is carrying out a very important work. As you are aware, every medical student who is going through a course in the medical schools of Sydney or anywhere else is required, during one year, to attend a certain number of lectures in preventive medicine and hygiene as part of the curriculum. In

Toronto there is an arrangement by which that particular subject must be done at the school of hygiene, and there is a practical course which occupies about three weeks. The student put through a practical course of hygiene in matters which will affect him when he becomes a medical practitioner. I think that the school it is proposed to establish here should carry out this portion of the medical students' training as one of its functions. I certainly think it would be an advantage if health inspectors received a grounding in the subject of public health at the school. In New South Wales examinations are conducted under the supervision of the Royal Sanitary Institute of London for food inspectors, sanitary inspectors, and others. There are similar local boards in all the States. The successful candidates receive certificates from the Institute in London. The sentiment in Australia nowadays appears to be that matters of this kind should be managed in Australia, and should no longer be connected with the Old Country. With the establishment of such a school of hygiene here these inspectors could receive their instruction at the school, and obtain certificates from it. The school could also concern itself with the instruction of public health nurses. It need not, in my opinion, be made compulsory for medical students to take a post graduate course at this school, but they should be required to do a course there at some period during their training, as is done at Toronto. It frequently happens that medical men are turned out as general practitioners with very little knowledge of public health matters. The importance of preventive medicine, as against curative medicine, is becoming every year more emphasized. Preventive medicine is a science or art by which it is hoped to lessen the need for hospitals and other institutions which dispense curative medicine. Anything which will tend towards the spread of knowledge on the subjects of preventive medicine will no doubt reduce the need for the practice of curative medicine. Schemes are being prepared in all British-speaking countries for the spread of such knowledge, and the opinion is gaining ground that preventive medicines should be studied much more than is now the case by the general medical practitioner. He should be a missionary, a man who pays as much, or more, attention to prevention as regards disease as he does to curing it. It is recognized that the general practitioner is in the best position to prevent disease by his instruction and advice. He goes into the homes of the people, and is in more intimate contact with them than is any one else; yet, up to the present, the medical practitioner has done hardly anything in that direction. In the report of the Royal Commission on Health the first paragraph on page 13, this statement appears:—“The Commonwealth could be of great assistance to State and local authorities by providing a training school where prospective medical officers of health could receive postgraduate training in different fields of health administration, and where inspectional staff or other personnel should also be trained. At present there is a great lack of facilities for such training.” Dealing further with the same matter is a statement which appears on page 25 of the report. Paragraph 12 reads:—“In connexion with the prevention of the development of disease, it may be noted that the general Medical Council of Great Britain resolved in May, 1923, that ‘throughout the whole period of study the attention of the student should be directed by his teachers to the importance of the preventive aspect of medicine.’” I consider it necessary that medical men engaged in public health work should have special qualifications. It is difficult, of course, to insist on all inspectors working for shire and municipal councils having certificates, because such men are not always available, and there is the question also of providing the necessary cash. In New South Wales there has been in operation for some time a scheme

whereby local authorities are assisted in this direction. Having established this scheme of providing certificates for trained men, we were in a position to make certain conditions attaching to appointments of health inspectors to municipal and shire councils. In order to encourage these authorities to appoint qualified men the Government offered to pay a moiety of their salaries. When the system was introduced some years ago the sum offered had considerable value, namely, £50 a year, or half the salary paid to inspectors at that time. The number of inspectors to whose salaries a contribution is made in this way is governed entirely by the vote which Parliament grants for the purpose. A few thousands each year are received and allocated for payment of inspectors who are thoroughly qualified. Amongst the conditions attached to such subsidy are that inspectors cannot be dismissed without an inquiry, and that they must give their whole attention to public health work. Such an inspector cannot be the impounding officer, for instance. There is a strong demand for assistance of this kind, but our activities in this connexion are limited by the amount of money voted. I have no doubt that the proposed institution will be well-served by medical men throughout the country, and I believe that Australia is doing a very wise thing in establishing the school. I hope that we shall be able to maintain it. Such schools in other parts of the world have been able to obtain large endowments from the Rockefeller Foundation. I should say that it would be a matter of prudence not to go in for too big a scheme to start with, but one that can be developed as time goes on. I dare say it is quite right that all appointments to the staff of the school, except of those who will be dealing with research, pure and simple, should receive the approval of the Senate. I do not think it necessary that the research workers should be approved by the Senate, as some of them may be working there for only a month or so on special work. That section of the agreement deals only with the method of appointments to the staff, not with control of the institution. Paragraph 9 of the agreement defines the constitution of an advisory council, but it does not specify who is actually to control the institution. I suppose the Minister for Health will have the final say, but he will act through a Director-General of Health, who will have for advisory purposes this council nominated by the Government and by the University itself. Dr. Cumpston is to be the director of the school. At Harvard a certain number of the Fellows of the University form an advisory board of the hygiene school. In the London school there is a director who controls operations in the laboratory. Over him there is a committee of management which is culled from organizations interested in the work of the school. There are representatives nominated by the Minister for Health, by the General Medical Council, by the Royal Institute of Public Health, by the Royal Sanitary Institute, the Metropolitan Boroughs, the London County Council, &c. All these have representatives on the board. From this board a management committee is appointed, and this committee is in direct contact with the director. The circumstances are different here, I admit. I have no objection to the control of the institution by the Department of Health, but the one thing upon which I would insist is that the school should be linked up with the living active organization which administers health, something it will be attached to and work with.

50. To Senator Reid.—It is true I think that attempts have been made to interfere with my administration by politicians and other outside influences, but they have never influenced me as an administrator. As to whether they have ever influenced the Minister I regard that as a very awkward question which I cannot be expected to answer. I do not think that there would be any great risk of the work

of this institution being hampered or restricted by political influence which might have reason to fear the effect of its findings upon established government policy. The school would have such a standing that it would be able to overcome such influences even though an attempt were made to exert them. It is difficult to give a direct answer to the question as to whether this institution would do better work if it were freed from government control and placed directly under the control of the Senate of the University. Government departments frequently come in for a good deal of criticism which they do not deserve. One of the questions considered by the Royal Commission on the Amendment of the Constitution was the proposal that the Commonwealth Parliament should have greater powers in legislating on matters dealing with health. I am opposed to that sort of thing, and do not believe that the Commonwealth Parliament should be given an absolutely free run in such matters. I do not think that research work would be interfered with if this institution were left under government control, especially if it were linked up with the University. The school should be associated with outside organizations including the State health organization. At present we are doing the work and there is no use in having the school here unless it takes advantage of our presence. The boards of control or advice which govern such schools as this in other countries are not government boards. Such functions are not taken on by governments in other parts of the world. In London the government has representation on the board of governors and board of management and thus has an interest certainly, but not the main interest as the government will have here. I am satisfied that the establishment of this school is a step in the right direction, and it will have a wide national value. We do not compel factory and health inspectors to possess special qualifications, but we recommend it, and we assist to bring it about in the subsidy which I have mentioned. Personally I should be in favour of compelling them to have some certificate.

51. To Mr. Cook.—I have not given any thought to the composition of the board of control. I should imagine that we ought to take as a guide what is being done in the English and Canadian schools. In Toronto the school is part and parcel of the university where there is a professor of hygiene. In London there is a board of governors with representatives drawn from those interests associated with public health and research. The great thing is to have the interests that are to be dealt with by the school represented on the board. We have not such well established interests here as in Great Britain, but it is a matter for consideration as to whether it would be wise to confine control entirely to the university. We have outside organizations doing health work which might be linked up in some way. One cannot say whether this school could be made an unqualified success until one knows what financial support it will receive. There is no question however, that it will benefit public health in Australia and possibly confer benefits on the world at large. I had a talk with Dr. Daffour and he gave me the impression that the £25,000 endowment which the British Government proposed giving the London school would not be sufficient to maintain the institution. I cannot say whether this school which we are considering will pay its way; very likely it will not, but for the sake of the benefits to the whole of Australia and to the cause of public health the world over we should have the school if we can afford it. It might be a good thing to allow the States to be represented on the board of control. It is not the University alone which is interested. The University requires, as far as public health is concerned, that a student during his medical course, shall do so much study in preventive medicine,

but I do not know if it does anything else. It may be that somebody more directly interested in public health than the University should have representation on this board. The University is the centre of education, I admit, but not necessarily of health education.

52. To Mr. Cameron.—The study of preventive medicine in its present form is not really a new form of medical study. I myself graduated more than 30 years ago, and there was a course dealing with hygiene and preventive medicine in the curriculum at that time. I do not know that there is more being done in regard to preventive medicine than there was then. The course may have expanded to some extent, but as to its practical applicability, I do not think that it has improved at all. The public health of the community generally has undoubtedly improved as a result of the study of public health matters, but not necessarily through the efforts of the University. I believe that the establishment of this school will be a real benefit to the community.

(Taken at Canberra.)

WEDNESDAY, 2ND MAY, 1928.

Present:

Mr. MACKAY, Chairman;

Senator Barnes	Mr. Cook
Senator Reid	Mr. McGrath
Mr. M. Cameron	Mr. Seabrook

Lewis Windermere Nott, medical practitioner, sworn and examined.

53. To the Chairman.—I think that it is in the best interests of the public, public health generally, and of science that the proposed school of public health should be associated with a University, and as the medical schools of Australia are now situated, I think that Sydney is the most suitable location for the institution. Generally the site chosen should be satisfactory; but I am not quite sure that there will be sufficient room for the domiciling of animals to be used for experimental work. Having been associated with the Rockefeller Institute and the International Health Board in carrying out research and control with regard to tropical diseases, I am familiar with what is required of such an institution. I have first-hand knowledge of the work done in the Townsville Tropical Institute. It promised well while it was under the personal direction of Dr. Breinl, a man eminently fitted for the position. Some interesting and useful work was done. He was carrying out useful research work in tropical diseases, blood research, and industrial hygiene. When Dr. Breinl gave up that position to pursue the calling of a private practitioner and consultant in Townsville, the school passed more directly under the immediate control and influence of the Commonwealth Health Department. Since then it has done very little that is of practical use either to the general public or to medical science. I consider that this method of control was entirely wrong; remote departmental control is hopeless. The department cramped the style of the whole institute, because it lacked imagination, and did not maintain the personal touch that is necessary to inspire research work. The failure of that school is an example of what can be anticipated if the Public Health Department controls the activities of research in Australia generally. You tell me that one of the reasons given in evidence for the non-success of the institute was an insufficient supply of clinical material, and another was the fact that it was located too far away from the large centres of population to attract officers there for training.

That is not a strong argument, as a matter of fact I am surprised to hear it advanced. The Department could not expect the clinical material to turn up at its doors. Every important research school, such as the London and Liverpool schools, secures the world for material. So does the Rockefeller Institute. The argument that the Townsville institute is too far away is equally ridiculous, because those interested in the subject of tropical diseases do not hesitate to proceed to London, Liverpool, or America. I regard the proposed school as urgently necessary and a long felt want. Whether the fact is palatable to us or not we must recognize that from a medical point of view we are in reality a third-class people occupying a first-class country. This statement in its crudity and baldness might sound somewhat dogmatically extravagant and provocative of much controversy, but it is none the less true in its essence, and by the very simplest analysis of available figures it can be demonstrated beyond all shadow of doubt. Were there in existence anything like complete figures indicating the record of morbidity and mortality throughout the Commonwealth, the figures would, I feel certain, more graphically illustrate the meaning of my previous remark. On this subject of morbidity and mortality, and, generally speaking, in regard to health statistics, it is deplorable that there is no separate or uniform method of co-ordination between States and Commonwealth. In public health analysis morbidity statistics are of as much importance as mortality figures. That there is no such co-ordination is abundantly clear from a perusal of the Commonwealth statistics and the State statistics of New South Wales for the same disease over the same period. The accurate compilation of such statistics would be of the utmost value, and it is vital if we are to anticipate progress in public health and preventive medicine. A public health conscience cannot be fostered without illuminating records. If, however, we turn for a moment and analyse a few simple figures, we are staggered, or ought to be staggered, by the immense importance of the message these figures should convey. Let me here say that these figures are official, or have been published as such, and have not been challenged by any authority. Take one disease that by the very magnitude of its incidence, by the magnitude of its reputed increase in incidence in the late decade, and by the sensible publicity it has received, has captured public imagination for the time being. I refer to cancer. In 1885 the mortality was one in 43; in 1925 it was one in 10; and at the present rate of increase it would be one in 5 in 1965. From available records, incomplete as they are, we find that among females between the ages of 45 and 59 years, the death-rate is 1 in 4. Take another illuminating series of valuable figures relating to the medical examinations for enlistment during the recruiting years of the recent war. Under the 1916 proclamation calling men between the ages of 21 and 35 years to the colours, 43 per cent. were rejected on first examination as unfit for service. A large percentage of the 58 per cent. passed as fit subsequently broke down in training and did not see active service, so that it is proper to assume that in view of the professional nature of the medical examination, and subsequently the number who broke down in training, over 50 per cent. called to the flag in 1916 were rejected as unfit. Out of 416,000 who enlisted for service overseas, 60,000 broke down in training, more than 40,000 breaking down in elementary and rudimentary training. Of the Senior Cadets, 17.5 per cent. were rejected and declined admission to the Citizen Forces between 1915 and 1924; 40 per cent. of children at the age of five years of all school children examined gave evidence of the ravages of earlier diseases that were for the greater part preventable. Figures compiled in Melbourne indicate that 30 per cent. of the patients who die in public hospitals there are syphilitic. In

1910, 28.2 per cent. out of 2,300 young men examined by a regimental medical officer in a Sydney suburb had and were suffering from venereal disease. It has been found that 10 per cent. of the expectant mothers in a big Melbourne institution were suffering from this disease. In France, for the year 1918, there were 394 cases of typhoid fever from all troops there, an admission rate of 0.12 per 1,000. Of these, 30 died, a death-rate of 0.07 per 1,000. In Australia, in 1922, there were 1,933 cases, an incidence rate of 0.36 and a death-rate of 0.037. In South Africa during the Boer war, when preventive medicine was not practised, the morbidity rate was 285 per 1,000, and the death-rate 30 per 1,000. This is a wonderful tribute to research and prevention. One woman to-day in every 200, who gives live birth to a child, dies. This is a terrific disgrace. Where the figures are complete we find a deplorable state of affairs; but it is impossible to get final and complete morbidity figures or even vital statistics in this regard. The infantile mortality rates in Britain and the States of the Commonwealth are as follow—

	Per 1,000 live births.
Britain . . . . .	3.82
Western Australia . . . . .	4.34
Tasmania . . . . .	4.64
Queensland . . . . .	5.02
Victoria . . . . .	5.48
South Australia . . . . .	5.61
New South Wales . . . . .	5.86

