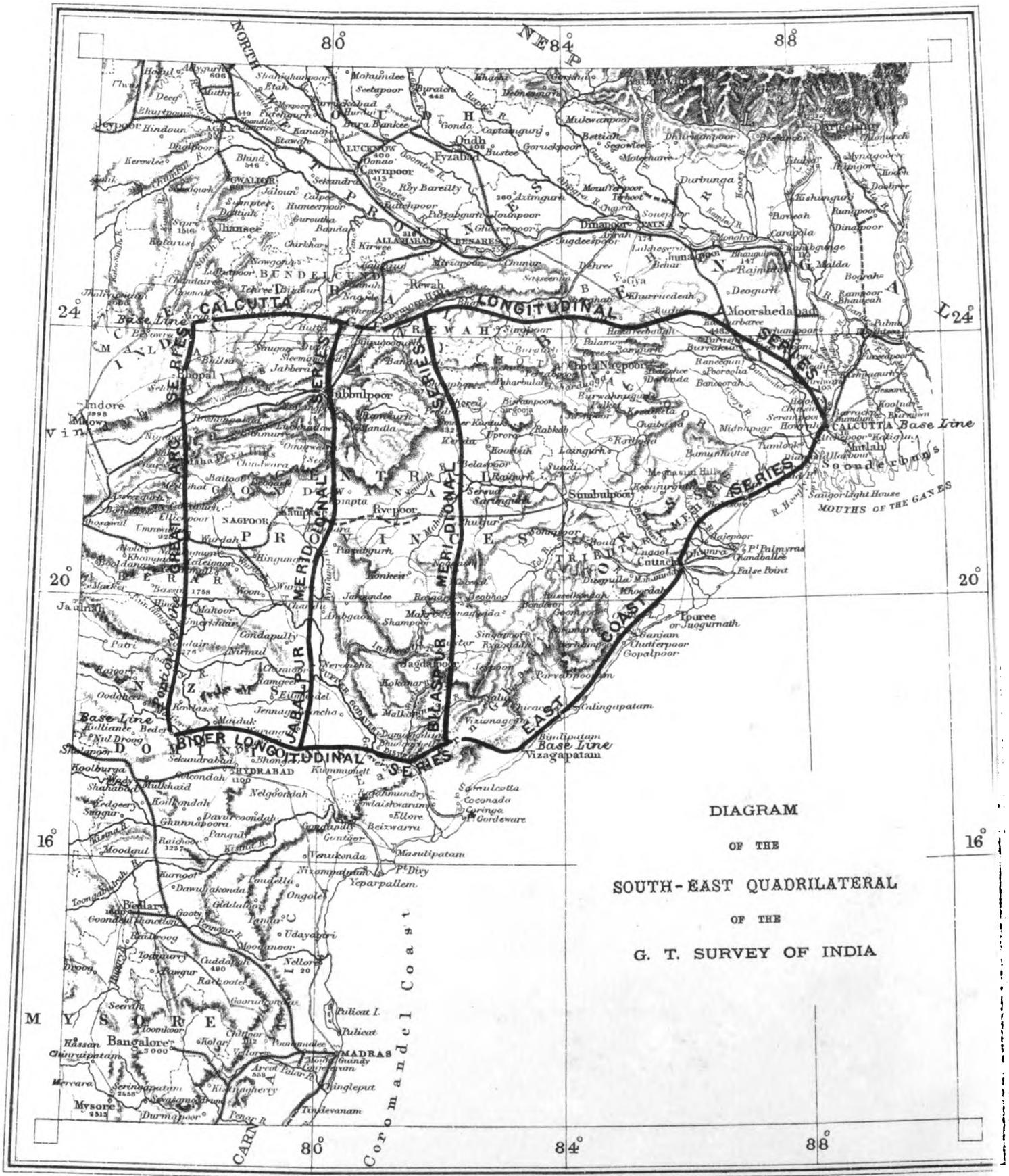
GREAT TRIGONOMETRICAL SURVEY OF INDIA



DIAGRAM

OF THE

SOUTH-EAST QUADRILATERAL

OF THE

G. T. SURVEY OF INDIA

C. DYSON, PHOTO.

C. G. OLLENBACK, ZI

Photozincographed at the Office of the Trigonometrical Branch, Survey of India, Dehra Dún, August 1880.

SYNOPSIS OF THE RESULTS OF THE OPERATIONS OF

THE GREAT TRIGONOMETRICAL SURVEY OF INDIA

VOLUME XIII.

DESCRIPTIONS AND CO-ORDINATES

OF THE

PRINCIPAL AND SECONDARY STATIONS AND OTHER FIXED POINTS OF

THE EAST COAST SERIES

OR SERIES C

OF THE

SOUTH-EAST QUADRILATERAL.

BY MAJOR-GENERAL J. T. WALKER, C.B., R.E., F.R.S., &c., &c.,
SURVEYOR GENERAL OF INDIA AND SUPERINTENDENT OF THE SURVEY
AND HIS ASSISTANTS.

PRINTED AT THE OFFICE OF THE TRIGONOMETRICAL BRANCH, SURVEY OF INDIA.
M. J. O'CONNOR.

1880.

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6—C. *Note to Station IV*:—The tower was originally built to a height of only 33 feet; but after a portion of the observations had been made it was raised by 5 feet.

„ *Note to Station V*:—The height of tower was originally only 30 feet; but after a portion of the observations had been made it was raised by 5 feet.

„ *Note to Station VI*:—The height of tower was originally 12 feet in 1849. It was raised to 24 feet sometime before the 10th March 1850; and afterwards to 30 feet, apparently between that date and 23rd March 1850.

7—C. *Note to Station IX*:—The height of tower was originally 24 feet. It was raised by 5 feet between the 12th and 28th February 1851.

8—C. *Note to Station XVIII*:—The height of tower was originally 29·9 feet. It was raised by 5·1 feet sometime after the 20th April 1853 and before the 15th January 1854.

9—C. *Note to Station XX*:—The height of tower was originally 30·2 feet. It was raised by 13·1 feet between the 10th and 18th April 1853.

„ *Note to Station XXII*:—The height of tower was originally 10·8 feet. It was raised by 1·1 feet between the 22nd and 27th January 1854.

31—C.	in Triangle No. 139	*for*	Ságar Light-house	*read*	Saugor Light-house
32—C.	„ „ „ 176	„	Mimidá, XXXIV	„	Nimidá, XXXIV
42—C.	„ Triangles Nos. 430 and 431	„	Tálpátí Bridge Spire	„	Tálpátí Bridge, S. Pier
50—C.	„ heading between Triangles Nos. 628 and 629	„	(Mal to Sálíhundan)	„	(Mal to Sálíhundam)
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60—C.	„ GANGRA, VI	„	Tálpátí Bridge Spire	„	Tálpátí Bridge, S. Pier
„	„ „ „	„	Ságar Light-house	„	Saugor Light-house
63—C.	„ KEJIRI HOUSE S.	„	Tálpátí Bridge Spire	„	Tálpátí Bridge, S. Pier
„	„ KEJIRI TIDE POINT S.				
84—C.	line 24 from bottom, column 1	„	Fathigarh (Futtehgarh) Hill Mark	„	Fathigarh (Fatehgarh) Hill Mark
95—C.	in description of Megáváram No. 1 S.	„	On the sea coast, about a mile S.E., of Megáváram village.	„	On a high sand height on the high water mark, and about 0·3 of a mile S.W. of Megáváram village.

REFERENCES.

For the general description of the construction of the Principal Stations of this Series see page 5—$_C$.

The abbreviations employed in the text are as follows:—

h.s. denotes hill station (secondary)
s. „ station „
t.s. „ tower station „

These abbreviations are placed only after stations where a theodolite has been set up and observations taken to surrounding points.

In the Alphabetical List commencing on page 73—$_C$, when a name is given in duplicate, the orthography of that enclosed in brackets is either taken from the Government Lists or is otherwise an amended form of rendering the name according to the Government rules. The name in italics is that of the district in which the point is situated.

The latitudes and longitudes of all points shown on the charts at the end of this volume, and of those other points included (from want of space on Chart No. 1) in the list on that chart, will be found in the text. The latter exhibits numerical values of triangles only to points of a superior class, to which alone, if exhibited on the charts, lines are drawn: these lines are either continuous throughout, or dotted for half the length and continuous for the other half: the dots indicate that the bearing was not observed, and in such cases numerical values of azimuths are not given. For other points, difficult to identify or of comparatively less accuracy, numerical values of triangles or azimuths are not given.

The trigonometrical heights always refer to the upper mark-stone let into the pillar when the latter is solid; and to the upper surface of the pillar, on which the theodolite stood, when the pillar is perforated or the tower is hollow: the spirit levelled heights refer to the points on which the levelling staff stood as indicated in foot-notes in the Co-ordinate List commencing on page 73—$_C$.

December 1880.

J. B. N. HENNESSEY,
In charge of Computing Office.

PREFACE.

The chain of triangles which extends from Calcutta, along the eastern coast of India, to Vizagapatam, and directly connects the base-lines at those two places, is known as the East Coast Series. It constitutes the eastern flank of that considerable portion of the Principal Triangulation of the Survey of India which is known as the South-East Quadrilateral, and embraces the area included between the Meridian of 78° on the west, the Coast line on the east and the Parallels of 18° and 24° on the south and north. With the exception of a comparatively short chain of triangles along the meridian of Sambalpur, 84°, the whole of the principal triangulation of this Quadrilateral was completed by the year 1873: the base-lines at its four corners, namely Sironj, Bider, Calcutta and Vizagapatam, on which the linear elements were dependent, had been completed several years previously. As it was probable that many years might elapse before the remaining chain of triangles could be undertaken, and as the base-lines, the four external and all the most important internal chains had been finished, the simultaneous and final reduction of this figure was commenced, without waiting for further triangulation, on the completion of that of the North-West Quadrilateral, the results of which have already been given in Volumes II to IV of the *Account of the Operations &c.* The South Párasnáth and South Malúncha Meridional Series were purposely excluded from the reduction, on account of their having been executed with inferior instruments, in the early days of the Survey; they were afterwards made consistent with the simultaneously reduced portion of the triangulation; and this will also have to be done for the Sambalpur Meridional Series, after its completion, whenever that may be. The general principles of the simultaneous reduction, and the procedure followed in carrying it out, have been explained in Volume II of the *Account of the Operations &c.*; and full details of the whole of the principal triangulation which is at present included in the Quadrilateral, will be found in Volume VI.

As however the entire contents of the volumes of the principal triangulation are not needed by geographers and surveyors, and moreover as these volumes give no details of the secondary triangulation—which is of considerable value for local requirements—it is obviously desirable that Synopses of the final results of the whole of the operations, including the secondary as well as the principal triangulations, should be published for general use, in such a form as to be most suitable for convenience of reference. This has already been done for the several Series forming the North-West Quadrilateral, as follows:—

I. Great Indus Series.
II. Great Arc, Section 24° to 30°.
III. Karáchi Longitudinal Series.
IV. Gurhágarh Meridional Series.
V. Rahún Meridional Series.
VI. Jogí-Tíla and Sutlej Series.

} already published.

VII. North-West Himalaya Series, nearly ready for publication.

And for the following Series of the South-East Quadrilateral, *viz.*,

VIII. Great Arc, Section 18° to 24°.
IX. Jabalpur Meridional Series.
X. Bider Longitudinal Series.
XI. Bilâspur Meridional Series.
XII. Calcutta Longitudinal Series.
} already published.

The present is the 13th Synoptical Volume, and it gives the results of the whole of the triangulation, both the principal, which was executed with great theodolites having azimuthal circles of 24 inches diameter read by micrometer microscopes,—and the secondary, which was executed with smaller theodolites, having circles of 7 to 14 inches in diameter, read by verniers.

By the process of reduction which has been followed, the principal triangulation has been rendered perfectly consistent, both internally and externally; internally, so that if in any one of the several polygonal figures of which the chains may be composed, calculations are carried from one station to another in every possible direction, the same results will be inevitably deduced; and externally, so that the values of the co-ordinates of any station, when computed from the given co-ordinates of any other station, with the final linear and angular data, will be the same, whether the calculation is carried directly through the series, or circuitously through any of the other chains of triangles comprising the South-East Quadrilateral. All secondary triangulations which emanate from one side of the principal series and close on another side thereof, or on a contiguous series, have also been made consistent throughout.

As regards the general arrangement of this volume, it is necessary to point out that the several sections have been prepared and printed at different times, and that the work has extended over several years. The Introduction and the Names and Descriptions of the Principal Stations, were originally prepared for Volume VI of the *Account of the Operations, &c.*, and when a sufficient number of copies had been printed for that work, additional copies were struck off for the present synopsis. The Names and Descriptions of the Principal Stations, pages $1_{-C.}$ to $18_{-C.}$, were printed first of all; this was done in the years 1875-76, after a general programme had been drawn up for the reduction of the South-East Quadrilateral: there was then a long pause in the printing, while the reduction of the principal triangulation was being completed. Finally the secondary triangulation had to be adjusted in accordance with the principal, and then the printing of this volume was resumed.

The data given in this volume are the following:—

First (page $1_{-C.}$), an alphabetical list of the names of the principal stations, showing the numbers assigned to them, which were employed in the reductions as being more convenient to use than names.

Second (page $3_{-C.}$), a numerical list giving the names corresponding to the numbers.

Third (page $5_{-C.}$), descriptions of the principal stations—of their structure and positions—as taken from the original records of the observations, and supplemented by recent information received from the civil authorities to whose charge the stations have been committed.

Fourth (page $19_{-C.}$), the angles and sides of the principal triangles, numbered and arranged in order from north to south.

Fifth (page $27_{-C.}$), the angles and sides of certain secondary triangles. The numbering is here made consecutive to that of the principal triangles, in order to facilitate references which are made in other sections to the place where the length of a side is to be found.

Sixth (page $54_{-C.}$), the azimuths of surrounding stations and points, at principal, principal-auxiliary† and secondary stations, the latter arranged in alphabetical order.

Seventh (page $73_{-C.}$), the co-ordinates and descriptions of all stations and points arranged in alphabetical order.

† NOTE.—By a principal-auxiliary station is meant a station auxiliary to a principal station at which observations were taken to fix unvisited points.

The Heights of the stations have been divided into three groups for final adjustment. Those of the first group have been determined differentially between Samalia and Baniban stations of the Calcutta Longitudinal Series on the north, and Kejirí Tidal Station on the south; of the second group between Kejirí and Balarámgarhí Tidal Stations, and of the third between those of Balarámgarhí and Vizagapatam Tidal Stations. The heights of Baniban and Samalia depend on the following obligatory values; *viz.*, Sonákúr, 124·6 feet, as determined by leveling with a 12-inch theodolite from the 63rd milestone from Calcutta on the Grand Trunk Road (the milestone being one of the points fixed in the line of Spirit Levels carried from Karáchi to Calcutta, *vide* page 51 of the *Tables of Heights* in the N. W. Provinces and Bengal, Roorkee 1866); Chinsurah, 86·4 feet, as determined by the same line of Levels, *vide* page 52 of the Tables of Heights already referred to; North End Calcutta base-line, taken as 16·3 feet; and South End Calcutta base-line, as 13·0 feet. The heights of these two latter stations were deduced as follows:—

Height of base-line dot at S. End Calcutta base-line above sea level determined by Spirit Leveling from Kydd's Dock, ...	10·43	feet
Correction for difference in the values of height of datum in Kydd's Dock,—8·82 used in the above determination and—6·25 as brought down from Karáchi mean sea level, ...	+ 2·6	„
Height of base-line dot at S. End Calcutta base-line above Karáchi mean sea level, ...	13·0	„
Height of tower at S. End Calcutta base-line above base-line dot, ...	73·6	„
Height of top of tower at S. End Calcutta base-line above Karáchi mean sea level, ...	86·6	„
Difference of height between upper surfaces of towers at S. and N. Ends of Calcutta base-line determined by reciprocal vertical angles, ...	4·2	„
Height of top of tower at N. End Calcutta base-line above Karáchi mean sea level, ...	90·8	„
Height of top of tower at N. End Calcutta base-line above base-line dot, ...	74·5	„
Height of base-line dot at N. End Calcutta base-line above Karáchi mean sea level, ...	16·3	„

The heights of the Tidal stations at Kejirí, Balarámgarhí and Vizagapatam were determined to be 13·42, 14·98 and 2·47 feet respectively above mean sea level. The two former were connected trigonometrically with the contiguous principal stations, and the latter by a single line of Spirit Levels with the S. End of the Vizagapatam base-line.

All the heights of this Series were determined differentially, by the method of reciprocal vertical angles, back and forward observations being taken at each of the principal stations, at the time of minimum refraction. The errors generated in the sections of the triangulation containing the three groups of stations as above indicated, were 3·2, 3·1 and 5·2 feet respectively.

It has not been considered necessary to publish the whole of the details of the secondary triangulation. The sides and angles of 605 triangles, which were selected as most likely to be of general use, and the azimuths of all these sides, have been given; but for a number of other points the co-ordinates only have been given. With the aid of Nos. X, XI and XII of the "*Auxiliary Tables to facilitate the calculations of the Survey Department of India*"—Dehra Doon, 1868—local surveyors, working on a system of rectangular co-ordinates, can readily transform the spheroidal co-ordinates here given to suit their own requirements.

The Longitudes depend on an astronomically determined value of the longitude of the Madras Observatory, 80° 17′ 21″, which was deduced about the year 1815. There has long been reason to believe that this value was about 3′ too great; but, pending the final determination of the longitude of the Madras Observatory, it has not been considered desirable to alter the value, which has therefore been maintained up to the present time. An electro-telegraphic determination of the longitude of Madras from Greenwich, commencing with the

difference between Suez and Greenwich—determined, in 1874, under the superintendence of the Astronomer Royal—was completed in 1877 by the determination of the difference between Suez and Madras, by Captains Campbell and Heaviside, as a part of the operations of this Survey. The combined result places the Observatory at Madras in Long. $5^h\ 20^m\ 59^s{\cdot}42 = 80°\ 14'\ 51''{\cdot}30$. Thus the following precept may be accepted with considerable confidence,—

All the values of longitude in this volume require a constant correction, probably of—2′ 30″.

As regards the orthography of Indian names in the present volume. In the early portion, consisting of Alphabetical and Numerical lists and Descriptions of Principal Stations, printed in 1875-76, the orthography of Dr. Hunter's "Guide to the Orthography, &c.", was adopted for such names as occur in the Guide, and all other names were spelt in keeping therewith, as nearly as was desirable. Then there was a pause of about a year in the printing, during which several of the provincial lists of spellings, constructed under the orders of the Government of India, were received. Although these lists have supplied very few names occurring in this volume yet in following their spirit some diversities of spelling have occurred, as in the terminal *pur* which is occasionally printed *púr*. It is however believed that, notwithstanding such departures from a standard spelling, all the names will be readily recognisable. As a general rule the pronunciations of the vowels are as follow:—*a* has a variable sound as in wom*a*n, rur*a*l, p*a*ltry; *á* as in t*a*rtan; *i* as in b*i*t; *í* as in rav*i*ne; *u* as in b*u*ll; *ú* as in r*u*ral; *o* as in n*o*te; *e* as *a* in s*a*y; *au* as *ou* in cl*ou*d; *ai* as *i* in r*i*de.

The Charts accompanying this volume show the whole of the principal stations and triangulation, the positions of all the secondary points, and those portions of the secondary triangulations of which full details of the angles, sides and azimuths are given. With the aid of the Charts it is hoped that little difficulty will be met with in finding out any of the data which may be required. The descriptions of the secondary stations are in some cases not as full and clear as is to be desired: this arises from the inadequacy of the information entered on the spot by the surveyors in their field books; every effort has been made to supplement this, whenever it was practicable to do so, in order to facilitate the future identification of the stations, and all the information which is at present forthcoming has been given.

The general arrangement of this volume and the preparation of the data which it contains have been the work, at different times, of Mr. Hennessey, M.A., F.R.S., Major Herschel, R.E., F.R.S., and Mr. Cole, M.A. Mr. Cole moreover supervised the Simultaneous Reduction of the South-East Quadrilateral of which this series forms a portion, and he also wrote the Introduction to this volume. Great pains have been taken to secure the utmost accuracy in preparing the data and passing them through the press.

MUSSOOREE,
June 1880.

J. T. WALKER, MAJOR GENERAL, R.E.,
Surveyor General of India, and
Supdt. of the Great Trigonometrical Survey.

EAST COAST SERIES.

EAST COAST SERIES.

INTRODUCTION.

In the year 1844 the attention of the Directors of the Hon'ble East India Company was drawn to the blank which existed in the geographical knowledge of the tract of country between the Calcutta Longitudinal Series and Ganjam. Some local surveys had been made at different times of different parts; but there were many and great discrepancies between them; and there was not a point on the Coast between the Hooghly river and Ganjam of which the longitude had been ascertained with any accuracy. The Surveyor General—then Captain Waugh—being called upon for his opinion as to the desirability of filling up this blank, replied that it had already attracted his attention, and that the advantages which would accrue from carrying a series of triangles over the unsurveyed tract would be very great; indeed, that he had only been deterred from recommending such an undertaking hitherto by the fact that he had no officer of his Department whom he could spare for the duty. He added further that in his opinion the triangulation should emanate either from the Calcutta Base-line or from some convenient side of the Calcutta Longitudinal Series, and, following the line of the sea coast, proceed through the districts of Midnapore and Cuttack until it formed a union with the southern terminus of the South Párasnáth Series. From thence continuing along the coast it would combine with the operations of the late Lieutenant Buxton in Orissa; and proceeding by Jagannáth it would connect with the surveys in Ganjam. By starting from a Base-line of well ascertained length, such as that at Calcutta, a degree of correctness would be immediately attained which would not only be of the greatest importance for the Series itself, but would furnish the means of at once incorporating any former triangulation, with which the Series might be connected, into the Survey of India and rendering it and the detailed surveys based on it available for the extension of the Atlas of India, in the progress of which the Court of Directors were greatly interested.

The remarks of the Surveyor General induced the Court of Directors to sanction the appointment of Captain Thorold Hill, of the 29th Madras Native Infantry—an officer who had already had considerable experience in surveying, having been employed in the Madras Topographical Survey—to the Great Trigonometrical Survey, with a view to his undertaking the conduct of the Series. The operations could not, however, be commenced at once, for

Captain Hill had no experience either of the handling of the large instruments used for the principal triangulation of India, or of the general procedure of the operations of the Trigonometrical Survey; and it was accordingly necessary that he should have some preliminary training, before he could be intrusted with the conduct of so important an undertaking as the East Coast Series, to which many unusual difficulties attached, especially at its commencement. A further reason for delay was that there was no large instrument available suited for the triangulation; but four new 24-inch Theodolites were in course of construction in England, two by Troughton and Simms and two by Barrow; and the Surveyor General hoped that he would receive one of these within such a time as would justify his awaiting its arrival.

These considerations induced the Surveyor General to employ Captain Hill at first in carrying a series southward from the Calcutta Longitudinal Series along the Malúncha Meridian to the Coast. This series would intersect the Midnapore district from north to south and when united with the Coast Series, would form a valuable basis for the Revenue Survey of that district, as well as for the rectification of the geography of the Coast. Being of less importance than the last named series, a smaller instrument could be employed, and an 18-inch theodolite by Troughton and Simms was available for the purpose.

Captain Hill arrived at the Head Quarters of the Survey in March 1845, and was occupied until October in arranging his former surveys in Gumsúr and in acquiring some knowledge of the system of the Great Trigonometrical Survey. By the 1st September he was placed in charge of the Party which had just completed the Karára Meridional Series, and early in October he took the field.

Season 1846-47.

PERSONNEL.

Captain C. T. Hill.
Mr. R. Clarkson, Senior 1st Class Sub-Assist.
„ W. R. N. James, Junior „ „
„ C. B. Nield, 2nd Class „
„ N. A. Belletty, 3rd „ „

The two following seasons were spent in executing the South Malúncha Series, which was nearly completed by February 1847, when Captain Hill proceeded to Calcutta to commence the selection of stations for the Coast Series. This was a somewhat perplexing undertaking; for the Base-line being situated on the north side of Calcutta it was no easy matter to start the Series symmetrically, on account of the obstacles presented by the city and suburbs. To make a circuit round Calcutta would occasion an unsightly bend in the series. On the other hand to pass directly over the city would require a commanding station in Calcutta, such as would be very expensive to erect for this special purpose. At length the Governors of the Martiniere College were applied to for permission to establish a station on the Dome of that institution, which commanded an extensive view over the whole of the city, and was favourably situated to form a symmetrical connection with the stations of the Calcutta Longitudinal Series. The application having been acceded to Captain Hill then selected two stations south of Calcutta, *viz.*, Baniban and Samalia, by means of which he formed a hexagon round Nibria as a centre. This hexagon now forms part of the Calcutta Longitudinal Series. Two other stations, *viz.*, Mirzápúr and Sarisá were also selected this season, and the building of towers was taken in hand.

The form of tower at first adopted was the hollow square pattern, described on page 44 of Volume II of the *Account of the Operations &c.* But Captain Hill drew attention to the heavy cost of such towers in the low marshy country on both sides of the Hooghly south of Calcutta, where materials for building were very expensive and the difficulty of transporting them through swamps, for the most part too wet for cattle to traverse and too dry to float the smallest boat, was very considerable. And, as will be subsequently seen, towers of a less costly pattern were afterwards adopted.

Besides the selection and building of stations, the clearing of the rays between the stations of Nibria, Bhola, Dilakás, &c., of the Calcutta Longitudinal Series, was undertaken; for although these stations ranged from 70 to 90 feet in height, the forest of fruit trees in the neighbourhood of Calcutta was so dense that they were not mutually visible. On the ray Nibria to Dilakás alone it was found absolutely necessary to fell 248 trees of various kinds, the greater number of which were cocoanut, an undertaking not only laborious but involving a considerable expenditure of money in compensation to the owners.

The season was so far advanced when operations commenced that it was only found possible to complete the building of the tower at Baniban before the rains commenced, which they did somewhat early. The country soon after became flooded and the Party had to return to recess quarters at Midnapore, which they reached on the 7th July, the remaining three towers which had been partially built having been previously protected by thatched roofs against the weather.

Season 1847-48.

PERSONNEL.

Captain C. T. Hill.
Mr. R. Clarkson, Senior 1st Class Sub-Assist.
„ W. R. N. James, Junior 1st „ „
„ C. B. Nield, 2nd „ „
„ N. A. Belletty, 3rd „ „

Operations were commenced again early in December, two Sub-Assistants having been sent in advance to complete the towers left unfinished during the preceding season, and to open out the rays. Captain Hill in the first instance proceeded to La Martiniere Station to take a set of experimental angles with Troughton and Simms' 18-inch Theodolite No. 2—the instrument he had employed on the South Malúncha Series—in accordance with the directions of the Surveyor General, who had discovered that certain of the large theodolites belonging to the department did not give consistent results, when tested by a repetition of the observations, using a new zero station for the revision.* His directions were that the instrument should be set up at some convenient station, and a set of angles observed in the usual way on the prescribed number of zeros, making the left hand object or station the zero point. After the completion of this set the whole instrument was to be shifted so that the second object or station should become the zero point, and then the angles were to be measured again in the same manner. If the angle between the first and second stations differed much from 60°, that is to say more than 8° or 9°, then instead of making the second station the zero point in the second set of observations, the first station was to be again employed with zero settings about 60° in advance of those used for the first

* Some instances of the kind have already been discussed in Appendix No. 5 of Volume II of the *Account of the Operations &c.*, and these were probably the cause of Colonel Waugh's decision that the capabilities of all the large instruments should be carefully ascertained in a similar manner to that adopted for the instruments referred to in the Appendix just mentioned.

set, 60° being about the average angle measured. In some of the instruments previously examined in this manner, it had been found that the mean results from each set differed considerably, shewing that values of the angles obtained with them in practice depended on the position of the zero point. It also appeared that half a set taken systematically—that is at equal changes of zero—differed inappreciably from the mean of the whole set; hence the mean of two half sets represented very closely the mean of two whole sets; and in the case of instruments giving different values of angles on different zero settings, Colonel Waugh directed that a mean value obtained in this manner should be employed.

The points selected by Captain Hill for observing to were Tollygunge Temple, St. Paul's Cathedral, St. John's Cathedral and the South End of the Base-line.* The result of the examination seems to have satisfied Colonel Waugh that the instrument when employed in the usual manner gave sufficiently satisfactory results; for it was shortly afterwards made over to Mr. Armstrong for use on the Hurílâong Series, by whom observations were taken on 12 equidistant zeros; and the same system of observing with it, except during parts of two seasons, when the number of zeros was reduced to six, was continued so long as the instrument remained in use, *i.e.*, till the year 1862.

By the time Captain Hill had completed these observations the four new 24-inch Theodolites had arrived at Calcutta, and he was directed to select one for his future operations. This he did, his choice falling on that which is now known as Troughton and Simms' 24-inch No. 1, and he then proceeded to test it in the same manner as the 18-inch. La Martiniere Station was again adopted and the same points were observed to as before. The instrument at this time only possessed 3 microscopes and Captain Hill accordingly chose the same zero settings as for the 18-inch.† The result of this examination seems to have been the decision to

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* The values of the angles obtained with Troughton and Simms' 18-inch Theodolite No. 2 were as follows:—

	Tollygunge Temple and St. Paul's Cathedral	St. Paul's Cathedral and St. John's Cathedral	St. John's Cathedral and S. End Base-line
First set of observations on 12 zeros 0°, 180°, 10°, 190°, &c., Tollygunge Temple being zero point.	79° 14′ 23″·00	57° 32′ 28″·81	35° 36′ 45″·77
Second set of observations on 12 zeros 60°, 240°, 70°, 250°, &c., Tollygunge Temple being again zero point.	24 ·30	29 ·45	46 ·53
Means	23 ·65	29 ·13	46 ·15
Zeros 0°, 180°, 20°, 200°, &c., of 1st set combined with zeros 60°, 240°, 80°, 260°, &c., of 2nd set.	23 ·64	29 ·13	45 ·68
Differences	·01	·00	·47

† The values of the angles obtained with Troughton and Simms' 24-inch Theodolite No. 1 were as follows:—

	Tollygunge Temple and St. Paul's Cathedral	St. Paul's Cathedral and St. John's Cathedral	St. John's Cathedral and S. End Base-line
First set of observations on 12 zeros 0°, 180°, 10°, 190°, &c., Tollygunge Temple being zero point.	79° 14′ 26″·94	57° 32′ 27″·58	35° 36′ 43″·88
Second set of observations on 12 zeros 60°, 240°, 70°, 250°, &c., Tollygunge Temple being again zero point.	24 ·68	28 ·59	44 ·32
Means	25 ·81	28 ·09	44 ·10
Zeros 0°, 180°, 20°, 200°, &c., of 1st set combined with zeros 60°, 240°, 80°, 260°, &c., of 2nd set.	26 ·26	28 ·20	44 ·16
Differences	·45	·11	·06

employ the instrument on two sets of zeros, 0°, 180°, 20°, 200°, &c., and 60°, 240°, 80°, 260°, &c.; and this method of observing was continued till March 1851, when a single set of zeros giving measures at every 10° round the horizontal limb was adopted.

A few alterations had now to be made in the arrangements for packing the instrument and by the time these were effected the tower at Samalia had been completed and final observations were commenced. These observations were made by Mr. R. Clarkson owing to Captain Hill's health having failed.

Leaving La Martiniere the camp moved to the South End of the Calcutta Base at Cossipore and thence in succession to the other principal stations. In the mean time Mr. James was detached in advance with carpenters and bricklayers to alter the pillars and platforms at the stations at the North End of the Base, Bhola, Dilakás, Baniban, and Nibria, which had been built to suit the dimensions of the 18-inch theodolite and therefore required to be enlarged. Considerable delay occurred at the Base-line Stations, partly owing to Captain Hill's illness and partly from hazy and cloudy weather preventing the heliotropes being seen at the time of minimum refraction. Similar delays occurred afterwards; but the horizontal angles were obtained with little difficulty, the lamps nearly always shewing well.

While the above operations were in progress the towers at Sarisá and Mirzápúr were completed and several rays to them cleared: two new stations at Natsal and Rámnagar were selected and the towers finished with the exception of the wood work. At the end of May heavy storms set in and continued throughout the month of June, putting a stop to the execution of any more final work. The out-turn for the season amounted to nine principal triangles, carrying the series as far as the side Mirzápúr to Sarisá, and about one hundred secondary triangles. Seven of the principal triangles, *viz.*, those round Nibria, now form part of the Calcutta Base-line Figure, or Figure No. 21 of the South-East Quadrilateral, which has been incorporated into the Calcutta Longitudinal Series.

A series of secondary triangles, emanating from Natsal Tower Station and Hooghly Point Semaphore, was commenced by Mr. James and carried along the Roopnarayan river, the intention being finally to connect with the principal station of Gop near Midnapore. Of this series 13 triangles were completed this season and a number of points fixed by intersection.

