

TRIGONOMETRICAL BRANCH, SURVEY OF INDIA.

SPIRIT-LEVELLED HEIGHTS

IN

CUTTACK, BALASORE, MIDNAPORE, HOWRAH,
24-PERGUNNAHS, THE SUNDARBANS, HOOGHLY
AND NUDDEA DISTRICTS OF BENGAL.

BENGAL PRESIDENCY.

Seasons 1881-82-83 and 1887-88.

SERIES I. *False Point to Diamond Harbour.*

SERIES II. *Diamond Harbour to Dublat (Saugor Island).*

SERIES III. *Diamond Harbour to Howrah.*

SERIES IV. *Kidderpore to Diamond Harbour.*

SERIES V. *Kukraháti to the mouth of Rasulpur River.*

SERIES VI. *Kukraháti to Howrah.*

SERIES VII. *Howrah to Chinsurah.*

SERIES VIII. *Chinsurah to Nuddea.*

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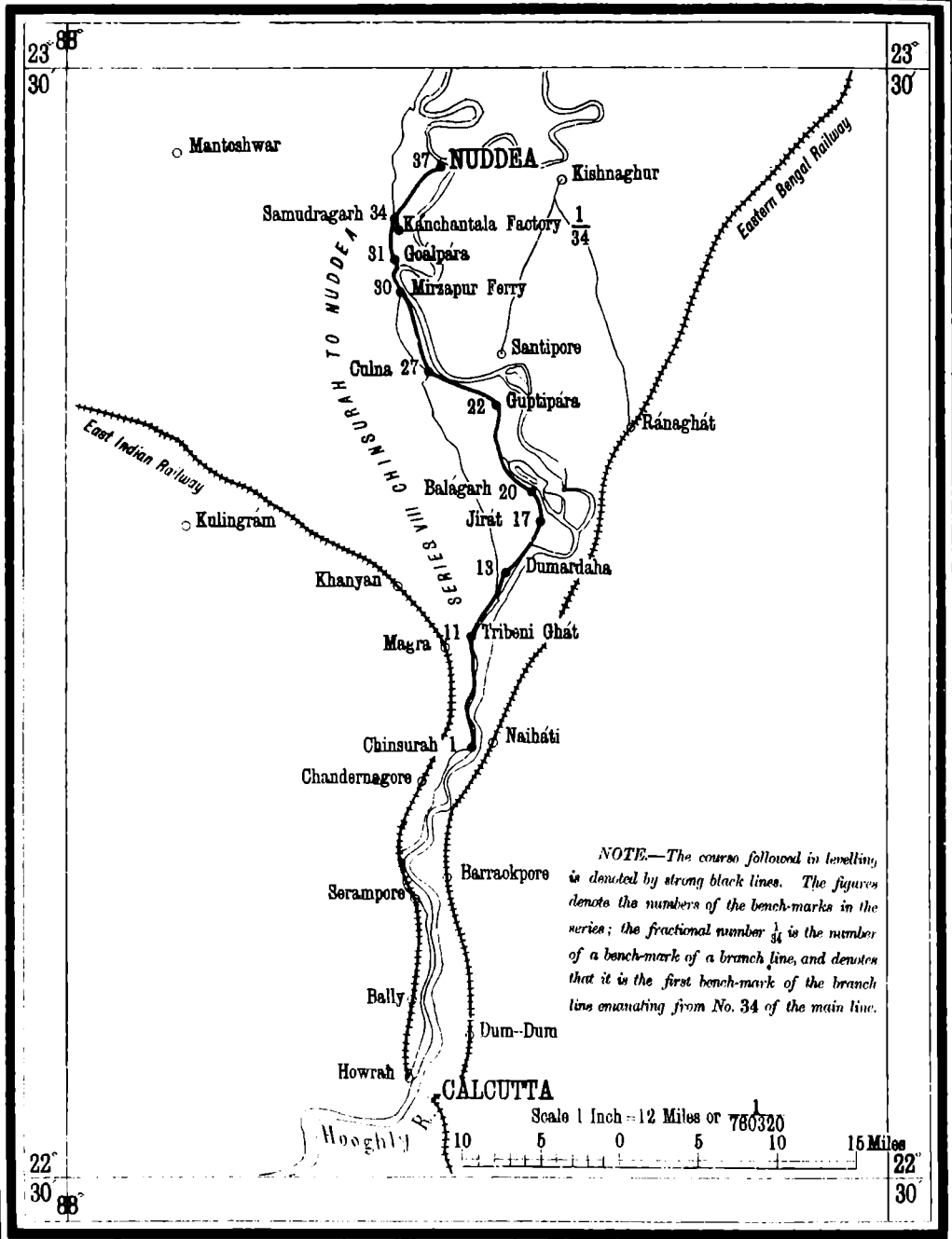
D. V. HUGHES.

1884 and 1889.

TRIGONOMETRICAL BRANCH, SURVEY OF INDIA.
 SPIRIT LEVELLING OPERATIONS
 IN HOOGHLY AND NUDDEA DISTRICTS OF BENGAL.

N^o 5 BENGAL PRESIDENCY.

Season 1887-88.



Published under the direction of Colonel H. R. Thüillier, R.E., Surveyor General of India.

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CONTENTS.

NOTICE.

The Tidal Observatory at False Point was completely destroyed by the cyclonic sea wave which occurred on the morning of the 22nd September 1885. The Port and Customs Offices and the whole village of Hookey Tola have entirely disappeared. Bench-mark A embedded in a block of masonry has been moved about 100 yards from its site, and is of course perfectly useless as a mark of reference.

POONA, }
4th November, 1885. }

A. W. B.

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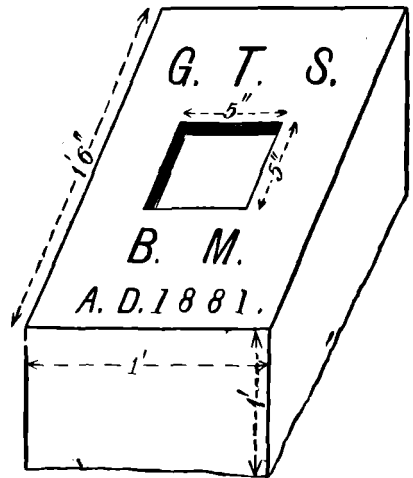
Introduction.

The heights given in the following tables, are referred to the mean level of the sea at False Point, as determined from the Analysis of the Tidal Observations taken from May 1881 to May 1883, at the Hookey Tola Tidal Station.

The bench-mark A at this Tidal Station has been used at various times to determine if there was any settlement in the observatory and has been considered the bench-mark of reference. From numerous measurements the zero of the Tide Gauge was found to be 20.542 feet below this bench-mark. The mean level of the sea from the 1881-82 observations was 7.552 feet above zero; this value would make the bench-mark A 12.990 feet above mean level of the sea. From the 1882-83 observations, the mean level of the sea was 7.597 feet above the zero of the gauge, making bench-mark A 12.945 feet above mean sea level: a combination of these two values gives bench-mark A = 12.968 feet above mean level of sea, and this value has been adopted in the Leveling Operations.

A stone as shewn in the sketch has sometimes been built into a block of masonry about 3 feet cube, with the upper surface of the stone flush with the upper surface of the masonry, which is about 6 inches above the ground, and the whole block has been covered with a mound of earth. Sometimes these stones have been let into the verandah floors of Public Works Department buildings along the route, and sometimes they have been built into the coping of the walls at canal sluice-gates. These

bench-marks are noted in the tables as \square G.T.S.
 \square B.M.



In addition to the bench-marks mentioned above, others have been laid down by the Survey Party, during the progress of the operations, viz:—stone slabs (9 inches \times 9 inches \times 3 inches) with a circle and dot (\odot) instead of the square (\square) in the larger stones, but otherwise similarly engraved: these have been built into the plinths of obelisks, floorings of temples, and other suitable buildings, and sometimes into small blocks of masonry like those for the larger mark stones.

Besides these, other marks called "Marine Sockets"—which have been laid down by the Port Authorities for the River Survey—have been connected: these consist of cast iron pipes about 5 feet long, and 6 inches diameter, having a 2 inch flange at one end; they have been sunk into the ground up to within a foot of the flange, and they are marked with a broad arrow, and a number under the flange, such as \nearrow ₂₀.

Also a number of Revenue Survey Stations have been fixed: these consist of blocks of stone triangular in plan and buried so that the top is flush with the surface of the ground; they are marked \odot R.S.
 1871

The bench-marks in every instance have been well described, so that it is hoped their identification will be easy.

As regards the first described bench-marks, the bottom of the staff is placed in the small, hollow square which has been made large enough to receive any ordinary leveling staff. For the other embedded bench-marks, the dot in the centre of the circle (⊙) shews the position of the bottom of the leveling staff.

As a rule each of those embedded bench-marks has been handed over to the Civil Authorities, and receipts duly obtained for them. A local official is responsible for the bench-marks not being tampered with.

The heights of numerous other bench-marks have been determined. These are points on platforms of temples, copings of paka wells, parapets of bridges, ghat steps, &c. Sometimes a Public Works Department Δ was found at points selected for bench-marks, otherwise a \odot was invariably cut well into the masonry.

The levels used in determining the heights in the following tables, are those known in the Survey Department as the Rectangular (a very large and fine instrument of 2 feet focal length, by Troughton and Simms) and Nos. 3 and 4, Cylindrical—22-inch Standard Levels—also by Troughton and Simms.

The Leveling Staves used were those of the G. T. Survey pattern, graduated on both faces, and otherwise agreeing with the description given of them in General Walker's Memoranda on Leveling Operations. But in crossing the Hooghly, the Haldi, the Baratola, and the Damoodur, special staves—Colonel Strange's pattern—were used: these are graduated only to 10ths of a foot, and are better adapted than the usual staves for long distances, such as 20 to 30 chains.

The staves have always been compared with a portable copy of the Standard 10-foot Bar—the unit of length of the Indian Survey—before commencing operations, again some time in the middle of the field season, and finally at its close. The proper correction has been applied to the heights on account of the small differences of the staves from the standard unit.

The lines were leveled over independently by two observers, working in succession, with different instruments and staves, on the same pins, and at a convenient distance apart, according to the rigid method of procedure laid down for this department.

At the mouth of the Mahánadi a very difficult net-work of creeks had to be crossed before reaching the banks of the Kendrapára Canal. This jungly swamp of about 18 miles is covered with water at high spring tides, and the stands of the instruments had frequently to be set up in water nearly 2 or 3 feet deep: as the soil was loose and slushy, special precautions had to be adopted, and Mr. Rendell had to summon his coadjutor, Narsing Dass, from the rear to read the level at the moment he was reading the staves with the telescope, and then to return and perform the same duty for his coadjutor.

Two sets of observations had to be obtained by each leveler agreeing within 0·005 of a foot, in order that his set of observations should be passed in the first instance; and the mean of the values of each leveler had to agree within 0·005 of a foot with the value of the other leveler, otherwise the observations had to be repeated by the first or second leveler. The details of the method of procedure are given in the Memoranda on Leveling Operations by Colonel J. T. Walker, R.E., F.R.S. See Appendix to the Manual of Surveying, 3rd Edition (Thacker, Spink and Co., Calcutta 1875).

Series I was executed in the field season 1881-82 by Mr. T. H. Rendell, Surveyor 4th Grade, working with the Rectangular, and Sub-Surveyor Narsing Dass working with the Cylindrical Level.

This series emanated from Bench-mark A, of the False Point Tidal Station at Hookey Tola, and was carried across the swampy ground referred to above to the banks of the Kendrapára Canal, across country to Jajpore, and along the Grand Trunk Road to Bhuddruck, Balasore and Jellasure, thence to Contai, Kejiri, Basulichak, to Kukraháti ferry; thence (by simultaneous readings of the height of the water on graduated staves at the two banks) across the Hooghly to Diamond Harbour Tidal Station, closing there on Bench-mark A. Branch lines were carried to the Trigonometrical Survey Stations of Chandípur, Balarámgarhi Tide Point, Patna, Sautia and Kúdi of the East Coast Series.

Series II was also executed in the season 1881-82 by the same two levelers using the same instruments. This series extends from Diamond Harbour Tidal Station (Bench-mark A) along the left embankment of the Hooghly almost as far as the Baratola or Channel Creek; thence across to Mud Point, and along the clearing in the jungle made for the Telegraph Line to Saugor Light-house, and thence along the sea shore of Saugor Island to Dublat Tidal Station. The branch lines of this series were executed in field season 1882-83 by Mr. G. Belcham.

Series III was executed in the field season 1882-83 by Mr. Belcham, Surveyor 3rd Grade, working with the Rectangular Level and Sub-surveyor Narsing Dass working with the Cylindrical Level. The series emanated from Bench-mark A at Diamond Harbour, and was carried along the main road to Kidderpore Tidal Station in the Dockyard, and thence to Calcutta and Howrah, closing on the bench-mark cut on the steps at the Railway Station, connecting the Trigonometrical Survey Station of Sarisa of the East Coast Series.

Series IV was also executed in 1882-83 by Mr. Belcham and Sub-surveyor Narsing Dass: it emanated from the bench-mark at Kidderpore Tidal Station, and was carried along the left bank of the Hooghly—with the object of connecting “Marine Sockets” and other bench-marks for the River Survey—to Diamond Harbour Tidal Station.

Series V was executed by the same two levelers in 1882-83: it commenced at the embedded bench-mark at Kukraháti, and extended southwards along the right bank of the Hooghly, crossing the Haldi at Basulichak, again proceeding along the Hooghly embankment to Kejiri, and closing on the embedded bench-mark at the mouth of the Rasulpur River. Some bench-marks of Series I were connected with in this series, and a branch line was carried to Rámnagar T.S. of the East Coast Series.

Series VI was executed also by Mr. Belcham and Sub-surveyor Narsing Dass during field season 1882-83. This series emanated from the embedded bench-mark at Kukraháti, and was carried to Gewankháli on the south bank of the Roopnarayan river; thence across the Roopnarayan (by simultaneous readings of the height of the water on staves at the two banks), then northwards along the right bank of the Hooghly through Oolaberiah to Howrah, and closed on the bench-mark at the steps of the Railway Station. A branch line was carried to the Trigonometrical Survey Station of Mirzápur of the East Coast Series.

Series VII was executed by Mr. Belcham and Sub-Surveyor Narsing Dass, also in field season 1882-83. It emanated from the bench-mark cut on the steps of the Railway Station at Howrah, and was carried along the Hooghly-

Howrah road as far as Chinsurah, closing on the Trigonometrical Survey Station on the roof of the Hooghly (or Syud Mohsin's) College.

With regard to the crossing of the Hooghly in Series I and the Roopnarayan in Series VI, temporary tide gauges in the shape of graduated staves, well secured, were set up on both banks, at a part where the main channel and the banks were parallel to each other. Numerous simultaneous readings of both gauges at the times of high water, also during rising and falling tides, were taken by the two levelers, one on the staff at one bank, and the other on the other staff. The readings were made through the telescopes of the levels. Upwards of 300 observations extending over 4 days were taken in crossing the Hooghly, and over 500 observations extending to 6 days were taken to cross the Roopnarayan. The general mean may be accepted as within half an inch of the truth, and is probably much more exact than any result which might have been obtained by measuring the vertical angles across the river, or by any other process.

In the first column "No. in Series" of the following tables, consecutive numbers such as 24, 25, 26, &c., are placed against the bench-marks of the main line reckoning from the starting point of the series. Numbers such as $\frac{1}{92}$, $\frac{4}{112}A$, &c., are also the numbers in the series, but they denote branch line numbers: thus $\frac{1}{92}$ is the first bench-mark of a branch line emanating from No. 92 of the main line, and $\frac{4}{112}A$ shews that there is a minor branch line emanating from the fourth bench-mark of the branch from the main line, starting at bench-mark 112.

The Orthography is in literal agreement with the Gazetted List for Bengal, dated 23rd June 1876, wherever the locality is identified, and conforms to the spirit of the orders of Government on the subject, as worked out in this and other provincial lists, where there is no clear literal authority.

With regard to the Leveling Operations in Series I and II, the Surveyor General in the General Report of the Department for 1881-82 writes:—

"The outturn of work is very creditable to Mr. Rendell; for the length of "main line leveled is as much as 380 miles, of which more than half fell on "marshes, swamps, and paddy fields, which had to be operated over very carefully "and slowly. The several crossings of rivers and tidal creeks were also very "troublesome, and caused much delay, and the exposure generally was excessive."

A. W. BAIRD, MAJOR, R.E.,

Dy. Supt., Survey of India,

In charge Tidal & Leveling Operations.

POONA, }
29th October 1883. }

ERRATA ET ADDENDA.



On Chart *for* Bánsali Chak *read* Basulichak.

PAGE

- (16) in last line, col. 5 „ On the top of the pillar *read* This height refers to the mark on the top of the pillar and was determined as follows:—Height of peg at foot of tower on which the staff rested = 45·851 feet, to which add height of top of pillar above peg = 34·564 feet as measured.
- (24) column 4 „ 10·536 *read* 10·543.

CORRIGENDUM.

The final value of mean sea level at False Point Tidal Station, derived from four years' tidal observations, from May 1881 to May 1885, is 0·015 of a foot lower than the value derived from the first two years' observations, from May 1881 to May 1883, and as the values in this pamphlet are referred to the latter value, a correction of +0·015 of a foot should be applied to all the heights in this pamphlet to refer them to the final value of mean sea level at False Point, derived from the four years' tidal observations.

ERRATA ET ADDENDA.



On Chart *for* Bánsali Chak *read* Basulichak.

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(16) in last line, col. 5 ,, On the top of the pillar *read* This height refers to the mark on the top of the pillar and was determined as follows:—Height of peg at foot of tower on which the staff rested = 45·851 feet, to which add height of top of pillar above peg = 34·564 feet as measured.

(24) column 4 ,, 10·536 *read* 10·543.

*Note regarding the Circuit Errors generated in the Series of Levels contained
in this pamphlet and their treatment by the Field Party.*



The following information has been obtained from the Field Books of the Leveling Operations.

The value of Mean Sea Level (*m. s. l.*) at False Point, obtained from the Tidal Observations carried out in 1881-82, was 12·990 feet below Bench-mark A. This value was employed in the execution of Series I of this pamphlet, which commences at False Point and terminates at Diamond Harbour. Subsequently the 1882-83 Tidal Observations gave a value of *m. s. l.* of 12·945 feet below Bench-mark A, and the mean, 12·968 feet below Bench-mark A, was adopted as the correct value of *m. s. l.* at False Point, necessitating a constant correction of -0·022 feet to all the levels of Series I, which was accordingly applied. It will however be seen further on that Bench-marks 181, 182, 185, 186, 187, 193, 195, 202, and 203 of this Series received further corrections.

Series III between Diamond Harbour and Howrah Railway Station, Series VI between Kukraháti and Howrah Railway Station, and the portion of Series I between Kukraháti and Diamond Harbour, form a circuit, of which the closing error was found to be 0·207 feet. This error was distributed proportionately to the distances from Kukraháti throughout the circuit.

Series II between Diamond Harbour and Dublat only received a constant correction, due to the correction at Diamond Harbour, which was obtained as follows:—

-0·022 feet, due to change in datum of *m. s. l.* at False Point.

+0·020 feet, the amount due to the dispersion of the circuit error, 0·207 feet, above referred to,

giving a total correction of -0·002 feet which has been applied to all the levels in Series II.

On commencing Series III a small section of Series I was releveled which furnished a second determination of height for Bench-marks 202 and 203, shewing errors of -0·018 and -0·010 feet respectively, as follows:—

B. M. 202 by Series I.	18·439	feet
" " III.	18·421	"
	Error -	0·018 "

B. M. 203 by Series I.	10·548	feet
" " III.	10·538	"
	Error -	0·010 "

Mean values of height for the Bench-marks in question were adopted in Series I, *viz.*, for Bench-mark 202, 18·430 feet, and for Bench-mark 203, 10·543* feet.

* The value 10·536 feet printed for this Bench-mark in page (24) of this pamphlet is wrong.

Series IV between Kidderpore and Bench-marks 193 and 195 of Series I gave closing errors of +0·041 feet and +0·073 feet obtained as follows :—

B. M. 193 by Series	I.	15·024	feet
„	„	IV.	15·065 „
		Error +	0·041 „

B. M. 195 by Series	I.	14·685	feet
„	„	IV.	14·758 „
		Error +	0·073 „

These errors were not dispersed throughout Series IV; but in Series I the mean values of height for Bench-marks 193 and 195 will be found, *viz.*, for Bench-mark 193, 15·045 feet, and for Bench-mark 195, 14·722 feet.

Series V between Kukraháti and the mouth of the Rasulpur River meets Series I at Bench-marks 181, 182, 185, 186 and 187, shewing errors of +0·016, +0·039, -0·005, +0·003 and -0·003 feet respectively, as follows :—

B. M. 181 by Series	I.	13·641	feet
„	„	V.	13·657 „
		Error +	0·016 „

B. M. 182 by Series	I.	18·787	feet
„	„	V.	18·826 „
		Error +	0·039 „

B. M. 185 by Series	I.	15·631	feet
„	„	V.	15·626 „
		Error -	0·005 „

B. M. 186 by Series	I.	16·533	feet
„	„	V.	16·536 „
		Error +	0·003 „

B. M. 187 by Series	I.	16·813	feet
„	„	V.	16·810 „
		Error -	0·003 „

These errors were not dispersed, but mean values of height for the Bench-marks in question were adopted in Series I, *viz.*, for Bench-mark 181, 13·649 feet; for Bench-mark 182, 18·807 feet; for Bench-mark 185, 15·629 feet; for Bench-mark 186, 16·535 feet; and for Bench-mark 187, 16·812 feet.

Series VII between Howrah Railway Station and Chinsurah needed no correction; for the height of the Bench-mark from which it originated had already been corrected for the circuit error of 0·207 feet in Series III, VI and a portion of Series I, the amount being +0·096 feet.

TRIGONOMETRICAL BRANCH, SURVEY OF INDIA.

ADDENDUM.

PAGE (1). Bench-marks Nos. 1, 2 and 3 of Series I having been completely destroyed by the cyclonic sea-wave of 22nd September 1885, the following four bench-marks, Nos. A, B, C, and D, were fixed in Season 1887-88, and their heights determined by Spirit-levelling.

Spirit-Levelling at False Point.

No. in Series.	Approximate distance in miles from False Point.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Levelling Staff.
4		G.T.S. at FALSE POINT LIGHT-HOUSE. ○ This bench-mark is situated immediately B.M. outside the wall surrounding the Light-house, 3 feet E. of the eastern gate. The bench-mark consists of a large smooth stone engraved as above, set in the masonry pavement which leads from the gate to the boat-house: the stone projects 3 inches above the pavement.	14·886	Within the circle.
D	8·5	↑ at FALSE POINT. This bench-mark is B.M. cut on the S.W. pile of the old Refuge House at Hookey Tola. Marine Survey bench-mark.	10·377	On a level with the line above the arrow head.
B	8·5	G.T.S. B at FALSE POINT. This bench-mark is situated 10½ feet S.W. of the S.W. pile B.M. of the old Refuge House, at Hookey Tola and is set in a block of masonry 2¼ feet cube above ground.	10·012	In the hollow square cut for the purpose on the stone.
C	8·5	G.T.S. C at FALSE POINT. This bench-mark is embedded in the plinth below the central B.M. arch on the east side of the new Refuge House at Hookey Tola.	27·238	Ditto.
A	8·5	G.T.S. A at FALSE POINT. This bench-mark is embedded in the plinth below the central B.M. arch on the west side of the new Refuge House at Hookey Tola.	27·252	Ditto.

December, 1888.

S. G. BARRARD,

In charge of Computing Office.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series I.—*Spirit Leveling from False Point Tidal Station to the Light-house, thence to the Kendrapára Canal, and across country to Jajpore and along the Grand Trunk Road to Balasore and Jellasore, thence to Contai, Kejiri, Kukraháti ferry, and across the Hooghly River to Diamond Harbour Tidal Station.*

No. in Series.	Approximate distance in miles from False Point Light-house.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
1	8·6	G.T.S. A at FALSE POINT* is embedded in the S.W. corner of the Travellers' bungalow. B.M. low at Hookey Tola. The bench-mark consists of a stone 1 foot cube, having a hollow square and letters as above cut on its upper surface.	12·968	In the hollow square <input type="checkbox"/> cut for the purpose on the stone.
2	8·6	G.T.S. B at FALSE POINT* is situated 15 feet S. of the Travellers' bungalow, and B.M. consists of a stone similar to that at bench-mark A, embedded in a block of masonry about 3 feet cube, 1 foot of which is above the ground level.	12·495	Ditto.
3	8·6	G.T.S. C at FALSE POINT* is embedded in the S.E. corner of the Travellers' bungalow, flush with the floor of the verandah. The stone is similar to that of the bench-marks at A and B.	12·948	Ditto.
4	0·0	G.T.S. at FALSE POINT LIGHT-HOUSE† is situated immediately outside the wall surrounding the Light-house, 3 feet E. of the eastern gate. The bench-mark consists of a large smooth stone engraved as above, set in the masonry pavement which leads from the gate to the boat-house; the stone projects 3 inches above the pavement.	14·886 † .901	On the dot in the centre of the circle ⊙.
5	10·4	⊙ at MILESTONE is cut on the top of milestone No. 50 from Cuttack and No. 4 from Jambu, on the Kendrapára Canal.	11·872 † .897	Ditto.
6	11·4	⊙ at MILESTONE is cut on the top of milestone No. 49 from Cuttack and No. 5 from Jambu.	12·564 † .579	Ditto.
7	12·4	⊙ at MILESTONE is cut on the top of milestone No. 48 from Cuttack and No. 6 from Jambu.	12·748 † 763	Ditto.
8	13·4	⊙ at MILESTONE is cut on the top of milestone No. 47 from Cuttack and No. 7 from Jambu.	12·729 † .743	Ditto.
9	14·4	⊙ at MILESTONE is cut on the top of milestone No. 46 from Cuttack and No. 8 from Jambu.	13·100 † .181	Ditto.
10	15·4	⊙ at MILESTONE is cut on the top of milestone No. 45 from Cuttack and No. 9 from Jambu.	13·414 † .429	Ditto.