I have been trying to obtain official figures in regard to mental defectives or sub-normal persons. The questions addressed by me in Parliament to the Minister for Health have led to no useful information being given for the simple reason that no statistics are available on this important aspect of medicine. That, I maintain, is deplorable. Mental defectives are a section of the community that we cannot afford to disregard. From the economic point of view and with regard to social and penal offences, we must study this problem, because the fecundity of these persons results in their increase at a particularly rapid rate. I have given sufficient figures to indicate that the health of the nation calls for immediate action to provide adequate measures for the training of the personnel necessary to carry out this urgent work. A publicity campaign should be undertaken so that the public generally would be well informed regarding the dangerous diseases prevalent in their midst, not only as regards diseases that kill, but those that cause chronic invalidity. You ask me whether Australia is in any worse position than other British or European countries. It is difficult to make a complete analysis because comparative figures have not been compiled, and because our own statistics are incomplete. For instance, in South Africa, where the white population does not predominate as it does in Australia, and the conditions of life, too, are different, tropical diseases are rife. In fact, Africa is the home of tropical diseases. In India, the population is almost entirely dark, and over 1,000,000 persons die every year from tropical diseases of which malaria constitutes 92 per cent. But if we compare the position in Australia with that among the white population of the Panama Canal region, we find that we are in an infinitely worse position, because in the Panama there is strict government control and penalties are provided for breaches of health regulations. In Australia the Health Department has no defined authority. It must resort mainly to bluff. When I was controlling the research work in connexion with ankylostomiasis or hook-worm, in North Queensland, we could not compel infected cases to submit to treatment; that fact alone negated to a considerable extent our efforts. All we could do was to prevail upon them by bluff or simply reason with them. I hope that there

has been a sudden-awakening to the unsatisfactory and what I regard a critical position in Australia. The Health Department has entered upon a campaign of publicity, and the Commonwealth is fortunate in having a medical man as Minister for Health who has specially interested himself in cancer publicity. The adequate staffing of the proposed school is essential. I do not know whether the object is to make it a tropical school of medicine and health on all fours with the London and Liverpool institutions. If not, it ought to be called by some other name. If it is intended to have an international reputation, the Government is not proceeding on the right lines to achieve it. In Great Britain the method of control has given the utmost satisfaction. There is a research council, on which there is a Government representative, who reports to the Government particularly in connexion with finance. The activities of the Health Department are almost negligible in regard to research in Great Britain. Although there is a Ministry of Health, the various countries have their own administration. Scotland, Ireland, various counties, and even the Isle of Man and the Isle of Wight control their own destinies in the matter of health to a very great degree, but research is delegated to the research council. I hope that the Commonwealth Government will reconsider the proposed method of organization of this proposition which, on the face of it and if correctly developed, will be of extreme benefit to Australia. You draw my attention to the fact that clause 6 of the agreement between the University of Sydney and the Commonwealth provides: "The Commonwealth will appoint the staff of the said school, including professors, teachers and research officers. All such appointments other than those of persons appointed to engage exclusively upon research shall be subject to the approval of the said Senate." I do not think that the Government should exercise that right. It is too embracing and not in the best interest of research. The only body capable of making such appointments would be one representative of the deans of the faculties of medicine and the professors of pathology and prominent pathologists in the various States; in other words, the Research Council. I cannot conceive of any school of tropical research and hygiene disregarding the advice of the pathologists of the various medical schools in regard to research. Research students are not made; they are born. They must be caught early in their career and early encouraged in their course. A school of health and a school of tropical medicine within the bounds of a medical school would appeal to the imagination of students who intend specializing or doing research. The Commonwealth, you inform me, is undertaking to provide a building to cost £20,000, and it is to equip and maintain it for a period of 25 years. Despite this fact, I maintain that the appointment of research officers and staff generally should not be left to the Department of Health. There is every indication that there should be a research council with Government representation to work in co-operation with the university. The expenditure of £20,000 is not nearly sufficient. That may be enough for the building; but if progress is to be made in research and preventive medicine generally, more money will have to be devoted to the institution, though I admit I do not know what is exactly meant by "equip and maintain." Up to the present time preventive medicine has been the Cinderella of medicine. It has no dramatic achievements to its credit, nor has it received the publicity that medicine and surgery have; but the Government might well spend £250,000 a year in this direction. The Government seems anxious to do the best it can for public health. In order to give all States some benefits and for the purpose of increasing education in public health generally out of the funds to be disbursed I suggest that the

Government found a Chair of Public Health at each university. The endowment of such Chair would give fuller opportunity to the medical student to complete and amplify his knowledge of public health. At the present time public health instruction is unpractical and inadequate. In addition and apart from this the Government should establish a school of health and tropical hygiene for fostering the study of the preventive side of medicine. Let this work be controlled by a research council in co-operation with the university. Research workers would be attracted only by offering them sufficient remuneration to make it possible for them to look to some advancement and to know that as their services became more valuable to the community financial recognition of the fact would be given. At the present time the salaries or emoluments offered are ludicrously small, and do not attract the best men. We must not reserve this field solely to Australia; research to a certain degree must be mutually international. An interchange of research scholars would be of great benefit, and could be easily arranged. If the proposed school is to achieve its object the less control that is exerted by the department the better it will be. Let the university and the research council control its destinies, the Government having representation on the council in order to have a voice regarding the allocation of the money voted. One of the most important phases of the public health activities of a State should be close research into industrial hygiene and occupational diseases. A small effort in this direction was made by Professor Chapman and Dr. S. A. Smith under the aegis or at least in conjunction with an international health board and the Rockefeller Institute, who carried out an investigation of occupational diseases at Broken Hill. But this phase of research work in Australia died in its infancy. I think that it is incumbent upon the Government to consider the necessity for detailed research work on the subject of industrial hygiene generally. This matter should be included among the subjects to be dealt with by the proposed new school. I understand that the Tropical Institute at Townsville has had about 1,000,000 spent on it in the last sixteen years; but very little benefit from it has accrued to the nation. I should like to see it maintained as a tropical school, but it will have to be re-organized and put on a basis that would take it out of the hands of the Public Health Department. The department's idea is that the best results are obtained by constant and irritating demands for reports. I have no great objection to the personnel of the staff at the school. I do not think it receives encouragement from the department to proceed on the right lines. You tell me that one witness said that the failure of that school was brought about by a shortage of clinical material. That shortage would be occasioned by unsympathetic administration. There will be no more clinical material available in Sydney than in Townsville, unless the department is ready to spend money to obtain it. All down the coast from Thursday Island through Cairns to Sydney quarantine officers are stationed. We never hear of a case of an Oriental or tropical disease being discovered in Sydney. Even the specialists in Macquarie-street do not meet with cases of tropical diseases, *ab initio*; and it is inconceivable that it can be assumed that tropical diseases are going to be imported to Sydney, unless by accident. If such diseases are imported it is a grave reflection on the efficacy of our quarantine administration. The material has to be searched for. The biggest tropical school is in Liverpool, and its material is obtained from all parts of the world; it does not rely upon the stray cases coming to the institution by shipping. The proposed institute will fail to achieve its purpose in the field of tropical medicine unless full work is done in addition to laboratory work. The Government should proceed in the matter of appointing a medical research council

by calling a meeting of the deans of the faculties of medicine, the pathologists of each of the universities, together with pathologists and bio-chemists of note in the various States that have established advanced medical schools. The Government should accept suggestions from that body as to the formation of a research council which, I repeat, should be representative of the deans of the faculties of medicine, the pathologists, and the Government, and perhaps there should be an *ex officio* member representing the British Medical Association. I do not just on this matter as being just before the construction of the railway as far north as Brisbane, but the matter is left to the Minister or to the adviser to the Minister, who is the Director-General of Health, the whole project would be but a reflex of the administration of the Board of Health. It is only natural and reasonable to assume that this would defeat the whole object of a research institute. There is no lack of co-operation between the Commonwealth and the States at the present time. Their relations are excellent, so far as they can harmonize and the demands of public health research are met throughout Australia, but research is outside the pale of their activities. State Ministers are doing their utmost to work in harmony with the Commonwealth, and the tendency is to give greater control to the Commonwealth where it is desirable that that should be done.

54. To Senator Barnes.—Generally speaking in broad terms, apart from those cases of cancer in which the disease affects the reproductive and lactation organs of women, owing to their particular physiological structure, cancer is no more prevalent in women than in men. The Liverpool Tropical School has field units all over the world for the purpose of gathering its clinical material. For instance, it has men stationed in Uganda, Nigeria and the Gold Coast generally collecting specimens, forwarding reports, and collaborating with the local medical men and scientists generally. Australia has under its control New Guinea and the other Mandated Territories, which, with the South Sea Islands, afford a most prolific field for the study of tropical diseases. Australia having undertaken obligations with regard to those territories, it is incumbent upon her to undertake the study of the diseases that are prevalent there. The White Australia policy will prevent the introduction of the diseases to the Commonwealth. The practical absence of a coloured population in Australia is unique. The Rockefeller Institute finances some of this work, and it exchanges literature with the various schools. The whole of the investigations with regard to hookworm carried out in Australia are undertaken by that institute in conjunction with the Commonwealth and State authorities. The Liverpool Tropical School has so far concentrated its activities upon the East and South Africa. I am not able to state what Government assistance it receives; but the fees alone provide a considerable contribution to the cost of its upkeep. When we were doing research work in Queensland in connexion with ankylostomiasis, we were asked to carry out a blood examination of all the children consenting to submit to examination. We found that 16 per cent. of them were suffering from filaria. The parents were notified that they had contracted the disease; but no treatment could be given. If a parent receives an official document or notification stating a child is suffering from a malady, but that the department is unable to suggest any treatment, confidence in the department's administration is destroyed.

55. To Mr. M. Cameron.—I was hoping that, if the school was established in Sydney, outposts would be formed in distant tropical parts for collecting data, &c. All things considered, Sydney would probably be the most suitable centre. At the same time, I do not think that Sydney would get more cases of tropical disease than Melbourne. The Commonwealth carries on a

serum laboratory. It prepares serum, which it puts on the market in open competition with serum prepared in other parts of the world and by other interests in Australia. It is also carrying out a limited amount of research work. I understand that that is being done in connexion with cancer, snake venom, and one or two other matters. But the Commonwealth laboratory has the last word on the subject of the quality of the serum manufactured by it. If a medical man in North Queensland did not carry out his own examination of a particular disease he had to send it to Brisbane, but before the construction of the railway as far north as Cooktown, eight or ten days elapsed before a specimen could reach Brisbane by boat. By that time the sample would be valueless. To meet that position the Health Department set up in various towns, such as Rockhampton and Cairns, a chain of laboratories, which examine urgent slides, sections, &c., for a practitioner. Whether these laboratories do research work or not depends on the men in charge; but they are exceedingly beneficial. Every medical man now has some knowledge of public health, but he is taught nothing about sanitary engineering. I think that the time has come when public health appointments should be sufficiently attractive to make it worth while a man confining his attention to the subject. I have no faith or confidence in the efficacy of part-time officers of health. Up to the present time wherever private practice and health have clashed public health for his research in blood diseases and blood generally; he retired to obtain a diploma of public health. The regulations with regard to venereal disease are not properly carried out. It is a difficult matter, and practitioners do not co-operate. They are too complicated and entail too much correspondence with the department. Education is the most valuable means of reducing the disease, and that can only be brought about by the medical profession recognizing eugenics and by the teaching of eugenics in the schools. The best way to deal with malaria is to tackle the disease in its early stages. One of the most important phases of public health administration is the collection of data showing the per centage of women and children who are forced to work under ungenial conditions. We have no record at the present time of the effect of that on the birth-rate.

56. To Mr. Scoble.—The institution at Townsville is still being carried on; but I understand that the staff is being reduced. At any rate the Institute is hamstrung. Dr. Dreini was world-famous for his research in blood diseases and blood generally; he retired from the control of the Institute in order to go into private practice. Then Dr. Cilento, an Australian with extraordinary qualifications, was appointed to succeed him. No sooner had he been appointed to Townsville than he was sent to the Mandated Territory. His future in tropical medicine is assured. He has done, and is doing, great work in New Guinea. His job would seem to be one of administration only. The Government has never adopted a policy of continuity in connexion with the Institute. It is hopeless to do research work properly when the expenditure is limited to £6,000 a year. That school would have justified its existence if those controlling its destinies had desired to make it a success. If the Health Department controls the new school to be established in Sydney, it will reduce it to a stereotyped departmental office. It will never have the elasticity that a properly constituted research council would give it. It will never have the confidence of the leading lights of the medical world. They will look upon it merely as they now regard the Health Department, an organization for administration. The board should comprise professors of the university as well as pathologists not connected with the university. The first obligation of the Government is the welfare of its people, and its main duty

is to supply the funds. Although the figures I have given in regard to the prevalence of cancer seem alarming, it must be borne in mind that modern research has resulted in the diagnosis being more accurate and cases not previously looked upon as cancers but innocent tumours being now classed as malignant. Investigation almost shows that the higher the civilization the higher the proportion and variety of disease. The death rate from diphtheria has been enormously reduced as a result of medical science, and great progress has been made too in the treatment of tetanus. Longevity has been increased as a result of the strides made in medical research, but longevity figures do not indicate morbidity or invalidity. Most of the young men who were medically rejected during the last war should have benefited from preventive treatment of their trouble in its early stages.

57. To Senator Reid.—Among the war rejects no particular disease was more noticeable than others, because no complete analysis was made of the rejected cases. I was referring to the year 1916, prior to which the pick of the Australian manhood had been despatched to the front. Sun-irritation as flat feet, hernia and adenoids and many other ailments were investigated by preventive measure in the early stages of those maladies. In the early stages of the war, before the protective serum was used as a curative for tetanus, the incidence of the disease was extraordinarily noticeable throughout every army in which it was employed. The Japanese are very advanced in the science of preventive medicine. Kita Sato is one of the most eminent men in that field. Shiga bacillus is most valuable for the treatment of dysentery. Preventive medicine is most valuable in the treatment of children during school life, and in the ante-natal and post-natal treatment of women its benefit cannot be computed. The proper study of sex hygiene would have a wonderfully beneficial effect upon the community. The best preventive measure to apply concerning mental defectives is to prevent their procreation. The type of mental defectives known as Morons, Mongols, Cretins, can be developed into a fairly useful citizen by proper treatment of the glandular therapy in many instances. Information on sex hygiene should be given in the schools through the right channels, because enlightenment obtained by that means would be such that compulsory legislation would be unnecessary.

58. To Mr. Cook.—The population of Sydney should reach the 2,000,000 mark within the next 50 years, and I see no reason why the proposed school should not be established there, though I see no special reason why it should. Its medical school is unrivalled, and material will be available for research work generally, apart from the tropical material. I would not confine the institution to tropical research, for research generally is overlapping. The University of Sydney has proved its capacity to administer its medical school, and to organize research work. In deciding the composition of the board of management there should be representation of the deans of the faculties of medicine, and a representative of the Government to attend to the allocation of the finances so far as the Government is concerned. I should also take into consideration the appointment to the Research Council of pathologists who are familiar with the world position in regard to research generally. There is a lack of co-ordination between State and Federal authorities in so far as the conditions differ; but there is greater desire than ever for co-ordination in the work. The tendency is for the States to transfer more of their obligations to the Commonwealth. I think that eventually health matters should be entirely under the purview of the Commonwealth. I have seen the plans of the proposed building but have not studied them closely. There

would apparently be sufficient accommodation for the immediate requirements of the institution, but I should regard it merely as a first unit of what should ultimately be a first class school of health and tropical medicine.

59. To Mr. McGrath.—Lack of inspiration, no encouragement and insufficient funds is responsible for the position existing to-day in connexion with the research work in Townsville. No such institute could be carried on without the expenditure of a great deal of money, and it may be a long time before any tangible result is obtained. Research work is laboriously continuous and painstaking. Dramatic results are not to be anticipated; it is life-long work. I never anticipated the Townsville institute would justify its existence under the policy of administration by the Government department. If we starve the proposed new school, even though the Research Council may control it, it may prove a failure. Therefore, I say that the expenditure of £30,000 a year is a mere drop in the ocean. The Government should be prepared to spend £250,000. Even if that were done, success could not be obtained under departmental control. Research work is not a proper function for a Government department. A man trained in the routine office of an administrator, although he may have every qualification for his particular work, is not best fitted to encourage research or guide it to a long and laborious but successful issue. A review of research work the world over, such as that of the Pasteur Institute, shows that if those engaged in the work had been tied down by red tape, the bug-bear of departmental policy, they could not have achieved success. Officers should be sent abroad to study tropical diseases on the spot as moving laboratories and ambulatory units.

(Taken at Melbourne.)

MONDAY, 7TH MAY, 1928.

Present:

Mr. MAOKAY, Chairman;	Mr. Cook
Senator Barnes	Mr. McGrath
Senator Reid	Mr. Seabrook.
Dr. M. Cameron	

Dr. William James Penfold, Director of the Baker Institute for Medical Research, Alfred Hospital, Melbourne, sworn and examined.