Captain Hill gives the following description of the difficulties presented by the country immediately south of Calcutta. "The surface of the country is a dead flat, densely covered "with fruit trees of various kinds (principally cocoanut and mango), thickly studded with popu- "lous villages, and intersected by almost innumerable muddy creeks and watercourses affected "by the tide, and in many parts swampy or inundated during nearly three parts of the year. "To this must be added the almost entire absence of all roads for cattle, &c., the great expense "of all kinds of building materials, and the high rates of labour, together with the well known "litigious character of the inhabitants; all which combined, present very formidable impedi- "ments to the progress of the trigonometrical operations; and consequently the work during "the past season proceeded by slow degrees, and was attended with considerable outlay of

"money. Of the new towers those at Baniban, Samalia and Mirzápúr are unapproachable ex-
"cepting by water for three-fourths of the year. The tower at Sarisá being close to the high
"road from Calcutta to Diamond Harbour, and built on the high bund of a tank, is at all times
"accessible. In the erection of these towers the usual method of making and burning bricks
"near the station was attempted, but not attended with success. The great price to be paid
"for wood fit for burning the bricks, the difficulty in collecting a sufficient quantity of it, and
"the almost endless disputes, delays and disappointments, which occurred, and also the fact
"that the bricks when burned actually cost as much or more than they could have been pur-
"chased for from the dealers, led to the abandonment of the usual system for a time. This
"measure was rendered almost imperative by the fact that the soil in the neighbourhood of
"some of the stations was so impregnated with salt deposited by the tide as to be totally unfit
"for making bricks.

"The movement of the camp across the country I have just described required a consi-
"derable degree of care, and notwithstanding all the precautions used was, in some instances,
"not wholly devoid of danger. The transport of the 24-inch Theodolite over rapid streams,
"when only crazy boats were procurable, was always an operation which gave cause for con-
"siderable anxiety. When the party were encamped at Baniban, the bursting of a bund
"suddenly inundated the country; and the whole camp was compelled to have recourse to
"boats to remove it to dry land several miles distant. A fierce North-Wester shortly after-
"wards blew the whole platform on the Baniban tower out of the masonry into which it had
"been built, and lodged it on the ground many yards distant. Fortunately no person was on
"the tower at the moment."

To lessen as much as possible the expense attendant on opening the rays from one tower to another, the expedient was adopted of erecting high masts on the advanced stations and burning blue-lights at previously determined times. The directions were thus obtained from the rear station and the angles measured to a referring mark. Flags were then placed by day-light on the bearings thus obtained and the rays cleared in the usual manner.

The low lands having become flooded by the rains the camp returned to its recess quarters at Midnapore on the 19th June.

Season 1848-49.

PERSONNEL.

Captain C. T. Hill.
Mr. R. Clarkson, Senior 1st Class Sub-Assist.
,, W. R. N. James, Junior 1st ,,
,, C. B. Nield, 2nd ,,

The state of the country did not admit of the Party again taking the field until the 27th November 1848; and even then much delay was occasioned owing to the inundations having only partially subsided, and to nearly the whole face of the country which was not submerged being covered with deep mud.

The mornings, evenings and nights at this season of the year are generally foggy; but the afternoons before the fogs rise are favourable for observing vertical angles; and Captain Hill took advantage of this circumstance to re-observe the verticals at Sarisá and Mirzápúr, as his observations of the previous season had shewn an evident discrepancy. This was now ascertained to have been due to one of the rays having passed close over a village, the smoke arising from which probably

affected the observations at Mirzápúr the verticals taken at Sarisá agreed in the mean with those taken the previous season to 0″·1. Many obstacles presented themselves to the transport of the theodolite to the towers of Sarisá and Mirzápúr owing to the flooded state of the country, and much credit was due to Mr. Clarkson for the energy and perseverance by which he overcame them.

In the mean time Mr. James was detached to fix the positions of several semaphores in connection with the previous season's triangulation; in doing this it was necessary for him to take observations to blue-lights burnt over the staffs of the semaphores. He then resumed the triangulation on the Roopnarayan river which he had commenced the season before. Mr. Nield was employed in building towers, and other duties of a minor character.

On the completion of the measurement of the vertical angles previously referred to, Captain Hill proceeded with the assistance of Mr. Clarkson to select stations in advance. To facilitate the progress of this part of the operations as much as possible, Captain Hill undertook the selection of stations on one flank (the eastern), while he assigned Mr. Clarkson the other flank. By the 20th February the Series had been laid out to its junction with Nilgirí and Kimhírá formerly fixed by the South Párasnáth Series, and arrangements had been made at several of the stations selected for the collection of materials to build towers.

Mr. James had now to be withdrawn from the secondary series he was engaged on and employed in the building of stations; and under his supervision and that of Mr. Nield the work advanced steadily and rapidly.

Before the season closed a graduated tide gauge was erected to the south of the Gángrá station, about half way between it and Kejirí, and attached to the tide gauge used for shewing the depth of water at the tide gauge semaphore; and with the assistance of Mr. Bedford, the Marine Surveyor to Government, arrangements were made to register the rise and fall of the tide with regularity.

At Gángrá the depression of the horizon was regularly observed at 8 a.m. and 3 p.m. as an alternative method of determining the height of the station above mean sea level; but the observations gave such unsatisfactory results that they were ultimately rejected. Preparations were also made to connect the tower station at Gángrá with the tide gauge.

By the 12th March an observatory had been prepared on the tower at Gángrá for circumpolar star observations for azimuth; but clouds and mists so effectually obscured the sky that, during the whole period from the 20th March to the 11th April, not one regular set of observations could be obtained.

Up to this time every thing had gone on prosperously; but now an occurrence took place which put a sudden stop to further operations. It will be best described in Captain Hill's own words.

"All were in high health and spirits, when a sudden change of weather in the course "of *almost* a few hours prostrated the whole party. Marsh fever made its appearance and at- "tacked every one indiscriminately. The detached parties employed in building, clearing rays, "&c., all suffered about the same time; and up to the present day (August) I have not been

"able to discover a single individual, either among the public servants or camp followers, who "escaped this appalling pestilence. On its first appearance I immediately resolved to move "the camp if possible to Dariápúr, which is situated on the sand hills, on a fine dry and "commanding position, south of the Rasulpúr river, or Hidjillí Creek as it is named in the "Marine Charts. The distance, 12 miles, was with difficulty accomplished in three days, the "worst cases among the sick being transported in the Government Dâk boats belonging to "Kejirí. The change to Dariápúr was productive of no improvement, and to show to what "a lamentable state my party was reduced, I need only mention that for some days not "above 3 or 4 individuals, out of 200 or 300, were able to cook their food. All my own pri-"vate servants were ill, and for eleven days *all* of them were unable to do any work. Mr. "Clarkson suffered very severely with all his servants, as also did Mr. James (who was with "me at Dariápúr) and Mr. Nield with all their servants and followers respectively.

"On the 17th April one camp follower died, and from the increasing severity of the "fever the condition of the camp became critical. To remain where we were was to endan-"ger the lives of all; and it was impossible to procure the least assistance from the surround-"ing country, which afforded neither carts, bullocks nor bearers. In this dilemma the only "resource was water carriage; but here again a great obstacle presented itself. The season "was so far advanced that nearly all the country boats had proceeded up the river to smoother "water and safer harbour; and those that remained in the Rasulpúr river, obstinately "refused to venture out into the Hooghly, maintaining that the weather was too boisterous, "the sea too rough, and their destruction, if they ventured, would be certain. No resource "was left but to apply for assistance from the Dâk boats at Kejirí, and one boat was lent "me which carried away 15 sick. It would however have been tedious beyond measure to "have moved the whole camp in this manner, when fortunately the Hon'ble Company's sur-"veying vessel "Pilot" accompanied by the "Grappler" buoy vessel visited that neighbour-"hood, and on receiving my application for assistance, Messrs. Bedford and Chalke, the "commanders of those vessels respectively, most readily sent me their boats, and I was thus "enabled to move the whole party to Natsal. * * * The bearers on the establishment "were all sick; but with some difficulty I procured from Contai a sufficient number to convey "the Great Theodolite to Natsal. The climate of this place, however, did not seem to be of "advantage; consequently the camp was moved across the Hooghly to Sarisá, which bears the "name of being a healthy place, and here symptoms of improvement soon manifested them-"selves; and on the 20th May I was enabled to re-commence operations.

* * * * *

"With reference to the climate it is worthy of remark that inimical as it is well "known to be to all strangers, European and Native, perhaps in no part of India is the coun-"try more densely populated; and the inhabitants generally shew no outward signs of suffer-"ing from sickness, more than their neighbours resident on higher ground. It is however "true that the owners of estates and other wealthy individuals migrate annually on the "approach of the rainy season."

Observations at Sarisá were now completed and the camp moved to Rámnagar, where

one angle was finally observed. But heavy storms from the north-west accompanied by much rain began to be frequent, and finding little more time remained at his disposal, Captain Hill proceeded to Natsal, hoping at least to complete his observations at that station before going into quarters. Here however a severe storm split several of the tents and did damage otherwise, and the party shewed signs of returning sickness. Further effort became vain and useless and all idea of obtaining final observations was necessarily abandoned and the party returned to recess quarters at Midnapore.

During this season Captain Hill changed the form of tower for his principal stations from the hollow square pattern, designed by Colonel Everest, to a solid square tower of sun dried bricks and mud with a centre square pillar of kiln-burnt bricks and mortar, isolated from the foundation upwards: at every six feet of height the pillar was contracted six inches, so that at the top it should be about 4 feet square. His reasons for the change were that he considered the new form of structure more stable and much less expensive. Owing to some misconception on Mr. Nield's part he built triangular pillars at Natsal and Rámnagar instead of square ones. These pillars had a triangular foundation 7½ feet in side and 3 feet deep on which the pillar was built with 7 feet side at base and 3¾ feet at top. The form of tower adopted by Captain Hill had its drawbacks, for the centre pillar was liable to settle unequally and cause the upper mark to deflect from the normal of the lower one. It was probably from this cause that it was abandoned in the following season, and a perforated pillar substituted in place of a solid one where towers were required.

It has been stated that a tide gauge was set up by Captain Hill between Kejirí and Gángrá Station, and tidal observations were made by Mr. Bedford, Marine Surveyor. From these he selected the observations during 1850 and 1851 for determining mean sea level*.

Mr. Bedford constructed a station about half a mile north of Kejirí Tripod consisting of a triangular pillar of brick work. The height of the surface of this pillar above the datum of Kejirí tide gauge was 22 feet 3 inches, thus its height above mean sea level is 13 feet 5 inches nearly. This station is named Kejirí Tide Point s. or Mr. Bedford's station. It was afterwards—season 1850-51—connected with the Principal Triangulation.

Season 1849-50.

PERSONNEL.

Captain C. T. Hill, 1st Assistant.
Lieutenant G. H. Saxton.
Mr. R. Clarkson, Senior 1st Class Sub-Assist.
„ W. R. James, Junior 1st „
„ C. B. Nield, 2nd „

During the recess season of 1849, Lieutenant G. H. Saxton of the 38th Madras N. I. joined the Survey Department, and was posted to Captain Hill's Party for instruction in his professional duties. Arrangements for the field season were commenced about the 1st November, parties being then sent out to commence the towers at Kalábani and Kalsíbhánga of the South Malúncha Series: for it was intended that the operations for this season should embrace both that series as well as the East Coast. Another party was sent under Mr. Nield to complete the remaining towers of the East Coast Series for which the sites had been selected the previous season. Mr. James was also detached on the 15th

* As the height of Gángrá was obtained from these observations an abstract of them is given here as they appear nowhere else in the publications of this Survey.

November to continue his minor series along the Roopnarayan river towards the South Malúncha Series.

The main party did not take the field till the 20th December; the delay being partly due to the preparation of a new stand for the 24-inch Theodolite at Calcutta. So soon as it was received the instrument was set up at Kalsíbhánga Station of the South Malúncha Series and a complete set of circumpolar star observations for azimuth taken to δ Ursæ Minoris.

Mean Levels of the River at Kejirí at Neap Tides for the years 1850 and 1851.

Months	1850						1851					
	Highest Low water		Lowest High water		Mean		Highest Low water		Lowest High water		Mean	
	Feet	Inches	Feet	Inches	Feet	Inches	Feet	Inches	Feet	Inches	Feet	Inches
January	5	0	11	9	8	4½	4	6	11	9	8	1½
	4	0	11	9	7	10½	4	3	11	0	7	7½
February	5	6	11	0	8	3	4	3	11	3	7	9
	4	9	11	6	8	1½	5	0	10	3	7	7½
March	6	0	11	0	8	0	4	9	11	0	7	10½
	4	9	12	0	8	4½	6	3	11	9	9	0
April	6	9	11	0	8	10½	5	3	12	9	9	0
	4	9	12	6	8	7½	7	0	10	6	8	9
May	6	9	12	0	9	4½	5	6	12	9	9	1½
	5	3	13	0	9	1½	7	0	12	6	9	9
June	6	6	13	3	9	10½	6	0	14	6	10	3
	6	0	14	9	10	4½	6	9	13	3	10	0
July	6	0	14	0	10	0	5	3	14	0	9	7½
	7	3	14	6	10	10½	7	9	13	3	10	6
August	7	3	14	0	10	7½						
	6	3	12	3	9	3						
September	6	6	13	3	9	10½						
	8	3	12	0	10	1½						
	6	9	13	0	9	10½						
October	7	9	11	6	9	7½						
	6	0	13	0	9	6						
November	7	0	12	3	9	7½						
	4	9	13	0	8	10½						
December	5	9	11	9	8	9						
	4	6	12	3	9	4½						

Mean, excluding the observations from July to October, = 8 feet 10 inches nearly.

This is the height of sea level above the datum at Kejirí.

In connection with these observations Mr. Bedford makes the following remarks:—

"The mean level of the sea at all parts of the head of the Bay of Bengal is, I conceive, affected both by the N.E. as well as by the "S.W. Monsoon, the former depressing it about 1 foot below the mean of the tidal wave, and the latter raising it about the same quantity. "At least this is the amount of the difference of the two seasons as observed at Kejirí, excluding those months in which the Freshes "prevail.

"The observations selected as those on which I can best depend are for the years 1850 and 1851; and the lowest mean level in each "lunation is taken, which from a well known principle in River tides is always that in which there is the smallest rise and fall, or about "two days after the first and third quarter. The heights were measured on a fixed post sunk several feet in the ground below the greatest "fall of the river."

Early in the month of January Captain Hill directed Mr. Clarkson to proceed with the 24-inch theodolite to Mirzápúr Tower Station of the East Coast Series to observe the final angles, and he withdrew Mr. James from secondary triangulation to assist Mr. Clarkson. Captain Hill himself undertook with a small party to continue the triangulation of the South Malúncha Series, and he selected four stations and brought the approximate series down to the side Patná to Banchá. Shortly after this Captain Hill's state of health compelled him to resign charge of the party and proceed to sea.

Lieutenant Saxton, under directions from Captain Hill, executed a minor series with a 12-inch theodolite from the newly chosen station of Jagannáthpúr of the South Malúncha Series, and following up the course of the Subarnrekha River closed on the station of Patná.

The principal operations on the East Coast Series had been committed to Mr. Clarkson, who on completing the observations at Mirzápúr proceeded with the party by boat to Sarisá, the country being not yet sufficiently dry for marching. Here he had to observe the vertical angle to Natsal, but found the ray closed by the growth of vegetation during the preceding rainy season, and some delay was caused in re-opening it. Delays from a similar cause presented themselves on many of the other rays, and further difficulties were met with in rendering the stations mutually visible at the time of minimum refraction. By raising the towers and surmounting them with trestles averaging from 10 to 15 feet in height, the vertical angles at most of the stations were measured; but although every possible method consistent with safety was adopted, the tower of Gángrá could not be made visible from Rámnagar at the time of minimum refraction. Its height was obtained through the western flank of the Series. Beyond Gángrá no vertical angles were measured this season, for the reasons given in the following statement by Mr. Clarkson.

Ray *Gángrá* to *Rámnagar* 15·8 miles. Height of Gángrá 24 feet and of Rámnagar 38 feet.

From Gángrá: the signal at Rámnagar stood 54 feet above the ground and the vertical was then obtained.

„ Rámnagar: the signal at Gángrá stood 55 feet above the ground and was not seen till 5 P. M. The vertical was not taken in consequence.

Ray *Gángrá* to *Dhojíbhangá* 11·8 miles. Height of Gángrá 24 feet and of Dhojíbhangá 24 feet.

„ Gángrá: the object at Dhojíbhangá was not visible until 4 P. M., and the vertical was not taken in consequence.

„ Dhojíbhangá: the tower at Gángrá had been raised to 30 feet and a trestle of 16 feet placed on the summit. The object was visible but had a columnar appearance. The vertical was not observed.

Ray *Gángrá* to *Dariápúr* 11·9 miles. Height of Gángrá 24 feet and of Dariápúr 20 feet.

„ Gángrá: the object at Dariápúr stood 24 feet above the sand hill and was not visible until 4 P. M. The vertical was not taken in consequence.

„ Dariápúr: the object at Gángrá was elevated 46 feet above the ground and although visible was not observed to as the reciprocal vertical was wanting.

Ray *Dhojíbhangá* to *Analbariá* 8·7 miles. Height of Dhojíbhangá 24 feet and of Analbariá 24 feet.

„ Dhojíbhangá: the object at Analbariá stood 5 feet above the tower and was visible but so unsteady that two attempts on different days gave very unsatisfactory results.

„ Analbariá: the object at Dhojíbhangá was visible but the reciprocal vertical being wanting no observation was taken.

Ray *Dhojíbhangá* to *Dariápúr* 12·7 miles. Height of Dhojíbhangá 24 feet and of Dariápúr 20 feet.

From Dhojíbhangá: the object at Dariápúr was 25 feet high and only partly visible. The vertical was not attempted in consequence.

„ Dariápúr: the object at Dhojíbhangá was 25 feet high and seen distinctly, but was not observed to as the reciprocal vertical was wanting.

Ray *Dariápúr* to *Analbariá* 14·0 miles. Height of Dariápúr 20 feet and of Analbariá 24 feet. The objects at either station were not visible till 5-30 P. M.

The order in which the stations were visited after Sarisá, was Tetulbariá, Natsal, Rámnagar, Gángrá, Dhojíbhangá, Dariápúr and Analbariá.

At Analbariá the angle between Dhojíbhangá and Dariápúr was completed by the 25th April, and Mr. Clarkson was waiting for the rays to Kálsábhangá and Kúdí to be opened, when the season's operations were brought to a sudden and unexpected termination by the occurrence of a terrible storm. For the three preceding days the weather had been calm, but the sky was clouded and at intervals there were slight falls of rain. On the 26th the wind veered to the east, but nothing worthy of notice occurred to warn the party of what was coming. The first intimation they had of the approach of the storm was about half past three on the morning of the 27th, when they were alarmed by the noise of the wind. In a few minutes the storm was on them. For ten hours the wind blew with great violence and in very severe gusts accompanied by rain. The river swelled to an unusual height and overflowing its banks broke the bunds and submerged the surrounding country. The camp, which had been placed on elevated ground, shortly became inundated; and notwithstanding every effort to preserve the tents from destruction, several of them were literally split to pieces and carried away. The observatory tent happened to be standing on the tower, and although every effort was made to preserve it from injury, the walls were literally rent to pieces. In the neighbouring villages several houses were unroofed and all more or less injured. Large trees were uprooted, the boughs of others were torn away, and scarcely one remained which did not shew marks of the storm*.

In the afternoon when the storm had subsided the instruments, which fortunately had not sustained harm, and other property were removed in boats to a village about half a mile distant as the camp was almost destitute of shelter.

Nearly the whole of the camp equipage having been destroyed by the hurricane, and the country having evidently become very unhealthy, Mr. Clarkson judged it to be necessary to proceed at once to his recess quarters at Midnapore.

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* Details regarding this Cyclone will be found in Vol. XX of the Journal of the Asiatic Society of Bengal. It appears to have originated near the Nicobar Islands on the 23rd April and its centre, travelling at an average rate of 8·4 miles an hour, struck the coast a little east of Balasore on the 27th, passed close by Midnapore, and reached Moorshedabad on the 28th, about 3 P. M. It must have passed to the west of Mr. Clarkson's camp. The violence of the gale may be appreciated from the following extract from the Calcutta "Englishman" Newspaper quoted in the Journal.

"The station of Midnapore was visited on Saturday last by a terrific Cyclone. On Friday afternoon (the 26th) the clouds looked "heavy and lowering, and about 10 P. M. rain began to fall. It continued till 3 A. M. when it was accompanied by gusts from N.E. The "wind increased in violence, and about 6 A. M. shifted to the east, from which quarter it blew with unabated fury till 12 o'clock (noon), it "then veered to the south, its fury still continuing, and ultimately came round to S.W. at 3 P. M., at which point it gradually subsided.

"The station is a perfect wreck, not a house, European or Native, has escaped injury, some have been totally unroofed, the walls of "others have been thrown down, and the windows and doors blown in, hundreds of trees have been rooted up, and those that remain stand-"ing have been stripped of their foliage, and their branches broken and twisted into all kinds of fantastic shapes. In the park no less than "140 of the oldest peepul and banian trees have been torn up and prostrated. You cannot picture to yourself the scene of desolation that "surrounds us. It is, however, a matter of congratulation that no lives have been lost. Had the Cyclone come upon us at night there is no "saying what fatality might have awaited us and how many casualties we might have had to record."

Mr. James with a 14-inch succeeded in completing the minor series along the Roopnarayan river, besides affording considerable assistance to Mr. Clarkson in the principal work.

Season 1850-51.

PERSONNEL.

Mr. R. Clarkson, Senior 1st Class Sub-Assist.
„ C. A. Olliver, Junior „ „
„ W. Low, 3rd Class „

The early part of the next season's operations consisted in clearing the rays between stations from Nilgirí and Ḳimhírá northwards, an undertaking rendered very laborious from the thick bamboo clumps which surrounded the numerous villages, and the dense groves of Betel and Cocoanut trees along the southern flank of the Series. One ray, Kálsábhangá to Júkí, occupied no less than 28 days, and another, Banchá to Patná, which passed over the thick forest of Moharbhanj, took about the same time. Banchá was originally selected as a principal station but afterwards gave place to the neighbouring point of Kitkisol. The work had advanced sufficiently by the beginning of February to allow of Mr. Clarkson turning his attention to the final observations, and he commenced them at the station of Analbariá; but unfavourable atmospheric conditions and other circumstances combined to cause delay; and Mr. Clarkson judged it advisable to postpone the observations of the final angles for a time, and meanwhile to occupy himself in determining the heights that had been left incomplete the previous season: he was so employed until the 15th March, by which time, besides having finished all the vertical angles, he had established a connection with the station fixed by Mr. Bedford, to which reference has been already made.

On reaching Dariápúr the state of the atmosphere improved, and horizontal observations were resumed and were proceeded with, without delay, until the end of April; when on arrival at Sahárá the weather changed again for the worse and sickness began as usual to attack the camp. By the 5th May Mr. Clarkson found it expedient to close work and proceed to his recess quarters, having only advanced the Series by five principal triangles. With one exception, Harnkulí to Sahárá, all the vertical angles were also measured. The exception was caused by several villages falling on the ray, and the season was too far advanced to admit of then raising the towers.

It had been intended that Mr. Olliver should conduct a secondary series from Gángrá along the coast by Contai to Balasore, and in its course to form a connection with the principal stations on the southern flank; but after finishing 13 triangles and determining the position of about 25 places, he was suddenly taken ill and had to proceed to Calcutta for medical advice.

Season 1851-52.

PERSONNEL.

J. Peyton, Esqr., Chief Civil Assistant.
Mr. R. Clarkson, Senior 1st Class Sub-Assist.
„ C. A. Olliver, Junior „ „ „
„ F. C. Blewitt, „ „ „ „
„ W. Low, 3rd „ „

At the commencement of the cold season of 1851 the Surveyor General, being unable to inspect the East Coast Series in person, because his presence was required in the direction of Pesháwar, deputed Mr. Peyton, as chief of the Civil Branch of the department, to perform this duty for him.

Mr. Peyton, whose proper charge was the North Párasnáth Series, was at the time doing duty at the Head Quarters' Office at Dehra. On completion of his work there he proceeded first to the Párasnáth Party; and, having started that, he then proceeded to Midnapore, which he reached on the 28th December, having previously

arranged to meet Mr. Clarkson there. After inspecting the records and instruments, which were all found in satisfactory order, they started for the field to inspect the towers.

The work laid out for the season was the completion of the South Malúncha Series, which had been discontinued since 1847, and the junction of the East Coast Series with it and the South Párasnáth Series. Twelve triangles had already been laid out and towers built upon the stations forming the connection with the side Kimhírá to Nilgirí of the South Párasnáth Series, but the rays had not been cleared between the points, and all that apparently remained to be done was to clear the rays and commence final observations of the angles.

Mr. Clarkson had taken the field on the 20th November after arranging his party as follows:—Mr. Blewitt was entrusted with the clearing of the rays of the western flank; Mr. Olliver was directed to examine and prepare the hill stations of the Nilgirí-Megásiní quadrilateral and to extend the approximate series along the hills in advance, and Mr. Clarkson with Mr. Low took up the clearing of the rays on the eastern flank.

About the middle of January Mr. Blewitt recommended that Chandrekhagarh station should be replaced by the station of Sátpautiá on a ridge in front.* Mr. Clarkson also was induced to substitute for the station of Banchá that of Kitkisol. Banchá was situated on nearly the easternmost ridge of the low undulating country bounding the E. and S.E. side of the valley of the Budhabalanga; but other innumerable ridges which run parallel to each other from the north impeded the view to the west.

About this time Mr. Olliver was obliged, by fever attacking his party, to proceed to Balasore for medical aid, he having effected nothing beyond preparing the stations of the quadrilateral for observation.

On 1st February Mr. Peyton received orders to take over charge of the party from Mr. Clarkson; while the change of the two stations just spoken of necessitated a fresh disposition. Mr. Clarkson, with Messrs Olliver and Low as assistants, was detached to clear rays and build the new towers, while Mr. Peyton taking with him Mr. Blewitt started for the stations of Kalábani and Kalsíbhánga of the South Malúncha Series to commence final observations. Both these stations required some alterations before they could be made use of; thus it was not till 1st March that observations were commenced. But another cause of delay now presented itself in the position of the next station, Jagannáthpúr, from which the forward view was intercepted by a near ridge. The station had accordingly to be altered to this ridge, and until it could be built final operations were brought to a standstill. Leaving Mr. Olliver in charge of this work Mr. Peyton proceeded to Patná Station to take a set of Pole-star observations for azimuth which he did successfully.

Mr. Clarkson was now taken ill with fever, and ultimately had to leave the field and

* The point selected by Captain Hill, as appeared from a memorandum by him, was the highest in the neighbourhood; but the assistant, to whom the building of the station was intrusted, took upon himself to alter its position to one near the old fort of Chandrekhagarh, from the walls of which stones were available. Before this mischievous act was discovered, he had earned his dismissal from government employment by other misconduct.

proceed to Midnapore for medical treatment, and shortly afterwards Mr. Low was prostrated by the same disease and had also to be sent to Midnapore.

The climate had now become decidedly unhealthy especially along the western flank which was very jungly, owing to the heavy rains that had set in. Neither overseers nor masons for building the towers could be kept together, as the former were constantly rejoining the Head Quarters' Camp sick, and the latter leaving their work and decamping for good. It now became apparent that much could not be done beyond clearing the rays and having the stations ready for observation the ensuing field season, and by the middle of May the continued rain rendered it necessary to protect the stations and to march for Cuttack, where the party was now to recess. Thus closed another unfortunate season for the Coast Series, to which many adverse circumstances contributed, amongst them the injudicious selection of some of the stations, which had to be altered and thus much loss of time was entailed. In extenuation of the latter fault Mr. Peyton says that the country was of a difficult nature for station choosing along the whole line of the western flank, being a succession of undulating flats, covered with very thick and impenetrable forest.

Although, however, the out-turn of final work was small, Mr. Peyton succeeded in putting the preparatory arrangements on a satisfactory footing; and he was thereby enabled during the next season, 1852-53, to finish the connection of the South Malúncha Series, and carry the Coast Series to its junction with the South Párasnáth Series, whereby the triangulation across the low swampy country was finished and a base of continuation established on the hills.

Mr. Peyton being directed to estimate the extra expense occasioned to Government by the injudicious selection of the three stations above alluded to, placed it at Rs. 800; and the Surveyor General deemed it his duty to call upon Captain Hill and Mr. Clarkson to shew cause why they should not make good this sum. In their vindication it was alleged that frequent interruptions arising from ill health had caused at critical periods much confusion and embarrassment; and as any parties working in so insalubrious a climate must be liable to similar misfortunes, the more so in proportion to the zeal with which they exposed themselves to the evil influence of the climate these causes were considered sufficient extenuation of the mistakes which had been made. Captain Hill's health had been so shattered by the climate acting on an impaired constitution as to necessitate his resigning his appointment in the Department.

Season 1852-53.

PERSONNEL.

J. Peyton, Esqr., Chief Civil Assistant.
Mr. R. Clarkson, Senior 1st Class Sub-Assist.
„ F. C. Blewitt, Junior „ „
„ W. Low, 2nd Class „
„ A. Cunningham, 3rd „ „

The party left their recess quarters at Cuttack on the 2nd November 1852 and reached the scene of their operations near Midnapore on the 19th of the month. The work for the season consisted in closing the South Malúncha Series and connecting it with both the Coast and South Párasnáth Series. To perform this, notwithstanding the preparations of the preceding season, there still remained three new towers to erect, one to raise, and two others that had been injured by storms to repair. Four new rays required opening and almost all the others reclearing before the observations could be secured.

By the 1st January Mr. Peyton was able to commence final observations, and he succeeded in completing the season's operations by the 22nd of April following, in spite of impediments caused by the prostration by fever in the early part of the season of his advanced party, which was obliged to suspend all work for a time and proceed to Balasore for medical aid. One of the sub-assistants, Mr. Blewitt, was forced to quit his post and take leave on medical certificate for a couple of months. By the 1st March, however, the advanced party under Mr. Clarkson was able to recommence the work of station selecting; but it had hardly been a month in the field, when Mr. Clarkson himself and a large portion of his native establishment were again attacked by sickness. These successive visitations rendered it necessary to withdraw the party from the field; and Mr. Clarkson, who was the principal sufferer, was ultimately obliged to proceed to sea for the recovery of his health.

Considering the nature of the country traversed during this season—teeming as it did with the breath of death—the Surveyor General considered Mr. Peyton had acquitted himself most creditably, and the out-turn of the work was as much as could be expected. The casualties amounted to 12, five from fever and 7—out of 16 attacked—from cholera.

The operations in the flat country terminated with this season's work and a hilly tract was now reached which but for its notorious unhealthiness—the only time when it could be entered with even comparative safety was during January, February and March—appeared very favourable for triangulation.

Season 1853-54.

PERSONNEL.

J. Peyton, Esqr., Chief Civil Assistant.
R. Clarkson, Esqr., Civil 2nd Assistant.
Mr. F. C. Blewitt, 1st Class Sub-Assistant.
„ W. Low, 2nd „ „

Prior to taking the field Mr. Peyton had been directed by the Surveyor General to make arrangements for the determination of the mean sea level somewhere near Balasore, in order that the vertical operations might have a new datum to proceed from, and that the heights of the previous part of the Series might be verified. And, as the Ganjam Topographical Survey had been ordered by the Bengal Government to extend its operations towards Sambalpúr, Mr. Peyton was further directed to throw out a flank series of large triangles with a 14-inch theodolite to the west as far as Sambalpúr, to furnish a base of verification for the Ganjam party to close on.

The party left recess quarters at Cuttack on the 15th November for the Balasore Coast, to carry out their instructions. Having been informed that a tide gauge already existed at Balasore, and had been in operation for the past two years under the direction of the Marine Board, Mr. Peyton did not consider it necessary to provide himself with one from Calcutta. He was much disappointed, therefore, on arriving at the Tide Gauge Station, which was situated on the right bank of the Budhabalanga River, to find there was no mark defining the mean height of the water, the object in instituting the observations having been apparently to determine the time of the tides rather than the height of the sea. It was too late now to procure a tide gauge from Calcutta; and Mr. Peyton accordingly set himself to work to construct one. Finding the site selected by the Marine Board unsuitable, because it was too much exposed and too high up the bank, he selected another at the mouth of a

creek called the Burda or Karsani Nala, running into the Budhabalanga River. Here he conducted the observations of high and low water through a complete lunation, from the 8th December to the 10th January*. The mean height thus deduced was marked off on a pillar on the bank and connected trigonometrically with the main series. This involved the selection of a new station which was fixed on the sand heights of Chandípúr immediately on the sea coast.

