

Government
of Bengal. }

1897.

{ GENERAL
DEPT.

EDUCATION.

A

AUGUST.

File $\frac{4-C}{2}$

Nos. 23 to 28.

Presidency College.

(Purchase of an Electro-Magnetic Radiation apparatus by Mr. J. C. Bose, in England,
for the Physical Laboratory of the College.)

A.—1
Q.—Of wh

LIST OF PAPERS.

- 23-24. From the Government of India, Home Department, No. 88, dated 13th April 1897, forwarding copy of a correspondence between Dr. J. C. Bose and the India Office, London, regarding the purchase in England of an electro-magnetic radiation apparatus for the Presidency College Laboratory.
25. Letter to the Director of Public Instruction, Bengal, No. 50T.G., dated 30th April 1897, forwarding a copy of the above for report.
- 26-27. Letter from the Director of Public Instruction, Bengal, No. 3605, dated 14th July 1897, submitting the report.
28. Letter to the Director of Public Instruction, Bengal, No. 2062, dated 31st July 1897, sanctioning a grant of £200/for the purchase of an electro-magnetic radiation apparatus.

No. 88, dated Simla, the 13th April 1897.

Memo. by—C. H. A. HILL, Esq., Under-Secretary to the Government of India,
Home Department.

COPY forwarded to the Government of Bengal, for information, in continuation of Home Department endorsement No. 378, dated 14th, December 1896.

Dated London, the 4th February 1897.

From—LORD GEORGE HAMILTON, Her Majesty's Secretary of State for India,
To—His Excellency the Right Hon'ble the Governor-General of India in Council.

I FORWARD, for communication to the Government of Bengal, a copy of a letter from Professor J. C. Bose, and of the personal explanation given by him at the India Office, as well as of the reply which I have caused to be sent to him.

18th January 1897.
2nd Ditto
2nd February "
2. The amount of Messrs. Elliott Brothers' bill will be entered in the Account Current in due course.

Dated Maida Hill, W. the 18th January 1897.

From—J. C. BOSE, Esq.,
To—The Under-Secretary of State for India.

FOR my lecture before the British Association, and the Friday Evening Discourse before the Royal Institution, a number of delicate instruments has been constructed by Messrs. Elliott Brothers, the cost of which will come up to about £200. May I be permitted to ask Messrs. Elliott Brothers to present the bill to the India Office for payment?

Dated Whitehall, the 23rd January 1897.

Memo. by—P. P. H.

DR. BOSE called on me this morning. The following memorandum shows our conversation:—

Q.—What do you propose to do with these instruments after the Lecture?

A.—I shall take them to the Presidency College, Calcutta.

Q.—Of what use will they be there?

A.—Their primary use is to illustrate my lecture, but they will also greatly facilitate, and indeed render possible, further research, which would be impossible without them. I mean further research in the same line.

Q.—Is that the case with all the instruments?

A.—Yes. All are parts of one whole, and inter-dependent.

Q.—Did you get any sanction from Bengal for the purchase of these or any other apparatus?

A.—I have a letter authorising me to buy "direct from England without the intervention of the India Office, certain scientific apparatus for the Physical Laboratory of the Presidency College" (produced, read and returned to Dr. Bose). That relates to other instruments, however, which are required for magnetic and other work,—different work and a different line of research to that for which the instruments now in question will be wanted. These instruments will, however, replace with much greater efficiency some very rude apparatus which I had constructed in Calcutta out of a grant made to me for original research by the Bengal Government. This was a retrospective grant "for past expenses." I had spent a considerable sum in my past researches. The Lieutenant-Governor asked me to say how much I had spent, but I had no accounts or vouchers, not having intended to apply for reimbursement. He then granted me Rs. 2,500 for past expenses, Rs. 1,000 for 1896-97 and Rs. 3,000 per annum for further years. I may, therefore, say that the Government paid for my rude instruments. I did not ask the Lieutenant-Governor to sanction these more accurate instruments, because I did not anticipate getting them made, but many things will now be possible, which I could not have attempted with my ruder apparatus.

Q.—Could you have ordered these instruments by specification from Calcutta?