* These bench-marks are in charge of the Port Officer of False Point. † This bench-mark is in charge of the Light-house keeper.

† See Corrigendum Slip at page VII. for correction to all the heights throughout this pamphlet.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series I.—*Spirit Levelling from False Point Tidal Station to the Light-house, thence to the Kendrapára Canal, and across country to Jajpore and along the Grand*

No. in Series.	Approximate distance in miles from False Point Light-house.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
11	16·4	⊙ at MILESTONE is cut on the top of milestone No. 44 from Cuttack and No. 10 from Jambu.	13-067 -082	On the dot in the centre of the circle ⊙.
12	17·4	⊙ at MILESTONE is cut on the top of milestone No. 43 from Cuttack and No. 11 from Jambu.	14-643 -658	Ditto.
13	18·4	⊙ at MILESTONE is cut on the top of milestone No. 42 from Cuttack and No. 12 from Jambu.	14-671 -686	Ditto.
14	19·4	⊙ at MILESTONE is cut on the top of milestone No. 41 from Cuttack and No. 13 from Jambu.	15-825 -840	Ditto.
15	20·4	⊙ at MILESTONE is cut on the top of milestone No. 40 from Cuttack and No. 14 from Jambu.	15-065 -080	Ditto.
16	21·2	G.T.S. at LOCK is cut on the N. abutment of the central lock of canal at Mársaghái, ⊙ B.M. about one yard E. of the sluice crane.	16-545 -560	Ditto.
17	21·6	G.T.S. at MÁRSAGHÁI* is embedded in the middle of the front verandah of the □ B.M. Travellers' bungalow, and 15 yards from the N. bank of the Kendrapára Canal: the benchmark consists of the usual stone, and its surface is flush with the floor of the verandah.	15-472 -487	In the hollow square □ cut for the purpose on the stone.
18	21·8	G.T.S. at SLUICE is cut on the centre of the ⊙ N. parapet of sluice, 400 yards W. of the Travellers' bungalow at Mársaghái. B.M.	21-501 -516	On the dot in the centre of the circle ⊙.
19	22·4	⊙ at MILESTONE is cut on the top of milestone No. 38 from Cuttack, on the Kendrapára Canal.	19-408 -423	Ditto.
20	23·4	⊙ at MILESTONE is cut on the top of milestone No. 37 from Cuttack, on the Kendrapára Canal.	20-395 -410	Ditto.
21	23·8	G.T.S. at SLUICE is cut on the N. end of the ⊙ W. abutment of sluice, on the N. bank of Kendrapára Canal, opposite Mántir village. B.M.	20-604 -709	Ditto.

* This bench-mark is in charge of the Kánungo of Chakla Tikri.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Trunk Road to Balasore and Jellasore, thence to Contui, Kejiri, Kukraháti ferry, and across the Hooghly River to Diamond Harbour Tidal Station.

No. in Series.	Approximate distance in miles from False Point Light-house.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
22	24·4	MILESTONE No. 36 from Cuttack, on the Kendrapára Canal.	20·807 322	On the top of the milestone.
23	25·4	G.T.S. at LOCK is cut on the N. abutment of canal lock at Kalápadar, one yard east of the gate hinge. ⊙ B.M.	19·712 727	On the dot in the centre of the circle ⊙.
24	25·4	MILESTONE No. 35 from Cuttack, on the Kendrapára Canal.	21·867 872	On the top of the milestone.
25	26·4	MILESTONE No. 34 from Cuttack, on the Kendrapára Canal.	22·355 370	Ditto.
26	29·7	G.T.S. at BRIDGE is cut on the W. coping of the N. abutment of Santsai bridge across the Gobri Canal at Kendrapára. ⊙ B.M.	29·851 866	On the dot in the centre of the circle ⊙.
27	30·2	G.T.S. at KACHERI is cut on the centre of the top step leading into the W. entrance of the Sub-divisional Officer's kacheri at Kendrapára. ⊙ B.M.	19·404 419	Ditto.
28	30·2	G.T.S. at KENDRAPÁRA* is situated in the Sub-divisional kacheri compound, 130 B.M. links (29 yards) W. of the western entrance of the kacheri, and 12 and 14 links respectively from the N.W. and N.E. corners of a paka well also in the compound. The bench-mark consists of the usual stone embedded in a block of masonry 3 feet cube, 9 inches of which is above ground level. □	20·789 749	In the hollow square □ cut for the purpose on the stone.
29	0·7†	G.T.S. at LOCK is cut on the N. abutment of No. 2 lock of Gobri Canal at Kendrapára : ⊙ B.M. the letters are cut on a smooth stone 1 yard E. of the western gate hinge.	19·608 623	On the dot in the centre of the circle ⊙.
30	1·6†	G.T.S. at BRIDGE is cut on the S. end of the W. abutment of bridge across the Gobri River, on the road from Cuttack to Chandbali. ⊙ B.M.	18·528 593	Ditto.

* This bench-mark is in charge of the Sub-divisional Officer, Kendrapára. † From Kendrapára.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series I.—Spirit Leveling from False Point Tidal Station to the Light-house, thence to the Kendrapára Canal, and across country to Jajpore and along the Grand

No. in Series.	Approximate distance in miles from Kendrapára.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
31	3·0	G.T.S. at CULVERT is cut on the E. parapet of culvert, 4 chains S. of mile post No. 26 from Jajpore, on the road from Kendrapára, and about $\frac{1}{4}$ mile E. of Barimal village. ⊙	14- 465 ⁴⁶³	On the dot in the centre of the circle ⊙.
32	4·1	G.T.S. at CULVERT is cut on the W. parapet of culvert, 4 chains N. of mile post No. 25 from Jajpore, on the road from Kendrapára. ⊙	13- 009 ⁰²⁴	Ditto.
33	6·1	G.T.S. at CULVERT is cut on the E. parapet of culvert, 5 chains N. of mile post No. 23 from Jajpore, on the road from Kendrapára. ⊙	14- 652 ⁸⁶⁷	Ditto.
34	7·1	G.T.S. at CAUSEWAY is cut on the N. end of the E. wing wall of causeway, 8 chains N. of mile post No. 22 from Jajpore, 200 yards N. of Nikri village, on the road from Kendrapára. ⊙	13- 066 ⁹⁷⁰	Ditto.
35	8·3	G.T.S. at CULVERT is cut on the E. parapet of culvert, 20 chains N. of mile post No. 21 from Jajpore, on the road from Kendrapára. ⊙	17- 277 ²⁹²	Ditto.
36	8·6	G.T.S. at BRIDGE is cut on the E. end of the S. abutment of iron bridge, across the B.M. Patamundai Canal, close to Indpur, on the road from Kendrapára to Jajpore. ⊙	34- 915 ⁹⁵⁰	Ditto.
37	9·0	↗ at TRAVELLERS' BUNGALOW is cut on a middle step of front or W. entrance of Travellers' bungalow at Indpur. (Irrigation Department bench-mark).	24- 822 ⁸³⁷	On the head of the arrow ↗.
38	17·9	G.T.S. at PILLAR is cut on a flat stone set in a masonry pillar 3 feet square and $3\frac{1}{4}$ feet above ground level, at Binjhárpur. The pillar is a few feet N. of the embankment which runs along the N. bank of the Kharsua River, and is believed to be an Irrigation Department bench-mark. ⊙	29- 651 ⁶⁶⁶	On the dot in the centre of the circle ⊙.
39	18·4	G.T.S. at BINJHÁRPUR* is embedded in the S.W. corner of the Public Works Department Inspection bungalow. The bench-mark is of the usual stone and is flush with the floor. □	30- 658 ⁹⁷³	In the hollow square □ cut for the purpose on the stone.

* This bench-mark is in charge of the Kánúngo of Chakla Binjhárpur.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Trunk Road to Balasore and Jellasore, thence to Contai, Kejiri, Kukraháti ferry, and across the Hooghly River to Diamond Harbour Tidal Station.

No. in Series.	Approximate distance in miles from Kendrapára.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
40	19·6	G.T.S. at WELL is cut on the S.W. corner of the platform of Hari Babu's paka well on the E. margin of the road from Binjhárpur to Jajpore, and 1¼ miles N. of Binjhárpur. ⊙	19 ⁻⁵⁶⁵ 550	On the dot in the centre of the circle ⊙.
41	27·1	G.T.S. at TEMPLE is cut on the S.E. corner of the basement of Mahadeo's Temple on the B.M. W. margin of the road, 2¼ miles S. of Jajpore and ¼ mile S. of mile post No. 2. ⊙	33 ⁴⁹⁸ 469	Ditto.
42	28·3	G.T.S. at BRIDGE is cut on the N. end of the B.M. E. parapet of bridge, 7 chains S. of mile post No. 1 from Jajpore. ⊙	38 ⁴¹¹ 406	Ditto.
43	29·5	G.T.S. at JAJPORE* is situated opposite the front or W. entrance of the Public Works B.M. Department Inspection bungalow: it consists of the usual stone embedded in a block of masonry 3 feet cube (one foot of which is above ground level), 16 links from the N.W. and the S.W. corners of the front projection of the bungalow, and 5 links W. of the centre of the same. □	46 ⁻²⁸³ 268	In the hollow square □ cut for the purpose on the stone.
44	30·2	G.T.S. at CULVERT is cut on the W. parapet of a small culvert ½ mile N. of Jajpore, and 30 chains S. of mile post No. 1 from Jajpore. ⊙	44 ⁻³⁷⁺ 359	On the dot in the centre of the circle ⊙.
45	34·4	G.T.S. at TEMPLE is cut on the N.W. corner of the plinth of Mahadeo's Temple at B.M. Manjari village: it is on the tank bank on the E. margin of the road from Jajpore to Bhandarpokri. ⊙	56 ¹⁷⁰ 145	Ditto.
46	35·9	⊙ at MILESTONE is cut on the top of milestone No. 4, on the High-level Canal, Range No. 3.	57 ⁵⁷⁴ 559	Ditto.
47	36·9	⊙ at MILESTONE is cut on the top of milestone No. 5, on the High-level Canal, Range No. 3.	58 ²⁹⁹ 264	Ditto.
48	37·9	⊙ at MILESTONE is cut on the top of milestone No. 6, on the High-level Canal, Range No. 3.	59 ⁰⁶⁰ 045	Ditto.

* This bench-mark is in charge of the Sub-divisional Officer, Jajpore.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series I.—*Spirit Leveling from False Point Tidal Station to the Light-house, thence to the Kendrapára Canal, and across country to Jajpore and along the Grand*

No. in Series.	Approximate distance in miles from Kendrapára.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
49	38.5	⊙ at PILLAR is cut on the canal boundary pillar, situated 100 yards S. of the large iron bridge, over the High-level Canal, Range No. 3, at Bhandarpokri village, on the road from Cuttack to Balasore. The pillar is of brick, about 2 feet cube, and pyramidal at top, and is 50 yards E. of the canal.	58 415 ⁴³⁰	On the dot in the centre of the circle ⊙.
50	39.3	G.T.S. at WELL is cut on the N.W. corner of the platform of a small paka well, on the ⊙ B.M. E. margin of the road from Cuttack to Balasore, 200 yards E. of the village of Palta, and 28 chains N. of milestone No. 52 from Cuttack.	49 722 ⁷³⁷	Ditto.
51	40.9	MILESTONE No. 54 from Cuttack and No. 52 from Balasore.	49 502 ⁶⁰⁷	On the top of the milestone.
52	41.5	G.T.S. at WELL is cut on the platform on the ⊙ W. side of paka well, on the E. margin of the road from Cuttack to Balasore, 35 chains S. of milestone No. 51 from Balasore, and 50 yards S. of the junction of the Dhánnagar road.	45 271 ²⁸⁶	On the dot in the centre of the circle ⊙.
53	42.3	G.T.S. at BRIDGE is cut on the coping of the E. end of the N. parapet of 4-arch bridge No. ⊙ B.M. 12, 29 chains E. of milestone No. 51 from Balasore, and 300 yards W. of the Travellers' bungalow at Báríkpur, on the road from Cuttack to Balasore.	50 301 ³¹⁶	Ditto.
54	42.9	⊙ at MILESTONE is cut on the top of milestone No. 56 from Cuttack and No. 50 from Balasore.	49 507 ⁵²²	Ditto.
55	43.9	⊙ at MILESTONE is cut on the top of milestone No. 57 from Cuttack and No. 49 from Balasore.	49 642 ⁶⁵⁷	Ditto.
56	44.9	⊙ at MILESTONE is cut on the top of milestone No. 58 from Cuttack and No. 48 from Balasore.	48 074 ⁶⁸⁹	Ditto.
57	45.9	⊙ at MILESTONE is cut on the top of milestone No. 59 from Cuttack and No. 47 from Balasore.	49 317 ³³²	Ditto.
58	46.9	⊙ at MILESTONE is cut on the top of milestone No. 60 from Cuttack and No. 46 from Balasore.	51 023 ⁶⁴⁴	Ditto.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Trunk Road to Balasore and Jellasore, thence to Contai, Kejiri, Kukraháti ferry, and across the Hooghly River to Diamond Harbour Tidal Station.

No. in Series.	Approximate distance in miles from Kendrapara.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
59	48·3	G.T.S. at CULVERT is cut on the E. parapet of \odot culvert No. 26, opposite Gelpur village, 4 B.M. chains N. of milestone No. 61 from Cuttack and No. 45 from Balasore.	53 540 ⁵⁴⁰	On the dot in the centre of the circle \odot .
60	49·2	G.T.S. at BRIDGE is cut on the E. parapet of \odot bridge No. 28, 400 yards S.W. of the B.M. Sub-Divisional Officer's kacheri at Bhudruck; 24 chains N. of milestone No. 62 from Cuttack and No. 44 from Balasore.	55 533 ⁷⁴⁸	Ditto.

Branch line to BHUDDRUCK.

$\frac{1}{60}$	49·4	G.T.S. at BHUDDRUCK* is situated in the \square S E. corner of the verandah floor of the B.M. Travellers' bungalow, about 100 yards N. of the kacheri. The bench-mark is of the usual stone embedded flush with the flooring.	50 472 ⁴⁹⁴	In the hollow square \square cut for the purpose on the stone.
61	0·3	G.T.S. at POST OFFICE is cut on the lower \odot step leading into the W. entrance of the B.M. Post Office at Bhuddruck.	48 460 ⁴⁸¹	On the dot in the centre of the circle \odot .
62	0·4	\odot at MILESTONE is cut on the top of milestone No. 63 from Cuttack and No. 43 from Balasore.	54 547 ⁵⁶²	Ditto.
63	1·3	B. \odot M. at BRIDGE is cut on the S. end of the inner projection of W. parapet of bridge No. 30, about 12 chains S. of milestone No. 64 from Cuttack and No. 42 from Balasore.	58 658 ⁶⁷³	Ditto.
64	1·4	\odot at MILESTONE is cut on the top of milestone No. 65 from Cuttack and No. 41 from Balasore.	52 617 ⁹³⁰	Ditto.
65	3·4	\square at BRIDGE is cut on the centre of the W. \wedge parapet of bridge No. 33, 5 chains S. of milestone No. 66 from Cuttack and No. 40 from Balasore. The letters G.T.S. B.M. have also been cut. (Public Works Department bench-mark).	52 650 ⁵⁶⁵	On the head of the arrow \wedge .

* This bench-mark is in charge of the Chaukidár of the Travellers' bungalow.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series I.—*Spirit Leveling from False Point Tidal Station to the Light-house, thence to the Kendrapára Canal, and across country to Jajpore and along the Grand*

No. in Series.	Approximate distance in miles from Bhudruck.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
66	4.4	⊙ at MILESTONE is cut on the top of milestone No. 67 from Cuttack and No. 39 from Balasore.	52.948 52.063	On the dot in the centre of the circle ⊙.
67	4.9	□ at BRIDGE is cut on the centre of the W. \wedge parapet of bridge No. 37, 12 chains S. of the milestone No. 68 from Cuttack and No. 38 from Balasore. The letters G.T.S. B.M. have also been cut. (Public Works Department bench-mark).	53.800 53.318	On the head of the arrow \wedge .
68	6.4	⊙ at MILESTONE is cut on the top of milestone No. 69 from Cuttack and No. 37 from Balasore.	51.600 51.521	On the dot in the centre of the circle ⊙.
69	7.4	⊙ at MILESTONE is cut on the top of milestone No. 70 from Cuttack and No. 36 from Balasore.	53.748 53.763	Ditto.
70	8.4	□ at BRIDGE is cut on the centre of the W. \wedge parapet of bridge No. 41, 2 chains S. of milestone No. 71 from Cuttack and No. 35 from Balasore. The letters G.T.S. B.M. have also been cut. (Public Works Department bench-mark).	57.579 57.594	On the head of the arrow \wedge .
71	9.4	⊙ at MILESTONE is cut on the top of milestone No. 72 from Cuttack and No. 34 from Balasore.	50.070 50.094	On the dot in the centre of the circle ⊙.
72	10.2	□ at BRIDGE is cut on the E. end of the N. \wedge parapet of bridge No. 42, 15 chains W. of milestone No. 73 from Cuttack and No. 33 from Balasore. The letters G.T.S. B.M. have also been cut. (Public Works Department bench-mark).	47.599 47.607	On the head of the arrow \wedge .
73	10.4	⊙ at MILESTONE is cut on the top of milestone No. 73 from Cuttack and No. 33 from Balasore.	45.133 45.147	On the dot in the centre of the circle ⊙.
74	11.3	G.T.S. at MARKONA* is situated in the centre of the front verandah of the Travellers' B.M. bungalow: the bench-mark consists of the usual stone embedded flush with the floor.	39.800 39.383	In the hollow square □ cut for the purpose on the stone.
75	11.4	⊙ at MILESTONE is cut on the top of milestone No. 74 from Cuttack and No. 32 from Balasore.	42.947 42.963	On the dot in the centre of the circle ⊙.

* This bench-mark is in charge of the Chaukidár of the Travellers' bungalow.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Trunk Road to Balasore and Jellasore, thence to Contai, Kejiri, Kukraháti ferry, and across the Hooghly River to Diamond Harbour Tidal Station.

No. in Series.	Approximate distance in miles from Bhuddruck.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
76	12·4	⊙ at MILESTONE is cut on the top of milestone No. 75 from Cuttack and No. 31 from Balasore.	^{·033} 38 016	On the dot in the centre of the circle ⊙.
77	13·4	⊙ at MILESTONE is cut on the top of milestone No. 76 from Cuttack and No. 30 from Balasore.	⁻²¹⁷ 35 209	Ditto.
78	14·2	G.T.S. at BRIDGE is cut on the E. parapet of bridge, 19 chains S. of milestone No. 77 ⊙ B.M. from Cuttack and No. 29 from Balasore, opposite Jamjhari village.	⁴⁰⁹ 37 394	Ditto.
79	14·8	G.T.S. at BRIDGE is cut on the N. end of the ⊙ W. parapet of bridge No. 46, 29 chains B.M. N. of milestone No. 77 from Cuttack and No. 29 from Balasore, ¼ mile N.E. of Jamjhari village.	^{·952} 32 937	Ditto.
80	15·4	G.T.S. at BRIDGE is cut on the centre of the ⊙ E. parapet of large bridge No. 49, over the Kasvá river, 5 chains S. of milestone No. 78 from Cuttack and No. 28 from Balasore.	^{·724} 40 709	Ditto.
81	16·4	⊙ at MILESTONE is cut on the top of milestone No. 79 from Cuttack and No. 27 from Balasore.	^{·087} 31 062	Ditto.
82	17·4	⊙ at MILESTONE is cut on the top of milestone No. 80 from Cuttack and No. 26 from Balasore.	^{·724} 35 709	Ditto.
83	18·4	⊙ at MILESTONE is cut on the top of milestone No. 81 from Cuttack and No. 25 from Balasore.	^{·951} 43 906	Ditto.
84	19·4	⊙ at MILESTONE is cut on the top of milestone No. 82 from Cuttack and No. 24 from Balasore.	^{·630} 46 624	Ditto.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series I.—*Spirit Leveling from False Point Tidal Station to the Light-house, thence to the Kendrapára Canal, and across country to Jappore and along the Grand*

No. in Series.	Approximate distance in miles from Bhudruck.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
85	21·0	□ at BRIDGE is cut on the W. parapet of small Λ bridge No. 57, 36 chains S. of milestone No. 84 from Cuttack and No. 22 from Balasore. The letters G. T. S. B. M. have also been cut. (Public Works Department bench-mark).	50-438 ⁴⁵³	On the head of the arrow Λ.
86	21·4	⊙ at MILESTONE is cut on the top of milestone No. 84 from Cuttack and No. 22 from Balasore.	51-419 ⁶²⁸	On the dot in the centre of the circle ⊙.
87	21·9	G.T.S. at BRIDGE is cut on the centre of the S. parapet of bridge, on the branch road to B.M. Gopináthpur, 50 feet W. of where it joins the main road, and midway between milestones Nos. 84 and 85 from Cuttack.	49-471 ⁴⁸⁶	Ditto.
88	22·4	⊙ at MILESTONE is cut on the top of milestone No. 85 from Cuttack and No. 21 from Balasore.	49-462 ⁴⁸⁷	Ditto.
89	23·4	⊙ at MILESTONE is cut on the top of milestone No. 86 from Cuttack and No. 20 from Balasore.	52-463 ²⁷⁸	Ditto.
90	23·6	G.T.S. at BRIDGE is cut on the centre of the ⊙ N. parapet of bridge No. 61, 17 chains E. of milestone No. 86 from Cuttack and No. 20 from Balasore.	54-452 ¹⁶⁷	Ditto.
91	24·4	⊙ at MILESTONE is cut on the top of milestone No. 87 from Cuttack and No. 19 from Balasore.	53-452 ⁸⁶⁷	Ditto.
92	25·4	G.T.S. at BRIDGE is cut on the centre of the ⊙ N. parapet of bridge No. 65, 1 chain W. of milestone No. 88 from Cuttack and No. 18 from Balasore.	61-999 ⁶²⁻⁰¹⁴	Ditto.

Branch line to MAGAMPUR.

$\frac{1}{92}$	25·6	G.T.S. at MAGAMPUR* is situated on the □ landing of Duleb Dei tank, 50 yards off B.M. the Cuttack-Balasore road, and 200 yards E. of milestone No. 88 from Cuttack. The approach to the tank is through an ornamental archway, then there are several landings, and the bench-mark which is of the usual stone, is embedded flush with the floor, on the first landing and almost below the centre of the archway.	54-953 ⁴⁶⁸	In the hollow square □ cut for the purpose on the stone.
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* This bench-mark is in charge of the Chaukidár.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Trunk Road to Balasore and Jellasore, thence to Contai, Kejiri, Kukraháti ferry, and across the Hooghly River to Diamond Harbour Tidal Station.