Mr. Peyton was especially fortunate in the time of year during which he conducted the Tidal Observations; for during the whole period of observation, beyond the usual mild northerly

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* The tide gauge was erected in the river about 20 feet distant from the bank. A thick post was driven well into the bed of the creek, and in a groove in the post was fixed a rod of well seasoned Sál wood carefully divided into feet and 10ths of feet. A wooden scaffolding was then constructed round the gauge lined with thick bamboo matting, so as to form an enclosure round it and secure it against wind and wave. The height of the water was read off by the aid of an index board of light deal, which was well balanced and made to slide up and down by means of a pulley at the top, and which at high water remained stationary and self-registering. The gauge was rendered accessible at all times from the shore.

The observations were taken without intermission from the 8th December to the 10th January at the general rate of 4 tides *per diem*. With the exception of the first two days, when only the times of greatest rise and fall were noted, observations were made at 5 or 10 minutes' interval beginning a sufficient time before and terminating a sufficient time after high and low water. The gauge was occasionally compared with a rod set up on the bank in order to ascertain that no alteration had taken place in the former. This was done with a 7-inch theodolite carefully collimated. No change was observed.

At the distance of 410 feet up the bank a pillar was erected, in which two markstones were imbedded at the height of 9·977 and 14·977 feet above the mean level of the water, but marked 10 and 15 feet respectively, the former being on a level with the ground. This station was next connected rigorously with the main series and forms a triangle with the principal stations of Chandípúr and Nilgirí.

The following table contains an abstract of the Tidal Observations.

Synopsis of the Tidal Observations made at Balarámgarhí on the left bank of the Budhabalanga River, with a fixed scale and floating index, self-registering at High Water.

Date		Mean Time of Observation	Reading on Gauge	Range of Tide	Mean Level of Water	Thermometer	Moon's		Remarks
Month	Day						Age	Transit	
		h. m.	*feet*	*feet*	*feet*		*d.*	*h. m.*	d
1853									D 7·2
December	8	4 15	8·15				7·5	6 54·7	Fair weather.
,,	,,	10 29	2·95	5·20	5·550				,,
,,	,,	16 39	8·35	5·40	5·650				,,
,,	,,	23 15	2·81	5·54	5·580				,,
,,	9	5 25	8·47	5·66	5·640		8·5	7 37·6	,,
,,	,,	11 39	3·28	5·19	5·875				,, Neap Tides.
,,	,,	17 30	8·60	5·32	5·940				,,
,,	10	0 15	2·38	6·22	5·490		9·5	8 19·4	,,
,,	,,	6 25	8·96	6·58	5·670				,,
,,	,,	13 20	2·70	6·26	5·830				Clear and mild. N. wind.
,,	,,	18 45	8·58	5·88	5·640				,,
,,	11	1 30	1·80	6·78	5·190	79·5	10·5	9 1·5	,,
,,	,,	7 30	9·57	7·77	5·685	61·5			,,
,,	,,	14 10	2·15	7·42	5·860	53·0			,,
,,	,,	19 45	8·75	6·60	5·450	60·5			,,
,,	12	2 33	1·30	7·45	5·025	79·0	11·5	9 44·5	,,
,,	,,	8 15	10·21	8·91	5·755	60·2			E. wind.
,,	,,	15 5	1·71	8·50	5·960	52·3			,,
,,	,,	20 30	9·20	7·49	5·455	65·5			Clear. N. breeze.

breeze which blows at this time of the year, there was not a single instance of violent or very inclement weather such as to cause any agitation of the water.

The observations of the final angles were commenced about the middle of January;

Synopsis of the Tidal Observations—(Continued).

Date		Mean Time of Observation	Reading on Gauge	Range of Tide	Mean Level of Water	Thermometer	Moon's		Remarks
Month	Day						Age	Transit	
1853		*h. m.*	*feet*	*feet*	*feet*		*d.*	*h. m.*	
December	13	3 20	1·14	8·06	5·170	74·0	12·5	10 29·3	Clear. N. breeze.
"	"	8 45	10·62	9·48	5·880	60·0			"
"	"	15 45	1·57	9·05	6·095	53·0			"
"	"	21 0	9·50	7·93	5·535	70·1			"
"	14	4 0	0·90	8·60	5·200	74·5	13·5	11 16·1	"
"	"	9 20	10·98	10·08	5·940	59·5			"
"	"	16 28	1·32	9·66	6·150	53·2			"
"	"	21 20	9·60	8·28	5·460	68·0			"
"	15	4 35	0·90	8·70	5·250	74·0	14·5	12 4·6	" Apogee d 15·0
"	"	9 40	11·21	10·31	6·055	57·5			" ☉ 15·3
"	"	17 5	1·25	9·96	6·230	51·0			"
"	"	21 50	9·59	8·34	5·420	72·0			"
"	16	5 10	0·87	8·72	5·230	71·0	15·5	12 54·7	"
"	"	10 15	11·18	10·31	6·025	59·5			" Spring Tides.
"	"	17 35	1·23	9·95	6·205	53·8			"
"	"	22 30	9·55	8·32	5·390	74·0			"
"	17	5 40	0·86	8·69	5·205	72·0	16·5	13 45·2	N. breeze.
"	"	10 45	11·02	10·16	5·940	55·5			"
"	"	18 15	1·22	9·80	6·120	49·5			"
"	"	23 0	9·50	8·28	5·360	74·0			"
"	18	6 10	0·90	8·60	5·200	63·0	17·5	14 35·1	"
"	"	11 18	10·73	9·83	5·815	56·0			"
"	"	18 40	1·27	9·46	6·000	47·6			"
"	"	23 40	9·20	7·93	5·235	75·5			"
"	19	6 30	0·91	8·29	5·055	58·0	18·5	15 23·7	"
"	"	11 45	10·31	9·40	5·610	50·0			"
"	"	19 10	1·33	8·98	5·820	44·5			"
"	20	0 15	8·59	7·26	4·960	76·0	19·5	16 10·7	Strong N. wind.
"	"	7 0	1·21	7·38	4·900	58·0			Very calm.
"	"	12 25	9·82	8·61	5·515	50·0			"
"	"	19 45	1·35	8·47	5·585	51·5			"
"	21	0 45	8·43	7·08	4·890	74·5	20·5	16 56·5	Strong N. wind.
"	"	7 30	1·57	6·86	5·000	56·3			Calm fair weather.
"	"	13 2	9·32	7·75	5·445	47·8			"
"	"	20 12	1·70	7·62	5·510	56·0			N. breeze.

when, after finishing with the stations in the plains, the party entered the hilly tracts of Moharbanj, Nilgirí, and Keonjhar, in which it was employed until the end of March. Fever then breaking out it was driven back to recess quarters at Cuttack. The advanced party under Mr. Clarkson was attacked at the same time and had also to return to quarters.

Synopsis of the Tidal Observations—(Continued).

Date		Mean Time of Observation	Reading on Gauge	Range of Tide	Mean Level of Water	Thermometer	Moon's		Remarks
Month	Day						Age	Transit	
1853		*h. m.*	*feet*	*feet*	*feet*		*d.*	*h. m.*	
December	22	1 30	8·02	6·32	4·860	77·0	21·5	17 41·5	N. breeze.
,,	,,	7 58	2·11	5·91	5·065	52·5			,,
,,	,,	14 2	8·81	6·70	5·460	47·0			,,
,,	,,	21 5	1·88	6·93	5·345	64·0			,,
,,	23	2 45	7·81	5·93	4·845	77·5	22·5	18 26·9	,, ☾ 23·3 d
,,	,,	9 20	2·59	5·22	5·200	50·5			,, Neap Tides.
,,	,,	14 50	8·32	5·73	5·455	46·0			,,
,,	,,	21 55	1·84	6·48	5·080	72·0			
,,	24	3 55	8·02	6·18	4·930	76·0	23·5	19 13·6	,,
,,	,,	10 35	2·74	5·28	5·380	51·8			,,
,,	,,	16 30	8·05	5·31	5·395	48·0			,,
,,	,,	23 15	1·67	6·38	4·860	75·5			,,
,,	25	5 42	8·62	6·95	5·145	60·0	24·5	20 3·2	,,
,,	,,	12 10	2·35	6·27	5·485	53·0			,,
,,	,,	17 40	8·42	6·07	5·385	45·5			,,
,,	26	0 48	1·20	7·22	*4·810	79·0	25·5	20 56·7	N. breeze and light clouds.
,,	,,	6 45	9·70	8·50	5·450	59·0			,,
,,	,,	13 25	1·75	7·95	5·725	49·0			,,
,,	,,	18 40	8·96	7·21	5·355	47·0			,,
,,	27	2 5	0·84	8·12	4·900	82·0	26·5	21 55·1	,,
,,	,,	7 25	10·81	9·97	5·825	56·7			,,
,,	,,	14 40	1·28	9·53	6·045	46·0			,,
,,	,,	19 30	9·63	8·35	5·455	54·0			,,
,,	28	3 18	0·65	8·98	5·140	73·8	27·5	22 58·1	E. wind, clear.
,,	,,	8 15	11·70	11·05	6·175	56·0			N. breeze, fair.
,,	,,	15 45	1·08	10·62	6·390	48·0			,,
,,	,,	20 23	10·10	9·02	5·590	58·0			,,
,,	29	4 20	0·60	9·50	5·350	73·0	28·5	0 0	,, d
,,	,,	9 5	12·36	11·76	6·480	59·0			,, Perigee 29·4
,,	,,	16 50	1·00	11·36	6·680	48·0			,,
,,	,,	21 15	10·75	9·75	5·875	67·0			,,
,,	30	5 10	0·62	10·13	5·685	70·0	0·0	0 3·9	,, ● 30·0 d
,,	,,	9 43	12·60	11·98	6·610	55·0			,,
,,	,,	17 50	1·00	11·60	6·800	49·0			,,
,,	,,	22 0	10·86	9·86	5·930	70·0			,,

* Lowest result.

The hilly portion of the country through which the survey passed was found wild in the extreme and very thinly inhabited; the latter circumstance being attributed to the devastation caused to the crops by wild elephants, which seldom allowed the cultivator to reap his fields. Travelling was found very difficult and hazardous, clothed as the country was in

Synopsis of the Tidal Observations—(Continued).

Date		Mean Time of Observation	Reading on Gauge	Range of Tide	Mean Level of Water	Thermometer	Moon's		Remarks
Month	Day						Age	Transit	
1853		*h. m.*	*feet*	*feet*	*feet*		*d.*	*h. m.*	
December	31	5 47	0·70	10·16	5·780	62·5	1·0	1 9·6	N. breeze, fair. Spring Tides.
,,	,,	10 25	12·66	11·96	6·680	53·0			,,
,,	,,	18 27	1·02	11·64	*6·840	45·0			,,
,,	,,	22 52	11·01	9·99	6·015	72·5			,,
1854									
January	1	6 37	0·81	10·20	5·910	59·0	2·0	2 11·9	,,
,,	,,	11 22	12·30	11·49	6·555	50·0			,,
,,	,,	19 10	1·00	11·30	6·650	46·0			,,
,,	,,	23 35	10·51	9·51	5·755	74·5			,,
,,	2	7 5	0·92	9·59	5·715	56·0	3·0	3 9·3	,,
,,	,,	11 57·5	11·61	10·69	6·265	48·0			,,
,,	,,	19 42	1·08	10·53	6·345	47·5			,,
,,	3	0 22·5	9·85	8·77	5·465	72·0	4·0	4 1·6	,,
,,	,,	7 27·5	1·30	8·55	5·575	58·0			,,
,,	,,	12 52·5	10·88	9·58	6·090	51·5			,,
,,	,,	20 15	1·20	9·68	6·040	58·0			,,
,,	4	1 5	9·24	8·04	5·220	77·0	5·0	4 49·4	,,
,,	,,	7 50	1·80	7·44	5·520	58·0			,,
,,	,,	13 35	9·73	7·93	5·765	50·0			,,
,,	,,	20 55	1·38	8·35	5·555	64·0			,,
,,	5	1 47·5	8·60	7·22	4·990	77·0	6·0	5 34·2	N. breeze.
,,	,,	8 40	2·52	6·08	5·560	56·0			,,
,,	,,	14 47	8·72	6·20	5·620	50·0			,,
,,	,,	21 27·5	1·78	6·94	5·250	68·0			,,
,,	6	2 55	8·00	6·22	4·890	79·0	7·0	6 17·2	d D 5·9
,,	,,	9 35	3·10	4·90	5·550	57·0			,,
,,	,,	15 42·5	7·90	4·80	5·500	50·0			,,
,,	,,	22 7·5	2·33	5·57	5·115	74·0			,,
,,	7	4 12·5	7·68	5·35	5·005	75·5	8·0	6 59·6	,,
,,	,,	10 42·5	3·52	4·16	5·600	56·0			,,
,,	,,	16 30	7·34	3·82	5·430	52·0			,, Neap Tides.
,,	,,	23 2·5	2·52	4·82	4·930	80·0			,,
,,	8	6 10	7·74	5·22	5·130	66·8	9·0	7 42·4	,,
,,	,,	12 47·5	3·34	4·40	5·540	56·0			,,
,,	,,	18 0	7·30	3·96	5·320	52·0			,,

* Highest result.

impenetrable primeval forest. The party had to cut its way through jungle even in the valleys; and much time was consumed in marching from one station to another, owing to the circuitous routes which had to be traversed.

Mr. Clarkson, who conducted the selection of stations in advance, succeeded in carrying the approximate series as far as Cuttack. It was not found possible to detach him, as at first intended, to prosecute the Sambalpúr Branch Series; because the party was rendered short handed by the resignation of one of the assistants, Mr. Low.

The final operations closed on the side Baniájorí-Bolá, the approximate on the side Duduá-Barnai.

Season 1854-55

PERSONNEL

J. Peyton, Esqr., Chief Civil Assistant.
R. Clarkson, Esqr., Civil 2nd „
W. Rossenrode, Esqr., „ „
Mr. Penny, 3rd Class Sub-Assistant.

The next season added another to the many disastrous ones which had befallen the Coast Series, the whole party being prostrated with fever in the early part of March.

Field operations had been resumed on the 2nd December; but as it was too early to enter the jungles with impunity, advantage was taken of the proximity to the sea of Chandipúr Station to complete there a series of circumpolar observations for azimuth to δ Ursæ Minoris. This occupied the time till the end of the month when, the healthy season having fairly commenced, the hills were entered, the following disposition being made. The Head Quarters with Mr. Peyton commenced final observations: Mr. Rossenrode, who had been specially appointed to this series in order to accelerate its approximate operations in advance, was detained for that duty; and Mr. Clarkson undertook the Sambalpúr Minor Longitudinal Series.

The season turned out an extremely sickly one, owing probably to the unusually wet weather experienced during the cold months. Scarcely any of the party escaped fever; even those who seemed proof against it from their previous immunity fell victims on this occasion.

Synopsis of the Tidal Observations—(Continued).

Date		Mean Time of Observation	Reading on Gauge	Range of Tide	Mean Level of Water	Thermometer	Moon's		Remarks
Month	Day						Age	Transit	
1854		*h. m.*	*feet*	*feet*	*feet*		*d.*	*h. m.*	
January	9	0 12·5	2·42	4·88	4·860	84·0	10·0	8 26·5	N. breeze.
„	„	7 15	8·40	5·98	5·410	62·0			„
„	„	13 22·5	2·80	5·60	5·600	53·0			„
„	„	18 57·5	7·50	4·70	5·150	50·0			„
„	10	1 42·5	2·20	5·30	4·850	77·0	11·0	9 12·5	„
„	„	7 50	8·95	6·75	5·575	59·0			„
„	„	14 30	2·30	6·65	5·625	53·0			„ d
„	„	20 7·5	7·63	5·33	4·965	58·0			„ Apogee 11·2

General Mean Level of Water = 5·577 feet.

The detachments under Messrs. Clarkson and Rossenrode were no more fortunate, these officers as well as their men suffering, the latter seriously.

The final operations brought the series as far as Cuttack and included two sets of circumpolar observations, that already mentioned at Chandípúr and another at Cuttack.

The approximate operations, commencing from near Cuttack, were extended to beyond Ichápúr on the sea coast, a distance of about 126 miles. The eastern flank was kept as near the coast as practicable; but the western fell in a very jungly and wild tract inhabited by Khonds, an independent savage tribe noted for their observance of the Meriah Pooja, or the offering up of human sacrifices in their religious ceremonies*.

The Sambalpúr Series was laid out to within a few miles of that place. The country was found extremely forbidding and inhospitable, very jungly and inhabited by a wild tribe called Juanga, who do not depend on the cultivation of the soil for their support. The clothing of the females consists of two bunches of twigs with their leaves attached, one before and one behind, which are kept in position by a strip of bark or a long string of beads: this dress is not assumed from poverty or necessity, but from a religious observance of caste. The women wear no blanket or covering at night but sleep between two fires. The men dress like other inhabitants of the neighbourhood. Their villages are in the clearings of the forest and their chief occupation is hunting†.

Season 1855-56.

PERSONNEL.

J. Peyton, Esq., Chief Civil Assistant.
Major Alexander Strange, 7th Madras Cavalry, Astronomical Assistant.
R. Clarkson, Esq., Civil Assistant.
W. C. Rossenrode, Esq., Civil 2nd Assistant.
Mr. F. Penny, 3rd Class Sub-Assistant.

Mr. Peyton having now served for upwards of 32 years in the Great Trigonometrical Survey of India, in which he had experienced many hardships and privations, and had been exposed to every variety of climate peculiar to this country, and finding his health failing and his sight becoming impaired, desired to retire from the service on the pension he had so well earned. He had in the performance of his duty had to penetrate many malarious jungles, and had suffered severely from repeated attacks of fever in its worst forms; and the effect of these hardships had at length begun to tell on his constitution

* "The Khond inhabit the central part of Orissa, and until the middle of the 19th century they practised the barbarous Meriah "sacrifices to the deity of the Earth, whose votaries seek to propitiate him by the slaughter of human victims, generally children, who are "stolen from neighbouring districts, and purchased by the Khond race for sacrifice, as no Khond can be sacrificed, and no victim is held "acceptable unless purchased. This horrible practice is supposed to propitiate the God of the Earth, and induce him to bestow on the sacri- "ficers abundant crops. At the period appointed by their priests a solemn feast is held, lasting two days and nights, which time is passed in "the most revolting drunken obscenity. On the third day the hapless victim is brought out and bound to a stake. The victim's limbs are "first broken, and the priest having given the *coup de grace* with an axe, the whole set upon it and hew the quivering body piece-meal each "striving to carry away a bloody fragment to throw upon his own field. The British Government exerted itself strenuously to suppress this "sanguinary rite, but the Khond adhered to it with obstinate pertinacity, and wherever force was employed against them, they defended their "fastnesses with desperate courage". *Cyclopedia of India &c.* Edited by Edward Balfour, L. R. C. S. E. Second Edition, Madras 1873.

† "The effect of the Juanga costume on a person who beholds one of these women for the first time is ludicrous enough, but it is "in the dance that such appears preeminently ridiculous. They dance in a circle to the music, or rather noise of a large drum, beaten by "the men, which marks the time, moving round and round in the same measured step, occasionally advancing towards the musicians and then "receding from them, in the performance of which the Juanga ladies evince a strong disposition to attitudinize and make display. In the "dance they bend gracefully forward, at an angle of 45°, the left hand slightly holding the extremity of the long strings of beads, the right "hand hanging down towards the knee. In such an attitude it must be evident that the stiff bundle of twigs in front will press inconveni- "ently against the legs of the dancer as she bends forward, she therefore pushes it between them towards the rear which necessarily forces "up the rear bundle, and as the materials of the sylvan crinoline are about as flexible as a birch broom, the effect of a dozen such tails bob- "bing up and down together in the dance is ludicrous to European eyes though the Juanga themselves do not seem to consider the sight at "all promotive of laughter." *Ibid.*

Mr. Peyton entered the Trigonometrical Survey under Colonel Everest in 1823, and first served on the Great Arc Series—Section 18° to 24°—in the deadly tracts of the Mahádeo Mountains. On Colonel Everest's departure for England he was employed on the West Calcutta Longitudinal Series under Mr. Olliver. In these operations he suffered severely from repeated attacks of jungle fever; at their conclusion he was attached to the Computing Office of the Survey, then just established, to enable him to recover his health, and when it was restored he was again appointed to field duties. He shared in all the varied operations of the Department:—in triangulation, in detail survey, in route survey, in the measurement of base-lines and in celestial observations for determining arcs of amplitude; and in all he earned the high appreciation of his official superiors. On the retirement of Mr. J. Olliver, Mr. Peyton succeeded to the highest civil appointment in the survey, namely that of Chief Civil Assistant, which he held for upwards of seven years, before his failing health compelled him to seek rest in retirement from the service. It should be mentioned that throughout his long service, whether in health or sickness, Mr. Peyton was never once absent from his post.

On Mr. Peyton's notifying his wish to be relieved of his duties, Colonel Waugh selected Major Strange to succeed to the charge of the party. He was influenced in this selection by the fact that the operations were about to pass into the Madras Presidency, to which Major Strange belonged, and therefore it might be expected that advantages would accrue from his knowledge of the country.

Major Strange left Head Quarters at Mussooree on the 17th October 1855 and, marching the whole way, reached Cuttack on the 29th December. Mr. Peyton, who had taken the field on the 20th December with the main party of the Series, on hearing of his near approach, returned to Cuttack to meet him. After a short delay at this place they started for Duduá Hill Station, where the main party with the instruments was already assembled. Mr. Clarkson had been previously detached to carry on the Sambalpúr Branch Series, and Mr. Rossenrode had been deputed to continue the selection of stations southwards from the side Ráegará to Girdábádí; thus Mr. Penny was the only assistant left with the camp.

On arriving at Duduá the first task that presented itself was the examination and adjustment of Troughton and Simms' 24-inch Theodolite No. 1. This instrument had been sent, during the previous recess, to the Mathematical Instrument Maker at Calcutta for the purpose of being fitted with two additional horizontal microscopes—it originally possessed only three—as well as of undergoing other minor alterations. It arrived at Cuttack when the party was on the eve of taking the field, and Mr. Peyton abstained from completing the adjustments until Major Strange should arrive. The task occupied fully nine days.

Final observations were at length begun on the 17th January; and Mr. Peyton, having now rendered every assistance he could to Major Strange and having fully informed him regarding every branch of the undertaking which it concerned him to understand, took his leave.

The observations at Duduá occupied an unusually long time and were not completed till the 24th January. The party then proceeded to Nimidá, which was reached on 1st February. Here there were only two angles, one of which had been observed by Mr. Peyton the

previous season; but as Major Strange had cause to doubt the isolation of the pillar he re-measured it.

From Nimidá the party proceeded to Chánchuniá; and although the direct distance between these stations was only 19 miles, the nature of the country was so adverse to travelling, that five tedious marches had to be made before the station was reached. When the observations were complete an unusually large triangular error shewed itself in the triangle Chánchuniá-Gumáriá-Duduá. This induced Major Strange to visit Gumáriá, at which the observations had been taken the previous year, before the platforms at the other two stations were built. A revision of the angle at this station shewed that the builders of the platforms had been guilty of carelessness, in not strictly maintaining the position of the station of Duduá as fixed by Mr. Peyton.

It was at Gumáriá that Mr. Peyton's party was prostrated by fever the previous year and compelled to leave the field; and Major Strange had reason to fear the same catastrophy occurring to himself; for after only nine days detention at the station, the number of men fit for duty was so diminished by sickness that it was with some difficulty they were able to get away. Several of the men attacked did not recover during the whole of the season. Fortunately the next station was in a fine open country where the party gradually improved in health.

On ascertaining with certainty that Duduá Hill Station had been tampered with, Major Strange thought it advisable to return to that station and repeat the measurement of the angles, which he did. He was much delayed however by his Observatory Recorder, Mr. Penny, being incapacitated for duty by an attack of fever and being therefore obliged himself both to record as well as to observe.

The weather, which throughout had been unsettled, now became very bad. During the nine days the party was at Duduá, four very severe equinoctial gales occurred. The last was a storm of great violence; the thunder burst close over the station and the lightning was the most appalling Major Strange had ever witnessed, whilst enormous hailstones of a lenticular form, and 3 inches in diameter, fell in such abundance as to form a high bank round the tents, and the wind threatened every moment to sweep the camp from the summit of the hill. The instrument was packed up four times in consequence of the threatening weather.

From Duduá the camp proceeded to Chiklíkháí, the weather during the five days march being peculiarly fine; but no sooner was the place reached than a haze gathered on the horizon and gradually extended over the whole country, so dense that neither heliotropes nor lamps could penetrate it. A change of wind which preceded the south-west monsoon ultimately cleared away the haze, but brought with it unfortunately both clouds and fog; and 19 days were occupied in observing only two angles at this station.

From Chiklíkháí Major Strange proceeded to Barnai where there were three angles to observe, and thence to Dhanáí to complete if possible the Duduá-Gumáriá double polygon before closing work. Dhanáí was reached on the 3rd May and the atmospheric peculiarities which presented themselves were so remarkable that Major Strange gave the following account of them.

"Dhanáí Hill Station is on such a hill as any surveyor would at once single out from

"the landscape as the model of a trigonometrical point. On the verge of a hilly region of "great extent, it stands out a conspicuous and nearly symmetrical cone about 2,000 feet in "height. The three rays to be observed from it stretched northwards. That to Chiklíkháí "crossed some low ridges but was quite clear of them. The Duduá and Barnai rays passed "high above a wide alluvial plain. It would naturally be expected that these very favour- "able circumstances would ensure steady and well defined objects for observation: the con- "trary however was the case. The lamps at night when they were visible at all were "diffused, unsteady and dim. The heliotropes were such as I have rarely before seen except "in the plains in bad weather. I repeatedly measured their diameter between 4 p. m. and "sunset and found them to subtend from 20″ to 30″. During the whole of my stay at this "station, comprising 8 days, the afternoon heliotropes were always what I have described "when visible at all. In the morning the heliotropes were sometimes fit for observation "though never steady or well defined"*.

Major Strange accounted for the phenomena as follows:—To the south and west of Dhanáí lay the wide expanse of the Chilka Lake, and beyond that the ocean. During the day the air in the alluvial basin crossed by the rays must have become heated and much rarified. Between 2 and 3 o'clock daily, the breeze set in from the sea and rushed past the station to fill up the partial vacuum in this basin. This breeze being cool and coming in contact with heated air naturally would cause considerable disturbance of the refraction.

The weather now became worse and worse; and seeing no prospect of executing further work Major Strange decided to retire to recess quarters at Cuttack where he arrived on the 16th May.

Of the detached parties Mr. Clarkson's was equally unfortunate with the main party. That gentleman had looked forward to making use of the stations of the Ganjam Survey wherewith to connect Sambalpúr, but found on reaching his ground that they were quite unsuitable. The country too was of such a character as to offer great difficulties to the triangulation. A very high range on the northern flank supplied only one suitable station; and he found it far from easy to connect this with his points on lower ground. The camp was early visited by fever which Mr. Clarkson himself did not escape. He commenced the final observations at the end of February and completed them at three stations, *viz.*, Lohár, Jharghátí and Murosil, when, he and nearly the whole of his party being prostrated by fever and unable any longer to carry on field operations, they retired to Cuttack.

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* The same atmospherical peculiarities largely affected the vertical angles as the following examples shew:—

Vertical Angles taken at Dhanáí.

					° ′ ″
Duduá	3rd May	2h	25m	Depression	0 40 36·32
„	4th „	2	34	„	40 37·66
„	9th „	2	38	„	40 6·99
Barnai	3rd „	2	42	„	33 10·94
„	4th „	2	42	„	33 13·83
„	8th „	2	49	„	32 47·42
Chiklíkháí	3rd „	2	54	Elevation	4 38·60
„	4th „	2	50	„	4 27·29
„	8th „	3	1	„	4 38·81

Mr. Rossenrode alone gathered a plentiful harvest. The approximate chain of triangles laid out by him this season extended over a direct distance of 175 miles, and reached latitude 17° 28′, 26 miles beyond Vizagapatam. He was able to adopt as principal stations many of the stations of the old Ganjam, Vizagapatam and Rájahmundry Surveys. He generally found them denoted by a pile of stones, but in no single instance did he discover the slightest indication that these stations had ever possessed any more defined mark.

Mr. Rossenrode did not escape sickness. He was compelled by an attack of fever to resort to Chicacole in the end of January; but on recovery he resumed work. All his party also suffered more or less, and a Naik of the 5th Regiment, Madras Native Infantry, died.

Season 1856-57.

PERSONNEL.

Major A. Strange, Astronomical Assistant.
R. Clarkson, Esqr., Civil Assistant.
W. Rossenrode, Esqr., Civil 2nd Assistant.
Mr. C. Shelverton, 1st Class Sub-Assistant.
„ F. Penny, 3rd Class „

The party again took the field on the 16th December 1856, the following dispositions being made:—Mr. Clarkson resumed operations on the Sambalpúr Branch Series, on which the final angles remained to be observed. Mr. Rossenrode proceeded a few days in advance of the main party to assist in constructing the platforms at two or three of the principal stations, where some difficulties had to be surmounted; after which it was intended that he should rejoin Major Strange and continue with the main party till the end of the season, and be ready to carry on the final observations should Major Strange be incapacitated by sickness; an intention which was unfortunately frustrated as will be seen hereafter. Mr. Shelverton, who had been posted to the party with a view to facilitating secondary operations, proceeded to select a principal side near the Chilka Lake, from which to carry a minor series northward along the coast to Balasore; and Mr. Penny remained with the main party. The approximate operations, having already extended far ahead of the final, were not to be pushed further this season.

A day or two before taking the field himself, Major Strange received a letter from the Agent to the Governor of Fort St. George in Ganjam, informing him that the country in which some of his proposed stations were situated, was in so disturbed a state that he judged it imprudent that it should be entered with a smaller escort than a Company of Infantry, and suggesting that the triangulation should be altered, and those stations abandoned. Mr. Rossenrode who was on his way to visit the stations in question—they were named Paukhera H.S., Dungrí H.S. and Udaigirí H.S.—was at once directed to place himself in communication with the authorities, and to ascertain the exact state of affairs. Having been furnished with a strong infantry escort under the command of a European Officer, he visited the stations and built the platforms; but he reported so unfavourably of the state of the country, that Major Strange felt it necessary to abandon the stations and make the Series single from the side Girdábádí to Ráegará. It appeared that the inhabitants of that tract of country were almost savages, acknowledging no authority and living chiefly by plunder; an unwieldy military force would therefore have been required, not only with the main camp but with the detached signal parties, the more so in that the inhabitants were now in actual insurrection. No local labour could have been obtained; and it would have been necessary to import coolies from the surrounding tracts, the inhabitants of which are very averse to entering the "Mahlias" as

these hills are called. The climate too of these hills was of a most unhealthy character. The three stations in question were therefore rejected and Mr. Rossenrode selected another, Mal, on the coast.

In the meanwhile Major Strange with the main Party carried on the final observations. The stations were visited in the following order:—Dhanái, Chiklíkhái, Patharkumúdá, Khundábolo—where circumpolar star observations for azimuth were made—Chandíkho and Tárá Tarní. At the last named station the weather became very unfavourable for observing, owing to a dense and continuous haze. Sickness, too, which had sometime previously attacked the party, increased considerably among the signal men, necessitating continual reliefs; and these causes led to a detention at this station of 25 days.

The next station visited was Maltí, where a fall of rain cleared the atmosphere for a short time, and enabled the observations to be completed in two days. The camp then proceeded to Girdábádí, Mr. Rossenrode who had joined it at Tárá Tarní being previously detached with Mr. Penny to the coast to undertake secondary work. Both these gentlemen had suffered severely from fever, and Girdábádí being a very unhealthy locality Major Strange judged it best not to take them there. The weather again became hazy, and for ten days not a single observation could be taken: on the eleventh day fever attacked the camp and Major Strange was one of the first victims. His attack was exceedingly severe; for eight days he was prostrated, but had to treat both himself and his men, for the native Doctor lay sick himself in the camp at the foot of the hill 6 miles off. By degrees the sick were carried down the hill, and lastly Major Strange followed in the same way, but only to find the camp there had been visited as severely as his own. Out of 20 men composing the military guard only 4 remained free from fever; and nearly every man of the Native establishment was either then ill or had lately been so. It was now the middle of April and it was evident that no further progress could be made this season as the efficiency of the party was gone. Major Strange therefore by medical advice proceeded to Pooree for the benefit of sea air; and Mr. Rossenrode who had recovered some strength took charge of the party and marched with it to Cuttack.

Although so many were stricken by fever none of the cases proved fatal; but cholera attacked the party on its way from the field and carried off 7 men. Major Strange describes the fever as "productive of the utmost debility and depression of both mental and physical "powers, and when once imbibed into the system as extremely difficult of expulsion; as it "recurs at short intervals, again and again, and deprives the patient at each recurrence more and "more of the little strength that former attacks have left him". Only one man of the main camp escaped an attack of fever during this season.