A.—No; they are quite novel, nearly every part has had to be newly devised and perfected from experiments which I have made on the spot at the manufacturers.

I may mention that one of the objects for which I was deputed to England was to deliver a Lecture before the British Association, and for that lecture I used as much of the apparatus now in question as was ready. My extension of leave was granted to enable me to read another Lecture before the Royal Institution: it is for that that the whole of the instruments will be ready. That Lecture will treat of some further advance beyond the point at which I had arrived when I left Calcutta.

Dated India Office, the 2nd February 1897.

Memo. by—HORACE WALPOLE, Esq.

I AM directed by the Secretary of State for India to acknowledge the receipt of your letter of the 18th January, and in reply to state that as it appears from your personal explanations that the instruments in question are required for the Physical Laboratory in Calcutta, and to facilitate researches, the cost of which is accepted by the Government of Bengal, Messrs. Elliott Brothers' bill will be paid, provisionally, upon presentation at this office. The matter will be reported to the Government of India, and the final adjustment of the charge, as between yourself and Government, will be left to the discretion of the Lieutenant-Governor.

[No. 25.]

[FILE $\frac{4-C}{2}$ 3.]

No. 50T.G., dated Darjeeling, the 30th April 1897.

From—E. M. KONSTAM, Esq., Under-Secy. to the Govt. of Bengal, General Dept.,
To—The Director of Public Instruction.

In continuation of Government order No. 4158, dated 22nd December 1896, I am directed to forward, for your information, a copy of the papers noted in the margin, regarding the purchase of scientific instruments in England by Dr. J. C. Bose, and to request that you will obtain a report from that officer showing—

- (1) what instruments have been bought;
- (2) to what use it is proposed to put them in the Presidency College;
and
- (3) how it is proposed that the cost of them should be met.

[Nos. 26-27.]

[FILE $\frac{4-C}{2}$ 5.]

No. 3605, dated Calcutta, the 14th July 1897.

From—DR. C. A. MARTIN, LL.D., Director of Public Instruction, Bengal,
To—The Secretary to the Government of Bengal, General Department.

In reference to your letter No. 50T.G., dated the 30th April 1897, regarding the purchase of certain scientific instruments in England by Dr. J. C. Bose for the use of the Presidency College, I have the honour to submit herewith copy of a letter No. 405, dated the 15th June 1897, from the Principal of the Presidency College, and of its inclosure, reporting on the points raised by Government in connexion with the purchase in question.

2. With reference to paragraph 3 of the Principal's letter which forms an enclosure to this letter, I have the honour to recommend that the formal sanction of Government be accorded to a further grant of £200 for the construction of the electro-magnetic radiation apparatus for the Presidency College, which sum has been sanctioned by the Secretary of State for the purchase of the instrument by Dr. Bose.

No. 405, dated Calcutta, the 15th June 1897.

From—F. J. ROWE, Esq., M.A., Offg. Principal, Presidency Circle,
To—The Director of Public Instruction, Bengal.

In reference to your endorsement No. 308T., dated the 5th May 1897, I have the honour to forward herewith a letter in original from Dr. J. C. Bose, in which he submits his reports on the points raised by Government in connexion with the purchase by him of certain scientific instruments in England.

2. I beg to explain that the cost of the apparatus already purchased by Dr. Bose will be met from the grant of Rs. 13,500 sanctioned by Government in their letter No. 413T.G., dated the 11th September 1896, to your address.

3. At the request of Dr. Bose, the Secretary of State for India made a further grant of £200 for the construction of the electro-magnetic radiation apparatus exhibited by him before the British Association and the Royal Institution of Great Britain. As the formal sanction of Government of Bengal has not yet been obtained on this last item of expenditure, I beg to request that Government may now be moved to accord sanction to the amount above referred to, the charge being debitable to the savings in the budget grant of this College arising from the absence, on furlough, of Messrs. Pedler and Mann.

4. The magnetograph (item No. 6) has not yet been purchased; a further reference will hereafter be made by Dr. Bose for instruction as regards the type that will be adopted by him for magnetic work in Calcutta.

Dated Darjeeling, the 2nd June 1897.