No. in Series.	Approximate distance in miles from Bhuddruck.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
93	25·7	G.T.S. at BRIDGE is cut on the coping of the ⊙ W. end of N. parapet of bridge No. 66, 23 B.M. chains E. of milestone No. 88 from Cut- tack and No. 18 from Balasore.	61 ^{·742} 727	On the dot in the centre of the circle ⊙.
94	26·0	G.T.S. at BRIDGE is cut on the centre of the ⊙ N. parapet of bridge No. 67, 35 chains B.M. W. of milestone No. 89 from Cuttack and No. 17 from Balasore.	61 ^{·342} 327	Ditto.
95	27·2	G.T.S. at BRIDGE is cut on the centre of the ⊙ N. parapet of bridge No. 71, 21 chains B.M. W. of milestone No. 90 from Cuttack and No. 16 from Balasore.	61 ^{·072} 057	Ditto.
96	28·5	G.T.S. at BRIDGE is cut on the centre of the ⊙ N. parapet of bridge No. 74, 9 chains E. B.M. of milestone No. 91 from Cuttack and No. 15 from Balasore.	52 ^{·941} 926	Ditto.
97	29·4	⊙ at MILESTONE is cut on the top of mile- stone No. 92 from Cuttack and No. 14 from Balasore.	50 ^{·605} 590	Ditto.
98	30·4	⊙ at MILESTONE is cut on the top of mile- stone No. 93 from Cuttack and No. 13 from Balasore.	48 ^{·593} 578	Ditto.
99	31·5	G.T.S. at BRIDGE is cut on the centre of the ⊙ W. parapet of bridge No. 81, 3 chains N. B.M. of milestone No. 94 from Cuttack and No. 12 from Balasore.	49 ^{·048} 033	Ditto.
100	32·4	⊙ at MILESTONE is cut on the top of mile- stone No. 95 from Cuttack and No. 11 from Balasore.	52 ^{·790} 775	Ditto.
101	33·1	G.T.S. at BRIDGE is cut on the centre of the ⊙ W. parapet of bridge No. 86, 24 chains B.M. S. of milestone No. 96 from Cuttack and No. 10 from Balasore.	54 ^{·589} 574	Ditto.
102	34·3	G.T.S. at BRIDGE is cut on the centre of the ⊙ S. parapet of bridge No. 90, 11 chains B.M. W. of milestone No. 97 from Cuttack and No. 9 from Balasore.	49 ^{·373} 358	Ditto.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series I.—*Spirit Leveling from False Point Tidal Station to the Light-house, thence to the Kendrapára Canal, and across country to Jajpore and along the Grand*

No. in Series.	Approximate distance in miles from Bhudruck.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff
103	35·4	⊙ at MILESTONE is cut on the top of milestone No. 98 from Cuttack and No. 8 from Balasore.	49 418 ⁴²⁸	On the dot in the centre of the circle ⊙.
104	36·4	⊙ at MILESTONE is cut on the top of milestone No. 99 from Cuttack and No. 7 from Balasore.	43 269 ²⁸⁴	Ditto.
105	37·1	G.T.S. at BRIDGE is cut on the coping of the ⊙ W. end of the N. parapet of bridge No. B.M. 97, 55 chains E. of milestone No. 99 from Cuttack and No. 7 from Balasore.	45 428 ⁴⁴³	Ditto.
106	38·4	⊙ at MILESTONE is cut on the top of milestone No. 101 from Cuttack and No. 5 from Balasore.	53 498 ⁵⁰³	Ditto.
107	39·4	⊙ at MILESTONE is cut on the top of milestone No. 102 from Cuttack and No. 4 from Balasore.	66 980 ⁹⁹⁵	Ditto.
108	40·4	⊙ at MILESTONE is cut on the top of milestone No. 103 from Cuttack and No. 3 from Balasore.	64 918 ⁹³³	Ditto.
109	41·4	⊙ at MILESTONE is cut on the top of milestone No. 104 from Cuttack and No. 2 from Balasore.	72 864 ⁸⁹⁹	Ditto.
110	41·7	G.T.S. at PILLAR is cut on the boundary pillar, ⊙ situated 30 yards E. of the main road B.M. from Cuttack to Balasore, and immediately opposite the 1½ mile post from Balasore.	68 870 ⁹⁹¹	Ditto.
111	42·4	G.T.S. at BUNGALOW is cut on the centre of ⊙ the S. verandah floor of the Travellers' B.M. bungalow at Balasore.	61 719 ⁵³⁴	Ditto.
112	42·5	⊙ at CIRCUIT HOUSE is cut on the flooring, outside the N. entrance verandah of the Public Works Department Circuit House at Balasore.	59 823 ²⁴⁸	Ditto.

Branch line to CHANDÍPUR G. T. SURVEY TOWER STATION.

$\frac{1}{112}$	From Balasore 2·2	G.T.S. at TEMPLE is cut on the lower step of ⊙ the entrance to Mahádeo's Temple, near B.M. a conspicuous banian tree, on the N. margin of the road, and 3 chains W. of mile post No. 1 from Balasore on the road to Chandipur.	48 480 ⁷⁷⁵	On the dot in the centre of the circle ⊙.
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GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Trunk Road to Balasore and Jellasure, thence to Contai, Kejiri, Kukraháti ferry, and across the Hooghly River to Diamond Harbour Tidal Station.

No. in Series.	Approximate distance in miles from Balasore.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff
$\frac{2}{112}$	4.6	⊙ at BRIDGE is cut on the N. parapet of B.M. bridge, 57 chains E. of mile post No. 3, on the main road to Chandipur.	¹⁴⁵ 13 130	On the dot in the centre of the circle ⊙.
$\frac{3}{112}$	5.0	G.T.S. at CHANDÍPUR CANAL* is situated in the S.E. angle formed by the inter-B.M. section of the Coast Canal, with the main road, 5 miles from Balasore, and 3 from Chandipur. The bench-mark is of the usual stone, and is embedded in a masonry pillar 2½ feet square and 3 feet above ground level, 20 feet off the road and adjoining the eastern bank of the Coast Canal.	²¹⁸ 9 203	In the hollow square □ cut for the purpose on the stone.
$\frac{4}{112}$	8.3	G.T.S. at CHANDÍPUR is cut on a pyramidal block of masonry situated 100 yards S. of B.M. Chandipur bungalow, and in the garden compound. The block is 7 feet high, there is another block adjoining, and the B.M. is on the northern one.	¹⁹⁴ 13 179	On the dot in the centre of the circle ⊙.

Minor branch line to BALARÁMGARHI TIDE POINT STATION.

$\frac{4}{112}^A$	11.4	BALARÁMGARHI. G. T. S. TIDE POINT STATION, lat. 21° 28' 35", long. 87° 5' 20", a secondary station of the East Coast Series is situated on the left bank of the Budhabalanga river, 400 yards W. of Balarámgarhi house station. The station consists of a paku pillar 3 feet square and 5 feet high; a stone was found let into the pillar in an erect position, the top of which was 1.42 feet above the upper surface of the pillar. The stone is rough and oblong in shape, and is marked 15 feet on one face. The surface of the pillar was connected.	⁶¹⁰ 14 505	On the top of the pillar.
$\frac{5}{112}$	8.4	G.T.S. at CHANDÍPUR† is situated in the □ flooring of the back verandah of the B.M. bungalow close to Chandípur Tower Station. The bench-mark is of the usual stone, and is embedded flush with the floor, exactly opposite the central door, leading into the back of the house.	²²⁴ 34 209	In the hollow square □ cut for the purpose on the stone.
$\frac{6}{112}$	8.5	CHANDÍPUR G. T. SURVEY TOWER STATION, lat. 21° 26' 37", long. 87° 4' 31", a principal station of the East Coast Series is situated on the sea coast, about 6 miles E.S.E. of Balasore, on a sand height on which are built some bungalows belonging to the European residents of Balasore. The pillar is perforated and 11.43 feet high. The upper surface of the pillar has a stone embedded in its centre, bearing a circle and dot (⊙) and the figures 53 engraved on it.	⁵³⁴ 52 530	On the top of the pillar.

* This bench-mark is in charge of the Overseer, Balasore.
the Flag Staff Chaprási.

† This bench-mark is in charge of

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series I.—*Spirit Leveling from False Point Tidal Station to the Light-house, thence to the Kendrapára Canal, and across country to Jajpore and along the Grand*

No. in Series.	Approximate distance in miles from Balasore.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
113	0·0	G.T.S. at BALASORE* is situated in the □ flooring of the landing just outside the B.M. N. verandah of the circuit house, about 200 yards E. of the Travellers' bungalow. The bench-mark is of the usual stone, and is embedded flush with the flooring. 2 or 3 feet S. of this bench-mark, there is another B.M. of the Irrigation Department marked 40, and may be said to be about the same level.	59 ^{.26} 59	In the hollow square □ cut for the purpose on the stone.
114	0·0	⊙ at MILESTONE is cut on the top of milestone No. 106 from Cuttack, No. 0 from Balasore and No. 145 from Calcutta.	43 ³⁹¹ 43	On the dot in the centre of the circle ⊙.
115	0·5	G.T.S. at BRIDGE is cut on the W. parapet ⊙ over 4th arch from the S. side of large B.M. bridge No. 101, 36 chains N. of milestone No. 106 from Cuttack, No. 0 from Balasore and No. 145 from Calcutta.	32 ³⁶⁵ 32	Ditto.
116	1·0	⊙ at MILESTONE is cut on the top of milestone No. 144 from Calcutta and No. 1 from Balasore.	22 ¹⁶⁸ 22	Ditto.
117	2·0	⊙ at MILESTONE is cut on the top of milestone No. 143 from Calcutta and No. 2 from Balasore.	28 ⁶⁴² 28	Ditto.
118	3·3	B. ⊙ M. at BRIDGE is cut on the centre of the N. parapet of bridge No. 102, 23 chains E. of milestone No. 3 from Balasore and No. 142 from Calcutta.	26 ⁵²⁶ 26	Ditto.
119	4·0	⊙ at MILESTONE is cut on the top of milestone No. 4 from Balasore and No. 141 from Calcutta.	17 ⁸³² 17	Ditto.
120	5·0	⊙ at MILESTONE is cut on the top of milestone No. 5 from Balasore and No. 140 from Calcutta.	23 ²⁹⁹ 23	Ditto.
121	6·1	G.T.S. at BRIDGE is cut on the coping of the ⊙ E. end of the N. parapet of bridge No. B.M. 107, 6 chains E. of milestone No. 6 from Balasore and No. 139 from Calcutta.	22 ⁰⁸⁶ 22	Ditto.
122	7·0	⊙ at MILESTONE is cut on the top of milestone No. 7 from Balasore and No. 138 from Calcutta.	17 ⁶⁸⁶ 17	Ditto.

* This bench-mark is in charge of the Chaukidár of the circuit house.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Trunk Road to Balasore and Jellasore, thence to Contai, Kejiri, Kukraháti ferry, and across the Hooghly River to Diamond Harbour Tidal Station.

No. in Series.	Approximate distance in miles from Balasore.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
123	7·2	B. ⊙ M. at BRIDGE is cut on the centre of the W. parapet of bridge No. 111, 12 chains N. of milestone No. 7 from Balasore and No. 138 from Calcutta.	19- 370 ³⁸⁵	On the dot in the centre of the circle ⊙.
124	8·0	⊙ at MILESTONE is cut on the top of milestone No. 8 from Balasore and No. 137 from Calcutta.	19- 023 ⁰⁴⁴	Ditto.
125	9·3	G.T.S. at NAYÁPÁRA* is situated in the □ flooring of the verandah of the Public B.M. Works Department Inspection bungalow, right opposite the front door. The bungalow is 200 yards off the main road to Midnapore. The bench-mark is of the usual stone, and is embedded flush with the flooring.	22- 200 ²⁵³	In the hollow square □ cut for the purpose on the stone.
126	10·0	⊙ at MILESTONE is cut on the top of milestone No. 10 from Balasore, on the road to Midnapore.	17- 802 ⁴⁰⁷	On the dot in the centre of the circle ⊙.
127	11·0	⊙ at MILESTONE is cut on the top of milestone No. 11 from Balasore, on the road to Midnapore.	17- 006 ⁰²¹	Ditto.
128	12·0	⊙ at MILESTONE is cut on the top of milestone No. 12 from Balasore.	19- 725 ⁷⁴⁰	Ditto.
129	13·0	⊙ at MILESTONE is cut on the top of milestone No. 13 from Balasore.	18- 944 ⁹⁵⁹	Ditto.
130	14·0	⊙ at MILESTONE is cut on the top of milestone No. 14 from Balasore.	19- 774 ⁷⁸⁹	Ditto.
131	14·6	B. ⊙ M. at BRIDGE is cut on the projection at the N. end of the E. parapet of bridge No. 124, on the road to Midnapore, between milestones Nos. 14 and 15 from Balasore.	23- 865 ⁸⁸⁰	Ditto.
132	15·0	⊙ at MILESTONE is cut on the top of milestone No. 15 from Balasore.	22- 440 ⁴⁵⁵	Ditto.
133	16·0	⊙ at MILESTONE is cut on the top of milestone No. 16 from Balasore.	27- 600 ⁵⁹⁸	Ditto.
134	16·5	G.T.S. at BASTA* is embedded in the centre of the front or S. verandah of the Public B.M. Works Department Inspection bungalow, which is situated 200 yards E. of the road to Midnapore. The bench-mark is of the usual stone and is flush with the floor of the verandah.	21- 200 ³⁰³	In the hollow square □ cut for the purpose on the stone.
135	17·0	⊙ at MILESTONE is cut on the top of milestone No. 17 from Balasore.	27- 345 ³⁶⁰	On the dot in the centre of the circle ⊙.

* These bench-marks are in charge of the Chaukidárs.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series I.—*Spirit Leveling from False Point Tidal Station to the Light-house, thence to the Kendrapára Canal, and across country to Jajpore and along the Grand*

No. in Series.	Approximate distance in miles from Balasore.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
136	18·0	⊙ at MILESTONE is cut on the top of milestone No. 18 from Balasore.	¹⁴² 25 127	On the dot in the centre of the circle ⊙.
137	18·7	G.T.S. at BRIDGE is cut on the coping at the S. end of the E. parapet of bridge No. B.M. 131, 26 chains S. of milestone No. 19 from Balasore.	⁶⁷³ 29 658	Ditto.
138	20·0	⊙ at MILESTONE is cut on the top of milestone No. 20 from Balasore.	²⁵⁰ 25 241	Ditto.
139	22·0	⊙ at MILESTONE is cut on the top of milestone No. 22 from Balasore.	⁹⁹² 25 977	Ditto.
140	22·3	G.T.S. at BRIDGE is cut on the W. end of the N. abutment of the suspension bridge, B.M. 200 yards N. of Gudikhál village, and ¼ mile N. of milestone No. 22 from Balasore.	⁴⁹⁶ 27 481	Ditto.
141	23·0	⊙ at MILESTONE is cut on the top of milestone No. 23 from Balasore.	⁵²⁷ 27 512	Ditto.
142	24·0	⊙ at MILESTONE is cut on the top of milestone No. 24 from Balasore.	⁴³⁶ 30 421	Ditto.
143	25·0	⊙ at MILESTONE is cut on the top of milestone No. 25 from Balasore.	¹²⁵ 36 110	Ditto.
144	25·9	G.T.S. at WELL is cut on the platform of a well alongside the road to Midnapore, B.M. 150 yards west of milestone No. 26, and in the centre of Rájghát bazar.	⁰⁹⁸ 42 073	Ditto.
145	27·0	G.T.S. at BRIDGE is cut on the N.E. corner of the W. parapet of bridge No. 141, about B.M. 2 chains S. of mile plate No. 49 from Midnapore.	³⁷⁶ 43 361	Ditto.
146	28·4	PATNA G. T. SURVEY TOWER STATION, lat. 21° 47' 21", long. 87° 14' 13", a principal station of the East Coast Series is situated on the left bank of the Subarnrekha river, at the northern extremity of the village of Patna, in pargana Jellasore, district Balasore. The tower is solid and about 37 feet high. The Baptist Chapel is 200 yards S.W. of the station. The top of the pillar was connected.	⁴³⁰ 80 415	On the top of the pillar.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Trunk Road to Balasore and Jellasore, thence to Contai, Kejiri, Kukraháti ferry, and across the Hooghly River to Diamond Harbour Tidal Station.

No. in Series.	Approximate distance in miles from Balasore.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
147	29·0	G.T.S. at BRIDGE is cut on the centre of the ⊙ N. parapet of bridge No 142, at mile B.M. plate No. 47 from Midnapore.	45 864	On the dot in the centre of the circle ⊙.
148	29·8	G.T.S. at BRIDGE is cut on the E. parapet of ⊙ small bridge, on a branch road from the B.M. main road, leading into Jellasore, 16 chains W. of mile plate No. 46 from Midnapore.	42 860 324	Ditto.
149	30·9	G.T.S. at JELLASORE* is embedded in the □ middle of the verandah of the Travellers' B.M. bungalow situated about 100 yards S. of the Post Office, and in the angle formed by the junction of the roads leading to Balasore and Con- tai. The bench-mark is of the usual stone and is embedded flush with the floor of the verandah.	42 540 558	In the hollow square □ cut for the purpose on the stone.
150	32·7	G.T.S. at BRIDGE is cut on the end of the ⊙ S.E. wing-wall of bridge, 20 chains W. B.M. of mile post No. 2 from Jellasore, on the road to Contai, and 10 chains S.W. of Ambliháta village.	41 739 747	On the dot in the centre of the circle ⊙.
151	34·7	G.T.S. at BRIDGE is cut on the end of the ⊙ S.E. wing-wall of bridge, 50 yards E. of B.M. mile post No. 19 from Balighai, on the road to Contai.	30 850 874	Ditto.
152	37·1	G.T.S. at BRIDGE is cut on the end of S.W. ⊙ wing-wall of bridge, 34 chains E. of B.M. mile post No. 17 from Balighai, about $\frac{1}{2}$ mile N. of Bariginpur village on the road to Contai.	29 462 479	Ditto.
153	38·2	G.T.S. at BRIDGE is cut on the end of the ⊙ N.W. wing-wall of bridge, $\frac{1}{2}$ mile W. B.M. of mile post No. 15 from Balighai, on the road to Contai.	33 401 116	Ditto.
154	39·1	G.T.S. at BRIDGE is cut on the end of the N.E. ⊙ wing-wall of bridge, $\frac{1}{2}$ mile E. of mile B.M. post No. 15 from Balighai, on the road to Contai.	33 427 442	Ditto.

* This bench-mark is in charge of the Khánsáma.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series I.—*Spirit Leveling from False Point Tidal Station to the Light-house, thence to the Kendrapára Canal, and across country to Jajpore and along the Grand*

No. in Series.	Approximate distance in miles from Balasore.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
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Branch line to SAUTIA G. T. SURVEY TOWER STATION.

$\frac{1}{154}$	40.4	SAUTIA G. T. SURVEY TOWER STATION, lat. $21^{\circ} 50' 34''$, long. $87^{\circ} 23' 24''$, a principal station of the East Coast Series is on the high bund of a tank, to the S. of the large village of Sautia, pargana Buraichor, district Midnapore. The tower is solid and about 30 feet above the level of the tank bund. It was found intact, and on the top there is a circle and dot (\odot) with cross lines cut into the masonry.	73.471 486	This height refers to \odot on the top of the tower, and was determined as follows:—Height of peg at foot of tower on which the staff rested = 45.456 feet,—to which add height of \odot at top of tower above peg = 28.015 feet as measured.
155	39.8	G.T.S. at BRIDGE is cut on the end of the S.E. wing-wall of bridge, 400 yards E. of Kar-kharia village, 7 chains E. of mile post No. 14 from Balighai. \odot	32.229 238	On the dot in the centre of the circle \odot .
156	41.5	G.T.S. at BRIDGE is cut on the end of the S.E. wing-wall of bridge, opposite Urna village, 17 chains W. of mile post No. 12 from Balighai. \odot	32.613 628	Ditto.
157	42.5	G.T.S. at BRIDGE is cut on the end of the S.E. wing-wall of bridge, 10 chains W. of mile post No. 11 from Balighai. \odot	32.819 234	Ditto.
158	42.7	B. \odot M. at PILLAR is cut on the base of the boundary pillar on the N. margin of the road to Contai, opposite mile post No. 11 from Balighai.	31.039 057	Ditto.
159	44.6	G.T.S. at BRIDGE is cut on the end of the N.E. wing-wall of bridge, opposite Káshin-bad village, 2 chains W. of mile post No. 9 from Balighai. \odot	28.000 114	Ditto.
160	46.0	G.T.S. at BRIDGE is cut on the end of the N.E. wing-wall of bridge, 29 chains E. of mile post No. 8 from Balighai. \odot	29.420 144	Ditto.
161	47.1	G.T.S. at BRIDGE is cut on the end of the S.W. wing-wall of bridge, 32 chains E. of mile post No. 7 from Balighai. \odot	26.513 528	Ditto.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Trunk Road to Balasore and Jellasure, thence to Contai, Kejiri, Kukraháti ferry, and across the Hooghly River to Diamond Harbour Tidal Station.

No. in Series.	Approximate distance in miles from Balasore.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
162	48·5	G.T.S. at BRIDGE is cut on the end of the S. E. wing-wall of bridge, 13 chains W. of mile post No. 5 from Balighai. ⊙ B.M.	⁴⁷¹ 19- 456	On the dot in the centre of the circle ⊙.
163	50·5	G.T.S. at BRIDGE is cut on the end of the N. E. wing-wall of bridge, 17 chains W. of mile post No. 3 from Balighai. ⊙ B.M.	³⁵⁸ 11- 943	Ditto.
164	50·5	KÚDI G. T. SURVEY TOWER STATION, lat. 21° 51' 43", long. 87° 33' 51", a principal station of the East Coast Series is on a small mound in the village of Kúdi, pargana Egrachor, district Midnapore. The tower is solid and 30 feet high. It was found in good order, and the mark-stone, on the top of the tower, was intact.	⁵²⁵ 46- 610	This height refers to mark on the top of the tower, and was determined as follows:—Height of peg at foot of tower on which the staff rested = 14·832 feet,—to which add height of mark at top of tower above peg = 31·678 feet as measured.
165	51·3	G.T.S. at BRIDGE is cut on the end of the S.E. wing-wall of bridge, 29 chains W. of mile post No. 2 from Balighai, on the road to Contai. ⊙ B.M.	⁶⁹³ 11- 684	On the dot in the centre of the circle ⊙.
166	53·6	G.T.S. at BRIDGE is cut on the end of the S.E. wing-wall of bridge, 4 chains W. of mile post No. 0 from Balighai. ⊙ B.M.	⁰⁹³ 10- 070	Ditto.
167	55·7	G.T.S. at BALIGHAI* is embedded in the centre of the front verandah of the B.M. Public Works Department Inspection bungalow situated 100 yards N. of the road from Midnapore to Contai, and about 1 mile S.E. of the large village of Balighai. The bench-mark is of the usual stone, and is flush with the floor of the verandah. □	⁴⁴¹ 11- 426	In the hollow square □ cut for the purpose on the stone.
168	57·3	G.T.S. at BRIDGE is cut on the centre of the W. parapet of bridge No. 10, 300 yards S. of Tájpur village, and 1 chain N. of mile post No. 52 from Midnapore, on the road to Contai. ⊙ B.M.	³⁵⁴ 10- 341	On the dot in the centre of the circle ⊙.
169	61·1	G.T.S. at BRIDGE is cut on the S. parapet of the small bridge, ¼ mile E. of the junction of the Const Canal with the road between Balighai and Contai, and 16 chains W. of mile post No. 56 from Midnapore. ⊙ B.M.	²⁸⁹ 10- 274	Ditto.

* This bench-mark is in charge of the Head Constable of the Basudebpur Police outpost.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series I.—*Spirit Leveling from False Point Tidal Station to the Light-house, thence to the Kendrapára Canal, and across country to Jajpore and along the Grand*

No. in Series.	Approximate distance in miles from Balasore.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
170	62·7	G.T.S. at SLUICE-BRIDGE is cut on the E. end of the N. parapet of sluice-bridge, 17 chains E. of milepost No. 5 from Contai. ⊙ B.M.	13·703 - 772 13·703	On the dot in the centre of the circle ⊙.
171	63·6	G.T.S. at SLUICE-BRIDGE is cut on the E. end of S. parapet of sluice-bridge, 10 chains E. of mile post No. 4 from Contai. ⊙ B.M.	14·906 - 921 14·906	Ditto.
172	65·0	G.T.S. at BRIDGE is cut on the E. end of N. parapet of bridge No. 2 in Kata-nala bazar at Karkuli village, about $\frac{1}{2}$ mile E. of mile post No. 1 from Contai. ⊙ B.M.	12·709 - 777 12·709	Ditto.
173	65·5	G.T.S. at CONTAI* is embedded in the centre of the S. verandah of the Public Works Department Inspection bungalow situated about 150 yards N.W. of the Deputy Magistrate's Court. The bench-mark is of the usual stone and is flush with the floor. □ B.M.	37·751 - 766 37·751	In the hollow square □ cut for the purpose on the stone.

Branch line to IRRIGATION BENCH-MARK.

$\frac{1}{173}$	65·7	G.T.S. at PILLAR is cut on the upper surface of the Irrigation Department bench-mark pillar situated close to the Executive Engineer's bungalow at Contai. A marble slab is let into one side of the pillar, and bears the following inscription:—"Divisional Datum 100 feet below the plinth of this pillar. John Fennessey, Executive Engineer. A.D. 1858." ⊙ B.M. <i>Note.</i> —The plinth of the pillar is 4·183 feet below the mark cut on the upper surface.	43·105 - 180 43·105	On the dot in the centre of the circle ⊙.
174	From Contai 1·0	G.T.S. at BRIDGE is cut on the centre of the N. parapet of bridge No. 2, 2 chains W. of mile post (iron) No. 1 from Contai, on the road to Kejiri. ⊙ B.M.	11·076 - 691 11·076	On the dot in the centre of the circle ⊙.
175	3·4	G.T.S. at BRIDGE is cut on the N. parapet of bridge No. 4, 32 chains E. of mile post No. 3 from Contai, on the road to Kejiri. ⊙ B.M.	10·709 - 214 10·709	Ditto.

* This bench-mark is in charge of the Sub-Inspector of Police, Contai.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Trunk Road to Balasore and Jellasore, thence to Contai, Kejiri, Kukraháti ferry, and across the Hooghly River to Diamond Harbour Tidal Station.