Mr. Clarkson was more fortunate in his operations; for notwithstanding that his party also suffered very severely from fever at one time, he was enabled to finish the Sambalpúr triangulation, remaining in the field with this object until the 6th June.

Mr. Shelverton made rather slow progress with the minor series, partly owing to the difficulty in effecting a good connection with the main series, arising from the complex form of the sand ridge separating the Chilka Lake from the sea, and partly to the great delay that occurred in clearing the rays of his minor triangles, that part of the country being covered with dense clumps of bamboo jungle. Some of the rays occupied a strong gang of men 12 or 15 days each.

Major Strange's health compelled him to obtain a year's leave on medical certificate, and to proceed to the Nílgiris for change of air; thus the charge of the party devolved on Mr. Clarkson. Mr. Shelverton also was obliged to apply for sick leave for six months, to enable him to recover from the fever which had attacked him, and he was afterwards transferred to another party. One assistant was added to the party in the person of Mr. Smith, transferred from the Jogí-Tíla Meridional Series. Mr. Smith left head quarters on 1st October; but owing to the disturbed state of the country, he was obliged to proceed *viá* Mooltan, Kurrachee and Bombay to Calcutta. He did not reach the East Coast Series till the 9th March.

Season 1857-58.

PERSONNEL.

R. Clarkson, Esqr., Civil Assistant.
W. Rossenrode, Esqr., Civil 2nd Assistant.
Mr. J. H. Smith, 2nd Class Sub-Assistant.
„ F. Penny, 3rd „ „

The Party, which at that time consisted of Messrs Clarkson, Rossenrode and Penny, left recess quarters at Cuttack on the 1st December 1857; and, after some delay owing to the difficulty in obtaining coolies, because of the demand for them for service with the troops moving northward, Tárá Tarní was reached and final observations were commenced on the 29th. Mr. Clarkson had been directed to retain Mr. Rossenrode with him to assist in the observations and to be prepared to carry on the work if he himself were attacked by sickness. By the end of January observations had been completed at Maltí, Girdábádí and Dhobá Dhobaní: thus the most unhealthy tract was visited during the most favourable weather and great expectations were raised of an unusually large out-turn of work. But on reaching Ráegará, the next station, unusually large triangular errors presented themselves, the cause for which could not be at first ascertained, and Mr. Clarkson proceeded with the triangulation as far as Phúlsará, every succeeding triangle betraying a large triangular error. At length it appeared that the instrument, which had recently undergone some alterations was at fault, and Mr. Clarkson, having assured himself of this, proceeded to revise the angles at Ráegará and Girdábádí, after which Maltí was revisited, where he thought some error in the angles existed, but his anticipations in this respect do not seem to have been confirmed. The season was now too far advanced to admit of any futher revision being made and the party therefore left the field.

The country traversed during the season had the character of being most unhealthy; but sickness did not attack the camp till the month of March, by which time it had reached Phúlsará. Forty-two men were here prostrated by fever in 3 or 4 days; but being speedily removed to another locality they recovered in about a month's time. This attack Mr. Clarkson attributes to the bad water at Phúlsará and not to jungle miasmata, as the country was under cultivation.

An insurrection having broken out in Sambalpúr in 1857, the local authorities did not consider it prudent that Survey operations should be carried on anywhere in its neighbourhood; because that the wild and excitable inhabitants would be easily influenced by designing people, who to gain their own purposes would not improbably misrepresent the object of the operations. In this tract of country two Topographical Survey Parties were working, *viz.*, those under

PERSONNEL.

Captain G. H. Saxton, 38th M. N. I.
Mr. G. R. Howard, 2nd Class Sub-Assistant.
„ A. D'Souza, 3rd „ „
„ D. Atkinson, „ „ „
„ D. Antrobus, „ „ „
„ J. Harper, „ „ „

Captain Saxton and Lieutenant Depree. It then became a question as to how these establishments could be turned to account; and the Surveyor General decided to employ them on the minor triangulation along the coast, between the Chilka Lake and Balasore, which had been commenced by Mr. Shelverton the previous year, and in the delineation of the coast line by plane-tabling. Accordingly Captain Saxton received instructions to proceed to the Chilka Lake to continue Mr. Shelverton's triangulation, and Lieutenant Depree to Balasore to commence the series there and work southwards; the intention being that both parties should join work near False Point, and so finish the Series in one season.

Captain Saxton's party, on arriving at its ground, moved rapidly up the coast selecting points, but not clearing rays or building stations, for which material had to be prepared. By the end of February stations were selected up to a few miles beyond False Point Lighthouse, a distance, exclusive of Mr. Shelverton's triangles, of about 63 miles. Captain Saxton's great desideratum now was labour for jungle cutting, of which in the last 40 miles there was a great deal. A large portion of the country was uninhabited jungle, under water at highest tides, and intersected by formidable creeks and rivers. It was not until after considerable delay that men could be procured from a distance; thus Captain Saxton's expectation of finishing the triangulation was frustrated. He superintended the jungle cutting himself as long as he thought time permitted; then, leaving nearly all his party to continue this, he retraced his steps to commence final observations: these were begun on the 19th April and the last angle was observed on the 29th May.

Lieutenant Depree's party proceeded to Balasore, a detachment under Mr. King being sent to Dhamra River to make preparations and lay out the triangulation in advance from that place. Lieutenant Depree commenced observing on the 8th February. The difficulties met with for the 25 miles south of Chandípúr were great, owing to the peculiar formation of the ground. At a distance averaging 1 mile from high tide mark, runs a sand ridge or *arria*, from 4 to 15 feet high, evidently at some former period forming the coast line. This was covered with an almost unbroken line of villages and gardens, so that the clearing of rays entailed the destruction of much private property and considerable expense in compensation. Work closed on the 25th May near Maipárá River.

PERSONNEL.

Lieutenant G. C. Depree, Bengal Artillery.
Mr. J. G. King.
„ J. Ellison, 3rd Class Sub-Assistant.
„ R. W. Chew, „ „
„ MacVitie, „ „

The next season the East Coast Series Party left Vizagapatam for the field on the 6th December, to commence operations in the neighbourhood of Berhampore: this station was reached on the 24th of the month. The new instrument—Barrow's 24-inch Theodolite No. 2, which had been recently remodelled in the Mathematical Instrument Department, Calcutta—had previously arrived there, as had also the two Assistants Messrs. Ellison and Atkinson, who had been transferred from the Ganjam Topographical Survey. Of the Assistants who had been with the party the previous season, Mr. Rossenrode had been transferred to another party and Messrs. Smith and Penny had resigned their appointments in the department.

Season 1858-59.

PERSONNEL.

R. Clarkson, Esqr., Civil Assistant.
Mr. J. Ellison, 2nd Class Sub-Assistant.
„ D. Atkinson, „ „

A few days were occupied at Berhampore by Mr. Clarkson in examining the several adjustments of the instrument, in ascertaining the values of the scales of the azimuth levels, and in familiarising himself generally with the manipulation. Rácgará was then vsited and the observation of final angles commenced. Mr. Clarkson detained Mr. Atkinson with him to assist in the observatory, but detached Mr. Ellison to carry on minor triangulation along the coast.

The weather continued favourable for observing until the 15th March; but work was delayed at times by sickness. Towards the end of January several of the party, including Mr. Clarkson himself, were prostrated by fever for some days; and again early in March the operations had to be suspended for several days from the same cause and two deaths occurred. On arriving at Himágirí the health of the party considerably improved, but the weather now became very variable; and haze, fogs and storms were very prevalent. Notwithstanding these retarding causes and that fever still adhered to the party—two more deaths were occasioned by it—the principal triangulation was advanced to the side Ráwal-Pindí and brought out from the unhealthy, wooded tract of Ganjam into more open country.

Mr. Ellison was employed in carrying a minor series, first from Bodágirí to Mal and thence by the ports of Púndi and Calingapatam to Sálihundam H.S.

Mr. G. R. Howard, 2nd Class Sub-Assistant.

Mr. Howard who was a member of Captain Saxton's party, took up the Coast Line Minor Series where Captain Saxton had closed it the previous season and completed the observations as far as False Point, that is as far as it had been laid out. He also executed a small portion of the detail along the coast. He was afterwards compelled by sickness to take leave of absence.

J. O. Nicolson, Esqr., Assistant Surveyor.
Mr. R. W. Chew, 1st Class Sub-Assistant.

The remaining portion of this series, between False Point and the part executed by Lieutenant Depree, was completed during season 1860-61 by Mr. Nicolson assisted by Mr. Chew, both of whom were detached from the Chota Nagpore Topographical Survey for the purpose. Their small party suffered severely from fever while passing down the coast, and the greatest difficulty was experienced in procuring supplies for the establishment as well as in obtaining labourers for clearing rays and building the masonry platforms for the stations.

Season 1859-60.

PERSONNEL.

Major A. Strange, Astronomical Assistant.
R. Clarkson, Esq., Civil Assistant.
Mr. G. R. Howard, 1st Class Sub-Assistant.
„ J. Ellison, 2nd „ „
„ F. Ryall, 3rd „ „

Major Strange, whose health had been restored by his residence in the Nílgiri hills during the past two years, resumed charge of the East Coast Series Party in August 1859.

It had been anticipated that the party would take the field earlier than usual this year; but continued unfavourable weather prevented them until the 3rd December, when a change for the better appeared to have set in. This proved of short duration; for on the 5th when the camp was pitched at the foot of Amnám Hill Station, the district was visited by a cyclone, which did considerable damage both by land and sea. The camp was fortunately in a sheltered position and thus escaped much injury; though the gale blew with great violence and without intermission for ten hours. The storm

however delayed operations for some days; and it was not till the 10th December that final observations at Amnám were commenced. Kandíwálsá, Pindí and Ráwal were then visited in order; and at the last named station a set of circumpolar star observations for azimuth were made.

Up to this time Mr. Clarkson had remained with the head quarters' camp to assist Major Strange with the observations; but he was now detached in advance to carry on the approximate series and took with him Mr. Ryall, while Mr. Howard was directed to take up the minor triangulation along the coast from near Sálíhundam H.S. The latter found on visiting the closing points of Mr. Ellison's triangulation that owing to their proximity to the coast they had become untrustworthy; and he had to work back some distance before he found a base which he could depend on. He then carried the triangulation up to Vizagapatam, when illness compelled him to close work.

The main party next visited Maripillí, Kumaráí and Bor. At the last named station some little delay was occasioned by finding that Pothbili, the station originally selected, did not answer, and by the substitution for it of Márkí H.S. on the same hill. Márkí and Gumrú were then observed at; after which the operations fell beyond the limit of this section of the Series. The remainder of the season was occupied in continuing the approximate series down the coast, and in completing the Nalakonda-Pothkonda double polygon, which now forms the last figure of the Bider Longitudinal Series; after which Major Strange proceeded to select a site for the erection of a tide gauge and to establish a mark close by and connect it with the triangulation.

The East Coast Series was continued during the next and following seasons until it reached Madras, where operations terminated for the time being; but this portion of the series appertains to the section of the triangulation of India known as the Southern Trigon.

Major Strange, hitherto a Brevet-Major only, having now attained his Regimental Majority, was obliged, by the rules of the service then in force, to relinquish his appointment in the Survey Department and revert to military duty, and the charge of the Party was transferred to Captain J. P. Basevi of the Royal Engineers. At the commencement of the next field season, a tide guage having been previously set up at the site selected by Major Strange, Mr. Clarkson was directed to undertake tidal observations for ascertaining Mean Sea Level. The observations were made continuously from the 10th November to the 8th December 1860 both days inclusive.*

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* 1. The site used for the Tide Gauge was in a back-water possessing a communication with the open sea, perfectly free at all times. The water was always smooth in this back-water, even when the surf outside was highest. There was a bar, but in the lowest condition of the tide there were 4 feet of water over it.

2. A stout, triangular framework, 15 feet high, was sunk into the back-water, about 8 feet from the wall of the Jetty, and set nearly level and perpendicular. The framework was then loaded with stone to secure it in position; and the two faces exposed to the currents of the flood and ebb tides were protected by stones piled against them to within 2 feet of low water line: the upper portions of these faces were sheltered by bamboo matting. A wall, also of loose stone, was raised from the left angle of the framework to the Jetty, to shut out the current and keep the water still for observation. The influence of the South Monsoon was by this arrangement also obviated. The free access and escape of water was permitted from the space between the right angle of the frame and the Jetty. The triangular frame was thickly coated with tar to guard it from destruction by sea insects.

3. The Gauge was prepared of well seasoned Teak; the rod was 16 feet long and 3 by 2½ inches in width and thickness; it was painted white and carefully divided into feet and tenths, the divisions being slightly cut in and painted black. The graduation was dis-

The result of the observations was that the height of the "Permanent Mark" on the Jetty otherwise called the "Vizagapatam Tide Gauge Station" was found to be 2·47 feet above mean sea level.

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tinct, and the indications on the gauge were read with facility even at night. The lower end of the gauge rod was driven into the bed of the back-water and close to the edge of the triangular frame till it met the rock. The gauge was then set vertical by a plummet and maintained in this situation against the triangular frame by the insertion of little blocks of wood. The arrangement being complete and satisfactory, the gauge was next made fast to the frame by screws.

4. A low, stout framework was also prepared for the "Permanent Mark", with an opening about the centre, and was placed over the Jetty station mark. The opening was adjusted to the station mark, and an iron rod about 1 inch square and 6 feet long let in: the lower end of the rod was made even to let it rest fairly on the station mark. The rod was then made vertical by a plummet and secured thus by wedges driven into the space in the opening: the base of the frame was next covered with loose stone and a horizontal line cut into the rod after being made to correspond to the 12 feet line on the gauge. The transfer of the line was effected with a small theodolite duly collimated and set over an auxiliary mark fixed exactly on the line and equidistant from the gauge and rod: this auxiliary mark was reserved for subsequent examination during the observations. After the completion of these arrangements the contrivance for the permanent mark was never touched.

5. The foregoing arrangements were completed about five days before the observations were commenced; but all parties during this time were instructed in the details connected with the work and mode of observation. Every consecutive tide was observed when the work was begun, and the readings on the gauge noted at every 5 minutes from half an hour before High or Low water to about a quarter of an hour after. The highest readings were invariably recorded for the High and the lowest readings for Low water line. The Mean Sea Level noted in column 6 of the synopsis is the mean of each rise and its successive fall; and the General Mean recorded is derived from the whole of the observations, merely omitting the last, to afford an equal number of rises and falls.

6. Observations on the sun were taken every fifth or sixth day to keep correct mean time.

Synopsis of Tidal Observations taken at Vizagapatam Jetty Station during the months of November and December 1860.

Date		Mean Time of Observation	Reading on the Fixed Gauge	Range of Tide	Mean Level of Water	Moon's		Lunitidal Interval	Remarks
Month	Day					Age	Transit		
		h. m.	*feet*	*feet*	*feet*	*d.*	*h. m.*	*h. m.*	
1860 November	10	0 37	3·57						
"	"	7 10	8·00	+4·43	5·785				
"	"	13 25	3·35	−4·65	5·675				
"	"	19 8	7·55	+4·20	5·450	26·7	21 57·7		
"	11	1 0	3·18	−4·37	5·365				
"	"	7 45	8·10	+4·92	5·640			9 47	
"	"	13 55	3·94	−4·16	6·020				
"	"	20 2	7·50	+3·56	5·720	27·7	22 54·1		
"	12	1 52	2·82	−4·68	5·160				
"	"	8 35	8·07	+5·25	5·445			9 41	
"	"	14 52	3·66	−4·41	5·865				
"	"	20 18	7·40	+3·74	5·530	28·7	23 47·9		
"	13	2 20	2·92	−4·48	5·160				
"	"	9 8	8·10	+5·18	5·510			9 20	
"	"	15 40	3·60	−4·50	5·850				
"	"	21 18	7·25	+3·65	5·425	0·3	23 51·7		New moon
"	14	3 5	2·96	−4·29	5·105				
"	"	9 45	8·00	+5·04	5·480			9 53	
"	"	16 30	3·60	−4·40	5·800				
"	"	22 0	7·13	+3·53	5·365	1·3	0 54·4		
"	15	3 50	3·39	−3·74	5·260				
"	"	10 55	8·00	+4·61	5·695			10 1	
"	"	17 5	4·25	−3·75	6·125				
"	"	22 25	7·30	+3·05	5·775	2·3	1 55·1		

The time of year was somewhat unfavourable for tidal observations on account of the gales that usually visit the coast or prevail in the Bay of Bengal. One gale occurred about the 16th November in the Bay, and the sea continued in a state of agitation till the 19th, as

Synopsis of Tidal Observations at Vizagapatam Jetty Station—(Continued).

Date		Mean Time of Observation	Reading on the Fixed Gauge	Range of Tide	Mean Level of Water	Moon's		Lunitidal Interval	Remarks
Month	Day					Age	Transit		
1860		*h. m.*	*feet*	*feet*	*feet*	*d.*	*h. m.*	*h. m.*	
November	16	4 50	4·05	−3·25	5·675				
„	„	11 20	8·10	+4·05	6·075			9 25	
„	„	17 40	4·85	−3·25	6·475				
„	„	23 18	7·20	+2·35	6·025	3·3	2 53·3		
„	17	5 12	4·75	−2·45	5·975				
„	„	11 50	8·18	+3·43	6·465			8 57	
„	„	19 20	5·20	−2·98	6·690	4·3	3 47·5		
„	18	0 22	7·15	+1·95	6·175				
„	„	4 55	5·50	−1·65	6·325				
„	„	13 20	8·24	+2·74	6·870			9 32	
„	„	20 7	5·60	−2·64	6·920	5·3	4 37·2		
„	19	1 10	7·20	+1·60	6·400				
„	„	6 40	5·50	−1·70	6·350				
„	„	13 52	7·65	+2·15	6·575			9 15	
„	„	20 35	5·25	−2·40	6·460	6·3	5 22·9		
„	20	1 42	6·75	+1·50	6·010				
„	„	7 32	5·40	−1·35	6·075				
„	„	14 30	6·90	+1·50	6·150			9 7	
„	„	21 0	4·85	−2·05	5·875	7·3	6 5·5		
„	21	3 28	6·50	+1·65	5·675				
„	„	8 22	5·35	−1·15	5·925				
„	„	14 50	6·65	+1·30	6·000			8 44	
„	„	22 8	4·40	−2·25	5·525	8·3	6 46·2		
„	22	4 45	6·30	+1·90	5·350				
„	„	10 50	4·80	−1·50	5·550				
„	„	16 58	6·15	+1·35	5·475			10 12	
„	„	23 0	3·75	−2·40	4·950	9·3	7 26·1		
„	23	5 25	6·15	+2·40	4·950				
„	„	11 50	4·05	−2·10	5·100				
„	„	17 18	5·95	+1·90	5·000			9 52	
„	„	23 52	3·30	−2·65	4·625	10·3	8 6·2		
„	24	6 15	6·30	+3·00	4·800				
„	„	12 42	3·75	−2·55	5·025				
„	„	18 20	5·87	+2·12	4·810	11·3	8 47·5	10 14	
„	25	0 25	3·00	−2·87	4·435				
„	„	7 5	6·45	+3·45	4·725				
„	„	12 48	3·45	−3·00	4·950				
„	„	18 52	5·80	+2·35	4·625	12·3	9 31·1	10 4	

was evidenced by an unusual rise of water after the period of the highest spring tide. The Government Steamer Dalhousie encountered this gale on its way from Moulmein and reported it at Vizagapatam. But for this disturbance the whole set of observations were obtained

Synopsis of Tidal Observations at Vizagapatam Jetty Station—(Continued).

Date		Mean Time of Observation	Reading on the Fixed Gauge	Range of Tide	Mean Level of Water	Moon's		Lunitidal Interval	Remarks
Month	Day					Age	Transit		
1860.		*h. m.*	*feet*	*feet*	*feet*	*d.*	*h. m.*	*h. m.*	
November	26	0 55	2·80	−3·00	4·300				
„	„	7 50	6·80	+4·00	4·800				
„	„	14 15	3·25	−3·55	5·025				
„	„	19 40	5·95	+2·70	4·600	13·3	10 17·7	10 9	
„	27	1 40	2·78	−3·17	4·365				
„	„	8 38	7·00	+4·22	4·890				
„	„	14 30	3·32	−3·68	5·160				
„	„	20 5	6·20	+2·88	4·760	14·3	11 7·6	9 47	Full Moon.
„	28	2 20	2·63	−3·57	4·415				
„	„	8 58	6·98	+4·35	4·805				
„	„	14 45	3·12	−3·86	5·050				
„	„	20 52	6·25	+3·13	4·685	15·3	12 0·6	9·44	
„	29	2 45	2·45	−3·80	4·350				
„	„	9 20	7·00	+4·55	4·725				
„	„	15 30	2·90	−4·10	4·950				
„	„	21 30	6·00	+3·10	4·450	16·3	12 55·8	9·29	
„	30	3 7	2·40	−3·60	4·200				
„	„	10 5	6·95	+4·55	4·675				
„	„	16 20	2·90	−4·05	4·925				
„	„	21 35	5·90	+3·00	4·400	17·3	13 51·6	8·39	
December	1	3 50	2·40	−3·50	4·150				
„	„	10 30	6·90	+4·50	4·650				
„	„	16 45	2·90	−4·00	4·900				
„	„	22 25	5·90	+3·00	4·400	18·3	14 46·5	8·33	
„	2	4 32	2·65	−3·25	4·275				
„	„	11 20	6·75	+4·10	4·700				
„	„	17 27	2·85	−3·90	4·800				
„	„	23 35	5·80	+2·95	4·325	19·3	15 39·7	8·48	
„	3	5 0	2·98	−2·82	4·390				
„	„	11 48	6·80	+3·82	4·890				
„	„	18 28	3·02	−3·78	4·910	20·3	16 30·6		
„	4	0 15	5·85	+2·83	4·435			8 35	
„	„	5 58	3·40	−2·45	4·625				
„	„	12 22	6·55	+3·15	4·975				
„	„	19 22	3·10	−3·45	4·825	21·3	17 19·9		
„	5	1 42	5·80	+2·70	4·450			9 11	
„	„	7 20	3·65	−2·15	4·725				
„	„	13 32	6·30	+2·65	4·975				
„	„	20 25	3·15	−3·15	4·725	22·3	18 8·4		

under very favourable circumstances. The value above given is from the whole set of observations, 112 in number; but if the portion taken during the prevalence of the gale be treated as an element of error, its rejection would effect an increase in the general mean of only 0·16 of a foot: thus

General Mean of	112	observations	2·471 feet
„ „	98	„	2·632 „
		Difference	0·161 „

Captain J. P. Basevi, R.E.
„ B. R. Branfill.

Owing to the great length of the East Coast Series, Colonel Walker—who had succeeded Sir Andrew Waugh in 1861—determined to introduce a base-line near Vizagapatam; and early in 1862 Captain Basevi, who was still in charge of the Series, of which the operations were being carried on towards Madras, and whose recess quarters were at Vizagapatam, was directed to select a site for the measurement of a base-line near that place, it being situated nearly on the same parallel of latitude as the

Synopsis of Tidal Observations at Vizagapatam Jetty Station—(Continued).

Date		Mean Time of Observation	Reading on the Fixed Gauge	Range of Tide	Mean Level of Water	Moon's		Lunitidal Interval	Remarks
Month	Day					Age	Transit		
1860		*h. m.*	*feet*	*feet*	*feet*	*d.*	*h. m.*	*h. m.*	
December	6	3 40	6·00	+2·85	4·575			10 20	
„	„	8 52	4·22	−1·78	5·110				
„	„	15 15	6·45	+2·23	5·335				
„	„	21 58	3·20	−3·25	4·825	23·3	18 57·3		
„	7	4 5	6·45	+3·25	4·825			9 57	
„	„	10 15	4·00	−2·45	5·225				
„	„	16 18	6·10	+2·10	5·050				
„	„	22 28	2·90	−3·20	4·500	24·3	19 47·9		
„	8	4 58	6·60	+3·70	4·750			10 1	
„	„	11 28	3·80	−2·80	5·200				
„	„	17 25	6·18	+2·38	4·990				
„	„	23 30	2·60	−3·58	4·390	25·3	20 41·0		
„	9	6 5	6·75	+4·15	4·675			10 17	Not used.
General Mean Level of Water, ...					5·229				

Transfer Mark at Jetty Station corresponding to reading on Gauge, ...	12·000	feet.
General Mean Level of Water deduced from Tide Observations, ...	− 5·229	„
Transfer Mark above Mean Sea Level, ...	6·771	„
„ „ „ Jetty Station Mark (by measurement), ...	− 4·300	„
Jetty Station Mark above Mean Sea Level by Tide Observations, ...	2·471	„

base-lines at Bombay and at Bider, and near the point where the Longitudinal Series between Bombay and the East Coast would meet the Coast Series on the completion of its eastern section, known as the Bider Longitudinal Series. On the 12th May, accompanied by Captain Branfill, who had recently arrived at Waltair, he started for Vizianagram and commenced the examination of the country. The ground proved of a difficult character, being undulating, richly cultivated and intersected with watercourses; large tanks also for irrigation purposes were very numerous, and valuable trees such as the mango, tamarind, palmyra, &c., were very abundant; consequently it was not till after several trials that he eventually succeeded in finding a suitable line on the undulating plain between the Military Stations of Vizagapatam and Vizianagram, at a distance of about 15 miles to the west of the Port of Bimlipatam. The ground was chosen before the commencement of the rainy season of 1862, when trenches were dug to carry off the expected rainfall during the monsoon, and every precaution was taken to keep the line dry. But when Captain Basevi took the field early in October, he found the rains had been so heavy, that the surrounding tanks had been converted into lakes, and the line lay submerged under a sheet of water, in some parts as much as 16 feet deep. By great exertions the water was drained off into adjoining ravines; and a portion of the line was ready for measuring in December and the remainder had become fairly dry by the time it was reached.

The details of the measurement of the Base-line will be found in Volume I, Section VIII. It will suffice here to remark that its length is six and a half miles. It was divided into three verificatory sections, which were subsequently checked by two series of triangles, one on each flank of the base, to test the measure of each section against the others. The tests were satisfactory; for the extreme difference between the measured length of the whole base and its computed length by triangulation from either section, was found to be only one inch.

The connection of the Base-line with the principal triangulation as well as the verificatory triangulation between the sections were executed by Captain Branfill. He also carried a line of levels from the south end of the Base-line to the Tide Point Station at Vizagapatam.

In conclusion it may be remarked that the East Coast Series forms one of the bounding chains of the section of the triangulation of India, denominated the South-East Quadrilateral. The whole length of the Series between its extreme stations, *viz.*, Baniban and Gumrú, measured along the coast, is about 466 miles, and the closing errors at Gumrú in Latitude, Longitude, Azimuth and Side, as calculated from Sironj, *viâ* the Great Arc Meridional and Bider Longitudinal Series, and *viâ* the Calcutta Longitudinal and East Coast Series were

in Latitude	...	0″·308 = 31 feet
„ Longitude	...	0 ·228 = 22 „
„ Azimuth	...	8 ·644
„ Side	...	1 ·06 inches per mile in the side of comparison.

The errors which were actually dispersed over the Coast Series by the Simultaneous Reduction of the South-East Quadrilateral, are

in Latitude	...	0″·250
„ Longitude	...	0 ·494
„ Azimuth	...	6 ·254
„ Side	...	0 ·29 inches per mile.

Dehra Dún, May 1880.

W. H. COLE, M. A.

EAST COAST SERIES.

EAST COAST SERIES.

EAST COAST SERIES.

LXXXIV	Baniban. (Of the Calcutta Longitudinal Series).
LXXXVII	Samalia. (Of the Calcutta Longitudinal Series).
I	Mirzápúr.
II	Sarisá.
III	Natsal.
IV	Rámnagar.
V	Tetulbariá.
VI	Gángrá.
VII	Dhojíbhangá.
VIII	Dariápúr.
IX	Analbariá.
X	Kálsábhangá.
XI	Kúdí.
XII	Júkí.
XIII	Sautiá.
XIV	Harnkulí.
XV	Patná.
XVI	Dántún.
XVII	Sátpautiá.
XVIII	Sahárá.
XIX	Kitkisol.
XX	Kátí.
XXI	Jogí Naiágáon.
XXII	Chandípúr.
XXIII	Kimhírá.
XXIV	Nilgirí.
XXV	Megásiní.
XXVI	Bolpál.
XXVII	Baniájorí.
XXVIII	Bolá.
XXIX	Daiterí.
XXX	Bodásil.
XXXI	Udaigirí.
XXXII	Kaplás.
XXXIII	Gumáriá.
XXXIV	Nimidá.
XXXV	Cuttack.
XXXVI	Chánchuniá.
XXXVII	Barnai.
XXXVIII	Duduá.
XXXIX	Chiklíkhái.
XL	Dhanáí.
XLI	Khundábolo.
XLII	Patharkumúdá.
XLIII	Chandíkho.
XLIV	Maltí.
XLV	Tárá Tarní.
XLVI	Girdábádí.
XLVII	Ráegará.
XLVIII	Dhobá Dhobaní.

EAST COAST SERIES.

XLIX	Bodágirí.	LX	Pindí.
L	Mahendragirí.	LXI	Maripillí.
LI	Mal.	LXII	Kandíwálsá.
LII	Phúlsará.	LXIII	Bor.
LIII	Deodongar.	LXIV	Kumarái.
LIV	China Malapuram.	LXV	Amnám.
LV	Himágirí.	LXVI	Márkí.
LVI	Nalakondá.	LXVII	Kistnápuram.
LVII	Yarákanchámá.	LXVIII	Vizagapatam base-line, North End.
LVIII	Sálihundam.	LXIX	Gumrú.
LIX	Ráwal.	LXX	Vizagapatam base-line, South End.

PRINCIPAL TRIANGULATION—DESCRIPTION OF STATIONS.

EAST COAST SERIES.

The Principal Stations of this Series, when on hills or high mounds, consist of circular masonry pillars from 3 to 3·5 feet in diameter, for the large theodolites to rest on, surrounded by a platform of stones and earth-work about 16 feet square, on which the observatory tent was pitched. Being almost invariably on the highest accessible points they rarely required to be raised more than 2 or 3 feet. The pillars contain mark-stones placed vertically over one another, the uppermost being generally flush with the surface. When in the plains, and mounds were not available, towers had to be built; these in the majority of cases consisted of a solid, central pillar of masonry, with mark-stones at top and bottom and others placed intermediately, a few consisted of perforated pillars of masonry with mark-stones placed in the basement; in both cases they were surrounded by a mass of sun dried bricks to the level of their surface for the observatory tent to rest on. In two instances the towers were of a hollow rectangular form built of masonry throughout. Access to the ground level mark in the perforated pillars and hollow towers was obtained by a passage constructed for the purpose: for a full description of such towers, see pages 44 to 46 of Vol. II of the "*Account of the Operations, &c.*"

The following descriptions have been compiled from those given by the Officers who executed the Series. A few details, such as the name of a village or pergunnah within which a station is situated have been obtained from the returns furnished by the civil authorities to whose charge the stations have been committed. The heights of the towers are taken from a paper drawn up by Mr. C. Lane.

LXXXIV.—*(Of the Calcutta Longitudinal Series).* Baniban Tower Station, lat. 22° 31′, long. 88° 7′—observed at in 1848—is on an artificial mound in the village of that name; pergunnah Balee, district Hooghly. The station, which is situated in a jhíl, is only accessible during three months of the year.

The tower is 39·42 feet high, and has mark-stones at top and bottom.

LXXXVII.—*(Of the Calcutta Longitudinal Series).* Samalia Tower Station, lat. 22° 26′, long. 88° 18′—observed at in 1848—is on an artificial mound in the village of that name in the Hanspokria jhíl, about 1·5 miles west of the high road from Calcutta to Diamond Harbour; pergunnah Nauhazári, district 24-Pergunnahs. The station is inaccessible during the rains, except by boats.

A hollow rectangular tower 63·08 feet high defines the station. It has a mark-stone at the top and another at the bottom.

I. Mirzápúr Tower Station, lat. 22° 20′, long. 88° 6′—observed at in 1848 and 1850—is situated about a quarter of a mile east of the village of that name. It is in the lands of the village of Mirzápúr, thana Shámpúr and pergunnah Mandalghát, district Hooghly.

The tower is hollow and 35·21 feet high, and has a mark-stone imbedded in the ground floor. Brúl semaphore is 3·8 miles N.E., and Dhájá semaphore 2·9 miles S.E. by S.

II. Sarisá Tower Station, lat. 22° 15′, long. 88° 14′—observed at in 1848 and 1849—is on the high bund of a square tank which supplies the town of Sarisá with water for domestic purposes. It is in the lands of Sarisá village, pergunnah Muragatchá, district 24-Pergunnahs.