From—DR. J. C. BOSE, Professor, Presidency College,
To—The Officiating Principal, Presidency College, Calcutta.

I BEG to acknowledge the receipt of your letter No. 371, asking for a report on the purchase of scientific instruments in England.

2. A grant of Rs. 13,500 was made by the Government of Bengal for the purchase of the following instruments:—

- | | |
|------------------------------------|---------------------------------------|
| (1) Storage cells and accessories. | (4) Kerosine engine. |
| (2) High tension electric machine. | (5) Electrograph. |
| (3) Lathe and mechanical tools. | (6) Magnetograph (not yet purchased). |

Of these Nos. 1, 2, 3 and 5 were to have been supplied by the instrument makers to the Store Department, India Office, by the last week of March 1897. The instruments were for the most part of special design to suit our special requirements.

3. The kerosine engine (No. 4 in the list) has been supplied to the Presidency College by Messrs. Hornby, through their sole agents in India (Messrs. Kilburn and Company). As regards the magnetograph, I was advised by experts in England to inspect other types of the above apparatus as used in the magnetic observatory of Potsdam in Germany and in the observatory of St. Mam in Paris. The continental types possess certain advantages on the score of simplicity, and I should like to make a further reference to Government for instruction as regards the type to be adopted for magnetic work in Calcutta.

4. In addition to the above, the Secretary of State for India was pleased to make a grant of £200 subject to the sanction of the Government of Bengal, for the construction of the electro-magnetic radiation apparatus exhibited before the British Association and the Royal Institution of Great Britain. The perfection of the above apparatus was rendered possible, with the help of the splendid mechanical resources at the disposal of Messrs. Elliott Brothers, London, who constructed the apparatus. The instrument would be of essential importance in the furtherance of some of the important researches undertaken at the Presidency College.

[No. 28.]

[FILE $\frac{4-C}{2}$ 7.]

No. 2062, dated Calcutta, the 31st July 1897.

From—E. M. KONSTAM, Esq., Under-Secy. to the Govt. of Bengal, General Dept.,
To—The Director of Public Instruction, Bengal.

WITH reference to the correspondence ending with your letter No. 3605, dated the 14th July 1897, I am directed to say that the Lieutenant-Governor is pleased to sanction a grant of £200 for the purchase of an electro-magnetic radiation apparatus, which was constructed in England with the permission of the Secretary of State for India for the Presidency College Laboratory.

2. The charge will be met from savings in the Education Budget grant for 1897-98.

No. 2063.

COPY, with a copy of the Home Department No. 88, dated the 13th April 1897, and enclosures, forwarded to the Financial Department of this office for information, and for favour of communication to the Accountant-General, Bengal.

Govt. of {1897} Bengal.

GENERAL DEPT.

EDUCATION.

File $\frac{4-C}{2}$

K.-W.—A FOR AUGUST 1897, Nos. 23-28.

SUBJECT—

*Presidency College.**(Purchase of an electro-magnetic radiation apparatus by Mr. J. C Bose, in England, for the Physical Laboratory of the College.)**Notes and orders.*

2 From the Government of India, Home Department, No. 88, dated the 13th April 1897.

FORWARD copies of correspondence between Dr. J. C. Bose and the India Office, London, regarding the purchase of certain scientific instruments in England.

In Government order No. 4474, dated the 27th December 1895, we sanctioned the inclusion, in the Education Budget, 1896-97, of a sum of Rs. 1,000, and an annual grant of Rs 500, for undertaking original scientific work in the Presidency College Laboratory. Subsequently, in

Government order No. 413T.G., dated September 1896, we sanctioned the 11th September 1896.

Rs. 13,500 for the purchase of scientific instruments and apparatus required for the improvement of the physical laboratory of the Presidency College, and authorised the expenditure of Rs. 1,000, referred to above. Mr. Bose was also authorised to purchase these instruments required direct from the manufacturers in England.

In addition to the above grants, His Honour also sanctioned an annual grant of Rs. 2,500, to be placed at the disposal of Dr. J. C. Bose, for the prosecution of scientific researches at the Presidency College. This grant was intended to be *personal* to Dr. Bose, and it was provided in October 1896 partly to meet Dr. Bose's expenses for the year 1896-97, and partly to recoup him for expenditure he had already incurred.

