

PROPOSED DEPUTATION OF DR J.C. BOSE TO EUROPE AND AMERICA

(No. 3-7)

(File 2D/7-1)

No. 18182, dated Calcutta, the 30th September 1907

From – A. Earle, Esq., I.C.S, Director of Public Instruction, Bengal,
To – The Secretary to the Government of Bengal, General Department.

I HAVE the honour to inform that Dr. J.C. Bose, C.I.E., of the Indian Educational Service, who has recently been granted furlough for two years, has applied to be placed on deputation in Europe under article 85 of the Civil Service Regulations.

2. Dr. Bose submitted an application to this effect in March last and requested that the term of his deputation might extend to two and a half years. A copy of that application, dated the 25th March 1907, is submitted herewith for the information of the Government. Inasmuch as the cadre of the Indian Educational Service is in a state of depletion, and as the recent introduction of the new University regulations renders it essential that no officer should be allowed to take leave of any kind unless it is absolutely necessary, I informed Dr. Bose at the time that I was unable to recommend his application to Government.

3. There the matter rested until Dr. Bose's health recently broke down, and it became necessary to grant him leave immediately; and, in as much as it was more probable that a substitute would be secured in his place from England if the full amount of furlough asked for by him, viz., leave for two years, was granted, than if any shorter period were allowed, I recommended that his application should be granted.

4. Dr. Bose now again raises the question of his deputation to England, and it is necessary, before entering into details, to examine the conditions under which he was placed on deputation on previous occasions. In 1896 he was allowed under the orders contained in letter No. 251, dated the 14th August 1906, from the Government of India, to be placed on deputation for six months on two-thirds of his Indian salary. His deputation was subsequently extended from six

to nine months, vide the correspondence ending with the Government of Bengal, General Department, endorsement No. 3963, dated the 30th November 1896. On that occasion he was allowed, under the Despatch of His Majesty's Secretary of State, No. 98, dated the 29th October 1896, (1) the cost of his passage to and from India, (2) his actual travelling expenses in Europe, and (3) an allowance of 10s. 6d. a day for hotel expenses during his stay in Europe. It also appears from letter No. 558G. A., dated the 7th July 1900, from the Accountant-General, Bengal, to the Secretary to the Government of Bengal, General Department, that Dr. Bose was allowed a first class railway fare from Calcutta to Bombay on that occasion.

5. In 1900 Dr. Bose was again allowed to proceed on deputation to Europe. On that occasion he was at first placed on deputation for nine months, vide the correspondence ending with telegram No. 206, Education, dated the 20th June 1900, from the Home Department of the Government of India. Subsequently, as will be seen by reference to the correspondence ending with the endorsement No. 65, dated the 5th February 1901, from the Home Department of the Government of India, his deputation was extended for six months, the total period this amounting to one year and three months. The following concessions were allowed to him on that occasion: -

- (1) A first-class passage to and from India.
- (2) Actual travelling expenses for a journey from London to Paris and back
- (3) An allowance of 10s 6d a day for hotel expenses during his stay in Europe

It also appears from Mr. Slacke's letter No. 2259, dated the 33rd July 1900, to the Government of India, that Dr. Bose was allowed a first-class fare by rail from Calcutta to Bombay and back.

6. Since the date of Dr. Bose's last deputation definite rules have been laid down in the Despatch of the Government of India to His Majesty Secretary of State, No. 6, dated the 2nd October 1902, as approved in the Despatch of His Majesty's Secretary of State, No. 146, dated the 28th November 1902, as regards affording facilities to officers of the Indian Educational Service, and particularly to Inspectors and teachers in technical and scientific subjects, in order to enable them to keep abreast with movements in other countries for the advancement of the study of education. The rules require, inter alia, that the Director of Public Instruction of the Province concerned should consider proposals made in this connexion carefully, with reference both to the needs of the Province and also to the fitness of the officer who proposes to the needs

of the Province and also to the fitness of the officer who proposes to carry them out. They also require that a full statement of the points of enquiry and the reasons for enquiring into them should be forwarded in each case. As a general rule, a period of six months is considered sufficient for such enquiries. Officers so deputed are required to make careful notes of the studies which they pursue and the observations which they make and to submit them on their return to the Director of Public Instruction. Officers while on special duty receive two-thirds of their pay and the actual travelling expenses which they incur. Dr. Bose in his application of the 25th March 1907, cited in paragraph 2 of this letter, and a further note on the subject, dated the 10th August 1907, a copy of which is herewith submitted, urges that his case should be treated as a special one under article 85 of the Civil Service Regulations, and not under the rules above referred to.