The tower is hollow, square and 33·55 feet high, and has mark-stones imbedded in the usual manner. Kamálpúr temple is 1 mile W.S.W., and Diamond Harbour semaphore 4·2 miles S.

III. Natsal Tower Station, lat. 22° 12′, long. 88° 5′—observed at in 1850—is on a small mound on the right bank of the Gewakhali creek and on the lands of Natsal village in pergunnah Mysadul, district Midnapore.

The pillar is solid and 33·00 feet high, with mark-stones placed in it. Gewakhali, a large and well known village, is 1 mile N.E., and the Hooghly Point semaphore 2·0 miles E.N.E.

IV. Rámnagar Tower Station, lat. 22° 5′, long. 88° 12′—observed at in 1849 and 1850—is situated about 90 yards west of the little village of that name on the lands of which it stands; pergunnah Duru Damnan, district Midnapore.

The pillar is solid and 38·00 feet high, with mark-stones placed in it. The bearings and distances of surrounding objects are :—the village temple 89° 32′; Phulbariá semaphore 214° 38′, miles 3·61; Jigarkhali semaphore 77° 3′, miles 2·27 and Jamálchok temple 288° 38′, miles 2·96.

V. Tetulbariá Tower Station, lat. 22° 5′, long. 87° 59′—observed at in 1850—is on an artificial elevation about three-quarters of a mile north of and in the lands of Tetulbariá village; pergunnah Gumgarh, district Midnapore. The Patgada creek branches in three directions about 30 yards north of the tower.

The tower is solid, 35·17 feet high, and has a central pillar of masonry, isolated from the ground level upwards, in which are the mark-stones. The bearings and distances of the surrounding villages are :—Chak-Patná N.W. about 200 yards; Mangal Chak E. about 0·25 of a mile; Naráin Chak E.S.E. about 400 yards and Boiál, a large village, E.S.E., 1·5 miles.

VI. Gángrá Tower Station, lat. 21° 55′, long. 88° 2′—observed at in 1850—is within the lands of the village of that name, on the right bank of the Hooghly river, in pergunnah Gumgarh, district Midnapore.

The tower is solid, 30·00 feet high, and has a central pillar of masonry, isolated from the ground level

upwards, in which mark-stones are imbedded at every 6 feet. The bearings and distances of the surrounding objects are:—Gángrá 225° 20′, mile 0·66; Kedgrí semaphore 200° 30′, miles 3·13 and Sautkhalí, semaphore N., miles 1·5.

VII. Dhojíbhangá Tower Station, lat. 21° 58′, long. 87° 52′—observed at in 1850—is on a small mound on the south-west side of the village of that name in pergunnah Erinch, district Midnapore.

The tower is solid, 24·00 feet high, and has a central pillar of masonry, isolated from the ground level upwards, in which the mark-stones have been imbedded. The bearings and perambulated distances of the surrounding villages are:—Handia 250° 0′, miles 1·045; Udakhali 308° 20′, mile 0·476; Baliachala 350° 35′, mile 0·724; Tikási 167° 46′, mile 0·125.

VIII. Dariápúr Tower Station, lat. 21° 47′, long. 87° 55′—observed at in 1850 and 1851—is on an elevated sand ridge about 300 yards from the village of Dariápúr-Bamariá which bears 137° 30′, in pergunnah Bálíjorá, district Midnapore. The road from Contai to Kedgrí passes about 3 miles to the west of the station, and the Rasalpúr ferry is about 3·25 miles N. W.

The tower is solid, 20·00 feet high, and has a central pillar of masonry with mark-stones imbedded at top and bottom. From the ground level upwards, the pillar is isolated from the surrounding structure. The bearings and distances of the surrounding villages are:—Partábpúr 52° 0′, mile 0·6; Gopínáthpúr 340° 0′, mile 0·3. A temple, which stands on the same ridge as the station, bears 251° 40′ and is distant 0·4 of a mile.

IX. Analbariá Tower Station, lat. 21° 55′, long. 87° 44′—observed at in 1850 and 1851—is situated on a mound 0·40 of a mile from the village of that name which bears 19° 40′, in pergunnah Narwámutá, district Midnapore. The Rasalpúr river, or Hidjillí creek, flows about 150 yards south of the tower.

The tower is solid, 29·00 feet high, and has a central pillar of masonry, isolated from the ground level upwards, in which the mark-stones have been imbedded. The azimuth and distance of the high temple of Arjunagar are 172° 33′, miles 2·08.

X. Kálsábhangá or Betgariá Tower Station, lat. 21° 46′, long. 87° 43′—observed at in 1851—is on an elevated sand ridge in pergunnah Majnámutá, district Midnapore. The tower, although within the lands of the village of Kálsábhangá, is locally named after that of Betgariá which is the larger of the two.

The tower is solid, 30·00 feet high, and has a central pillar of masonry, isolated from the ground level upwards, in which the mark-stones have been imbedded. The azimuths and distances of the neighbouring villages are:—Kálsábhangá 236° 5′, yards 400; Betgariá 58° 0′, yards 400.

XI. Kúdí Tower Station, lat. 21° 52′, long. 87° 34′—observed at in 1851—is on a small mound in the village of Kúdí in pergunnah Agrachaur, district Midnapore.

The tower is solid, 30·00 feet high, and has a central pillar of masonry, isolated from the ground level upwards, in which the mark-stones have been imbedded. The azimuth and distance of the high temple in the *Kasba* of Agrachaur are 200° 24′, miles 3·90.

XII. Júkí Tower Station, lat. 21° 43′, long. 87° 33′—observed at in 1851—is on an extensive range of sand hills running nearly east and west, and about 100 yards south of the village of Júkí; pergunnah Mirgoda, district Midnapore.

The tower is solid, 23·00 feet high, and has a central pillar of masonry isolated from the ground level upwards, in which the mark-stones have been placed.

XIII. Sautiá Tower Station, lat. 21° 51′, long. 87° 23′—observed at in 1851 and 1852—is on the high bund of a tank to the south of the large village of Sautiá, in pergunnah Buráichaur, district Midnapore.

The tower is solid, 30·00 feet high, and has a central pillar of masonry, isolated from the ground level upwards, in which the mark-stones have been placed. The azimuth and distance of Remu village are 265° 0′, miles 1·5.

XIV. Harnkulí Tower Station, lat. 21° 41′, long. 87° 21′—observed at in 1851—is situated on a mound of this name on the right bank of the Sooburnrekha river in pergunnah Sháh Bandar, district Balasore.

The tower is solid, 30·00 feet high, and has a central pillar of masonry, isolated from the ground level upwards, in which the mark-stones have been placed. The nearest villages are Birhapál and Múninagar.

XV. Patná Tower Station, lat. 21° 47′, long. 87° 14′—observed at in 1851, 1852 and 1853—is on the left bank of the Sooburnrekha river at the northern extremity of the village of Patná in pergunnah Jellasore, district Balasore.

The tower is solid, 36·50 feet high, and has a central pillar of masonry, isolated from the ground level upwards, in which the mark-stones have been placed. The Baptist Mission Chapel is 100 yards south-west of the station. The azimuths and perambulated distances of the circumjacent villages are :—Súkdúkhiá 123° 28′, mile 0·908; Bhelbariá 172° 24′, mile 0·432; Chakhariá 209° 41′, mile 0·762; Bagawálí 257° 55′, mile 0·566 and Balampúr 357° 7′, mile 0·464.

XVI. Dántún Tower Station, lat. 21° 56′, long. 87° 19′—observed at in 1852 and 1853—is on the bank of a tank at the southern extremity of the large village of Dántún, on the high road from Midnapore to Balasore, in pergunnah Dántún, district Midnapore.

The tower is solid, 30·00 feet high, and has a central pillar of masonry in which the mark-stones have been placed. The azimuths and perambulated distances of the circumjacent villages are :—Chauliá 248° 13′, mile 0·743; Gunduriá 306° 34′, miles 1·362; Jamuá 326° 25′, miles 2·024; Tákínagar 19° 30′, mile 0·975 and Benchá-Bágará 97° 25′, miles 1·253.

XVII. Sátpautiá Tower Station, lat. 21° 56′, long. 87° 7′—observed at in 1853—is situated on the thickly wooded flats to the west of the Sooburnrekha river and 0·67 of a mile east of the well known temple of Sástarní, where a religious fair is held annually. It is in pergunnah Naiágáon, district Midnapore.

The pillar is perforated, 35·17 feet high, and has a mark-stone at the ground level. Chandrekhagarh, a well known ruined fort, lies about 2 miles N. of the station. The azimuths and perambulated distances of the circumjacen; villages are :—Sátpautiá 91° 4′, mile 0·489; Bisonáthpúr 101° 6′, miles 1·614; Chandrekhagarh 133° 34′, miles 1·578; Sástarní 138° 33′, mile 0·714 and Neguriá 168° 23′, mile 0·898.

XVIII. Sahárá Tower Station, lat. 21° 37′, long. 87° 10′—observed at in 1851, 1853 and 1854—is situated in the village of Sahárá, pergunnah Bastá, district Balasore.

The pillar is solid and 35·00 feet high having mark-stones placed in it. The azimuths and distances of the circumjacent villages are :—Agarpárá 1° 56′, miles 1·052; Gománandí 150° 13′, miles 1·338; Kusdiá 182° 17′, miles 1·335 and Pánsá 345° 1′, miles 0·484.

XIX. Kitkisol Tower Station, lat 21° 45′, long. 87° 2′—observed at in 1853—is in the thickly wooded flats, south of the small Sonthal village of Kitkisol in the tributary estate of the Moharbanj, district Asonkhalí.

The pillar is perforated and 30·29 feet high. The azimuths and perambulated distances of the circumjacent villages are :—Kitkisol 233° 0′, mile 0·717; Karísol 246° 12′, miles 1·560; Barampúr 316° 47′, miles 2·400 and the

secondary tower station of Bánchá 244° 28′, miles 1·040.

XX. Kátí Tower Station, lat. 21° 35′, long. 86° 59′—observed at in 1853 and 1854—is in the wooded flats, about 6 miles north of Balasore: a Gosáin's *takia* (seat) is about 150 yards N.N.W. The station is in the Moharbanj estate.

The pillar is perforated and 43·29 feet high. The azimuths and perambulated distances of the circumjacent villages are:—Chasakand 48° 49′, miles 1·164; Moespúr 48° 49′, mile 0·401, and the Sonthal hamlet of Kátí 120° 28′, mile 0·083.

XXI. Jogí Naiágáon Tower Station, lat. 21° 43′, long. 86° 52′—observed at in 1853—is situated about a mile from the Búrá Balang river and 0·3 of a mile S.W. by S. of the village whence it is named: it is in the Moharbanj estate.

The pillar is perforated and 41·23 feet high. The azimuths and perambulated distances of the circumjacent villages are:—Dingrá 22° 11′, miles 1·524; Bartoná 50° 37′, mile 0·995 and Kaifulia 122° 24′, mile 0·761.

XXII. Chandípúr Tower Station, lat. 21° 27′, long. 87° 5′—observed at in 1854—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 azimuths and distances of the following are:—Balrámgarhí tide point 201° 14′, miles 2·409; Balasore Jumma Masjid 114° 6′, miles 5·842, and Balasore highest temple (spire) 121° 7′, miles 6·4.

XXIII. Kimhírá Hill Station, lat. 21° 40′, long. 86° 41′—observed at in 1853 and 1854—is on a low detached rocky hill in an excessively wild and jungly tract in the Moharbhanj tributary estate, and takes its name from a remarkable rock at the top of the hill, having the shape of an alligator.

The station is marked on the rock *in sitû*, and a platform has been built around it. The azimuths and perambulated distances of the circumjacent villages are:—Gúdiá 133° 43′, miles 1·277 and Báljorá 154° 52′, miles 1·454.

XXIV. Nilgirí Hill Station, lat. 21° 28′, long. 86° 49′—observed at in 1853 and 1854—is on a well known hill about 11 miles west of Balasore, immediately at the southern foot of which lies the town of Nilgirí, which gives its name to the pergunnah or estate wherein the station is situated.

The pillar is solid and contains two marks, the upper 2·02 feet above the lower which is engraved on the rock *in sitû*.

XXV. Megásiní Hill Station, lat. 21° 38′, long. 86° 23′—observed at in 1854—is on a lofty range of mountains of that name, clad with gigantic primeval forest in which the "mango" and "jack" abound. The station is in the Moharbanj tributary estate, and is approached from the village of Porádiá, lying at the eastern foot of the hill and about 8 miles from the station.

The station is marked on the rock *in sitû* and a platform has been built around it. Patamondí Rock is S.E. by E. about 6·4 miles.

XXVI. Bolpál or Barpál Hill Station, lat. 21° 22′, long. 86° 30′—observed at in 1854—is in the Nilgirí estate, and is approached from the village of Júgjurí which lies about 1·5 miles east.

The station is marked on the rock *in sitû*.

XXVII. Baniájorí Hill Station, lat. 21° 26′, long. 86° 6′—observed at in 1854 and 1855—is situated in a wild and hilly tract in the Keonjhar tributary estate, about 1·5 miles S.W. of the little village of Baniájorí, which has been deserted on account of the ravages of wild elephants. The approach to the station from the plains is from Santoshpúr, a large village on the Baitaraní river, about 8 miles to the south.

The pillar is solid and contains two marks, the upper 1·67 feet above the lower which is engraved on the rock *in sitú*.

XXVIII. Bolá Hill Station, lat. 21° 16′, long. 86° 18′—observed at in 1854 and 1855—is situated in the Keonjhar tributary estate, on the range of hills which skirts the plains of Bhuddruck on the west. It is also a station of the Ganjam Topographical Survey. The approach to it is from the small village of Khatkata which lies about 2 miles S.W.

The station is marked on the rock *in sitú*.

XXIX. Daiterí or Kosárparbat Hill Station, lat. 21° 6′, long. 85° 51′—observed at in 1855—is on the Mahágirí range of hills in the lands of Simliá village of the tributary estate of Keonjhar. The approach to the station is from the villages of Panchampúr and Similiá; the latter, a small hamlet, lies immediately at the foot of the hill to the north.

The station is marked on the rock *in sitú* around which a platform 2 feet high has been built.

XXX. Bodásil Hill Station, lat. 20° 56′, long. 86° 4′—observed at in 1855—is on a low detached hill in the village of Súkindá, pergunnah Golágám, district Cuttack, and is approached from the villages of Baraguria and Chandiá on the west, the latter lying at the foot of the hill. The azimuth and distance of the Ganjam Topographical Survey station on the same hill, are 357° 52′, feet 34·4; this was not used because it was not marked on the rock *in sitú*.

The station is marked on the rock *in sitú* around which a platform 6 feet high has been built.

XXXI. Udaigirí Hill Station, lat. 20° 50′, long. 85° 37′—observed at in 1855—is situated on a hill about 4 miles west of the villages of Bhairpúr and Búrábillí, which lie on the left bank of the Bráhmaní river; it appertains to the village of Budhibilli of the Dhenkanál tributary estate. It is also a station of the Ganjam Topographical Survey. The approach to the station is from the villages of Búrábillí and Bhairpúr.

The station is marked on the rock *in sitú* around which a platform 5 feet high has been built.

XXXII. Kaplás Hill Station, lat. 20° 41′, long. 85° 49′—observed at in 1855—is situated on a well known hill, in the lands of the village of Deogáon of the tributary estate of Dhenkanál. Close to the summit of the hill are some Hindú temples which are the resort of hundreds of pilgrims at a certain time of the year. A point was selected as nearly as could be estimated on the site of a station of the Ganjam Topographical Survey, the mark-stone of which had been previously dug up and thrown away. The station is approached from the village of Deogáon which lies at the north-western foot of the hill about 2 miles from the station.

The station is marked on the rock *in sitú* around which a platform 5 feet high has been built.

XXXIII. Gumáriá, better known as Sáth Sájiá, Hill Station, lat. 20° 34′, long. 85° 36′—observed at in 1855 and 1856—is situated on a high hill and appertains to Baidiho Gun Bahamba village of the tributary estate of Dhenkanál.

The pillar is solid and contains two marks, the upper 2·17 feet above the lower which is engraved on the rock *in sitû*. The village of Ráidiá lies about 2 miles S., and the large village of Bhápúr, on the Sambalpúr high road, about 4 miles W.

XXXIV. Nimidá, known also as Nimoriá, Hill Station, lat. 20° 46′, long. 85° 24′—observed at in 1855 and 1856—is situated on a low rocky, detached hill about 2 miles from the southern bank of the Bráhmaní river. It is in the lands of Nimidá village of the Dhenkanál tributary estate. This point is also a secondary station of the Ganjam Topographical Survey.

The pillar is solid and has two marks, the lower engraved on the rock *in sitû*; the average height of the platform above the surface of the hill is 5 feet. The village of Nimidá lies at the south-western foot of the hill distant 1 mile from the station.

XXXV. Cuttack or Barabati Hill Station, lat. 20° 29′, long. 85° 54′—observed at in 1854 and 1855—is situated on a mound or bastion in the old ruined fort of Cuttack. This point is also a principal station of the Ganjam Topographical Survey.

The station is marked by a stone embedded in the surface of a paka platform.

XXXVI. Chánchuniá Hill Station, lat. 20° 30′, long. 85° 21′—observed at in 1856—is in the Baramba estate and stands on the crest of the high and extensive range of hills, forming the northern side of the valley of the Mahanuddy river and constituting the boundary between the Baramba and Hindol estates. The tract in which the station is situated appertains to the village of Chánchuniá, is covered with impenetrable jungle and is almost devoid of inhabitants, a few Khond hamlets, consisting of from two to three huts only, being scattered over it. One of these hamlets is about 6 miles S.W. of the station; its name as well as that of the hill on which the station is fixed is Chánchuniá: this hamlet is not visible from the station. The summit of the hill is accessible from the southern side only, the best route being by Barambagarh, the position of which place most closely defines that of the station, the village lying S.E. by S.

The pillar is solid and contains two marks, the upper 0·56 feet above the lower which is engraved on the rock *in sitû*. The average height of the platform above the irregular surface of the hill is 3 feet.

XXXVII. Barnai Hill Station, lat. 20° 10′, long. 85° 42′—observed at in 1856—is on the highest part of the well known hill of Barnai, a long, low, isolated hill lying in its general direction east and west. The station is in the lands of Mokandprasád village, thana Khoordah, district Pooree, and its situation is best defined by stating that the large town of Khoordah lies to the N.W. by W. at the foot of the hill and distant 2 miles. The ascent is from the north side and is very easy; at its commencement there is a small Hindú temple dedicated to Debí, and held in some repute by the devotees of the neighbourhood.

The pillar is solid and contains two marks, the upper 2·02 feet above the lower which is engraved on the rock *in sitû*. The platform is about 6 feet high owing to the rock on which the mark is fixed being of a high pointed form.

XXXVIII. Duduá Hill Station, lat. 20° 19′, long. 85° 28′—observed at in 1856—is on a well known hill of that name, one of a numerous group of small hills which rise out of the alluvial tract to the south of the Mahanuddy river, comprising the Bánki, Mánkágorah and Kúspallá districts or estates. The station is in lands of Kontkai village of the tributary estate of Bánki. There are many isolated hills near the station; that, well known as Mahá-

parbat, or the Bánki peak (a 1st class secondary station) is a higher hill than Duduá, and lies 5·3 miles E. by N. from it; another, lower than Duduá, named Páni-kúrerá (a 2nd class secondary station) is 2·2 miles S.E. by E.

The pillar is solid and contains two marks, the upper 1·95 feet above the lower which is on a stone embedded in the foundation. The bearings and estimated distances of the surrounding places are:—Barpút village N.E. by E., mile 1; Kárdápallí S.W. by S., miles 1·5; Jagganáthpúr W. by N., miles 2·5 and the small town of Bánki E.N.E., miles 8·5.

XXXIX. Chiklíkhái Hill Station, lat. 20° 15′, long. 85° 8′—observed at in 1856 and 1857—is on the highest part of a lofty hill, one of a group that forms the S.W. boundary of the Kandpárá tributary estate of the Cuttack Maháls where it adjoins the Naiágarh estate; the station is in the former. There are no large villages near the station, one of the nearest is Kandpárágarh, distant about 7 miles E. by N. The ascent which is 4 miles in length, commences near the small hamlet of Búdhijhárí, distant about 2·5 miles S.E.

The pillar is solid and contains two marks, the upper 1·52 feet above the lower which is engraved on the rock *in sitû*. The average height of the platform above the surface of the hill is a little over 3 feet.

XL. Dhanái Hill Station, lat. 19° 58′, long. 85° 22′—observed at in 1856—is situated on the well known hill of that name conspicuous for its height and conical form, lying about 10 miles from the western shore of the Chilká lake, of which, as well as of the ocean beyond, it commands a fine view. It is in the lands of Audhlá village of the Ranpúr estate and about 6 miles N.E. of Ranpúr Garh. The ascent which is rather difficult commences on the north side of the hill, at a point opposite the village of Andarwá, which is distant from the station 2·4 miles.

The pillar is solid and contains two marks, the upper 2·19 feet above the lower which is engraved on the rock *in sitû*.

XLI. Khundábolo Hill Station, lat. 19° 51′, long. 85° 1′—observed at in 1857—is on the summit of the highest part of the elevated and extensive hilly tract lying to the west of the Chilká lake and dividing Gumsúr from Bhánpúr. The hill on which the station is situated belongs partly to the former and partly to the latter; the part whereon the station is, appertains to the village of Koráchálí in the Gumsúr estate, district Ganjam. The country round is covered with heavy tree jungle and is very thinly populated; such small hamlets as exist are inhabited chiefly by Khonds. The nearest large village is Kalsúlí in the Gumsúr estate and it is distant about 10 miles to the north-west. The ascent which is long and easy, commences from the small village of Anpúrná, distant about 5 miles N.E., and passes by the deserted Khond hamlet of Rájan.

The pillar is solid and contains two marks, the distance between which is not forthcoming; the lower is engraved on the rock *in sitû*.

XLII. Patharkumúdá Hill Station, lat. 20° 2′, long. 84° 49′—observed at in 1857—is on the summit of the highest of a moderately elevated group of hills in the Gumsúr estate of the Ganjam district, which derives its name from the cluster of rocks at its top on one of which the station has been fixed. The ascent commences from near the village of Khondbantá which lies to the N.E. and is inhabited solely by Khonds. The whole locality is covered with dense jungle and is very wild and unfrequented.

The pillar is built of stones without cement of any kind and contains two marks, the upper 3·52 feet above the lower which is engraved on the rock *in sitû*. The estimated bearings and distances of the circumjacent

villages are:—Komisar S.E., miles 6; Mangarrájpúr S.E., miles 6 and Russellkondá S.W., miles 15.

XLIII. Chandíkho Hill Station, lat. 19° 43′, long. 85° 12′—observed at in 1857—is on the highest swell of a long but not high range, called the Bhálárí range, the general direction of which is N.W. and S.E., and nearer its eastern than its western extremity. This range is the boundary between the Bengal and Madras Presidencies. The site of the station is in the lands of Nimaimál village, pergunnah and thana Bhánpúr, district Pooree. The ascent commences from near the village of Nimaimál 1·5 miles N.E. by E. from the station. At the foot of the ascent is a spot dedicated to the worship of the goddess Chandí from whom also the site of the station derives its name.

The estimated bearings and distances of the circumjacent places are:—the small town of Bhánpúr N.E. by N., miles 6; the Barkúl Dák Bungalow, on the edge of the Chilká lake, S. by E., miles 3, and Inanpúr Temple E. N. E., miles 3.

XLIV. Maltí Hill Station, lat. 19° 45′, long. 84° 40′—observed at in 1857—is on the easternmost of two peaks of an isolated hill of moderate height in the Gumsúr estate of the Ganjam Agency. The western peak is of a conical form; that on which the station has been fixed is flat-topped. By the eastern foot of the hill runs the high road from Barhámpúr to Russellkondá.

The estimated bearings and distances of the surrounding places are:—Nimná village E., miles 2; Aská Sugar Factory S.S.E., miles 10; and Russellkondá N. by W., miles 12.

XLV. Tárá Tarní Hill Station, lat. 19° 29′, long. 84° 56′—observed at in 1857—is situated on the summit of a well known small isolated hill close to the southern bank of the river Rúshikúliá, and appertains to the village of Ráipúr in táluk Barhámpúr, district Ganjam. The station derives its name from its proximity to a temple, near the summit of the hill, dedicated to the sister divinities Tárá and Tarní. The station is as nearly as possible the same as that of "Ryapilly" of the Ganjam Topographical Survey, which was found marked by a pile of loose stones only.

The town of Púrsatampúr and the large village of Partápúr are near the station but on the opposite side of the river, the former about 3 miles N. W. and the latter 4 miles E. The small village of Ráipúr lies about 0·75 mile N. E.

XLVI. Girdábádí Hill Station, lat. 19° 30′, long. 84° 25′—observed at in 1858 and 1859—is on an elevated peak of an extensive chain of high hills stretching nearly N.E. by S.W., and appertains to the village of China Kimídi, zamíndárí China Kimídi, district Ganjam. The station is approached from the small village of Gobindpúr. About midway the path passes a hot spring called Tabtá Pání from which the hill is well known.

The pillar is solid and contains two marks, the upper 1·17 feet above the lower which is engraved on the rock *in sitú*. The azimuths and distances of the following places are:—Gobindpúr village 264° 30′, miles 2·5 and the large village of Porámárí, the residence of the chief of Sán Kimídi, 301°, miles 7.

XLVII. Ráegará Hill Station, lat. 19° 18′, long. 84° 42′—observed at in 1858 and 1859—is on the centre of three elevated peaks in a group of hills and about 2·5 miles S.E. of the well known village of Tarbarí, in thána Mohárí, táluk Bará Kimídi, district Ganjam. The other two peaks lie nearly N. and S. of the station and are distant about 0·75 of a mile. The station is on the boundary between Mohárí and Bará Kimídi.

The pillar is solid and contains three marks, the lowest of which is engraved on the rock *in sitû* and the other two are respectively 1·83 and 3·17 feet above it. The town and station of Barhámpúr lie about 6 miles E. and there are several Khond hamlets both on the eastern and western faces of these hills.

XLVIII. Dhobá Dhobaní Hill Station, lat. 19° 14′, long. 84° 23′—observed at in 1858 and 1859—is on a lofty peak of the same extensive range of mountains on which the station of Girdábádí is fixed. It is in the lands of China Kimídi village, district Ganjam. The hill is well known from a smaller peak, about half a mile N.E. from the station, called Lohákham, where a divinity of the same name is much worshipped by the hill tribe of Saurás.

The pillar is solid and contains two marks, the upper 1·02 feet above the lower which is engraved on the rock *in sitû*. The estimated bearings and distances of the circumjacent places are:—Digpondi, the residence of the chief of Bará Kimídi S. W., miles 10; Dhimrijharí village, from which the ascent to the station commences, at the foot of the hill, miles 8 (by the path), and the Khond hamlet of Batársingá S., mile 0·5.

XLIX. Bodágirí Hill Station, lat. 19° 2′, long. 84° 38′—observed at in 1858 and 1859—is on the summit of a low detached hill of that name in the lands of Tontpúr and Borángí villages, zamíndárí Chikáti, district Ganjam.

The pillar is solid and contains three marks, the lowest of which is engraved on the rock *in sitû* and the two others are respectively 2·75 and 4·38 feet above it. The estimated bearings and distances of the surrounding villages are:—Borángí N., miles 2; Tontpúr, where a weekly market is held, N. E., miles 1·5; Polrí N. W., miles 1·5, and Dolgobindpúr S., miles 2. The small town of Ichápúr lies N. E., miles 6.

L. Mahendragirí Hill Station, lat. 18° 58′, long. 84° 24′—observed at in 1858 and 1859—is on the summit of a lofty hill of that name in thána Palásí, zamíndárí Mandisá, district Ganjam. The hill is well known because of an old temple dedicated to Mahádeo which is about 200 feet N.E. of the station. The station, which corresponds nearly with that of the Ganjam Topographical Survey, which was only marked by a pile of stones, is at the junction of four estates, *viz.*, Bodásingá, Jalantrá, Mandisá and Parlá Kimídi. The ascent is by Sabákot village.

The pillar is solid and contains three marks, the lowest of which is engraved on the rock *in sitû* and the other two are respectively 2·73 and 4·04 feet above it. The small town of Mandisá lies about 7 miles S. E.

LI. Mal Hill Station, lat. 18° 47′, long. 84° 33′—observed at in 1858 and 1859—is in the lands of the village of Birimi on a low hill stretching about 1·5 miles, N.E. and S.W.; zamíndárí Mandisá, district Ganjam. The hill originally belonged to Ankápillí, but that village having been abandoned it was attached to Birimi.

The pillar is solid and contains two marks, the upper 1·50 feet above the lower which is engraved on the rock *in sitû*. The village of Birimi lies E. N. E., distant about 1 mile and the sea coast is about 1·5 miles E.

LII. Phúlsará Hill Station, lat. 18° 45′, long. 84° 17′—observed at in 1858 and 1859—is on the summit of a low range of hills stretching nearly E. and W. and about 1·5 miles east of the village of Phúlsará, thána Parlá Kimídi, district Ganjam. The high road from Barhámpúr to Parlá Kimídi passes along the northern base of the range.

The pillar is solid and contains two marks, the upper 1·83 feet above the lower which is engraved on the rock *in sitû*.

LIII. Deodongar Hill Station, lat. 18° 55′, long. 84° 6′—observed at in 1859—is on a

lofty and conspicuous hill appertaining to Ajaigarh or Ajaigada, a large and well known village of the Saurá or Savara tribe; thána Parlá Kimídi, district Ganjam. A path, 9 miles in length leads to the station from the village of Namanagram.

The pillar is solid and contains two marks, the upper 1·85 feet above the lower which is engraved on the rock *in sitû*. The estimated bearings and distances of the surrounding villages are:—Ajaigarh N. E. by E., miles 3·25, and Namanagram S. E., miles 3.

LIV. China Malapuram Hill Station, lat. 18° 40′, long. 84° 6′—observed at in 1859—is on the highest peak of a lofty range of hills about 1 mile N.N.W. of the village of that name in thána Parlá Kimídi, district Ganjam. The high road from Parlá Kimídi to Chikákol is about 1 mile W.

The pillar is solid and contains two marks, the upper 0·63 of a foot above the lower which is engraved on the rock *in sitû*. The azimuth of China Malapuram village is 332° 22′.

LV. Himágirí Hill Station, lat. 18° 49′, long. 83° 50′—observed at in 1859—is on the highest peak of a group of lofty hills, in táluk Párvatipúr, district Vizagapatam of the Madras Presidency. The road to the station is from the village of Kurmá, about 6 miles to the E. *viâ* Polárí and Gumrigorá.

The pillar is solid and contains two marks, the upper 1·25 feet above the lower, which is engraved on the rock *in sitû*. The azimuth and distance of the small Saurá village of Sigorá are 208° 8′, mile 1.

LVI. Nalakondá Hill Station, lat. 18° 35′, long. 83° 52′—observed at in 1859—is on a low peak of a great range of hills, about 4 miles E. from the small military outpost of Pálkondá, in thána and táluk Pálkondá, district Vizagapatam. The main road from Chikákol to Pálkondá passes about 1 mile W. of the hill, and the ascent to the summit is by the small Khond village of Kotwálsá at the western foot of the hill.

The pillar is solid and contains two marks, the upper 1·03 feet above the lower which is engraved on the rock *in sitû*. The azimuths and distances of the following places are:—Angarádá bungalow 55° 7′, miles 7·575, and Gopálpúr factory chimney 84° 47′, miles 5·455.

LVII. Yarákanchámá Hill Station, lat. 18° 44′, long. 83° 41′—observed at in 1859—derives its name from Yarákanchámá, a divinity much revered by the Saurá tribe, and is on a low hill about 3 miles N.E. from the large village of Viragotam, in thána and táluk Pálkondá, district Vizagapatam.

The pillar is solid and contains two marks, the upper 0·75 of a foot above the lower which is engraved on the rock *in sitû*.

LVIII. Sálíhundam Hill Station, lat. 18° 20′, long. 84° 4′—observed at in 1859—is on the summit of an isolated hill stretching nearly E. and W., about half a mile E. of the village of Kusálpárá in táluk Chikákol, district Ganjam. The small village from which the station takes its name is about 0·75 of a mile E. The hill may be easily approached from Chikákol and the port of Calingapatam, the roads from which places unite at Gárá, a large village about 1 mile S.E. from the station.

The pillar is solid and contains two marks, the upper 1·88 feet above the lower, which is engraved on the rock *in sitû*. The azimuths and distances of the following objects are:—Singpúr temple spire 108° 8′, miles 4·380; Mr. Vally's bungalow 256° 35′, miles 5·81°, and Calingapatam obelisk 280° 54′, miles 6·598.