No. in Series.	Approximate distance in miles from Contai.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
176	7·9	G.T.S. at BRIDGE is cut on the N. end of the W. parapet of bridge No. 6, 10 chains S. of mile post No. 8 from Contai, on the road to Kejiri. ⊙	12 175 ¹⁹⁰	On the dot in the centre of the circle ⊙.
177	11·0	G.T.S. at BOGA is cut on the S.E. corner of the verandah floor of the Public Works Department Inspection bungalow at Boga village, about $\frac{1}{2}$ mile E. of the Rasulpur river. ⊙	13 356 ³⁷³	Ditto.
178	11·8	⊙ at BRIDGE is cut on the E. end of the B.M. inner cornice of the N. parapet of bridge No. 8, 18 chains W. of mile post No. 12 from Contai, on the road to Kejiri.	12 399 ⁴¹⁴	Ditto.
179	13·8	G.T.S. at BRIDGE is cut on the S. parapet of bridge, 13 chains W. of mile post No. 14 from Contai, on the road to Kejiri. ⊙	13 790 ⁷⁴⁵	Ditto.
180	15·6	G.T.S. at TEMPLE is cut on the N. corner of basement or platform of Mahádeo's Temple on the S. margin of the road to Kejiri, and 32 chains W. of mile post No. 16 from Contai. The Temple is in the middle of Kejiri village. ⊙	15 787 ⁸⁰²	Ditto.
181	17·0	G.T.S. at KEJIRI* is situated 15 yards W. of the Public Works Department Inspection bungalow, and 50 yards E. of a square tank lying between the bungalow and the cemetery. The bench-mark is of the usual stone, and is embedded in the centre of a circular block of masonry, 10 feet in diameter, and 15 inches above the ground. □	13 619 ⁶⁶⁴	In the hollow square □ cut for the purpose on the stone.
182	19·5	G.T.S. at SLUICE is cut on the N. end of the E. parapet of sluice, opposite Sanachura village, on the W. or right embankment of the Hooghly river. ⊙	18 607 ⁶²²	On the dot in the centre of the circle ⊙.
183	22·5	G.T.S. at SLUICE is cut on the S. end of the W. parapet of sluice, opposite Satkháli village, 22 chains N. of mile post No. 16 on the W. embankment of the Hooghly river. ⊙	17 615 ⁶³⁰	Ditto.

* This bench-mark is in charge of the Sub-Inspector of Police, Kejiri.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series I.—*Spirit Leveling from False Point Tidal Station to the Light-house, thence to the Kendrapára Canal, and across country to Jajpore and along the Grand*

No. in Series.	Approximate distance in miles from Contai.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
184	26·7	G.T.S. at BRIDGE is marked in tar on the centre of the W. parapet of bridge, 5 chains ⊙ B.M. N. of Gopimohanpur, on the old Dâk road, Kejiri to Rániganj.	13·108 -118	On the dot in the centre of the circle ⊙.
185	30·1	G.T.S. at BASULI-CHAK* is embedded in the centre of the front verandah of the □ B.M. Public Works Department Inspection bungalow. The bench-mark is of the usual stone and is flush with the flooring. The bungalow is 300 yards off the road, and 1 mile S. of the Haldi river.	15·029 .644	In the hollow square □ cut for the purpose on the stone.
186	33·3	G.T.S. at BRIDGE is cut on the N. end of the ⊙ W. parapet of bridge opposite the Public Works Department Inspection bungalow at Bálugháta.	16·585 .532	On the dot in the centre of the circle ⊙.
187	33·3	G.T.S. at BUNGALOW is cut on the 2nd step from the bottom at the main or S. entrance of the Public Works Department ⊙ Inspection bungalow at Bálugháta, on the road from Contai to Kukraháti, on the N. bank of the Haldi river.	16·012 .857	Ditto.
188	34·4	G.T.S. at BRIDGE is cut on the N. end of the ⊙ W. parapet of bridge, 4 chains E. of B.M. Brajlal-chak village, 32 chains N. of mile post No. 9, on the road from Bálugháta to Kukraháti.	16·217 .232	Ditto.
189	37·5	G.T.S. at BRIDGE is cut on the S. end of the ⊙ E. parapet of bridge, 3 chains S. of B.M. Chaklálpur village, midway between mile posts Nos. 4 and 5 from Kukraháti.	15·994 16.004	Ditto.
190	41·2	G.T.S. at BRIDGE is cut on the S. end of the ⊙ E. parapet of bridge No. $\frac{9}{1861}$, a few chains to the S. of Dhekha village, and 23 chains N. of mile post No. 2 from Kukraháti.	15·528 .413	Ditto.

* This bench-mark is in charge of the Sub-Inspector of Police, Basuli-chak.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Trunk Road to Balasore and Jellasore, thence to Contai, Kejiri, Kukraháti ferry, and across the Hooghly River to Diamond Harbour Tidal Station.

No. in Series.	Approximate distance in miles from Contai.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
191	42·7	G.T.S. at KUKRAHÁTI* is embedded in the centre of the front verandah floor of the B.M. Public Works Department Inspection bungalow. The bench-mark is of the usual stone and is flush with the floor. The bungalow is about 1 mile W. of Kukraháti-ghát, and 400 yards from the river bank.	20-618 -827	In the hollow square □ cut for the purpose on the stone.
192	43·2	⊙ at MILESTONE is cut on the top of milestone No. 46 on the right embankment of the Hooghly river, $\frac{1}{2}$ mile above Kukraháti Public Works Department Inspection bungalow.	18-922 .938	On the dot in the centre of the circle ⊙.
193	6·3†	G.T.S. at SLUICE is cut on the 2nd step from the top of the N.E. wing-wall of sluice on the B.M. N. or left embankment of the Hooghly river, $\frac{1}{2}$ mile W. of Samalbaria village, and 33 chains W. of mile post No. 40 on the embankment.	15-645 .660	Ditto.
194	5·8†	MILE POST No. 40 on the left embankment of the Hooghly river opposite Samalbaria village.	20-859 .374	On the top of the mile post.
195	4·6†	G.T.S. at SLUICE is cut on the 2nd step from the top of the N.E. wing-wall of sluice, on the B.M. N. or left embankment of the Hooghly river opposite Ráichak village.	14-722 .737	On the dot in the centre of the circle ⊙.
196	3·8†	MILE POST No. 42 on the N. or left embankment of the Hooghly river.	20-084 099	On the top of the mile post.
197	3·3†	G.T.S. at SLUICE is cut on the 3rd step from the top of the N.E. wing-wall of sluice, 4 chains E. of Kálicharanpur village, and $\frac{1}{2}$ mile W. of mile post No. 44 on the left embankment of the Hooghly river.	15-406 .571	On the dot in the centre of the circle ⊙.
198	3·0†	MILE POST No. 44 on the left embankment of the Hooghly river.	20-591 .606	On the top of the mile post.
199	2·0†	MILE POST No. 45 on the left embankment of the Hooghly river.	20-266 -281	Ditto.
200	1·0†	MILE POST No. 46 on the left embankment of the Hooghly river.	19-974 .980	Ditto.

* This bench-mark is in charge of the Sub-Inspector of Police, Satuháta. † From Diamond Harbour.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series I.—*Spirit Leveling from False Point Tidal Station to the Light-house, thence to the Kendrapára Canal, and across country to Jajpore and along the Grand Trunk Road to Balasore and Jellasore, thence to Contai, Kejiri, Kukraháti ferry, and across the Hooghly River to Diamond Harbour Tidal Station.*

No. in Series.	Approximate distance in miles from Diamond Harbour.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
201	0·8	G.T.S. at SLUICE is cut on the centre of the N. parapet of sluice, 400 yards N. of the B.M. Custom House at Diamond Harbour, and 21 chains E. of mile post No. 46 on the left embankment of the Hooghly river.	11 114 ¹²⁹	On the dot in the centre of the circle ⊙.
202	0·0	G.T.S. at DIAMOND HARBOUR* is embedded in the front verandah floor of the B.M. Public Works Department Inspection bungalow. The bench-mark is of the usual stone and is flush with the floor.	18 430 ⁴⁴⁵	In the hollow square □ cut for the purpose on the stone.
203	0·0	↑ at BUNGALOW is cut on the W. end of the bottom step at the main or S. entrance of the Public Works Department Inspection bungalow at Diamond Harbour (Public Works Department bench-mark).	10 536 ⁵⁵⁷	On the head of the arrow ↑.
204	0·0	G.T.S. A at DIAMOND HARBOUR. This bench-mark consists of a masonry pillar, B.M. 2 feet square, with a stone set flush with the surface of the pillar: it is situated 210 feet W. of the Tidal observatory, just below the embankment and near the junction of the path leading to the cemetery.	11 806 ⁹¹¹	On the dot in the centre of the circle ⊙.

* This bench-mark is in charge of the Inspector of Police, Diamond Harbour.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series II.—From Diamond Harbour Tidal Station, along the left embankment of the Hooghly River, as far as the Baratola or Channel Creek, thence across to Mud Point, and along the clearing made for the Telegraph Line, to Saugor Light-house, thence along the south shore of Saugor Island to Dublat Tidal Station.

No. in Series.	Approximate distance in miles from Diamond Harbour.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
1	0·0	G.T.S. A at DIAMOND HARBOUR. This bench-mark consists of a masonry pillar, B.M. 2 feet square, with a stone set flush with the upper surface of the pillar: it is situated 210 feet W. of the Tidal observatory, just below the embankment and near the junction of the path leading to the cemetery.	^{·911} 11- 898	On the dot in the centre of the circle ⊙.
2	0·3	G.T.S. at BUNGALOW is cut on the S.W. corner of the verandah floor of the Railway bungalow on the E. side of the creek at Diamond Harbour.	^{·082} 16- 067	Ditto.
3	0·6	G.T.S. at PILLAR is cut on the top of the boundary pillar situated on the inner side B.M. of the embankment, 40 yards W. of the Deputy Magistrate's bungalow on the E. bank of the creek at Diamond Harbour.	^{·319} 18- 304	Ditto.

Branch line to CYCLONE MARK at DIAMOND HARBOUR.

$\frac{1}{3}$	0·7	CYCLONE MARK of 1864 at Diamond Harbour, consists of a marble slab let into the western wall of the Deputy Collector's Kacheri on the east side of the creek. The slab has the following inscription: "Diamond Harbour. The cyclone inundation of 5th October, 1864, rose to the level of this line."	^{·508} 21- 351	On a level with the top of the line.
4	1·4	MILE POST No. 62 along the left embankment of the Hooghly river.	¹⁵⁷ 22- 190	On the top of the mile post.
5	2·4	MILE POST No. 63 along the left embankment of the Hooghly river.	^{·421} 21- 400	Ditto.
6	2·5	G.T.S. at SLUICE is cut on the N. parapet of the sluice 12 chains E. of mile post No. B.M. 63, along the left embankment of the Hooghly river and 400 yards E. of Hara Fort.	^{·664} 18- 640	On the dot in the centre of the circle ⊙.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series II.—From Diamond Harbour Tidal Station, along the left embankment of the Hooghly River, as far as the Baratola or Channel Creek, thence across to Mud

No. in Series.	Approximate distance in miles from Diamond Harbour.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
7	3.4	MILE POST No. 64, on the left embankment of the Hooghly river.	21 788 ⁸⁰¹	On the top of the mile post.
8	4.4	MILE POST No. 65, on the left embankment of the Hooghly river.	22 678 ⁵⁹³	Ditto.
9	4.7	G.T.S. at OBELISK is cut on the N.E. corner of the plinth of the Kántabária obelisk ⊙ B.M. on the left bank of the Hooghly river.	13.079 ⁸⁹⁴	On the dot in the centre of the circle ⊙.

Branch line to MARINE SOCKET No. 42 near Kántabária Obelisk.

$\frac{1}{9}$	4.7	G.T.S. at OBELISK* is cut on a stone (9 inches x 9 inches x 3 inches) embedded in the B.M. N.W. corner of plinth of the Kántabária obelisk. ⊙	13 186 ¹⁵¹	On the dot in the centre of the circle ⊙.
$\frac{2}{9}$	5.7	MARINE SOCKET No. 42 is situated on a mound on the upper bank of a creek 1 mile N. of the Kántabária obelisk.	13.950 ⁴⁶⁵	On the flange.
10	5.1	G.T.S. at SLUICE is cut on the top step of S.E. wing-wall of sluice 29 chains S. of the B.M. Kántabária obelisk on the left embankment of the Hooghly river. ⊙	18 801 ³⁷⁶	On the dot in the centre of the circle ⊙.

Branch line to MARINE SOCKET No. 46 opposite Inshanbaria village.

$\frac{1}{10}$	6.2	MARINE SOCKET No. 44 is situated on the embankment, 1½ miles S. of the Kántabária obelisk and opposite Ráitola village.	19 695 ¹¹⁹	On the flange.
$\frac{2}{10}$	6.8	MARINE SOCKET No. 46 is situated on the N. bank of a creek, on a mound 10 chains W. of the left embankment of the Hooghly river, opposite Inshanbária village.	14 657 ⁸⁵²	Ditto.

* Arrangements are being made by the Collector of 24-Pergunnahs for the protection of this bench-mark.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Point, and along the clearing made for the Telegraph Line, to Saugor Light-house, thence along the south shore of Saugor Island to Dublat Tidal Station.

No. in Series.	Approximate distance in miles from Diamond Harbour.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
11	5.4	MILE POST No. 66, on the left embankment of the Hooghly river.	22-696 ⁷¹¹	On the top of the mile post.
12	6.4	MILE POST No. 67, on the left embankment of the Hooghly river.	21-239 ²⁵⁷	Ditto.
13	7.4	MILE POST No. 68, on the left embankment of the Hooghly river.	22-347 ³⁶²	Ditto.
14	7.9	G.T.S. at SLUICE is cut on the first step from the top of the S.W. wing-wall of sluice ⊙ B.M. 36 chains S. of mile post No. 68, on the left embankment of the Hooghly river.	21-929 ⁹⁴⁴	On the dot in the centre of the circle ⊙.
15	8.8	G.T.S. at SLUICE is cut on the second step from the top of the N.E. wing-wall of the sluice 27 chains S. of mile post No. 71, on the left embankment of the Hooghly river. ⊙	19-837 ⁶⁵²	Ditto.

Branch line to MARINE SOCKET No. 50, N. bank of Tengra creek.

$\frac{1}{15}$	9.1	B. ⊙ M. at OBELISK is cut on the centre of the base of the ornamental arch on the S. face of the Kulpi obelisk.	14-293 ³⁰⁸	On the dot in the centre of the circle ⊙.
$\frac{2}{15}$	9.3	MARINE SOCKET No. 48 is situated on the old bund, 60 yards from the embankment, midway between the Kulpi obelisk and deep water Marine mark.	13-922 ⁹³⁷	On the flange.
$\frac{3}{15}$	12.2	G.T.S. at SLUICE* is cut on a stone (9 inches × 9 inches × 3 inches) embedded in the centre of the W. parapet of sluice 12 chains N. of the Tengra creek. ⊙	20-548 ⁵⁶³	On the dot in the centre of the circle ⊙
$\frac{4}{15}$	12.4	MARINE SOCKET No. 50 is situated on the bund 30 yards from the N. bank of the Tengra creek, 11 chains S. of the preceding bench-mark.	18-886 ⁸⁵⁷	On the flange.

X measured by
to river sea
annual return
by Dist office
17/24/91

* Arrangements are being made by the Collector of 24-Pergunnahs for the protection of this bench-mark.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series II.—From Diamond Harbour Tidal Station, along the left embankment of the Hooghly River, as far as the Baratola or Channel Creek, thence across to Mud

No. in Series.	Approximate distance in miles from Diamond Harbour.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
16	9.5	MILE POST No. 72, on the left embankment of the Hooghly river.	22 608 ⁵¹⁸	On the top of the mile post.
17	10.5	MILE POST No. 73, on the left embankment of the Hooghly river.	21 739 ⁷⁵⁴	Ditto.
18	11.5	MILE POST No. 74, on the left embankment of the Hooghly river.	21 664 ⁵⁷⁹	Ditto.
19	13.4	△ at OBELISK is cut on the first offset of B.M. the Rangafalla obelisk, about 8 feet above the base.	19 827 ⁹⁴²	On the head of the arrow △.

Branch line to MARINE SOCKET No. 52, S.W. of Rangafalla Obelisk.

$\frac{1}{19}$	13.5	MARINE SOCKET No. 52 is on a mound 200 yards S.W. of the Rangafalla obelisk.	19 681 ⁵⁷⁶	On the flange.
20	14.5	MILE POST No. 77, on the left embankment of the Hooghly river.	20 646 ⁶⁶¹	On the top of the mile post.
21	15.0	CHITAMURI TIDE GAUGE of the Marine Survey consists of a graduated wooden shaft on the left embankment of the Hooghly river, is about midway between mile posts Nos. 77 and 78.	15 946 ⁹⁶¹	On the top of the shaft.
22	15.5	MILE POST No. 78, on the left embankment of the Hooghly river, opposite village Lot No. 1.	19 562 ³⁷⁷	On the top of the mile post.
23	15.6	G.T.S. at SLUICE is cut on the 3rd step from the top of the S.E. wing-wall of the B.M. sluice, near village Lot No. 1.	14 387 ³⁴⁶	On the dot in the centre of the circle ○.

Branch line to MARINE SOCKET No. 56, half a mile south of the Silver Tree Obelisk.

$\frac{1}{23}$	17.0	G.T.S. at MIDDLE POINT MARINE MARK*. □ This bench-mark consists of the usual B.M. stone (18 inches × 18 inches × 12 inches) embedded in a masonry pillar 2 feet 6 inches square and 3 feet deep, built at the junction of two bunds half a mile S. of the Marine mark. The surface of the pillar is nearly on the same level as the bund. The bench-mark is on the lands of village Lot No. 1.	12 606 ³⁰⁰	In the hollow square □ cut for the purpose on the stone.
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* Arrangements are being made by the Collector of 24-Pergunnahs for the protection of this bench-mark.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Point, and along the clearing made for the Telegraph Line, to Saugor Light-house, thence along the south shore of Saugor Island to Dublat Tidal Station.

No. in Series.	Approximate distance in miles from Diamond Harbour.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
$\frac{2}{23}$	17·7	MARINE SOCKET No. 54 is on the embankment, half a mile S. of the preceding bench-mark, and 1 mile S. of "Middle Point Marine Mark."	14·274 ²⁸⁹	On the flange.
$\frac{3}{23}$	19·7	G.T.S. at SILVER-TREE OBELISK*. This bench-mark consists of a stone (9 inches B.M. × 9 inches × 3 inches) embedded at the S.W. corner of the basement of the obelisk.	12·648 ⁸⁵⁸	On the dot in the centre of the circle ⊙.
$\frac{4}{23}$	20·2	MARINE SOCKET No. 56 is situated on Silver-tree Point, $\frac{1}{2}$ a mile south of the obelisk.	12·000 ⁰¹⁵	On the flange.
24	17·0	TELEGRAPH POST BENCH-MARK is opposite village Lot No. 1 and consists of a nail driven into the post, and an arrow (↑) cut below it, about 3 feet above the ground.	11·549 ⁵⁶⁴	On the top of the nail.
25	19·7	TELEGRAPH POST BENCH-MARK is similar to the preceding one, and is on the 4th post northwards from the Telegraph Cable-house on the N. bank of the Baratola river.	12·690 ⁷¹¹	Ditto.
26	20·0	TELEGRAPH POST BENCH-MARK at Cable-house, is similar to the above, and is on the post adjacent to the Cable-house.	13·402 ⁴¹⁷	Ditto.
27	20·1	TELEGRAPH POST is $7\frac{1}{2}$ chains S. of the Cable-house on the N. bank of the Baratola river.	12·564 ³⁷⁹	On the top of the stump.
28	20·1	G.T.S. at TELEGRAPH CABLE-HOUSE†. □ This bench-mark is of the usual stone B.M. embedded in a masonry pillar 3 feet cube, and is about 6 inches above ground level: it is situated on the N. bank of the Baratola river, about 200 yards from its edge, and 17 yards W. of the Cable-house.	9·918 ⁹³³	In the hollow square □ cut for the purpose on the stone.
29	24·4	G.T.S. at MUD POINT†. This bench-mark is □ of the usual stone embedded in a block B.M. of masonry 3 feet cube, and is 9 inches above ground. It is situated just outside the bund which surrounds the Telegraph Office, and 50 feet N.E. of the signalling staff.	13·002 ⁰¹⁸	Ditto.

* Arrangements are being made by the Collector of 24-Pergunnahs for the protection of this bench-mark. † These bench-marks are in charge of the Sub-Inspector of Police, Kulpi.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series II.—From Diamond Harbour Tidal Station, along the left embankment of the Hooghly River, as far as the Baratola or Channel Creek, thence across to Mud

No. in Series.	Approximate distance in miles from Mud Point.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
30	3.5	TELEGRAPH POST BENCH-MARK is $3\frac{1}{2}$ miles S. of Mud Point and 1 mile N. of Phulbária village, and consists of a nail driven into the post about 3 feet above ground level with an arrow (\uparrow) cut below it.	12.140 12.125	On the top of the nail.
31	4.7	TELEGRAPH POST BENCH-MARK is opposite Phulbária village, and consists of a nail driven into the post about 3 feet above ground level with an arrow (\uparrow) cut below it.	11.407 11.422	Ditto.
32	6.2	TELEGRAPH POST BENCH-MARK is $7\frac{1}{2}$ miles N. of the Phuldobi creek, and consists of a nail driven into the post about 3 feet above ground level with an arrow (\uparrow) cut below it.	12.423 12.438	Ditto.
33	7.6	TELEGRAPH POST BENCH-MARK is 6 miles N. of the Phuldobi creek and $\frac{1}{4}$ mile N. of Mandi tank, and consists of a nail driven into the post about 3 feet above the ground with an arrow (\uparrow) cut below it.	11.352 11.367	Ditto.
34	10.6	B. \odot M. at PLINTH is cut on the masonry plinth of the telegraph support on the N. bank of the Phuldobi creek.	9.827 9.852	On the dot in the centre of the circle \odot .
35	10.8	G.T.S. at PHULDOBI CREEK*. This bench-mark is of the usual stone embedded in B.M. a block of masonry 3 feet cube, and a few inches above the ground. It is situated on the S. bank of the creek, 20 feet from the edge, and 100 yards W. of the telegraph support. There are two huts 20 yards W. of the bench-mark, containing the Hindu idol, Bishalokhi.	9.809 9.818	In the hollow square \square cut for the purpose on the stone.
36	12.5	TELEGRAPH POST BENCH-MARK is $8\frac{1}{4}$ miles N. of Saugor Light-house, and consists of a nail driven into the post about 3 feet above ground level with an arrow (\uparrow) cut below it.	11.607 11.382	On the top of the nail.
37	15.0	B. \odot M. at TELEGRAPH POST is cut on the chunam base of telegraph post on the S. bank of Boriamára creek.	9.537 9.552	On the dot in the centre of the circle \odot .
38	16.0	B. \odot M. at TELEGRAPH POST is cut on the chunam base of telegraph post on the S. bank of Bara Shenka creek.	11.587 11.602	Ditto.

* This bench-mark is in charge of the Sub-Inspector of Police, Kulpi.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Point, and along the clearing made for the Telegraph Line, to Saugor Light-house, thence along the south shore of Saugor Island to Dublat Tidal Station.

No. in Series.	Approximate distance in miles from Mud Point.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
39	19.5	TELEGRAPH POST BENCH-MARK is about $1\frac{1}{4}$ miles N. of Saugor Light-house, and consists of a nail driven into the post about 3 feet above ground level with an arrow (\uparrow) cut below it.	13 ⁰⁷⁰ 13⁰⁵⁵	On the top of the nail.
40	20.9	G.T.S. at SAUGOR ISLAND LIGHT- □ HOUSE*. This bench-mark is of the B.M. usual stone embedded in a block of masonry 3 feet cube, and is 1 foot above ground level. It is situated on the bund surrounding the light-house; it is 15 yards S. of the main entrance, and 60 yards W. of the Light-house.	20 ³⁹² 20³⁷⁷	In the hollow square □ cut for the purpose on the stone.
41	20.9	G.T.S. at SAUGOR ISLAND LIGHT-HOUSE. ⊙ This bench-mark is cut on the N. W. B.M. corner of the plinth of Saugor Island Light-house.	21 ⁶³⁷ 21⁶²²	On the dot in the centre of the circle ⊙.
42	30.0	G.T.S. A at DUBLAT*. This bench-mark consists of a masonry pillar, $2\frac{1}{2}$ feet square, B.M. with a stone embedded flush with the surface, which is about 6 inches above the ground level. It is situated about $9\frac{1}{2}$ chains S. of the Tidal Observatory, at the foot of the main embankment, and near the junction of the bund leading towards the observatory.	9 ⁰³⁴ 9⁰¹⁹	Ditto.

* These bench-marks are in charge of the Sub-Inspector of Police, Kulpi.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series III.—From Diamond Harbour Tidal Station, along the main road to Kidderpore Tidal Station, Calcutta and Howrah Railway Station.

