Govt. of {1896} Madras.

PUBLIC.

Issued

Recd. Encl.

G.O., No. 714, 8th July 1896.

JULY.

Bacteriology.

Calling for information from the Surgeon-General, &c., regarding the measures to be adopted for bacteriological investigation in this Presidency; and addressing the Government of India on the subject.

64 [illegible]

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No. 2275 W. d/10 August 96

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GOVERNMENT OF MADRAS.

PUBLIC DEPARTMENT.

Read—again the following papers :—

G.O., Nos. 511, 512, Public, dated 13th July 1894.

Abstract.—Addressing the Government of India on the proposal to create an Indian Chemical department for the whole of India.

G.O., No. 662, Public, dated 3rd August 1895.

Read—the following letter from Surgeon-Major-General C. SIBTHORPE, F.R.C.P.I., Surgeon-General with the Government of Madras, to the Chief Secretary to Government (through the Director of Public Instruction), dated Ootacamund, 13th June 1895, No. Tour—278 :—

I have the honour to forward, for the information of Government, the accompanying report of a discussion at a meeting of the South India Branch British Medical Association on the 4th April last. The necessity of the appointment of a trained Bacteriologist and of the establishment of Bacteriological Laboratory in Southern India are very fully dealt with at length in these papers.

2. There are, however, some points which I wish to emphasise—

(*a*) That the Medical College at Madras, of which we are all justly proud and which Government has always dealt liberally with, is now seriously behind the time in its want of ability to impart instruction on the subject of Bacteriology to its students.

(*b*) A trained Bacteriologist would by his work elucidate many of the pressing problems of disease among men and animals and so save the Government both in lives and money.

(*c*) The need of a Bacteriologist is felt in the Veterinary Medical Department.

(*d*) Such an official would control a laboratory at which young officers of the Medical and Veterinary services who had a taste for that class of work would be able to work and keep up or improve their knowledge thus fitting them for independent investigations into the cause of actual outbreak of disease.

(*e*) The appointment of a Bacteriologist and the establishment of a properly equipped laboratory would, I am convinced, in a few years save Government more money that the whole scheme would cost.

(*f*) If such an official was sanctioned his duties should be confined to the study of Bacteriology and the teaching of it in the Medical College. He should be placed in the same position as regards Government as the Chemical Examiner now holds as regards his ordinary work and under the Director of Public Instruction as regards his duties in the Educational Department.

(*g*) Several alternatives present themselves in the selection of such an official—

(1) He might be selected by the Right Honourable the Secretary of State on the advice of those University or Collegiate authorities in Great Britain in which Bacteriological schools have been established under the same conditions of service as Professor Bourne of the Presidency College. This would be the quickest but probably the most expensive way of securing his services.

(2) The better plan would be for the Right Honourable the Secretary of State to sanction such an appointment in List I on the cadre of the Indian Medical Service, to select an officer on the advice of the above-mentioned authorities, give him a

commission in the Indian Medical Service, grant him pay commencing at Rs. 500 a month and rising by increments to Rs. 1,000 a month, as no doubt his work would be more valuable as his experience matured. Such an appointment would add to the prestige of the Indian Medical Service, would increase the *esprit de corps* and foster a spirit of scientific investigation amongst the junior members of the service, as they would work with the hope of qualifying for either the officiating or permanent appointment. If such an officer was appointed, he should be allowed a longer course of study at Netley than the usual four months one, and should be permitted to spend three or four months in some selected laboratory either in England or on the continent before coming out to India. On arrival in India he should be sent to one of the established laboratories for a short time and should be exempted from the operation of the rule which requires all medical officers of the Indian Medical Service to complete two years' military duty before they are available for duties in the Civil Department. He should be permitted to expend a sum not exceeding £100 in Europe on the equipment necessary for his laboratory and should be granted an extra allowance of baggage to bring it out. On arrival in Madras he should be provided with a room in the Medical College where he should work during the College Winter (cold weather) session; during the other six months of the year, he should be permitted to move his laboratory to one of the hill stations (preferably Kóttagiri or Ootacamund).

3. I am convinced that, if the proposed plan is carried out, it would do much to increase the efficiency of the sanitary work in the Presidency by raising the standard of knowledge both amongst officers and subordinates.

No. 5711.

Submittted to Government with most cordial support.

(Signed) D. DUNCAN,
Director of Public Instruction.

22nd June 1895.

Order—No. 662, Public, dated 3rd August 1895.

The appointment of a Bacteriologist is no doubt desirable, but there are already before Government so many proposals relating to medical requirements which involve extra expenditure, that this matter must lie over for the present on financial grounds.

(True Extract.)

(Signed) J. F. PRICE,
Chief Secretary.

To the Surgeon-General.

G.O., No. 990, Public, dated 2nd December 1895.

Abstract.—Communicating to the Surgeon-General and to the Sanitary Commissioner, for favour of joint remarks, resolutions of the Government of India regarding a scheme for securing a trained reserve of Chemical Examiners and for establishing an Imperial Bacteriological laboratory.

Read—also the following papers:—

From L. M. THORNTON, Esq., Deputy Secretary to the Government of India, Home Department (Sanitary), to the Chief Secretary to the Government of Madras, dated Simla, the 31st October 1895, No. 12-Sany.—340.

With reference to the correspondence ending with your letter, No. 512, Public, dated the 13th July 1894, I am directed to forward a copy of a resolution which has been issued by the Home Department of the Government of India relative to the establishment of a Bacteriological Laboratory in India for the training of young Medical officers in that science, and also as Chemical Examiners at a Central Laboratory at Calcutta under the Chemical Examiner of Bengal.

2. It will be observed that the proposal, circulated with this department's letter, Nos. 331-334, dated 24th May 1894, to increase the pay of Chemical Analysers with a view to attracting the best men in the service has been for the present abandoned, and I am to explain that this is due to the relatively paramount importance which the Government of India attach to the establishment, as soon as practicable, of the proposed Bacteriological Laboratory at Agra, and to the anxiety felt by the Governor-General in Council to make trial, before incurring increased expenditure by enhancing the salaries of Chemical Analysers, of a system by which a junior Indian Medical Service officer will be attached for training to the Calcutta Laboratory and will be available, after training for employment in any of the Laboratories at Madras, Bombay, Lahore or Calcutta in which his services may be required.

3. It is also proposed in paragraph 9 of the resolution eventually to attach young Medical officers for a six months' course of training to the Chemical Analyst's office or the Bacteriological Laboratory, and I am to request that, with the permission of His Excellency the Governor in Council, the Government of India may be informed whether arrangements can be made to give effect to this proposal as regards Medical officers who are serving in the Madras Presidency.

No. 2997.

Referred to the Surgeon-General for report with advertence to G.O., No. 990, Public, dated 2nd December 1895.

(Signed) J. F. PRICE,
Chief Secretary.

Fort St. George,
14th December 1895.

From Surgeon-Major-General C. SIBTHORPE, F.R.C.P.I., Surgeon-General with the Government of Madras, to the Chief Secretary to Government, dated Camp, Cocanada, 31st December 1895, No. Tour 4—1.

With reference to your endorsement, No. 2997, dated 14th December 1895, herewith returned, with the attached correspondence, regarding the appointment of a junior officer of the Indian Medical Service to the Calcutta Labcratory for training in the duties of a Chemical Examiner, I have the honour to inform you that, owing to the short-handed state of the establishment in Madras, no such officer is available at present, nor is there likely to be one until the arrival of the ten new officers about November 1896.

2. If the rule as now proposed is sanctioned for India as was done in Madras in 1884—*vide* paragraph 3 of my letter, No. Tour—62, dated 26th June 1894, on page 4 of G.O., No. 511, Public, dated 13th July 1894—and an officer was available in Madras, I consider he could be given quite as effectual a training in the laboratory of the Chemical Examiner in the Madras Medical College as he would get in Calcutta, with the advantage that he would not have to live in the more expensive city of Calcutta, and that Government would be saved considerable travelling expenses.

Letter to the Government of India, Home Department, No. 106, dated 22nd January 1896.

From Surgeon-Major-General C. SIBTHORPE, F.R.C.P.I., Surgeon-General with the Government of Madras, to the Chief Secretary to Government, dated Madras, 6th February 1896, No. 83.

With reference to G.O., No. 990, Public, dated the 2nd December 1895, regarding bacteriological research, I fully concur in the remarks of the Government of India on this subject and consider the proposals will meet the present requirements of the part of India alluded to without considering the requirements of the medical schools.

2. In Madras, however, we want a Bacteriologist for the college in whose laboratory future Health Officers could be trained; my views on this subject are fully before Government in the correspondence dealt with in G.O., No. 662, Public, dated the 3rd August 1895.

3. I have consulted the Sanitary Commissioner, and now attach a true copy of a memorandum he has furnished me with on the subject.

In the correspondence ending with my Tour 4–1, dated 31st December 1895, the Government of India have apparently decided that the Chemical Examiners to Government should be commissioned medical officers on what appears to me to be very sufficient grounds. The principal medico-legal work of these officers is steadily increasing and I cannot concur with Surgeon-Lieutenant-Colonel King that it would be desirable to place this work in the hands of a general chemist such as he describes. The importance of having such chemists is well recognised, and in my opinion, if they existed, they would have their time fully occupied without the medico-legal work.

I cannot either concur with the idea of Surgeon-Lieutenant-Colonel King that the appointment of an officer who had at least five years' experience as District Medical and Sanitary Officer to the Sanitary Department attached to a Vaccine institute, who should take charge of the Hygiene laboratory in the Medical College, lecture for six months in the year to the students on Hygiene and instruct the class of Sanitary Inspectors, would at all meet the requirements of the Educational Department as a Bacteriologist; nor would he have any time at his disposal for original work. If such an appointment was made, other proposals would be necessary to carry on the work now done by the Professor of Hygiene as Second Physician in the General Hospital.

Enclosure.

Memorandum as to provision for Bacteriology and Chemical Research in connection with sanitation, with reference to Government of Madras Order, No. 990, Public, dated 2nd December 1895, by Surgeon-Lieutenant-Colonel W. G. KING, Sanitary Commissioner, Madras, dated 28th January 1896.

The opening of an Imperial Bacteriological institute as proposed by the Government of India is a matter of great sanitary import, as to the necessity for which I fully concur although the suggestion to obtain this at the cost of abolishing a Deputy Sanitary Commissioner will, I trust, be reconsidered. I understand that the Sanitary departments of Local Governments will be permitted to obtain decisions on Bacteriological matters coming within their official work, by making references, or sending specimens for examination; and, secondly, that it shall form a school for young commissioned medical officers to be trained as Chemical Examiners and Bacteriologists for duty with Local Governments.

2. The idea of making a separate branch of the Indian Medical Service from which Chemical Examiners and Bacteriologists can be recruited is excellent; but I think it does not go far enough. If sanitation is to progress, the workers ought not to be hampered by being required to investigate medico-legal questions. This is recognised by the Government of India as to officers selected for bacteriological work; but I consider it applies equally to Chemical Examiners, not with reference to incompatibility, but with regard to quantity and character of work expected.