7. In the first place, he argues that he is not an Englishman returning to his home on furlough, but an Indian going abroad. He asks, therefore, that in addition to two-thirds pay and actual travelling expenses, he should be allowed, as on previous occasions, his railway fare to and from Bombay, a first-class passage from Bombay to London and back and a daily allowance for hotel expenses during the period of his deputation. Dr. Bose also contends that the ordinary rules are not applicable in his case, because he is not going for the purpose of studying educational problems, but to announce the discoveries which he has made at the Presidency College under the auspices of the Government. On both these grounds therefore, he requests that his case may be considered as an exceptional one.

8. In the circumstances of Dr. Bose's case, I am of opinion that his application may rightly be considered as a special one. As he points out, he is not an Englishman returning to his home, but an Indian going abroad. He is also not going to England for the purpose of studying educational problems in the matter contemplated by the ordinary rules, but as a distinguished scientist who wishes to give demonstrations in Europe of the results of his researches and to confer with other investigations in the same link of work both in Europe and America. He also wishes during his furlough to utilize the special facilities, which are to be found in Europe, for the purpose of perfecting, under his personal supervision, the various instruments which he has invented in connexion with his work. He proposes to spend part of his period of deputation in England for the purpose of supervising the publication of two books, which he contemplated bringing out, and the construction of the instruments to which allusion has been made above. He also proposes, to visit the leading scientific centres in Paris, Berlin, Heidelberg, Vienna and

elsewhere, and subsequently to present his theories and results before some of the leading biological laboratories of America.

9. A full account of the work done by Dr. Bose in the field of physical science was given in 1896 by the then Director, Sir Alfred Croft, in his letter to Government, No. 1075T., dated the 16th June 1896. Since that date Dr. Bose has been indefatigable in continuing his special investigations. An account of his work from the year 1895 up to date is contained in a note written by a friend of his in support of his application, a copy of which Dr. Bose has submitted to me for such use as I may see fit to make of it I forward herewith a copy of this for the information of Government.

10. I will now make definite proposals as regards Dr. Bose's deputation. I suggest that he may be placed on deputation for eighteen months out of his two years' furlough. It does not appear to be a matter of importance for which period of his leave Dr. Bose should be placed on special duty, but he has applied that his deputation may extend from the 24th October 1907 to the 23rd April 1909. I think that this may be allowed. Dr. Bose has been on furlough since the 23rd August 1907. I also suggest that during the period of his deputation he may be allowed two-thirds of his pay, which is Rs 1250 a month.

11. I also suggest that he may be granted the following concessions: -

- (1) A first-class railway from Calcutta to Bombay and back
- (2) A first-class passage by sea from Bombay to London and back
- (3) Actual travelling expenses while in Europe or America.
- (4) An allowance of one guinea a day for the hotel expenses during the period of his deputation

12. The cost on account of item No.1 will be Rs 179-6. As regards item No. 2, the cost will be Rs 1716. Dr Bose is traveling by sea by the Peninsular and Oriental line. I have estimated, at his request, for a single fare each way, because he thinks it possible that he will have to extend his furlough beyond two years, and return tickets are not available for a longer period than that. It is impossible to make a definite estimate under item No. 3. It may be assumed however for present purposes that the total cost in that respect will not exceed Rs 5000.

13. As regards item No. 4 on previous occasions Dr Bose received 10s 6d a day only for hotel expenses. He brings to notice, however, that Dr. P.C. Ray of the Provincial Educational Service

received a guinea a day during his last deputation, vide the correspondence ending with the Government of Bengal, General Department, Endorsement No. 1649, dated the 25th March 1905, and asks that the same concession may be allowed in his favour on the present occasion. I think that this may be granted, and in connexion with this and the other concessions suggested, I beg to bring to notice that Dr. Bose is taking with him at his own expense an assistant who holds a post outside the graded educational services carrying a salary of Rs 50 a month, and who is being given leave without pay for the purpose of enabling him to accompany Dr. Bose. Dr. Bose also informs me that on the last occasion of his deputation in 1900, notwithstanding the terms granted to him by Government, he was out of pocket by about Rs 7000.

