

- (1) பக்கங்களின் எண்ணிக்கை 16
 (2) புதுக்கித் திருப்பிய நாள் 12/87
 (3) ஆதாரங்குறிப்பவர் சுருக்கொப்பம் [Signature]

தமிழ்நாடு ஆவணக் காப்பகம்.

தமிழ்நாடு அரசு

(127)

P.W.D. துறை

அரசாணை எண். மு. கோப்புத் தாள் எண்.	153	அச்சகம் பலவகை
நாள்	17-1-1891	198

மடிக்கவோ கண்டபடி கையாளவோ கூடாது

8. Sheets

ஆவண. கா-1-18,006-15-6-87.

[Signature]

15

*List of Instruments generally kept in store, manufactured, or repaired at the Mathematical
Instrument Office, Survey of India Department, Calcutta.*

NAMES OF INSTRUMENTS.	APPROXIMATE rates of issue of new and repaired Instruments.				REMARKS.
		Rs.	As.	Rs. As.	
Anemometers, Robinson's	Each	From 45	0 to	75 0	
" Whewell's	"	560	0	.....	
Arithmometers, Thomas's (French)	"	235	0	378 0	
Edmonson's (English)	"	420	0	.....	
Balance, Chemical	"	163	0	215 0	
Barometers, Aneroid, 8" diameter, ordinary	"	93	0	.....	
" Hottinger's	"	60	0	120 0	
" 4 1/2" diameter, mountain, reading from 10,000 feet to 22,000 feet	"	45	0	85 0	
" 3" diameter and pocket size	"	45	0	75 0	
" marine	"	50	0	75 0	
" mountain, Fortin's pattern	"	55	0	125 0	
" George's	"	150	0	185 0	
" Macneill's, Boylean-Mariotti principle	"	100	0	250 0	
" standard, Fortin's pattern	"	125	0	200 0	
" Newman's pattern	"	150	0	255 0	
" self-compensating	Pairs	30	0	60 0	
Bars, steel, standard, 6 feet long	according to sizes	1	6 square foot		Sizes usually made— 23" x 16," 31" x 23" 42" x 29," 54" x 33" 70" x 36," 70" x 50"
Boards, drawing, selected deal, fluted, with ebony edges		1	4 do.		
" teak, " " "		1	8 do.		
" mahogany " " "	Each	25	0 to	3 8	
" field, 15" square, with spike rod	"	25	0	.....	
Callipers, micrometer, small	"	210	0	.....	
" parallel, jaw, 6"	"	25	0	45 0	
Camera Lucida, with shade glasses	"	5	0	10 8	
Cases, sketching, leather	"	45	0	.....	
Chairs, transit observing	"	4	6	.....	Chains, steel, are about double the price of iron.
Chains, iron, measuring, best, 3 sawn oval links 30 & 33 feet, with pins complete	"	5	10	.....	
" " " " " 50 feet, with pins complete	"	8	8	.....	Chains, brass, are about treble the price of iron.
" " " " " 66 feet, with pins complete	"	10	0	.....	
" " " " " 100 feet	"	300	0	700 0	
Chronometers, box, mean and sidereal	"	400	0	850 0	
" pocket, silver	"	35	0	52 8	
Chronographs, watch-size	"	700	0	.....	
electrical	"	1,500	0	.....	
Circles, altitude and azimuth	"	500	0	.....	
reflecting	"	1,250	0	.....	
" repeating, astronomical	"	90	0	105 0	
Circumferentors, including stands	"	10	0	20 0	
Clinometers, rule form	"	45	0	72 8	
" Cooke & Son's, for road making	"	25	0	30 0	
" Survey Department pattern	"	15	0	.....	
" Watkin's, mirror pattern	"	50	0	.....	
" gun pattern	"	2	0	5 0	
" wooden, with paper scale	"	385	0	700 0	
Clocks, astronomical	"	260	0	.....	
tide gauge	"	10	0	15 0	
Combs, acre, calculating, metal	"	0	4	.....	16" and 32" = 1 Mile.
card board	"	25	0	30 0	
Compasses, beam, sliding tabular	"	10	0	20 0	
" wooden bar, of sorts and sizes, plain	"	20	0	45 0	
" " " " " with adjustment	"	8	0	.....	
" " " " " portable, to fit a lathe	"	2	8	4 0	
" bow, ink or pencil, brass, single-jointed	"	3	0	5 0	
" " " " " double	"	3	6	5 8	
" " " " " electrum, single-jointed	"	4	8	8 0	
" " " " " double	"	2	8	4 8	
" spring, bow, ink, pencil or dividers	"	6	0	10 0	
" " " " " sets	"				

* Sizes to be stated on the face of the indent.