No. in Series.	Approximate distance in miles from Diamond Harbour.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
1	0·0	G.T.S. A at DIAMOND HARBOUR is situated 210 feet W. of the Tidal observatory. The bench-mark consists of a masonry pillar, 2 feet square, with a stone set flush with the surface of the pillar: it is just below the embankment and near the junction of the path leading to the cemetery.	11 ^{·911} ·896	On the dot in the centre of the circle ⊙.
2	0·0	LEVEL of the BED-PLATE of Self Registering Tide Gauge in the Tidal Observatory, Diamond Harbour.	20 ^{·209} ·184	On the top of the bed-plate.
3	0·0	∧ at CEMETERY is cut on the plinth of the N. pier of gateway of the cemetery at Diamond Harbour. (Public Works Department bench-mark).	10 ^{·610} ·595	On the head of the arrow ∧.
4	0·0	BOUNDARY PILLAR opposite the S.E. corner of the cemetery at Diamond Harbour.	15 ^{·780} ·765	On the top of the pillar.
5	0·0	G.T.S. at TELEGRAPH OFFICE is cut on the top step facing the river, at the B.M. entrance of the Telegraph Office, Diamond Harbour.	14 ^{·054} ·039	On the dot in the centre of the circle ⊙.
6	0·0	G.T.S. at POST OFFICE is cut on the W. end of the bottom step at the main entrance of the Post Office, Diamond Harbour.	10 ^{·216} ·201	Ditto.
7	0·7	G.T.S. at BRIDGE is cut on the centre of the E. parapet of bridge No. 16 opposite B.M. Hájipur village, ¼ mile S. of milestone No. 29 on the main road to Calcutta.	14 ^{·076} ·061	Ditto.
8	2·0	MILESTONE No. 28 from Calcutta.	14 ^{·445} ·430	On the top of the milestone.
9	2·2	G.T.S. at BRIDGE is cut on the centre of the W. parapet of bridge No. 15, ¾ of a mile S. of Mohanpur village and 12 chains N. of milestone No. 28 from Calcutta.	15 ^{·523} ·508	On the dot in the centre of the circle ⊙.
10	3·0	G.T.S. at BRIDGE is cut on the S. end of the E. parapet of bridge No. 14, 3 chains S. of milestone No. 27 from Calcutta and opposite Mohanpur village.	14 ^{·399} ·384	Ditto.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series III.—From Diamond Harbour Tidal Station, along the Main road to Kidderpore Tidal Station, Calcutta and Howrah Railway Station.

No. in Series.	Approximate distance in miles from Diamond Harbour.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
11	4.0	MILESTONE No. 26 from Calcutta.	⁻⁴¹⁸ 13- 403	On the top of the milestone.
12	4.2	SARISA G. T. SURVEY TOWER STATION, lat. 22° 14' 48", long. 88° 13' 49", a principal station of the East Coast Series is situated on the bund of a square tank near the large village of Sarisha, in pargana Muragáchha, district 24-Pergunnahs. The tower is hollow, square and 33.55 feet high. The Calcutta road passes 10 chains to the west. The centre of the masonry floor was connected.	⁹¹⁴ 20- 699	On the centre of the masonry floor.
13	4.4	G.T.S. at BRIDGE is cut on the south newel \odot of the W. parapet of bridge No. 13 at B.M. the S.E. end of Sarisha Hát, $\frac{1}{2}$ mile N. of milestone No. 26 from Calcutta.	⁶⁵² 16- 637	On the dot in the centre of the circle \odot .
14	4.6	B. \odot M. at BRIDGE is cut on the centre of the S. parapet of bridge over the channel at Sarisha Hát.	⁵⁰² 15- 487	Ditto.
15	5.0	MILESTONE No. 25 from Calcutta.	⁰²⁶ 14- 611	On the top of the milestone.
16	5.8	G.T.S. at BRIDGE is cut on the E. end of the \odot S. parapet of bridge over the channel at B.M. Shaikhtola village, 18 chains S. of milestone No. 24 from Calcutta.	²⁹¹ 15- 276	On the dot in the centre of the circle \odot .
17	6.0	MILESTONE No. 24 from Calcutta.	⁶⁹⁵ 13- 680	On the top of the milestone.
18	6.4	G.T.S. at BRIDGE is cut on the centre of the \odot W. parapet of bridge No. 12, 32 chains N. of milestone No. 24 from Calcutta.	¹⁵¹ 14- 116	On the dot in the centre of the circle \odot .
19	7.0	MILESTONE No. 23 from Calcutta.	⁰⁷⁷ 13- 662	On the top of the milestone.
20	7.1	G.T.S. at BRIDGE is cut on the centre of the \odot N. parapet of bridge, on the branch road to Usti Hát, 5 chains N. of milestone No. 23 from Calcutta.	²⁹³ 13- 268	On the dot in the centre of the circle \odot .
21	8.0	MILESTONE No. 22 from Calcutta.	⁶⁵⁴ 14- 639	On the top of the milestone.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series III.—From Diamond Harbour Tidal Station, along the Main road to Kidderpore Tidal Station, Calcutta and Howrah Railway Station.

No. in Series.	Approximate distance in miles from Diamond Harbour.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
22	8·4	G.T.S. at FATEHPUR HÁT* is situated on the W. side of the road, 15 feet E. of the S.E. corner of the village school, 50 feet E. of the tank and 100 feet W. of the channel along the W. margin of the road. The bench-mark consists of the usual stone, which is embedded in a 3 feet cube masonry pillar, and is about 6 inches below the ground level.	8642 8638	In the hollow square □ cut for the purpose on the stone.
23	9·0	MILESTONE No. 21 from Calcutta.	13840 13864	On the top of the milestone.
24	9·3	G.T.S. at BRIDGE is cut on the centre of the E. parapet of bridge No. 14, near B.M. Saipur village, 26 chains N. of milestone No. 21 from Calcutta.	13799 13814	On the dot in the centre of the circle ⊙.
25	10·0	MILESTONE No. 20 from Calcutta.	14089 14104	On the top of the milestone.
26	10·1	G.T.S. at BRIDGE is cut on the E. end of the S. parapet of bridge over the channel at B.M. Chanditola village, 6 chains N. of milestone No. 20 from Calcutta.	15140 15158	On the dot in the centre of the circle ⊙.
27	11·0	MILESTONE No. 19 from Calcutta.	12842 12857	On the top of the milestone.
28	11·6	G.T.S. at BUNGALOW is cut on the N. end of the bottom step of the W. entrance B.M. of the Public Works Department Inspection bungalow at Rajar Hát, 32 chains S. of milestone No. 18 from Calcutta.	12098 12113	On the dot in the centre of the circle ⊙.
29	11·6	∧ at BUNGALOW is cut on the 3rd step at the W. entrance of the Public Works Department Inspection bungalow at Rajar Hát. (Public Works Department bench-mark).	13121 13130	On the head of the arrow ∧.
30	12·0	MILESTONE No. 18 from Calcutta.	15072 15087	On the top of the milestone.
31	14·0	G.T.S. at BRIDGE is cut on the centre of the E. parapet of bridge No. 9, ¼ a mile S. of Kriparámpur village and 2 chains N. of milestone No. 16 from Calcutta.	14982 14997	On the dot in the centre of the circle ⊙.

* Arrangements are being made by the Collector of 24-Pergunnahs for the protection of this bench-mark.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series III.—From Diamond Harbour Tidal Station, along the Main road to Kidderpore Tidal Station, Calcutta and Howrah Railway Station.

No. in Series.	Approximate distance in miles from Diamond Harbour.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
32	14·6	G.T.S. at BRIDGE is cut on the cornice at the ⊙ E. end of the N. parapet of channel B.M. bridge at Kriparámpur village, and 35 chains S. of milestone No. 15 from Calcutta.	14-490 ⁵⁷⁵	On the dot in the centre of the circle ⊙.
33	15·0	MILESTONE No. 15 from Calcutta.	15-475 ⁷⁹⁰	On the top of the milestone.
34	15·7	INSCRIPTION STONE on the landing of Udairámpur village tank. The stone is marble and has the letters K. C. M. engraved on it. (Public Works Department bench-mark).	14-480 ¹⁹⁵	On the stone.
35	15·9	G.T.S. at BISTUPUR POLICE STATION is cut on the N. end of the 3rd or middle step ⊙ B.M. at the entrance of Bistupur Police Station 6 chains S. of milestone No. 14 from Calcutta.	15-800 ⁵⁰⁵	On the dot in the centre of the circle ⊙.
36	15·9	G.T.S. at BISTUPUR POLICE STATION* is □ embedded in a masonry pillar 3 feet cube, B.M. on the W. margin of the road, in the compound of the Police Station: it is 26 links from the N.E. corner pillar of the compound wall, 33 links from the S.W. corner of the Post Office and 100 links from the bench-mark cut on the steps of the Police Station. The upper surface of the bench-mark is about 6 inches below the ground level.	12-845 ⁶⁶⁰	In the hollow square □ cut for the purpose on the stone.
37	16·0	MILESTONE No. 14 from Calcutta.	14-485 ⁵⁰⁰	On the top of the milestone.
38	17·4	G.T.S. at BRIDGE is cut on the top of the ⊙ S.W. parapet pillar of girder-bridge No. 8 B.M. at Khoribária village, 32 chains N. of milestone No. 13 from Calcutta.	16-818 ³³⁸	On the dot in the centre of the circle ⊙.
39	18·0	MILESTONE No. 12 from Calcutta.	12-902 ⁹¹⁷	On the top of the milestone.
40	19·0	MILESTONE No. 11 from Calcutta.	13-748 ⁷⁶³	Ditto.
41	19·5	G.T.S. at BRIDGE is cut on the S. end of the ⊙ W. parapet of bridge, opposite Rajamulla-chak, midway between milestones Nos. 10 and 11 from Calcutta.	13-025 ⁰⁴⁴	On the dot in the centre of the circle ⊙.

* Arrangements are being made by the Collector of 24-Pergunnahs for the protection of this bench-mark.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series III.—From Diamond Harbour Tidal Station, along the Main road to Kidderpore Tidal Station, Calcutta and Howrah Railway Station.

No. in Series.	Approximate distance in miles from Diamond Harbour.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
42	20·0	MILESTONE No. 10 from Calcutta.	12·347 12·362	On the top of the milestone.
43	20·7	G.T.S. at BRIDGE is cut on the centre of the ⊙ E. parapet of bridge No. 6, 25 chains S. B.M. of milestone No. 9 from Calcutta.	11·655 11·670	On the dot in the centre of the circle ⊙.
44	21·7	B. ⊙ M. at BRIDGE is cut on the plinth of the S. end of the W. parapet of bridge at Thákurpukur, 28 chains S. of milestone No. 8.	11·957 11·972	Ditto.
45	21·8	G.T.S. at THÁKURPUKUR* is embedded in □ a 3 feet cube masonry pillar opposite the B.M. eastern wall of the Mission Church: it is 12 links from the centre of the wall, 20 links from either end of it and 40 yards westwards from the road. The bench-mark is about 6 inches below ground, and is covered by a mound of earth.	9·496 9·511	In the hollow square □ cut for the purpose on the stone.
46	21·8	↑ at MISSION CHURCH is cut on the 2nd or middle step at the southern wing entrance of the Mission Church at Thákurpukur. (Public Works Department bench-mark).	11·801 11·810	On the head of the arrow ↑.
47	22·0	MILESTONE No. 8 from Calcutta.	17·884 17·849	On the top of the milestone.
48	23·0	G.T.S. at BRIDGE is cut on the centre of the ⊙ offset of the E. parapet of bridge No. 3 B.M. at Barisha, 3 chains N. of milestone No. 7 from Calcutta.	14·624 14·539	On the dot in the centre of the circle ⊙.
49	23·5	↑ at MUNICIPAL TANK is cut on the S. end of the offset of the N. angular parapet wall of paka ghát of Municipal tank on the W. side of the road at Barisha, midway between milestones Nos. 6 and 7 from Calcutta. (Public Works Department bench-mark).	16·088 16·149	On the head of the arrow ↑.
50	23·9	G.T.S. at DISPENSARY is cut on the S. end ⊙ of the centre step at the E. entrance B.M. to the "South Suburban Town Charitable Dispensary" at Barisha, 10 chains S. of milestone No. 6 from Calcutta.	15·105 15·200	On the dot in the centre of the circle ⊙.

* Arrangements are being made by the Collector of 24-Pergunnahs for the protection of this bench-mark.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series III.—From Diamond Harbour Tidal Station, along the Main road to Kidderpore Tidal Station, Calcutta and Howrah Railway Station.

No. in Series.	Approximate distance in miles from Diamond Harbour.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
51	24.0	MILESTONE No. 6 from Calcutta.	18.360 - 375	On the top of the milestone.
52	24.2	G.T.S. at GHÁT is cut on the flooring at the N.W. corner of the Bannali Goshál B.M. Bábu's paka ghát 13 chains N. of milestone No. 6 from Calcutta.	18.772 - 787	On the dot in the centre of the circle ⊙.
53	25.0	G.T.S. at TEMPLE is cut on the N.E. corner of the verandah floor of the Mahábír's Temple, opposite the Police Station at Behála, 3 chains N. of milestone No. 5 from Calcutta.	17.562 - 578	Ditto.
54	25.6	G.T.S. at BRIDGE is cut on the S.E. wing-wall of bridge No. 2, 30 chains S. of B.M. milestone No. 4 from Calcutta.	13.585 - 550	Ditto.
55	26.0	MILESTONE No. 4 from Calcutta.	14.226 - 257	On the top of the milestone.
56	26.7	G.T.S. at BRIDGE is cut on the W. end of the S. parapet of bridge at the junction of the road from Kálighát to Oolaberiah, $\frac{1}{4}$ mile S. of milestone No. 3 from Calcutta.	19.846 - 361	On the dot in the centre of the circle ⊙.
57	27.0	MILESTONE No. 3 from Calcutta.	17.295 - 310	On the top of the milestone.
58	28.6	B.⊙M. at KIDDERPORE DOCKYARD is marked in tar on the N.E. corner of plinth of the S. pillar of the gateway to the Government Dockyard, Kidderpore.	20.981 - 996	On the dot in the centre of the circle ⊙.
59	28.7	G.T.S. B at KIDDERPORE* is cut on the western side of circular masonry platform on which used to stand a sentry-box; it is close to and north of the road running through the centre of the Dockyard, Kidderpore.	20.494 - 419	Ditto.
60	28.8	G.T.S. A at KIDDERPORE DOCKYARD* is cut on the 5th brick from the east on the B.M. 3rd step of the moulding shed, leading into the boat house, Dockyard, Kidderpore.	22.190 - 205	Ditto.

* Arrangements are being made by the Superintendent of the Dockyard for the protection of these stations.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series III.—From Diamond Harbour Tidal Station, along the Main road to Kidderpore Tidal Station, Calcutta and Howrah Railway Station.

No. in Series.	Approximate distance in miles from Diamond Harbour.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
61	28·8	IRRIGATION DEPARTMENT BENCH-MARK, close to the Tidal Observatory and below the sail-loft, Dockyard, Kidderpore. The bench-mark consists of a masonry pillar, bearing a marble slab, set flush with its upper surface and is about 4 feet above the ground. The slab bears the inscription "B.M. 23 feet above Datum, Dock-sill. December 1871."	448 15-433	On the top of the bench-mark.
62	28·8	TIDAL OBSERVATORY, KIDDERPORE. Level of bed-plate of the Self-registering Tide Gauge in the Tidal Observatory, Kidderpore Dockyard.	757 23-442	On the top of the bed-plate.
63	28·8	KIDDERPORE DOCK. Level of sill, Kidderpore Dock. The point of reference was the surface of the sill at the N. end. <i>N.B.</i> —This bench-mark is 7·986 below mean sea level.	-8·001 -7·986	On the surface of the sill.
64	28·9	G.T.S. at HASTING'S SUSPENSION BRIDGE is cut on the S. end of the E. wing-wall ⊙ B.M. of Hasting's suspension bridge, Kidderpore. The bench-mark is cut on the 2nd pillar from the lamp post at the end of the E. wing-wall.	309 27-294	On the dot in the centre of the circle ⊙.
65	29·5	PRINSEP'S GHÁT BENCH-MARK. This bench-mark consists of an upright stone fixed in a masonry pillar, opposite Prinsep's Ghát, Calcutta. It was constructed by Captain Tucker, Garrison Engineer, and bears the following inscription: "No. 4, 25·35 bench-mark. Fort William 1862."	159 18-144	On the top of the upright stone.
66	30·3	G.T.S. at SIR WILLIAM PEEL'S STATUE is cut on the pavement, in front of inscription stone of Sir William Peel's statue, ⊙ B.M. near the S.W. gate of the Eden Gardens, Calcutta.	791 18-776	On the dot in the centre of the circle ⊙.
67	30·6	G.T.S. at BÁBU GHÁT is cut on the pavement, ⊙ on the east side and near the 4th pillar from the south, of Bábu Ghát, Strand, Calcutta.	913 17-898	Ditto.
68	31·3	G.T.S. at NAWÁB ABDUL GUNNY'S FOUNTAIN, is cut on the S.E. corner ⊙ B.M. of the basement of Nawáb Abdul Gunny's Fountain, near the junction of Fairlie Place with the Strand, Calcutta.	776 17-781	Ditto.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series III.—From Diamond Harbour Tidal Station, along the Main road to Kidderpore Tidal Station, Calcutta and Howrah Railway Station.

No. in Series.	Approximate distance in miles from Diamond Harbour.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
69	31·9	G.T.S. at CHOTELÁL DURGA PARSHÁD'S ⊙ GHÁT is cut on the centre step of the B.M. front entrance to the S. wing of Chotelál Durga Parshád's Ghát, on the N. side of and adjoining the Hooghly bridge.	18·407 18· ⁴²²	On the dot in the centre of the circle ⊙.
70	32·2	G.T.S. at GOLÁB GHÁT is cut on the top step ⊙ of Goláb Ghát, on Grey's wharf, opposite B.M. the 1st iron bollard to the N. of the landing in front of the River Steam Navigation Company's Godown, Strand, Bank Road, Calcutta.	14·386 14· ³⁵⁷	Ditto.

Branch line to CALCUTTA MINT.

$\frac{1}{70}$	0·3†	G.T.S. at CALCUTTA MINT*. This bench-mark consists of a stone (18 inches × 12 inches × 12 inches) embedded in a masonry pillar 3 feet square, erected within the compound fence of the Warder's quarters: it is situated near the sentry-box at the southern gate, and opposite the 3rd iron post southwards. The pillar is about 6 inches above the ground.	16·600 16· ⁸¹⁸	In the hollow square □ cut for the purpose on the stone.
$\frac{2}{70}$	0·3†	G.T.S. at CALCUTTA MINT*. This bench-mark is similar to the preceding one, B.M. and is situated in the Mint compound: it is erected between the path leading to the Office from the gate and the drain alongside, or more exactly the bench-mark is 9 feet 6 inches to the N.W. of the S.E. corner of the Pre-melting Room, and 3 feet 4 inches from the western wall of the same.	19·767 19· ⁷⁸²	Ditto.
71	32·2	TOP of IRON BOLLARD, the first one north of the landing, in front of the River Steam Navigation Company's Godown, Strand, Bank Road, Calcutta.	15·191 15· ¹³⁶	On the top of the iron bollard.
72	32·8	HOWRAH DOCK. Level of sill, Howrah Dock. The principal dock in the Calcutta Docking Company's yard. The point of reference was the surface of the sill immediately below the southern hinge of the gate. N.B.—This B.M. is 10·836 below mean sea level.	10·836 10· ⁸⁵⁷	Level of sill.
73	33·1	G.T.S. at ENTRANCE PORCH, HOWRAH ⊙ RAILWAY STATION is cut on the east B.M. end of the the 2nd step from the bottom, at the main entrance porch, Howrah Railway Station.	17·025 17· ⁹⁵²	On the dot in the centre of the circle ⊙.

* These bench-marks are under the protection of the Mint Authorities.

† From B. M. No. 70.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series IV.—From Kidderpore Tidal Station, along the left bank of the Hooghly, to the Tidal Station at Diamond Harbour.

No. in Series.	Approximate distance in miles from Kidderpore.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff
1	0·0	G.T.S. B at PLATFORM* is cut on the western side of the circular masonry platform on which used to stand a sentry-box: it is close to and N. of the road leading through the centre of the Dock-yard, Kidderpore. ⊙	20·404 419	On the dot in the centre of the circle ⊙.
2	1·2	LEVEL of PEDESTAL of LION'S STATUE on the W. wing-wall of gate bridge of House No. 21, (Messrs. Apcar and Co's) Garden Reach Road.	15·222 237	On the top of the granite pedestal.
3	3·3	G.T.S. at BRIDGE is cut on the S. end of offset of the W. parapet of bridge at Gulám B.M. Rahmán Hájí's house, in Dhobapára village, on the road to Ákra. ⊙	15·039 957	On the dot in the centre of the circle ⊙.
4	3·9	G.T.S. at BRIDGE is cut on the E. end of the N. parapet of bridge, at the S. end of B.M. Bartola-bazar, on the road to Ákra. ⊙	14·680 695	Ditto.
5	5·1	G.T.S. at ÁKRA is cut on the middle step, at the side entrance to the N. of the Assistant Engineer's Office, Public Works Department brick-fields, Ákra. ⊙	14·152 167	Ditto.
6	5·1	G.T.S. at ÁKRA†. This bench-mark consists of a stone (22 inches × 18 inches × 3 inches) embedded in a masonry pillar 2½ feet above the ground, situated in front of and near the gate leading into the Assistant Engineer's Office, Public Works Department brick-fields, Ákra. □	14·272 387	In the hollow square □ cut for the purpose on the stone.
7	5·3	MARINE SOCKET No. 4, situated on the river bank, 1¼ chains W. of the Assistant Engineer's Office, Public Works Department brick-fields, Ákra.	13·867 872	On the flange.
8	5·3	G.T.S. at SLUICE is cut on the S. end of the W. parapet of sluice, 13 chains S.W. of B.M. Assistant Engineer's Office, Public Works Department brick-fields, Ákra. ⊙	17·254 269	On the dot in the centre of the circle ⊙.

* Arrangements are being made by the Superintendent, Dockyard, for the protection of this station. † Arrangements are being made by the Collector of 24-Pergunnahs for the protection of this station.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series IV.—From Kidderpore Tidal Station, along the left bank of the Hooghly, to the Tidal Station at Diamond Harbour.

No. in Series.	Approximate distance in miles from B.M. No. 8.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
<i>Branch line to MARINE SOCKET No. 2, near Ákra Pier.</i>				
$\frac{1}{8}$	0.3	G.T.S. at PILLAR is cut on the E. end of the masonry pillar, on the N. side of the B.M. iron pier, Public Works Department brick-fields, Ákra.	13.676	On the dot in the centre of the circle ⊙.
$\frac{2}{8}$	0.4	G.T.S. at TANK-HOUSE is cut on the top step of masonry pillar supporting the iron B.M. ladder of tank-house adjoining the Soorhy Mills, Public Works Department, Ákra.	14.105	Ditto.
$\frac{3}{8}$	0.9	MARINE SOCKET No. 2 is situated at the junction of two bunds, near the S.W. corner of Messrs. Burne & Co's. brick-field, $\frac{1}{2}$ mile N. of the Ákra pier.	15.930	On the top of the flange.
9	0.9†	G.T.S. at RÁJ NARAIN MANNA'S HOUSE is cut on the N. end of the 2nd step B.M. from bottom, at the E. entrance to Ráj Narain Manna's house at Kishannagar village, near the Ákra creek.	15.509	On the dot in the centre of the circle ⊙.
10	2.0†	G.T.S. at PIPAL TREE is cut on the N.W. corner of platform round a pipal tree on the S. margin of embankment opposite Uludánga village.	14.997	Ditto.
11	2.1†	MARINE SOCKET No. 6 is situated on the embankment, 16 chains E. of the Mírpurkhál sluice.	17.295	On the top of the flange.
12	2.3†	G.T.S. at SLUICE is cut on the floor, just below the N. parapet of the sluice over the Mírpurkhál.	16.853	On the dot in the centre of the circle ⊙.
13	3.3†	MARINE SOCKET No. 8 is situated on the embankment, a few links to the east of the sluice over the Nungibanglakhál.	16.822	On the top of the flange.
14	3.3†	G.T.S. at SLUICE is cut on the floor just below the N. parapet of the sluice over the Nungibanglakhál.	16.292	On the dot in the centre of the circle ⊙.

† From Ákra.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series IV.—From Kidderpore Tidal Station, along the left bank of the Hooghly, to the Tidal Station at Diamond Harbour.

No. in Series.	Approximate distance in miles from Akra.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
15	4·9	G.T.S. at EMPRESS COTTON MILLS is cut on the N. end of the middle step at the B.M. E. entrance of the Manager's house, Empress Cotton Mills at Chitrganj.	⁶⁴³ 16·624	On the dot in the centre of the circle ⊙.

Branch line to MARINE SOCKET No. 10, near the Empress Cotton Mills.

$\frac{1}{15}$	0·9†	MARINE SOCKET No 10 is situated on the old bund 4 chains W. of the embankment, 8 chains S. of mile post No. 3 along the embankment and $\frac{3}{4}$ mile N. of the Empress Cotton Mills.	³⁴⁵ 17·630	On the top of the flange.
16	5·0	∧ at EMPRESS COTTON MILLS is cut on the top step of the S.E. wing-wall of sluice at the S. end of the Empress Cotton Mills. (Public Works Department bench-mark).	⁸⁴⁵ 14·830	On the head of the arrow ∧.
17	5·7	MARINE SOCKET No. 12 is situated on the river bank, 3 chains W. of the embankment, $\frac{3}{4}$ mile S. of the Empress Cotton Mills and about $\frac{1}{4}$ mile N. of Buj Buj bazar.	³⁶⁷ 14·352	On the top of the flange.
18	7·4	∧ at BRIDGE is cut on the E. end of the S. parapet of bridge No. 22 over Charialkhál, on the road from Calcutta to Atcheepore, at Charial bazar. (Public Works Department bench-mark).	³⁴⁴ 18·529	On the head of the arrow ∧.
19	8·0	G.T.S. at SLUICE* is cut on a stone (9 inches × 9 inches × 3 inches) embedded in B.M. the top step of the N.E. wing-wall of the S. parapet of sluice at Jaychandipur village.	⁴⁶³ 14·448	On the dot in the centre of the circle ⊙.
20	8·3	MARINE SOCKET No. 14 is situated on the edge of a field, 1 chain from the river bank, 3½ chains from the embankment and $\frac{1}{4}$ mile below Jaychandipur sluice.	⁴²⁵ 13·910	On the top of the flange.