It will thus appear that, besides Rs. 13,500 granted for the purchase of instruments for the physical laboratory, this Government sanctioned for the original research two sums of Rs. 1,000 and Rs. 2,500 in 1896-97, and Rs. 3,000 annually for future years. Dr. Bose's statement, in his answers to the interrogatories of the India Office, that this Government has granted him "Rs. 2,500 for past expenses, Rs. 1,000 for 1896-97, and Rs. 3,000 per annum for further years," therefore appears to be correct.

A copy of the correspondence may be sent to the Director, Public Instruction, and to the Accountant-General, Bengal.

(Draft put up for approval.)

A. SEN—22-4-97.

E. L. M.—22-4-97.

SECRETARY—

Mr. J. C. Bose bought delicate instruments (to the value of about £200) to illustrate his lectures at home, and had the bill sent to the India Office, who have promised to pay the bill when presented, leaving the adjustment of the charge to the Lieutenant-Governor.

Dr. Bose has a budget grant of Rs. 2,500 per annum for original research. The price of his instruments will, it is to be feared, swallow up that grant for some time to come. There is also an annual grant of Rs. 500 given to the Presidency College for the same purpose. Dr. Bose has returned I believe. We may send a copy of the papers

Notes and Orders—concluded.

to Director, Public Instruction, asking for a report from Dr. Bose—

- (1) What instruments have been bought ?
- (2) To what use they will be put in the Presidency College ?
- (3) How it is proposed that the cost of them should be met ?

E. M. K.—24-4-97.

M. F.—24-4-97.

O. I. No. 50T.G., dated the 30th April 1897.

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From the Director of Public Instruction, No. 3605, dated the 14th July 1897.

5

PLEASE see the above queries. Dr. Bose's letter, which forms an enclosure to the Director's letter, answers the Under-Secretary's queries Nos. (1) and (3), but it is silent as to No. 2. Dr. Bose states that all instruments except the "Magnetograph," the purchase of which was sanctioned in Government order No. 413T.G., dated the 11th September 1896, have been purchased, and the charge met from the grant of Rs. 13,500 sanctioned for the purpose.

Dr. Bose should have given fuller information on these points. He should have stated the price of each instrument purchased, and the amounts actually spent out of the total grant, and also whether the instruments have reached Calcutta in a safe condition.

He has not also answered the second question as to what use these instruments will be put in the Presidency College. Shall we insist on an answer on this point ?

In addition to the purchase above mentioned, the Secretary of State has sanctioned a sum of £200 for the construction of the electro-magnetic radiation apparatus. The Director recommends that sanction of this Government may be accorded to the amount above referred to.

It is not clear as to why the sanction of this Government is again required. The Secretary of State having sanctioned the purchase, we may simply ask the Financial Department to instruct the Accountant-General to admit the expenditure. The Secretary of State left only the adjustment to this Government.

For orders.

A. SEN—20-7-97.

E. L. M.—20-7-97.

Ask as above.

E. M. K.—20-7-97.

To Financial Department for favour of an opinion.

A. SEN—22-7-97.

E. L. M.—22-7-97.

THE Secretary of State have not sanctioned the charge, but simply observed that the bill of Messrs. Elliott Brothers will be paid provisionally upon presentation at the India Office, London. The charge is to be borne by Bengal. There is no objection to sanction, the charge being met from savings in the budget grant.

J. N. M.—23-7-97.

S. N. M.—23-7-97.

B. F.—24-7-97.

WE may now write to the Director, Public Instruction, sanctioning the charge, it being met from the savings in the budget grant.

A. SEN—26-7-97.

E. L. M.—26-7-97.

E. M. K.—26-7-97.

THE Director of Public Instruction addressed accordingly. *O. I. No. 2062, dated the 31st July 1897.*

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REFERENCE TO FORMER CASES.

A FOR OCTOBER 1896, EDUCATION $\frac{4-C}{23}$, Nos. 10-19.

REFERENCE TO LATER CASES.

KEEP WITH.

Office Notes (printed.)