† Stands for these instruments are rated separately on page 5.

* Size to be stated on the face of the indent.

* Size to be stated on the face of the instrument.
† Stands for these instruments are rated separately on page 5.

NAMES OF INSTRUMENTS.	APPROXIMATE rates of issue of new and repaired Instruments.			REMARKS.
	Each	Rs. As.	Rs. As.	
Range Finders, Bate's, Binocular form		From 200 0 to	.....	
" " Bolton's, short base, 6 feet, with stand	"	" 400 0 "	.....	
" " Labez's, good pocket instrument	"	" 56 0 "	.....	
" " Watkin's, large and small size	"	" 175 0 "	240 0	
Rods, measuring, wooden, of sizes	"	" 2 0 "	5 0	
Rules, carpenter's, boxwood, 1 foot, 2 fold & 4 fold	"	" 1 0 "	2 8	
" " flat, ebonite - " 2 feet, 2 " & 4 "	"	" 1 4 "	3 2	
" " " of sizes -	"	" 0 6 "	5 12	About 1 anna per inch for smaller sizes, and 1½ annas per inch for the larger sizes.
" " " electrum, of sizes -	"	" 0 8 "	0 10	About Rs. 7-8 per foot.
" " " wooden	"	" 16 0 "	30 0	
" " " folding, ivory, 1 foot, 4 fold	"	" 0 5 "	4 8	
" " " " 2 feet, 2 "	"	" 3 2 "	.....	
" " " " 2 " 4 "	"	" 10 0 "	15 0	
" " " parallel bar, ivory, 6 inches	"	" 10 0 "	15 0	
" " " " wooden, of sizes	"	" 3 0 "	6 0	
" " " on rollers, brass, "	"	" 1 0 "	6 12	
" " " " electrum, "	"	" 10 0 "	60 0	From Rs. 1 to Rs. 3 per foot.
" " " " wooden, 2½ feet length	"	" 12 0 "	95 0	From about Rs. 10 to Rs. 18 per foot.
" " " sight, for plane-table, wooden, with fixed metal sights	"	" 12 8 "	20 0	From about Rs. 12 to Rs. 20 per foot.
" " " " " metal (with folding sights)-	"	" 3 0 "	5 0	
" " " " " with telescopic attachment -	"	" 10 0 "	20 0	
" " " straight edges, steel, of sizes	"	" 35 0 "	.....	
" " " crown metal, of sizes	"	" 10 0 "	45 0	
Salinometers, glass floats	"	" 20 0 "	55 0	From Rs. 7 to Rs. 8. per foot in length.
Scales, acre, calculating, 16" to 1 mile	"	" 8 8 "	.....	
" " architect's, boxwood or ebonite, single, 12"	"	" 13 8 "	24 0	
" " " " in sets	"	" 1 12 "	3 2	
" " " ivory, single, 12"	"	" 15 0 "	20 0	$\frac{1}{16}$ th, $\frac{1}{8}$ th, $\frac{1}{4}$ th, $\frac{1}{2}$ th, $\frac{3}{4}$ th, $\frac{5}{8}$ th, $\frac{7}{8}$ th, $1, 1\frac{1}{2}, 3.$
" " " " in sets	"	" 5 0 "	8 0	
" " Bengali, card board	"	" 35 0 "	45 0	
" " " metal	"	" 0 1 "	.....	
" " common, wooden, 2 feet 6 inches long	"	" 0 12 "	1 8	
" " diagonal, card board	"	" 2 0 "	3 0	
" " " metal, 1 foot long	"	" 0 1 "	0 4	
" " " wooden	"	" 3 0 "	10 0	Divided to inches, tenths, and sixteenths.
" " engine, divided, 18 inches	"	" 1 0 "	.....	
" " engineering, box-wood, in sets	"	" 0 4 "	1 8	
" " " ebonite	"	" 10 0 "	15 0	
" " " ivory	"	" 14 0 "	20 0	
" " Gunter's, metal	"	" 20 0 "	52 8	Each set contains scales of from 100 to 800 to the foot.
" " " wooden	"	" 12 0 "	25 0	
" " Marquois', metal -	"	" 5 0 "	6 0	
" " " wooden	"	" 20 0 "	45 0	
" " offsets, card board	"	" 7 0 "	10 0	
" " " ivory, in sets	"	" 0 1 "	.....	
" " " wooden, "	"	" 8 8 "	12 0	
" " " single, ivory	"	" 3 0 "	5 0	
" " " " wooden	"	" 1 4 "	.....	
" " plotting, ebonite, in sets of six, 10 to 60	"	" 0 6 "	0 12	
" " " ivory, in sets of six, 10 to 60	"	" 14 0 "	20 0	
" " " wooden	"	" 35 0 "	50 0	
" " " single, ebonite -	"	" 10 0 "	20 0	
" " " " ivory	"	" 2 0 "	5 0	
" " " " metal	"	" 5 0 "	7 0	
" " " " wooden	"	" 2 0 "	10 0	
" " " " 1 12 "	"	" 1 12 "	.....	Each inch divided into 25 parts for plotting plans on the scale of 2½ chains to the mile.
* " standard, metal, 2 feet, 3 feet, & 4 feet in length	"	" 15 0 "	50 0	New from Rs. 10 to Rs. 12 per foot. Second-hand from Rs. 7-8 to Rs. 9 per foot.
" " diagonal, metal, 3 feet & 4 feet	"	" 75 0 "	140 0	New from Rs. 30 to 33 per foot. Second-hand from Rs. 25 to Rs. 27-8 per foot.