* Arrangements are being made by the Collector of 24-Pergunnahs for the protection of this station. † From bench-mark No. 15.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series IV.—From Kidderpore Tidal Station, along the left bank of the Hooghly, to the Tidal Station at Diamond Harbour.

No. in Series.	Approximate distance in miles from Akra.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
21	9.4	MARINE SOCKET No. 16 is situated on the embankment adjoining a triangular stone marked \odot 1871 embedded on the E. side of Pujalikhál.	18.409	On the top of the flange.
22	10.2	G.T.S. at SLUICE is cut on the top step of the E. wing-wall of the S. parapet of sluice B.M. at Pujali village.	15.309	On the dot in the centre of the circle \odot .
23	10.8	$\overline{\wedge}$ at BUNGALOW is cut on the floor, near the S.W. corner of the Inspection bungalow at Atcheepore. (Public Works Department bench-mark).	13.036	On the head of the arrow $\overline{\wedge}$.
24	11.3	MARINE SOCKET No. 18 is situated on the river side on the S. bank of a creek $\frac{1}{2}$ mile W. of the Inspection bungalow at Atcheepore.	11.239	On the top of the flange.
25	12.2	$\overline{\wedge}$ at ATCHEEPORE TELEGRAPH OFFICE is cut on the N. end of the 2nd step from bottom of paka stairs on the N. side of Telegraph Office, Atcheepore. (Public Works Department bench-mark).	12.547	On the head of the arrow $\overline{\wedge}$.
26	0.5†	G.T.S. at MAYAPUR TIDAL SEMAPHORE*. This bench-mark consists of B.M. a masonry pillar 2 feet square, below the embankment, on the side further away from the semaphore. The pillar is about 6 inches above ground level, in the centre of which there is a stone slab embedded flush with the surface.	11.248	On the dot in the centre of the circle \odot .
27	0.6†	$\overline{\wedge}$ at SLUICE is cut on the top step of the N. W. wing-wall of sluice, 9 chains E. of Mayapur Tidal Semaphore. (Public Works Department bench-mark).	15.222	On the head of the arrow $\overline{\wedge}$.
28	1.4†	$\overline{\wedge}$ at SLUICE is cut on the top step of the S.E. wing-wall of sluice, 13 chains W. of Mayapur magazine.	14.964	Ditto.
29	1.6†	G.T.S. at MAYAPUR MAGAZINE† is cut on a stone (9 inches \times 9 inches \times 3 inches) B.M. embedded in the centre of the floor of the sentry-box or tower at the S.W. corner of the compound wall of Mayapur magazine.	12.200	On the dot in the centre of the circle \odot .

* Arrangements are being made by the Dy. Conservator of the Calcutta Port for the protection of this station. † From Atcheepore Telegraph Office. ‡ Arrangements are being made by the Collector of 24 Pargunnahs for the protection of this station.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series IV.—From Kidderpore Tidal Station, along the left bank of the Hooghly, to the Tidal Station at Diamond Harbour.

No. in Series.	Approximate distance in miles from Atchceopore Telegraph Office.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
30	2.8	MARINE SOCKET No. 20 is situated on the river bank at the mouth of the Álampurkhál (Vanzan creek on Marine chart) 5 chains W. of the embankment and 1¼ miles S. of the Mayapur magazine.	⁵²⁸ 12.493	On the top of the flange.
31	3.3	Λ at SLUICE is cut on the E. parapet of the sluice, opposite a Marine beacon, ¾ mile N. of Rayapur bazar, and 9 chains N. of mile post No. 16 along the embankment. (Public Works Department bench-mark).	⁷⁰³ 18.701	On the head of the arrow Λ.
32	3.9	R.S. at EMBANKMENT is cut on a triangular ○ stone embedded on the embankment, 25 1871 chains N. of Rayapur bazar, and 35 chains S. of mile post No. 16 along the embankment.	⁷²⁴ 14.779	On the top of the circle ○.
33	4.2	Λ at SLUICE is cut on the S. end of the E. parapet of the sluice opposite Rayapur bazar, and ¼ mile N. of mile post No. 17 along the embankment. (Public Works Department bench-mark).	⁷³⁴ 17.019	On the head of the arrow Λ.
34	5.1	MARINE SOCKET No. 22 is situated under a banyan tree, 3 chains below the embankment, on the south bank of the Rayapur creek.	²⁰⁰ 13.165	On the top of the flange.
35	6.0	Λ at SLUICE is cut on the top step of the N.E. wing-wall of sluice opposite Gopálganj bazar at Bahárkunji village. (Public Works Department bench-mark).	⁷⁶³ 14.738	On the head of the arrow Λ.
36	6.8	G.T.S. at RAYAPUR MARINE SURVEY ○ TIDE GAUGE*. This bench-mark consists of a masonry pillar 2 feet square, situated below and to the N. of embankment, immediately opposite the tide gauge. The pillar is about 6 inches above the ground in the centre of which there is a stone slab embedded flush with the surface of the pillar.	⁸¹⁴ 11.114	On the dot in the centre of the circle ○.
37	7.0	MARINE SOCKET No. 24 is situated on the embankment about ¼ mile S. of the preceding bench-mark.	⁸⁷⁰ 16.865	On the top of the flange.

* Arrangements are being made by the Deputy Conservator of the Calcutta Port for the protection of this station.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series IV.—From Kidderpore Tidal Station, along the left bank of the Hooghly, to the Tidal Station at Diamond Harbour.

No. in Series.	Approximate distance in miles from Atcheepore Telegraph Office.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
38	7.4	B. Δ M. at BRUL SEMAPHORE TOWER is cut on the wall of Brul Semaphore Tower. The bench-mark is on the outer face and a little to the N. of the doorway: it is about 6 miles S. of the Mayapur magazine. (Public Works Department bench-mark). $\overline{\wedge}$	15.365	On a level with the arrow head $\overline{\wedge}$.
39	0.1†	R.S. at EMBANKMENT is cut on a triangular stone embedded on the embankment, a few 1871 feet to the S. of the sluice situated 10 chains S.W. of the Brul Semaphore tower. \bigcirc	17.170	On the top of the circle \bigcirc .
40	0.4†	IRON PIPE, 6 inches in diameter with hexagonal flange is embedded on the W. side of, and below, the embankment, 24 chains S. of the sluice, 10 chains S.W. of the Brul Semaphore tower.	11.353	On the top of the flange.
41	1.6†	MARINE SOCKET No. 26 is situated on the edge of a field near some palm trees on river side, 33 chains N. of mile post No. 22 along the embankment opposite Podupukur bazar.	13.115	Ditto.
42	2.0†	$\overline{\wedge}$ at SLUICE is cut on the 2nd step from bottom of the S.E. wing-wall of the sluice, 4 chains N. of Podupukur bazar. (Public Works Department bench-mark).	13.526	On the head of the arrow $\overline{\wedge}$.
43	2.8†	$\overline{\wedge}$ at INSPECTION BUNGALOW is cut on the top step, leading into the verandah on the N. side of Public Works Department Inspection bungalow at Ahmadpur. (Public Works Department bench-mark).	12.521	Ditto.
44	2.9†	MARINE SOCKET No. 28 is situated on the end of the bund leading from the Ahmadpur Inspection bungalow towards the river.	13.860	On the top of the flange.
45	3.5†	$\overline{\wedge}$ at SLUICE is cut on 2nd step from the bottom of S.E. wing-wall of sluice at Rajarampur village, 6 chains S. of Kántakháli creek and about $\frac{1}{4}$ mile S. of mile post No. 23 along the embankment. (Public Works Department bench-mark).	12.674	On the head of the arrow $\overline{\wedge}$.

† From Brul.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series IV.—From Kidderpore Tidal Station, along the left bank of the Hooghly, to the Tidal Station at Diamond Harbour.

No. in Series.	Approximate distance in miles from Druil.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
46	4.0	MARINE SOCKET No. 30 is situated on the old bund near the river side, opposite Mansatola hamlet, $\frac{1}{4}$ mile S. of Kántakháli creek.	⁵⁵⁷ 14.541	On the top of the flange.
47	4.7	IRON PIPE, 6 inches in diameter with hexagonal flange, is embedded on the embankment at the junction of the path from Shámsundarpur village, 33 chains N. of mile post No. 25 along the embankment.	⁵³¹ 16.516	Ditto.
48	5.4	G.T.S. at PHALTA MARINE SURVEY \odot TIDE GAUGE*. This bench-mark consists of a masonry pillar 2 feet square below the embankment opposite the tide gauge. The pillar is about 6 inches above the ground, in the centre of which there is a stone slab embedded flush with the surface.	²⁸⁵ 11.270	On the dot in the centre of the circle \odot .
49	5.6	MARINE SOCKET No. 32 is situated near the ruins of some steps, $\frac{1}{4}$ mile S. of the Marine Survey Tide Gauge at Phalta.	¹¹¹ 12.006	On the top of the flange.
50	6.1	$\bar{\wedge}$ at SLUICE is cut on the 3rd step from the top of the N.W. wing-wall of sluice, 30 chains S. of Phalta village. (Public Works Department bench-mark).	⁵⁴⁸ 16.685	On the head of the arrow $\bar{\wedge}$.
	6.2	G.T.S. at PILLAR† is cut on a stone (9 inches \times 9 inches \times 3 inches) embedded in a B.M. masonry pillar on the E. side of the embankment immediately opposite lower Phalta Marine mark, at mile post No. 26, and 10 chains N.W. of Phalta Fort.	^{10.013} 9.998	On the dot in the centre of the circle \odot .
	6.4	$\bar{\wedge}$ at SLUICE is cut on the S.E. corner of the outer sluice of the ditch round Phalta Fort and on its western side. (Public Works Department bench-mark).	⁸⁴⁸ 13.868	On the head of the arrow $\bar{\wedge}$.

* Arrangements are being made by the Deputy Conservator of the Calcutta Port for the protection of this station.

† Arrangements are being made by the Collector of 24-Pergunnahs for the protection of this station.

Destroyed by the construction of a new road (See Annual Report by Dist. office 5/24/2/91)

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series IV.—From Kidderpore Tidal Station, along the left bank of the Hooghly, to the Tidal Station at Diamond Harbour.

No. in Series.	Approximate distance in miles from Brul.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
<i>Branch line to PHALTA FORT, 152</i>				
$\frac{1}{52}$	6.4	G.T.S. at PHALTA FORT is cut on the circular stone platform at the 2nd embrasure counting from the north, of Phalta fort. ⊙ B.M.	18.187	On the dot in the centre of the circle ⊙.
53	0.3‡	MARINE SOCKET No. 34 is situated on the lower bank of Phalta creek, 3 chains W. of the embankment.	11.611	On the top of the flange.
54	1.8‡	MARINE SOCKET No. 36 is situated on the river bank, 20 yards E. of a conspicuous tree on Phalta Point and 20 yards from the embankment opposite Agalmeg village.	13.482	Ditto.
55	2.5‡	Λ at SLUICE is cut on the top of the centre of the W. parapet of sluice, 3 chains S. of the lower bank of Nainankhál, opposite Nainan village, and 9 chains S. of mile post No. 33 along the embankment. (Public Works Department bench-mark).	20.212	On the head of the arrow Λ.
56	3.3‡	R.S. at EMBANKMENT is cut on a triangular stone embedded on the embankment, 1871 7 chains N. of mile post No 34 along the embankment. ⊙	15.802	On the top of the stone.
57	4.0‡	G.T.S. at ANCHORING CREEK OBELISK* ⊙ is cut on a stone (9 inches × 9 inches B.M. × 3 inches) embedded at the N.W. corner of the plinth of Anchoring Creek Obelisk.	12.036	On the dot in the centre of the circle ⊙. <i>Encroached by the river. (See Annual Report of Dist. Officer 24/2/91.)</i>
58	3.9‡	MARINE SOCKET No. 38 is situated on the lower bank of Anchoring creek, 6 chains S. of the sluice along the embankment.	11.807	On the top of the flange.
59	6.2‡	G.T.S. at HOOGHLY POINT TIDAL SEMAPHORE.† This bench-mark consists of a masonry pillar 2 feet square, just below and on the E. side of the embankment, 20 yards N. of the semaphore. The pillar is about 6 inches above the ground, and has a stone embedded in the centre. ⊙ B.M.	13.181	On the dot in the centre of the circle ⊙.

* Arrangements are being made by the Collector of 24-Pergunnahs for the protection of this station.

† Arrangements are being made by the Deputy Conservator of the Calcutta Port for the protection of this station. ‡ From Phalta Fort.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series IV.—From Kidderpore Tidal Station, along the left bank of the Hooghly, to the Tidal Station at Diamond Harbour.

No. in Series.	Approximate distance in miles from Phalga Fort.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
60	6.6	$\bar{\Lambda}$ at BUNGALOW is cut on the W. end of the bottom step at the S. entrance of the Public Works Department Inspection bungalow at Hooghly Point. (Public Works Department bench-mark).	11.749	On the head of the arrow $\bar{\Lambda}$.
61	8.0	MARINESOCKET No. 40 is situated on the upper bank of a creek, 2 chains S. of the sluice, $\frac{1}{2}$ mile W. of Samalbária village and $1\frac{1}{2}$ miles below Hooghly Point Inspection bungalow.	11.488	On the top of the flange.
62	8.1	$\bar{\Lambda}$ at SLUICE is cut on the 3rd step from the top of the N.E. wing-wall of sluice $\frac{1}{2}$ mile W. of Samalbária village, 33 chains W. of mile post No. 40 along the embankment. (Public Works Department bench-mark)*.	14.105	On the head of the arrow $\bar{\Lambda}$.
63	9.7	$\bar{\Lambda}$ at SLUICE is cut on the 3rd step of the N.E. wing-wall of the sluice 16 chains E. of mile post No. 41 opposite Raichak village. (Public Works Department bench-mark).	13.996	Ditto.

* If 0.960, the height of the 3rd step, be added to the value of this point the value so obtained will be comparable with that of No. 193 of Series I.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series V.—From Kukraháti ferry, along the right bank of the Hooghly to Kejiri and on to the mouth of the Rasulpur River.

No. in Series.	Approximate distance in miles from Kukraháti.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
1	0·0	G.T.S. at KUKRAHÁTI* is embedded in the centre of the front verandah floor of the B.M. Public Works Department Inspection bungalow. The bench-mark is of the usual stone and is flush with the floor. The bungalow is about 1 mile W. of Kukrahátighát and 400 yards from the river bank.	20·812	In the hollow square □ cut for the purpose on the stone.
2	0·3	G.T.S. at SLUICE is cut on the E. end of the N. parapet of sluice, 27 chains below B.M. Kukraháti Inspection bungalow.	20·305	On the dot in the centre of the circle ⊙.
3	0·6	⊙ at MILESTONE is cut on the top of milestone No. 45 along the embankment.	18·769	Ditto.
4	1·6	⊙ at MILESTONE is cut on the top of milestone No. 44 along the embankment.	20·200	Ditto.
5	1·7	G.T.S. at SLUICE is cut on the E. end of the N. parapet of sluice, 6 chains E. of milestone No. 44 along the embankment.	18·629	Ditto.
6	2·6	⊙ at MILESTONE is cut on the top of milestone No. 43 along the embankment.	20·904	Ditto.
7	3·6	⊙ at MILESTONE is cut on the top of milestone No. 42 along the embankment.	17·150	Ditto.
8	4·6	G.T.S. at SLUICE† is cut on a stone (9 inches × 9 inches × 3 inches) embedded in the B.M. coping at the N. end of the W. parapet of sluice at Bhadab village, 1 chain N. of milestone No. 41 along the embankment.	13·995	Ditto.
9	5·6	⊙ at MILESTONE is cut on the top of milestone No. 40 along the embankment.	18·570	Ditto.
10	5·9	G.T.S. at SLUICE† is cut on a stone (9 inches × 9 inches × 3 inches) embedded in the B.M. coping at the S. end of the E. parapet of sluice at Horkháli village, ¼ mile S. of milestone No. 40 along the embankment.	15·119	Ditto.

* This bench-mark is in charge of the Sub-Inspector of Police, Satuháta.

† Arrangements are being made by the Collector of Midnapore for the protection of these stations.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series V.—From Kukraháti ferry, along the right bank of the Hooghly to Kejiri and on to the mouth of the Rasulpur River.

No. in Series.	Approximate distance in miles from Kukraháti.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
11	6.4	G.T.S. at SLUICE is cut on the W. end of the S. parapet of sluice, $\frac{1}{2}$ mile E. of Hor-B.M. khálihát and 15 chains N. of milestone No. 39 along the embankment.	16.264	On the dot in the centre of the circle \odot .

Branch line to MARINE SOCKET No. 43, on lower bank of Horkháli creek.

$\frac{1}{11}$	1.3*	MARINE SOCKET No. 43 is situated on the bund of a field, on lower bank of Horkháli creek, about $1\frac{1}{2}$ miles N. of the preceding bench-mark.	9.574	On the top of the flange.
12	6.6	\odot at MILESTONE is cut on the top of milestone No. 39 along the embankment.	19.584	On the dot in the centre of the circle \odot .
13	7.6	\odot at MILESTONE is cut on the top of milestone No. 38 along the embankment.	18.825	Ditto.
14	8.6	\odot at MILESTONE is cut on the top of milestone No. 37 along the embankment.	19.792	Ditto.

Branch line to JHIKURKHÁLI OBELISK.

$\frac{1}{14}$	0.4†	G.T.S. at OBELISK is cut on the E. face of Jhikurkháli Obelisk, about $3\frac{1}{2}$ feet above B.M. the surrounding earth. A line 6 inches long and $\frac{1}{4}$ inch thick is cut between the letters.	14.573	On a level with the top of the line—.
$\frac{2}{14}$	0.5†	MARINE SOCKET No. 47 is situated at the junction of four field bunds, $\frac{1}{4}$ mile N. of Jhikurkháli village.	12.402	On the top of the flange.
$\frac{3}{14}$	1.6†	MARINE SOCKET No. 45 is situated on a mound above a small creek, $1\frac{1}{2}$ miles N. of Jhikurkháli village, on Jhikurkháli point.	12.186	Ditto.

* From B.M. No. 11. † From B.M. No. 14.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series V.—From Kukraháti ferry, along the right bank of the Hooghly to Kejiri and on to the mouth of the Rasulpur River.

No. in Series.	Approximate distance in miles from Kukraháti.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
15	8·9	G.T.S. at SLUICE is cut on the S. end of the ⊙ E. parapet of sluice, $\frac{1}{4}$ mile S. of mile- stone No. 37 along the embankment, opposite Jhikurkháli village.	14·045	On the dot in the centre of the circle ⊙.
16	9·0	MARINE SOCKET No. 49 is situated on a small point $\frac{1}{2}$ of a mile above the ruins of a bridge, on lower bank of the Jhikurkháli creek.	10·798	On the top of the flange.
17	9·6	⊙ at PILLAR is cut on a small masonry B.M. pillar on the embankment opposite the ruins of a bridge, at milestone No. 36 along the embankment abreast of Bunjiharachak village.	22·307	On the dot in the centre of the circle ⊙.
18	10·1	MARINE SOCKET No. 51 is situated on a mound, 3 chains E. of the embankment and 1 mile N. of Bellári Tidal Semaphore.	16·492	On the top of the flange.
19	10·6	⊙ at MILESTONE is cut on the top of mile- stone No. 35 along the embankment.	18·943	On the dot in the centre of the circle ⊙.
20	11·2	G.T.S. at BELLÁRI TIDAL SEMAPHORE*. ⊙ This bench-mark consists of a masonry B.M. pillar 2 feet square, just below and in- side the embankment, 20 yards N. of the Tidal Se- maphore. The pillar is about 6 inches above the ground level, and has a stone embedded flush with its surface.	13·685	Ditto.

Branch line to RÁMNAGAR G. T. SURVEY TOWER STATION.

$\frac{1}{20}$	1·7†	RÁMNAGAR G. T. SURVEY TOWER STA- TION, lat. $22^{\circ} 5' 28''$, long. $88^{\circ} 11' 41''$, a principal station of the East Coast Series is situated about 90 yards W. of the little village of Rámnagar, on the lands of which it stands. The pillar is solid and triangular. <i>Note.</i> —The earth round the tower is washed away to a great extent, exposing 16 feet of the pillar. The pillar is fast crumbling away.	42·795	This height refers to mark on the top of the tower, and was determined as follows:—Height of peg at foot of tower on which the staff rested = 12·843 feet, to which add height of mark at top of tower above peg = 29·952 feet as measured.
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* Arrangements are being made by the Deputy Conservator of the Calcutta Port for the protection of this station. † From B.M. No. 20.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series V.—From Kukraháti ferry, along the right bank of the Hooghly to Kejiri and on to the mouth of the Rasulpur River.

No. in Series.	Approximate distance in miles from Kukraháti.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
21	11·6	⊙ at MILESTONE is cut on the top of milestone No. 34 along the embankment.	⁰⁵⁷ 19· 006	On the dot in the centre of the circle ⊙.
22	12·6	⊙ at MILESTONE is cut on the top of milestone No. 33 along the embankment.	⁴⁷⁷ 19· 462	Ditto.
23	12·7	G.T.S. at SLUICE is cut on the E. end of the ⊙ N. parapet of sluice, 18 chains E. of the B.M. Public Works Department Inspection bungalow at Durgachak, and 7 chains W. of milestone No. 33 along the embankment.	⁸³² 13· 817	Ditto.
24	12·9	G.T.S. at DURGACHAK*. This bench-mark □ consists of a stone (18 inches × 12 inches × 12 inches) embedded in the verandah of the Public Works Department Inspection bungalow: it is to the left-hand side of the doorway at the S. or main entrance.	⁰³² 21· 017	In the hollow square □ cut for the purpose on the stone.
25	13·6	G.T.S. at SLUICE is cut on the S. end of the ⊙ E. parapet of sluice, at milestone No. 32 B.M. along the embankment, near Belaurihát.	⁸⁶ 12· 471	On the dot in the centre of the circle ⊙.
26	13·8	G.T.S. at PHULBÁRIA TOWER is cut on the E. face of Phulbária Tower 3½ feet above the surrounding earth. A line 6 inches long and ¼ inch thick is cut between the letters.	⁰⁸⁴ 15· 069	On a level with the line —.
27	13·8	G.T.S. at SLUICE is cut on the S. end of the ⊙ E. parapet of sluice, opposite Phulbária B.M. Tower.	⁴⁷⁷ 13· 462	On the dot in the centre of the circle ⊙.
28	14·0	MARINE SOCKET No. 53 is situated on the upper bank of a creek, 30 chains E. of Phulbária Tower.	⁴¹⁷ 10· 482	On the top of the flange.
29	1·6†	MARINE SOCKET No. 55 is situated on the S. bank of a creek, 1½ miles below Phulbária Tower.	³³⁵ 10· 320	Ditto.
30	2·8†	MILESTONE No. 29 along the embankment.	⁰⁶⁹ 18· 054	On the top of the milestone.

* Arrangements are being made by the Collector of Midnapore for the protection of this station.

† From Phulbária Tower.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series V.—From Kukraháti ferry, along the right bank of the Hooghly to Kejiri and on to the mouth of the Rasulpur River.

No. in Series.	Approximate distance in miles from Phulbária Tower.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
31	3·4	G.T.S. at SLUICE is cut on the S. end of the W. parapet of sluice, at Parmánandchak, B.M. 31 chains N. of milestone No. 28 along the embankment.	13·756	On the dot in the centre of the circle ⊙.
32	3·8	MILESTONE No. 28 along the embankment.	18·396	On the top of the milestone.
33	4·8	MILESTONE No. 27 along the embankment.	19·974	Ditto.

Branch line to MARINE SOCKET No. 57, S. of Haldi Marine Mark.

$\frac{1}{33}$	1·0†	MARINE SOCKET No. 57 is situated on the Haldi Point, 1 mile S. of the embankment and $1\frac{1}{2}$ miles S. of Haldi Marine Mark.	10·297	On the top of the flange.
34	5·8	⊙ at MILESTONE is cut on the top of milestone No. 26 along the embankment.	19·776	On the dot in the centre of the circle ⊙.
35	5·9	G.T.S. at SLUICE* is cut on a stone (18 inches × 12 inches × 12 inches) embedded in the coping at the S. end of the W. parapet of sluice over Tarwankhál a few chains N. of the small village of Sahibachak, 12 chains N. of milestone No. 26, at the mouth and on the N. bank of Haldi river.	19·883	In the hollow square □ cut for the purpose on the stone.
36	6·8	⊙ at MILESTONE is cut on the top of milestone No. 25 along the embankment.	21·208	On the dot in the centre of the circle ⊙.
37	6·9	G.T.S. at SLUICE is cut on the S. end of the E. parapet of sluice, 6 chains N. of milestone No. 25 along the embankment.	19·465	Ditto.
38	7·5	G.T.S. at SLUICE is cut on the N. end of the W. parapet of sluice, 27 chains S. of milestone No. 24 along the embankment.	20·838	Ditto.

* Arrangements are being made by the Collector of Midnapore for the protection of this station.

† From B.M. No. 33.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series V.—From Kukraháti ferry, along the right bank of the Hooghly to Kejiri and on to the mouth of the Rasulpur River.