60. To the Chairman.—I am aware of the Government's proposal to establish a school of public health and tropical medicine at the Sydney University. I do not consider the erection of a building, costing £30,000 to be necessary. Dealing first with the tropical side of the proposal I point out that there has been a school of tropical medicine at Townsville for nearly twenty years, and during that time only two diplomas of tropical medicine have been granted. This indicates clearly that there has not been a great demand for the diploma. At present we have too few tropical disease experts to constitute the school, nor have we the amount and variety of tropical diseases necessary for the establishment of a good teaching centre in this country. I suggest that if the Government wishes to have men trained for medical work in tropical Australia and the Mandated Territories, where tropical diseases are encountered, the best plan is to arrange for two scholarships annually, one in the gift of the University of Sydney, and the other in the gift of the University of Melbourne. These scholarships should be worth about £400 each and the holders should be sent to the London school of tropical medicine at the school in Calcutta founded by Leonard Rogers. These schools are active centres and turn out a large number of diplomates. Australian students attending

either would receive a thorough training in the diagnosis and treatment of tropical diseases, because there is ample material to work upon under expert guidance. On the public health side it is interesting to note that during the last five years only eleven diplomas have been granted by the Melbourne University and ten by the University of Sydney, so that the average in each centre is about two diplomas per annum. This also shows that, as in the case of tropical medicine, there is no urgent need for the building of an expensive school. On the research side, in my judgment, the school, if established, should be under the control of a medical research council. I do not approve of the suggestion that it should be controlled departmentally, nor do I consider that Sydney has claims superior to other capital cities for the location of the school. Nearly all the agents used in immunization campaigns for the prevention of diphtheria, small-pox and other epidemic diseases, are produced, not in Sydney but in Melbourne, and as practical work is an important part of the training, I am opposed to the diplomates in public health being trained in Sydney. Melbourne, in my judgment, is the more suitable centre, because in this city we have the Commonwealth serum laboratories, an institution of outstanding value, where all the laboratory training can be done. It is essential that all students for the Diploma of Public Health should take four months' training in laboratory work there. The University of Melbourne should be provided with a professor of bacteriology and hygiene. If the Government provided say £1,500 or £2,000 per annum for this purpose, the professor appointed could arrange the course of study needed by the students and act as tutor in the special branch in which he was interested. These proposals would meet the teaching requirements of these two subjects at £2,800 per annum at the outside. I consider that mismanagement, rather than the isolation of the Townsville school of tropical medicine has been responsible for the very small number of diplomas granted and the small amount of research work done at that institute. After Dr. Breinl left it was placed under the control of the Department of Health. The department was also represented on the management during the time when Dr. Breinl had charge of it, and I know that he found the system unsatisfactory. Dr. Cumpston, I understand, has expressed the view that scientific isolation and the scarcity of clinical material were contributory factors in the comparative failure of that institute; but in my opinion physical isolation of the scientist is not a bad thing in connexion with research, because by means of medical journals it is possible to obtain records of the work done in all parts of the world. Mental isolation is only possible if the workers do not read the journals. I found institutes in Italy taking 300 current journals. Actually, Sydney, if the proposed school is established there, will be just as much isolated as any other capital city in the Commonwealth would be in regard to tropical disease experts. Sufficient tropical disease exists in Australia, and its dependencies to warrant the prosecution of tropical disease research. The Rockefeller institute has sent research workers here to investigate hook-worm disease, and there is also a certain amount of leprosy to be investigated, as well as certain fevers of which we know little. We should give the Townsville institute a five years' trial of research work under a national medical research council such as exists in England. The Sydney University has been provided with a professorship of anthropology, and the Melbourne University should have assistance in establishing a professorship of bacteriology. Practical experience in public health administration and inspection, in infectious diseases and in statistical work could all be arranged in Melbourne. I consider that instead of spending £30,000

on buildings and £9,000 annually in upkeep in connexion with the Sydney University, the available money for the foundation and support of the proposed school should be divided between the institutions that are already doing research work in public health and tropical medicine. The Commonwealth Government should set aside a substantial sum for this field of investigation and place the work under the control of a medical research council comprising men who love research, not for what it may bring to them financially, but for its own sake. At present the existing institutes and university laboratories for research are insufficiently endowed. Medical graduates who desire to be trained in public health matters could be trained better in Melbourne than in Sydney, because the Commonwealth serum laboratories are established in this city and students could get a more practical laboratory experience here. I am a member of the council of the British Medical Association, and I have placed my views as to the control of research work before that body. My proposal is for a medical research council on the British model. The British Medical Association of Australia has a definite policy on this question. Four out of the six branch councils desire medical research in the Commonwealth to be conducted under a research council constituted on the same lines as the council in England. Our association has a federal committee composed of delegates from the various branch councils, but the committee does not govern the policy of the association. Its delegates are instructed by the branch councils, in which resides the power of government. The federal committee is urging the constitution of a research council on lines not approved by the majority of the branches which, as I have stated, desire medical research to be controlled by a medical research council on the English model. The Federal committee is acting unconstitutionally in this matter. I am taking it up in the *Medical Journal of Australia*. In England the research council, of eleven, is solely responsible for all its medical research work. It comprises men essentially interested in research, and there is provision for parliamentary representation. Members of the council are chosen because of their association with research. They may be said to represent the leading minds in the field of British medicine. For example, the council has included Dr. Murray, the discoverer of the thyroid treatment of goitre; Dr. Hopkins, the discoverer of the growth vitamins in milk; Dr. Sir William Leishman, who was identified with the discovery of the nature of the disease kala azar, and many other medical men of world-wide reputation. Parliamentary representation on the council has been provided so that if questions are asked in Parliament as to how the vote for research is being expended, complete answers can be given. Lord Balfour has been chairman of the council for some time. I suggest that the Australian council for the control of research work should be constituted in the same way, though it need not necessarily have on it the same number. It might comprise say nine men, including two members of Parliament. Members would act in an honorary capacity and, being eminent research men themselves, they should be a source of inspiration to young research workers. Dr. Cumpston, in his evidence before the Health Commission stated that he preferred research to be under the Commonwealth Department of Health, which is under the control of the Minister. The British Medical Association does not favour that plan because research work would then be under the executive control of a department, and not, as I suggest, under the control of the research workers themselves. The departmental plan would be merely a perpetuation of the system of control at Townsville. Representatives of corporations should not be on the research council.

This system was tried in England and it was abandoned. The majority of the councils of the British Medical Association in Australia wish the Research Council to be entirely free from any departmental connexion. The department had its chance at Townsville, and the institute there failed both as a teaching and as a research authority. It was not handicapped owing to any shortage of funds, because it cost the Commonwealth £9,000 a year, which is not a bad vote for one institute in a country like Australia. I do not approve of the provisions in the agreement between the Commonwealth Government and the University of Sydney under which the Commonwealth Government will appoint the staff, including professors, teachers, and research officers, and which make appointments other than of persons engaged exclusively upon research work, subject to the approval of the Senate of the university. The Townsville institute failed as a research authority because the appointments to it almost guaranteed failure. For some years after Dr. Brein retired there was a succession of acting directors. I spoke to one of these individuals and asked him if he considered himself qualified to direct a research institute, and he replied that he looked upon himself as a glorified caretaker! Another acting director told me, when I inquired what was being done by the institute in the way of research work that one could not expect much result in research from an institute if the director had not had at least five years' experience in some other big institute abroad. The institute is conducted by a director-general of health in Melbourne, who directs a director of tropical hygiene in Brisbane, who has under him the director of the institute who is usually acting as medical officer of health in New Guinea. Then there is an acting director on the spot. Compare this plan with the management of the Medical Research Laboratory in Hampstead, England. That institute is under the Research Council. It has no director over it. The workers within the institute select one of themselves to act as executive officer in relationship with the Medical Research Council, which lays it down that an essential condition for successful research work is complete freedom for the worker. His must be a first class mind, operating in freedom and not embarrassed by instructions from directors and super-directors, or hampered by Public Service regulations. In further illustration of the manner in which research work has been carried on at Townsville, I refer members of the committee to evidence given before the Health Commission by Dr. Elkington, the Director of Tropical Hygiene. He stated that they had conducted protozoological examination of faeces for the determination of vibrios, Vibrios cause cholera. As this research was of special importance I wrote to the Townsville institute asking for a copy of the research, and as no notice was taken of my first communication I sent a registered letter, to which I received a reply stating that the institute did not have a copy, and suggesting that the research records might have been destroyed in a fire which had occurred at the institute many years previously. You may judge the value of the work done when I say that vibrios are not protozoa, but bacteria. It would be just as valuable to conduct a marasmus investigation of the zoological gardens for the determination of lions. The British Medical Association's federal committee's plan for the personnel of the Research Council is in line with the recommendations of the Health Commission, but that body was badly selected. State Health Departments were not represented on it, although the Constitution places the responsibility for public health in the hands of the State Governments, nor was laboratory medicine represented on the commission, although the laboratory division of the Commonwealth Public Health Service is the biggest division. Moreover, evidence on laboratory

medicine was obtained in a curious manner. I was informed that I would be called to give evidence, and was asked further what would be the nature of my evidence. I discussed my views with a high official in the Commonwealth Public Service, and I was not called to give evidence, though the directors of all other divisions were. My two senior assistants in the division were not called either. Laboratory evidence was taken from juniors. Laboratory workers wish to see a Medical Research Council set up on the English model, but the Health Department wishes control to be vested in the Minister. Departmental committees are unnecessary. I cite as a case in point the work of the cancer committee. Not long ago I asked for assistance for the Baker Institute to carry on research work in cancer, but the request was turned down by some one apparently without having been considered by the cancer committee. We do not wish to have that sort of thing perpetuated. We want everything to be above board. Professor Osborne, who is on the cancer committee, told me that my request had not come before him, and am not sure if the proposed scheme of health was discussed by the Health Commission. When I was told by a high official I would be asked to give evidence I was the director of the laboratory division of the Health Department. I am not prepared to say that I was not given an opportunity to place my views before the commission because I had expressed certain opinions on this subject, but I leave members of the committee to draw their own conclusions.

61. To Senator Reid.—I cannot think of any other reason to account for my not having been called. My division had been the most successful in the Department of Health. When I left the Commonwealth service, the Commonwealth serum laboratories were supplying the bulk of products required by Australian doctors. The institution was self-supporting, notwithstanding that its products were supplied at 30 per cent. below English prices.

62. To the Chairman.—When Professor MacCallum came to Melbourne representatives of the universities and hospitals were invited to meet him and discuss the teaching of pathology and medical research. I then submitted the proposal for the control of medical research by a medical research council on the English model. Those present at the interview were impressed with its obvious advantages, and appointed a committee of laboratory men to consider it. This committee unanimously adopted my suggestions, the opinion being that executive control of the research grant should be in the hands of research men themselves, with parliamentary representation on the committee. There are many objections to the departmental system of control. In the first place the regulations require secrecy. If in a department an appointment known to be ridiculous or even dangerous were made, no public criticism would be allowed. Private criticism in a department apparently is allowed under certain conditions, but the person making it may be warned that it will jeopardise his future. Therefore the majority remain silent. Propaganda is frequently misleading. One may work for years building up an institute, only to find that, according to the press, it is the best achievement of some one else. This, however, is not so important. The delay under departmental control is often most depressing. When I was at the Commonwealth serum laboratories I wanted fourteen incubators. The Works Department supplied them in due time, but it seemed to have forgotten that they would require to be heated, and it was then found that in order to heat the incubators two had to be destroyed. Actually it took the department nearly two years to meet our requirements more or less properly. Private firms could have done the whole of the work in a month or two, and at half the cost.

Another objection to departmental control is the roundabout methods employed. If a man in Bendigo wants something for his laboratory, from the Commonwealth Serum Laboratories, he has to write to an official in Melbourne, who communicates with the Commonwealth Serum Laboratories. The laboratory people then obtain quotations, order the goods, examine them; and inform the man in Melbourne, who in turn advises the paying officer, and so on. The vote for country laboratories should be controlled by the local medical officer-in-charge, who should be informed that he would get full credit for the successful carrying out of his work, and be expected to conduct it in a businesslike way. The remedy for all this trouble is to place research work under the control of a council on the English model. Research institutes should be expected to produce vaccines and sera. The Pasteur Institute in Paris is responsible for this work almost exclusively for the whole of France. Lister Institute does it in England. I endorse what was said by Dr. Nettas to our medical unfitness as compared with other sections of the white race. Perhaps I can best illustrate what I mean by saying that diphtheria prophylaxis is carried out in practically all civilized countries, and that inoculation is an effective preventive. This work should be without danger, nevertheless five campaigns have been so conducted as to injure the healthy children about to be protected. The most fatal of these inoculation epidemics have occurred in Australia and Russia, so that Australia shares with Russia the unhappy distinction of being lowest in point of medical efficiency in this matter. Again, insulin was discovered in Canada by Dr. Bering, but there have been more deaths per annum in the Commonwealth from diabetes since it was introduced than before. This demonstrates clearly that we are not getting the results from the discovery that we ought to get. Another reason may be that although under the Constitution the States are responsible for public health, the Commonwealth Government has created a health department and appointed a director-general of health. This action has to some extent antagonized the States. They do not know where they stand exactly. I would not like to say that the medical profession is entirely blameless. What is needed most urgently is a definite expression of public opinion in the matter of preventive medicine. This would lead to the training of men skilled in prophylaxis. The insulin manufactured at the Commonwealth serum laboratories is not inferior to the imported product. It will reduce blood sugar and cure diabetic coma, and, if handled more efficiently, would save a large number of diabetic lives. It is singular that there have been more deaths in the Commonwealth from diabetes since the introduction of insulin than before. The important thing to do is to impart to diabetic subjects knowledge of what to do in order to save their own lives. At present this is not being done efficiently. Absence of co-operation between States and Commonwealth was very much in evidence when I was in the service, a little more than a year ago. There was then a feeling in the State departments that the Commonwealth was usurping State functions. I believe that if the Commonwealth had been prepared to stand by and assist the States only when called upon, the position to-day would have been better than it is. The Dundee tragedy should have been investigated by the Queensland Government, which had constitutional jurisdiction in health matters in Queensland, but owing to a fear that there would be overlapping, and because the State Government desired to avoid expense, the inquiry was carried

out by the Commonwealth Government. Each sovereign authority should govern according to the Constitution, and not be grabbing the duties of another authority until it is permitted to do so in a proper manner by the decision of the Australian people. As another illustration of lack of co-operation being responsible for preventing medical and scientific progress, I may mention that Dr. Sir Spencer Lister, the Director of the South African Institute, wrote to me recently asking if he could send a man and possibly an assistant to the Commonwealth serum laboratories to receive instruction in the manufacture of sera. Lister, I may add, is a great man. He was the first to demonstrate how pneumonia in South African mines could be prevented. As I had left the service when his letter reached me, I handed it over to the department and advised him that in due course he would get a reply. He wrote to me some time later to say that his request had been refused. Shortly afterwards I had a letter from the Director of the Lister Institute, London, stating that he was sorry that Lister of South Africa had not asked them for help, because, although he was competing with them in the South African market, it was their duty to help their competitors. The Cutter laboratories in California also asked for assistance in the manufacture of serum, but it was not given. A worker who had left the Commonwealth serum laboratories, when asked if he would assist in the production of concentrated serum, stated that he had been asked to give an undertaking that he would not disclose to outsiders anything that he had learned in the laboratories concerning the process. Mr. Ferguson, the editor of *Stock and Land*, on one occasion paid a visit of inspection to the laboratories, and so impressed was he with the value of the work being done there, that he promised to raise £4,000 if the laboratories would carry out research work in connexion with pleuro-pneumonia. He added that I could control the fund. I said I would not care to do that, but, with the Secretary of the Institute, would be prepared to undertake joint responsibility. Mr. Ferguson did not want the department to control the fund. The offer was refused by the department. I take no exception to Mr. Wickens's statement that Australians are physically a first-class people. The expectation of life in Australia is the highest in the world, excepting only New Zealand. I do not think that Dr. Notz disputes this fact. I presume that what he meant was that our medical arrangements are defective. Infant mortality in this country is the second lowest in the world. Our favourable position, as I believe, due to be uniformly high wages paid to our work people, the short hours of labour, our sunlight, and the protection afforded to workers in various ways. In my opinion, the Commonwealth Government, instead of spending £30,000 on the erection of a building in Sydney, should subsidize, through a medical research council on the English model, the various medical schools and hospitals that are doing research work in this country.