3. As a first step, I would arrange that, on vacating their appointments in ordinary course, the present class of Chemical Examiners should no longer be continued. I suggest the appointment of professional chemists. The duty expected of these men should be two-fold: firstly, the conduct of medico-legal examinations; secondly, the conduct of investigations into the chemistry of economic products. Bearing in mind the immense stride in trade that Germany has been able to effect by the system adopted by manufacturers having on their premises not one or two, but at times half-a-dozen expert chemists, I consider that the Government of India would find that, if properly administered and encouraged, such men would, by their investigations in various matters affecting the natural products, agriculture, and manufactures of the country, amply repay every rupee spent on them. The head of this department would naturally be the Economic Reporter to the Government of India. Such men should be recruited directly from Great Britain, and should not be foreigners. The officers might be known simply as Government analyst, and should be Professors of Chemistry in Universities. This would aid economy and be of advantage to students.

4. There would thus remain as surplus in the Indian Medical Service the number of officers hitherto absorbed as Chemical Examiners; an equivalent number of junior medical officers having not less than five years' experience as district Sanitary officers should then be attached to the Sanitary Department as Assistant Sanitary Commissioners. They should be trained, as contemplated by the Government of India in the Imperial Bacteriological Institute, in Bacteriology and Chemistry, having special reference to sanitary duties. In my opinion, such men should be absolutely at the disposal of the Sanitary departments, and in the case of Madras, would be best attached to a Vaccine institute intended for supply of animal lymph throughout the Presidency, where exceptionally good facilities for original work could be afforded; but as economy must be regarded, I would advise his being permitted to lecture upon Hygiene in the Medical College and to be responsible for Hygiene course, practical and theoretical, for the suggested new class of sanitary subordinates. The existing Bacteriological and Hygiene laboratory in the Medical College would, with few improvements, fulfil all that is requisite. This arrangement would meet the plea the Surgeon-General makes as to the necessity for provision for the Educational Department, whilst it would sufficiently well meet the requirements of the Sanitary department, holding in mind the fact that for the more serious branches of research the Imperial Institute would be available, and that the work expected of the local Bacteriologist would chiefly consist in the aiding of sanitary precautions by the early identification of well-known microbes, not the searching after the unknown.

From Surgeon-Lieutenant-Colonel W. G. KING, M.B., C.M., D.P.H., Sanitary Commissioner for Madras, to the Chief Secretary to Government, dated Bellary, 10th February 1896, No. 253 S.

With reference to letter No. 83, dated 6th February 1896, to you from the Surgeon-General with the Government of Madras, I have the honour to represent that from the context of the last paragraph of that letter, it is apparent to me that the Surgeon-General has misinterpreted my meaning. This being so, it follows that my memorandum expresses my intentions in a manner open to doubt, which it is desirable should be guarded against on perusal by Government.

2. The Surgeon-General has understood that I would wish the proposed Bacteriologist to perform work that is obviously impossible. He has, however, arrived at this conclusion from not giving the value I had anticipated would be allowed to the following statement: "In my opinion such men should be absolutely at the disposal of the Sanitary departments, and in the case of Madras, would best be attached to a Vaccine institute intended for supply of animal lymph throughout the Presidency, where exceptionally good facilities for original work could be afforded . . ." By this I meant it to be understood that what I considered Madras *should have* was a Bacteriologist attached to the Sanitary Department engaged on original work at a Central Vaccine Institute intended for the cultivation and distribution of animal lymph throughout the Presidency. This would be necessarily in a cool climate, would be worked under special hygienic conditions, and would, by the possession of large numbers of animals (over 200 calves per month) and skilled medical subordinates on the spot, afford opportunities for original research, such as never yet afforded a Bacteriologist. This would form my ideal. *To this officer no other duties should fall.* Before completion of the above sentence, however, I have added—"*but* as economy must be regarded (a conclusion arrived at by the nature of the proposals of the Government of India as to securing funds), I would advise his being permitted," &c. The suggestions which follow pre-suppose that the reader would understand that I considered myself bound to abandon this ideal, in favour of the compromise consequent upon no longer looking for "original research" locally, but trusting for this to the Imperial Bacteriological Laboratory. I was of course perfectly well aware that the extra duties of Assistant Physician of the General Hospital now conducted by the Professor of Hygiene would have to be otherwise arranged for, and considered that so long as I defined the duties expected, this would be sufficiently understood.

3. I therefore trust it will be seen that the Surgeon-General's deduction that the Bacteriologist proposed would not have time at disposal for the duties I have sketched is founded upon a misinterpretation of my doubtless insufficiently exact statements, seeing that his work would extend to solely (1) the present duties of Professor of Hygiene in the Medical College, which would necessarily include the teaching of Bacteriology, theoretically and practically, in a laboratory already existing; (2) the training of the future class of Sanitary Inspectors; and (3) routine bacteriological investigations for the Sanitary Department.

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, Home Department (Medical), to the Chief Secretary to the Government of Madras, dated Calcutta, the 17th February 1896, No. 136.

I am directed to forward the accompanying extract from a report (No. 651, dated the 11th September 1895) by the Sanitary Board on the outbreak of cholera in the Civil and Military Station of Bangalore, which contains a complaint by the Board concerning the absence, in the Madras Presidency, of any means whereby a bacteriological examination of water obtained from suspected polluted sources can be carried out. In inviting the attention of the Government of Madras to this matter, I am to enquire whether His Excellency in Council could suggest means for avoiding the recurrence of such a difficulty in the future. It seems probable that some of the medical officers who have lately joined the service would be competent to make such an examination.

Enclosure.

Extract from a report, No. 651, dated the 11th September 1895, by the Sanitary Board on the outbreak of cholera in the Civil and Military Station of Bangalore.

* * * * *

11. As the water from polluted sources has called for particular attention from the Board * it was considered desirable to send some specimens (particularly from the wells and tank which many persons were known to be in the habit of using in the cholera-infected locality referred to) with the object of its being examined as to the presence or otherwise of the causative organism of cholera, and accordingly several samples were forwarded to Madras for that purpose, but to the extreme surprise of the Board a reply was received from the Chemical Examiner stating that he was unable to undertake the necessary bacteriological examination and was moreover not in a position to say where in the presidency such an examination could be conducted. Now, as it is generally understood that the discovery of the cholera microbe is necessary to the determination of the very important question whether a particular water is infected or not, and also whether a doubtful case is cholera or not, the Board thinks it incumbent on it to express its extreme disappointment and disapprobation at finding that this very necessary bacteriological work cannot be carried out in this presidency, especially when it is considered how many efficient laboratories have for many years past been established throughout Europe.

Samples of water from suspected polluted sources obtained and forwarded for bacteriological examination to Madras, but not carried out.

* Sanitary Board of Bangalore.

* * * * *

(Signed) S. B. HUNT, Surgeon-Colonel, *P.M.O., Bangalore and Southern District.* } *President.*
(„) A. F. DOBSON, Surgn.-Lieut.-Col., *Residency Surgeon, Bangalore.* }
(„) GEORGE J. SHAW, Captain, *Offg. Asst. Adjutant-Genl., Bangalore District.* } *Members.*

From Surgeon-Major-General C. SIBTHORPE, F.R.C.P.I., Surgeon-General with the Government of Madras, to the Chief Secretary to Government, dated Madras, 30th March 1896, No. 260.

I have the honour to acknowledge the receipt of your endorsement, No. 435, dated the 25th February 1896, referring for my remarks letter, No. 136, dated the 17th February 1896, from the Government of India, forwarding a complaint by the Sanitary Board in Bangalore concerning the absence, in the Madras Presidency, of any means whereby a bacteriological examination of water obtained from suspected polluted sources can be carried out. The Government of India further enquire whether any means could be suggested for avoiding the recurrence of such a difficulty in the future, and consider that some of the medical officers who have lately joined the service would probably be competent to make such an examination.

2. In reply I have the honour to state that it is a fact that no arrangements exist for making such examinations.

[illegible] two propositions before Government which will, if sanctioned, provi[illegible]angements. The first is contained in the proposition of the Special Comm[illegible]e of 1892 appointed to report upon the re-organization of the Medical College, forwarded with my letter, No. 671, dated 12th December 1894. In this the committee recommended that the teaching of hygiene should be viewed from two different standpoints—

(1) the actual requirements of the students; and
(2) the requirements of science—pure and simple;

and they suggested that, if the former view was taken, the Professor should give a course of systematic lectures and a practical course and have not more than forty beds in a hospital. In the interest of the Sanitary Science, however (including such duties as are now under reference, the proper superintendence of the Hygiene Laboratory already built and fairly equipped, the instruction of the College medical students and the Sanitary Inspectors' class by practical demonstrations of sanitary work throughout the city, and the organization, equipment and superintendence of a museum of hygiene), the duties of the Professor should not be confined to the teaching of students, but he should be provided with a well-equipped laboratory and establishment for the purposes of sanitary research—clinical, mechanical and biological. If these were to be his duties, the committee was strongly of opinion that he should not have any attached duties.

The second proposition, which would meet the requirements now under consideration, is the appointment of a Professor of Bacteriology—pure and simple—as proposed by me in the correspondence dealt with in G.O., No. 662, Public, dated the 3rd August 1895, and my letter, No. 83, dated 6th February 1896. I am strongly of opinion that the Professor of Hygiene should be able to devote his whole time to the teaching and investigation of sanitary subjects and that the proposed Professor of Bacteriology should be able to devote his whole time to the study of Bacteriology. Either of these Professors would be in a position to carry out the investigations now under reference in his laboratory if it was properly equipped.

4. I forwarded the correspondence under reference to the Principal of the Medical College, through the Director of Public Instruction, for his suggestions and to report how far it is possible at present to make a bacteriological examination of water with the present appliances in the Hygiene laboratory. In reply he forwards me the remarks of the Professor of Hygiene who is in charge of the laboratory and who states—

"With regard to the first question, the means—if that term be used in its fullest sense—do not at present exist, for the simple reason that no one has the time or opportunity to undertake such work. When equipping this laboratory, I took the greatest care to furnish it with everything essential for such work. I have the training and I have the appliances, but most certainly I have not the time, nor will I have it until relieved of my present hospital duties in connection with the clinical teaching and the charge of seventy to ninety beds throughout the year * * *

"With regard to the second question, as to the possibility of carrying out such work at the present moment, I have no hesitation in saying that it could not be done without neglect of routine work. Scientific work to be of any value must be deliberate, and none more so than Bacteriology. The laboratory requires very slight and inexpensive alterations to make part of it suitable for bacteriological work, but some changes in arrangement must be made before the latter can be attempted with reasonable chance of accuracy. It might be possible to produce a report of a kind on the subject without much delay, but certainly not a report for the accuracy of which I would care to stand sponsor. The provision of various culture media and the growth and cultivation of numerous micro-organisms for purposes of identification is a very different matter from simple microscopical and chemical examinations, and the more one knows of the subject the more clear does it become that such work cannot be systematically left undone and then suddenly attempted" * * *

I concur fully in these views of the Professor of Hygiene.