14. Dr. Bose has asked that under note 2 to Article 85 of the Civil Service Regulations the period of his deputation may count as service for leave, stating that his two previous periods of deputation may count as service for leave, stating that his two previous periods of deputation so counted. It appears on enquiry made that this was not the case. Moreover, I do not consider that there is sufficient reason for allowing this concession on the present occasion. It is one which is not allowed under the ordinary rules, as will appear from paragraph 2 of Despatch No. 146, dated the 28th November 1902, from his Majesty's Secretary of State, in which it is laid down that deputation shall count as service for pension, but not as service for furlough. Further, Dr. Bose is approaching the end of his service, and will have on his return from furlough only four years to serve. The necessity for the concession is not therefore clear, and after a personal interview with me, he has stated he does not wish to press this point.

16. The total estimated cost involved in the proposals made in paragraph 11 above will be Rs 15,526, as shown in the margin.* It may be assumed that of this sum, Rs 4,000 in round figures, as shown in the Margin+, will be spent in 1907-08. The expenditure for that year may be met from the budget grant of Rs 46,000 for improvements to the Presidency College, while provision may be made for the expenditure required in 1908-09 and 1909-10 in the budgets for those years.

*	Rs	A.
(1) Fare from Calcutta to Bombay and Back.	179	6
(2) Passage from Bombay to London	1,716	0
and back by sea		
(3) Travelling allowance while in Europe. or America (approximate)	5,000	0
(4) Daily allowance at 1 guinea a day during the period of deputation for eighteen months	8,631	0
 Total	 15,526	 6

+ Expenditure during 1907-08

	Rs	A.
(1) Fare from Calcutta to Bombay and Back.	89	11
(2) Passage from Bombay to London	858	0
and back by sea		
(3) Travelling allowance while in Europe. or America (approximate)	1,020	9
(4) Daily allowance at 1 guinea a day during the period of deputation for eighteen months	2,031	12
 Total	 4,000	 0

Note recorded for Dr. Bose by a friend of his in support of his application and submitted by Dr Bose to the Director of Public Instruction, Bengal

In 1895 Dr. Bose carried out his investigations on electrical waves. With reference to this, I quote the following: -

Lord Kelvin. April 14, 1896

"I have seen enough to fill me literally with wonder and admiration; allow me to ask you to accept my congratulations for so much success in the difficult and novel experimental problems which you have attacked."

M. Comu Ex President, Academy of Sciences, France,

March 23, 1897

"I take this opportunity to send you my sincere congratulations on your researches. You heard the applause given to you by members of the Société de Physique after I had summed up to them the results of your investigations. For my own part, I hope to take full advantage of the perfection to which you have brought your apparatus for the benefit of the Ecole Potytechnique and for the sake of further researchers which I wish to complete."

Sir Henry Roscoe, F.R.S.

November 1896

"It is very interesting to see that such work and such experimental discoveries are equally open to the eastern as to the western mind. There is no manner of doubt that it is by researches of this kind and by work of this sort that nations progress intellectually, commercially and industrially."

Lord Reay, November 3, 1896

"I need not further point out the great importance, not only to India, but to this country, that workers like Dr. Bose should have all that is necessary to them to accomplish their work. There is no such thing as English Science or Indian Science. Science is absolutely

international, is absolutely cosmopolitan. Therefore any result obtained by your friend in India in the field of research can be at once annexed by us without protest."

Numerous further quotations might be made, but it is perhaps sufficient to say that his results in this field of research have now been incorporated in all the latest text-books of Europe. A long account of them will also be found in the latest editions of Encyclopaedia Britannica. That his discoveries have also been of assistance to practical workers is illustrated, amongst others, by the following letter from Messrs. Muirhead and Co., patentees of the well-known system of Wireless Telegraphy: -

Messrs. Muirhead and Co., November 18, 1900.

"Just a line to say how pleased we were to have the opportunity of discussing with you the bearing of some of the results of your recent researches upon certain practical points in the manufacture of wireless telegraphic apparatus. We have already benefited by your work in the construction of the most important part of such apparatus."

Such, in fact, was the interest created by Professor Bose's work that Lord Kelvin addressed the following remarks to the Secretary of State for India.