63. To Mr. Seabrook.—I believe that better results would be obtained by financing the universities in the way I have suggested. There would be more justification for the establishment of a tropical school in Sydney than in Melbourne, but I doubt if that course is necessary at present. A school in Melbourne would be better for the training of medical officers of health because of practical work that could be done at the Commonwealth serum laboratories. Two scholarships per annum in tropical medicine should be sufficient. It would be advisable for students to get the practical experience either at Calcutta or in England. Possibly they could get the diploma in London in four months, and then proceed to Calcutta for the necessary practical experience. I do not favour vesting

control of the research grant in the hands of the university authorities direct, as pluralism is likely to arise, as in Sydney. I would prefer control to be exercised by those who have demonstrated their own worth as research workers. The Department of Health would not have a nominee on the council if it were constituted as I suggest, but both Houses of Parliament would have representation, so, that through Parliament, the people could be fully informed of all that was being attempted. It should not be necessary to add to existing university buildings in either Sydney or Melbourne in order to carry on research work. I inferred from the report of Dr. Nott's statement that medically, not physically, we are a third-rate people. When I was at the Commonwealth serum laboratories, I felt that there was a distinct bias on the part of the States against the intrusion of the Commonwealth into the domain of public health, and that this antagonism was not in the best interests of the people. On one occasion I went to Broken Hill to lecture on the use of serum, and, as is my custom when I visit a town, I called in at the local hospital. There I found a large number of patients suffering from typhoid fever, and, to my surprise, I learned that the bacteriological work was being carried out in a most indifferent manner. The authorities were not getting good blood culture results because their bacteriological methods were incorrect. I suggested to the superintendent of the hospital that what he wanted was a bacteriologist, and the use of a small laboratory, and, to help him, I asked the Commonwealth Health Department to send up a man to deal with the epidemic. The Department could not take any action without the consent of the New South Wales Government. This was withheld, though I learned afterwards that the State Government sent up a State man to help the hospital authorities. The best plan would be for the Commonwealth Government to finance through a medical research council on the British model, the various university medical schools to encourage them in research work. Responsibility in health matters rests with the States, but if they are too poor to discharge this obligation efficiently, they should be assisted by the Commonwealth. Quarantinable diseases are handled by the Commonwealth, which is also responsible for public health in the Mandated Territories.

64. *To Senator Reid.*—I doubt if it would be better to endeavour to train, in Australia, medical students in tropical diseases. The better plan would be to send them to Calcutta, where there is ample material in the form of diseases likely to be met with in the Mandated Territories. New Guinea may present problems different from any that are likely to arise in Australia. In order to take prompt measures, it is important to have available a man trained in a locality where the greatest variety of diseases appears. This was evidenced in the outbreak of leprosy in Nauru about 1913. From the point of view of bacteriology, Melbourne is a better location for the proposed school than Sydney, because the serum laboratories here are unique in Australia. Both Sydney and Melbourne Universities are doing research work. The cancer research Fund, Sydney, now reaches £137,000, but up to the present no director has been appointed. The committee advertised last year in England for a director, and offered £2,000 but without success. I am convinced that if all this work were placed under the control of a research council on the British model, there would be a greater number of suitable applicants, because of confidence in the constitution of the council itself. There is a chair of anthropology in Sydney, but not one in Melbourne. This has not occasioned any jealousy in Melbourne. I do not think there would be any professional jealousy if the proposed school were established in Sydney, but I doubt if

students could get such a good public health training there, because practical work for four months in a serum laboratory should be an essential part of the course, and students could only get that in Melbourne. It is impossible to say what action will be necessary during the next ten years for the efficient handling of tropical diseases, but I should say that, for the period mentioned, it would be infinitely better to send men to Calcutta for practical training than to incur heavy expenditures in the Commonwealth and endeavour unsuccessfully to give it to them in this country. I am satisfied that we could obtain a sufficient number of competent research workers in Australia to constitute the proposed council. While these men might not be of the same outstanding merit as scientists in the Mother Country, nevertheless they would have the confidence of the people. Representatives of corporations should not be appointed to the Research Council. I should prefer to see on it men who love research work for its own sake. When I was at the Commonwealth serum laboratories, I made it clear to all who were associated with me that I did not care how much they criticized my work, because I realized we were all in a co-operative brotherhood searching for truth. It is a mistake to suppose that many lives were lost as the result of inoculation experiments during the pneumonic influenza outbreak in 1919; not a single life was lost through inoculation as far as the department was aware. At that time we did not have a serum, and used a prophylactic vaccine. Its efficacy was demonstrated beyond all doubt in the case of railway employees. Those who were not vaccinated suffered more than those who were, and so many sufferers from chronic rheumatism, bronchitis and other diseases were cured by the vaccine treatment that since then there has been a constant demand for it. Properly handled, sera and vaccine are all right. There is ample scope for industrial hygiene in connexion with public health administration, but at present this diploma is not granted.

65. *To Mr. McGrath.*—The Sydney and Melbourne medical schools do not specialize in industrial hygiene. In my opinion, it is not necessary to erect new buildings for the training of health officers. I realize that it is difficult to ensure the continued services of trained men in the Mandated Territories or tropical parts of Australia, but I think that they should be required to give an undertaking to remain in the service of the State for a certain number of years. This condition could be inserted in a contract with those getting the scholarships. I joined the department in 1916, and left it about a year ago. I believe that all officials responsible for public health in the Commonwealth are doing their best, but unfortunately that is not sufficient successively to conduct a school of research and teaching in public health and tropical medicine. A long special training is needed, and a different outlook. I should prefer a simpler system for the control of medical research than that provided by the public service. I dislike so much secrecy. If a request is turned down, I like to know who is responsible for its rejection. I suggest that the Townsville Institute be given a further trial of five years, but under a better system of control.

66. *To Mr. Cameron.*—In my opinion, all full-time medical officers of health should have the diploma of public health. At present there is not a sufficient number of positions offering to induce many medical men to obtain a diploma. In England non-medical sanitary officers receive diplomas from the Sanitary Institute, London. I doubt if it is necessary to establish a school in Sydney for the purpose of giving this training; it is not a university training at all. The fact that only 21 diplomas in public health have been granted by the Sydney and Melbourne Universities during the last five years is, to some extent, a reflection

on the medical profession, but the appointments are not available to make the training worth while. The medical man feels that he is not gaining as much by studying in preventive medicine as in curative medicine. At present, the prizes in the realm of preventive medicine are as nothing compared with the prizes within the reach of a successful surgeon. Undoubtedly the objective of all medical schools should be the training of medical practitioners in preventive medicine. To achieve this objective the best course would be to create more appointments, and subsidize more liberally the existing university medical schools. I believe that a professor of bacteriology could be obtained for £1,500 a year. University tenure is somewhat different from the tenure of other offices. University life has certain privileges. It is very different from the ordinary public service life. There are long vacations during which a man may pursue his own researches. I am convinced that if the proposed school is placed under Government department control, the mistakes made at Townsville will be perpetuated. I resigned from the Public Health Department because, from my point of view, the atmosphere was undesirable. I was in London when I had the offer of my present position as Director of the Baker Institute at the Alfred Hospital. The salary mentioned was less than I was receiving as head of the Commonwealth Serum Laboratories, and I pointed out that I would suffer certain disabilities if I accepted the position. I wished the Alfred Hospital authorities to be aware of the sacrifice I was making, and Sir George Fairbairn, who was conducting negotiations, arranged that I should suffer no disabilities by the change.

67. *To the Chairman.*—I feel satisfied that the cause of medical research will be furthered if the Government finances the various university medical schools through a medical research council properly selected from the lovers of medical research, instead of expending money on buildings in Sydney. I have made representations on this matter to both the Prime Minister and the Treasurer, and within the last few days I have made representations to the department. I take the stand that control of medical research is not a matter for the Ministry of Health. I have asked the Prime Minister to grant me an interview, but up to the present this opportunity has not been presented to me. I believe that the Commonwealth Serum Laboratories are almost unique among other Government departments. Millions of pounds have been lost over other ventures, whereas the laboratories have been self-supporting. In the circumstances, the Prime Minister might have acceded to my request for an interview with him.

*The witness withdrew.*

John Smith Murdoch, Director-General of Works and Chief Architect, Department of Works and Railways, sworn and examined.

68. *To the Chairman.*—The plans now before the committee for the proposed public school of health in connexion with the University of Sydney were prepared by officers of my department in collaboration with officers of the Department of Health and the University of Sydney, represented by Professor Wilkinson. I am surprised to learn that Sir Mungo McCullum, the Chancellor of the University, has informed the committee that, officially, the plans were not placed before the Senate. I agree that the Senate of the university must be consulted; since the buildings are to be erected upon the grounds of the university. When Professor Wilkinson consulted with us I assumed that he was authorized to speak for the university. I doubt if any material alteration will be suggested by that body, because Professor Wilkinson, who

is the architectural authority for the university, has been guiding the destinies of its building schemes for some years. The building has been designed to conform with the physical features of the land and to harmonize with existing buildings. At the eastern end of the proposed new school, access is from the level of the road on the higher ground, whilst from the north and south access will be had from the road on the lower level. Owing to the unusual nature of the site, the lower floor may be described as the lower ground floor and the upper floor as the upper ground floor. The building is T-shaped, the long leg of the T lying east and west, and the short leg north and south. On the lower ground floor and cutting the long leg of the T into two sections, is a roadway going through the building with arched openings on each of its walls. The arch entering into the road is 11 feet high, and the roof of the roadway between the arches will be 15 feet up to the underside of the floor above. Through the middle of the roadway there are entrances to the building to the east and west. The western portion is divided into five rooms, including a teaching laboratory, 40 ft. 0 in. x 42 ft. 5 in.; two chemistry laboratories, one 14 ft. x 17 ft. 5 in., and the other 12 ft. 10 in. x 17 ft. 5 in.; and two physics laboratories, one 14 ft. x 17 ft. 5 in. and the other 12 ft. 10 in. x 17 ft. 5 in. The eastern section is approached through two entrances from the outside roadway, and on each side of the long leg of the T there are independent entrances to the eastern section of the building. There is a corridor 6 feet wide from the roadway entrance to the main staircase in that portion of the building. On each side of the corridor, and before the staircase is reached, there is provision for an industrial hygiene laboratory, 13 ft. 8 in. x 17 feet; two physiology laboratories, one 13 ft. 4 in. x 17 feet, and the other 14 ft. 6 in. x 17 feet; and a balance room 12 ft. 6 in. x 17 feet. The rest of the building covered by the small leg of the T contains a staircase and a staircase hall measuring 31 feet x 22 ft. 6 in. From the staircase hall there is a corridor extending southwards and serving the following laboratories—Two bacteriological rooms, one 15 ft. 7 in. x 15 ft. 10 in., and the other 13 ft. 1 in. x 15 ft. 10 in.; a centrifuge room, 6 ft. 4 in. x 15 ft. 10 in.; a store room, 6 ft. 4 in. x 15 ft. 10 in.; pathology room, 13 ft. 6 in. x 15 ft. 10 in.; photography room, 15 ft. 10 in. x 14 feet; a photography dark-room, 12 feet x 10 feet; and a men's cloak room and lavatory. The same corridor on the north side serves the following rooms—Insulated cold room, 15 ft. 5 in. x 15 ft. 10 in.; refrigerator room, 7 ft. 9 in. x 15 ft. 10 in.; air conditioning laboratory, 22 feet x 11 ft. 10 in.; and a heating room, 20 ft. 4 in. x 15 ft. 10 in. In addition, opening from the staircase hall in the centre of the building and on the central line of the corridor going from the covered roadway, there is an apparatus room, 27 feet x 10 feet. On the upper ground floor, which opens from the high roadway, the entrance, architecturally speaking, is of a better character. The hall, which contains the staircase, is really the principal entrance. It is 23 feet x 39 feet, and, as in the floor below, corridors 6 feet wide lead westerly along the long leg of the T, and southerly and northerly along the central line of its short length. On the south side there is the public office, which will control the management of the institution. It is divided into two rooms, one 14 feet x 16 feet, where inquiries may be made, and a private office 13 ft. 6 in. x 16 feet. The library at the end of the corridor is 40 feet x 29 ft. 10 in. This corridor also gives access to men's lavatories and women's cloakrooms. Northwards along this corridor is the director's office, 15 ft. 5 in. x 16 ft. 3 in.; a laboratory, 20 ft. 9 in. x 16 ft. 3 in., and a room for the director of tropical medicine, 23 feet x 20 ft. 9 in. From the main entrance on the long leg of the T, there is a corridor 6 feet wide, giving access to a visiting

lecturer's room, 30 feet x 32 ft. 6 in.; a museum preparation room of smaller size, and two unallotted rooms to meet purposes as yet unforeseen, and similar in size to the visiting lecturers' and museum preparation rooms. The corridor at this point drops and enters into the museum, measuring 42 feet x 37 feet, with a recess of 5 feet x 20 feet. Behind the recess is a preparation room 5 feet x 20 feet. I understand the preparation room is intended to serve as exhibits in the museum, and also as a place where exhibits may be prepared for the lecture room, the dimensions of which are 40 ft. 9 in. x 42 feet, with a platform 29 feet x 7 ft. 6 in. for the use of the lecturers. The floor of the lecture room is stepped with students' seats, so that all students will have an uninterrupted view of demonstrations being conducted on the lecture platform. Escape stairs are provided in a projecting appo to allow of students escaping in the event of a panic in the lecture room or museum. There is a top floor in the small leg of the T, so that the building will be two-storied on the long leg and three-storied on the short leg. The top floor is reached by the main staircase from the entrance hall below. Turning to the south a corridor 6 feet wide gives access to a teaching laboratory 40 feet x 39 ft. 10 in., two protozoology rooms, one 30 ft. 9 in. x 16 ft. 3 in., and the other 10 ft. 10 in. x 16 ft. 3 in.; a storeroom for apparatus, 14 ft. 5 in. x 16 feet, and men's and women's cloak-rooms and lavatories. The corridor northwards gives access to a helminthology room, 19 ft. 10 in. x 16 ft. 3 in., and two entomology rooms, one 20 ft. 4 in. by an average width of 19 feet, and the other 20 ft. 9 in. by an average width of 18 feet. The construction will be of brick, with external walls 18 inches in thickness, plastered externally with cement plaster, except in certain places where sandstone belonging to the university will be used to give added beauty to the building. The upper walls will be 14 inches thick. This thickness is greater than is usual, but it is provided for so as to keep the building in harmony with other buildings in close proximity. Internal walls will be 9 inches in thickness. The height of the ceiling on the higher and lower ground floors in the small leg of the T will be 12 feet, and the height of the ceiling in the first floor will be 11 feet. The height of the floors in the long leg of the T will be 14 ft. 6 in. This is necessary to provide for the teaching laboratory at the far end. The height of the ceilings in the upper ground floor on the long leg of the T will be 11 ft. 6 in.; but the height of ceiling in the museum and lecture room will be 17 feet, the ceiling being coved. The floors will be of concrete throughout, the upper floor being 7 inches thick. The roof framing will be timber covered with tiles. A small tower will be a feature of the building. This provision is unusual, but it has been included to bring the school into harmony with existing university buildings, and as a concession to the university opinion. Its height above the roof will be 23 feet. It does not provide any useful accommodation. It will increase the cost of the school by about £500. The building scheme has been thoroughly worked out by officers of my department in collaboration with health officers and university authorities represented by Professor Wilkinson. The window sashes will be of steel, and the glazing will be 32-oz. sheet glass. I think Professor Wilkinson would have liked a much smaller area of windows than is provided in the plan, but the doctors insisted on ample window lighting. From an aesthetic point of view I am in agreement with Professor Wilkinson, but architectural expression must give way to utility. Although I agree with Professor Wilkinson, I consider that the design is a good one. This matter has been the subject of exhaustive discussion between officers of the Health Department, Professor Wilkinson, and officers of the Works Department. The considered opinion of the Health Department is

that its requirements will be met by the plan now before the committee. The foundations will be of reinforced concrete. We have sunk a number of trial holes, and have ascertained that the depth of the foundations will be from 3 feet to 4 feet. The soil excavated for foundations will be utilized as filling for the solid concrete floors of the lower ground level. A sewer main is shown crossing under portion of the site. The Works Department in Sydney and officials of the Sewerage Board, have been in consultation and proposed to deviate the sewer main at a cost of about £1,150. I assume that this will not be a charge against the building. The estimate of cost came out at £30,940, but for the purpose of reference by Parliament to the Works Committee, it was fixed at £30,000, so it is possible that even if the removal of sewerage pipes is charged against the building, it may not exceed the sum mentioned. I do not anticipate that there will be any difficulty with regard to storm-water drainage. The estimate does not include laboratory fittings or central heating. The building will be fireproof. I presume there will be a number of water hydrants located near the school. The plan has been so arranged as to permit of animal houses for experimental purposes being erected in a convenient location. The Health Department has asked us to stay progress in this direction. I understand that there may be an arrangement between the different scientific schools to share the cost of animal houses required for all university research work. The estimate does not include the cost of animal housing. I believe that Dr. Cumpston's idea is to arrange for the erection of a number of up-to-date animal houses for the whole of the university. In that event I presume the Commonwealth would bear some portion of the expenditure. I should say that the necessary buildings could be erected for about £2,000, but Dr. Cumpston is not able to give you more definite information on this point. The school should be erected in from fifteen months to sixteen months, following its commencement.