5. As to the appointment of one of the officers lately joined to carry out such investigations, it should be remembered that none of them are at my disposal. All the more junior officers have received the training at Netley, but those who are in civil employ have other duties which fully occupy their time, and those in military employment are rarely in Madras and even when here are not available for such

duties. Moreover, as the Professor of Hygiene states, the reports of such investigations to be of any value must be from men who are in the habit of carrying on such scientific work continuously.

6. The correspondence is herewith returned as requested.

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, Home Department (Medical), to the Chief Secretary to the Government of Madras, dated Simla, the 21st May 1896, No. 391.

With reference to the correspondence ending with your letter No. 106-Public—1081, dated the 22nd January 1896, I am directed to forward, for the information of the Government of Madras, a copy of a letter marginally noted on the subject of the proposed deputation of medical officers of the Indian Medical Service for instruction in Bacteriology.

No. 393-95, dated the 21st May 1896.

2. I am to request that, should the Government of Madras find it convenient, and consider it desirable, to depute an officer in the manner suggested, the Government of India may, with the permission of His Excellency the Governor in Council, be informed of the fact.

ENCLOSURE.

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, Home Department (Medical), to the Bengal / Government of N.W. Provinces and Oudh, / Panjab dated Simla, the 21st May 1896, No. 393-95.

With reference to the correspondence ending with the letter from this office, No. 12-Sanitary—342-344, dated the 31st October 1895, regarding the establishment of a Bacteriological Laboratory in India for the training of young medical officers, I am directed to state that the Director-General of the Indian Medical Service has suggested to the Government of India that, in consideration of the growing importance of Bacteriology in connection with sanitation and specific diseases, it would be desirable that junior officers of the Indian Medical Service should, if possible, be posted either to the Bacteriological Laboratory at Calcutta or Agra, as may be thought expedient, for the purpose of assisting Dr. Cunningham and Mr. Hankin in their investigations and of acquiring a practical knowledge of Bacteriology.

2. It will be seen that this proposal anticipates to some extent the scheme sketched in the resolution of the 31st October 1895, a copy of which was forwarded to the Government of with the letter above quoted. The object of the Director-General's suggestion, which is to obtain as soon as possible a few officers capable of conducting independent investigations of a reliable character, is, however, one of which the Government of India approve, and they anticipate that Local Governments would find great advantage from having a few officers at their disposal who had undergone this training.

3. In the opinion of the Director-General of the Indian Medical Service this training should last for from 6 to 12 months and it has been suggested that Local Governments might find it possible to occasionally spare a medical officer from the number of supernumerary medical officers placed at the disposal of the Government of by Home Department Resolution, No. 14-Medical—760-772, dated the 12th December 1894. The Governor-General in Council anticipates that this might at all events be found feasible from (say) the beginning of October to the end of April, and I am to enquire whether, under the circumstances set forth above, His Honour the Lieutenant-Governor would have any objection to deputing a medical officer as proposed from time to time. I am to explain that the officer so deputed would, while attending the Laboratory, continue to receive his grade pay under Article 309, Army Regulations, India, Volume I, Part I, as laid down in the resolution quoted.

ORDER—No. 714, Public, dated 8th July 1896.

The importance of bacteriology and of bacteriological investigations so far as the requirements of this Presidency are concerned has already been recognized, * and the correspondence read above points to the necessity of adopting some definite measures for attaining the objects aimed at by the Surgeon-General and the Sanitary Commissioner; but these officers have not expressed themselves with any degree of clearness or precision as to what their actual requirements are, and some additional information is necessary before orders can be passed on the proposals made.

* G.O., No. 662, dated 3rd August 1895.

2 The demand for the services of a professional bacteriologist presents itself under three aspects, according as he is required—

(i) for original bacteriological research, *i.e.*, the study and investigation of unsolved problems of disease among men and animals;

(ii) for teaching the science theoretically at the Medical College and practically to young medical, sanitary, veterinary and other officers at a laboratory;

(iii) for practical bacteriological investigations required by the Sanitary, Vaccine, Veterinary and other departments.

3. The measures to be adopted as regards original research and education in bacteriology must depend on the ultimate results of the re-organisation of the Medical College and the redistribution of work among the chief medical officers of the Presidency town.

4. As regards the provision to be made for the practical bacteriological investigations of the Sanitary and other departments, full information should be furnished with statistics and rough estimates of cost on the following points:—

(i) For what departments of the public service practical analyses of this kind should be undertaken.

(ii) What particular articles should be subjected to bacteriological examination besides water. Surgeon-Lieutenant-Colonel King's reference to "the aiding of sanitary precautions by the early identification of well-known microbes" seems somewhat indefinite and might be amplified.

(iii) What amount of work will be required of the bacteriologist by the Sanitary Board in connection with actual local requirements, apart from general and theoretical researches.

(iv) What portion of the work can be undertaken by the Chemical Examiner, and by the Professor of Hygiene, if he is relieved of the charge of a certain number of beds.

(v) What additional establishment would be required in each of the existing departments to carry out the necessary reforms.

5. It is to be regretted that in an isolated reference of the kind such as was made from Bangalore, the investigation of the sample was not undertaken by the Professor of Hygiene, who is reported to have had both the ability and equipment necessary for the purpose. It is not clear why no reference was made to him.

6. The Surgeon-General will in due course report the names of such officers as can be spared for training at the laboratories in Agra and Calcutta, in accordance with the scheme proposed by the Government of India.

[Here enter letter to the Government of India, No. 715, dated 8th July 1896.]

(True Extract.)

W. W. Hulbert
for *Chief Secretary.*

To the Surgeon-General.
" Sanitary Commissioner.
" Sanitary Board.
" Chemical Examiner.
" Local and Municipal Department.
" Revenue Department.
" Public Works Department.

Exd. A. Raitt.

(ii) for teaching the science theoretically at the Medical College and practically to young medical, sanitary, veterinary and other officers at a laboratory;

(iii) for practical bacteriological investigations required by the Sanitary, Vaccine, Veterinary and other departments.

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(iv) What portion of the work can be undertaken by the Chemical Examiner, and by the Professor of Hygiene, if he is relieved of the charge of a certain number of beds.

(v) What additional establishment would be required in each of the existing departments to carry out the necessary reforms.

5. It is to be regretted that in an isolated reference of the kind such as was made from Bangalore, the investigation of the sample was not undertaken by the Professor of Hygiene, who is reported to have had both the ability and equipment necessary for the purpose. It is not clear why no reference was made to him.

6. The Surgeon-General will in due course report the names of such officers as can be spared for training at the laboratories in Agra and Calcutta, in accordance with the scheme proposed by the Government of India.

[Here enter letter to the Government of India, No. 715, dated 8th July 1896.]

(True Extract.)

W. W. Phillips
for *Chief Secretary.*

To the Surgeon-General.
" Sanitary Commissioner.
" Sanitary Board.
" Chemical Examiner.
" Local and Municipal Department.
" Revenue Department.
" Public Works Department.

Ed. A. Baitt.

15.7.96 R 2045-6 W
23.6.96 - 1878-9 W
20.4.96 - 1282/1282/1 A. W.

Nos: 2298-99 W dy 11-8-96

INDEXED.
1418.

Government of Madras.

1896.

P. W. DEPARTMENT.

CURRENT No. 6629

From The Examiner,
P. W. Accounts

ENCLOS.

No. —

Dated 21-7-96

Received 22-7-96

SUBJECT.

Submitting statement of unauthorised appropriations under Incorporated Local Funds, Civil Works, made during the months of June 96.

DISPOSAL.

No. 22984 dated 11 August 96

The estimate is still under consideration.

(True Extract)

Sdy D. Mc. C.

W

under check with J

No: 22994 d/11 August 96

Forwarded to the Accountant General, P.W. Department

Sd/ D. Mc. C.

W

Copy to C.

[P. W. O. 3000-1-1-96.]

No. 494, MARINE, 10TH JULY 1896.

GOVERNMENT OF MADRAS.

MARINE DEPARTMENT.

READ—the following paper :—

From Commander H. A. STREET, R.I.M., Presidency Port Officer, Madras, to the Joint Secretary to Government, Marine Department, dated 25th June 1896, No. 1271/213 G.

With reference to the two designs (herewith sent) of buildings, referred to in Public Works Department memo. No. 281 E., dated 23rd May 1896, and paragraph 20, page 60, of G.O., Marine, No. 245 of 8th April 1896, I have the honour to state that, for the better class of keepers, the design for "Bandsmen's quarters" appears suitable, and that I see no objection to the lower class of keepers being provided with quarters constructed in accordance with the "standard design for Police lines," provided that in exposed situations the buildings are constructed of stone or brick in chunam, as quarters built of mud would be unlikely to last in such situations.

2. If latrines are provided, it will be necessary to entertain a sweeper specially for keeping the places clean.

ORDER—No. 494, Marine, dated 10th July 1896.

The designs are approved, so far as accommodation is concerned, for adoption as type designs, but the Government is not prepared to entertain sweepers in any case. The latrines should, therefore, be omitted from the designs. One quarter only instead of a block should be shown on the type plans.

2. The Presidency Port Officer will, on the re-organization of the Lighthouse establishments being finally approved by Government, specify distinctly the classes of keepers that are to be provided with quarters on the larger and smaller scale, respectively.

(True Extract.)

(Signed) D. McNEIL CAMPBELL, Colonel, R.E.,
Joint Secretary to Government.

To the Public Works Department, with two plans.
„ Presidency Port Officer.

Exd. T. K. Narayana Aiyangar.
Spare Copies

Govt. of {1896} Madras.

MARINE.

Dated July, 10th.

Read. Encl.

G.O. No. 494, 10th July 1896.

JULY.

Type designs for Lightkeepers' quarters

Approving, with remarks, certain designs for adoption as —, and directing the Presidency Port Officer to specify, on the reorganization of the Lighthouse establishment, the classes of keepers that are to be provided with quarters on the larger and smaller scale, respectively.

With a order

No: 2300 W. d/13 August 96

Communicated to the Consg: Architect who will submit type plans and estimates based on the designs referred to by the Presidency Port officer.

2. The elevation in each case should be perfectly plain, without any attempt at ornamentation.

1 Sdf D. Gn. C W

To C.A. to Govt. with 2 plans

Govt. of {1896} Madras.

PENSION.

Issued

Read.

G.O., No. 551, 4th July 1896.

JULY.

Service Book.

Considering it unnecessary to file a copy of the correspondence relating to the suspension or dismissal of a Government servant with the — or to submit a copy of such correspondence along with a pension application, and laying down the procedure to be adopted in cases where the actual order directing suspension or dismissal is not sufficiently full and where the order itself is not forthcoming.

With order

No: 2274 Ir. d/10 August 96

Communicated to Offices of the P. W. D. for information and guidance.

1 Sdf Dirt

C.E. for S.
C.E. for Rys
S.Es
S.E. on Special duty
C.A. to Govt.
Elec. Engr.
Elec. Rly. E.

Endorsement No. 1020-R.

Transferred to the Pension Department.

Ootacamund,
15th May 1896.

(Signed) A. T. ARUNDEL,
Ag. Secretary to Government.