Lord Kelvin to the Secretary of State, October 23, 1896.

"I believe it will be conducive to the credit of India and to scientific education in the resources of the University of Calcutta in connexion with the professorship held by Dr. Bose."

The President of the Royal Society, Lord Lister, with Lord Kelvin, and a large deputation of leading scientific men, subsequently waited on the Secretary of State to urge on him the desirability of establishing a central research laboratory in Calcutta, for the furtherance of this and similar work.

All the foregoing remarks relate to that work which was the occasion of Professor Bose's first deputation to Europe by the Government in 1896-97.

His special researches on new lines, and the special invitation of scientific men in France, led to his being deputed by the Government as a delegate to the International Congress of Science at Paris in the year 1900. His communications were there published in the transactions of the congress. The further work carried out during the period of this second deputation was given by him in a Friday evening discourse before the Royal Institution, May 10th, 1901, and communicated also at meetings of the Royal Photographic Society of Great Britain and also at the British Association, as well as in Paris at the Sorbonne and Sociétés de Physique and Zoologique. He also published, during the period of this deputation, the work "Response in Living and Non-Living" (Messrs. Longmans, Green & Co)

"The Electrician"

May 17, 1901

"The scientific world is immensely indebted to Dr. Bose for the researches he has already completed and presented to it; researches which redound greatly to the credit of the Indian Empire, and more specifically, of the Presidency College of Calcutta, from which Dr. Bose is now on visit to this country, and a critical juncture has been arrived at, which seems to show that Dr. Bose is on the eve of a scientific generalization of widespread and deep-reaching application."

"I thank you very much for your kindly sending your very interesting discourse on the response of inorganic and living matter to stimulus. I have read it with the greatest interest and I think that your observations are of singular importance on the problems underlying the phenomena of life."

Prince Kropotkin, October, 1902

"That living matter and metals show the same response nobody suspected and Bose's name will, I am certain, be associated forever with the experimental investigation of that generalization. How happy that he had time to prosecute that work and was enabled to bring out his book! If he had been less active in his work, after his preliminary

communications, the whole would have gone, in parts, into different hands, lost its cohesion and its philosophic importance.”

Herbert Spencer,

December 24, 1902

“Notices of your investigations have from time to time excited my interest; and now that I have an account of them in the volume you have been good enough to send me, I shall be glad to follow your course of thought in detail. The topic is one of the extreme interest, and one which in earlier years would not improbably have received due recognition in my books.”

It is not necessary to quote further with regard to this period of Professor Bose’s work. Professor Bose’s researches have for the past three years been concerned with plant life and in the spring of last year (1906) he published, “Plant Response as a means of Physiological Investigation.” It should be mentioned that the views here established are regarded as startling and have roused some controversy. But his results promise to throw great light on many problems in physiology and medicine.

“Westminister Gazette,”

February 30, 1906

“After five years we have the result of his labours in the shape of a fine volume of 700 pages in which are described a multitude of careful and detailed experiments, together with the remarkable conclusions at which he has able to arrive. No reader will fail to admire his fertility of resource and the ingenuity of the experiments contrived by this Indian physicist, and many will be startled to see how many problems which have puzzled the acutest minds of the day now seem to brought within perhaps a measurable distance of solution.”

Pioneer, August 6, 1906.

“Should his observations and his theories be ultimately confirmed by other observers, Professor Bose will have earned a name which will be famous among scientific

researches and his work will become a standard work of reference on many problems of plantation physiology.”

Times of India, May 30, 1906

“Professor Bose has rendered a service not only to science, but also to his country by the publication of his monumental work. He has placed in our hands a new instrument of physiological investigation and he has also demonstrated the title of the Indian scientist to a place in the front ranks of physical research. We congratulate the author on the publication of these researches which at some future time will be referred to as classical and the Presidency to which he belongs on the honour that has come to it through the scientific achievements of one of its most distinguished sons.”

The Athenaeum

June 23, 1906

“With the appearance of the important book by Professor Bose on ‘Plant Response,’ we have for the first time a conception which embraces all the expressed or unexpressed “sensitiveness” of plants. We are now presented with a complete theory of their movements. In a review it is impossible to do justice to a book of such size and detail. We may therefore add that it is one which no plant physiologist, however much he may combat details in it, can afford to ignore, which no student of any branch of botany should overlook, and which prove suggestive to animal-physiologists, possibly even to psychologists.”