69. To Senator Reid.—We draw the plans to meet the requirements primarily of the Health Department. I understand that it was Dr. Savers who insisted on the amount of window lighting shown in the plan. If the rooms with the northerly aspect become too hot, venetian blinds could be provided. It is not likely that there will be any inconvenience from the lighting arrangement for the rooms with a westerly aspect. Opposite the central entrance from the high road there is an approach that will be contained between two stone walls. The width of the elevated road will be 25 feet above the level of the lower ground floor. It slopes down to the lower ground floor, 40 feet distant, so there will be ample lighting for all the rooms on this floor. In fact, every room in the building will have adequate lighting. There is nothing unusual about the architectural features of the building. The design makes for picturesqueness. The colour of the external walls, I understand, will be in harmony with the economics and physics building alongside. The two-storey end of the building will carry another storey if necessary.

70. To Mr. Cook.—In my opinion the design is in keeping with other university buildings. We have aimed to design a building at a reasonable cost. I am not competent to express an opinion whether the school should be established in Sydney or Melbourne. All I can say is that the Sydney University is the largest in Australia, and its situation geographically, particularly in relation to tropical medicine, should be suitable.

71. To Mr. Cameron.—The rough cement plaster for the external walls is the present vogue in modern architecture. It follows the renaissance period in southern Europe, and takes its inspiration from buildings of that

kind. Also it is not without its advantages. Walls treated in this way have a texture which produces beautiful effects of light and shade on sunny days, and the durability of the building is not in any way affected.

72. To Mr. Seabrook.—There are no unduly extravagant features in the design. All I can say with regard to the views expressed by Professor Wilkinson concerning window light, is that his ideas are not endorsed by the medical men who will have to use the building. They insist on ample lighting. The north light is not so very troublesome in any case, and if venetian blinds are affixed, they can be opened at any angle required so as to regulate lighting and keep out heat. Architecture must be the handmaiden of purpose. The Department of Health asked me to provide windows exactly like those in the Royal Park Institute, but I could not do that in this proposed new building.

(Taken at Melbourne.)

TUESDAY, 8TH MAY, 1928.

Present:

Senator Barnes	Mr. Mackay, Chairman;
Senator Reid	Mr. Leacy
Mr. Cameron	Mr. McGrath
Mr. Cook	Mr. Seabrook.

Dr. John Dale, Medical Officer of Health, City of Melbourne, sworn and examined.

73. To the Chairman.—I am aware that the Commonwealth Government proposes to establish a school of public health in connexion with the University of Sydney, and I have read newspaper reports of certain evidence given before the committee. If the object of the school is to train public health officers it should have facilities for that special work, and the demand for public health officers, including inspectors and nurses, for cities and municipalities of New South Wales should be met by the school. It is important that all health officers should have a thorough grounding in hygiene. At present there is a small demand for medical officers, but a big demand for inspectors to do public health work. I am doubtful if students from other States would attend the proposed school in Sydney for training. Most, if not all, of the medical officers employed by the States have the diploma of public health. The facilities for their training exist already in the University of Melbourne; but it is obvious that they need strengthening. I am connected with the public health school here, and I am assisting in conducting the course for the diploma of public health at the Melbourne University. We are labouring under many disadvantages. It is difficult to provide a satisfactory course here, and, according to Dr. Cumpston, difficult also in Sydney. The establishment of the school in Sydney would eliminate the difficulties in that city, but not in Melbourne. I was first interested in this question when I was acting as Commissioner of Health in Western Australia. Towards the end of 1920 I came over to Melbourne with the Western Australian Minister of Health to attend a conference of Health Ministers convened to discuss the recommendations of the Royal Commission on Health. That body suggested that a school of public health be established in Sydney. After carefully studying its recommendations, I urged that the Commonwealth should not put all its "public health eggs" in one basket, so to speak. There was a long discussion on the subject at the conference. I pointed out that however desirable a school of tropical medicine might be, the need for it in Australia was relatively small, if not insignificant, compared with the

need for the study of the prevention of disease in general. I urged that better results would follow financial assistance being given to existing medical schools for research work on the lines of preventive medicine, as well as for the teaching of hygiene in universities such as those in Western Australia, Tasmania, and Queensland, where medical schools are non-existent. The conference reached the conclusion that it was desirable to have the proposed school in Sydney, but also that the Commonwealth should subsidize the teaching of hygiene and preventive medicine in the other schools. After a delay of eighteen months the Commonwealth Government now proposes to expend a considerable sum of money on buildings in Sydney for the purpose of establishing schools of tropical medicine and public health. It proposes, after all, to put all its eggs in one basket. The fact that the new school will train specialists in public health does not necessarily imply that the University of Melbourne will cease to train medical officers for public health service. Nor is it right to assume that the universities in the other States will always neglect this important subject. It is do its best to train men for the diploma of public health. I consider, therefore, that the Commonwealth Government might well strengthen financially the existing facilities for the teaching of preventive medicine and hygiene. Melbourne is a great city, and its university has an important medical school. Throughout the State there are well over 1,000 doctors, for whom Melbourne University is the intellectual branches of medicine. A most crying need is to train men in preventive medicine, so that we may check constantly demand an extension of hospital facilities. It is now accepted that disease in general is preventable. Already we have the requisite knowledge concerning many diseases, but, unfortunately, the average person does not know enough to safeguard himself. Obviously the medical profession will have to turn more from curative medicine to preventive medicine. The people will expect it of them. At present the disinclination is to keep away from a doctor as long as possible, and to seek assistance only in case of sickness. There should be a periodical overhaul of all the people at regular intervals. Children particularly should be under close supervision. At present this is not being done. There is a certain amount of inspection by medical officers attached to the Education Departments of the States, but there is always the fear of overlapping services. Gradually the general medical practice will have to change over from curative to preventive work. This objective may be achieved by strengthening the teaching of preventive medicine in all the medical schools which, if properly staffed, would furnish an inspiration to the students. Melbourne is the medical centre for the medical practitioners of Victoria, and it should be so organized as to be an opportunity for them, and moreover it should provide in matters of hygiene. Public health officers are continually informing the people how desirable it is that they should themselves learn how to keep well. Useful work along these lines is being done in the education of trainees for the teaching profession. The information which they gain from lectures in hygiene will be passed on to the children. Lectures are given by public health officers and by medical officers attached to the Education Departments; but, as a rule, we are so busy with administrative details and the routine work of our jobs that it is difficult to find time for study and lectures; I am sure that all who are engaged in this work would welcome the establishment of a school for the teaching of

preventive medicine in our university. It would help to keep us on the right track. The position calls for a high-class man. Preventive medicine is based mainly on the study of physiology, which is the study of the working of the human body in health—and on pathology, which is the study of the working of the human body when disturbed by conditions which we call disease. Both are difficult sciences. It is easy to talk about health matters in general terms. It is important that the study of preventive medicine should be placed on a thoroughly scientific basis. At present it is being left to those who have not the time to do it properly, and to a considerable number of untrained persons who may be regarded as "quacks" of all kinds. It would pay the nation to provide the finance necessary for the appointment of really high-class doctors—we want the man, not the buildings—as professors for the teaching of this branch of medicine. If the proposal were placed on a satisfactory footing, I believe a really good man could be obtained for £1,500 a year. In recent years there has been an awakening of public opinion in matters connected with public health. If the Government carries out its intention and erects buildings for the proposed school in connexion with the Sydney University, it would be an honour to Australia, no doubt, and prove useful. Eventually we might have a famous school of tropical medicine. There is no doubt that the expenditure of Commonwealth money in Sydney would be a definite encouragement to that University; but, on the other hand, it would distinctly discourage the work in the other medical teaching centres. It is most desirable that all the university schools should be given as much assistance as possible to encourage them in the teaching of preventive medicine. I feel strongly on this subject. I fear that under the Government scheme the medical schools at the Melbourne and Adelaide Universities may suffer. Without making any invidious distinction, I can say that there are teachers of outstanding merits at the Adelaide University—men like Professor Robertson, in physiology; Dr. Cleland, in pathology; and Dr. Bull, in laboratory work. These men constitute a team which, if encouraged, would, I am sure, do very valuable work in public health teaching. If the Melbourne and Adelaide schools are not encouraged, there will be danger of students in these basic sciences being, to some extent, uninspired in their work. The point I wish to make is that the facilities for the teaching of preventive medicine exist in all the medical schools, and they should all receive encouragement. I approve of the suggestion made, I understand by Dr. Penfold yesterday, that better results would probably follow from the appointment of professor of bacteriology and public health in a medical school like that of Melbourne, and that two scholarships annually be offered to students of tropical medicine who could take their training in London or some other recognized school. In my opinion, public health teaching is the more important side of the work that lies before us, and therefore it is desirable that we should have a professor of bacteriology and public health. If the Government agrees to the suggestion that we should meet our needs in tropical medicine by sending students abroad, it would be better for them to receive their training at different centres, say, at Liverpool or Hamburg. I am not in favour of bureaucratic control of medical schools. They should be under the control of the university authorities, or some independent scientific body such as, possibly, a research council. I should very much regret to see buildings erected in Sydney unless, at the same time, we can have substantial financial assistance for the teaching of preventive medicine in all the medical schools. I feel that I should be failing in my duty if I did not stress this point as strongly as possible. Unfortunately, these schools are being started at present. The fact that the Commonwealth Serum Laboratories

are established in Melbourne is certainly an argument in favour of Melbourne as the location for the proposed school of public health because students could take portion of their training in the laboratories. Therefore, if we are to have only one school, might just as well, as better, be in Melbourne than Sydney. There is not the same urgent need for a school of tropical medicine in Australia. It is interesting to note, also, that the schools in Liverpool and Hamburg were not, I believe, originated by the Governments concerned. There were so many cases coming into hospitals in those cities that the schools developed in the natural course of events, and they have proved most successful. My personal experience as to the co-operation between the Commonwealth and the States' Departments of Health has been a happy one. There was some friction in Western Australia during the influenza epidemic in 1919; but, speaking as a State officer, I consider that we have always had every assistance from the Commonwealth Government. I take the view that the best results will not be obtained from the school if it is under government control, because one never knows who may be in charge of a department. If it is placed in the hands of eminent research workers there will be more likelihood of a consistent and sound policy being adopted. Under departmental control there is always the possibility that the person in charge may not be fitted to exercise the authority reposed in him. I have not a very clear idea as to the constitution of the research council, which, it has been suggested, should control this work. I doubt if such control has been exercised elsewhere. In England the medical research council is subsidized by the British Government, and, in turn, as far as I understand, it subsidizes research work in existing schools, but it does not actually control such schools or appoint the staffs. It is, however, in my opinion, the command of the government grant for research, and if it is advised that a certain university can do valuable work in a particular direction, it offers that university funds for research work in the direction indicated. If a school is established in either Melbourne or Sydney, it should be as part of the existing scholastic institution.

74. *To Mr. Lacey.*—If the Commonwealth Government carries out its intention and establishes a special school of preventive medicine in Sydney, the work of the schools at the universities in the other States will, by inference, be prejudiced. I feel inclined to urge that the first step should be to strengthen the teaching of preventive medicine at all the universities. This would not necessarily affect the proposal to have a special school in Sydney.

75. *To Mr. Cook.*—A school of public health is most desirable in the interests of general practitioners and the people. It would be better, therefore, to subsidize the several universities than to establish and endow a school in one State only. An outstanding need is the study of deficiency diseases among children before and during school life. A very considerable portion of the population is found to be suffering from incipient disease in one form or another. This condition in most cases has been operating over a long period. Probably it appeared first in childhood, and if it had been observed then and treated, it would have been possible to build up a sound constitution in the individual; but, neglected, it has developed into chronic rheumatism, or some other incurable disease. The only way to prevent this condition of affairs arising is continually to keep the people under supervision from an early age. If groups of school children are examined, a considerable number will be found to be poor specimens calling for medical attention. A breeder of stock destroys poor progeny, but if he knows his business he takes the necessary steps to avoid the production of stock below a reasonable standard. The strengthening of the teaching of the basic sciences of bacteriology and pathology would be of immense value to the nation. Public

health would be better protected by subsidizing the existing organizations. It might be possible to utilize certain picture films for the education of the people along the lines of public health.

76. *To Mr. Cameron.*—If facilities for the teaching of preventive medicine at the various universities were strengthened, I am sure it would make all the difference to the success of our medical schools. At present, comparatively few doctors take the diploma of public health. It is important that the general practitioner should have a conviction as to the desirability and possibility of preventing disease.

77. *To Senator Reid.*—If the Government decides to build the school in Sydney, I presume it will offer there greater facilities for post graduate work in public health and tropical diseases, and, of course, it would be availed of by the medical students at the Sydney University. No doubt, they would get considerable inspiration from it. It is likely, also, that lay students would take advantage of it. I should, however, like the committee to understand that I am speaking without knowledge of details of this proposal. A school of preventive medicine would do as well in Sydney as anywhere else in Australia; but I do not know of any special research which it will undertake. Research is being done everywhere and some great discovery might be made in any of our hospitals if they were linked up with a medical school. It is impossible to say where or when some important discovery might have been made in preventive medicine.

78. *To Mr. Cook.*—The establishment of a school in Sydney would be better than nothing; but I do not think that proposal will return the same value as might be expected from the subsidizing of existing schools.

*The witness withdrew.*

Dr. Harold Addison Woodruff, Professor of Veterinary Pathology, Melbourne University, sworn and examined.