Read—also paragraph 5 (*e*) of the Accountant-General's circular without date in connection with pension applications instructing that "in all cases of suspension or dismissal, a true copy of the correspondence relating thereto should be forwarded in addition to the short explanation required under head 3 of the third page of the application form."

Order—No. 551, Pension, dated 4th July 1896.

The Government considers that it is unnecessary to file with the service book a copy of the correspondence, often very lengthy, relating to the suspension or dismissal of a Government servant and that no useful purpose is served by submitting a copy of such correspondence with a pension application. In cases where the actual order directing suspension or dismissal is not sufficiently full, a brief statement of the reasons on which the order was based is all that is required. Where the order itself is not forthcoming, a short summary of any available evidence as to its nature and the circumstances in which it was passed should be attached to the service book or pension application.

(True Extract.)

(Signed) LIONEL DAVIDSON,
Ag. Under Secretary to Government.

To the Accountant-General.
" the Board of Revenue (Separate Revenue).
" the Public Department,
" the Revenue Department,
" the Public Works Department,
" the Local and Municipal Department,
" the Marine Department,
} for communication to Heads of Departments under them.

Encl. C. M. Brisson.

500 Copies.

No. 551, Pension, 4th July 1896.

GOVERNMENT OF MADRAS.

PENSION DEPARTMENT.

Read—the following Proceedings of the Board of Revenue (Separate Revenue), Mis. No. 1775, dated 30th April 1896 :—

Read—endorsement of the Deputy Commissioner, Southern Division, dated 31st January 1896, No. 433, submitting copy of Calicut Assistant Commissioner's letter requesting instructions as to what is to be done when the original or copies of suspension orders, &c., are not forthcoming in the offices concerned to file with the service books, and Board's reference thereon to the Accountant-General, Madras, dated 14th March 1896.

Read—also the following letter from F. C. HARRISON, Esq., Officiating Accountant-General to the Government of Madras, to the Secretary to the Commissioner of Salt, Abkári and Separate Revenue, dated 1st April 1896, No. 3-I.A.E. :—

With reference to Board's Reference on General Register No. 1226, dated the 14th March 1896, I have the honour to state that in the cases in which the originals or copies of all orders relating to suspension, &c., are not forthcoming in the records of the offices concerned, statements in writing may be obtained from the individuals concerned and their contemporaries as to the cause and duration of suspension, &c., and attached to the service books.

2. As it is desirable that these instructions should be carried out by all Heads of offices generally a reference to Government on the subject is suggested.

Resolution—Mis. No. 1775, dated 30th April 1896.

With reference to paragraph 16 of the circular of the Collector of Trichinopoly, communicated with G.O., Mis. No. 4849, Revenue, dated 10th December 1894, the Assistant Commissioner, Calicut Sub-division, raised the question as to what should be done in cases in which entries as to suspension, &c., have already been made in the service books, but copies of the orders cannot be attached to the service registers in the absence of records. The Accountant-General was requested to favour the Board with his opinion as to whether, in the cases referred to, statements in writing may be obtained from the individuals concerned and their contemporaries as to the cause and duration of the suspension, &c., for attachment to the service books. The letter read above is his reply, in which he agrees with the views of the Board, but suggests a reference to Government as these instructions should be carried out by all heads of offices generally. The Board accordingly requests that Government will be pleased to issue instructions on the subject for the guidance of all officers.

(True Extract.)

(Signed) EDMUND MILLETT,
Assistant Secretary.

To the Secretary to Government, Revenue Department.
Copy to the Deputy Commissioner, Southern Division.

Govt. of {1896} Madras.

PUBLIC.

Issued 10.5.C

Recd. 0 w 6487/96 Encl.

G.O., No. 714, 8th July 1896.

JULY.

Bacteriology.

Calling for information from the Surgeon-General, &c., regarding the mea ures to be adopted for bacteriological investigation in this Presidency ; and addressing the Government of India on the subject.

No. 2275-W-dj 10 August 96

Order thereon No.

Communicated to Offices of the P.W. Department for information

(Sd) D. Rae

Ch. E for Irrig
C E for Rys
Supdg Engrs
S. E. on Special Duty
C A to Govt

duties. Moreover, as the Professor of Hygiene states, the reports of such investigations to be of any value must be from men who are in the habit of carrying on such scientific work continuously.

6. The correspondence is herewith returned as requested.

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, Home Department (Medical), to the Chief Secretary to the Government of Madras, dated Simla, the 21st May 1896, No. 391.

With reference to the correspondence ending with your letter No. 106-Public—1081, dated the 22nd January 1896, I am directed to forward, for the information of the Government of Madras, a copy of a letter marginally noted on the subject of the proposed deputation of medical officers of the Indian Medical Service for instruction in Bacteriology.

No. 393-95, dated the 21st May 1896.

2. I am to request that, should the Government of Madras find it convenient, and consider it desirable, to depute an officer in the manner suggested, the Government of India may, with the permission of His Excellency the Governor in Council, be informed of the fact.

Enclosure.

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, Home Department (Medical), to the Government of Bengal / N.W. Provinces and Oudh / Panjab, dated Simla, the 21st May 1896, No. 393-95.

With reference to the correspondence ending with the letter from this office, No. 12-Sanitary—342-344, dated the 31st October 1895, regarding the establishment of a Bacteriological Laboratory in India for the training of young medical officers, I am directed to state that the Director-General of the Indian Medical Service has suggested to the Government of India that, in consideration of the growing importance of Bacteriology in connection with sanitation and specific diseases, it would be desirable that junior officers of the Indian Medical Service should, if possible, be posted either to the Bacteriological Laboratory at Calcutta or Agra, as may be thought expedient, for the purpose of assisting Dr. Cunningham and Mr. Hankin in their investigations and of acquiring a practical knowledge of Bacteriology.

2. It will be seen that this proposal anticipates to some extent the scheme sketched in the resolution of the 31st October 1895, a copy of which was forwarded to the Government of with the letter above quoted. The object of the Director-General's suggestion, which is to obtain as soon as possible a few officers capable of conducting independent investigations of a reliable character, is, however, one of which the Government of India approve, and they anticipate that Local Governments would find great advantage from having a few officers at their disposal who had undergone this training.

3. In the opinion of the Director-General of the Indian Medical Service this training should last for from 6 to 12 months and it has been suggested that Local Governments might find it possible to occasionally spare a medical officer from the number of supernumerary medical officers placed at the disposal of the Government of by Home Department Resolution, No. 14-Medical—760-772, dated the 12th December 1894. The Governor-General in Council anticipates that this might at all events be found feasible from (say) the beginning of October to the end of April, and I am to enquire whether, under the circumstances set forth above, His Honour the Lieutenant-Governor would have any objection to deputing a medical officer as proposed from time to time. I am to explain that the officer so deputed would, while attending the Laboratory, continue to receive his grade pay under Article 306, Army Regulations, India, Volume I, Part I, as laid down in the resolution quoted.

Order—No. 714, Public, dated 8th July 1896.

The importance of bacteriology and of bacteriological investigations so far as the requirements of this Presidency are concerned has already been recognized, * and the correspondence read above points to the necessity of adopting some definite measures for attaining the objects aimed at by the Surgeon-General and the Sanitary Commissioner; but these officers have not expressed themselves with any degree of clearness or precision as to what their actual requirements are, and some additional information is necessary before orders can be passed on the proposals made.

* G.O., No. 662, dated 3rd August 1895.

2 The demand for the services of a professional bacteriologist presents itself under three aspects, according as he is required—

(i) for original bacteriological research, *i.e.*, the study and investigation of unsolved problems of disease among men and animals;

(ii) for teaching the science theoretically at the Medical College and practically to young medical, sanitary, veterinary and other officers at a laboratory;

(iii) for practical bacteriological investigations required by the Sanitary, Vaccine, Veterinary and other departments.

3. The measures to be adopted as regards original research and education in bacteriology must depend on the ultimate results of the re-organisation of the Medical College and the redistribution of work among the chief medical officers of the Presidency town.

4. As regards the provision to be made for the practical bacteriological investigations of the Sanitary and other departments, full information should be furnished with statistics and rough estimates of cost on the following points:—

(i) For what departments of the public service practical analyses of this kind should be undertaken.

(ii) What particular articles should be subjected to bacteriological examination besides water. Surgeon-Lieutenant-Colonel King's reference to "the aiding of sanitary precautions by the early identification of well-known microbes" seems somewhat indefinite and might be amplified.

(iii) What amount of work will be required of the bacteriologist by the Sanitary Board in connection with actual local requirements, apart from general and theoretical researches.

(iv) What portion of the work can be undertaken by the Chemical Examiner, and by the Professor of Hygiene, if he is relieved of the charge of a certain number of beds.

(v) What additional establishment would be required in each of the existing departments to carry out the necessary reforms.

5. It is to be regretted that in an isolated reference of the kind such as was made from Bangalore, the investigation of the sample was not undertaken by the Professor of Hygiene, who is reported to have had both the ability and equipment necessary for the purpose. It is not clear why no reference was made to him.

6. The Surgeon-General will in due course report the names of such officers as can be spared for training at the laboratories in Agra and Calcutta, in accordance with the scheme proposed by the Government of India.

[Here enter letter to the Government of India, No. 715, dated 8th July 1896.]

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Surgeon-General.
" Sanitary Commissioner.
" Sanitary Board.
" Chemical Examiner.
" Local and Municipal Department.
" Revenue Department.
" Public Works Department.

Exd. A. Raitt.

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, Home Department (Medical), to the Chief Secretary to the Government of Madras, dated Calcutta, the 17th February 1896, No. 136.

I am directed to forward the accompanying extract from a report (No. 651, dated the 11th September 1895) by the Sanitary Board on the outbreak of cholera in the Civil and Military Station of Bangalore, which contains a complaint by the Board concerning the absence, in the Madras Presidency, of any means whereby a bacteriological examination of water obtained from suspected polluted sources can be carried out. In inviting the attention of the Government of Madras to this matter, I am to enquire whether His Excellency in Council could suggest means for avoiding the recurrence of such a difficulty in the future. It seems probable that some of the medical officers who have lately joined the service would be competent to make such an examination.

ENCLOSURE.

EXTRACT from a report, No. 651, dated the 11th September 1895, by the Sanitary Board on the outbreak of cholera in the Civil and Military Station of Bangalore.

* * * * *

11. As the water from polluted sources has called for particular attention from the Board * it was considered desirable to send some specimens (particularly from the wells and tank which many persons were known to be in the habit of using in the cholera-infected locality referred to) with the object of its being examined as to the presence or otherwise of the causative organism of cholera, and accordingly several samples were forwarded to Madras for that purpose, but to the extreme surprise of the Board a reply was received from the Chemical Examiner stating that he was unable to undertake the necessary bacteriological examination and was moreover not in a position to say where in the presidency such an examination could be conducted. Now, as it is generally understood that the discovery of the cholera microbe is necessary to the determination of the very important question whether a particular water is infected or not, and also whether a doubtful case is cholera or not, the Board thinks it incumbent on it to express its extreme disappointment and disapprobation at finding that this very necessary bacteriological work cannot be carried out in this presidency, especially when it is considered how many efficient laboratories have for many years past been established throughout Europe.

