M.R.O. 1—77,006—8-6-37.

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(3) Initials of the Referencer _____

MADRAS RECORD OFFICE.

Government of Madras.

Public works DEPARTMENT.

G.O. No. 819, 320	2455	Press / Mis.
Dated	18 10	18 76

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department, 18th October 1872.

No. 319. Read the following Despatch from the Right Honourable the Secretary State for India, (Public Works,) to His Excellency the Right Honourable the Governor in Council, Fort St. George, dated India Office, London, 10th September 1872, No. 18 :—

WITH reference to your Excellency's letter No. 14 of 15th July, reporting that certain Boxwood Plotting Scales had been found to be defective in graduation, I enclose for your information a report on the subject received from Colonel Strange.

2. The particulars required by Colonel Strange should be furnished at an early date and the defective scales being also transmitted to this country.

REPORT BY COLONEL STRANGE.

IT is difficult to understand the precise meaning of this report on alleged errors in plotting scales.

2. There are two kinds of possible errors, namely errors of individual divisions, the spaces between particular lines being unequal, and errors of total length of the scale ; I can only infer, and that principally from Mr. Doderet's letter, that error of total length is meant.

3. Then the amount of the error is not clearly expressed. The Superintendent, Revenue Survey, states, paragraph 5, that it is from " 11 to 12 per cent." This would be usually held to mean that in 10 inches there was an error of upwards of an inch. Such an error is of course out of the question, and being so I do not know what meaning to attach to the words. Mr. Doderet states the error at from " 0·11 to 0·56," but he does not say of what unit these are fractions ; they may be fractions of a foot (the total length of plotting scales) or of an inch, or of one of the divisions ; most likely the last is meant, but until the value of one division is known, the fractional error is undeterminable.

4. I should have been informed also of the makers' names, and of the dates of issue of these erroneous scales ; for as Mr. Doderet states that the wood scale, which appears to be the one in question, was " no doubt made some years ago ;" it may not have passed through my office.

5. Under these circumstances, I can only report generally on the subject as follows :—

6. Soon after assuming my present duties, I considered the question of scales. My experience in the Great Trigonometrical Survey had put me on my guard against errors of linear measures. I soon found that very few makers possessed a copy of the national linear standard, even approximately accurate. I obtained a three-foot electrum scale from Messrs. Troughton and Simms, the makers to the Exchequer Standard Office.

7. This was divided throughout on both edges, on one into hundredths, on the other into sixtieths of an inch. I have no doubt that as to equality of divisions and as to conformity with the national standard yard in total length this scale is fully to be depended upon for such purposes as the verification of plotting scales and other ordinary measures.

8. I then caused the standards of several makers to be altered so as to accord with mine, some of them being largely in error. Since that I have kept as good a watch as I have been able, with a totally insufficient establishment, on the scales supplied. The greater part of them have been made by Mr. Stanley, who divides them on a self-acting machine constructed by himself, which I have frequently examined.

9. He has bestowed great attention on the subject, and has always been ready to comply with my instructions. Some of the scales supplied are tested with my standard, but not all, as that would be quite impossible without more assistance, as will be readily understood when I mention that in 1869 there were 921 and in 1870 no less than 7,507 divided scales despatched through my office.

10. I cannot promise, without more assistance, to inspect such things in greater numbers than at present, but I think with the Madras authorities that, as erroneous scales may lead to surveys having to be re-executed, accurate scales should be supplied as mere matter of economy.

11. I agree for the most part with Mr. Doderet's remarks, except that accuracy of total length cannot be decisively inferred from equality of individual divisions. He is right, I believe, in preferring ivory to wood in spite of its greater cost, but I should prefer solid ivory to wood with ivory edges. No doubt also he should have a well graduated linear standard.

12. If he will describe, with drawings, the form of standard most convenient for his work, I will see that it is made to agree with my own standard before despatch.

13. I would add my concurrence with the remark of the Director-General that the delinquent scales should have been sent home.

14. When Mr. Doderet is supplied with a standard of reference, I should recommend that an equal number of ivory and of Boxwood scales, say a dozen of each, should be tested from time to time, being used in the meantime in ordinary work, for the purpose of ascertaining which material stands the climate best, as opinions differ on this point.

(Signed) A. STRANGE, Lieutenant-Colonel,
Inspector of Scientific Instruments.

No. 320. ORDER THEREON, 18th October 1872, No. 2,455.

ACCOUNT, No. 26.

COMMUNICATED to the Superintending Engineer of the 4th Division, with reference to Mr. Grainger's letter of the 14th June 1872, recorded in G. O., No. 1,642, dated 8th July 1872, and with a request that the instructions in paragraph 2 of the despatch may be attended to.

(True Extract.)

Colonel, R.E.,
Secretary to Government.

To the Superintending Engineer, 4th Division.

Exd. S. T. Austin.

Public Works.
No: 18.

India office, London.
10th September, 1872.

My Lord,

1. With reference to your Excellency's Letter. No: 14 of 15th July reporting that certain Boxwood Plotting scales had been found to be defective in graduation, I enclose for your information a report on the subject received from Colonel Strange.

2. The particulars required by Colonel Strange should be furnished at an early date, and the defective scales being also transmitted to this country.

I have the honor to be,
My Lord,
your Lordship's most obedient,
humble servant,

to
his Excellency
the Right Honorable
the Governor in Council
Fort Saint George.

No 4.

Public Works
10th Sept. 1872.

The
Letter to Ford N. George.
No 18.
Encl: 1.

Received 14th Sept 1872

Submitting a report
by Colle Manning on the
subject of the objects in
Navigation Journal in
Eastern Boatwood Flotilla
shelter required for the
use of the Revenue Survey
Steamers - &c

No 2455 Forth Sept 18th 1872

No 2455.

Communicated to the Lake Engr Office 4th Sept with reference
to Br-Grainger's letter of the 14th June 1872 recorded in L.O. No 1842 dated 8th July/72
and with a request that the instructions in Para 2 of the Despatch may
be attended to

Lake Engr 4th Sept

Despr 23/10/72

Returned 12th Oct

P.D. No 4-

Govt. of {1872} Madras.

PUBLIC WORKS.

To The Superintending Engr.
4th Circle

Dated

Read.

Encl. 1

G. 018 "Dec" 1872. № 2455

Nos. 319 & 326

Boyd and Plotting Scales.

Some Despatches & Minutes
& Report by Lt. Strange,
Inspector of Scientific
Instruments, on the subject
of the defects in graduation
found in certain Plotting
Scales issued to the Revenue
Survey Depts. cond. to the
Superintg. Engr. 4th Circle.