79. *To the Chairman.*—I regard the establishment somewhere in Australia of a school of public health as urgent. It should be within or related to a university or universities. As to whether a school of tropical medicine should also be established, we have many examples elsewhere in the world of tropical medical institutes, which are not in tropical countries. Therefore it is not essential that it should be in a tropical place. My difficulty as a teacher, if I were asked to organize such an institute, would be to find the material for the training of students in a country like Australia, which is relatively free from tropical diseases. I can imagine two methods by which this might be done. One would be to have the school where the diseases are occurring naturally, and the other would be to introduce the material, which would consist of micro-organisms like the organisms of sleeping sickness in Africa, malarial parasites, and so on. I have some difficulty in visualizing a tropical institute in Australia adequate to the training of men along the lines of tropical medicine without, to some extent, causing the quarantine authorities anxiety by the introduction of the material into Australia for the purposes of study. I may cite as an illustration of what I mean—the study of rabies in the dog, though this is not a tropical disease. I would be interested as a teacher and particularly as a veterinary and medical man, to be able to show my students something of the relationship between rabies in animals and hydrophobia in human beings, so as to be able to demonstrate the required preventative treatment; but as a patriotic citizen of this country I should never dream of suggesting that live and active rabies material should be brought into Australia for any purpose, since we have never had the disease here, and I hope we never

shall have it. What I have just said applies to the study of tropical diseases. In some work which I did in the Pasteur Institute in Paris we were shown many forms of tropical diseases in the rat and guinea pig; but I should be very chary, indeed, about introducing them into Australia for scientific study. The suggestion that has been made that, instead of spending £30,000 on a building in Sydney, the Government should subsidize existing universities so as to allow them to provide scholarships for the study of tropical medicine, and set aside from £1,600 to £2,000 a year for the founding of a professorship in bacteriology and hygiene, falls into line with my idea. I doubt if it is possible to give students an all round education in tropical medicine in Australia because of the difficulty which I have mentioned as regards the material. If men are trained here, or alternatively, are sent to Calcutta or elsewhere for tropical training, I take it that their services would be utilized subsequently in the Mandated Territories. Therefore the demand for such trained men should not be very considerable. I should have thought that the Government would recognize the advantages of training men at, say, Calcutta or Liverpool. Even in the realm of preventive medicine the same remark holds good. During my course at the Pasteur Institute two or three years ago I came into touch with people from probably 30 different countries. Students in such institutions naturally are able to compare practical experiences from countries all over the world. There has been an awakening of public interest in public health in Australia, and it is a matter of surprise that teaching along those lines has not loomed much larger in the work of the existing medical schools in Sydney, Melbourne and Adelaide. Sydney has the biggest medical school. As a Melbourne man, naturally I should like to see the Commonwealth money expended in this city; but, if we can only have one school, then I think Sydney has a prior claim. As to which is the better city for the school, I can only say that in the Commonwealth serum laboratories in Melbourne we have facilities that do not exist in Sydney; though in the latter city there are institutions such as the McGarvey-Smith Institute, where a man can learn something of the practical side of serum laboratory work. Of course, Melbourne is only a day's journey from Sydney, so possibly arrangements could be made to send men here to obtain practical experience in the serum laboratories, which is an essential part of modern training. A man half-trained in this important work is really a danger to the community. It is appalling to think that carefully-prepared material, which, properly handled, may be the means of saving numberless human lives, if misused, prove an agent for speedy death to large numbers of people. Lack of money is the great need of our existing medical schools for the teaching of preventive medicine. It is somewhat difficult for me to say which proposal I would favour—the erection of buildings in Sydney for the use of one university, or the strengthening of teaching in all the existing schools. There is so much behind the proposal. In Great Britain I believe it is the law that no man can be appointed a medical officer of health unless he possesses the diploma of public health of some accredited university or medical school. This is by no means the case in Australia. If the demand existed, there would be a larger number of students taking the public health course at our universities. For many years there have been professors of public health at most of the British universities. A considerable number of students for the diploma of public health pass through these classes every year. Until there is a thorough awakening of public opinion in Australia, which will compel municipalities and boards of health to appoint whole-time officers with higher qualifications, the number of



students doing the course will be small. The best way to arouse public opinion would be to impress on members of the medical profession the importance of this branch of medicine. At present it is not appreciated at its true worth. The requirements in the Melbourne University in the subject of bacteriology include immunology. I take that subject, and in one term I have to compass the whole of the study of bacteriology. The thing is ludicrous in its inadequacy. The consequences, I think, will be realized when we get the report of the royal commission on the Bundaberg disaster, which will, I feel sure, contain some comments on the inadequacy of training in this vitally important subject.

80. *To Senator Reid.*—I have the students for four hours a week in this subject. They are pretty keen and work hard. So much interested are they that, when I suggested that they should voluntarily give me another hour a week out of their own time for extra lectures, 90 per cent. of the class willingly fell in with my proposal. The time allotted for the study of this branch of medicine should be doubled to secure anything like a true appreciation of its importance. If provision could be made for strengthening the staff in bacteriology, or if more people could be employed to do the routine work which now falls upon the teachers, the situation would be very much improved.

81. *To the Chairman.*—The salary necessary for the holder of a chair in any of the universities would be about £1,300 or £1,500 a year. For that sum a medical man would give the whole of his time to the work. The highest salary paid in the Melbourne University is £1,300 for the Professor of Law, and there are three medical men receiving, I think, £1,200 each, so it should be possible to get a professor of bacteriology for £1,500. If that amount were increased an assistant also could be secured. A little extra equipment would be required. I think the total needs could be met by an expenditure of, say, £3,000 each for the three universities that have medical schools. This expenditure would provide facilities for the teaching of medical bacteriology and immunology. Under present conditions it is somewhat difficult to induce a brilliant student to devote himself to research work. Having done his course he realizes that his earning capacity is pretty good, and after having spent six years in a university the majority find it difficult to withstand the lure of a lucrative practice outside. They feel that they are getting on in years. Perhaps they wish to begin to earn so as to be able to marry and settle down. It is easier to keep some of the women students. It is probable that if one or two Fellowships were established brilliant students with a taste for academic work would take advantage of the opportunity to do research. I doubt if tropical medicine can be done adequately in Australia, owing to the lack of material. Every man who attended the school would be clamouring to be sent to London or Calcutta to round off his knowledge. If the Government spends the sum mentioned in buildings in Sydney for a school there, and makes no provision to assist financially existing schools at the other universities, they will be left in the air, so to speak. The same demand will exist in all the States for the training of lay personnel in public health matters. The objective could be reached with less expenditure than under the scheme projected. Each university, if assisted as I suggest, would then be put on a proper basis, and a widespread public need would be met. I cannot see that Sydney possesses advantages over a city like Melbourne in the higher realm of public health work, but I would not advocate Melbourne as the chief centre. Members of the medical profession are trained in three medical schools for the whole of the citizens of Australia. I believe that for an expenditure of £10,000 a year, the

amount contemplated as being necessary for the maintenance of the proposed Sydney school, we could provide chairs of public health or bacteriology in Sydney, Melbourne and Adelaide. In this way we could insure the training of every medical student in Australia. But I do not wish to appear jealous of Sydney University. It has the senior medical school, and if there is to be only one school of public health I have no objection to its being in Sydney. The demand for the diploma of public health is not great, because municipalities do not expect it of candidates for appointment. Many of these men are part-time officers. As a rule they are general practitioners, and give a certain amount of time to health matters. If all municipalities insisted on candidates being holders of the diploma of public health, and if there were enough jobs going, there would be plenty of students for the diploma course. At present only two or three a year are taken in Melbourne. I discussed the proposed system of control of medical research with Sir Frank Heath, who was in Australia recently. He informed me that the research grant in England was not under the control of the Ministry of Health, for the reason that a Minister must necessarily try to translate opinions into Government policy, whereas a research man must have no opinions; he must be looking for the truth, whether he likes it or not. Sir Frank added that in England they were fortunate in having as their Minister Lord Balfour, a scientific man who, as Lord President of the Council, has no Government department to administer. His office is not concerned with the policy of any department, and therefore he is admirably fitted for the control of research work. It is conceivable that in the proposed school was under departmental control its effectiveness as a searcher after truth might be impaired. Suppose, for example, that the department worked along the lines of the White Australia policy, and research revealed certain phases of weakness in it. Is it not likely that there would be a disposition not to publish the information? Control by research men would mean the publication of truth in all circumstances and without regard to its effect on a particular policy. Numberless instances of the effect of departmental control may be cited. For example, the New Zealand Government will not permit the importation of cattle from Australia because of the prevalence of pleuropneumonia in the Commonwealth. Blood tests such as those used for typhoid have been employed to diagnose pleuro, and we are now prepared to say, from such blood tests, that certain animals are not infective. This is the considered opinion of scientific men, but I can imagine a departmental officer in New Zealand saying: "If may be as you say, and when you have made a few million tests I may believe you. In the meantime I am taking no chances. Control of the proposed school by the authorities of the University of Sydney, who surely have no axe to grind, would be the right course to adopt. Research work should not be subject to departmental control. In saying this I am making no sinister suggestion; I am merely stating the point of view of the scientist, who is primarily concerned in the discovery of truth in all things. It is of the first importance that control of research work should be in the hands of men who are absolutely unbiassed and unaffected by any particular line of policy.

82. *To Mr. Cook.*—I imagine that the Government has in mind a council of control similar to that governing the Council for Scientific and Industrial Research, which body recently appointed Dr. Tilghard, from New Zealand, to carry out important research work in Australia. Medical research should be under the control of a council constituted on similar lines. My only objection to the Government's proposal of one public health school is that conceivably it will touch only about one-third of the medical students in Australia, whereas

financial assistance to existing schools would benefit students in all those States that have established medical schools. At present both Melbourne and Sydney Universities give the diploma of public health; but the teaching is not adequately provided for. It is possible that a certain number of students from the other States would take the course at the Sydney school if they thought it would economically prove to be a sound proposition. With them it would be a question of pounds, shillings and pence; that is to say, they would ask themselves—Will it pay me to take the course? Sunshine, good food, a splendid climate, and good industrial conditions all make for the building up of a fine race of people in Australia. These account largely for our low death-rate, notwithstanding what we have to contend with in the way of insanitary conditions in some of our country districts. When on holidays in country districts in Victoria, as well as other States, I have been appalled at the nature of the sanitary accommodation in many country hotels or boarding houses. It is a mystery to me how we escape virulent outbreaks of typhoid fever and other diseases. I can only conclude that the generous amount of sunshine which we get helps us to stand up against the risks to which we are subjected by the insanitary conditions in many districts. I do not agree that the sanitary conditions in certain areas of our cities are worse than in country areas. The standard of education for health inspectors is inadequate. I was for many years examiner for the Royal Sanitary Institute in London, and I know that the opportunities of training for health inspectors in the Old Country are much better than in Australia. The training in Melbourne, and possibly at Sydney also, though I cannot speak with certainty on this point, is not in any way comparable with the opportunity offered by the London Institute, which has branches all over the country. I doubt also if the proposed new school would have any effect on the incidence of cancer. We have first to determine the cause of the disease. Therefore, special research must be made. I am definitely of the opinion that money should not be spent in establishing a tropical institute in Australia, because, as I have stated, we have not the material for sound training. On the public health side I should like to see £20,000, the amount proposed to be expended on a school in Sydney, allocated to the three medical schools as a grant in aid for the development of public health teaching. If, however, this cannot be done I am not going to be so hidebound as to say that the money should not be spent in one city. I am quite certain that if it is divided between the existing medical schools the work which will then be possible will touch more students than will be possible under the Government's proposal to have a school in Sydney.

83. *To Mr. Cameron.*—Speaking generally, sanitary inspectors get their training from medical officers of health. It follows, therefore, that if we have a larger number of medical men interested in this work all over Australia, we are more likely to have a higher standard of public health. Under existing conditions very few medical men take the diploma of public health; there may be two, possibly three, doing the course at the Melbourne University this year. A man doing it has to spread the work over two or three existing departments which take the stand that he is not their chief concern. They say, in effect, to him, "When can you come?" or "How can we fix you?" The arrangements are more or less of a makeshift nature. The position should be different in the projected new school. Students doing the course there should be adequately provided for. Men from the other States might go to Sydney for the training. They would, if they thought it would pay them to do so. I do not wish to be regarded as an advocate of any particular plan. My chief concern is to see that adequate

F.818.—4

provision is made for the three universities so that the teaching there will touch every medical student in Australia.

84. *To Mr. Seabrook.*—In my opinion expenditure on buildings used by existing medical schools should not be necessary to enable them to do the work effectively. I do not know of any that are being run at anything like capacity. At times they might be pretty full of students, but at other times the equipment and accommodation are not taxed unduly. It should easily be possible to arrange for one or two extra courses a week. Assuming that the Government decided to subsidize the schools instead of erecting buildings in Sydney, I do not consider it likely that the schools would make a demand subsequently for special buildings. Public health teaching embraces chemistry, bio-chemistry, physiology, bacteriology, hygiene, &c. The room required for chemistry teaching for one set of students is precisely the kind of room needed for chemistry students in public health. The same may be said of bacteriology and the other branches of study, so that no serious expenditure on new buildings should be required; but certain apparatus would be needed. I understand that the equipment and maintenance of the proposed school will run to about £9,000 a year. Better results could be obtained by the distribution of that money between the three medical schools already in existence, and if the universities in Perth or Brisbane established medical schools, they also should be assisted. I can hardly conceive of Tasmania starting such a school because that State is so near to Melbourne; and the cost of running a medical school would probably be too much. I feel sure that, before long, Queensland will have its own medical school. I understand that the tropical institute at Townsville will not be closed down altogether, so Queensland will continue to get something from it along the lines of the proposed tropical school at Sydney. As to whether we are getting any return from the existing schools concerning the incidence of cancer, it is a fact that improvement in diagnosis and treatment of cancer is being effected, but on the research side. I can only say that cancer research, if it is to achieve any definite results, must be conducted on a big scale. Tuberculosis is quite a different proposition. We are getting definite results from our medical schools in this branch of research. The death-rate from tubercular disease is coming down all the time; whereas cancer mortality rates are increasing.

(Taken at Melbourne.)

MONDAY, 28TH MAY, 1928.

Present:

Mr. MAONAV, Chairman;	Mr. Cook
Senator Barnes	Mr. Lacey
Senator Reid	Mr. McGrath.
Mr. Cameron	

John Howard Lidgett Cumpston, Director-General of Health for the Commonwealth, recalled and further examined.

85. *To the Chairman.*—I have had an opportunity to peruse in proof the evidence given before the committee, and have noted the criticism of the proposed government control of the school, and the expenditure upon buildings rather than upon subsidies. Some of the statements seem a little loose, and unsupported by evidence. At my first examination I centred my evidence with facts, and I have brought this morning documents which will corroborate what I am about to say in reply to the various critics. It is gratifying to find that all the witnesses, with possibly

two exceptions, are of opinion that the proposed school is necessary. Professor Chapman and Walsh definitely supported the proposal. The association representatives, Drs. Morris and Willis, registered their definite and cordial approval; Dr. Dick and Nott and Professor Woodruff agreed that such a school was required; Dr. Dale was doubtful, and Dr. Penfold was definitely opposed to it. The next point in dispute is whether the school should be established at Sydney or elsewhere. The testimony of different witnesses reveals traces of local prejudices. For instance, the Sydney witnesses favored Sydney as the locus and Melbourne witnesses were against it. Dr. Nott and I were the only medical witnesses not especially connected with either Sydney or Melbourne. Dr. Nott has a prejudice in favour of Melbourne. Dr. Nott has a prejudice in favour of the school. I am a graduate of Melbourne University and naturally am attached to my own school, but all the arguments appear to favour the choice of Sydney, and the royal commission, after careful examination of all the evidence brought forward, came to the conclusion that the arguments in support of Sydney were convincing. Even Professor Woodruff said that if there were to be only one school of public health in the Commonwealth he had no objection to its being in Sydney. The conference of Commonwealth and State Ministers, after a considerable discussion of various aspects of the proposal, endorsed the location of it in Sydney. That conference was attended by the Minister for Health and the Chief Health Officer of each State. Dr. Dick said in his evidence that he had not been consulted at all in regard to the proposal to establish this school. He said also, "I certainly think that consultation with medical opinion outside the university would have been desirable." My answer to that is that Dr. Dick was present at the conference of Ministers at which this proposal, as recommended by the royal commission, was discussed, and therefore he was quite aware of the details. He must have overlooked that fact when he said that he was not consulted. Dr. E. F. Morris said, "The negotiations appear to have been conducted in a confidential manner." He rather suggested that surreptitious methods had been adopted. This project was thoroughly examined by the royal commission in 1925 and was endorsed by the conference of Ministers in 1926. Then we wrote to each university medical school, and finally all the details of the project were openly discussed by the Sydney University Senate three times. I think those facts dispose of the suggestion of surreptitious methods. There is clearly a consensus of opinion that a school of public health and tropical medicine is necessary, and that it should be located in Sydney. In regard to the proposed objects and scope of the institution, I find no criticism by any of the witnesses. There remains to be decided, then, only the question of control. Some of the witnesses were in favour of departmental control and others were not. The objections contained matter and statements that came as a surprise to me. Some of the criticisms had not previously come to my knowledge, and I was not aware that such views were held by any person competent to express an opinion. The principal point to which I wish to refer is the statement that the Townsville Institute of Tropical Medicine has been a failure and that by contrast the Commonwealth serum laboratory has been a success. I was not previously aware of any thought that the Townsville institute had failed. I do not admit that it has done so, or that there is any justification for expressing that opinion, although possibly I may have contributed towards it by having told this committee that the institute had not been as successful as we had hoped. That is not to say, however, that it has been a failure. Various reasons are given by the different witnesses for their judgment that the institute has not been a success. Professor Chapman referred to the fact that