No. in Series.	Approximate distance in miles from Phulbárá Tower.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
39	7·8	⊙ at MILESTONE is cut on the top of milestone No. 24 along the embankment.	20· 486 ⁴⁷¹	On the dot in the centre of the circle ⊙.
40	8·8	⊙ at MILESTONE is cut on the top of milestone No. 23 along the embankment.	20· 494 ⁵⁰⁹	Ditto.
41	9·5	G.T.S. at SLUICE is cut on the N. end of the E. parapet of sluice over Chunamárákhál, B.M. at Banbistupur village, 26 chains S. of milestone No. 22 along the embankment.	16· 187 ¹⁸²	Ditto.
42	9·8	⊙ at MILESTONE is cut on the top of milestone No. 22 along the embankment.	20· 627 ⁶⁴²	Ditto.
43	10·4	G.T.S. at SLUICE is cut on the centre of the E. parapet of sluice, 8 chains S.W. of the B.M. Public Works Department Inspection bungalow at Bálugháta, on the N. bank of the Haldi, on the dák road from Contai to Kukraháti.	19· 619 ⁶⁶⁴	Ditto.
No. 187 of Series I		<i>See description on page 22.</i>	16· 812 ⁸²⁷	
No. 186 of Series I		<i>See description on page 22.</i>	16· 655 ⁶⁵²	
44	0·0*	G.T.S. at SLUICE is cut on the centre of the ⊙ W. parapet of sluice, 10 chains E. of B.M. Basulichak, on the S. bank of the Haldi river and 29 chains N. of mile post No. 24 along the embankment.	19· 300 ³²⁴	On the dot in the centre of the circle ⊙.
45	0·7*	G.T.S. at BASULICHAK is cut on the S. end of the ⊙ W. parapet, $\frac{1}{2}$ mile S.E. of the B.M. Public Works Department Inspection bungalow at Basulichak, 26 chains S. of mile post No. 24 along the embankment.	17· 250 ²⁵³	Ditto.
46	1·9*	G.T.S. at SLUICE is cut on the S. end of the ⊙ W. parapet of sluice, $\frac{1}{2}$ mile E. of Dinbandanpur village and $\frac{1}{2}$ mile S. of mile post No. 23 along the embankment.	19· 198 ²⁰³	Ditto.

* From Basulichak.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series V.—From Kukraháti ferry, along the right bank of the Hooghly to Kejiri and on to the mouth of the Rasulpur River.

No. in Series.	Approximate distance in miles from Basulichak.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
47	3·1	G.T.S. at SLUICE is cut on the S. end of the ⊙ W. parapet of sluice, $\frac{1}{2}$ mile E. of Bi- B.M. nandpur village and $\frac{3}{4}$ mile S. of mile post No. 22 along the embankment.	²⁰ 19·187	On the dot in the centre of the circle ⊙.
48	4·1	G.T.S. at SLUICE is cut on the N. end of the ⊙ E. parapet of sluice at Bámanchak vil- B.M. lage.	⁴⁸⁴ 16·469	Ditto.
49	5·3	MARINE SOCKET No. 59 is situated at the mouth of the Haldi river, 6 chains E. of Sundia Marine mark.	⁴⁴¹ 11·426	On the top of the flange.
50	6·7	MARINE SOCKET No. 61 is situated between two small creeks, 1 mile below Sundia Marine mark.	⁵⁰⁵ 9·599	Ditto.
51	8·5	MARINE SOCKET No. 63 is situated on the S. bank and at the mouth of Kholakháli creek, 1 mile above Gángra Marine mark.	⁴³⁴ 10·434	Ditto.
52	9·6	G.T.S. at GÁNGRA MARINE MARK*. This ⊙ bench-mark consists of a stone (9 inches × B.M. 9 inches × 3 inches) embedded in a masonry pillar 2 feet square and 3 feet deep, built below a field bund 20 feet W. of the Marine mark, 1 mile S. of Kholakháli creek. The top of the pillar is on a level with the field bund.	³³⁰ 12·330	On the dot in the centre of the circle ⊙.
53	9·6	MARINE SOCKET No. 65 is situated on the river bank 75 yards S.E. of Gángra Marine mark.	⁶⁰⁷ 9·607	On the top of the flange.
54	11·1	MARINE SOCKET No. 67 is situated opposite the ruins of Gángra G.T. Station, 2 miles below Gángra Marine mark and $1\frac{1}{4}$ miles N.E. of Sanachura village.	⁵⁸⁰ 15·580	Ditto.
No. 182 of Series I.		See description on page 21.	²³² 18·807	
55	14·2	MARINE SOCKET No. 69 is situated on the S. bank and at the mouth of the Tálpáti creek, 1 mile above Kejiri Public Works Department Inspection bungalow.	³⁴⁸ 10·348	Ditto.

* Arrangements are being made by the Collector of Midnapore for the protection of this station.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series V.—From Kukraháti ferry, along the right bank of the Hooghly to Kejiri and on to the mouth of the Rasulpur River.

No. in Series.	Approximate distance in miles from Basulichak.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
56	15·4	G.T.S. at KEJIRI* is cut on a stone (9 inches × 9 inches × 3 inches) embedded B.M. in the basement of the old Flag-staff Tower: it is opposite the centre of the E. face of the Tower at Kejiri.	²³³ 15·278	On the dot in the centre of the circle ⊙.
57	15·4	MARK on top of OLD FLAG-STAFF TOWER at Kejiri.	⁴⁸⁸ 31·473	
58	0·9†	G.T.S. at KEJIRI TIDAL SEMAPHORE†. ⊙ This bench-mark consists of a masonry B.M. pillar 2 feet square, built near the S.E. corner of a small square tank 1¼ chains N. of the Semaphore. The surface of the pillar is on a level with the ground and has a stone cut as above set in it.	¹⁸⁷ 10·172	On the dot in the centre of the circle ⊙.
59	3·1‡	MARINE SOCKET No. 71 is situated on the second sand hill below the Tidal Semaphore, 1 mile E. of Kaukháli Light-house.	⁶⁶⁴ 30·642	On the top of the flange.
60	3·6‡	IRON PIPE, 6 inches in diameter and with hexagonal flange, is situated at the end of the bund from Kaukháli Light-house to the river side.	⁹²⁶ 20·941	Ditto.

Branch line to KAUKHÁLI LIGHT-HOUSE.

¹ 60	0·7§	G.T.S. at PLINTH* is cut on a stone (9 inches × 9 inches × 3 inches) embedded in the B.M. plinth of the Kaukháli Light-house: it is about 5 feet from the steps facing the embankment.	⁸²⁶ 11·872	On the dot in the centre of the circle ⊙.
61	4·9‡	MARINE SOCKET No. 73 is situated on a sand hill, 9 chains N. E. of a small clump of bamboos, 1¼ miles S.E. of Kaukháli Light-house.	⁵⁷⁴ 26·559	On the top of the flange.
62	8·4‡	G.T.S. at NIJKASBA* (mouth of the Rasulpur river). This bench-mark consists of a masonry pillar 2 feet square and 3 feet deep, built near the entrance to the compound of the Masjid at the mouth and on the N. bank of the Rasulpur river. The surface of the pillar is 9 inches above the ground and has a stone cut as above set in it.	⁶²³ 20·609	On the dot in the centre of the circle ⊙.

* Arrangements are being made by the Collector of Midnapore for the protection of these stations.

† Arrangements are being made by the Deputy Conservator of the Calcutta Port for the protection of this station.

‡ From Kejiri.

§ From B.M. No. 60.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series VI.—*From Kukraháti to Gewankháli, thence across the Roopnarayan, and on through Oolaberiah to Howrah Railway Station.*

No. in Series.	Approximate distance in miles from Kukraháti.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
1	0·0	G.T.S. at KUKRAHÁTI* is embedded in the centre of the front verandah floor of the Public Works Department Inspection bungalow. The bench-mark is of the usual stone and is flush with the floor. The bungalow is about 1 mile W. of Kukrahátighát, and 400 yards from the river bank.	20·812	In the hollow square □ cut for the purpose on the stone.
2	0·2	G.T.S. at SLUICE is cut on the W. end of the S. parapet of sluice, 12 chains W. B.M. of Kukraháti Inspection bungalow, and 21 chains E. of milestone No. 46 along the embankment.	20·426	On the dot in the centre of the circle ⊙.
3	0·7	MARINE SOCKET No. 41 is situated on the lower point of the small bight at Luff Point, opposite Látpatia village.	12·341	On the top of the flange.
4	1·7	G.T.S. at SLUICE is cut on the W. end of the N. parapet of sluice, 6 chains W. B.M. of milestone No. 47 near Badur village.	19·860	On the dot in the centre of the circle ⊙.
5	2·7	G.T.S. at SLUICE is cut on the W. end of the N. parapet of sluice near Bhangara village, 7 chains W. of milestone No. 48 along the embankment.	20·604	Ditto.
6	3·3	MARINE SOCKET No. 39 is situated on a mound on the upper bank of the Tentulbária creek and near its mouth.	15·690	On the top of the flange.
7	5·2	↑ at GEWANKHÁLI CANAL LOCK is cut on the capstone at the S. end of the western wall of the Canal lock at Gewankháli. (Public Works Department bench-mark).	16·255	On the head of the arrow ↑.
8	5·7	G.T.S. at GEWANKHÁLI‡. This bench-mark consists of a stone 12 inches square and 3 inches thick embedded in the floor of the front verandah of the Public Works Department Inspection bungalow.	16·337	In the hollow square □ cut for the purpose on the stone.

* This bench-mark is in charge of the Sub-Inspector of Police, at Satuháta. † Arrangements are being made by the Collector of Midnapore for the protection of this station.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series VI.—From Kukraháti to Gewankháli, thence across the Roopnarayan, and on through Oolaberiah to Howrah Railway Station.

No. in Series.	Approximate distance in miles from Hope Obelisk.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
9	0·9	G.T.S. at SLUICE* is cut on a stone (9 inches × 9 inches × 3 inches) embedded in the coping at the E. end of the N. parapet of sluice, on the N. bank and at the mouth of the Roopnarayan: it is at Amberia village, due N. of Gewankháli Inspection bungalow on the opposite bank of the river. ⊙	15·313	On the dot in the centre of the circle ⊙.
10	0·0	G.T.S. at OBELISK* is cut on a stone (9 inches × 9 inches × 3 inches) embedded about the centre of the first offset or footing on the S. side of Hope Obelisk. ⊙	11·064	Ditto.
11	1·0	G.T.S. at SLUICE is cut on the E. end of the S. parapet of sluice at mile post No. 2 along the embankment, and 1 mile above Hope Obelisk. ⊙	17·210	Ditto.
12	1·5	R.S. at STONE is cut on a triangular stone, embedded on the embankment, on lower bank of the Guriapol creek, $\frac{1}{4}$ mile below Shibganj Marine mark. ○	20·061	On the top of the stone.
13	1·8	MARINE SOCKET No. 37 is situated on the embankment, adjoining Shibganj Marine mark.	16·538	On the top of the flange.
14	3·0	IRON PIPE, 6 inches in diameter with hexagonal flange, is 14 chains S. of the Public Works Department Inspection bungalow at Shibganj village.	18·655	Ditto.
15	3·2	G.T.S. at BUNGALOW* is cut on a stone (9 inches × 9 inches × 3 inches) embedded in the flooring of the Public Works Department Inspection bungalow at Shibganj: the bench-mark is opposite the centre of the wall and to the left (as you enter) of the doorway. ⊙	17·050	On the dot in the centre of the circle ⊙.
16	3·3	G.T.S. at SLUICE is cut on the S. end of the W. parapet of sluice, 5 chains N. of Shibganj Inspection bungalow. ⊙	16·862	Ditto.

* Arrangements are being made by the Collector of Howrah for the protection of these bench-marks.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series VI.—From Kukraháti to Gewankháli, thence across the Roopnarayan, and on through Oolaberiah to Howrah Railway Station.

No. in Series.	Approximate distance in miles from Dhaja.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
17	3·3†	R.S. at STONE is cut on a triangular stone embedded on the embankment near the preceding bench-mark. ○ 1871	19·270	On the top of the stone.
18	3·9†	MARINE SOCKET No. 35 is situated on the river side adjoining the Damoodur Marine mark on the S. bank.	12·079	On the top of the flange.
19	0·8	R.S. at STONE is cut on a triangular stone embedded on the embankment near a masonry pillar opposite Alipur village. ○ 1871	17·735	On the top of the stone.
20	0·0	G.T.S. at BUNGALOW is cut on the cement floor of the Public Works Department B.M. Inspection bungalow at Dhaja: the bench-mark is between the first and second doorways from the W. side in the southern verandah. ⊙	16·541	On the dot in the centre of the circle ⊙.

Branch line to MIRZÁPUR G. T. SURVEY TOWER STATION.

$\frac{1}{20}$	4·0	MIRZÁPUR G. T. SURVEY TOWER STATION, lat. 22° 20' 12", long. 88° 6' 27", a principal station of the East Coast Series is situated $\frac{1}{4}$ mile E. of the village of that name, on the lands of which it stands. The tower is hollow, square and about 35 feet high: it is about 3 miles N.W. by N. from the Dhaja Semaphore Tower. <i>Note.</i> —The survey tower was found to be fast decaying, the bricks on two sides of the lower portion had tumbled down and the gaps filled up with mud by the village officials. No mark-stone was found at ground level.	49·461	This height refers to the top of the tower, and was determined as follows:—Height of peg at foot of tower on which the staff rested = 15·531 feet, to which add height of top of tower above peg = 33·930 feet as measured.
21	0·0	DHAJA SEMAPHORE TOWER.	37·858	On the top of the tower.
22	0·0	G.T.S. at DHAJA SEMAPHORE TOWER* is cut on a stone (9 inches × 9 inches × 3 inches) embedded in the cement floor, and to the right-hand side of the doorway of the tower. ⊙	16·958	On the dot in the centre of the circle ⊙.

* Arrangements are being made by the Collector of Howrah for the protection of this station.

† From Hope Obelisk.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series VI.—From Kukraháti to Gewankháli, thence across the Roopnarayan, and on through Oolaberiah to Howrah Railway Station.

No. in Series.	Approximate distance in miles from Dhuja.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
23	1·5	IRON PIPE, 6 inches in diameter with hexagonal flange, is on the river side opposite some houses, 18 chains N. of Mithakundu creek.	9·744	On the top of the flange.
24	2·1	MARINE SOCKET No. 33 is situated on the N. bank of a creek opposite Káshipur village.	11·905	Ditto.
25	3·1	MARINE SOCKET No. 31 is situated on the upper bank of a creek at Fukuria Point.	16·684	Ditto.
26	4·6	MARINE SOCKET No. 29 is situated on a mound on the river side, 1½ miles below Hog River Obelisk.	12·772	Ditto.
27	6·2	G.T.S. at HOG RIVER OBELISK* is cut on a stone (9 inches × 9 inches × 3 inches) B.M. embedded about the centre of the first offset or footing on the E. face of the obelisk.	14·370	On the dot in the centre of the circle ⊙.
28	1·9†	MARINE SOCKET No. 27 is situated on the lower bank of the second large creek above and 1½ miles from Hog River Obelisk.	12·906	On the top of the flange.
29	3·2†	MARINE SOCKET No. 25 is situated on the bund at Hiraganj Point.	15·734	Ditto.
30	4·2†	MARINE SOCKET No. 23 is situated on the bund, 120 yards above the mouth of Kinjiakháli or Rangameati creek, and near the inner one of two Marine marks.	15·761	Ditto.
31	6·2†	IRON PIPE, 6 inches in diameter with hexagonal flange, is on the river side, 120 yards above Kálinagar or Champar creek, and near a Marine mark.	10·540	Ditto.
32	5·8†	MARINE SOCKET No. 21 is situated on the bund, about midway between Oolaberiah and Kálinagar creek.	15·662	Ditto.
33	6·2†	IRON PIPE, 6 inches in diameter with hexagonal flange, is on the bund, 30 chains below Oolaberiah bazar.	16·661	Ditto.

* Arrangements are being made by the Collector of Howrah for the protection of this station.

† From Hog River Obelisk.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series VI.—From Kukraháti to Gewankháli, thence across the Roopnarayan, and on through Oolaberiah to Howrah Railway Station.

No. in Series.	Approximate distance in miles from Hog River Obelisk.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
34	6·7	MARINE SOCKET No. 19 is situated near the end of Oolaberiah bazar, on the right-hand side of the road and 35 yards above the upper ferry ghát.	^{·332} 16·917	On the top of the flange.
35	6·9	G.T.S. at OOLABERIAH* is cut on a stone (9 inches × 9 inches × 3 inches) embedded in the front verandah of the Police Station, to the right-hand side of the first doorway from the south. The building is a paka one and is in the Oolaberiah bazar.	^{·990} 15·975	On the dot in the centre of the ⊙.

Branch line to GATE of CANAL LOCK at Oolaberiah.

$\frac{1}{36}$	0·2†	G.T.S. at BUNGALOW is cut on the E. end of the lowest step at the N. or main entrance of the Public Works Department Inspection bungalow at Oolaberiah.	^{·479} 12·464	On the dot in the centre of the circle ⊙.
$\frac{2}{35}$	0·3†	Λ G.T.S. at CAPSTONE is cut on the capstone near the gate at the western end of the N. wall of canal lock at Oolaberiah. (Public Works Department bench-mark).	^{·899} 16·884	On the head of the arrow Λ.
36	2·9†	MARINE SOCKET No. 17 is situated on the bund, 17 chains E. of Chakkasi creek.	^{·015} 15·000	On the top of the flange.
37	4·1†	MARINE SOCKET No. 15 is situated on the upper bank of a small creek at Bauriahát, 29 chains below the Post Office.	^{·784} 15·760	Ditto.
38	4·5†	G.T.S. at BUNGALOW* is cut on a stone (9 inches × 9 inches × 3 inches) embedded in the verandah, to the left-hand side of the principal doorway of the bungalow, 120 yards above Bauria Post Office. The bungalow is occupied by the Engineer of the Bauria Cotton Mills.	^{·485} 19·470	On the dot in the centre of the circle ⊙.

* Arrangements are being made by the Collector of Howrah for the protection of these stations.
† From B.M. No. 35. ‡ From Oolaberiah.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series VI.—From Kukraháti to Gewankháli, thence across the Roopnarayan, and on through Oolaberiah to Howrah Railway Station.

No. in Series.	Approximate distance in miles from Oolaberiah.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
39	4.6	G.T.S. at FORT GLO'STER* is cut on a stone 9 inches square embedded flush with the surface of a masonry pillar 2 feet square, and about 6 inches above the ground. The pillar is situated 40 feet above the doorway of the eastern or main block or wing of Bauria Cotton Mills, and a few feet from the compound wall facing the river.	14-243 14-228	On the dot in the centre of the circle ⊙.
40	5.2	G.T.S. at FORT GLO'STER JUTE MILLS†. This bench-mark consists of a stone (9 inches × 9 inches × 3 inches) embedded in the plinth, near the N.E. corner of the central or main block of buildings of the Jute Mills.	14-427 442	Ditto.
41	5.5	MARINE SOCKET No. 13 is situated on the lower bank of a creek, 23 chains above Fort Glo'ster Jute Mills.	16-908 143	On the top of the flange.
42	7.2	MARINE SOCKET No. 11 is situated in a brick field on the upper bank and at the mouth of Daokhál creek.	12-070 685	Ditto.
43	8.1	IRON PIPE, 6 inches in diameter with hexagonal flange, is on the river bank opposite Sultán Pír's Dargáh (Shrine) at Sarenga village.	13-027 336	Ditto.
44	8.1	G.T.S. at DARGÁH† is cut on a stone (9 inches × 9 inches × 3 inches) embedded in the B.M. platform at the S.E. corner of Sultán Pír's Dargáh (Shrine) at Sarenga village.	16-750 774	On the dot in the centre of the circle ⊙.
45	9.1	MARINE SOCKET No. 9 is situated on the bund at Sarengahát.	16-770 793	On the top of the flange.
46	10.2	MARINE SOCKET No. 7 is situated on the bund, opposite Umacharan Mukarji's (brick proprietor) paka house at Muniakháli Point.	15-077 692	Ditto.
47	11.0	MARINE SOCKET No. 5 is situated on the upper bank and near the mouth of Singamárikhál, 1 mile S. of Sankrel Police Station.	18-010 634	Ditto.
48	12.0	MARINE SOCKET No. 3 is situated on the bund near the river bank right opposite the Sankrel Police Station.	19-400 143	Ditto.

* Arrangements are being made by the Deputy Conservator of Calcutta Port for the protection of this station. † Arrangements are being made by the Collector of Howrah for the protection of these stations.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series VI.—From Kukraháti to Gewankháli, thence across the Roopnarayan, and on through Oolaberiah to Howrah Railway Station.

No. in Series.	Approximate distance in miles from Oolaberiah.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
49	12·0	G.T.S. at SANKREL* is cut on a stone (9 inches \odot \times 9 inches \times 3 inches) embedded against B.M. the wall, in the floor of the front or S. verandah of the Police Station: it is between the first and second doors from the east side.	17 ¹⁰² 087	On the dot in the centre of the circle \odot .
50	13·0	MARINE SOCKET No. 1 is situated on the river bank, on a mound near a large tamarind tree, in brick field 1 mile above the Sankrel Police Station.	14 ³⁴⁸ 883	On the top of the flange.
51	14·1	B. \odot M. at PILLAR is cut on the S.E. corner of the first offset of the large pillar marking the northern boundary of the Calcutta Port at Panchpára village.	14 ⁰⁴⁷ 032	On the dot in the centre of the circle \odot .
52	14·5	MARINE SOCKET No. 75 is situated on the river bank, near Thákur Dás Mukarji's Soorkhy Mills at Panchpára village.	9 ⁸⁷⁹ 864	On the top of the flange.
53	15·9	G.T.S. at GOVERNMENT BOTANICAL \odot GARDENS is cut on the stone flooring B.M. at the W. end of the N. or front verandah of the Superintendent's house, Government Botanical Gardens, Howrah.	15 ³³¹ 316	On the dot in the centre of the circle \odot .
54	16·3	GOVERNMENT BOTANICAL GARDENS the marble basement of Memorial Vaso, in the centre of the Government Botanical Gardens, Howrah.	18 ⁸⁸⁷ 872	On the marble basement.
55	17·7	G.T.S. at SHÁHLIMÁR HOUSE is cut on the \odot 2nd step from the bottom at the south or B.M. main entrance of Sháhlímár House. The steps are of stone and the bench-mark is at the W. end.	15 ¹⁶⁰⁵ 007	On the dot in the centre of the circle \odot .
56	1·0†	G.T.S. at PLATFORM is cut on masonry platform of pump, on the W. side of circular \odot B.M. tank, situated to the S. of Messrs. Burne and Co's Workshop, Howrah.	16 ⁵⁵³ 538	Ditto.
57	0·0†	RAILWAY BENCH-MARK. This bench-mark consists of a stone 15 inches wide, let into the compound wall behind the 3rd class carriage occupied by the Post Office Staff at Howrah Railway Station.	16 ³⁹⁰ 375	On the top of stone.
58	0·0†	G.T.S. at ENTRANCE PORCH, HOWRAH \odot RAILWAY STATION is cut on the east B.M. end of the 2nd step from the bottom, at the main entrance porch, Howrah Railway Station.	17 ⁹⁵² 937	On the dot in the centre of the circle \odot .
		<i>Identical with No. 73 of Series III.</i>		

* Arrangements are being made by the Collector of Howrah for the protection of this station.

† From Howrah Railway Station.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series VII.—From Howrah along the Hooghly-Howrah road as far as Chinsurah.

No. in Series.	Approximate distance in miles from Howrah.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
1	0·0	G.T.S. at ENTRANCE PORCH, HOWRAH ⊙ RAILWAY STATION is cut on the east end of the 2nd step from the bottom, at the main entrance porch, Howrah Railway Station.	17-937 -452	On the dot in the centre of the circle ⊙.
2	0·0	G.T.S. at HOWRAH RAILWAY STATION*. □ This bench-mark consists of a stone (18 inches × 12 inches × 12 inches) embedded in a masonry pillar close to the centre door wall of the latrine for natives, situated to the west of the 3rd class Waiting Hall, in front of the entrance porch of Howrah Railway Station. The pillar has been built up about 3 inches above the ground, it is 2½ feet deep and 27 inches square at top. The letters B.M. have been cut on the centre door wall to show the proximity of the bench-mark, which is 1 foot to the south and 22 feet from the S.W. and S.E. corners of the latrine.	17-226 -241	In the hollow square □ cut for the purpose on the stone.
3	2·6	⊙ at MILESTONE is cut on the top of milestone No. 4 from Calcutta.	14-686 -701	On the dot in the centre of the circle ⊙.
4	3·3	G.T.S. at CULVERT is cut on the N. end of the W. parapet of culvert No. 3, about ⊙ B.M. ¼ mile S. of milestone No. 5 from Calcutta, and 20 yards S. of another culvert on the cross road to Dakhinpara lane.	18-607 -822	Ditto.
5	4·9	G.T.S. at BRIDGE is cut on the W. end of the ⊙ N. parapet of drain bridge, on the east margin of the road, and opposite Chat-tar Mohan Mukarji's three-storied house at Bally: it is 33 chains N. of milestone No. 6 from Calcutta.	22-665 -380	Ditto.
6	5·6	G.T.S. at BRIDGE† is cut on a stone (9 inches × 9 inches × 3 inches) embedded in the wing-wall, between the two pillars at the S. end of the E. parapet of girder bridge over the Bally creek: it is 11 chains N. of milestone No. 7 from Calcutta.	23-816 -19/6/94	<i>This bench mark has been raised - see letter to Sanitary Board, Calcutta. to the Supt. High Branch.</i>
7	6·2	G.T.S. at UTARPÁRA LIBRARY is cut on the ⊙ N. end of the second step from the bottom B.M. at the W. or main entrance to the public Library at Utarpára. The steps are of stone.	20-665 -680	Ditto.