* Size to be stated on the face of the indent.

† Many scales require a careful description. If there is the least doubt as to the correct denomination of a scale, the indenting officer should specify the number of divisions and sub-divisions in a given measurement, and the method of numbering for instance, 12" divided into 60 parts, numbered successively from 1 to 60, each part to be sub-divided into two.

NAMES OF INSTRUMENTS.	APPROXIMATE rates of issue of new and repaired Instruments.			REMARKS.
	Each	Rs. As.	Rs. As.	
Sectors, ivory		From 4 0 to	7 0	
" " wooden	"	" 1 0 "	2 8	
" " zenith, astronomical	"	" 2,000 0 "	.....	
* Sextants, nautical, of sizes, in cases	"	" 75 0 "	240 0	
" " pocket	"	" 50 0 "	80 0	
Slopes and Batters, sets of 8 pieces	"	" 4 0 "	6 0	
Speedometers, Harding's	"	" 45 8 "	.....	
Squares, co-ordinate	"	" 30 0 "	50 0	
" " optical	"	" 6 8 "	16 0	
" " set, ebonite, in sets	"	" 7 0 "	.....	
Squares, set, metal, single	"	" 1 0 "	2 8	
" " " wooden, in sets	"	" 5 0 "	10 0	
" " " single	"	" 0 8 "	2 8	
Stands for Compasses, prismatic, of sizes	"	" 9 6 "	25 0	
" " Heliotropes and Heliostats	"	" 9 8 "	25 0	
" " Plane-tables, various	"	" 7 0 "	18 0	
" " Telescopes, wooden	"	" 25 0 "	.....	
Staves levelling, common pattern	"	" 12 0 "	15 0	
" " G. T. Survey pattern	"	" 16 0 "	25 0	
" " Gravatt's, made in two pieces, with clamp	"	" 16 0 "	18 0	
" " Roorkee, single	"	" 10 0 "	15 0	
" " " double	"	" 16 0 "	20 0	Single staff, 12 feet long. Two staves, aggregate length 20 feet. Painted staves double the price of papered ones.
" " { Sopwith's } telescopic, 14 feet long, {	"	" 15 0 "	20 0	
" " { Strange's } paper faced	"	" 2 0 "	5 0	
" " offsets or cross	"	" 66 0 "	.....	
Sun-dial, universal, of sizes	"	" 25 0 "	42 0	
Sympiesometers	"	" 20 0 "	52 0	From Rs. 10 to Rs. 13 per foot.
* T. Squares, metal, of sizes	"	" 1 8 "	7 0	
" " wooden	"	" 3 6 "	5 0	
* { Tapes, measuring 50 feet	"	" 3 12 "	7 0	
" " " 66 "	"	" 5 4 "	9 0	
" " " 100 "	"	" 7 0 "	25 0	
" " steel, of sizes	"	" 150 0 "	450 0	
Telemeters, Adie's, 3 & 6 feet base	"	" 150 0 "	270 0	Inclusive of stand.
Telescopes, astronomical	"	" 30 0 "	150 0	
" " reconnoitring	"	" 40 0 "	180 0	
" " marine	"	" 150 0 "	220 0	
" " terrestrial, 3' 6" in length, 4" object glass	"	" 150 0 "	400 0	
