

(1) Number of pages _____

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(3) Initials of the Referencer _____

MADRAS RECORD OFFICE

Government of Madras

Public Works

DEPARTMENT

G.O. No.	<i>1742</i>	Press
B.P. No.		Mis.
Dated	<i>21-6-</i>	<i>0875</i> 195

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
21st June 1875.*

No. 445. Read the following letter from C. J. LYALL, Esq., Under Secretary to the Government of India, Department of Revenue, Agriculture and Commerce, to Lieutenant-Colonel J. ULLINS, R.E., Officiating Secretary to the Government of Madras, Public Works Department, dated Simla, 5th June 1875, No. 392 :—

I AM directed to forward copy of a letter from the Surveyor-General of India, No. 31-F., dated 27th ultimo, and enclosure, on the subject of the regraduation of instruments, and, with reference to paragraph 3 thereof, to request that, with the permission of His Excellency the Acting Governor in Council, the Government of India may be furnished with the information therein asked for.

From Colonel H. L. THUILLIER, R.A., c.s.i., Surveyor-General of India, to the Secretary to the Government of India, Department of Revenue, Agriculture and Commerce, dated Simla, 27th May 1875, No. 31-F.

ADVERTING to your office letter, No. 269, dated the 24th April last, requesting an expression of my opinion on the course pursued by the Superintendent of the Roorkee Workshops for regraduating defaced instruments, I have the honor to forward, in original, a report as per margin from the Officiating Superintendent of the Mathematical Instrument Department, Calcutta, from which it appears that in very exceptional cases, and only when the repairs required to finely graduated vernier instruments are trifling, is the attempt made to effect such repairs, and fully concur in the opinion expressed by the Officiating Superintendent, Mathematical Instrument Department, that it is not advisable to attempt repairs of finely divided verniers attached to valuable instruments by the aid of an ordinary lathe, though it may be done with sufficient accuracy and perfect safety for all coarsely divided instruments in ordinary use.

2. I also concur in the opinion that it would be a waste of money to incur the cost of obtaining a first-class circular dividing engine for use in India. By far the most economical and satisfactory plan is to send valuable instruments, of which the limbs or verniers need regraduating, to England for the necessary repairs. A thoroughly effective dividing machine is not to be obtained by indenting for it from England, and the Home authorities before declined to treat the question.

3. In regard to the 5th and 6th paragraphs of the letter from the Officiating Superintendent, Mathematical Instrument Department, I solicit that the Madras Government may be moved to direct the Superintendent of the Mathematical Workshop at Madras to report as to the nature and cost of the circular dividing engine in use there, and on the nature and value of the work which it turns out annually, and whether any work of this department (graduating only) could be executed at Madras.

From Colonel J. E. GASTRELL, Officiating Superintendent, Mathematical Instrument Department, to Colonel H. L. THUILLIER, R.A., c.s.i., Surveyor-General of India, dated Calcutta, 3rd May 1875, No. 835.

ACKNOWLEDGING your No. 909, dated 28th April 1875, and enclosures, I have the honor to remark that the plan adopted at Roorkee of regraduating instruments on a common lathe may answer well enough for coarsely divided instruments, but I do not consider it would be advisable to attempt repairs of finely divided and valuable ones in this manner. For this purpose micro-metrical aid is necessary, and a highly-skilled and competent workman. When the damage to a vernier is trifling, repairs may be, and have been, satisfactorily effected to finely divided and valuable instruments in this department. But if the damage be great, and consequently the repair

Proceedings of the Madras Government, Public Works Department,
21st June 1875.

also, it would not pay to attempt it. In this case I should always send the instruments to England.

2. I am decidedly of opinion that a first-class dividing engine if sent out to, and used in, this country would not repay its cost. It would always be preferable to send the instruments to England as proposed by the Secretary of State.

3. Supposing a theodolite to have been fairly used, long experience in this department has shown, as a rule, that by the time the verniers and horizontal, and vertical, graduated arcs, have become so worn, as to require regraduation, the other component parts of the instrument, axis clamps, &c., have also become so worn and shaky that to repair it thoroughly and make it serviceable means virtually making a new instrument.

4. It follows, therefore, that the only cases in which regraduation is ordinarily required are in cases of accidents happening to verniers or graduated arcs. They, however, have hitherto been so few in this department that there would have been very little work indeed for a circular dividing engine, and I imagine more work is done here than in all the rest of India together.

5. There is, I believe, a circular dividing engine at Madras in the Mathematical Workshop; if so, I should suppose it would be much more than equal to all the work that could be required by Bombay, and recourse may be had to it when necessary.

6. I would suggest inquiry being made as to the precise cost of this engine, and the value of the work turned out by it yearly. I should much doubt if the amount saved in comparison with English cost would pay the interest on the block and wear and tear. I should be glad also to get information regarding this engine, and to know whether the Madras Workshop is prepared to take any work that may be required to be done for this department.

7. The original correspondence is returned as requested.

No. 446.

ORDER THEREON, 21st June 1875, No. 1,742.