American Journal of Science,

June 1906

“It may be unhesitatingly said that a careful reader of the present volume must be impressed by the ingenuity of device and the delicacy of manipulation, obvious throughout the whole of the experimenting and one is struck by the apparent truthfulness of all the records. Assuming that the instruments work exactly as described, it is difficult to reach conclusions which differ materially from those stated by Professor Bose.”

The Journal of Botany,
July, 1906

"His theory of the fundamental uniformity of all plant-response is certainly most illuminating, and one for which he brings forward a great weight of evidence. The value of his book lies in the general theory put forward, and in the fact that he is the first to apply to the study of plant response apparatus which he has elaborated to an extraordinary degree. The book certainly marks an epoch in the method of attack on the problems of irritability in plants."

Professor S.H. Vines, F.R.S, President, Linnaean Society, 1903.

"It seems clear that you have revolutionized in some respects, and very much extended in others, our knowledge of the response of plants to stimulus. Spontaneous movements have always been a difficulty; but your work seems to give the clue, to suggest that there is no such thing as an absolutely spontaneous movement, but that every movement is the result of the action of a stimulus which has been stored up. This discovery alone would be a striking result of all the time and labour you have devoted to these researches. However, I cannot think but that there must be a great deal more to be discovered along the lines that you have opened up, and I hope that you will have at your disposal both time and opportunity to pursue what you have so well begun."

It will be seen from the foregoing record that the various results reached by this worker, however revolutionary they might at first appear, have in each case taken only a few years at most to become established in the universal acceptance. He is now engaged on many extended lines of enquiry which carried him, through electro-physiology, into the discovery of many new and unexpected phenomena of a biological and psychological character. The completion, publication and establishment of this work urgently demand his presence in Europe, where he has also to perfect some of the apparatus which he has invented, with the aid of the extended facilities there available. He will also, with the help of his assistant, require to give personal demonstration of his new theories and experiments in all the greatest scientific centers of Europe and America, in order that they may be subjected to the closest scrutiny and criticism. To carry out so large an amount of work, a period of deputation of two and a half years at least will be necessary.

On the occasion of his first deputation to Europe, the following remarks were made by the then Director of Public Instruction, and His Honour the Lieutenant-Governor of Bengal:-

Sir Alfred Croft,

June 16, 1896

“His work is not merely the education of candidates for University degrees, but the promotion of physical science in a line which he has made peculiarly his own. To help him in that is to promote the cause of science all over the world; and this, I assume, falls properly within the functions of Government.”

Sir Alexander Mackenzie,

June 30, 1896

“The Lieutenant Governor strongly advocates the grant of the concession (the deputation of Professor Bose to Europe) asked for. His Honour has done what he could to encourage and advance Mr. Bose’s researches, as he thinks it the duty of a great Government to do, when it has a man of such exceptional qualifications on its staff, and he attaches much importance to Mr. Bose visiting Europe and conferring with the leaders of scientific enquiry there.”

The interest which the Government has thus already shown to the work done by Professor Bose to further the cause of science, by deputing him to Europe on two separate occasions, has not only been fully justified by him, but also, as pointed out by Lord Kelvin and others, has redounded widely to their honour. His present work has led him to discoveries regarding nervous impulses in animals, which throw new and unexpected light on the problems of medicine and psychology, as well as on those of biology proper. It is absolutely necessary, however, to the establishing of this work that he should have immediate opportunity of meeting scientific men in Europe personally. It is obvious that a work of this importance has the first claim on the active support and encouragement of the Government, and should be accorded the fullest possible facilities. It, therefore, appears not too much to ask that he should once more be deputed to Europe on Government service so that his need may be met on the same scale as

formerly. It is to be understood that his visits to Europe are not those of a European returning to his own country on furlough, but those of a foreigner, under heavy expenses, and on active service. He ought, therefore, to be given generous terms, as to both hotel and travelling expenses, including the voyage to and from Europe. And he ought moreover to be allowed to take his assistant with him at Government expense.