LIX. Ráwal Hill Station, lat. 18° 32′, long. 83° 36′—observed at in 1859 and 1860—is on a low hill about 1 mile S.W. of the large village of Gángara, in thána Pálkondá, táluk Párvatipúr, district Vizagapatam.

The pillar is solid and contains two marks, the upper 1·75 feet above the lower which is engraved on the rock *in sitû*. The nearest villages are Sítádípuram at the northern base of the hill and Ráwálsá at the southern base.

LX. Pindí Hill Station, lat. 18° 20′, long. 83° 48′—observed at in 1859—is on the the summit of a detached hill about 1·5 miles nearly S.E. of the large and well known village of Pandwi in the Vizianagram estate, táluk Chipurupillí, district Vizagapatam. The nearest village is Argam.

The pillar is solid and contains two marks, the upper 2·29 feet above the lower which is engraved on the rock *in sitû*.

LXI. Maripillí Hill Station, lat. 18° 20′, long. 83° 23′—observed at in 1860—is on the summit of an isolated hill of peculiar shape, outlying the Vindhya range to the east, in thána and táluk Gajpatnagar, district Vizagapatam. The hill is very precipitous on its northern face but slopes gently to the south, and resembles, a long wedge lying on its side. The ascent commences from the village of Maripillí at the S. foot of the hill.

The pillar is solid and contains two marks, the upper 1·67 feet above the lower which is engraved on the rock *in sitû*. The city of Vizianagram is 16 miles S. S. E.

LXII. Kandíwálsá Hill Station, lat. 18° 8′, long. 83° 37′—observed at in 1859 and 1860—is on a bold prominent peak, the highest point of the most easterly group of a series of detached hills and groups of hills running from Vizianagram towards the sea in a direction generally easterly. It is in táluk Bimlipatam, district Vizagapatam. The ascent, which in parts is somewhat steep, commences from the village of Kandimettu lying at the S. foot of the hill.

The pillar is solid and contains two marks, the upper 1·08 feet above the lower which is engraved on the rock *in sitû*. The estimated bearings and distances of the circumjacent places are:—Kandíwálsá S.E., miles 1·5; Rámtírthang, a large village, N.W. by W., miles 2; Maliárá N., mile 1, and Rengá, a large village, S.W., miles 2.

LXIII. Bor Hill Station, lat. 18° 10′, long. 83° 20′—observed at in 1860 and 1863—is on the summit of a small hill composed of a single rock rising about 250 feet above the plain. A small ruined temple stands near the station and the spot is well known: it is in thána and táluk Vizianagram, district Vizagapatam.

The pillar is solid and contains two marks, the upper 2·17 feet above the lower which is engraved on the rock *in sitû*. The estimated bearings and distances of the circumjacent places are:—Guntiárá village S., miles 1·5; Lilauti E., miles 1·5; Goriálá N. by W., mile 1, and the city of Vizianagram E. by S., miles 8.

LXIV. Kumaráí Hill Station, lat. 18° 15′, long. 83° 7′—observed at in 1860—is fixed on one of the highest hills forming the eastern termination of the great Vindhya range. It is distant in a direct line about 7 miles E. from Dewodí Mundá, the highest point of the Gálí Parvatam or Gálí Kondá group, and is considered the loftiest peak of the entire range. The station is in the district of Vizagapatam, and the best route to it is from the large village of Kásípuram or Kásípatam, *viâ* Kútúr, a small hamlet at the foot of the ascent, by the Pioneer road to Raiáwálsá, a village about 2600 feet above the sea. Thence a foot path leads through an undulating and partially cultivated country to a small village on the northern face of the hill and about 1 mile from the station.

The pillar is solid and contains two marks, the upper 1·88 feet above the lower which is engraved on the rock *in sitû*.

LXV. Amnám Hill Station, lat. 17° 57′, long. 83° 31′—observed at in 1859—is close to the sea, on the highest point of an isolated group of hills, and appertains to the village of that name, in táluk Bimlipatam, district Vizagapatam. A secondary station, also named Amnám, is on the same hill 1 mile W. by S. of the principal station.

The pillar is solid. The village of Amnám is at the foot of the hill about 1·5 miles N. W. by W.; Bimlipatam lies about 6 miles S.W. by S. and Messrs. Arbuthnot's great Sugar Factory at Chitiwálsá is about 3 miles W. S. W.

LXVI. Márkí Hill Station, lat. 18° 3′, long. 83° 7′—observed at in 1860 and 1863—is on a long, straight and elevated hill or range of that name, nearly, if not quite, detached from the great main range on the south-western flank of which it is situated. The hill is 4 or 5 miles in length with a general direction E.N.E. and W.S.W. The station is not on the highest part, and is nearer the eastern than the western extremity of the hill. There is a secondary station of the same name on the hill, distinguished from the principal station by the absence of a platform. The principal station is in thána Lakavarapukotá, district Vizagapatam. The ascent is on the southern side of the hill and commences opposite the small hamlet of Pothbandpillí.

There is but one mark engraved on a projecting piece of rock *in sitû* forming the nucleus of the pillar. The azimuth and distance of Wailpada village are 38° 59′, miles 4·977. The station mark of 1860 is identical with that employed in 1863.

LXVII. Kistnápuram or Kistápuram Hill Station, lat. 18° 0′, long. 83° 22′—observed at in 1863—is on the top of an isolated, rocky and precipitous hill in the district of Vizagapatam, known by the name of Padmanábham, which rises to a height of about 1000 feet and is crowned by a temple, a conspicuous land mark for many miles round. The station is on the second terrace immediately W. of the temple, 25·5 feet distant from the S.W. corner and 28·75 feet from the N.W. corner of the temple, the western side of the temple at 1·5 feet above its basement terrace being 17 feet wide. The ascent commences from the village of Padmanábham at the S.E. foot of the hill from which flights of stone steps lead to the top.

The pillar is solid and contains two marks, the upper 3·25 feet above the lower which is engraved on the rock *in sitû*. The surrounding places are the village of Kistnápuram S. E. close by the hill; the city of Vizianagram N. E. by N. 10 miles, and the sea port of Bimlipatam S. E. 10 or 11 miles.

LXVIII. Vizagapatam base-line, North End, lat. 18° 1′, long. 83° 16′—observed at in 1863—is situated in the Srungarapúkotá táluk of the Vizagapatam district, about 0·75 of a mile S.E. of the village of Rámbhadrápuram-Agraharam, and nearly 2 miles N.W. from Alamandá Auxiliary Hill Station of the base-line verificatory minor triangulation.

The foundation of the station is a solid mass of rubble masonry 9 feet square, and 4 feet deep below the ground level, resting on a hard bed of gravel. In the foundation, but isolated from it by an annulus, there are 3 circular mark-stones, 38 inches in diameter by 6 inches thick, the lowermost resting about 2 feet from the bottom, and the two others in order vertically, at intervals of 3 inches apart. Above the ground level there is a platform of cut-stone masonry, 8 feet square and 1 foot high reaching to the edge of the annulus; there is also a fourth mark-stone resting over the others and separated from the nearest by a 6-inch layer of masonry. In the lowest mark-stone a dot surrounded by a circle has been engraved on the stone, on the others the mark is the usual dot on silver in a brass plug 1 inch square by 2 inches deep let into the stone. The three upper marks were carefully plumbed over the lowest one. A pyramidal stone cap about 20 inches square by 15 inches high hollowed out at the base, protects the upper-

most mark, and a cut-stone masonry dome rises to the height of about 12 feet over the station. The dome is without any opening so to prevent access to the marks. The uppermost mark is the one to which the measurement was referred.

LXIX. Gumrú Hill Station, lat. 17° 56′, long. 83° 17′—observed at in 1860 and 1863—is on the summit of the highest of one of the numerous groups of comparatively low hills lying between the great range and the sea. The hill is in táluk Vizianagram, district Vizagapatam, and is locally well known as Gumrúkondá. The ascent which is easy, commences from near the village of Sonkarapalam.

The pillar is solid and contains two marks, the upper 1·88 feet above the lower which is on a stone imbedded in the foundation. The small village of Sonkarapalam is about 1 mile W. The cantonment of Vizianagram is visible from the station. The upper mark of the station of 1860 is identical with that employed in 1863.

LXX. Vizagapatam base-line, South End, lat. 17° 56′, long. 83° 14′—observed at in 1863—is situated in the Ankápillí táluk of the Vizagapatam district, on the northern slope of the rocky ridge running E. and W. between Gumrúkondá and Nandímetta. The village of Bulgottam lies about 0·3 of a mile to the E.N.E., that of Kotwálsá being about 3 miles distant.

It was built in the first instance as a simple platform station, with 3 circular mark-stones each 38 inches in diameter and 6 inches thick, placed vertically over each other, the lowest stone resting on hard clay 2 feet below the surface of the ground, with a 4-inch layer of masonry between the bottom and middle stone and a 9-inch layer between the middle and top stone. Subsequently a wall of cut-stone masonry 1·5 feet thick and forming an enclosure of 5 feet 10 inches square was built round the mark-stones to the depth of 4 feet below the ground for the better protection of the marks and to serve as a foundation for the dome erected over the station. The mark as usual is represented by a dot on silver in a brass plug let into the stone. Each of the 3 stones has this mark, the two upper ones being carefully plumbed over the lowest. The uppermost mark is the one to which the measurement was referred; it is protected by a brass plate about 1 inch in diameter carrying a coarser mark for the signallers to plumb over. A pyramidal stone about 20 inches square by 15 inches high, hollowed out at the base, is placed as a cap over the mark, and a cut-stone masonry dome rises to the height of about 12 feet over the station. The dome is without any opening so to prevent access to the marks.

February 1876. W. H. COLE.

PRINCIPAL TRIANGULATION—ADDENDUM TO DESCRIPTION OF STATIONS.

EAST COAST SERIES.

NOTE.—Consequent on modern alterations of district and other boundaries, the sites occupied by the stations are now included in civil divisions of territory which differ sometimes from the district, pargana or village, recorded in the preceding descriptions of stations: a suitably modified statement of the sub-divisions in question is accordingly given in the following table, and is derived chiefly from the annual reports, up to 1879, made by the Civil Officials to whose care the stations have been committed.

The spelling of names is in accordance with that given in the lists of more important places published under the orders of Government whenever such names occur in the lists.

No.	Local name	District	Pargana, &c.	Village	Remarks
LXXXIV	Bargachhia	Howrah	P. Balia, Thá. Jagatballabpur	Bargachhia	
LXXXVII	Samali	24-Pergunnahs	P. Magura, Thá. Bistopur	Samali	
I	Mirzapur	Howrah	P. Mandalghát, Thá. Shámpur	Mirzapur	
II	Sarisha	24-Pergunnahs	P. Muragáchha, Thá. Diamond Harbour	Sarisha	
III	Natsal	Midnapore	P. Maishadal, Thá. Maslandapur	Natsal	
IV	Rámnagar	„	P. Doró, Thá. Sutaháta	Rámnagar	
V	Tetulbaria	„	P. Gumgar, Thá. Nandigrám	Tetulbaria	
VI	...	...	...	...	Washed away by the river Hooghly in 1876.

NOTE.—Stations LXXXIV and LXXXVII appertain to the Calcutta Longitudinal Series. P. stands for Pargana and Thá. for Thána.

No.	Local name	District	Pargana, &c.	Village	Remarks
VII	Dhajibhanga	Midnapore	P. Erinch, Thá. Nandigrám	Lakhibazar	
VIII	Daryapur	„	P. Balijora, Thá. Contai	Daryapur	
IX	Analbaria	„	P. Nurwamatha, Thá. Bhagwánpur	Analbaria	
X	Betgaria	„	P. Májnamutha, Thá. Contai	Betgaria	
XI	Kudi	Midnapore	P. Egrachor, Thá. Egra	Kudi	
XII	Juki	„	P. Mirgoda, Thá. Raghunáthpur	Juki	
XIII	Sautia	„	P. Buraichor, Thá. Dántan	Sautia	
XIV	Haran Kuli	Balasore	P. Sháhbandar, Thá. Báliapál	Haran Kuli	
XV	Patna	„	P. and Thá. Jellasore	Patna	
XVI	Bidyádhar	Midnapore	P. and Thá. Dántan	Near Bidyádhar Tank	
XVII	Sátpáti	„	P. Nayagrám, Thá. Gopiballabhpur	Sátpáti	
XVIII	Shaharah	Balasore	P. and Thá. Basta	Shaharah	
XIX	Kitkisol	Moharbanj	Zillah Asankhali	Kitkisol	
XX	Kanthi	„	Zillah Gurdeolia	Kanthi	
XXI	Jogi Nayagaon	„	Zillah Haripur	Jogi Nayagaon	

P. stands for Pargana and Thá. for Thána.

No.	Local name	District	Pargana, &c.	Village	Remarks
XXII	Chandipur	Balasore	P. Dáshmalan, Thá. Balasore	Chandipur	
XXIII	Kimbhiria	Moharbanj	Zillah Kunta Karkachia	...	
XXIV	Sunichot Hill	Nilgiri	Kh. Nilgiri	Nijgarh	
XXV	Meghásani	Moharbanj	Zillah Podadiha	Meghásani	
XXVI	Bona Hill	Nilgiri	Kh. Nilgiri	Gursahi	...
XXVII	Baniajori Hill	Keonjhar	Santoshpur Dandpat in Ánandpur	Baniajori	..
XXVIII	Bonla Hill	„	Ánandpur Dandpat	Kathkota	...
XXIX	Dethali Hill	„	Rebna in Hunda Dandpat	Simlia	...
XXX	Barsil	Cuttack	P. Golgan, Thá. Dharmshála, Kh. Sukinda	Sukinda	...
XXXI	Udayagiri	Dhenkánál	Bisi Panmal	Budhibili	...
XXXII	Kapilás Hill	„	Bisi Bamapara	Deogaon	..
XXXIII	Satsejia	„	Chondesh Govind Prasád Bisi	Baidiba Garh Baliamba	...
XXXIV	Nimdha	„	Bisi Upperdesh	Nimdha	...
XXXV	Barabati	Cuttack	Cuttack	Cuttack	...
XXXVI	Chanchunia	Baramba ...	Zillah Paschimdig	Chanchunia	
XXXVII	Barunái Hill	Pooree ...	Thá. and Kh. Khorda	Makundaprasád	
XXXVIII	Dudhia Mundia	Banki	Zillah Banki	Kontkai	
XXXIX	Rajgiri	Khondpara	Khondpara	Budhijhari	...

P. stands for Pargana, Thá. for Thána and Kh. for Kilah.

No.	Local name	District	Pargana, &c.	Village	Remarks
XL	Dhanai Hill	Ranpur	Zillah Gandiberh	Close to Andhla	
XLI	...	Ganjam	Táluk Gumsur	Korachelli	
XLII	...	„	„	Khonda Galleri	
XLIII	Nimaimal	Pooree	P. and Thá. Bánpur	Nimaimal	
XLIV	...	Ganjam	Táluk Gumsur	Malati	
XLV	...	„	„ Barhampur	Ráipur	
XLVI	...	„	Táluk Chunia Kemidi	Chunia Kemidi	
XLVII	...	„	Táluk Pedda Kemidi	Turubuddi	
XLVIII	...	„	Táluk Chunia Kemidi	Chunia Kemidi	
XLIX	...	„	Táluk Chikati	Tutipur and Boriga	
L	...	„	„ Mandasa	Palasi Tanna	
LI	...	„	„ „	Bidini	
LII	...	Ganjam	Táluk Parla Kemidi	Phulsara	
LIII	...	„	„ „	Ojaigada	
LIV	...	„	„ „	China Malapuram	
LV	Kimagiri	Vizagapatam	Táluk Parvatipur	...	
LVI	Nalakonda	„	Táluk Palkonda	...	
LVII	Yarakanchema	„	„ „	...	
LVIII	...	Ganjam	„ Chicacole	Puserlapadu hamlet	

P. stands for Pargana and Thá. for Thána.

No.	Local name	District	Pargana, &c.	Village	Remarks
LIX	Ramal	Vizagapatam	Táluk Parvatipur	Rawalsa	
LX	Pindi	„	Táluk Chipurupilli	...	
LXI	Maripilli	„	Táluk Gajapatinagar	Maripilli	
LXII	Kandivalsa	„	Táluk Bimlipatam	Kandivalsa	
LXIII	Bar	„	Táluk Vizianagrám	...	
LXIV	Kamarai	„	...	...	
LXV	Amanam	„	Táluk Bimlipatam	Amanam	
LXVI	Mariki	„	Táluk Srungavarapukota	...	
LXVII	Kistnapuram	„	Táluk Vizianagrám	Padmanabham	
LXVIII	...	„	Táluk Srungavarapukota	...	
LXIX	Gumara	„	Táluk Vizianagrám	...	
LXX	...	„	Táluk Anakapalli	...	

May 1880.

J. B. N. HENNESSEY,
In charge of Computing Office.

PRINCIPAL TRIANGULATION. TRIANGLES.

EAST COAST SERIES.

No. of triangle	Station	Spherical excess	Corrected plane angle	Distance		
				Log. feet	Feet	Miles
		"	° ′ ″			
	Baniban, LXXXIV	·34	64 23 20·76	4·8683082	73842·8	13·985
1	Samalia, LXXXVII	·34	56 2 10·91	4·8319819	67917·5	12·863
	Mirzápur, I	·34	59 34 28·33	4·8488746	70611·4	13·373
	Samalia, LXXXVII	·28	42 56 9·89	4·7231639	52864·5	10·012
2	Mirzápur, I	·28	64 58 55·43	4·8471130	70325·5	13·319
	Sarisá, II	·28	72 4 54·68	4·8683082	73842·8	13·985
	Mirzápur, I	·18	58 57 40·65	4·7044319	50632·8	9·590
3	Sarisá, II	·18	57 35 1·30	4·6979755	49885·6	9·448
	Natsal, III	·18	63 27 18·05	4·7231639	52864·5	10·012
	Sarisá, II	·20	58 39 34·34	4·7280329	53460·5	10·125
4	Natsal, III	·20	67 21 1·01	4·7616719	57765·9	10·941
	Rámnagar, IV	·19	53 59 24·65	4·7044319	50632·8	9·590
	Natsal, III	·23	82 25 20·45	4·8509459	70948·9	13·437
5	Rámnagar, IV	·23	49 15 10·27	4·7341938	54224·3	10·270
	Tetulbariá, V	·22	48 19 29·28	4·7280329	53460·5	10·125

NOTES.—1. The values of the sides are given in the same lines with the opposite angles.
2. Baniban, LXXXIV, and Samalia, LXXXVII, appertain to the Calcutta Longitudinal Series.

No. of triangle	Station	Spherical excess	Corrected plane angle			Distance		
						Log. feet	Feet	Miles
		"	°	'	"			
	Rámnagar, IV	·35	48	40	0·93	4·8094410	64482·4	12·213
6	Tetulbariá, V	·35	75	37	27·40	4·9200528	83186·5	15·755
	Gángrá, VI	·35	55	42	31·67	4·8509459	70948·9	13·437
	Tetulbariá, V	·26	60	32	35·21	4·7960676	62527·0	11·842
7	Gángrá, VI	·26	55	33	58·49	4·7725245	59227·7	11·217
	Dhojíbhangá, VII	·27	63	53	26·30	4·8094410	64482·4	12·213
	Gángrá, VI	·28	64	52	47·66	4·8275721	67231·4	12·733
8	Dhojíbhangá, VII	·28	57	45	40·59	4·7980066	62806·8	11·895
	Dariápur, VIII	·28	57	21	31·75	4·7960676	62527·0	11·842
	Dhojíbhangá, VII	·24	79	23	10·54	4·8694284	74033·5	14·022
9	Dariápur, VIII	·24	37	24	50·27	4·6605189	45763·5	8·667
	Analbariá, IX	·24	63	11	59·19	4·8275721	67231·4	12·733
	Dariápur, VIII	·30	48	12	10·86	4·7671872	58504·2	11·080
10	Analbariá, IX	·30	61	9	59·65	4·8372478	68746·4	13·020
	Kálsábhangá, X	·30	70	37	49·49	4·8694284	74033·5	14·022
	Analbariá, IX	·25	60	26	41·80	4·7865110	61166·1	11·584
11	Kálsábhangá, X	·26	63	14	51·67	4·7978830	62788·9	11·892
	Kúdí, XI	·25	56	18	26·53	4·7671872	58504·2	11·080
	Kálsábhangá, X	·21	50	20	50·97	4·7051378	50715·2	9·605
12	Kúdí, XI	·22	61	26	11·57	4·7623243	57852·8	10·957
	Júkí, XII	·22	68	12	57·46	4·7865110	61166·1	11·584
	Kúdí, XI	·23	75	4	27·00	4·8290614	67462·3	12·777
13	Júkí, XII	·23	58	20	28·10	4·7739930	59428·3	11·255
	Sautiá, XIII	·23	46	35	4·90	4·7051378	50715·2	9·605
	Júkí, XII	·29	54	17	6·28	4·7889929	61516·7	11·651
14	Sautiá, XIII	·29	62	47	26·34	4·8285421	67381·7	12·762
	Harnkulí, XIV	·29	62	55	27·38	4·8290614	67462·3	12·777
	Sautiá, XIII	·23	56	45	30·97	4·7472707	55881·8	10·584
15	Harnkulí, XIV	·22	56	12	44·09	4·7445280	55530·0	10·517
	Patná, XV	·23	67	1	44·94	4·7889929	61516·7	11·651
	Harnkulí, XIV	·26	66	1	50·37	4·8176754	65716·7	12·446
16	Patná, XV	·26	62	58	52·94	4·8066508	64069·4	12·134
	Sahárá, XVIII	·25	50	59	16·69	4·7472707	55881·8	10·584
	Patná, XV	·31	60	6	12·81	4·8324897	67997·0	12·878
17	Sahárá, XVIII	·32	62	58	55·87	4·8443188	69874·5	13·234
	Kitkisol, XIX	·31	56	54	51·32	4·8176754	65716·7	12·446
	Sautiá, XIII	·18	75	19	55·05	4·7804529	60318·8	11·424
18	Patná, XV	·17	41	43	6·98	4·6179729	41492·8	7·858
	Dántún, XVI	·18	62	56	57·97	4·7445280	55530·0	10·517

No. of triangle	Station	Spherical excess	Corrected plane angle			Distance		
						Log. feet	Feet	Miles
		"	°	′	"			
	Patná, XV	·29	63	9	46·66	4·8286694	67401·5	12·765
19	Dántún, XVI	·29	63	50	49·30	4·8312541	67803·8	12·842
	Sátpautiá, XVII	·28	52	59	24·04	4·7804529	60318·8	11·424
	Patná, XV	·34	65	0	14·07	4·8692263	73999·1	14·015
20	Sátpautiá, XVII	·34	58	51	1·29	4·8443188	69874·5	13·234
	Kitkisol, XIX	·34	56	8	44·64	4·8312541	67803·8	12·842
	Sahárá, XVIII	·28	57	20	5·31	4·7992561	62987·8	11·930
21	Kitkisol, XIX	·28	57	19	36·63	4·7992174	62982·1	11·928
	Kátí, XX	·29	65	20	18·06	4·8324897	67997·0	12·878
	Kitkisol, XIX	·28	65	54	27·88	4·8259411	66979·4	12·685
22	Kátí, XX	·27	54	56	42·87	4·7785965	60061·5	11·375
	Jogí Naiágaon, XXI	·27	59	8	49·25	4·7992561	62987·8	11·930
	Kátí, XX	·39	82	4	10·84	4·9669628	92675·1	17·552
23	Jogí Naiágaon, XXI	·39	52	13	11·06	4·8689645	73954·5	14·007
	Nilgirí, XXIV	·38	45	42	38·10	4·8259411	66979·4	12·685
	Jogí Naiágaon, XXI	·39	57	35	44·01	4·9002285	79474·6	15·052
24	Nilgirí, XXIV	·39	42	29	57·13	4·8034155	63593·9	12·044
	Kimhírá, XXIII	·40	79	54	18·86	4·9669628	92675·1	17·552
	Sahárá, XVIII	·28	51	29	11·69	4·7706902	58978·0	11·170
25	Kátí, XX	·28	71	50	11·82	4·8550287	71619·1	13·564
	Chandípur, XXII	·28	56	40	36·49	4·7992174	62982·1	11·928
	Kátí, XX	·35	85	48	34·83	4·9598072	91160·6	17·265
26	Chandípur, XXII	·34	54	0	24·24	4·8689645	73954·5	14·007
	Nilgirí, XXIV	·34	40	11	0·93	4·7706902	58978·0	11·170
	Kátí, XX	·31	34	2	55·11	4·8034155	63593·9	12·044
27	Jogí Naiágaon, XXI	·32	109	48	55·53	5·0288002	106856·3	20·238
	Kimhírá, XXIII	·32	36	8	9·36	4·8259411	66979·4	12·685
	Kimhírá, XXIII	·67	61	28	23·82	5·0396169	109551·1	20·748
28	Nilgirí, XXIV	·68	78	55	47·29	5·0876712	122368·9	23·176
	Bolpál, XXVI	·67	39	35	48·89	4·9002285	79474·6	15·052
	Kimhírá, XXIII	·79	54	34	50·75	5·0171496	104027·8	19·702
29	Bolpál, XXVI	·79	51	57	38·68	5·0023270	100537·3	19·041
	Megásiní, XXV	·79	73	27	30·57	5·0876712	122368·9	23·176
	Kimhírá, XXIII	·57	116	3	15·46	5·1850055	153110·7	28·998
30	Nilgirí, XXIV	·57	36	9	0·52	5·0023270	100537·3	19·041
	Megásiní, XXV	·56	27	47	44·02	4·9002285	79474·6	15·052
	Megásiní, XXV	·64	34	36	16·74	4·8958739	78681·7	14·902
31	Bolpál, XXVI	·65	96	43	51·34	5·1385903	137591·1	26·059
	Bolá, XXVIII	·64	48	39	51·92	5·0171496	104027·8	19·702

No. of triangle	Station	Spherical excess	Corrected plane angle	Distance		
				Log. feet	Feet	Miles
		"	° ′ ″			
	Megásiní, XXV	·86	40 50 41·78	4·9623233	91690·3	17·366
32	Bolá, XXVIII	·86	60 13 3·46	5·0852151	121678·8	23·045
	Baniájorí, XXVII	·87	78 56 14·76	5·1385903	137591·1	26·059
	Megásiní, XXV	·97	75 26 59·05	5·1424118	138807·1	26·289
33	Bolpál, XXVI	·97	58 2 51·69	5·0852151	121678 8	23·045
	Baniájorí, XXVII	·96	46 30 9·26	5·0171496	104027·8	19·702
	Baniájorí, XXVII	1·06	84 28 56·04	5·2177712	165109·2	31·271
34	Bolá, XXVIII	1·05	61 57 40·78	5·1655672	146408·8	27·729
	Daiterí, XXIX	1·05	33 33 23·18	4·9623233	91690·3	17·366
	Bolá, XXVIII	1·07	35 4 41·47	4·9787602	95227·0	18·035
35	Daiterí, XXIX	1·07	59 45 49·27	5·1558153	143157·9	27·113
	Bodásil, XXX	1·08	85 9 29·26	5·2177712	165109·2	31·271
	Baniájorí, XXVII	1·03	52 26 43·87	5·1558153	143157·9	27·113
36	Bolá, XXVIII	1·03	97 2 23·34	5·2533793	179217·1	33·943
	Bodásil, XXX	1·03	30 30 52·79	4·9623233	91690·3	17·366
	Daiterí, XXIX	·96	54 42 55·56	5·1066045	127821·7	24·209
37	Bodásil, XXX	·96	87 49 46·58	5·1944467	156475·6	29·636
	Kaplás, XXXII	·96	37 27 17·86	4·9787602	95227·0	18 035
	Kaplás, XXXII	·87	54 24 54·30	5·1049528	127336·5	24·117
38	Daiterí, XXIX	·87	33 31 41 58	4·9369391	86484·7	16·380
	Udaigirí, XXXI	·87	92 3 24·12	5·1944467	156475·6	29·636
	Daiterí, XXIX	·96	88 14 38·01	5·1949334	156651·1	29·669
39	Bodásil, XXX	·96	54 20 21·97	5·1049528	127336·5	24·117
	Udaigirí, XXXI	·95	37 25 0·02	4·9787602	95227·0	18·035
	Udaigirí, XXXI	·54	55 56 28·74	4·9328898	85682·0	16·228
40	Kaplás, XXXII	·54	67 18 54·33	4·9796481	95421·9	18·072
	Gumáriá, XXXIII	·54	56 44 36·93	4·9369391	86484·7	16·380
	Kaplás, XXXII	·52	87 6 1·79	5·0505828	112352·5	21·279
41	Gumáriá, XXXIII	·52	43 17 25·36	4·8872708	77138·4	14·610
	Cuttack, XXXV	·52	49 36 32·85	4·9328898	85682·0	16·228
	Gumáriá, XXXIII	1·18	60 55 54·33	5·1427170	138904·7	26·308
42	Cuttack, XXXV	1·19	74 4 47·04	5·1841994	152826·8	28·944
	Barnai, XXXVII	1·18	44 59 18·63	5·0505828	112352·5	21·279
	Gumáriá, XXXIII	·76	38 55 44·22	4·9901935	97767·3	18·517
43	Barnai, XXXVII	·76	40 15 9·23	5·0023264	100537·1	19·041
	Duduá, XXXVIII	·77	100 49 6·55	5·1841994	152826·8	28·944
	Barnai, XXXVII	·92	68 5 7·90	5·1112618	129199·8	24·470
44	Duduá, XXXVIII	·92	67 19 26·22	5·1088948	128497·5	24·337
	Dhanáí, XL	·92	44 35 25·88	4·9901935.	97767·3	18·517

No. of triangle	Station	Spherical excess	Corrected plane angle			Distance		
						Log. feet	Feet	Miles
		"	°	′	"			
45	Duduá, XXXVIII	1·05	63	15	44·23	5·1093341	128627·6	24·361
	Dhanái, XL	1·04	52	57	53·80	5·0605942	114972·6	21·775
	Chiklíkhái, XXXIX	1·05	63	46	21·97	5·1112618	129199·8	24·470
46	Udaigirí, XXXI	·57	68	29	0·00	4·9997253	99936·8	18·927
	Gumáriá, XXXIII	·56	48	51	30·66	4·9079425	80898·9	15·322
	Nimidá, XXXIV	·57	62	39	29·34	4·9796481	95421·9	18·072
47	Gumáriá, XXXIII	·63	64	17	49·11	5·0021773	100502·6	19·035
	Nimidá, XXXIV	·62	52	4	5·81	4·9443624	87975·6	16·662
	Chánchuniá, XXXVI	·63	63	38	5·08	4·9997253	99936·8	18·927
48	Gumáriá, XXXIII	·51	46	56	54·69	4·8806445	75970·4	14·388
	Chánchuniá, XXXVI	·51	75	14	56·52	5·0023264	100537·1	19·041
	Duduá, XXXVIII	·51	57	48	8·79	4·9443624	87975·6	16·662
49	Chánchuniá, XXXVI	·65	70	38	32·26	5·0605942	114972·6	21·775
	Duduá, XXXVIII	·65	70	47	30·31	5·0609905	115077·5	21·795
	Chiklíkhái, XXXIX	·65	38	38	57·43	4·8806445	75970·4	14·388
50	Chiklíkhái, XXXIX	1·26	55	58	18·71	5·1201178	131861·4	24·974
	Dhanái, XL	1·26	70	5	4·43	5·1749061	149591·2	28·332
	Khundábolo, XLI	1·26	53	56	36·86	5·1093341	128627·6	24·361
51	Dhanái, XL	·72	37	28	33·17	4·9069916	80722·0	15·288
	Khundábolo, XLI	·72	58	51	54·37	5·0552325	113561·9	21·508
	Chandíkho, XLIII	·72	83	39	32·46	5·1201178	131861·4	24·974
52	Khundábolo, XLI	·75	60	59	23·34	5·0754538	118974·5	22·533
	Chandíkho, XLIII	·76	82	36	53·12	5·1300595	134914·8	25·552
	Tárá Tarní, XLV	·75	36	23	43·54	4·9069916	80722·0	15·288
53	Khundábolo, XLI	1·20	61	57	12·40	5·1304557	135037·9	25·575
	Tárá Tarní, XLV	1·19	56	11	27·66	5·1042559	127132·3	24·078
	Maltí, XLIV	1·20	61	51	19·94	5·1300595	134914·8	25·552
54	Chiklíkhái, XXXIX	·99	39	3	37·30	4·9815100	95831·9	18·150
	Khundábolo, XLI	·99	61	19	14·59	5·1252318	133423·3	25·270
	Patharkumúdá, XLII	1·00	79	37	8·11	5·1749061	149591·2	28·332
55	Khundábolo, XLI	·86	62	55	32·66	5·0769990	119398·5	22·613
	Patharkumúdá, XLII	·86	71	27	29·60	5·1042559	127132·3	24·078
	Maltí, XLIV	·85	45	36	57·74	4·9815100	95831·9	18·150
56	Maltí, XLIV	1·17	41	37	45·04	5·0442280	110720·5	20·970
	Tárá Tarní, XLV	1·18	84	15	16·43	5·2196720	165833·4	31·408
	Ráegará, XLVII	1·17	54	6	58·53	5·1304557	135037·9	25·575
57	Maltí, XLIV	1·16	46	0	31·74	5·0776064	119565·7	22·645
	Ráegará, XLVII	1·16	47	45	4·56	5·0899763	123020·2	23·299
	Girdábádí, XLVI	1·16	86	14	23·70	5·2196720	165833·4	31·408