Samples of water from suspected polluted sources obtained and forwarded for bacteriological examination to Madras, but not carried out.

* Sanitary Board of Bangalore.

* * * * *

(Signed) S. B. HUNT, Surgeon-Colonel, *P.M.O., Bangalore and Southern District.* } *President.*
(„) A. F. DOBSON, Surgn.-Lieut.-Col., *Residency Surgeon, Bangalore.* }
(„) GEORGE J. SHAW, Captain, *Offg. Asst. Adjutant-Genl., Bangalore District.* } *Members.*

From Surgeon-Major-General C. SIBTHORPE, F.R.C.P.I., Surgeon-General with the Government of Madras, to the Chief Secretary to Government, dated Madras, 30th March 1896, No. 260.

I have the honour to acknowledge the receipt of your endorsement, No. 435, dated the 25th February 1896, referring for my remarks letter, No. 136, dated the 17th February 1896, from the Government of India, forwarding a complaint by the Sanitary Board in Bangalore concerning the absence, in the Madras Presidency, of any means whereby a bacteriological examination of water obtained from suspected polluted sources can be carried out. The Government of India further enquire whether any means could be suggested for avoiding the recurrence of such a difficulty in the future, and consider that some of the medical officers who have lately joined the service would probably be competent to make such an examination.

2. In reply I have the honour to state that it is a fact that no arrangements exist for making such examinations.

3. There are now two propositions before Government which will, if sanctioned, provide such arrangements. The first is contained in the proposition of the Special Committee of 1892 appointed to report upon the re-organization of the Medical College, forwarded with my letter, No. 671, dated 12th December 1894. In this the committee recommended that the teaching of hygiene should be viewed from two different standpoints—

(1) the actual requirements of the students; and
(2) the requirements of science—pure and simple;

and they suggested that, if the former view was taken, the Professor should give a course of systematic lectures and a practical course and have not more than forty beds in a hospital. In the interest of the Sanitary Science, however (including such duties as are now under reference, the proper superintendence of the Hygiene Laboratory already built and fairly equipped, the instruction of the College medical students and the Sanitary Inspectors' class by practical demonstrations of sanitary work throughout the city, and the organization, equipment and superintendence of a museum of hygiene), the duties of the Professor should not be confined to the teaching of students, but he should be provided with a well-equipped laboratory and establishment for the purposes of sanitary research—clinical, mechanical and biological. If these were to be his duties, the committee was strongly of opinion that he should not have any attached duties.

The second proposition, which would meet the requirements now under consideration, is the appointment of a Professor of Bacteriology—pure and simple—as proposed by me in the correspondence dealt with in G.O., No. 662, Public, dated the 3rd August 1895, and my letter, No. 83, dated 6th February 1896. I am strongly of opinion that the Professor of Hygiene should be able to devote his whole time to the teaching and investigation of sanitary subjects and that the proposed Professor of Bacteriology should be able to devote his whole time to the study of Bacteriology. Either of these Professors would be in a position to carry out the investigations now under reference in his laboratory if it was properly equipped.

4. I forwarded the correspondence under reference to the Principal of the Medical College, through the Director of Public Instruction, for his suggestions and to report how far it is possible at present to make a bacteriological examination of water with the present appliances in the Hygiene laboratory. In reply he forwards me the remarks of the Professor of Hygiene who is in charge of the laboratory and who states—

"With regard to the first question, the means—if that term be used in its fullest sense—do not at present exist, for the simple reason that no one has the time or opportunity to undertake such work. When equipping this laboratory, I took the greatest care to furnish it with everything essential for such work. I have the training and I have the appliances, but most certainly I have not the time, nor will I have it until relieved of my present hospital duties in connection with the clinical teaching and the charge of seventy to ninety beds throughout the year * * *

"With regard to the second question, as to the possibility of carrying out such work at the present moment, I have no hesitation in saying that it could not be done without neglect of routine work. Scientific work to be of any value must be deliberate, and none more so than Bacteriology. The laboratory requires very slight and inexpensive alterations to make part of it suitable for bacteriological work, but some changes in arrangement must be made before the latter can be attempted with reasonable chance of accuracy. It might be possible to produce a report of a kind on the subject without much delay, but certainly not a report for the accuracy of which I would care to stand sponsor. The provision of various culture media and the growth and cultivation of numerous micro-organisms for purposes of identification is a very different matter from simple microscopical and chemical examinations, and the more one knows of the subject the more clear does it become that such work cannot be systematically left undone and then suddenly attempted" * * *

I concur fully in these views of the Professor of Hygiene.

5. As to the appointment of one of the officers lately joined to carry out such investigations, it should be remembered that none of them are at my disposal. All the more junior officers have received the training at Netley, but those who are in civil employ have other duties which fully occupy their time, and those in military employment are rarely in Madras and even when here are not available for such

Chemistry, having special reference to sanitary duties. In my opinion, such men should be absolutely at the disposal of the Sanitary departments, and in the case of Madras, would be best attached to a Vaccine institute intended for supply of animal lymph throughout the Presidency, where exceptionally good facilities for original work could be afforded; but as economy must be regarded, I would advise his being permitted to lecture upon Hygiene in the Medical College and to be responsible for Hygiene course, practical and theoretical, for the suggested new class of sanitary subordinates. The existing Bacteriological and Hygiene laboratory in the Medical College would, with few improvements, fulfil all that is requisite. This arrangement would meet the plea the Surgeon-General makes as to the necessity for provision for the Educational Department, whilst it would sufficiently well meet the requirements of the Sanitary department, holding in mind the fact that for the more serious branches of research the Imperial Institute would be available, and that the work expected of the local Bacteriologist would chiefly consist in the aiding of sanitary precautions by the early identification of well-known microbes, not the searching after the unknown.

From Surgeon-Lieutenant-Colonel W. G. KING, M.B., C.M., D.P.H., Sanitary Commissioner for Madras, to the Chief Secretary to Government, dated Bellary, 10th February 1896, No. 253 S.

With reference to letter No. 83, dated 6th February 1896, to you from the Surgeon-General with the Government of Madras, I have the honour to represent that from the context of the last paragraph of that letter, it is apparent to me that the Surgeon-General has misinterpreted my meaning. This being so, it follows that my memorandum expresses my intentions in a manner open to doubt, which it is desirable should be guarded against on perusal by Government.

2. The Surgeon-General has understood that I would wish the proposed Bacteriologist to perform work that is obviously impossible. He has, however, arrived at this conclusion from not giving the value I had anticipated would be allowed to the following statement: "In my opinion such men should be absolutely at the disposal of the Sanitary departments, and in the case of Madras, would best be attached to a Vaccine institute intended for supply of animal lymph throughout the Presidency, where exceptionally good facilities for original work could be afforded . . ." By this I meant it to be understood that what I considered Madras *should have* was a Bacteriologist attached to the Sanitary Department engaged on original work at a Central Vaccine Institute intended for the cultivation and distribution of animal lymph throughout the Presidency. This would be necessarily in a cool climate, would be worked under special hygienic conditions, and would, by the possession of large numbers of animals (over 200 calves per month) and skilled medical subordinates on the spot, afford opportunities for original research, such as never yet afforded a Bacteriologist. This would form my ideal. *To this officer no other duties should fall.* Before completion of the above sentence, however, I have added—"*but* as economy must be regarded (a conclusion arrived at by the nature of the proposals of the Government of India as to securing funds), I would advise his being permitted," &c. The suggestions which follow pre-suppose that the reader would understand that I considered myself bound to abandon this ideal, in favour of the compromise consequent upon no longer looking for "original research" locally, but trusting for this to the Imperial Bacteriological Laboratory. I was of course perfectly well aware that the extra duties of Assistant Physician of the General Hospital now conducted by the Professor of Hygiene would have to be otherwise arranged for, and considered that so long as I defined the duties expected, this would be sufficiently understood.

3. I therefore trust it will be seen that the Surgeon-General's deduction that the Bacteriologist proposed would not have time at disposal for the duties I have sketched is founded upon a misinterpretation of my doubtless insufficiently exact statements, seeing that his work would extend to solely (1) the present duties of Professor of Hygiene in the Medical College, which would necessarily include the teaching of Bacteriology, theoretically and practically, in a laboratory already existing; (2) the training of the future class of Sanitary Inspectors; and (3) routine bacteriological investigations for the Sanitary Department.

2. In Madras, however, we want a Bacteriologist for the college in whose laboratory future Health Officers could be trained; my views on this subject are fully before Government in the correspondence dealt with in G.O., No. 662, Public, dated the 3rd August 1895.

3. I have consulted the Sanitary Commissioner, and now attach a true copy of a memorandum he has furnished me with on the subject.

In the correspondence ending with my Tour 4–1, dated 31st December 1895, the Government of India have apparently decided that the Chemical Examiners to Government should be commissioned medical officers on what appears to me to be very sufficient grounds. The principal medico-legal work of these officers is steadily increasing and I cannot concur with Surgeon-Lieutenant-Colonel King that it would be desirable to place this work in the hands of a general chemist such as he describes. The importance of having such chemists is well recognised, and in my opinion, if they existed, they would have their time fully occupied without the medico-legal work.

I cannot either concur with the idea of Surgeon-Lieutenant-Colonel King that the appointment of an officer who had at least five years' experience as District Medical and Sanitary Officer to the Sanitary Department attached to a Vaccine institute, who should take charge of the Hygiene laboratory in the Medical College, lecture for six months in the year to the students on Hygiene and instruct the class of Sanitary Inspectors, would at all meet the requirements of the Educational Department as a Bacteriologist; nor would he have any time at his disposal for original work. If such an appointment was made, other proposals would be necessary to carry on the work now done by the Professor of Hygiene as Second Physician in the General Hospital.

Enclosure.

Memorandum as to provision for Bacteriology and Chemical Research in connection with sanitation, with reference to Government of Madras Order, No. 990, Public, dated 2nd December 1895, by Surgeon-Lieutenant-Colonel W. G. KING, Sanitary Commissioner, Madras, dated 28th January 1896.

The opening of an Imperial Bacteriological institute as proposed by the Government of India is a matter of great sanitary import, as to the necessity for which I fully concur, although the suggestion to obtain this at the cost of abolishing a Deputy Sanitary Commissioner will, I trust, be reconsidered. I understand that the Sanitary departments of Local Governments will be permitted to obtain decisions on Bacteriological matters coming within their official work, by making reference, or sending specimens for examination; and, secondly, that it shall form a school for young commissioned medical officers to be trained as Chemical Examiners and Bacteriologists for duty with Local Governments.

2. The idea of making a separate branch of the Indian Medical Service from which Chemical Examiners and Bacteriologists can be recruited is excellent; but I think it does not go far enough. If sanitation is to progress, the workers ought not to be hampered by being required to investigate medico-legal questions. This is recognised by the Government of India as to officers selected for bacteriological work; but I consider it applies equally to Chemical Examiners, not with reference to incompatibility, but with regard to quantity and character of work expected.