* Theodolites, Everest's, with vertical arc, 4" & 4½"	"	" 200 0 "	600 0	From Rs. 38 to Rs. 60 per inch of diameter.
" " " " 5", 6", & 7"	"	" 600 0 "	1,440 0	From Rs. 40 to Rs. 90 per inch of diameter.
" " " " 10" & 12"	"	" 250 0 "	310 0	From Rs. 65 to Rs. 120 per inch of diameter.
* " " " without vertical arc, 5" "	"	" 375 0 "	750 0	
† { " " transit, with vertical circle, 5", 6", 7", & 8" -	"	" 275 0 "	550 0	
" " " without " " 5", 6", & 7" -	"	" 45 0 "	60 0	
Thermometers, boiling, with apparatus complete	"	" 18 0 "	25 0	
" " spare, for above	"	" 7 8 "	.....	
" " chemical, of sizes	"	" 2 0 "	3 8	
" " common, in tin cases	"	" 13 0 "	18 0	
" " for solar radiation	"	" 11 0 "	14 0	
" " " terrestrial radiation	"	" 9 0 "	14 0	
" " maximum, common, self registering	"	" 9 0 "	14 0	
" " " black bulb	"	" 9 0 "	14 0	
" " " wet	"	" 9 0 "	14 0	
" " " and minimum on the same	"	" 22 0 "	36 0	
" " " board, 6" and 9"	"	" 10 0 "	15 0	
" " minimum, grass	"	" 7 8 "	16 0	
" " " black bulb	"	" 10 0 "	15 0	
" " " wet	"	" 15 0 "	22 0	
" " standard, ½ degree -	"	" 15 0 "	32 0	
" " " 1 "	"	" 5 5 "	.....	
" " spare, for Syke's hydrometer	"	" 10 0 "	15 0	
Trammel heads for beam compasses	"	" 200 0 "	500 0	
Transit Instruments, astronomical	"	" 3 0 "	30 0	
Vanes, wind, iron, small and large	"	" 25 0 "	250 0	
Watches, common, travellers' and stop	"	" 257 8 "	.....	
" " Chro-micrometer	"	" 257 8 "	.....	

* Size to be stated on the face of the indent.

† The new Theodolites have a centering apparatus on the stand.

NAMES OF BOOKS.	APPROXIMATE rates of issue of new and repaired Books.				REMARKS
	Each	From	Rs. As.	Rs. As.	
Manual of Surveying for India	-	12	0	to	.....
Nautical Almanacs	-	1	4	"	2 8
Navigation, Norie's	-	10	0	"	.....
" Raper's	-	10	0	"	.....
Tables, auxiliary, for facilitating computations of trigonometrical survey, Hennessey's	-	3	0	"	.....
" Glaisher's	-	0	10	"	.....
" for Hydrometer, by Casella	-	3	0	"	.....
" Aneroid Barometers, Mackesy's	-	1	12	"	3 0
" logarithmic, Chamber's	-	2	0	"	.....
" Hutton's	-	8	0	"	.....
" Shortrede's, with sines, &c. numbers	-	16	8	"	.....
" lunary and horary, Thomson's	-	5	0	"	.....
" traverse, Boileau's	-	5	0	"	.....
" Gurden's	-	3	0	"	.....
" Shortrede's	-	15	0	"	.....
Hints to Travellers, Galton's, 4th & 5th editions	-	10	0	"	.....
	-	1	10	"	4 0

MATHL. INST. OFFICE,
CALCUTTA,
1st April 1887.