ACCOUNT, No. 21.

COMMUNICATED to the District Engineer, Presidency, for report.

(True Extract.)

Major, R.E.,

Offg. Joint Secretary to Government.

To the District Engineer, Presidency.

Ed. S. T. Austin.

Spare Copies.

N^o 31.

Surveyor General's Field Office
Simla, 27th May 1875.

From

Colonel H. L. Thuillier, C. S. I.

Surveyor General of India

To

The Secretary to the Government of India,
Department of Revenue, Agriculture, & Commerce

Simla

Enclosure

one letter in original &c.

Adverting to your Office letter

N^o 269 dated the 24th April last, requesting
an expression of my opinion on the course
pursued by the Superintendent of the
Roorkee ^{Workshops for} regraduating defaced instruments.

I have the honor to forward in original,

*Letter N^o 1335 dated 3rd May 1875. } a report as per margin, from the Offg.

Superintendent of the Mathematical

Instrument Department, Calcutta, from

which it appears that, in very exceptional

cases and only when the repairs required

to finely graduated Vernier Instruments

are trifling is the attempt made to

effect

effect such repairs, and fully concur -
in the opinion expressed by the Offg. ^{Superintendent} Superintendent, Mathematical Department
that it is not advisable to attempt -
repairs of finely divided verniers, attached
to valuable instruments, by the aid of
an ordinary lathe, though it may be done
with sufficient accuracy and perfect
safety for all coarsely divided instruments
in ordinary use.

2. I also concur in the opinion that
it would be a waste of money to incur
the cost of obtaining a first class circular
dividing engine for use in India. By -
far the most economical and satisfactory
plan is to send valuable instruments of
which the limbs or Verniers need re -
graduating, to England for the necessary
repairs. A thoroughly effective Dividing
machine is not to be obtained by In -
denting for it from England, and the
Home authorities before declined to treat the
question

3. In regard to the 5th and 6th paras

for the letter from the Offg. Superintendent,
Mathematical Instrument Department,
I solicit that the Madras Government -
may be moved to direct the Superintendent
of the Mathematical Workshop at Madras
to report as to the nature and cost of the
circular dividing engine in use there and
on the nature and value of the work -
which it turns out annually, and -
whether any work of this Department
(graduating only) could be executed at
Madras.

I have &c
Wm. L. Shullier
Surveyor General of India

Rev 1/224/75
5/1/452
19/955811/

Math^l Inst^l Office
Calcutta, 3rd May 1875

To

Colonel H. L. Thuillier R.A.C.S.I.
Surgeon General of India

Sir

Acknowledging your N^o 909 dated 28th April 1875 and enclosures, I have the honor to remark, that the plan adopted at Roorkee of regraduating Instruments on a common lathe, may answer well enough for coarsely divided Instruments, but I do not consider it would be advisable to attempt repairs of finely divided, and valuable ones in this manner. For this purpose, micrometrical aid is necessary, and a highly skilled and competent workman. When the damage to a vernier is trifling, repairs may be and have been satisfactorily effected to finely divided and valuable Instruments in this Department. But if the damage be great, and consequently the

the repair also, it would not pay to attempt it. In this case I should always send the Instruments to England.

2. I am decidedly of opinion, that a first class dividing engine if sent out to, and used in this country, would not repay its cost. It would always be preferable to send the Instruments to England as proposed by the Secretary of State.

3. Supposing a theodolite to have been fairly used, long experience in this Department has shewn, as a rule, that by the time the Verniers and Horizontal, and Vertical, graduated arcs, have become so worn, as to require regraduation, the other component parts of the Instrument, axis clamps &c, have also become so worn and shaky, that to repair it thoroughly and make it serviceable, means virtually making a new Instrument.

4. It follows therefore that the only cases in which regraduation is ordinarily required are in cases of accidents happening

P. Box: 1875 : Dept
~~N. 2234.~~
 No: 3996
 From The Under Secy. for India
 Dept. of Rev. &c.
 N. 392

Dates 5th
 Recd 14th } June 1905
 Recd. 18th } E. 21

Found copy of a letter from
 the Secy. for India, and of its
 enclosure, on the subject of the re-graduation
 of Inspectors, and requesting that the infor-
 mation called for in para 3 of the former
 may be furnished.

With Orders
 1905

By Order: 1742 of 24th June 1905
 Communicated to the Electrical
 Engineering Presidency for report.
 A. S. Presidency
 Secy. Bids - 1-7-75
 N. 445/6
 Note from A. S. 18th June

Mr. 3996/1
 2/1/75

3996

Govt. of Madras
PUBLIC WORKS.

To

The Engineer
Presidency

Dated

Issued

Recd.

Encl.

21 June 174

Nos. 445-11/17

Re-graduation of Instruments

Letter of the Government
of India forwarding copy of a
letter from the Surveyor General
of India, and of its enclosure,
on the subject of the —, and
requesting that the information
called for in para. 3 of the
former may be furnished
communicated to the District
Engineer Presidency for report.