* Arrangements are being made by the Collector of Howrah for the protection of this station.

† Arrangements are being made by the Collector of Hooghly for the protection of this station.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series VII.—From Howrah along the Hooghly-Howrah road as far as Chinsurah.

No. in Series.	Approximate distance in miles from Howrah.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
8	7.0	G.T.S. at PLATFORM is cut on about the centre and near the edge of masonry \odot B.M. platform on the S. side of doorway of Pyári Mohan Mukarji's house on the E. margin of the road at Bhadrakáli, 36 chains S. of milestone No. 9 from Calcutta.	23 ¹⁹⁴ 179	On the dot in the centre of the circle \odot .
9	8.3	G.T.S. at NEW MEDICAL HALL, KOTRANG, is cut on masonry platform, \odot B.M. 10 feet N. of the doorway of a dwelling house at the New Medical Hall (Bholanáth Bábu's) on the E. margin of the road at Kotrang, 14 chains S. of milestone No. 10 from Calcutta.	20 ⁵²⁵ 550	Ditto.
10	9.4	G.T.S. at KONNAGAR.* This bench-mark \odot consists of a stone (9 inches \times 9 inches \times 3 inches) embedded flush with the floor and near the pillar at the S.W. corner of Konnagar (12 Temples) ghát. The ghát has 6 temples on either side of it.	16 ⁹³⁸ 923	Ditto.
11	10.5	\odot at MILESTONE is cut on the top of milestone No. 12 from Calcutta.	22 ²³⁶ 221	Ditto.
12	11.5	G.T.S. at TOWER is cut on the N.E. corner of the platform of the tower in front of \odot B.M. Jagannáth's temple at Mahesh, 60 yards W. of the road and 8 chains N. of milestone No. 13 from Calcutta.	24 ⁵⁷⁰ 485	Ditto.
13	13.0	At SERAMPORERAILWAY STATION. Level of rails opposite the Booking Office, Serampore Railway Station.	21 ⁷²⁸ 710	On the top of the rails.
14	13.0	G.T.S. at SERAMPORERAILWAY STATION \odot is cut on a stone-flag at the edge of B.M. platform, opposite the Booking Office, Serampore Railway Station.	24 ⁷³⁵ 020	On the dot in the centre of the circle \odot .
15	14.1	G.T.S. at NOBGRAM BAZAR is cut on the centre of masonry platform round a \odot B.M. pipal tree on the W. margin of road at Nobgram bazar, 31 chains S. of milestone No. 16 from Calcutta.	17 ¹⁰⁵ 680	Ditto.

* Arrangements are being made by the Collector of Hooghly for the protection of this station.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series VII.—From Howrah along the Hooghly-Howrah road as far as Chinsurah.

No. in Series.	Approximate distance in miles from Howrah.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
16	14.8	G.T.S. at BRIDGE* is cut on a stone (9 inches × 9 inches × 3 inches) embedded at the S. end of coping of the W. parapet of the northern one of two bridges near each other, about $\frac{1}{4}$ mile N. of Seoraphuli bazar and 35 chains S. of milestone No. 18 from Calcutta.	21 ^{.994} 979	On the dot in the centre of the circle ⊙.
17	18.6	G.T.S. at BRIDGE is cut on the S. parapet wall of drain bridge at the gate of house B.M. No. 19, on the W. margin of road, 16 chains N. of milestone No. 19 at Chapdani.	26 ^{.069} 651	Ditto.
18	19.2	G.T.S. at CULVERT is cut on the E. parapet of a small culvert, 5 chains S. of milestone No. 19 at Gaurhāti.	25 ^{.763} 748	Ditto.
19	20.2	G.T.S. at BHADRESHWAR is cut on the masonry platform on the S. side of the doorway of house No. 72-73, on the E. margin of the road at Bhadreshwar, and 8 chains S. of milestone No. 20 from Calcutta.	26 ^{.964} 949	Ditto.
20	21.3	⊙ at MILESTONE is cut on the top of milestone No. 21 from Calcutta.	26 ^{.250} 235	Ditto.
21	22.3	⊙ at MILESTONE is cut on the top of milestone No. 22 from Calcutta.	27 ^{.586} 571	Ditto.
22	23.3	⊙ at MILESTONE is cut on the top of milestone No. 23 from Calcutta.	28 ^{.563} 558	Ditto.
23	24.9	G.T.S. at SAT PÍR'S SHRINE is cut on the basement on the east side of the doorway of Sat Pir's Shrine at Sat Pirtola on the N. margin of the road from Chandernagore to Chinsurah, and 10 chains W. of Tolafatak Police Outpost.	27 ^{.571} 576	Ditto.
24	26.3	G.T.S. at CHINSURAH BARRACK CHURCH* is cut on a stone (9 inches × 9 inches × 3 inches) embedded on the right-hand side of the top step at the western entrance of the Church.	29 ^{.330} 315	Ditto.

* Arrangements are being made by the Collector of Hooghly for the protection of these stations.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series VII.—From Howrah along the Hooghly-Howrah road as far as Chinsurah.

No. in Series.	Approximate distance in miles from Howrah.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Leveling Staff.
<i>Branch line to CHINSURAH BARRACKS.</i>				
1/24	0·3†	G.T.S. at CHINSURAH BARRACKS* is cut □ on a stone (18 inches × 12 inches × 12 B.M. inches) embedded in the centre of a 10 feet square masonry platform in front of the stables of the Officers' Quarters and 75 feet N. of the western half of the Racket Court.	27·690 ⁷⁰⁵	In the hollow square □ cut for the purpose on the stone.
25	26·3	⊙ at CHINSURAH BARRACK CHURCH is cut on the floor at the W. entrance of Chinsurah Barrack Church, 3 feet from the embedded benchmark on the top step.	29·423 ⁴³³	On the dot in the centre of the circle ⊙.
26	26·3	⊙ at CHINSURAH COLLEGE is cut on stone step leading into the verandah of the Chinsurah (Hooghly or Saiyid Mohsin's) College. The step is on the E. side of the building and 30 feet from the N.E. corner of the same.	29·065 ⁰⁶⁵	Ditto.
27	26·3	CHINSURAH COLLEGE, level of floor of verandah (now a school room) adjoining the step marked with a circle ⊙.	30·007 ⁰⁰⁷	Level of the verandah.
28	26·3	CHINSURAH G. T. SURVEY STATION, lat. 22° 52' 56", long. 88° 26' 39", a principal station of the Calcutta Longitudinal Series is on the roof of the Hooghly or Saiyid Mohsin's College, at the intersection of two of the walls. The pillar is hollow and 9·628 feet high; it has a markstone at its bottom, flush with the level of the roof.	75·921 ⁹²¹	This height refers to mark on level of roof and was determined as follows:— height of B.M. No. 26 on which the staff rested = 29·065 feet, to which add height of mark above B.M. No. 26 = 46·856 as measured and corrected for unit.
29	26·3	Ditto.	85·549 ⁵⁴⁹	This height refers to the top of the pillar and was determined by the addition of 9·628 feet, the height of the pillar as measured and corrected for unit, to height of B.M. No. 28.

* Arrangements are being made by the Collector of Hooghly for the protection of this benchmark. † From B.M. No. 24.

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A. W. BAIRD, MAJOR, R.E.,

Deputy Supt., Survey of India,

In charge Tidal & Leveling Operations.

INTRODUCTION.



Series VIII was executed by Mr. G. Belcham and Sub-Surveyor Vinayek Narayan in field season 1887-88. It emanated from the bench-mark embedded on the top step of Chinsurah Barrack Church (B.M. No. 24 of Series VII executed in 1882-83) and was carried along the right bank of the Hooghly *via* Tribeni, Guptipára, Culna and Samudragarh to Nuddea.

The levels used in determining the heights of the bench-marks in Series VIII were Cylindrical Levels Nos. 1 and 3, 22-inch Standard Levels by Troughton and Simms.

The staves used were of the G. T. Survey pattern graduated on both faces and otherwise agreeing with the description given of them in General Walker's Memoranda on Levelling Operations.

The staves were compared at the close of the observations with a portable copy of the Standard 10-foot Bar, the unit of length of the Indian Survey. The proper correction has been applied to the heights on account of the small differences of the staves from the standard unit.

This line was also levelled over independently by two observers, working in succession with different instruments and staves, on the same pins, and at a convenient distance apart, according to the rigid method of procedure laid down for this Department.

The Orthography is in literal agreement with the Gazetted List for Bengal, dated 23rd June 1876, wherever the locality is identified, and conforms to the spirit of the orders of Government on the subject, as worked out in this and other provincial lists, where there is no clear literal authority.

M. W. ROGERS, MAJOR, R.E.,

Deputy Supt., Survey of India,

In charge Tidal and Levelling Operations.

POONA: }

10th October, 1888. }

GREAT TRIGONOMETRICAL SURVEY OF INDIA.


Series VIII.—*Spirit Levelling from Chinsurah along the right bank of the Hooghly vid Tribeni, Guptipára, Culna and Samudragarh to Nuddea.*

No. in Series.	Approximate distance in miles from Chinsurah.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Levelling Staff.
1	0·0	G.T.S. at CHINSURAH BARRACK CHURCH. ○ This bench-mark is cut on a stone (9 inches × 9 inches × 3 inches) embedded on the right-hand side of the top step at the W. entrance of the church. This bench-mark is the same as No. 24 of Series VII, Seasons 1881-82-83, the height of which as then determined has been adopted as origin.	330 29·315	Within the circle.
2	0·0	○ at CHINSURAH BARRACK CHURCH. This bench-mark is cut on the floor at the W. entrance of the church, 3 feet from the embedded bench-mark at the top step. This bench-mark is the same as No. 25 of Series VII, Seasons 1881-82-83, when the height was determined as 29·423.	433 29·418	Ditto.
3	0·4	G.T.S. at CHINSURAH BARRACKS.* This bench-mark is cut on a stone (18 inches × 12 inches × 12 inches) embedded in the centre of a 10-foot square masonry platform in front of the stables of the Officers' quarters and 75 feet N. of the western half of the Racket Court. This bench-mark is the same as No. $\frac{1}{24}$ of Series VII, Seasons 1881-82-83, when the height was determined as 27·690.	713 27·698	In the hollow square cut for the purpose on the stone.
4	0·5	CANNON at CHINSURAH. This bench-mark is on the top of a cannon embedded at the W. margin of the road opposite Nishághát: there is another cannon on the E. margin of the road.	198 24·188	On the top of the cannon.
5	1·8	B. ○ M. at BRIDGE. This bench-mark is cut on the plinth at the S. end of the W. wall of the Hooghly-Naiháti over-bridge on the road along the river bank.	925 28·910	Within the circle.
6	2·0	G.T.S. at HOOGLHY. This bench-mark is cut on the plinth of the Imámbara or B.M. Masjid, 80 feet W. of the main entrance.	190 31·475	Ditto.
7	2·3	G.T.S. at HOOGLHY. This bench-mark is cut on a stone at the bottom step of the small B.M. entrance at the N.E. corner of the Judge's Court at Hooghly. The step is 1 chain from the river bank.	118 34·108	Ditto.

* This bench-mark is in the charge of the Executive Engineer, Military Works, Barrackpore Division.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series VIII.—*Spirit Levelling from Chinsurah along the right bank of the Hooghly vid Tribeni, Guptipára, Culna and Samudragarh to Nuddea.*

No. in Series.	Approximate distance in miles from Chinsurah.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Levelling Staff.
8	2.9	B. O M. at BANDEL CHURCH. This bench-mark is cut on a small masonry pillar on the N. side of the W. entrance to the church, and on the E. margin of the road along the river bank.	26.408 418	Within the circle.
9	6.2	B. O M. at BANSBARIA. This bench-mark is cut on the inscription tablet of Beniaghát opposite the Post Office. The tablet is in the centre of the upper terrace of the ghát; the circle is cut on the tablet and the letters on the brick adjoining.	32.879 894	Ditto.
10	7.5	B. O M. at SHÁHPUR. This bench-mark is cut on a stone of 2nd footing of steps leading up to Záfar Khán Gházi's Dargáh (tomb) on the W. margin of the road along the river bank.	38.133 148	Ditto.
11	8.1	G.T.S. at TRIBENI GHÁT* This bench-mark is cut on a stone (18 inches × 12 inches × 12 inches) embedded in the centre of the uppermost parapet on the N. side of the ghát. The parapet is solidly built of masonry and measures 10 feet by 7 feet. On either side of the ghát there are shrines dedicated to the worship of the Hindu Deity Jagannáth.	27.618 033	In the hollow square cut for the purpose on the stone.
12	9.6	Λ at CHANDRAHÁTI. This bench-mark is cut on the E. parapet of bridge, near Anukul Bábu's Garden House at Chandraháti village. The bridge is on the road along the river bank. (Public Works Department B.M.)	34.528 538	On the head of the arrow.
13	12.3	G.T.S. at DUMARDAHA GHÁT. This bench-mark is cut on a stone set in the centre B.M. parapet on the E. side of the paka ghát at Dumardaha village; there are 7 parapets on each side of the ghát. The stone is circular and 9 inches in diameter.	22.205 220	Within the circle.
14	13.6	 REVENUE SURVEY STONE. This bench-mark is situated in a field 2½ chains W. of the road and a few chains N. of Dájipur village.	25.501 516	On the top of the stone prism.
15	15.8	B. O M. at RUKUSHPUR. This bench-mark is cut on the top step of a small temple (Mahádeo's) on the W. margin of the road.	33.415 415	Within the circle.

* This bench-mark is in the charge of the Sub-Inspector of Police, Bānsbaria.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series VIII.—*Spirit Levelling from Chinsurah along the right bank of the Hooghly vid Tribeni, Guptipára, Culna and Samudragarh to Nuddea.*

No. in Series.	Approximate distance in miles from Chinsurah.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Levelling Staff.
16	15.8	G.T.S. at RUKUSHPUR.* This bench-mark is cut on a marble slab (12 inches × 12 inches × 3 inches) embedded at the N.W. corner of plinth of the same temple as B.M. No. 15 is cut on.	33.755 ⁷⁷⁰	Within the circle.
17	17.6	G.T.S. at JIRÁT.* This bench-mark is cut on a marble slab (12 inches × 12 inches × 3 inches) embedded at the N.E. corner of plinth of the southern temple of two, situated at the entrance to the large square tank at Jirát village. The temples and tank are on the E. margin of the road along the river bank.	23.187 ²⁰²	Ditto.
18	19.6	G.T.S. at BALÁGARH. This bench-mark is cut on the N.W. corner of masonry B.M. plinth of Mahádeo's temple at Balágarh village. The temple is on the E. margin of the road and adjoins a square paka building known as the Banári Dalán; it is also 3 chains to the N. of a temple called Dol Mandir.	27.064 ⁰⁷⁹	Ditto.
19	20.2	B. O. M. at BALÁGARH. This bench-mark is cut on a masonry seat on the E. side of the gate of the Police Station at Balágarh, which is the last building at the W. end of Balágarh bazar. The police station is on the S. margin of the road and near the river bank.	23.923 ²³⁸	Ditto.
20	22.1	G.T.S. at BALÁGARH.* This bench-mark is cut on a stone (18 inches × 12 inches × 12 inches) embedded in a block of masonry 3½ feet square and 4 feet deep built in the police station enclosure; it is 46 links from the N.W. corner of the police station and 61 links from the B.M. cut on the masonry seat on the E. side of the gate, viz., B.M. No. 19. The bench-mark is a few inches above the level of the ground and the surface of the pillar is plastered with Portland cement.	23.258 ²⁷³	In the hollow square cut for the purpose on the stone.
21	22.8	G.T.S. at SOMRAH.* This bench-mark is cut on a stone (9 inches × 9 inches × 3 inches) embedded in the front or E. pavement of Hari Lal Síl's house which is on the bank of the river and faces Rákhál Dás Síl's house, a large white building on the opposite side of the road.	36.529 ⁵⁴⁴	Within the circle.

* These bench-marks are in the charge of the Sub-Inspector of Police, Balágarh.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series VIII.—*Spirit Levelling from Chinsurah along the right bank of the Hooghly viâ Tribeni, Guptipâra, Culna and Samudragarh to Nuddea.*

No. in Series.	Approximate distance in miles from Chinsurah.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Levelling Staff.
22	27·2	G.T.S. at GUPTIPĀRA TEMPLE. This ○ bench-mark is cut on the marble pavement immediately under the western arch and to the left-hand side on entering the principal temple. The temple is known as Brindaban Chandra Thákur's Mandir, and is situated $\frac{3}{4}$ of a mile from the Guptipâra bazar and the same distance from the river.	34· 088 ⁹⁹⁸	Within the circle.
23	27·4	G.T.S. at GUPTIPĀRA. This bench-mark is ○ out on the flooring of a large open hall B.M. belonging to Bābu Rakhāl Chandra Sen of Guptipâra: it is situated 15 chains from the temple, and on the left margin of the road along which the car is dragged. The hall has steps leading down to a tank, and the whole is enclosed with an iron railing. The bench-mark is cut on a flat tile near a pillar and very nearly in the centre of the top step leading down to the tank.	26· 852 ⁸⁶²	Ditto.
24	32·3	G.T.S. at CULNA. This bench-mark is cut ○ on the W. end of the top step at S. B.M. entrance to the Mission School building. The school is at the eastern extremity of the town and on the bank of the river.	42· 742 ⁷⁵²	Ditto.
25	32·3	G.T.S. at CULNA. This bench-mark is cut on ○ the W. parapet of steps at the N. entrance B.M. or that facing the river, of the Mission School building.	43· 174 ¹⁷⁹	Ditto.
26	33·0	G.T.S. at CULNA, RĀSBĀRI TEMPLE. ○ This bench-mark is cut on the E. end of B.M. the stone pavement at the main entrance to the temple which is situated opposite the market.	39· 862 ⁸⁷⁷	Ditto.
27	34·1	G.T.S. at CULNA, DEPUTY MAGISTRATE'S □ COURT.* This bench-mark consists of B.M. a stone (18 inches × 12 inches × 12 inches) embedded flush with the surface of a masonry pillar 4 feet cube which has been built immediately opposite the window at the N.E. corner of the building. The window appertains to a small room which is used as the Treasury. The bench-mark is flush with the level of the ground and the surface of the pillar is plastered with Portland cement.	39·140	In the hollow square cut for the purpose on the stone.

* This bench-mark is in the charge of the Deputy Magistrate and Deputy Collector, Culna.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series VIII.—*Spirit Levelling from Chinsurah along the right bank of the Hooghly vid Tribeni, Guptipára, Culna and Samudragarh to Nuddea.*

No. in Series.	Approximate distance in miles from Chinsurah.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Levelling Staff.
28	34·1	G.T.S. at CULNA, DEPUTY MAGISTRATE'S ○ COURT. This bench-mark is cut on B.M. the flooring of front verandah of the court-house, near the central pillar, 75 links from the embedded bench-mark.	41· 718 ⁷³³	Within the circle.
29	34·7	B. O M. at BRIDGE. This bench-mark is cut on the W. parapet of Sluice bridge on the cart track to Mirzapur and half a mile to the N. of the Deputy Magistrate's Court at Culna.	25· 044 ⁶⁵⁹	Ditto.
30	39·3	G.T.S. NEAR MIRZAPUR FERRY.* This ○ bench-mark is cut on a stone (9 inches B.M. × 9 inches × 3 inches) firmly embedded in a hole cut into a thick and well-matured root of a large and conspicuous banyan tree at Gopiaghát, 30 chains S. of the Mirzapur Ferry. The tree is right on the bank of the river and a few chains N. of Gopiaghát bazar. The bench-mark is situated on the E. side of the trunk facing the river.	34· 870 ⁸⁸⁵	Ditto.
31	40·9	G.T.S. at GOÁLPÁRA.† This bench-mark □ consists of a stone (18 inches × 12 inches B.M. × 12 inches) embedded in a block of masonry, 3½ feet square and 4 feet deep, built on the W. margin of the road from Culna to Cutwa (Kátoya) and Nuddea and in the Goálpára bazar. The bench-mark is in an open plot of ground, between three thatched houses belonging to Shám Mandal, fisherman: it is 40 links to the S. of the S.E. corner of the house to the N., in the verandah of which a letter-box is kept, and 122 links N.W. of the large <i>pipal</i> tree on the E. margin of the road. The bench-mark is a few inches above the ground level, and is covered up with a heap of earth.	38· 088 ¹⁰³	In the hollow square cut for the purpose on the stone.
32	41·3	B. O M. at BRIDGE. This bench-mark is cut on the N. end of the W. parapet of bridge, 32 chains N. of Goálpára and on the road to Cutwa.	32· 015 ⁶⁵⁰	Within the circle.
33	42·5	B. O M. at BRIDGE. This bench-mark is cut on the centre of the E. parapet of bridge, 24 chains N. of a tank on the E. margin of the road and midway between mileposts Nos. 30 and 31 from Cutwa.	34· 001 ⁰¹⁶	Ditto.

* This bench-mark is in the charge of the Sub-Inspector of Police, Culna.

† This bench-mark is in the charge of the Sub-Inspector of Police, Púrbasthali Thána.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series VIII.—*Spirit Levelling from Chinsurah along the right bank of the Hooghly vid Tribeni, Guptipára, Culna and Samudragarh to Nuddea.*

No. in Series.	Approximate distance in miles from Chinsurah.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Levelling Staff.
34	44·6	G.T.S. at SAMUDRAGARH BRIDGE. This \bigcirc bench-mark is cut on the centre of the B.M. E. parapet of the bridge over the Nengurdah khál and 6 chains N. of Samudragarh Post Office. The bridge is on the Culna-Cutwa road, and a cart track leads thence to Nuddea.	⁹⁰⁷ 39·802	Within the circle.

Branch line to KÁNCHANTALA INDIGO FACTORY.

$\frac{1}{34}$	1·3†	G.T.S. at KÁNCHANTALA INDIGO FACTORY.* This bench-mark is cut on a \bigcirc stone (9 inches \times 9 inches \times 3 inches) embedded in the surface of the wall, at the S.E. corner of the southernmost vat, and a chain E. of the chimneys. The factory is situated 15 chains E. of the road from Culna to Cutwa, $1\frac{1}{4}$ miles S. of Samudragarh Post Office, and on the old bank of the river, the present channel being about $\frac{1}{2}$ a mile to the east.	⁹²⁷ 38·911	Within the circle.
35	48·6	G.T.S. No. 3 at NUDDEA.† This bench-mark \square consists of a stone (18 inches \times 12 inches B.M. \times 12 inches) embedded in a 4-foot cube of masonry immediately opposite the E. window and adjoining the wall of the Policemen's Quarters of the Nuddea Police Out-post, which is situated in the town. The bench-mark is 21 and 14 links respectively from the S.E. and N.E. corners of the Police Quarters and 121 links N. of the steps of the Thána or Police Out-post; it is on about the same level as the ground, and is covered over with a pile of earth.	⁹²⁹ 31·929	In the hollow square cut for the purpose on the stone.
36	48·8	G.T.S. No. 2 at NUDDEA.† This bench-mark \bigcirc consists of a stone (18 inches \times 12 inches B.M. \times 12 inches) embedded in the narrow pavement outside the wall and to the W. of the doorway of the Sribás Temple which is situated on the N. margin of the road leading to the Kishnaghur (Krihanagar) Ferry and 10 chains S. of the Thána or Police Out-post. The bench-mark is flush with the pavement which is about 6 feet above the level of the road.	⁹⁰⁶ 33·006	Within the circle.

* This bench-mark is in the charge of the Sub-Inspector of Police, Púrbasthali Thána. † From B. M. No. 34. ‡ This bench-mark is in the charge of the Sub-Inspector of Police, Nuddea.

GREAT TRIGONOMETRICAL SURVEY OF INDIA.

Series VIII.—*Spirit Levelling from Chinsurah along the right bank of the Hooghly vid Tribeni, Guptipára, Culna and Samudragarh to Nuddea.*

No. in Series.	Approximate distance in miles from Chinsurah.	STATION.	Height in feet above Mean Sea Level at False Point.	Position of Levelling Staff.
87		<p>G.T.S. No. 1 at NUDDEA.* This bench-mark consists of a stone (18 inches × 12 inches B.M. × 12 inches) embedded in the pavement in front of a block of paka built shops on the road to the Kishnaghur Ferry. The block is on the N. margin of the road, 5 chains E. of the Sribás temple, and belongs to the same owner. The bench-mark is 72 links E. of the door which is at the W. end of the block and leads to a square tank, and 13 links W. from the E. end of the block: it is flush with the pavement and 2 feet above the level of the road. The block is 10 chains from the Kishnaghur Ferry.</p>	<p>252 25·287</p>	<p>In the hollow square cut for the purpose on the stone.</p>

* This bench-mark is in the charge of the Sub-Inspector of Police, Nuddea.

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