Dated Calcutta, the 25th March 1907

From – J.C. Bose, Esq., C.I.E., M.A., D.Sc., Professory, Presidency College, Calcutta

To – The Director of Public Instruction, Bengal

FROM time to time during the past year, I have had the honour of reporting to you the progress of my researches. You have also been pleased to see the reception which my last book – published less than a year ago – has met with in Europe and America. As you know, I have ever since been engaged in carrying out other important researches, on the electro-physiology of animal organs, and part of this work is already in course of publication.

It has now become necessary that in the interest of these investigations, I should be in Europe for the purpose of giving demonstrations of my results before scientific societies and Universities. Some of these results, as you know, are so unexpected and so opposed to current conceptions, that nothing but personal demonstration can clear up the difficulties which will confront other investigators in their verification. I have reason to think that these discoveries will open up new fields of research in botany, physiology, medicine and even in psychology, in directions hitherto unforeseen.

Moreover, for the completing of certain of my investigations, the instruments which I have invented require, in order to reach their utmost perfection, those special facilities of construction which are only to be found in Europe. For this, my personal supervision is necessary.

The Government has been pleased in the past to take such keen and generous interest in the advancement of these investigations, that I was on two separate occasions deputed to Europe, in order to further the work itself, and also that I might bring it before the scientific public. The

first of these deputations was in the year 1896 and the second, four years later, in 1900. The last of these occasions was thus seven years ago.

My present work, it is unnecessary to point out to you, has grown immensely in its scope and difficulty. In hope of bringing, it to a conclusion within the next 2 or 3 years, I plan for the publication of two books within that period.

May I therefore venture again to ask the favour of being sent on deputation by the Government, for the purpose of meeting scientific men in Europe and America, and bringing my discoveries before learned bodies?

If this request should be granted, it is my intention to spend a part of my deputation in England, for the sake of seeing the publication of my books, and the construction of necessary instruments, completed; and also in order to communicate my results to scientific societies there. After this, I should hope to visit the leading scientific centres at Paris, Heidelberg, Berlin, Vienna, and elsewhere. Subsequently, I except to present my theories and results before some of the leading biological laboratories of America, where my experiments are at present being repeated with success, and also to visit the psycho-physiological laboratory at Harvard which now possesses some of the most eminent psychologists of the age in professors Munsterberg, James and Royce.

In order to carry out this programme, all of which is strictly necessary to the work, I beg to be sent on deputation by the Government for two and a half years on the same terms as formerly – under article 85, Civil Service Regulations, Note 2 – when I was allowed hotel and travelling expenses including the voyage to and from Europe. I should point out here that I go to Europe as a foreigner, under heavy expenses, not as an Englishman returning to his home on furlough. My duties while there, moreover, are those of active service, for the advancement of those researches which I have carried out under the orders of the Government.

Should this request be granted, I beg permission to take with me also my special assistant, who is unusually qualified to render me assistance in experimental demonstrations before scientific societies.

Appendices to Dr Bose's letter of the 25th March 1907

Extract from letter No 1075T dated Darjeeling, the 16th June 1896, from SIR ALFRED CROFT, K.C.I.E., Director of Public Instruction, Bengal, to the Secretary to the Government of Bengal, General Department

IN previous correspondence, I have communicated to Government my opinion of the value of the scientific researches pursued at the Physical Laboratory of the Presidency College, Calcutta, by Professor J.C. Bose, M.A., B.Sc. Professor Bose is an investigator of exceptional originality and power, and he deserves all the encouragement that the Government can give him * * * *. His work is not merely the education of candidates for University degrees, but the promotion of physical science in a line which he has made peculiarly his own. To help him in that is to promote the cause of science all over the world; and this, I assume, falls properly within the functions of Government.

Extract from Letter No. 387 T – G, dated Darjeeling, the 30th June 1896, from the Government of Bengal.

THE Lieutenant Governor strongly advocates the grant of the concession (the deputation of Professor Bose to Europe) asked for. His Honour has done what he could to encourage and advance Mr. Bose's researches, as he thinks it is the duty of a great Government to do, when it has a man of such exceptional qualifications on its staff, and he attached much importance to Mr. Bose visiting Europe and conferring with the leaders of scientific enquiry there.

NOTE CONCERNING DEPUTATION

ABOUT the question of my deputation, the terms of my last deputation had better be quoted here as a precedent. I was sent under Civil Service Regulations, No. 85, Note 2, being allowed two-thirds pay, the railway and steamer fares to and from Europe and hotel and travelling

expenses, while abroad. The period of this deputation was altogether one year and three months.