3. As a first step, I would arrange that, on vacating their appointments in ordinary course, the present class of Chemical Examiners should no longer be continued. I suggest the appointment of professional chemists. The duty expected of these men should be two-fold: firstly, the conduct of medico-legal examinations; secondly, the conduct of investigations into the chemistry of economic products. Bearing in mind the immense stride in trade that Germany has been able to effect by the system adopted by manufacturers having on their premises not one or two, but at times half-a-dozen expert chemists, I consider that the Government of India would find that, if properly administered and encouraged, such men would, by their investigations in various matters affecting the natural products, agriculture, and manufactures of the country, amply repay every rupee spent on them. The head of this department would naturally be the Economic Reporter to the Government of India. Such men should be recruited directly from Great Britain, and should not be foreigners. The officers might be known simply as Government analyst, and should be Professors of Chemistry in Universities. This would aid economy and be of advantage to students.

4. There would thus remain as surplus in the Indian Medical Service the number of officers hitherto absorbed as Chemical Examiners; an equivalent number of junior medical officers having not less than five years' experience as district Sanitary officers should then be attached to the Sanitary Department as Assistant Sanitary Commissioners. They should be trained, as contemplated by the Government of India in the Imperial Bacteriological Institute, in Bacteriology and

commission in the Indian Medical Service, grant him pay commencing at Rs. 500 a month and rising by increments to Rs. 1,000 a month, as no doubt his work would be more valuable as his experience matured. Such an appointment would add to the prestige of the Indian Medical Service, would increase the *esprit de corps* and foster a spirit of scientific investigation amongst the junior members of the service, as they would work with the hope of qualifying for either the officiating or permanent appointment. If such an officer was appointed, he should be allowed a longer course of study at Netley than the usual four months one, and should be permitted to spend three or four months in some selected laboratory either in England or on the continent before coming out to India. On arrival in India he should be sent to one of the established laboratories for a short time and should be exempted from the operation of the rule which requires all medical officers of the Indian Medical Service to complete two years' military duty before they are available for duties in the Civil Department. He should be permitted to expend a sum not exceeding £100 in Europe on the equipment necessary for his laboratory and should be granted an extra allowance of baggage to bring it out. On arrival in Madras he should be provided with a room in the Medical College where he should work during the College Winter (cold weather) session; during the other six months of the year, he should be permitted to move his laboratory to one of the hill stations (preferably Kóttagiri or Ootacamund).

3. I am convinced that, if the proposed plan is carried out, it would do much to increase the efficiency of the sanitary work in the Presidency by raising the standard of knowledge both amongst officers and subordinates.

No. 6711.

Submittted to Government with most cordial support.

(Signed) D. DUNCAN,
Director of Public Instruction.

22nd June 1895.

Order—No. 662, Public, dated 3rd August 1895.

The appointment of a Bacteriologist is no doubt desirable, but there are already before Government so many proposals relating to medical requirements which involve extra expenditure, that this matter must lie over for the present on financial grounds.

(True Extract.)

(Signed) J. F. PRICE,
Chief Secretary.

To the Surgeon-General.

G.O., No. 990, Public, dated 2nd December 1895.

Abstract.—Communicating to the Surgeon-General and to the Sanitary Commissioner, for favour of joint remarks, resolutions of the Government of India regarding a scheme for securing a trained reserve of Chemical Examiners and for establishing an Imperial Bacteriological laboratory.

Read—also the following papers:—

From L. M. THORNTON, Esq., Deputy Secretary to the Government of India, Home Department (Sanitary), to the Chief Secretary to the Government of Madras, dated Simla, the 31st October 1895, No. 12-Sany.—340.

With reference to the correspondence ending with your letter, No. 512, Public, dated the 13th July 1894, I am directed to forward a copy of a resolution which has been issued by the Home Department of the Government of India relative to the establishment of a Bacteriological Laboratory in India for the training of young Medical officers in that science, and also as Chemical Examiners at a Central Laboratory at Calcutta under the Chemical Examiner of Bengal.

2. It will be observed that the proposal, circulated with this department's letter, Nos. 331-334, dated 24th May 1894, to increase the pay of Chemical Analysers with a view to attracting the best men in the service has been for the present abandoned, and I am to explain that this is due to the relatively paramount importance which the Government of India attach to the establishment, as soon as practicable, of the proposed Bacteriological Laboratory at Agra, and to the anxiety felt by the Governor-General in Council to make trial, before incurring increased expenditure by enhancing the salaries of Chemical Analysers, of a system by which a junior Indian Medical Service officer will be attached for training to the Calcutta Laboratory and will be available, after training for employment in any of the Laboratories at Madras, Bombay, Lahore or Calcutta in which his services may be required.

3. It is also proposed in paragraph 9 of the resolution eventually to attach young Medical officers for a six months' course of training to the Chemical Analyst's office or the Bacteriological Laboratory, and I am to request that, with the permission of His Excellency the Governor in Council, the Government of India may be informed whether arrangements can be made to give effect to this proposal as regards Medical officers who are serving in the Madras Presidency.

No. 2997.

Referred to the Surgeon-General for report with advertence to G.O., No. 990, Public, dated 2nd December 1895.

(Signed) J. F. PRICE,
Chief Secretary.

Fort St. George,
14th December 1895.

From Surgeon-Major-General C. SIBTHORPE, F.R.C.P.I., Surgeon-General with the Government of Madras, to the Chief Secretary to Government, dated Camp, Cocanada, 31st December 1895, No. Tour 4—1.

With reference to your endorsement, No. 2997, dated 14th December 1895, herewith returned, with the attached correspondence, regarding the appointment of a junior officer of the Indian Medical Service to the Calcutta Labcratory for training in the duties of a Chemical Examiner, I have the honour to inform you that, owing to the short-handed state of the establishment in Madras, no such officer is available at present, nor is there likely to be one until the arrival of the ten new officers about November 1896.

2. If the rule as now proposed is sanctioned for India as was done in Madras in 1884—*vide* paragraph 3 of my letter, No. Tour—62, dated 26th June 1894, on page 4 of G.O., No. 511, Public, dated 13th July 1894—and an officer was available in Madras, I consider he could be given quite as effectual a training in the laboratory of the Chemical Examiner in the Madras Medical College as he would get in Calcutta, with the advantage that he would not have to live in the more expensive city of Calcutta, and that Government would be saved considerable travelling expenses.

Letter to the Government of India, Home Department, No. 106, dated 22nd January 1896.

From Surgeon-Major-General C. SIBTHORPE, F.R.C.P.I., Surgeon-General with the Government of Madras, to the Chief Secretary to Government, dated Madras, 6th February 1896, No. 83.

With reference to G.O., No. 990, Public, dated the 2nd December 1895, regarding bacteriological research, I fully concur in the remarks of the Government of India on this subject and consider the proposals will meet the present requirements of the part of India alluded to without considering the requirements of the medical schools.

GOVERNMENT OF MADRAS.

PUBLIC DEPARTMENT.

Read—again the following papers :—

G.O., Nos. 511, 512, Public, dated 13th July 1894.

Abstract.—Addressing the Government of India on the proposal to create an Indian Chemical department for the whole of India.

G.O., No. 662, Public, dated 3rd August 1895.

Read—the following letter from Surgeon-Major-General C. SIBTHORPE, F.R.C.P.I., Surgeon-General with the Government of Madras, to the Chief Secretary to Government (through the Director of Public Instruction), dated Ootacamund, 13th June 1895, No. Tour—278 :—

I have the honour to forward, for the information of Government, the accompanying report of a discussion at a meeting of the South India Branch British Medical Association on the 4th April last. The necessity of the appointment of a trained Bacteriologist and of the establishment of Bacteriological Laboratory in Southern India are very fully dealt with at length in these papers.

2. There are, however, some points which I wish to emphasise—

(*a*) That the Medical College at Madras, of which we are all justly proud and which Government has always dealt liberally with, is now seriously behind the time in its want of ability to impart instruction on the subject of Bacteriology to its students.

(*b*) A trained Bacteriologist would by his work elucidate many of the pressing problems of disease among men and animals and so save the Government both in lives and money.

(*c*) The need of a Bacteriologist is felt in the Veterinary Medical Department.

(*d*) Such an official would control a laboratory at which young officers of the Medical and Veterinary services who had a taste for that class of work would be able to work and keep up or improve their knowledge thus fitting them for independent investigations into the cause of actual outbreak of disease.

(*e*) The appointment of a Bacteriologist and the establishment of a properly equipped laboratory would, I am convinced, in a few years save Government more money that the whole scheme would cost.

(*f*) If such an official was sanctioned his duties should be confined to the study of Bacteriology and the teaching of it in the Medical College. He should be placed in the same position as regards Government as the Chemical Examiner now holds as regards his ordinary work and under the Director of Public Instruction as regards his duties in the Educational Department.

(*g*) Several alternatives present themselves in the selection of such an official—

(1) He might be selected by the Right Honourable the Secretary of State on the advice of those University or Collegiate authorities in Great Britain in which Bacteriological schools have been established under the same conditions of service as Professor Bourne of the Presidency College. This would be the quickest but probably the most expensive way of securing his services.

(2) The better plan would be for the Right Honourable the Secretary of State to sanction such an appointment in List I on the cadre of the Indian Medical Service, to select an officer on the advice of the above-mentioned authorities, give him a

Govt. of {1896} Madras.

PUBLIC.

Issued

Recd. *Encl.*

G.O., No. 714, 8th July 1896.

JULY.

Bacteriology.

Calling for information from the Surgeon-General, &c., regarding the measures to be adopted for bacteriological investigation in this Presidency ; and addressing the Government of India on the subject.

GOVERNMENT OF MADRAS.

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commission in the Indian Medical Service, grant him pay commencing at Rs. 500 a month and rising by increments to Rs. 1,000 a month, as no doubt his work would be more valuable as his experience matured. Such an appointment would add to the prestige of the Indian Medical Service, would increase the *esprit de corps* and foster a spirit of scientific investigation amongst the junior members of the service, as they would work with the hope of qualifying for either the officiating or permanent appointment. If such an officer was appointed, he should be allowed a longer course of study at Netley than the usual four months one, and should be permitted to spend three or four months in some selected laboratory either in England or on the continent before coming out to India. On arrival in India he should be sent to one of the established laboratories for a short time and should be exempted from the operation of the rule which requires all medical officers of the Indian Medical Service to complete two years' military duty before they are available for duties in the Civil Department. He should be permitted to expend a sum not exceeding £100 in Europe on the equipment necessary for his laboratory and should be granted an extra allowance of baggage to bring it out. On arrival in Madras he should be provided with a room in the Medical College where he should work during the College Winter (cold weather) session; during the other six months of the year, he should be permitted to move his laboratory to one of the hill stations (preferably Kóttagiri or Ootacamund).

3. I am convinced that, if the proposed plan is carried out, it would do much to increase the efficiency of the sanitary work in the Presidency by raising the standard of knowledge both amongst officers and subordinates.

No. 6711.

Submittted to Government with most cordial support.

22*nd June* 1895. (Signed) D. DUNCAN,
Director of Public Instruction.