D. MACDONALD, Colonel, S.C.,
Assistant Surveyor General,
In charge M. I. O.,
Survey of India Dept.

15

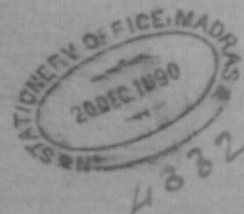
Name of Instruments

Compasses, beam, large
do small
do triangular
Curves, French
Eidographs
Mathematical Instruments in Fish skin cases
Meters Road
Pens circular ruling with box of wheels
Planimeters
Protractors, brass, circular plain
do with points
do semi circular with points
do Aldershot in leather case
do Ivory rolling 8"
Rule Parallel Ebony 24"
do 18"
do 15"
do 12"
do 9"
do Rolling 24"
do 18"
do 15"
do 9"
Scales Margueris Electrum
do Locwood
Scales Gattyaphel Card board 24 to a set
do Plotting chain decimally divided

Wentill

Stationary Office }
Mandao 9th January 1891 }
Ag. Superintendent of Stationery
PR

PCVC No. 12004



9/15.12-90

21

HP-5335.C d/19 Dec/90

Referred to the
Supt. of Stationery for favor
of information whether he
has in stock any surplus
articles of the kinds ment
(Morden)

W. B. Addeley
under Secy of Govt
R.D.

1890.

153

P. W. DEPARTMENT.

Current No. 12004

From

The Officer in Charge
Mathematical Instrument
Office ENCL. — 1

No. 5859

Dated 10-12-90

Received 15-12-90

SUBJECT.

List of instruments kept in stock
at the Mathematical Instrument
Office, Survey of India Dept.
Calcutta Requesting to issue
instructions to all officers to
examine their stock & return
his office any instruments of
kind mentioned in the list
that they may be repaired & used
again.

DISPOSAL.

No. 5335.C dated 19 December

Referred to the Supt.
of Stationery for favor of
information whether he has
stock any surplus articles
of the kinds mentioned.

W. B. Addeley
36
19/12
W. B. Addeley
D.W.

153
No. 26

153
STATIONERY OFFICE,

Madras, 9th January 1891.

From

W. P. Austin Esq. C. S.
Ag. SUPERINTENDENT OF STATIONERY,

To

THE Under Secretary
to Government,
Public Works Department

SIR,

With reference to your endorsement
No. 5335 dated 19th December 1890, referring
* herewith returned to me the letter from the officer in charge,
Mathematical instrument office, Calcutta
dated 10th idem No. 5859 and enquiring
whether I have in stock any surplus
articles of the kind mentioned in the
list forwarded with the above letter,
I have the honor to state that the
instruments specified in the accompany-
ing list are not absolutely necessary
and can therefore be spared for
the

the Mathematical instrument office
Calcutta.

I have the honor to,
Sir,

Your most obedient servant,

^{W. H. H. H.}
Ag. Superintendent,
MR

15

8

Rev. C. 282 ✓

STATIONERY (189 /) DEPARTMENT.

No. 153 Wd/17 Jan'y 1891

From

THE SUPERINTENDENT OF STATIONERY,
Madras.

Dated

9th

Received

10

January 1891.

No. 26

ENCLOSURE.

three (3)

Nos. 153-4 Wd/17 Jan'y 1891

Subject.

Forwarding a list of the
mathematical instruments
which are not absolutely
necessary and can therefore
be spared for the Mathe-
matical instrument office
Calcutta

(8)

115
15th The Sup^y of Stationery
is requested to transfer
the surplus articles named
in his list to the Mathematical
Instrument Office Calcutta

Nos. 154 Wd/17 Jan'y 1891

Copy of the above, with
copy of the list forwarded
to the office in charge Mathe-
matical Instrument Office Calcutta,
with reference to his letter
no 5859 of 10 Dec 1890.

12.1.91

S 1151.

ARK

10th Sup^y of Stationery
15.1.91
1901
1901
1901