a foreigner was in control of it, and said that he lacked the power to inspire young men to work in the laboratory. Dr. Morris said that the failure of the institute was due, not to its head being a foreigner, but to departmental mismanagement. Dr. Nott said, "The department tramped the style of the whole institute because it lacked imagination, and did not maintain the personal touch that is necessary to inspire research work." I find it difficult to answer the charge of departmental lack of imagination and failure to maintain the necessary personal touch. I do not quite know what Dr. Nott meant by that statement. Dr. Penfold said, "The Townsville institute failed as a research authority because the statements are not at all guaranteed failure." Those statements are not correct. None of the witnesses could have had any first-hand knowledge of the facts, because none had had personal association with the management of the institute. Dr. Breinl, the first director of the institute, was appointed in 1910 for a term of five years, and was re-appointed for a further five years, which expired on the 25th October, 1920. The committee of direction considered that the general prospects at that time were too uncertain to warrant the renewal of the engagement for a further term of five years, and proposed to extend it from year to year. Dr. Breinl, who was about to be married, was attracted by the prospects of private practice, and resigned at the end of the second term of five years. There was a natural sequence of events that gives no indication that he retired because of departmental interference. During the war the fact that Dr. Breinl was an Austrian and had only become naturalized in 1914 did undoubtedly prejudice the work of the institute. That was unavoidable. He was criticized on that account and prejudices arose which I, as a member of the committee of direction, realized had a detrimental effect on the institute. That, however, was not the fault of Dr. Breinl. It is literally true that he had criticisms of him were written by a member of the staff and published in a reputable journal in England. I do not propose to read them, or to say more than that the writer was at fault throughout. Dr. Breinl was succeeded by an acting-director who, presumably, is the person whom Dr. Penfold referred to as a "glorified caretaker." It is true, as was said by Dr. Willis, that censorship was applied to the writings of two members of the staff on one occasion. That related to an article regarding the work of the institute, but introducing economical and political arguments which were considered undesirable as coming from members of the staff. The article was referred back to the authors for reconsideration, and I think that they too saw the wisdom of omitting the passages to which exception was taken. It is fair to explain, however, that the Health Department was not at that time connected in any way with the institute, which only came under departmental jurisdiction on the 7th March, 1921. Some of the witnesses appear to have confused portion of Dr. Breinl's control with what they have described as "departmental mismanagement." The department was entrusted with the work of the institute on the 7th March, 1921. Between the date of Dr. Breinl's retirement and the department's assumption of control the institute was under the control of a committee or council constituted precisely in the same way as the body which some witnesses have suggested would now be preferable to departmental control. That committee consisted of three representatives of the Commonwealth Government and one representative each of the universities of Brisbane, Sydney, Melbourne and Adelaide. The strength of voting was against the Government representatives, but that consideration never arose. Whatever may have been the results of the control by that committee, they do not affect the matter now under consideration. Neither then nor

since has there been any justification for describing the Townsville Institute as a failure. During the latter part of the war period it was impossible to get staff, all medical men being engaged on military service, and for some time the work of the institute was necessarily almost suspended. From about 1915 to 1920 the work was not progressing very satisfactorily, but that was due entirely to war conditions. In regard to the work of the institute since that time, I remind you of the advice given by Dr. Heiser—which I quoted in my original evidence—that to a certain extent the work should be made more practical and directed more towards the dissemination of information which would be of advantage in advancing public health. What has been the net result? I produce reports of the work done by the institute between the years 1914 and 1919. The papers issued show that the institute concerned itself with tropical diseases, human and animal parasites, the adaptation of white people to tropical conditions, climatic features, and mosquitoes and other insect parasites and carriers of disease. That was the programme for the first and second series. The third series is represented by papers issued before and after the department took control, and relating to investigation work. One of these is a paper by Dr. Heydon dealing with the method of identifying larvae after the passage from the human host, and is a distinct advance on previous knowledge of the subject, and makes possible new methods of control. Dr. Willis's method of separation of hookworm eggs was adopted by the Rockefeller Foundation and is recognized as the standard method. Another important piece of research was that into what is known as the "X" disease. The paper on the transmission of the eye worm to poultry is of great interest and value to Australian poultry breeders. In addition, we have issued a series of publications, one on malaria by Dr. Cilento containing all the information available on malaria in Australia, the means of transmitting it, the mosquitoes which carry it, and the methods of identifying them. There is a similar one, by the same author, on filariasis, which is the parasite of elephantiasis; another on the diagnosis of bowel disorders in northern Australia; two on mosquitoes by Mr. Cooling; and another on Australian ticks, by Mr. Fielding, which has received international commendation. For the purpose of studying the physiology of white men in the tropics we arranged with one of the most experienced investigators in that field to come from the Californian University and work at Townsville for two or three years. His investigations are contained in "Some Studies of Tropical Acclimatization," by E. S. Smedstrom. His subsequent communication was published by the University of California. There was also Dr. Cilento's booklet, "The White Man in the Tropics," which is one of the most important publications ever issued in Australia, because it places on record all the information necessary to found a scientific judgment of the possibilities of white men developing in the tropics. Previously that had been the subject of discussion upon somewhat incomplete scientific evidence. Now the evidence is marshalled for the first time in any language. For these various publications there has been a big demand, and some of them I think will be reprinted. Another phase of the institute's work was of importance. We appointed a qualified and intelligent nurse to visit the country towns in northern Queensland and study the social reaction of the women to life under tropical conditions. That has been summarized in a brief report, but we are collating the full text, which we hope to publish. In addition, I arranged for a complete survey of the aborigines to ascertain the extent of the distribution of venereal disease and leprosy. Dr. Cooke's report on that investigation is with the printer and will be

issued shortly. I have sketched briefly the policy that has been followed at the suggestion of Dr. Heiser. If it was wrong, we have at least this excuse that we followed the advice of one who is probably the foremost living authority on tropical hygiene. I submit, however, that the work was properly done and has been an extensive and good as any work done prior to departmental control. It is difficult to contrast the work done between 1910 and 1920 with that done subsequently, because the first period was disturbed by the war and the operations were therefore in some respects unsatisfactory. But the statement that there has been departmental mismanagement is based on complete ignorance of the facts; the people who made it would express a different view if they knew exactly what has happened. In regard to Dr. Penfold's statement that the appointments to the institute almost guaranteed its failure, I propose to remind the committee of the calibre of men we have employed at Townsville. Dr. Cilento, who is the present director, had about four years' service in New Guinea during the military occupation. In his endeavour to further his knowledge of tropical diseases, he went at his own expense, to the Federated Malay States, the Government of which appointed him to an important position. After he had been there a year, I was able to obtain his services and induce him to return to his native land. Prior to his return, however, we allowed him nine months of travel to observe the methods adopted in other countries where scientific investigation of tropical medicine and public health was being undertaken. His tour ended with a visit to the Panama Canal zone. At the London School of Tropical Medicine he took the Diploma of Tropical Medicine, being first in his year out of over 100 students from all parts of the world, and winning the gold medal. Dr. Baldwin, who acted as director in the absence of Dr. Cilento, was selected to take advantage of the Rockefeller scholarship and was sent to America, where he did work on tropical diseases for a year. Subsequently he went to the London School of Tropical Medicine, and was second in his year. The man who beat him for first place was a senior man in the United States naval service and a specialist in tropical diseases. Dr. Elkington, the administrative director, had experience in Asia, and spent a considerable time at the laboratories in Bombay. He returned to Asia recently at the expense of the department to further his knowledge of tropical diseases. Dr. Heydon has a similar record of success against all competitors in the London School of Tropical Medicine. Dr. Pearce, who is doing the physiological work, had a first class record at Sydney University. These men who held their own in competition with other students from all parts of the world are those whose appointments, according to one witness, were almost a guarantee of failure. I submit that they are men whom Australia ought to be proud to have in her service. Dr. Cilento's work in New Guinea is a landmark in colonial medical administration. During his regime the service was raised to a high level of organization, and I could quote many pieces of valuable scientific work that were done while he was there. Dr. Heydon succeeded in identifying the mosquito which carries malaria, which the Germans had never been able to do. Dr. Cilento described for the first time two new forms of the disease and carried out a complete survey of the aborigines segregated on the Palm Islands. The institute has also carried on very wide activities in connection with hookworm research since the Rockefeller Foundation withdrew from Australia. Whereas the institute had experienced difficulties arising out of the war, they arose before the period of departmental control. The facts I have mentioned are not to be regarded as special pleading; they are open to investigation. Dr. Nott's allegation that the department lacked

imagination is difficult to answer, but I propose to mention some of the things that we have done. The department realized that practitioners and public in country districts were sadly handicapped by not having easy access to laboratories which would afford modern facilities for diagnosis. We have already established nine local laboratories, and I hope in time to institute a complete chain of such institutions which will supply the country people with scientific services that were not previously available to them. This system keeps us in constant touch with the medical practitioners, and has made public health more a reality in the minds of the general practitioner than it was previously. The department has had enough imagination to establish serum laboratories which supply the Commonwealth and New Zealand with biological products. It has had imagination enough to purchase radium in large quantities, and hopes to establish a national system for the treatment of cancer. We convened a health conference of all countries interested in the Pacific, and we are about to carry out a survey in order to determine what research work should be carried out in the near Pacific Islands. In answer to the reflections upon the staff of the Townsville Institute, I may mention that when the League of Nations wanted a microbiologist, I was invited to nominate an Australian. Through lack of staff, I was not able to make the nomination, but the application to me was proof of the confidence reposed in our health administration by the League of Nations. A publication, *Health Problems of the Empire*, by Andrew Balfour and H. L. Scott, which was issued in connexion with the Empire Exhibition at Wembley, gives high praise to the work being done by our department.

Of all the countries which go to make up the British Commonwealth, Australia possibly presents the most instructive example of the influence which hygiene exerts upon a community.

It is not possible to trace all the varied activities from small beginnings to the great organization of to-day, but one of the most important, both to Australia and the Empire as a whole, was the quarantine service. It developed in quite a remarkable manner, and played a great part in safeguarding the public health, both during the Great War and when Australian ports were, as one might say, bombarded by cases of influenza. At all times, too, it has kept a watchful eye on plague, which, as has been pointed out, was never permitted to gain a firm hold. It was the quarantine authority which became the Federal Department of Health, a department created on 3rd March, 1921, and which commenced its administration four days later under the control of a Commonwealth Minister of Health. We see here an evolution not unlike that which took place in Canada, but in Australia the movement has been on a larger scale, and there is apparently a closer and more workable relationship between the Federal Department and the central and local health administrations which go to make up the Commonwealth. (After a review of the evolution of the Commonwealth Department of Health.)

It will be seen that in every direction there has been an *abundant feverish activity*. Its latest expressions are perhaps to be found in the arrangement recently made for a council to be formed of Commonwealth and State Health Officers to consider national health questions.

In future we should be on our guard and every effort should be made to prevent the introduction of sea-borne influenza. That this is a task worth attempting is shown by what happened in Australia, where it is claimed that escape from the devastating forms of the disease—its escape in much less contrast to what happened in, say, Sierra Leone, South Africa, and New Zealand—was due to the result of the work of the Commonwealth quarantine service, possibly the most advanced and efficient in the world.—*Health Problems of the Empire*, Balfour and Scott, 1924.

I assure the committee that that book was prepared and published without my knowledge. I quote also from a book by Professor Elsworth Huntington, the foremost writer in the world on the subject of white civilization in relation to climate—

At Townsville, the first person whom I met was Doctor Roberts, of the Institute of Tropical Medicine. Under his guidance, the first thing I did was to look into the work

of the institute. From previous reading, I already had a most favorable impression, which was amply confirmed. The institute is one of the most creditable and far-sighted of the many good things done by the Australian Government. But it suffers from a serious handicap which may prove deadly unless checked. As the usefulness of the laboratories becomes recognized, the workers are called upon to keep fuller records and to perform a constantly increasing number of routine analyses.—Huntington—*West of the Pacific*, 1925.

Professor Huntington said that too much routine work was done at Townsville. That we know, but we have thought that up to the present it has been necessary. The school of health, if established, will obviate the necessity for a good deal of that routine work, and I leave the staff free for other duties. The testimony I have just quoted is from an entirely disinterested American witness, who saw the institute and declared that his previously formed favorable opinion was amply confirmed. Such a tribute does not confirm the suggestion that the institute has been a failure. Some of the witnesses have emphasized the need for a library. The library at Townsville is recognized to be one of the best in the Commonwealth, and naturally would be transferred to the school. Dr. Vott said that the work of the institute is hampered by demands for reports. We do not ask for reports from the institute. We receive the usual departmental communications and get reports of scientific work completed and ready for publication, but all that is quite normal and natural. The next question to be dealt with is whether the proposed school should be controlled by a university or by the department. Those witnesses who have spoken in opposition to departmental control have not read the agreement. We have always recognized that complete departmental control would not be the best for such an establishment as we are now proposing. It is possible to carry on an institute like that of Townsville departmentally, but for a special establishment to discharge teaching functions and have integral relations with the university, departmental control would not be advisable, and has not been suggested. An advisory council is proposed, but one of the witnesses has objected that the departmental nominees would outvote the university representatives. No sensible Minister would nominate representatives of the Government men who did not enjoy the confidence of the public. The special advisory council would be fully representative and that would be one guarantee against complete departmental control. In regard to matters of tuition, the senate of the university would have ultimate administrative control. It could not be otherwise. The senate issues the diplomas and it must therefore approve of the appointments connected with the issue of them. It is provided that the Commonwealth shall appoint all research officers. No other course is possible. The Commonwealth is to provide the funds, and the Treasury regulations require that payments from the Commonwealth funds must be made by the Commonwealth. The alternative is a straight-out subsidy, and the Commonwealth's complete removal from the field of administration. That is not desirable.