No. of triangle	Station	Spherical excess	Corrected plane angle			Distance		
						Log. feet	Feet	Miles
		"	°	′	"			
	Maltí, XLIV	1·31	87	38	17·80	5·2525755	178885·6	33·880
58	Tárá Tarní, XLV	1·31	43	24	8·87	5·0899763	123020·2	23·299
	Girdábádí, XLVI	1·31	48	57	33·33	5·1304557	135037·9	25·575
	Girdábádí, XLVI	·76	58	42	20·89	5·0293028	106980·0	20·261
59	Ráegará, XLVII	·75	48	32	25·19	4·9723113	93823·4	17·770
	Dhobá Dhobaní, XLVIII	·76	72	45	13·92	5·0776064	119565·7	22·645
	Ráegará, XLVII	·72	64	54	37·49	5·0351205	108422·8	20·535
60	Dhobá Dhobaní, XLVIII	·72	51	45	39·85	4·9732732	94031·5	17·809
	Bodágirí, XLIX	·72	63	19	42·66	5·0293028	106980·0	20·261
	Dhobá Dhobaní, XLVIII	·60	45	10	41·15	4·9040950	80185·4	15·187
61	Bodágirí, XLIX	·60	61	16	7·29	4·9962062	99130·3	18·775
	Mahendragirí, L	·61	73	33	11·56	5·0351205	108422·8	20·535
	Bodágirí, XLIX	·49	54	38	54·42	4·9126274	81776·3	15·488
62	Mahendragirí, L	·50	72	14	43·25	4·9799472	95487·7	18·085
	Mal, LI	·49	53	6	22·33	4·9040950	80185·4	15·187
	Mahendragirí, L	·54	65	52	44·19	4·9764677	94725·7	17·940
63	Mal, LI	·54	62	7	47·35	4·9626039	91749·5	17·377
	Phúlsará, LII	·54	51	59	28·46	4·9126274	81776·3	15·488
	Mahendragirí, L	·61	50	58	12·78	4·9410186	87300·9	16·534
64	Phúlsará, LII	·61	74	18	12 11	5·0341932	108191·5	20·491
	Deodongar, LIII	·61	54	43	35·11	4·9626039	91749·5	17·377
	Phúlsará, LII	·42	65	32	33·66	4·9305029	85212·4	16·139
65	Deodongar, LIII	·42	45	37	0·44	4·8254430	66902·6	12·671
	China Malapuram, LIV	·42	68	50	25·90	4·9410186	87300·9	16·534
	Deodongar, LIII	·65	72	49	35·33	5·0432702	110476·6	20·924
66	China Malapuram, LIV	·64	59	42	11·43	4·9993020	99839·4	18·909
	Himágirí, LV	·64	47	28	13·24	4·9305029	85212·4	16·139
	China Malapuram, LIV	·59	50	38	57·36	4·9412843	87354·3	16·544
67	Himágirí, LV	·60	51	24	6·00	4·9458984	88287·3	16·721
	Nalakondá, LVI	·60	77	56	56·64	5·0432702	110476·6	20·924
	Himágirí, LV	·38	64	37	57·29	4·9162225	82456·0	15·617
68	Nalakondá, LVI	·38	42	10	48·22	4·7872782	61274·3	11·605
	Yarákanchámá, LVII	·39	73	11	14·49	4·9412843	87354·3	16·544
	Nalakondá, LVI	·47	49	45	12·93	4·8811221	76054·0	14·404
69	Yarákanchámá, LVII	·48	74	24	4·52	4·9821445	95972·0	18·177
	Ráwal, LIX	·48	55	50	42·55	4·9162225	82456·0	15·617
	Nalakondá, LVI	·67	64	8	46·53	5·0115896	102704·5	19·452
70	Ráwal, LIX	·66	58	36	59·29	4·9886960	97430·7	18·453
	Pindí, LX	·66	57	14	14·18	4·9821445	95972·0	18·177

No. of triangle	Station	Spherical excess	Corrected plane angle			Distance		
						Log. feet	Feet	Miles
		"	°	'	"			
	China Malapuram, LIV	·78	63	43	51·54	5·0650671	116162·8	22·001
71	Nalakondá, LVI	·78	73	18	17·82	5·0937037	124080·5	23·500
	Sálíhundam, LVIII	·77	42	57	50·64	4·9458984	88287·3	16·721
	Nalakondá, LVI	·71	52	39	54·25	4·9832733	96221·8	18·224
72	Sálíhundam, LVIII	·71	53	37	9·59	4·9886960	97430·7	18·453
	Pindí, LX	·71	73	42	56·16	5·0650671	116162·8	22·001
	Ráwl, LIX	·83	85	58	28·74	5·1458589	139913·3	26·499
73	Pindí, LX	·83	46	57	0·73	5·0107068	102496·0	19·412
	Maripillí, LXI	·83	47	4	30·53	5·0115896	102704·5	19·452
	Pindí, LX	·77	49	56	54·28	5·0298296	107109·9	20·286
74	Maripillí, LXI	·77	40	52	41·22	4·9617819	91576·1	17·344
	Kandíwálsá, LXII	·78	89	10	24·50	5·1458589	139913·3	26·499
	Ráwal, LIX	·73	38	38	39·47	4·9617819	91576·1	17·344
75	Pindí, LX	·74	96	53	55·87	5·1631050	145581·1	27·572
	Kandíwálsá, LXII	·74	44	27	24·66	5·0115896	102704·5	19·452
	Maripillí, LXI	·49	65	49	49·27	4·9989992	99769·8	18·896
76	Kandíwálsá, LXII	·49	35	48	10·92	4·8060002	63973·5	12·116
	Bor, LXIII	·50	78	21	59·81	5·0298296	107109·9	20·286
	Maripillí, LXI	·42	54	46	13·17	4·9220751	83574·8	15·829
77	Bor, LXIII	·42	86	31	40·44	5·0091369	102126·1	19·342
	Kumarái, LXIV	·42	38	42	6·39	4·8060002	63973·5	12·116
	Bor, LXIII	·43	48	18	51·13	4·8474037	70372·6	13·328
78	Kumarái, LXIV	·44	69	11	55·81	4·9449249	88089·7	16·684
	Márkí, LXVI	·43	62	29	13·06	4·9220751	83574·8	15·829
	Bor, LXIII	·25	38	33	33·50	4·7486871	56064·4	10·618
79	Márkí, LXVI	·25	39	47	8·24	4·7600966	57556·8	10·901
	North End,* LXVIII	·25	101	39	18·26	4·9449249	88089·7	16·684
	Márkí, LXVI	·15	33	48	24·00	4·5413095	34738·4	6·587
80	North End,* LXVIII	·16	82	26	9·14	4·7921327	61963·0	11·735
	South End,* LXX	·15	63	45	26·86	4·7486871	56064·4	10·618
	Bor, LXIII	·44	48	8	17·31	4·8496341	70735·0	13·397
81	Márkí, LXVI	·44	63	48	59·21	4·9305990	85231·3	16·142
	Gumrú, LXIX	·44	68	2	43·48	4·9449249	88089·7	16·684
	Kandíwálsá, LXII	·57	69	17	6·22	5·0088214	102052·0	19·328
82	Bor, LXIII	·56	44	35	21·61	4·8841962	76594·3	14·506
	Amnám, LXV	·56	66	7	32·17	4·9989992	99769·8	18·896
	Bor, LXIII	·56	54	3	46·79	4·9366406	86425·2	16·368
83	Amnám, LXV	·55	52	59	5·83	4·9305990	85231·3	16·142
	Gumrú, LXIX	·56	72	57	7·38	5·0088214	102052·0	19·328

* Of Vizagapatam base-line.

No. of triangle	Station	Spherical excess	Corrected plane angle	Distance		
				Log. feet	Feet	Miles
		"	° ′ ″			
84	Kandíwálsá, LXII	·47	36 25 43·88	4·7991692	62975·1	11·927
	Bor, LXIII	·48	73 23 17·74	5·0069965	101624·0	19·247
	Kistnápuram, LXVII	·48	70 10 58·38	4·9989992	99769·8	18·896
85	Bor, LXIII	·16	34 50 35·14	4·5617648	36455·7	6·904
	Kistnápuram, LXVII	·16	64 25 32·94	4·7600966	57556·8	10·901
	North End,* LXVIII	·17	80 43 51·92	4·7991692	62975·1	11·927
86	Kistnápuram, LXVII	·08	46 45 59·16	4·4777648	30044·5	5·690
	North End,* LXVIII	·09	71 6 1·74	4·5912266	39014·6	7·389
	Gumrú, LXIX	·08	62 7 59·10	4·5617648	36455·7	6·904
87	North End,* LXVIII	·03	24 4 38·24	4·1550606	14290·9	2·707
	Gumrú, LXIX	·04	96 51 51·76	4·5413095	34778·4	6·587
	South End,* LXX	·03	59 3 30·00	4·4777648	30044·5	5·690
88	Márkí, LXVI	·12	24 1 51·04	4·4777648	30044·5	5·690
	North End,* LXVIII	·13	106 30 47·44	4·8496341	70735·0	13·397
	Gumrú, LXIX	·13	49 27 21·52	4·7486871	56064·4	10·618

* Of Vizagapatam base-line.

September, 1876.

J. HERSCHEL.

EAST COAST SERIES.

SAMBALPUR SECONDARY SERIES.*

Names of Stations followed by Roman Numerals are those of the Principal Stations of the East Coast Series.

The values of the side are given in the same line with the opposite angle.

No. of triangle	Station		Spherical excess	Corrected plane angle	Distance			No. of triangle	Station		Spherical excess	Corrected plane angle	Distance		
					Log. feet	Feet	Miles						Log. feet	Feet	Miles
			"	° ′ ″							"	° ′ ″			
	Baniájorí, XXVII		1·0	58 3 54·6	5·1007220	126102	23·883		Dalmundá	H.S.	1·0	30 38 25·1	4·9222296	83604	15·834
89	Daiterí, XXIX		0·9	41 46 0·7	4·9955334	98977	18·746	94	Kanaijoná	,,	1·0	74 57 19·0	5·1998132	158421	30·004
	Kohilí Hurí	H.S.	1·0	80 10 4·7	5·1655672	146409	27·729		Machkhání	,,	1·0	74 24 15·9	5·1986692	158004	29·925
	Daiterí, XXIX		0·8	51 56 32·3	5·0209284	104937	19·874		Kanaijoná	H.S.	0·8	76 9 4·1	5·1193137	131618	24·928
90	Kohilí Hurí	H.S.	0·9	56 56 13·6	5·0480197	111691	21·154	95	Machkhání	,,	0·8	65 46 12·7	5·0920759	123616	23·412
	Dalmundá	,,	0·9	71 7 14·1	5·1007220	126102	23·883		Baisnalí	,,	0·8	38 4 43·2	4·9222296	83604	15·834
	Daiterí, XXIX		0·7	46 38 6·4	4·9587824	90946	17·225		Kanaijoná	H.S.	0·7	39 28 57·1	5·0615345	115222	21·822
91	Dalmundá	H.S.	0·8	70 8 1·5	5·0706041	117653	22·283	96	Machkhání	,,	0·7	113 2 32·0	5·2220747	166753	31·582
	Bari Phuljhári	,,	0·8	63 13 52·1	5·0480197	111691	21·154		Seojharn	,,	0·7	27 28 30·9	4·9222296	83604	15·834
	Dalmundá	H.S.	0·8	45 58 46·6	5·0613524	115173	21·813		Machkhání	H.S.	0·8	47 16 18·4	5·0004207	100097	18·958
92	Bari Phuljhári	,,	0·8	99 25 18·0	5·1986692	158004	29·925	97	Baisnalí	,,	0·9	57 44 1·7	5·0615345	115222	21·822
	Kanaijoná	,,	0·8	34 35 55·4	4·9587824	90946	17·225		Seojharn	,,	0·9	74 59 39·9	5·1193137	131618	24·928
	Dalmundá	H.S.	1·1	76 37 12·4	5·2132582	163402	30·947		Baisnalí	H.S.	0·7	68 39 49·4	5·0358244	108599	20·568
93	Bari Phuljhári	,,	1·1	70 35 46·4	5·1998132	158421	30·004	98	Seojharn	,,	0·6	52 10 59·3	4·9642728	92103	17·444
	Machkhání	,,	1·1	32 47 1·2	4·9587824	90946	17·225		Kampalí	,,	0·7	59 9 11·3	5·0004207	100097	18·958

* Executed with a 14-inch theodolite, by Mr. R. Clarkson, to luminous signals.

No. of triangle	Station		Spherical excess	Corrected plane angle	Distance		
					Log. feet	Feet	Miles
			"	° ′ ″			
	Seojharn	H.S.	0·8	67 39 12·9	5·0499186	112181	21·246
99	Kampalí	,,	0·7	48 47 26·5	4·9602186	91247	17·282
	Pariá	,,	0·7	63 33 20·6	5·0358244	108599	20·568
	Kampalí	H.S.	0·8	51 48 48·9	5·0108905	102539	19·420
100	Pariá	,,	0·9	68 52 48·2	5·0852678	121694	23·048
	Tanjharn	,,	0·8	59 18 22·9	5·0499186	112181	21·246
	Pariá	H.S.	0·6	65 10 34·1	4·9949611	98846	18·721
101	Tanjharn	,,	0·5	44 31 1·4	4·8828586	76359	14·462
	Ádápal	,,	0·6	70 18 24·5	5·0108905	102539	19·420
	Kampalí	H.S.	0·9	58 41 26·5	5·0543653	113335	21·465
102	Tanjharn	,,	0·9	54 45 46·2	5·0348172	108347	20·520
	Raun	,,	0·9	66 32 47·3	5·0852678	121694	23·048
	Tanjharn	H.S.	0·8	48 8 34·3	5·0074585	101732	19·267
103	Raun	,,	0·9	75 46 58·7	5·1219031	132405	25·077
	Chandlí	,,	0·9	56 4 27·0	5·0543653	113335	21·465
	Tanjharn	H.S.	0·6	79 31 55·4	5·0375805	109039	20·651
104	Ádápal	,,	0·5	37 24 47·9	4·8284588	67369	12·759
	Murosil	,,	0·5	63 3 16·7	4·9949611	98846	18·721
	Tanjharn	H.S.	0·7	73 44 15·5	5·1161641	130666	24·747
105	Chandlí	,,	0·6	29 39 59·2	4·8284588	67369	12·759
	Murosil	,,	0·7	76 35 45·3	5·1219031	132405	25·077
	Ádápal	H.S.	0·5	54 11 36·2	4·9517644	89488	16·948
106	Murosil	,,	0·5	44 37 32·0	4·8893736	77513	14·680
	Jharghátí	,,	0·6	81 10 51·8	5·0375805	109039	20·651
	Murosil	H.S.	0·4	72 29 19·0	4·9607333	91355	17·302
107	Jharghátí	,,	0·4	38 25 4·0	4·7747059	59526	11·274
	Lohár	,,	0·4	69 5 37·0	4·9517644	89488	16·948

SAMBALPUR SECONDARY SERIES INTERSECTED POINTS.

Differences between the common sides of two triangles to intersected points, are shown by the small figures in the column for "Distance in Feet" between the data of the two triangles, the earlier of which in order has supplied the greater value: where the difference is small it has usually been apportioned between the triangles, but where it is large no adjustment has been made, as one or other of the two values must be erroneous.

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
	Baniájorí, XXVII		23 12 40	4·645254	44183	8·368	14
108	Kohilí Hurí	H.S.	38 46 56	4·846451	70218	13·299	,,
	Mauldiá Hill Mark			4·995533	98977	18·746	
	Dalmundá	H.S.	89 13 45	5·026246	106230	20·119	,,
109	Bari Phuljhári	,,	31 53 43	4·749222	56133	10·631	,,
	Gumhur Hill Mark			4·958782	90946	17·225	
	Kohilí Hurí	H.S.	32 9 7	4·749222	56133	10·631	,,
110	Dalmundá	,,	52 1 32	4·919858	83149	15·748	,,
	Gumhur Hill Mark			5·020928	104937	19·874	
	Bari Phuljhári	H.S.	53 33 3	5·006817	101582	19·239	14
111	Kanaijoná	,,	60 39 53	5·041754	110092	20·851	,,
	Sikásar Conical Peak			5·061352	115173	21·813	
	Kanaijoná	H.S.	48 53 23	4·894103	78361	14·841	,,
112	Machkhání	,,	77 36 37	5·006817	101582	19·239	,,
	Sikásar Conical Peak			4·922230	83604	15·834	
	Bari Phuljhári	H.S.	39 15 33	4·868006	73791	13·976	,,
113	Kanaijoná	,,	41 45 7	4·890133	77648	14·706	,,
	Injorí Hill Mark			5·061352	115173	21·813	

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used	No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles						Log. feet	Feet	Miles	
			° ′ ″		°		Inch				° ′ ″		°		Inch
114	Dalmundá	H.S.	52 9 53	4·890133	77648	14·706	14	119	Murosil	H.S.	35 21 37	4·755606	56965	10·789	14
	Bari Phuljhári	,,	60 9 46	4·930869	85284	16·152	,,		Jharghátí	,,	30 1 28	4·692432	49253	9·328	,,
	Injorí Hill Mark			4·958782	90946	17·225			Sambulpur Hill Temple			4·951764	89488	16·948	
115	Jharghátí	H.S.	49 33 30	4·857102	71962	13·629	,,	120	Murosil	H.S.	28 34 54	4·460535	28876	5·469	,,
	Lohár	,,	55 23 14	4·891084	77819	14·738	,,		Lohár	,,	51 53 38	4·676637	47494	8·995	,,
	Mundher Hill Mark			4·960733	91355	17·302			Sambalpur Temple No. 1			4·774706	59526	11·274	
116	Murosil	H.S.	121 20 51	4·857102	71962	13·629	,,	121	Murosil	H.S.	28 21 38	4·457299	28662	5·428	,,
	Lohár	,,	13 42 23	4·300280	19965	3·781	,,		Lohár	,,	52 13 48	4·678478	47696	9·033	,,
	Mundher Hill Mark			4·774706	59526	11·274			Sambalpur Temple No. 2			4·774706	59526	11·274	
117	Jharghátí	H.S.	27 17 20	4·807073	64132	12·146	,,	122	Murosil	H.S.	29 28 51	4·501395	31725	6·008	,,
	Lohár	,,	13 29 12	4·513519	32623	6·179	,,		Lohár	,,	37 56 54	4·598154	39642	7·508	,,
	Dongrí Hill Mark			4·960733	91355	17·302			Sambalpur Kachahrí			4·774706	59526	11·274	
118	Murosil	H.S.	37 7 42	4·555997	35975	6·813	,,								
	Lohár	,,	55 43 47	4·692432	49253	9·328	,,								
	Sambalpur Hill Temple			4·774706	59526	11·274									

EAST COAST SERIES.

SECONDARY TRIANGULATION. TRIANGLES.

PRINCIPAL-AUXILIARY STATIONS AND INTERSECTED POINTS.

Differences between the common sides of two triangles to stations and intersected points, are shown by the small figures in the column for "Distance in Feet" between the data of the two triangles, the earlier of which in order has supplied the greater value: where the difference is small it has usually been apportioned between the triangles, but where it is large no adjustment has been made, as one or other of the two values must be erroneous.

No. of triangle	Station	Corrected plane angle	Distance			Theodolite used
			Log. feet	Feet	Miles	
		° ′ ″				Inch
	Mirzápúr, I	36 56 23	4·509638	32332	6·124	24
123	Sarisá, II	42 21 36	4·559304	36250	6·865	„
	Nílá s.		4·723164	52864	10·012	
	Mirzápúr, I	44 50 51	4·572562	37373	7·078	„
124	Sarisá, II	49 10 34	4·603172	40103	7·595	„
	Núrpur Tide Gauge		4·723164	52864	10·012	
	Sarisá, II	14 0 28	4·269285	18590	3·521	„
125	Rámnagar, IV	34 46 6	4·641446	43797	8·295	„
	Guábáriá Temple		4 761672	57766	10·941	
	Sarisá, II	44 39 7	4·561396	36425	6·899	„
126	Natsal, III	57 40 37	4·641446	43797	8·295	14
	Guábáriá Temple		4·704432	50633	9·590	
	Sarisá, II	60 4 44	4·741863	55190	10·453	24
127	Rámnagar, IV	5 2 13	3·747473	5591	1·059	„
	Kamálpur Temple		4·761672	57766	10·941	

No. of triangle	Station	Corrected plane angle	Distance			Theodolite used
			Log. feet	Feet	Miles	
		° ′ ″				Inch
	Tetulbariá, V	64 6 19	4·793950	62223	11·785	24
128	Gángrá, VI	47 6 14	4·704762	50671	9·597	„
	Deobhog Temple		4·809441	64482	12·213	
	Rangáfalá s.	16 35 24	4·185135	15316	2·901	12
129	Mahápurvu Chak „	57 28 38	4·655416	45229	8·566	„
	Deobhog Temple		4·712484	51580	9·769	
	Rámnagar, IV	54 6 29	4·790517	61733	11·692	24
130	Tetulbariá, V	14 29 37	4·280378	19071	3·612	„
	Phulbáriá Semaphore		4·850946	70949	13·437	
	Tetulbariá, V	61 7 51	4·807717	64227	12·164	„
131	Gángrá, VI	57 19 20	4·790517	61733	11·692	„
	Phulbáriá Semaphore		4·809441	64482	12·213	
	Tetulbariá, V	32 1 57	4·545206	35092	6·646	„
132	Gángrá, VI	45 2 0	4·670340	46810	8·866	„
	Sandiá Semaphore		4·809441	64482	12·213	

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
	Rámnagar, IV		41 3 51	4·670340	46810	8·866	24
133	Tetulbariá, V		43 35 31	4·691383	49134	9·306	„
	Sandiá Semaphore			4·850946	70949	13·437	
	Rámnagar, IV		37 47 36	4·738561	54772	10·374	14
134	Gángrá, VI		30 45 17	4·659962	45705	8·656	24
	Silver Tree Obelisk			4·920053	83186	15·755	
	Rámnagar, IV		37 48 14	4·455520	28544	5·406	14
135	Silver Tree Obelisk			4·486311	30642	5·803	
	Biguábárí	s.	101 2 56	4·659962	45705	8·656	24
	Gángrá, VI		30 45 39	4·455520	28544	5·406	„
136	Silver Tree Obelisk			4·720531	52545	9·952	
	Biguábárí	s.	78 56 4	4·738561	54772	10·374	„
	Tetulbariá, V		7 33 7	4·543162	34927	6·615	„
137	Gángrá, VI		6 29 25	4·477696	30040	5·689	„
	Nandígaon Temple			4·809441	64482	12·213	
	Gángrá	s.	145 32 44	4·809294	64461	12·208	12
138	Kaukhálí	„	16 30 1	4·510018	32361	6·129	„
	Nandígaon Temple			4·545581	35122	6·652	
	Gángrá, VI		53 3 51	4·902240	79844	15·122	*
139	Dariápúr, VIII		87 58 39	4·999255	99828	18·907	*
	Ságar Light-house			4·798007	62807	11·895	
	Dhojíbhangá, VII		38 30 14	4·511824	32496	6·154	24
140	Analbariá, IX		22 45 1	4·305029	20185	3·823	„
	Júkiá Temple			4·660519	45763	8·667	
	Dhojíbhangá, VII		22 18 2	4·466218	29256	5·541	„
141	Analbariá, IX		14 6 37	4·274060	18796	3·560	„
	Kharodá Temple			4·660519	45763	8·667	
	Dhojíbhangá, VII		13 54 38	4·042004	11016	2·086	„
142	Analbariá, IX		73 14 13	4·642199	43873	8·309	„
	Arjunnagar Temple			4·660519	45763	8·667	
	Sahárá, XVIII		4 15 1	3·715247	5191	0·983	„
143	Kitkisol, XIX		71 52 28	4·823247	66565	12·607	„
	Banchá	t.s.		4·832490	67997	12·878	
	Kitkisol, XIX		0 12 6	4·169643	14779	2·799	„
144	Banchá	t.s.	179 43 39	4·300375	19970	3·782	*
	Gobindapur Temple			3·715247	5191	0·983	
	Chandípúr, XXII		104 24 13	4·978300	95126	18·016	24
145	Nilgirí, XXIV		7 26 31	4·104512	12721	2·409	„
	Balarámgarhí Tide Point	s.	68 9 16	4·959807	91161	17·265	„

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
	Chandípúr, XXII		3 26 28	2·883292	764	0·145	24
146	Balarámgarhí Tide Point	s.	89 12 29	4·104935	12733	2·412	„
	Balarámgarhí House	„		4·104512	12721	2·409	
	Chandípúr, XXII		15 31 14	3·567793	3697	0·700	„
147	Balarámgarhí Tide Point	s.	51 31 38	4·034041	10815	2·048	„
	Balarámgarhí Coast Flagstaff			4·104512	12721	2·409	
	Chandípúr, XXII		12 4 46	3·495086	3127	0·592	„
148	Balarámgarhí House	s.	46 22 28	4·034041	10815	2·048	14
	Balarámgarhí Coast Flagstaff			4·104935	12733	2·412	
	Kimhírá, XXIII		26 17 46	4·553752	35789	6·778	24
149	Nilgirí, XXIV		53 21 54	4·811757	64827	12·278	„
	Beguniá	h.s.	100 20 20	4·900228	79475	15·052	„
	Kátí, XX		24 38 22	4·553752	35789	6·778	„
150	Nilgirí, XXIV		34 50 42	4·690622	49048	9·289	„
	Beguniá	h.s.	120 30 56	4·868964	73954	14·007	„
	Chandípúr, XXII		17 16 28	4·795100	62388	11·816	„
151	Nilgirí, XXIV		8 26 27	4·489109	30840	5·841	„
	Balasore Juma Masjid			4·959807	91161	17·265	
	Chandípúr, XXII		90 34 13	4·524809	33482	6·341	„
152	Balarámgarhí House	s.	67 4 43	4·489109	30840	5·841	14
	Balasore Juma Masjid			4·104935	12733	2·412	
	Nilgirí, XXIV		62 2 53	4·741259	55114	10·438	24
153	Beguniá	h.s.	82 56 57	4·791834	61920	11·727	„
	Balasore Temple			4·553752	35789	6·778	
	Kimhírá, XXIII		27 48 25	4·791834	61920	11·727	„
154	Nilgirí, XXIV		115 24 47	5·078789	119892	22·707	„
	Balasore Temple			4·900228	79475	15·052	
	Nilgirí, XXIV		57 38 23	4·674122	47220	8·943	„
155	Beguniá	h.s.	82 33 6	4·743739	55429	10·498	„
	Balasore Chapel			4·553752	35789	6·778	
	Kimhírá, XXIII		26 16 27	4·458690	28753	5·446	„
156	Beguniá	h.s.	60 7 49	4·750713	56326	10·668	„
	Mantrí High Temple			4·811757	64827	12·278	
	Kimhírá, XXIII		52 34 13	4·803584	63619	12·049	„
157	Nilgirí, XXIV		44 40 28	4·750713	56326	10·668	„
	Mantrí High Temple			4·900228	79475	15·052	
	Kimhírá, XXIII		2 40 50	3·668794	4664	0·883	18
158	Nilgirí, XXIV		50 9 0	4·884056	76570	14·502	„
	Dobsilá	h.s.	127 10 10	4·900229	79475	15·052	„

* Not known.

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
	Kimhírá, XXIII		64 9 14	5·051345	112550 3	21·316	18
159	Bolpál, XXVI		37 45 12	4·884056	76570	14·502	„
	Dobsilá	h.s.	78 5 34	5·087671	122369	23·176	„
	Jogí Naiágáon, XXI		53 36 12	4·713422	51692	9·790	24
160	Kimhírá, XXIII		28 23 42	4·484858	30539	5·784	„
	Mádhabpur Village Temple			4·803415	63594	12·044	
	Kimhírá, XXIII		14 25 34	4·395035	24833	4·703	„
161	Nilgirí, XXIV		112 42 3	4·963588	91958	17·416	„
	Katiliá Hill Mark			4·900228	79475 1	15·052	
	Kimhírá, XXIII		40 43 20	4·779521	60190	11·400	„
162	Beguniá	h.s.	94 38 13	4·963588	91958	17·416	„
	Katiliá Hill Mark			4·811757	64827	12·278	
	Kimhírá, XXIII		5 21 27	4·091144	12335	2·336	18
163	Bolpál, XXVI		62 30 7	5·068874	117186	22·194	„
	Jugjurí	h.s.	112 8 26	5·087671	122369 2	23·176	„
	Kimhírá, XXIII		59 56 19	5·040256	109713	20·779	„
164	Megásiní, XXV		67 35 4	5·068874	117186	22·194	„
	Jugjurí	h.s.	52 28 37	5·002327	100537	19·041	„
	Nilgirí, XXIV		42 35 49	4·927996	84722	16·046	„
165	Bolpál, XXVI		76 20 6	5·085041	121630	23·036	„
	Dobigarh Hill Mark			5·039617	109551 4	20·748	
	Megásiní, XXV		44 57 29	4·927996	84722	16·046	„
166	Bolpál, XXVI		15 13 23	4·498087	31484	5·963	„
	Dobigarh Hill Mark			5·017150	104028	19·702	
	Kimhírá, XXIII		42 9 0	4·898004	79069	14·975	„
167	Jugjurí	h.s.	41 53 0	4·895760	78661	14·898	„
	Patámundái Rock			5·068874	117186	22·194	
	Baniájorí, XXVII		33 2 17	4·896448	78786	14·922	24
168	Bolá, XXVIII		6 20 40	4·203279	15969	3·024	„
	Santoshpur	h.s.	140 37 3	4·962323	91690	17·366	*
	Baniájorí, XXVII		51 48 34	4·861790	72743	13·777	24
169	Bolá, XXVIII		46 1 11	4·823469	66599	12·613	„
	Dhanái Needle Rock			4·962323	91690 1	17·366	
	Baniájorí, XXVII		32 40 23	4·987839	97239	18·416	„
170	Daiterí, XXIX		21 41 59	4·823469	66599	12·613	„
	Dhanái Needle Rock			5·165567	146409	27·729	
	Bolá, XXVIII		35 5 11	4·978864	95250	18·040	*
171	Daiterí, XXIX		59 46 45	5·155899	143185	27·118	*
	Bodásil	h.s.	85 8 4	5·217771	165109	31·271	*

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
	Daiterí, XXIX		31 56 55	4·820572	66156	12·530	24
172	Bodásil	h.s.	17 40 49	4·579438	37970	7·191	*
	Tomaká	„	130 22 16	4·978864	95250 0	18·040	*
	Daiterí, XXIX		31 56 0	4·820379	66127	12·524	24
173	Bodásil, XXX		17 40 50	4·579438	37970	7·191	„
	Tomaká	h.s.	130 23 10	4·978760	95227	18·035	*
	Udaigirí, XXXI		80 19 48	4·981663	95866	18·156	*
174	Nimidá, XXXIV		43 22 37	4·824705	66789	12·649	24
	Dhenkánál Rájá's House			4·907942	80899	15·322	
	Chánchuniá, XXXVI		114 25 17	5·199208	158200	29·962	„
175	Duduá, XXXVIII		39 39 0	5·044800	110866	20·997	„
	Manibhadrá Hill Mark			4·880645	75970	14·388	
	Gumáriá, XXXIII		28 45 50	4·865708	73402	13·902	„
176	Mimidá, XXXIV		110 18 17	5·155520	143060	27·095	„
	Ambetí Hill Mark			4·999725	99937	18·927	
	Gumáriá, XXXIII		46 30 2	4·809282	64459	12·208	„
177	Chánchuniá, XXXVI		51 35 55	4·842854	69639	13·189	„
	Budí Hill Mark			4·944362	87976 1	16·662	
	Gumáriá, XXXIII		17 47 48	4·599879	39800	7·538	„
178	Nimidá, XXXIV		32 19 47	4·842854	69639	13·189	„
	Budí Hill Mark			4·999725	99937	18·927	
	Gumáriá, XXXIII			4·893414	78237	14·818	
179	Nimidá, XXXIV		72 5 10	5·026511	106294	20·132	„
	Bánkmundí	h.s.	63 27 29	4·999725	99937	18·927	„
	Gumáriá, XXXIII		53 30 55	4·954092	89969	17·040	„
180	Duduá, XXXVIII		62 31 42	4·996868	99281	18·803	„
	Konáká Hill Mark			5·002326	100537 12	19·041	
	Gumáriá, XXXIII		57 43 50	4·983061	96175	18·215	„
181	Nimidá, XXXIV		60 47 34	4·996868	99281	18·803	„
	Konáká Hill Mark			4·999725	99937	18·927	
	Gumáriá, XXXIII		46 0 34	4·804160	63703	12·065	„
182	Chánchuniá, XXXVI		50 28 58	4·834455	68305	12·937	„
	Kumrangiá Hill Mark			4·944362	87976 0	16·662	
	Chánchuniá, XXXVI		24 45 59	4·508671	32260	6·110	„
183	Duduá, XXXVIII		55 48 50	4·804160	63703	12·065	„
	Kumrangiá Hill Mark			4·880645	75970	14·388	
	Duduá, XXXVIII		62 24 59	4·650407	44710	8·468	„
184	Kumrangiá Hill Mark			4·692932	49310	9·339	
	Putkol	h.s.	39 45 25	4·508671	32260	6·110	8

* Not known.