The Scientific results which I had at that time to bring to scientific attention in Europe were confined to certain new and important contributions to physics. On the present occasion, the discoveries I have to announce are vastly more extensive, and include work on physics, physiology, botany and psychology. In addition to the theoretical important of these they are likely to be of immediate practical application in scientific agriculture and in medicine. The extent of the work may be indicated in the fact that even such bare announcement as is possible through publication has required two volumes of 1600 pages altogether. To bring such researches to the adequate notice of scientific societies in general, it is evident that I have to lecture before many scientific societies, in connection with different branches of science, and to travel extensively in Europe for the purpose. The expense and time which this demands need no dilating upon. It was for this reason that I applied for a long period of deputation under the same conditions as before.

With regard to the rules by which Educational officers are allowed to commute six months of their furlough into deputation, for the sake of acquiring special information, I may point out that my own case cannot be considered as coming under this rule. I am not a European going home of furlough, but an Indian abroad. I am going moreover to announce those discoveries which I have had the honour to carry out, in the Presidency College, under the auspices of the Government. I may therefore be regarded as on special duty, during my absence from India, coming thus under Civil Service Regulations No. 85 under which rule I was sent to Europe on two previous occasions. The recommendation moreover regarding the deputation of educational officers in question is only that ordinarily they should not exceed six months, and should be taken out of officer's furlough. It may be pointed out that the very use of this word "ordinarily" shows that the Government reserves to itself the right of making exceptions in particular cases. And I venture to think that my work constitutes as a special case.

The 10th August 1907

J.C. BOSE.

(No. 8.)

(File 2D-7/3)

No. 2532, dated Calcutta, the 9th December 1907.

From – H.C. STEARFEILD. ESQ., Offg Secy to the Govt. of Bengal, Genl.Dept.,
To- The Secretary to the Govt. of India, Home Department

I AM directed to submit, for the favourable consideration and orders of the Government of India, the accompanying letter from the Director of Public Instruction, Bengal, No. 18182, dated the 30th September 1907, and enclosures, in which he recommends that Dr. J.C. Bose, an officer of Class II of the old Graded Service, who has recently been granted furlough for two years, should be placed on deputation in Europe and America for a period of 18 months, and that during this period he should receive (1) two-thirds of his salary which is Rs. 1,250 a month; (2) a first-class railway fare from Calcutta to Bombay and back; (3) a first-class passage by sea from Bombay to London and back; (4) actual travelling expenses while in Europe and America; and (5) an allowance of a guinea a day for his hotel expenses.

2. The Government of India are aware of the position held by Dr. Bose among the scientists of the day, and the Lieutenant-Governor is convinced that it is a matter of considerable public importance, both as regards of the reputation of Indian education and with a view to the encouragement of original research by Indian students, that he should have an opportunity of making his discoveries known in Scientific circles in Europe and of finishing his books and perfecting his apparatus. His Honour is, however, disposed to think that Dr. Bose should be able to carry out his plans within one year, which might be taken in one period or in broken periods as he may find most convenient for his purpose; and further considers that it is only reasonable that before undertaking to pay Dr. Bose's travelling expenses in Europe and America, Government should be informed what journeys he proposes to take and with what objects, and that expenses should only be granted for such journeys as may be sanctioned. To avoid the unnecessary inconvenience and delay which would be caused by repeated references to this Government, he might be allowed to arrange his tour programme in consultation with His Majesty's Secretary of State for India, if there is no objection to such an arrangement.

3. Subject to the modifications referred to in the preceding paragraph, the Lieutenant-Governor strongly recommends the Director's proposals to the favourable consideration of the Government of India. His Honour recognizes that the present case does not come under the rules laid down in the Government of India's Despatch to the Secretary of State, No. 6, dated the 2nd October 1902. Dr. Bose is not proceeding on furlough for the purpose of studying educational problems in the manner contemplated in the rules, but as a distinguished Scientist who wishes to give demonstrations of the result of his researches and to confer with other investigators in the same field both in Europe and America. As stated in paragraph 2 Sir Andrew Fraser is convinced that Dr. Bose's deputation will be of great public view, and recommends that it may be treated as a special case.