Order—No. 662, Public, dated 3rd August 1895.

The appointment of a Bacteriologist is no doubt desirable, but there are already before Government so many proposals relating to medical requirements which involve extra expenditure, that this matter must lie over for the present on financial grounds.

(True Extract.)

(Signed) J. F. PRICE,
Chief Secretary.

To the Surgeon-General.

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Abstract.—Communicating to the Surgeon-General and to the Sanitary Commissioner, for favour of joint remarks, resolutions of the Government of India regarding a scheme for securing a trained reserve of Chemical Examiners and for establishing an Imperial Bacteriological laboratory.

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From L. M. THORNTON, Esq., Deputy Secretary to the Government of India, Home Department (Sanitary), to the Chief Secretary to the Government of Madras, dated Simla, the 31st October 1895, No. 12-Sany.—340.

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3. It is also proposed in paragraph 9 of the resolution eventually to attach young Medical officers for a six months' course of training to the Chemical Analyst's office or the Bacteriological Laboratory, and I am to request that, with the permission of His Excellency the Governor in Council, the Government of India may be informed whether arrangements can be made to give effect to this proposal as regards Medical officers who are serving in the Madras Presidency.

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Fort St. George,
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From Surgeon-Major-General C. SIBTHORPE, F.R.C.P.I., Surgeon-General with the Government of Madras, to the Chief Secretary to Government, dated Camp, Cocanada, 31st December 1895, No. Tour 4—1.

With reference to your endorsement, No. 2997, dated 14th December 1895, herewith returned, with the attached correspondence, regarding the appointment of a junior officer of the Indian Medical Service to the Calcutta Labcratory for training in the duties of a Chemical Examiner, I have the honour to inform you that, owing to the short-handed state of the establishment in Madras, no such officer is available at present, nor is there likely to be one until the arrival of the ten new officers about November 1896.

2. If the rule as now proposed is sanctioned for India as was done in Madras in 1884—*vide* paragraph 3 of my letter, No. Tour—62, dated 26th June 1894, on page 4 of G.O., No. 511, Public, dated 13th July 1894—and an officer was available in Madras, I consider he could be given quite as effectual a training in the laboratory of the Chemical Examiner in the Madras Medical College as he would get in Calcutta, with the advantage that he would not have to live in the more expensive city of Calcutta, and that Government would be saved considerable travelling expenses.

Letter to the Government of India, Home Department, No. 106, dated 22nd January 1896.

From Surgeon-Major-General C. SIBTHORPE, F.R.C.P.I., Surgeon-General with the Government of Madras, to the Chief Secretary to Government, dated Madras, 6th February 1896, No. 83.

With reference to G.O., No. 990, Public, dated the 2nd December 1895, regarding bacteriological research, I fully concur in the remarks of the Government of India on this subject and consider the proposals will meet the present requirements of the part of India alluded to without considering the requirements of the medical schools.

2. In Madras, however, we want a Bacteriologist for the college in whose laboratory future Health Officers could be trained; my views on this subject are fully before Government in the correspondence dealt with in G.O., No. 662, Public, dated the 3rd August 1895.

3. I have consulted the Sanitary Commissioner, and now attach a true copy of a memorandum he has furnished me with on the subject.

In the correspondence ending with my Tour 4–1, dated 31st December 1895, the Government of India have apparently decided that the Chemical Examiners to Government should be commissioned medical officers on what appears to me to be very sufficient grounds. The principal medico-legal work of these officers is steadily increasing and I cannot concur with Surgeon-Lieutenant-Colonel King that it would be desirable to place this work in the hands of a general chemist such as he describes. The importance of having such chemists is well recognised, and in my opinion, if they existed, they would have their time fully occupied without the medico-legal work.

I cannot either concur with the idea of Surgeon-Lieutenant-Colonel King that the appointment of an officer who had at least five years' experience as District Medical and Sanitary Officer to the Sanitary Department attached to a Vaccine institute, who should take charge of the Hygiene laboratory in the Medical College, lecture for six months in the year to the students on Hygiene and instruct the class of Sanitary Inspectors, would at all meet the requirements of the Educational Department as a Bacteriologist; nor would he have any time at his disposal for original work. If such an appointment was made, other proposals would be necessary to carry on the work now done by the Professor of Hygiene as Second Physician in the General Hospital.

Enclosure.

Memorandum as to provision for Bacteriology and Chemical Research in connection with sanitation, with reference to Government of Madras Order, No. 990, Public, dated 2nd December 1895, by Surgeon-Lieutenant-Colonel W. G. KING, Sanitary Commissioner, Madras, dated 28th January 1896.

The opening of an Imperial Bacteriological institute as proposed by the Government of India is a matter of great sanitary import, as to the necessity for which I fully concur, although the suggestion to obtain this at the cost of abolishing a Deputy Sanitary Commissioner will, I trust, be reconsidered. I understand that the Sanitary departments of Local Governments will be permitted to obtain decisions on Bacteriological matters coming within their official work, by making references, or sending specimens for examination; and, secondly, that it shall form a school for young commissioned medical officers to be trained as Chemical Examiners and Bacteriologists for duty with Local Governments.

2. The idea of making a separate branch of the Indian Medical Service from which Chemical Examiners and Bacteriologists can be recruited is excellent; but I think it does not go far enough. If sanitation is to progress, the workers ought not to be hampered by being required to investigate medico-legal questions. This is recognised by the Government of India as to officers selected for bacteriological work; but I consider it applies equally to Chemical Examiners, not with reference to incompatibility, but with regard to quantity and character of work expected.

3. As a first step, I would arrange that, on vacating their appointments in ordinary course, the present class of Chemical Examiners should no longer be continued. I suggest the appointment of professional chemists. The duty expected of these men should be two-fold: firstly, the conduct of medico-legal examinations; secondly, the conduct of investigations into the chemistry of economic products. Bearing in mind the immense stride in trade that Germany has been able to effect by the system adopted by manufacturers having on their premises not one or two, but at times half-a-dozen expert chemists, I consider that the Government of India would find that, if properly administered and encouraged, such men would, by their investigations in various matters affecting the natural products, agriculture, and manufactures of the country, amply repay every rupee spent on them. The head of this department would naturally be the Economic Reporter to the Government of India. Such men should be recruited directly from Great Britain, and should not be foreigners. The officers might be known simply as Government analyst, and should be Professors of Chemistry in Universities. This would aid economy and be of advantage to students.

4. There would thus remain as surplus in the Indian Medical Service the number of officers hitherto absorbed as Chemical Examiners; an equivalent number of junior medical officers having not less than five years' experience as district Sanitary officers should then be attached to the Sanitary Department as Assistant Sanitary Commissioners. They should be trained, as contemplated by the Government of India in the Imperial Bacteriological Institute, in Bacteriology and Chemistry, having special reference to sanitary duties. In my opinion, such men should be absolutely at the disposal of the Sanitary departments, and in the case of Madras, would be best attached to a Vaccine institute intended for supply of animal lymph throughout the Presidency, where exceptionally good facilities for original work could be afforded; but as economy must be regarded, I would advise his being permitted to lecture upon Hygiene in the Medical College and to be responsible for Hygiene course, practical and theoretical, for the suggested new class of sanitary subordinates. The existing Bacteriological and Hygiene laboratory in the Medical College would, with few improvements, fulfil all that is requisite. This arrangement would meet the plea the Surgeon-General makes as to the necessity for provision for the Educational Department, whilst it would sufficiently well meet the requirements of the Sanitary department, holding in mind the fact that for the more serious branches of research the Imperial Institute would be available, and that the work expected of the local Bacteriologist would chiefly consist in the aiding of sanitary precautions by the early identification of well-known microbes, not the searching after the unknown.

From Surgeon-Lieutenant-Colonel W. G. KING, M.B., C.M., D.P.H., Sanitary Commissioner for Madras, to the Chief Secretary to Government, dated Bellary, 10th February 1896, No. 253 S.

With reference to letter No. 83, dated 6th February 1896, to you from the Surgeon-General with the Government of Madras, I have the honour to represent that from the context of the last paragraph of that letter, it is apparent to me that the Surgeon-General has misinterpreted my meaning. This being so, it follows that my memorandum expresses my intentions in a manner open to doubt, which it is desirable should be guarded against on perusal by Government.

2. The Surgeon-General has understood that I would wish the proposed Bacteriologist to perform work that is obviously impossible. He has, however, arrived at this conclusion from not giving the value I had anticipated would be allowed to the following statement: "In my opinion such men should be absolutely at the disposal of the Sanitary departments, and in the case of Madras, would best be attached to a Vaccine institute intended for supply of animal lymph throughout the Presidency, where exceptionally good facilities for original work could be afforded . . ." By this I meant it to be understood that what I considered Madras *should have* was a Bacteriologist attached to the Sanitary Department engaged on original work at a Central Vaccine Institute intended for the cultivation and distribution of animal lymph throughout the Presidency. This would be necessarily in a cool climate, would be worked under special hygienic conditions, and would, by the possession of large numbers of animals (over 200 calves per month) and skilled medical subordinates on the spot, afford opportunities for original research, such as never yet afforded a Bacteriologist. This would form my ideal. *To this officer no other duties should fall.* Before completion of the above sentence, however, I have added—"*but* as economy must be regarded (a conclusion arrived at by the nature of the proposals of the Government of India as to securing funds), I would advise his being permitted," &c. The suggestions which follow pre-suppose that the reader would understand that I considered myself bound to abandon this ideal, in favour of the compromise consequent upon no longer looking for "original research" locally, but trusting for this to the Imperial Bacteriological Laboratory. I was of course perfectly well aware that the extra duties of Assistant Physician of the General Hospital now conducted by the Professor of Hygiene would have to be otherwise arranged for, and considered that so long as I defined the duties expected, this would be sufficiently understood.

3. I therefore trust it will be seen that the Surgeon-General's deduction that the Bacteriologist proposed would not have time at disposal for the duties I have sketched is founded upon a misinterpretation of my doubtless insufficiently exact statements, seeing that his work would extend to solely (1) the present duties of Professor of Hygiene in the Medical College, which would necessarily include the teaching of Bacteriology, theoretically and practically, in a laboratory already existing; (2) the training of the future class of Sanitary Inspectors; and (3) routine bacteriological investigations for the Sanitary Department.

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, Home Department (Medical), to the Chief Secretary to the Government of Madras, dated Calcutta, the 17th February 1896, No. 136.

I am directed to forward the accompanying extract from a report (No. 651, dated the 11th September 1895) by the Sanitary Board on the outbreak of cholera in the Civil and Military Station of Bangalore, which contains a complaint by the Board concerning the absence, in the Madras Presidency, of any means whereby a bacteriological examination of water obtained from suspected polluted sources can be carried out. In inviting the attention of the Government of Madras to this matter, I am to enquire whether His Excellency in Council could suggest means for avoiding the recurrence of such a difficulty in the future. It seems probable that some of the medical officers who have lately joined the service would be competent to make such an examination.

Enclosure.

Extract from a report, No. 651, dated the 11th September 1895, by the Sanitary Board on the outbreak of cholera in the Civil and Military Station of Bangalore.