Those who have had most experience in public health administration, and have been in charge of public health for many years, know best what should be taught the people who are to carry on that administration. This is not a matter to be determined by a professor of pathology, or any other learned person who has not had experience of public health administration. Able men though they be, the university professors will agree that twenty years' experience of the problems of public health administration should render us more fitted than they to decide what should be taught to the next generation of health officers. It is therefore not unreasonable to insist that the authorities to manage the school of public health and see that the foundations are well laid is the department which has had the greatest experience in that

field. I recognize that it will be desirable to wean the infant in time, and have recommended the Government to contemplate a period of ten years of departmental control, after which the school could be transferred wholly to the university. That is not a long period in which to bring into existence and nurture an infant of this kind. The fact has to be recognized, also, that in the university, as elsewhere, every department is striving to get all its staff for itself, and I believe it necessary that the infant school of health should be protected against the competition of the other departments of the medical school until it is strong enough to hold its own. I am aware of the criticism that if the Government appoints the research officers it will control the principal part of the establishment. I wish to make clear the fact that this is to be a teaching school, not merely an institute of research. The staff will be mostly occupied in teaching students the job of attending to public health and dealing with its problems as they arise in the field and in the home. Amongst the students may be nurses, factory inspectors, and municipal health officers. What the Commonwealth has particularly in mind is the urgent need for an establishment at which the juniors can be taught their work. If it were agreed that research is so much a function of this establishment that it should be placed in the hands of a medical research council, we should be wise to drop the proposal to erect special buildings, for I have no doubt that for research purposes money could be better expended than in buildings and plant. But whilst some research will be done at the school, that will not be its first objective. The report of the royal commission in 1936 dealt with health education at page 18, and research separately at page 46. That body clearly recognized those as two distinct functions of public health. The teaching of men for their job is an essential part of health administration. Medical research is something quite different. What the Government might wish in regard to it is another matter. It has had the matter under consideration as a separate problem unrelated to the teaching school. The committee will observe that the agreement has been so drafted as to leave the research workers free from university control. The reason for that was the possibility of ultimately developing a research organization which, while co-ordinating its work with that of other bodies, would not be too closely tied up with the teaching and university organizations. The suggestion has been made that a Government department essentially cannot engage in research, that its mental attitude is not compatible with that class of work. May I dispel that idea by quoting a few historic illustrations. The discovery of the organism of Malta fever was made by Colonel Bruce, of the Royal Army Medical Corps. Leishman and Donovan, whose names are famous in connexion with the obscure kala azar disease, belonged to the Indian medical service. James, who did monumental work in the classification of mosquitoes, was in the Indian medical service; Sir Almoth Wright, who developed the typhoid vaccine, was lecturer at the Royal Army Medical School; Ross, who made possible the control of malaria, was in the Indian medical service, as also was Rodgers, who has done more than any other man to control leprosy; Stanton and Frazer, the two men who proved the practicability of controlling berber fever, were in the Straits Settlement medical service. Park and his associates, who have done such splendid service in connexion with diphtheria, were officers of the New York City health service; whilst the men who have made the greatest discoveries in regard to yellow fever were in the United States army. May I refer, also, to Gorgas and Darling, of Panama Canal fame; and Hoiser and Long in Manila. All these brilliant works were achieved by men in what may be regarded as most conservative and cast-iron departments. If a man has

inherent qualities of research, he will engage in that work regardless of his environment. You cannot make an environment that will produce scientific discoveries. Pasteur was a teacher in the Education Department of France till he was well on in life, and was always complaining that he had to teach and could not proceed with his research work. Finally, officers in our department have been carrying on research work for years. Dr. Peasfold has pursued investigations into cancer; other men are investigating the prevalence of aplasia, and others again are studying the developments in the ordinary sanitation plan used in country health services. If we are to have a research organization, let it be a research organization. But at the present time we are more concerned in applying the large amount of knowledge that we have for the prevention of disease than in spending big sums of money in getting additional knowledge. Still, there is need to approach the subject of research from angles other than those which have been stressed by some of the witnesses. If a research organization is established, it will be on the lines of the Council of Scientific and Industrial Research, which subsidizes workers and co-ordinates their efforts, but does not create a big, highly-paid staff. Such an organization concerns itself mainly with giving to men an opportunity to develop their work at universities and elsewhere. It has been suggested that we should send men to Calcutta, London, Liverpool, or Hamburg to study. That I most strongly oppose, because I want to develop in Australia our own resources. The idea that we should continue indefinitely to send men abroad to learn their job is distasteful, and could be contemplated only if foreign study offered greater advantages than could be given in this country. If we look at the teaching qualifications of our staff, we find that our men, in competition with others, more than hold their own at the examinations abroad. There is no doubt that we have a teaching staff quite as good as is available elsewhere. I am certain that the Public Service Board would not agree to send a man abroad at great expense to the public to get an education, when possibly he might not return to give this country the benefit of his training. I am sure that the territorial administrations would not consider that policy in any circumstances. There is the further difficulty that men who go abroad may receive offers of better positions and resign. There is no need to send our students abroad. I am authorized by Sir Neville Howse to say that he could not contemplate that any man should leave the Commonwealth with an Australian diploma whose education was inferior to that of other students whom he might meet abroad. He considers it necessary that we should provide within our own borders all the facilities required to educate our men up to the standard of other advanced countries. The subsidizing of universities seemed so obviously desirable that at first I gave it very favorable consideration. When I was in New York in 1924, I had a whole afternoon's session with three directors of the Rockefeller Foundation, men of international reputation and with wide experience of public health administration. I suggested that we should establish in Australia three medical schools. They opposed the idea, and at the expense of the Foundation I went to Philadelphia and Baltimore to discuss the matter with the heads of the medical schools there. I returned to Australia still feeling unconvinced, but two years later I wrote to Dr. Hoiser:—

You will remember that I discussed with Dr. Russell and yourself the project for the establishment of a School of Public Health and Tropical Medicine, and Dr. Russell expressed his view that we could not justify two such schools in Australia. To a certain extent I have become converted to his view, and we propose to establish only one such school.—[Letter to Dr. Hoiser, 7th October, 1926.]

After giving three years of close attention to this matter and studying what is being done in other countries, I recommended to the Government what I considered the minimum plant and building accommodation necessary to furnish teaching in Australia up to the standard adopted in other countries. The Rockefeller Foundation is spending \$450,000 on building a school in London. The Commonwealth is proposing to spend \$30,000, which is even less than an equivalent proportion. A less expenditure would provide only an inefficient substitute for the minimum provision I consider necessary for teaching our men, and the suggestion that the \$30,000 should be distributed between three universities shows lack of appreciation of what is required. If it is intended to make equally efficient accommodation at each of the three universities, the proposal is wasteful and indefensible. There seems to be no justification for providing in connexion with Melbourne University a second school, which will perhaps turn out two or three students a year. The work to be done by such a school is different from what is normal to a university, and if provision were made for it at Melbourne and Adelaide Universities, in order that two or three students may graduate from each annually, the scheme would be uneconomical and unsound. For \$30,000 proper equipment and staff can be provided at one centre, and £10,000 a year would be required for maintenance. If the work were distributed over the three universities, each would require a building and plant costing \$30,000 and £10,000 annually for upkeep, for neither the Melbourne or the Adelaide University has any place in which this class of teaching could be carried on. I have not previously heard of the intention of the Sydney University to enlarge its medical school, but even if that should happen we have no indication that the additional accommodation would be devoted to public health purposes. I have already expressed the fear that a new department in the university would suffer at the hands of others which were better established. In order to give an equivalent service to all States, it would be necessary to establish at each university the same buildings and equipment, and that would mean provision in excess of Australian requirements without any compensating advantages.

86. To Senator Reid.—Even for a smaller number of students, the same accommodation would be required because there are certain things which must be taught. The general Medical Council of Great Britain has decreed that a man must possess certain knowledge before he is qualified to receive the diploma of public health. If we established at each of our universities a school which was not competent to give that training, it would be necessary to advise the English authorities exactly what the standard of education was, and they would then refuse to recognize reciprocally our diplomas. One of the essentials is complete laboratory accommodation. I do not say that we could not, if pressed, do with a little less for appliances, but the economy would be small and it would be a pity to spoil a good job for the sake of a small sum. Dr. Penfold referred to a statement by Dr. Elkington before the royal commission on Health, and said that the latter did not understand the distinction between protozoa and bacteria. That statement is unwarranted; Dr. Elkington knows perfectly the distinction. Dr. Penfold also said, in regard to the mortality from diphtheria, that Australia shares with Russia the unhappy distinction of being the lowest in point of medical efficiency. I do not understand upon what ground that statement was made. I submit the following statistics for 1926 from the Fourth Epidemiological

Report of the Health Section of the League of Nations—

DIPHTHERIA STATISTICS.—AUSTRALIA AND OVERSEA COUNTRIES.

Notification Rate per 100,000 Population.	Death Rate per 100,000 Population.	Notification-Mortality Ratio (Deaths per 100 Notifications).
Australia .. 152	North Ireland .. 10.75	Yugoslavia .. 24.6
Zealand .. 140	Scotland .. 10.62	Poland .. 24.0
South Island .. 121	Canada .. 9.99	Canada .. 12.7
Rhodesia and Wales .. 121	Ireland and Wales .. 9.20	Polish Free State .. 11.7
North Ireland .. 102	Spain .. 7.60	North Ireland .. 10.7
U.S.A. .. 79	U.S.A. .. 7.50	U.S.A. .. 9.5
Canada .. 75	Polish Free State .. 6.83	Czechoslovakia .. 7.4
U.R.S.S. .. 65	Australia .. 6.52	Germany .. 6.8
U.S.A. .. 58	Denmark .. 5.50	Rhodesia and Wales .. 6.8
Austria .. 56	U.S.A. .. 5.22	Australia .. 4.4
Polish Free State .. 52	Australia .. 4.05	Australia .. 3.2
Germany .. 46	Czechoslovakia .. 3.19	New Zealand .. 2.7

That table shows that the death-rate in Australia is lower than in any other country except New Zealand and Czechoslovakia, and that the number of deaths in any other country to the number of illnesses is lower than in New Zealand. Another statement by Dr. Penfold was that there had been more deaths per annum from diabetes in the Commonwealth since insulin was introduced than before. The following statistics convincingly answer that assertion:—

Year.	Commonwealth.		England and Wales, Rate per 100,000.	U.S.A. Rate per 100,000.
	No. of Deaths.	Rate per 100,000.		
1916 ..	513	10.4	12.9	17.1
1917 ..	649	11.1	11.0	17.0
1918 ..	553	11.6	10.3	16.0
1919 ..	630	12.3	10.8	14.0
1920 ..	617	11.5	10.9	14.0
1921 ..	629	11.7	10.8	16.0
1922 ..	682	12.3	11.9	19.4
1923 ..	685	12.4	11.4	18.0
1924 ..	674	11.6	11.2	16.0
1925 ..	677	11.4	11.2	16.0
1926 ..	682	11.3	11.2	18.0

Insulin was introduced between 1921 and 1923, and it will be observed that there has been no change in the mortality rate. There is no data available to test Dr. Nott's statement that we are a third-class people in habiting a first-class country. In respect of the death-rate and the expectation of life, our people stand in a better position than those of other countries, whilst the death-rate from infantile mortality and tuberculosis is lower than in other countries. In regard to the physique of the Australian people, an investigation made in New South Wales showed that the children of parents both born in Australia are heavier and taller age for age than children whose parents were not born in Australia. If there be any doubt in the mind of the committee as to the possibility of the department successfully conducting a scientific and research establishment, I write a visit to the Serum Laboratory. That is recognized by all who are acquainted with it as a tribute to departmental management. If further evidence is required in regard to the Townsville institute, I shall be glad to call Dr. Clento from Townsville. It is suggested that the department should not be associated with the tuition at the school of medicine, but if the laboratories are to be attached to it in any way some association is inevitable. The laboratory is interfered with. If it were to do any teaching work, the laboratory is so far from the University that it misses that university atmosphere that we are striving to obtain. For reasons I gave in my previous evidence, I am convinced that the work of the school could not be carried on at Townsville. The establishment of a

medical research council should be considered, but even if it were brought into existence it would have nothing to do with this school. There is such a council in England, and it is doing excellent work, but it is not connected with the school of public health, and is tropical medicine. Men who have devoted their lives to research are obviously less suitable to direct public health than are men who have made that subject the study of a lifetime. I assure the committee that the establishment of a school of public health will not mean the duplication of work that is being already done elsewhere. I am aware that the generous provision of windows in the proposed building has been adversely criticized. In 1915, when the Commonwealth decided to establish the Serum Laboratory, Dr. Penfold was sent to Europe and America to make himself familiar with the latest laboratory practice. He came out and designed the present laboratory windows, and the staff has been so satisfied with them that when the suggestion was made that the window space should be reduced, there was a prompt demur. After our own experience of thirteen years, we regard the matter as most suitable. Mr. Murdoch offered the matter to me, and our laboratory officers conferred with him and Mr. Todd in Sydney, and said that they wanted all the light they could get. We are uncertain as to what accommodation will ultimately be required for the building of a new animal house, and we have decided to defer consideration of this adjunct to our school. We have discussed the location of the animal house, because that affected the lay-out of the school buildings. Naturally the university authorities will be consulted in this regard.

87. To Mr. Cameron.—I think that the management of the Townsville Institute has improved since the department assumed control in 1921; certainly it has not deteriorated. At the present time one officer is engaged principally in the classification of worms met with in the course of pathological investigation, and is carrying out extensive research into the development of the hookworm under the conditions existing in North Queensland. Another officer, who is a skilled biochemist, is dealing with blood changes that occur under tropical conditions. We have already shown that there is little to be added to our knowledge in that respect except in regard to details. A third officer is engaged in ordinary laboratory processes, such as the examination of specimens sent in by medical men. This is valuable work. For instance, employees in an establishment at Townsville developed a queer kind of illness. Investigations by the institute showed that the disease was due to the presence of an unusual germ in the water supply. The defect was promptly corrected. Again, a medical man in Cairns encountered a fever, the symptoms of which were different from those which he was accustomed. An officer of the institute went up to Cairns and found that the fever was an abnormal type of typhoid. Dr. Baldwin is concerned with the teaching of students, administration of the institute, and such research work as is possible. An entomologist is engaged in classifying mosquitoes, ticks, and other insects. The staff numbers seven, exclusive of Dr. Clento. The institute has been engaged both in tropical research work and in preventive medicine. It does analytical and pathological work for local governing bodies, and examines diphtheria swabs by the hundred. If Dr. Nott meant by his reference to the inferiority of the Australian people that the standard of medical services provided for the public is third rate, I do not agree with him. Averaged over the whole community, it is probably the best service in the world. I do not think that it would be of advantage to associate the school of health with the Serum Laboratory. Sydney is clearly the location for the

school. The royal commission on Health investigated that point at greater length than this committee will be able to do, and was convinced that better service could be obtained from a school in Sydney than one located elsewhere. I do not think there is much doubt that if financial assistance were offered, nurses, health officers, factory inspectors, and others would go to Sydney to take advantage of the teaching which the school would offer. Of course, the ordinary sanitary inspector does not require a university training. He learns all he requires at the working men's colleges, and similar places, but no doubt some would go to a school of health in Sydney to take a higher course.

88. To Senator Reid.—The publications dealing with the work of the Townsville Institute were widely circulated free of charge to all applicants. It is possible, however, that some of the critics of the institute have not seen these works. Their criticism was due, I think, to failure to realize what the institute was doing, and to failure to contrast university methods with those in the department; all I can say is that if an officer of the department is engaged in research he will be left as free as possible; he will be supplied with all necessary equipment, and will be called upon to render only such an account of his doings as is necessary for proper administration. I have no knowledge of departmental interference with men engaged in research. My policy has always been to interfere as little as possible in work of that character. I have already explained the only instance in which the work of the officers at the Townsville Institute was censured. That publication dealt with wogoo drought conditions, and other economic and political subjects that had nothing to do with the work of the institute. As it was obviously inadvisable that such the institute by the unanimous decision of the committee it was censured. The only other incident that may be regarded as interference when an officer was engaged in research that seemed to me unprofitable, and not the best use of his time, I suggested that he be transferred to other work that would be more profitable. That was a purely administrative decision; the Government had nothing to do with it, and apart from requiring the Serum Laboratory to be self-supporting, the Government has not laid down any policy at all in regard to the research establishments. The proposed school would have an influence upon, and value to, all municipal councils. Its work would reach even the municipalities and delegates to conferences of roads boards and municipal councils. To only a limited extent would persons in New South Wales have advantages over those in the other States in regard to the obtaining of diplomas. The Director of Education in Victoria discussed with me the possibility of having some of his teachers taught public hygiene. I told him of the proposed school of public health in Sydney and he said it would be a good thing to send a few teachers to the school and they could be employed to impart their knowledge to others in the department. Governments would probably think it wise to send some of the departmental inspectors also to the schools. If a decision is reached to proceed with the erection of the school buildings, I shall further investigate the window accommodation.

89. To Mr. Cook.—The staffing of the school will cost approximately \$9,000 a year. That is the amount we are paying at Townsville, and I think we can manage with very little more. To the question as to what would be the direct benefit to public health that would accrue from this school, I reply that all medical men who are concerned with the administration of public health would be trained according to modern

standards, and all who were appointed to positions in the territories would be fully trained in tropical medicine. We should have a centre from which we should be able to conduct any investigations the Government might require, or examine in the light of scientific knowledge, any proposed piece of legislation or act of administration. Such a school should be of great benefit to the State Governments as well as to the Commonwealth. We have already established seven laboratories in the Commonwealth and one in Rabaul. The seven are at Townsville, Rockhampton, Toowoomba, Lismore, Bendigo, Port Pirie, and Kalgoorlie. Those at Launceston and Cairns are now in process of erection. If the money were available, I would like to

establish many more. These laboratories supply the people in the country districts with adequate, prompt, and reliable information. They examine the sputum of medical patients, and decomposable matter that will not keep long enough to be sent to Melbourne for the accurate diagnosis that is necessary. The country laboratories do no teaching or research work. I am convinced that subsidies to existing establishments would not be as beneficial as the expenditure of money upon the establishment and maintenance of a school of public health and tropical medicine. I repeat that I have arrived at this conclusion after being at first in favour of a system of separate schools at the different universities.