* * * * *

11. As the water from polluted sources has called for particular attention from the Board * it was considered desirable to send some specimens (particularly from the wells and tank which many persons were known to be in the habit of using in the cholera-infected locality referred to) with the object of its being examined as to the presence or otherwise of the causative organism of cholera, and accordingly several samples were forwarded to Madras for that purpose, but to the extreme surprise of the Board a reply was received from the Chemical Examiner stating that he was unable to undertake the necessary bacteriological examination and was moreover not in a position to say where in the presidency such an examination could be conducted. Now, as it is generally understood that the discovery of the cholera microbe is necessary to the determination of the very important question whether a particular water is infected or not, and also whether a doubtful case is cholera or not, the Board thinks it incumbent on it to express its extreme disappointment and disapprobation at finding that this very necessary bacteriological work cannot be carried out in this presidency, especially when it is considered how many efficient laboratories have for many years past been established throughout Europe.

Samples of water from suspected pollated sources obtained and forwarded for bacteriological examination to Madras, but not carried out.

* Sanitary Board of Bangalore.

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(Signed) S. B. HUNT, Surgeon-Colonel, *P.M.O., Bangalore and Southern District.* } *President.*
(„) A. F. DOBSON, Surgn.-Lieut.-Col., *Residency Surgeon, Bangalore.* }
(„) GEORGE J. SHAW, Captain, *Offg. Asst. Adjutant-Genl., Bangalore District.* } *Members.*

From Surgeon-Major-General C. SIBTHORPE, F.R.C.P.I., Surgeon-General with the Government of Madras, to the Chief Secretary to Government, dated Madras, 30th March 1896, No. 260.

I have the honour to acknowledge the receipt of your endorsement, No. 435, dated the 25th February 1896, referring for my remarks letter, No. 136, dated the 17th February 1896, from the Government of India, forwarding a complaint by the Sanitary Board in Bangalore concerning the absence, in the Madras Presidency, of any means whereby a bacteriological examination of water obtained from suspected polluted sources can be carried out. The Government of India further enquire whether any means could be suggested for avoiding the recurrence of such a difficulty in the future, and consider that some of the medical officers who have lately joined the service would probably be competent to make such an examination.

2. In reply I have the honour to state that it is a fact that no arrangements exist for making such examinations.

3. There are now two propositions before Government which will, if sanctioned, provide such arrangements. The first is contained in the proposition of the Special Committee of 1892 appointed to report upon the re-organization of the Medical College, forwarded with my letter, No. 671, dated 12th December 1894. In this the committee recommended that the teaching of hygiene should be viewed from two different standpoints—

(1) the actual requirements of the students; and
(2) the requirements of science—pure and simple;

and they suggested that, if the former view was taken, the Professor should give a course of systematic lectures and a practical course and have not more than forty beds in a hospital. In the interest of the Sanitary Science, however (including such duties as are now under reference, the proper superintendence of the Hygiene Laboratory already built and fairly equipped, the instruction of the College medical students and the Sanitary Inspectors' class by practical demonstrations of sanitary work throughout the city, and the organization, equipment and superintendence of a museum of hygiene), the duties of the Professor should not be confined to the teaching of students, but he should be provided with a well-equipped laboratory and establishment for the purposes of sanitary research—clinical, mechanical and biological. If these were to be his duties, the committee was strongly of opinion that he should not have any attached duties.

The second proposition, which would meet the requirements now under consideration, is the appointment of a Professor of Bacteriology—pure and simple—as proposed by me in the correspondence dealt with in G.O., No. 662, Public, dated the 3rd August 1895, and my letter, No. 83, dated 6th February 1896. I am strongly of opinion that the Professor of Hygiene should be able to devote his whole time to the teaching and investigation of sanitary subjects and that the proposed Professor of Bacteriology should be able to devote his whole time to the study of Bacteriology. Either of these Professors would be in a position to carry out the investigations now under reference in his laboratory if it was properly equipped.

4. I forwarded the correspondence under reference to the Principal of the Medical College, through the Director of Public Instruction, for his suggestions and to report how far it is possible at present to make a bacteriological examination of water with the present appliances in the Hygiene laboratory. In reply he forwards me the remarks of the Professor of Hygiene who is in charge of the laboratory and who states—

"With regard to the first question, the means—if that term be used in its fullest sense—do not at present exist, for the simple reason that no one has the time or opportunity to undertake such work. When equipping this laboratory, I took the greatest care to furnish it with everything essential for such work. I have the training and I have the appliances, but most certainly I have not the time, nor will I have it until relieved of my present hospital duties in connection with the clinical teaching and the charge of seventy to ninety beds throughout the year * * *

"With regard to the second question, as to the possibility of carrying out such work at the present moment, I have no hesitation in saying that it could not be done without neglect of routine work. Scientific work to be of any value must be deliberate, and none more so than Bacteriology. The laboratory requires very slight and inexpensive alterations to make part of it suitable for bacteriological work, but some changes in arrangement must be made before the latter can be attempted with reasonable chance of accuracy. It might be possible to produce a report of a kind on the subject without much delay, but certainly not a report for the accuracy of which I would care to stand sponsor. The provision of various culture media and the growth and cultivation of numerous micro-organisms for purposes of identification is a very different matter from simple microscopical and chemical examinations, and the more one knows of the subject the more clear does it become that such work cannot be systematically left undone and then suddenly attempted" * * *

I concur fully in these views of the Professor of Hygiene.

5. As to the appointment of one of the officers lately joined to carry out such investigations, it should be remembered that none of them are at my disposal. All the more junior officers have received the training at Netley, but those who are in civil employ have other duties which fully occupy their time, and those in military employment are rarely in Madras and even when here are not available for such

Chemistry, having special reference to sanitary duties. In my opinion, such men should be absolutely at the disposal of the Sanitary departments, and in the case of Madras, would be best attached to a Vaccine institute intended for supply of animal lymph throughout the Presidency, where exceptionally good facilities for original work could be afforded; but as economy must be regarded, I would advise his being permitted to lecture upon Hygiene in the Medical College and to be responsible for Hygiene course, practical and theoretical, for the suggested new class of sanitary subordinates. The existing Bacteriological and Hygiene laboratory in the Medical College would, with few improvements, fulfil all that is requisite. This arrangement would meet the plea the Surgeon-General makes as to the necessity for provision for the Educational Department, whilst it would sufficiently well meet the requirements of the Sanitary department, holding in mind the fact that for the more serious branches of research the Imperial Institute would be available, and that the work expected of the local Bacteriologist would chiefly consist in the aiding of sanitary precautions by the early identification of well-known microbes, not the searching after the unknown.

From Surgeon-Lieutenant-Colonel W. G. KING, M.B., C.M., D.P.H., Sanitary Commissioner for Madras, to the Chief Secretary to Government, dated Bellary, 10th February 1896, No. 253 S.

With reference to letter No. 83, dated 6th February 1896, to you from the Surgeon-General with the Government of Madras, I have the honour to represent that from the context of the last paragraph of that letter, it is apparent to me that the Surgeon-General has misinterpreted my meaning. This being so, it follows that my memorandum expresses my intentions in a manner open to doubt, which it is desirable should be guarded against on perusal by Government.

2. The Surgeon-General has understood that I would wish the proposed Bacteriologist to perform work that is obviously impossible. He has, however, arrived at this conclusion from not giving the value I had anticipated would be allowed to the following statement: "In my opinion such men should be absolutely at the disposal of the Sanitary departments, and in the case of Madras, would best be attached to a Vaccine institute intended for supply of animal lymph throughout the Presidency, where exceptionally good facilities for original work could be afforded . . ." By this I meant it to be understood that what I considered Madras *should have* was a Bacteriologist attached to the Sanitary Department engaged on original work at a Central Vaccine Institute intended for the cultivation and distribution of animal lymph throughout the Presidency. This would be necessarily in a cool climate, would be worked under special hygienic conditions, and would, by the possession of large numbers of animals (over 200 calves per month) and skilled medical subordinates on the spot, afford opportunities for original research, such as never yet afforded a Bacteriologist. This would form my ideal. *To this officer no other duties should fall.* Before completion of the above sentence, however, I have added—"*but* as economy must be regarded (a conclusion arrived at by the nature of the proposals of the Government of India as to securing funds), I would advise his being permitted," &c. The suggestions which follow pre-suppose that the reader would understand that I considered myself bound to abandon this ideal, in favour of the compromise consequent upon no longer looking for "original research" locally, but trusting for this to the Imperial Bacteriological Laboratory. I was of course perfectly well aware that the extra duties of Assistant Physician of the General Hospital now conducted by the Professor of Hygiene would have to be otherwise arranged for, and considered that so long as I defined the duties expected, this would be sufficiently understood.

3. I therefore trust it will be seen that the Surgeon-General's deduction that the Bacteriologist proposed would not have time at disposal for the duties I have sketched is founded upon a misinterpretation of my doubtless insufficiently exact statements, seeing that his work would extend to solely (1) the present duties of Professor of Hygiene in the Medical College, which would necessarily include the teaching of Bacteriology, theoretically and practically, in a laboratory already existing; (2) the training of the future class of Sanitary Inspectors; and (3) routine bacteriological investigations for the Sanitary Department.

(ii) for teaching the science theoretically at the Medical College and practically to young medical, sanitary, veterinary and other officers at a laboratory;

(iii) for practical bacteriological investigations required by the Sanitary, Vaccine, Veterinary and other departments.

3. The measures to be adopted as regards original research and education in bacteriology must depend on the ultimate results of the re-organisation of the Medical College and the redistribution of work among the chief medical officers of the Presidency town.

4. As regards the provision to be made for the practical bacteriological investigations of the Sanitary and other departments, full information should be furnished with statistics and rough estimates of cost on the following points:—

(i) For what departments of the public service practical analyses of this kind should be undertaken.

(ii) What particular articles should be subjected to bacteriological examination besides water. Surgeon-Lieutenant-Colonel King's reference to "the aiding of sanitary precautions by the early identification of well-known microbes" seems somewhat indefinite and might be amplified.

(iii) What amount of work will be required of the bacteriologist by the Sanitary Board in connection with actual local requirements, apart from general and theoretical researches.

(iv) What portion of the work can be undertaken by the Chemical Examiner, and by the Professor of Hygiene, if he is relieved of the charge of a certain number of beds.

(v) What additional establishment would be required in each of the existing departments to carry out the necessary reforms.

5. It is to be regretted that in an isolated reference of the kind such as was made from Bangalore, the investigation of the sample was not undertaken by the Professor of Hygiene, who is reported to have had both the ability and equipment necessary for the purpose. It is not clear why no reference was made to him.

6. The Surgeon-General will in due course report the names of such officers as can be spared for training at the laboratories in Agra and Calcutta, in accordance with the scheme proposed by the Government of India.

[Here enter letter to the Government of India, No. 715, dated 8th July 1896.]

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Surgeon-General.
" Sanitary Commissioner.
" Sanitary Board.
" Chemical Examiner.
" Local and Municipal Department.
" Revenue Department.
" Public Works Department.

Exd. A. Raitt.