No. of triangle	Station	Corrected plane angle	Distance			Theodolite used
			Log. feet	Feet	Miles	
		° ′ ″				Inch
185	Chánchuniá, XXXVI	36 37 50	4·650407	44710	8·468	24
	Kumrangiá Hill Mark		4·440547	27577	5·223	
	Putkol h.s.	121 46 35	4·804160	63703	12·065	8
186	Duduá, XXXVIII	52 4 0	5·018035	104240	19·742	24
	Chiklíkháí, XXXIX	8 23 3	4·284895	19271	3·650	„
	Baideswar h.s.		5·060594	114973	21·775	
187	Gumáriá, XXXIII	11 2 26	4·284895	19271	3·650	„
	Duduá, XXXVIII	76 31 40	4·990600	97859	18·534	„
	Baideswar h.s.		5·002326	100537	19·041	
188	Gumáriá, XXXIII	48 29 47	4·869387	74027	14·020	„
	Baideswar h.s.	33 24 8	4·735723	54416	10·306	8
	Rattágarh Village Temple		4·990600	97859	18·534	
189	Gumáriá, XXXIII	37 27 21	4·820891	66205	12·539	24
	Duduá, XXXVIII	29 59 25	4·735723	54416	10·306	„
	Rattágarh Village Temple		5·002326	100537	19·041	
190	Gumáriá, XXXIII	8 54 6	4·220166	16602	3·144	„
	Duduá, XXXVIII	60 39 34	4·970944	93529	17·714	„
	Rámnáth Hill Temple		5·002326	100537	19·041	
191	Gumáriá, XXXIII	38 2 49	4·773748	59395	11·249	„
	Chánchuniá, XXXVI	76 2 50	4·970944	93529	17·714	„
	Rámnáth Hill Temple		4·944362	87976	16·662	
192	Gumáriá, XXXIII	18 11 17	4·547526	35280	6·682	„
	Duduá, XXXVIII	44 37 20	4·899784	79393	15·037	„
	Ragarí Temple No. 1		5·002326	100537	19·041	
193	Gumáriá, XXXIII	18 12 47	4·547941	35313	6·688	„
	Duduá, XXXVIII	44 38 20	4·899750	79387	15·035	„
	Ragarí Temple No. 2		5·002326	100537	19·041	
194	Gumáriá, XXXIII	15 15 49	4·446631	27966	5·297	„
	Duduá, XXXVIII	55 53 40	4·944279	87959	16·659	„
	Mahá Parbat h.s.	108 50 31	5·002326	100537	19·041	8
195	Chánchuniá, XXXVI	16 21 51	4·446631	27966	5·297	24
	Duduá, XXXVIII	113 41 49	4·958525	90892	17·214	„
	Mahá Parbat h.s.		4·880645	75970	14·388	
196	Chánchuniá, XXXVI	19 26 47	4·652638	44941	8·511	„
	Mahá Parbat h.s.	22 52 44	4·720001	52481	9·940	8
	Singnáth Hill Mark		4·958525	90892	17·214	
197	Duduá, XXXVIII	120 31 31	4·652638	44941	8·511	24
	Mahá Parbat h.s.	27 3 36	4·375369	23734	4·495	8
	Singnáth Hill Mark		4·446631	27966	5·297	
198	Chánchuniá, XXXVI	13 27 11	4·326143	21191	4·013	24
	Mahá Parbat h.s.	72 49 27	4·939629	87022	16·481	8
	Páni Kurirá Hill Mark		4·958525	90892	17·214	
199	Duduá, XXXVIII	44 18 14	4·326143	21191	4·013	24
	Mahá Parbat h.s.	22 53 7	4·071823	11798	2·235	8
	Páni Kurirá Hill Mark		4·446631	27966	5·297	
200	Gumáriá, XXXIII	31 59 2	4·757644	57233	10·840	24
	Duduá, XXXVIII	79 30 35	5·026309	106245	20·122	„
	Kansári Hill Mark		5·002326	100537	19·041	
201	Barnai, XXXVII	25 4 34	4·757644	57233	10·840	„
	Duduá, XXXVIII	21 18 32	4·690840	49073	9·294	„
	Kansári Hill Mark		4·990194	97767	18·517	
202	Gumáriá, XXXIII	54 8 53	5·013447	103145	19·535	„
	Duduá, XXXVIII	73 39 45	5·086776	122117	23·128	„
	Dauliá Hill Mark		5·002326	100537	19·041	
203	Barnai, XXXVII	82 44 44	5·013447	103145	19·535	„
	Duduá, XXXVIII	27 9 22	4·676298	47457	8·988	„
	Dauliá Hill Mark		4·990194	97767	18·517	
204	Chánchuniá, XXXVI	49 14 44	4·780061	60264	11·414	„
	Duduá, XXXVIII	58 1 14	4·829187	67482	12·781	„
	Gosingá Hill Mark		4·880645	75970	14·388	
205	Chánchuniá, XXXVI	21 23 49	4·761602	57757	10·939	„
	Chiklíkháí, XXXIX	25 13 49	4·829187	67482	12·781	„
	Gosingá Hill Mark		5·060991	115078	21·795	
206	Chánchuniá, XXXVI	44 2 18	4·905064	80365	15·221	„
	Chiklíkháí, XXXIX	40 27 53	4·875224	75028	14·210	„
	Fathigarh Hill Mark		5·060991	115078	21·795	
207	Chánchuniá, XXXVI	26 36 15	4·541012	34755	6·582	„
	Duduá, XXXVIII	75 11 9	4·875224	75028	14·210	„
	Fathigarh Hill Mark		4·880645	75970	14·388	
208	Duduá, XXXVIII	65 3 25	4·496714	31384	5·944	„
	Baideswar h.s.	81 6 43	4·533991	34197	6·477	8
	T, Trijunction Pillar		4·284895	19271	3·650	
209	Chiklíkháí, XXXIX	13 45 45	4·496714	31384	5·944	24
	Baideswar h.s.	38 26 14	4·913875	82012	15·532	8
	T, Trijunction Pillar		5·018035	104240	19·742	
210	Duduá, XXXVIII	118 10 33	4·552368	35675	6·757	24
	Baideswar h.s.	33 23 22	4·347765	22272	4·218	8
	F, Trijunction Pillar		4·284895	19271	3·650	

No. of triangle	Station	Corrected plane angle	Distance			Theodolite used
			Log. feet	Feet	Miles	
		° ′ ″				Inch
	Duduá, XXXVIII	44 11 29	4·841651	69447	13·153	24
211	Mahá Parbat h.s.	119 30 23	4·938052	86707	16·422	8
	Khurdá Bungalow		4·446631	27966	5·297	
	Barnai, XXXVII	27 33 6	4·889121	77468	14·672	24
212	Dhanái, XL	22 33 18	4·807808	64240	12·167	„
	Sardaí Hill Mark		5·108895	128498	24·337	
				4		
	Barnai, XXXVII	40 32 3	4·808422	64331	12·184	„
213	Duduá, XXXVIII	40 27 54	4·807808	64240	12·167	„
	Sardaí Hill Mark		4·990194	97767	18·517	
	Barnai, XXXVII	67 35 7	4·956419	90452	17·131	„
214	Duduá, XXXVIII	20 8 19	4·527464	33687	6·380	„
	Dhaniá Hill Mark		4·990194	97767	18·517	
				o		
	Duduá, XXXVIII	47 11 8	4·976866	94813	17·957	„
215	Dhanái, XL	44 24 46	4·956419	90452	17·131	„
	Dhaniá Hill Mark		5·111262	129200	24·470	
	Barnai, XXXVII	113 44 31	5·148358	140721	26·652	„
216	Dhanái, XL	9 33 10	4·406755	25513	4·832	„
	Rangarh Hill Mark		5·108895	128498	24·337	
	Barnai, XXXVII	104 21 19	5·159121	144252	27·320	„
217	Dhanái, XL	15 59 33	4·613037	41024	7·770	„
	Kálupárá Hill Temple		5·108895	128498	24·337	
	Duduá, XXXVIII	25 29 39	4·776757	59808	11·327	„
218	Dhanái, XL	42 54 42	4·975930	94608	17·918	„
	Sátbhaiá Hill Mark		5·111262	129200	24·470	
				o		
	Dudua, XXXVIII	37 46 6	4·848285	70516	13·355	„
219	Chiklíkháí, XXXIX	55 15 30	4·975930	94608	17·918	„
	Sátbhaiá Hill Mark		5·060594	114973	21·775	
	Duduá, XXXVIII	16 28 52	4·760628	57627	10·914	„
220	Chiklíkháí, XXXIX	129 2 47	5·197987	157756	29·878	„
	Sália Hill Mark		5·060594	114973	21·775	
				1		
	Chiklíkháí, XXXIX	65 16 24	5·067802	116897	22·140	„
221	Dhanái, XL	26 36 4	4·760628	57627	10·914	„
	Sália Hill Mark		5·109334	128628	24·361	
	Chiklíkháí, XXXIX	56 33 2	5·097385	125137	23·700	„
222	Khundábolo, XLI	29 20 20	4·866198	73485	13·918	„
	Palabá Hill Mark		5·174906	149591	28·332	
				o		
	Khundábolo, XLI	31 58 56	4·826571	67077	12·704	„
223	Patharkumúdá, XLII	98 50 32	5·097385	125137	23·700	„
	Palabá Hill Mark		4·981510	95832	18·150	

No. of triangle	Station	Corrected plane angle	Distance			Theodolite used
			Log. feet	Feet	Miles	
		° ′ ″				Inch
	Khundábolo, XLI	73 43 2	5·054411	113347	21·467	24
224	Chandíkho, XLIII	63 9 26	5·022676	105360	19·955	„
	Kálígiri Hill Mark		4·906992	80722	15·288	
				3		
	Dhanái, XL	79 26 58	5·054411	113347	21·467	„
225	Chandíkho, XLIII	20 30 7	4·606181	40381	7·648	„
	Kálígiri Hill Mark		5·055232	113562	21·508	
	Khundábolo, XLI	59 8 1	4·943944	87891	16·646	„
226	Chandíkho, XLIII	68 50 5	4·979941	95486	18·085	„
	Sextasal Hill Mark		4·906992	80722	15·288	
				1		
	Dhanái, XL	38 10 51	4·943944	87891	16·646	„
227	Chandíkho, XLIII	14 49 28	4·560853	36379	6·890	„
	Sextasal Hill Mark		5·055232	113562	21·508	
	Chiklíkháí, XXXIX	19 44 6	4·752693	56584	10·717	„
228	Khundábolo, XLI	43 28 47	5·061850	115305	21·838	„
	Tamná Hill Mark		5·174906	149591	28·332	
				2		
	Chiklíkháí, XXXIX	58 47 44	5·090292	123110	23·316	„
229	Patharkumúdá, XLII	53 14 8	5·061850	115305	21·838	„
	Tamná Hill Mark		5·125232	133423	25·270	
	Khundábolo, XLI	93 30 2	5·031232	107456	20·352	„
230	Patharkumúdá, XLII	23 36 23	4·634593	43111	8·165	„
	Asrákol Hill Mark		4·981510	95832	18·150	
				1		
	Chiklíkháí, XXXIX	50 32 8	5·031232	107456	20·352	„
231	Patharkumúdá, XLII	56 0 46	5·062243	115410	21·858	„
	Asrákol Hill Mark		5·125232	133423	25·270	
	Khundábolo, XLI	149 51 3	5·146425	140096	26·533	„
232	Maltí, XLIV	3 2 3	4·169217	14764	2·796	„
	Káláhandiá Hill Mark		5·104256	127132	24·078	
				1		
	Khundábolo, XLI	87 12 19	4·910357	81350	15·407	„
233	Chandíkho, XLIII	10 26 39	4·169217	14764	2·796	„
	Káláhandiá Hill Mark		4·906992	80722	15·288	
	Khundábolo, XLI	35 55 11	4·801712	63345	11·997	„
234	Chandíkho, XLIII	95 41 56	5·031181	107444	20·349	„
	Sonákalá Bungalow		4·906992	80722	15·288	
	Khundábolo, XLI	31 16 55	4·677238	47560	9·007	„
235	Chandíkho, XLIII	86 55 1	4·961233	91460	17·322	„
	Solári Hill Mark		4·906992	80722	15·288	
				o		
	Dhanái, XL	39 49 6	4·961233	91460	17·322	„
236	Khundábolo, XLI	27 35 0	4·820429	66135	12·525	„
	Solári Hill Mark		5·120118	131861	24·974	

No. of triangle	Station	Corrected plane angle	Distance			Theodolite used
			Log. feet	Feet	Miles	
		° ′ ″				Inch
	Khundábolo, XLI	8 57 46	4·170912	14822	2·807	24
237	Chandíkho, XLIII	112 59 37	4·942411	87581	16·587	,,
	Inonopur Temple		4·906992	80722	15·288	
	Khundábolo, XLI	31 54 13	4·875538	75082	14·220	,,
238	Maltí, XLIV	31 35 14	4·871662	74415	14·094	,,
	Bajro Suliá h.s.		5·104256	127132	24·078	
	Khundábolo, XLI	31 1 21	4·698860	49987	9·467	,,
239	Patharkumúdá, XLII	50 6 20	4·871662	74415	14·094	,,
	Bajro Suliá h.s.	98 52 19	4·981510	95832	18·150	7
	Patharkumúdá, XLII	52 30 57	4·793851	62209	11·782	24
240	Bajro Suliá h.s.	87 52 8	4·893992	78341	14·837	7
	Rasalkondá Hill Fort (heliotrope)		4·698860	49987	9·467	
	Patharkumúdá, XLII	28 1 56	4·758336	57324	10·857	24
241	Maltí, XLIV	73 45 48	5·068591	117109	22·180	,,
	Káliambá Hill Mark		5·076999	119399	22·613	
	Khundábolo, XLI	23 33 11	4·738500	54765	10·372	,,
242	Maltí, XLIV	88 22 38	5·136703	136994	25·946	,,
	Aská Sugar Factory		5·104256	127132	24·078	
	Maltí, XLIV	21 53 26	4·732679	54035	10·234	,,
243	Tárá Tarní, XLV	46 49 0	5·023990	105679	20·015	,,
	Hingelíkat Hill Mark		5·130456	135038	25·575	
	Maltí, XLIV	26 59 30	4·795325	62420	11·822	,,
244	Tárá Tarní, XLV	52 4 53	5·035415	108496	20·549	,,
	Ghoráisiní h.s.		5·130456	135038	25·575	
	Maltí, XLIV	5 7 25	4·569006	37069	7·021	,,
245	Tárá Tarní, XLV	155 53 27	5·229299	169550	32·112	,,
	Nanda Bans h.s.		5·130456	135038	25·575	
				12		
	Tárá Tarní, XLV	103 48 34	4·902238	79843	15·122	,,
246	Ghoráisiní h.s.	26 47 53	4·569006	37069	7·021	*
	Nanda Bans ,,		4·795325	62420	11·822	
	Tárá Tarní, XLV	20 33 37	4·152553	14209	2·691	24
247	Nanda Bans h.s.	93 3 38	4·606388	40401	7·652	7
	Beplingi Temple		4·569006	37069	7·021	
	Tárá Tarní, XLV	31 11 26	4·618697	41562	7·872	24
248	Nanda Bans h.s.	121 18 0	4·836154	68573	12·987	7
	Ganjam Fort Mark (heliotrope)		4·569006	37069	7·021	
	Tárá Tarní, XLV	53 28 11	4·774269	59466	11·263	24
249	Nanda Bans h.s.	96 28 16	4·866485	73533	13·927	7
	Barhámpur s.		4·569006	37069	7·021	
	Tárá Tarní, XLV	50 20 23	4·768563	58690	11·115	24
250	Ghoráisiní h.s.	74 41 53	4·866485	73533	13·927	*
	Barhámpur s.		4·795325	62420	11·822	
	Tárá Tarní, XLV	58 4 6	4·824421	66745	12·641	24
251	Ghoráisiní h.s.	69 24 2	4·866982	73618	13·943	*
	Barhámpur House		4·795325	62420	11·822	
				8		
	Tárá Tarní, XLV	45 44 28	4·737445	54632	10·347	24
252	Nanda Bans h.s.	105 11 3	4·866982	73618	13·943	7
	Barhámpur House		4·569006	37069	7·021	
	Tárá Tarní, XLV	21 35 2	4·818451	65834	12·469	24
253	Nanda Bans h.s.	146 27 43	4·995090	98876	18·726	7
	Gopálpur House		4·569006	37069	7·021	
	Ráegará, XLVII	85 46 53	5·073840	118533	22·449	24
254	Dhobá Dhobaní, XLVIII	30 2 57	4·774633	59516	11·272	,,
	Andrá Temple		5·029303	106980	20·261	
				6		
	Girdábádí, XLVI	85 13 22	5·073840	118533	22·449	,,
255	Dhobá Dhobaní, XLVIII	42 42 18	4·906725	80672	15·279	,,
	Andrá Temple		4·972311	93823	17·770	
	Girdábádí, XLVI	84 1 20	5·055910	113739	21·541	,,
256	Dhobá Dhobaní, XLVIII	40 51 5	4·873921	74803	14·167	,,
	Paláshpur Temple		4·972311	93823	17·770	
	Ráegará, XLVII	82 11 29	5·034915	108371	20·525	,,
257	Dhobá Dhobaní, XLVIII	19 50 50	4·569817	37138	7·034	,,
	Matiáburí h.s.		5·029303	106980	20·261	
				1		
	Girdábádí, XLVI	71 46 29	5·034915	108371	20·525	,,
258	Dhobá Dhobaní, XLVIII	52 54 25	4·959083	91009	17·237	,,
	Matiáburí h.s.		4·972311	93823	17·770	
	Girdábádí, XLVI	14 19 38	4·378281	23894	4·525	,,
259	Matiáburí h.s.	95 11 16	4·982995	96160	18·212	8
	Osuda Temple		4·959083	91009	17·237	
	Girdábádí, XLVI	59 28 19	4·921082	83384	15·792	24
260	Dhobá Dhobaní, XLVIII	44 46 46	4·833694	68186	12·914	,,
	Changardhí h.s.		4·972311	93823	17·770	
				1		
	Ráegará, XLVII	49 33 25	4·921082	83384	15·792	,,
261	Dhobá Dhobaní, XLVIII	27 58 29	4·710917	51395	9·734	,,
	Changardhí h.s.		5·029303	106980	20·261	
	Dhobá Dhobaní, XLVIII	21 34 58	4·495877	31324	5·933	,,
262	Changardhí h.s.	80 7 29	4·923729	83894	15·889	8
	Porámárí Rájá's House		4·921082	83384	15·792	

* Not known.

No. of triangle	Station	Corrected plane angle	Distance			Theodolite used
			Log. feet	Feet	Miles	
		° ′ ″				Inch
	Girdábádí, XLVI	63 10 22	4·923729	83894	15·889	24
263	Dhobá Dhobaní, XLVIII	23 11 48	4·568557	37030	7·013	„
	Porámárí Rájá's House		4·972311	93823	17·770	
	Girdábádí, XLVI	44 53 27	4·832268	67962	12·872	„
264	Dhobá Dhobaní, XLVIII	32 5 43	4·708975	51165	9·690	„
	Bisangiri Temple		4·972311	93823	17·770	
	Ráegará, XLVII	38 37 24	4·832268	67962	12·872	„
265	Dhobá Dhobaní, XLVIII	40 39 32	4·850897	70941	13·436	„
	Bisangiri Temple		5·029303	106980	20·261	
	Ráegará, XLVII	25 26 28	4·230424	16999	3·220	„
266	Matiáburí h.s.	84 45 20	4·595555	39405	7·463	8
	Digpondi Temple		4·569817	37138	7·034	
	Ráegará, XLVII	56 45 1	4·961487	91514	17·332	24
267	Dhobá Dhobaní, XLVIII	21 6 23	4·595555	39405	7·463	„
	Digpondi Temple		5·029303	106980	20·261	
	Ráegará, XLVII	46 33 18	4·932394	85584	16·209	„
268	Dhobá Dhobaní, XLVIII	18 36 46	4·575459	37624	7·126	„
	Padnápur Temple		5·029303	106980	20·261	
	Ráegará, XLVII	85 23 41	5·030463	107266	20·316	„
269	Dhobá Dhobaní, XLVIII	10 49 33	4·305619	20212	3·828	„
	Khejurpáli Temple		5·029303	106980	20·261	
	Ráegará, XLVII	29 19 50	4·342258	21992	4·165	„
270	Matiáburí h.s.	26 29 1	4·301475	20020	3·792	8
	Tarbarí House		4·569817	37138	7·034	
	Ráegará, XLVII	29 41 9	4·779681	60212	11·404	24
271	Dhobá Dhobaní, XLVIII	31 56 47	4·808421	64331	12·184	„
	Nakoí Hill Mark		5·029303	106980	20·261	
	Ráegará, XLVII	35 13 29	4·745496	55654	10·541	„
272	Bodágirí, XLIX	41 48 50	4·808421	64331	12·184	„
	Nakoí Hill Mark		4·973273	94031	17·809	
	Ráegará, XLVII	58 25 25	4·904019	80171	15·184	„
273	Bodágirí, XLIX	29 19 26	4·663580	46087	8·729	„
	Ámpur Hill Temple		4·973273	94031	17·809	
	Ráegará, XLVII	71 47 11	4·984212	96430	18·263	„
274	Bodágirí, XLIX	40 21 10	4·817769	65731	12·449	„
	Indrásí Temple		4·973273	94031	17·809	
	Ráegará, XLVII	48 54 7	4·863308	72998	13·825	„
275	Bodágirí, XLIX	54 59 43	4·899515	79344	15·027	„
	Sonpur Salt Bungalow		4·973273	94031	17·809	

No. of triangle	Station	Corrected plane angle	Distance			Theodolite used
			Log. feet	Feet	Miles	
		° ′ ″				Inch
	Dhobá Dhobaní, XLVIII	25 22 42	4·720347	52523	9·947	24
276	Bodágirí, XLIX	36 50 32	4·866172	73481	13·917	„
	Jarádá Hill		5·035120	108423	20·535	
	Bodágirí, XLIX	24 25 36	4·590802	38976	7·382	„
277	Mahendragirí, L	33 51 57	4·720347	52523	9·947	„
	Jarádá Hill		4·904095	80185	15·187	
	Bodágirí, XLIX	54 43 48	4·912972	81841	15·500	„
278	Mal, LI	52 59 10	4·903317	80042	15·159	„
	Mahendragirí Hill Temple		4·979947	95488	18·085	
	Dhobá Dhobaní, XLVIII	45 7 1	4·903317	80042	15·159	„
279	Bodágirí, XLIX	61 11 15	4·995551	98981	18·746	„
	Mahendragirí Hill Temple		5·035120	108423	20·535	
	Bodágirí, XLIX	78 20 50	4·898162	79097	14·981	„
280	Mahendragirí, L	18 30 13	4·408765	25631	4·854	„
	Kanchilí Hill Mark		4·904095	80185	15·187	
	Mahendragirí, L	53 44 31	4·861841	72751	13·779	„
281	Mal, LI	61 14 48	4·898162	79097	14·981	„
	Kanchilí Hill Mark		4·912627	81776	15·488	
	Mahendragirí, L	54 43 43	4·854730	71570	13·555	„
282	Mal, LI	56 23 13	4·863351	73005	13·827	„
	Kanchilí Travellers' Bungalow		4·912627	81776	15·488	
	Bodágirí, XLIX	64 19 10	4·863351	73005	13·827	„
283	Mahendragirí, L	17 31 1	4·387067	24382	4·618	„
	Kanchilí Travellers' Bungalow		4·904095	80185	15·187	
	Bodágirí, XLIX	47 45 41	4·798049	62813	11·896	„
284	Mahendragirí, L	23 10 3	4·523468	33379	6·322	„
	Jalantrá Highest Temple		4·904095	80185	15·187	
	Bodágirí, XLIX	54 41 49	4·815842	65440	12·394	„
285	Mahendragirí, L	35 19 48	4·666237	46370	8·782	„
	Besí Rámchandarpur Temple		4·904095	80185	15·187	
	Mahendragirí, L	36 54 56	4·691240	49118	9·303	„
286	Mal, LI	53 9 7	4·815842	65440	12·394	„
	Besí Rámchandarpur Temple		4·912627	81776	15·488	
	Mahendragirí, L	44 55 2	4·813805	65134	12·336	„
287	Phúlsará, LII	51 1 51	4·855640	71720	13·583	„
	Newalkondá Hill Mark (heliotrope)		4·962604	91750	17·377	
	Mahendragirí, L	20 57 43	4·471609	29622	5·610	„
288	Mal, LI	60 1 4	4·855640	71720	13·583	„
	Newalkondá Hill Mark (heliotrope)		4·912627	81776	15·488	

No. of triangle	Station	Corrected plane angle	Distance			Theodolite used
			Log. feet	Feet	Miles	
		° ′ ″				Inch
	Mal, LI	14 3 12	4·378794	23922	4·531	24
289	Phúlsará, LII	60 0 17	4·931051	85320	16·159	„
	Garabandá Hill		4·976468	94726	17·940	
				5		
	Mahendragirí, L	68 41 2	4·931051	85320	16·159	„
290	Mal, LI	48 4 36	4·833423	68143	12·906	„
	Garabandá Hill		4·912027	81776	15·488	
	Nalakondá, LVI	47 27 48	4·833018	68080	12·894	„
291	Yarákanchámá, LVII	69 21 17	4·936816	86460	16·375	„
	Koligiri Hill Mark (heliotrope)		4·916222	82456	15·617	
				1		
	Himágirí, LV	80 59 45	4·936816	86460	16·375	„
292	Nalakondá, LVI	5 16 59	3·906348	8060	1·527	„
	Koligiri Hill Mark (heliotrope)		4·941284	87354	16·544	
	Ráwal, LIX	52 20 34	4·912666	81784	15·489	„
293	Pindí, LX	31 28 57	4·731985	53949	10·218	„
	Nairalwálsá h.s.	96 10 29	5·011590	102705	19·452	7
				1		
	Nalakondá, LVI	56 13 14	4·912666	81784	15·489	24
294	Pindí, LX	25 45 18	4·630983	42755	8·097	„
	Nairalwálsá h.s.	98 1 28	4·988696	97431	18·453	7
	Nalakondá, LVI	20 33 29	4·520629	33161	6·281	14
295	Yarákanchámá, LVII	40 16 12	4·785623	61041	11·561	24
	Wondáwá h.s.	119 10 19	4·916222	82456	15·617	14
				2		
	Nalakondá, LVI	37 7 17	4·571835	37311	7·066	„
296	Nairalwálsá h.s.	99 7 30	4·785623	61041	11·561	„
	Wondáwá „	43 45 13	4·630983	42755	8·097	„
	Yarákanchámá, LVII	46 51 38	4·436907	27347	5·179	„
297	Wondáwá h.s.	70 54 31	4·549199	35416	6·708	„
	Koparawálsá Factory		4·520629	33161	6·281	
	Ráwal, LIX		4·616386	41341	7·830	
298	Wondáwá h.s.	57 22 56	4·660922	45806	8·675	„
	Akrimetá „	73 8 12	4·716375	52044	9·857	„
			*			
	Nalakondá, LVI	31 18 9	4·402701	25276	4·787	„
299	Nairalwálsá h.s.	30 12 5	4·388672	24472	4·635	„
	Pálkondá Fort		4·630983	42755	8·097	
				3		
	Nairalwálsá h.s.	68 55 25	4·565599	36779	6·966	„
300	Wondáwá „	39 53 8	4·402701	25276	4·787	„
	Pálkondá Fort		4·571835	37311	7·066	
	Nalakondá, LVI	14 42 49	4·791107	61817	11·708	24
801	Yarákanchámá, LVII	5 5 22	4·334271	21591	4·089	„
	Pálkondá Temple		4·916222	82456	15·617	
	Nalakondá, LVI	43 29 3	4·810780	64681	12·250	24
302	Yarákanchámá, LVII	17 49 46	4·459077	28779	5·451	„
	Gopálpur, N. Chimney		4·916222	82450	15·617	
	Nalakondá, LVI	43 55 33	4·812013	64865	12·285	„
303	Yarákanchámá, LVII	17 56 29	4·459437	28803	5·455	„
	Gopálpur, S. Chimney		4·916222	82456	15·617	
				2		
	Nalakondá, LVI	13 45 13	4·211842	16287	3·085	„
304	Nairalwálsá h.s.	24 51 46	4·459437	28803	5·455	7
	Gopálpur, S. Chimney		4·630983	42755	8·097	
	Yarákanchámá, LVII	32 9 10	4·601161	39917	7·560	24
305	Nairalwálsá h.s.	79 32 33	4·867829	73761	13·970	7
	Daliáli Hill		4·843195	69694	13·200	
			*			
	Nalakondá, LVI	15 55 3	4·071102	11779	2·231	24
306	Nairalwálsá h.s.	68 37 56	4·602022	39997	7·575	7
	Angaradá Bungalow		4·630983	42755	8·097	
	Nalakondá, LVI	18 41 21	4·173481	14910	2·824	24
307	Nairalwálsá h.s.	94 33 13	4·666370	46384	8·785	7
	Waialwálsá House		4·630983	42755	8·097	
	Nalakondá, LVI	26 44 56	4·394008	24775	4·692	24
308	Nairalwálsá h.s.	102 17 23	4·730649	53784	10·186	7
	Sítárámpuram Temple		4·630983	42755	8·097	
	Pindí, LX	14 56 14	4·763179	57967	10·979	24
309	Nairalwálsá h.s.	6 23 18	4·398327	25022	4·739	7
	Malkondá Hill Temple		4·912666	81784	15·489	
	Sálihundam, LVIII	11 30 11	4·403584	25327	4·797	24
310	Pindí, LX	37 45 10	4·890748	77759	14·727	„
	Mulang h.s.	130 44 39	4·983273	96222	18·224	8
	Sálihundam, LVIII	29 26 31	4·769087	58761	11·129	24
311	Mulang h.s.	11 8 4	4·363336	23085	4·372	8
	Singpur „	139 25 25	4·890748	77759	14·727	„
				4		
	Pindí, LX	43 13 20	4·769087	58761	11·129	„
312	Mulang h.s.	119 36 35	4·872729	74598	14·128	„
	Singpur „	17 10 5	4·403584	25327	4·797	„
	Nalakondá, LVI	7 36 27	4·364075	23125	4·380	24
313	Sálihundam, LVIII	34 4 35	4·990651	97870	18·536	„
	Singpur Hill Temple		5·065067	116163	22·001	
	Nalakondá, LVI	12 14 15	4·486807	30677	5·810	„
314	Sálihundam, LVIII	114 22 45	5·119983	131821	24·966	„
	Calingápatam House No. 1		5·065067	116163	22·001	

* Base deduced by two sides and included angle.

No. of triangle	Station	Corrected plane angle	Distance			Theodolite used
			Log. feet	Feet	Miles	
		° ′ ″				Inch
	Nalakondá, LVI	11 22 21	4·507898	32203	6·099	24
315	Sálihundam, LVIII	123 17 15	5·135189	136518	25·856	,,
	Calingápatam House No. 2		5·065067	116163	22·001	
	Ráwal, LIX	33 43 26	4·758122	57296	10·851	,,
316	Maripillí, LXI	49 34 50	4·895245	78568	14·880	,,
	Rámbhadrapuram Hill Mark (helio.)		5·010707	102496	19·412	
	Ráwal, LIX	21 3 51	4·569270	37091	7·025	,,
317	Maripillí, LXI	62 14 40	4·960590	91325	17·296	,,
	Renghá Hill Mark		5·010707	102496	19·412	
	Maripillí, LXI	89 12 3	5·034090	108166	20·486	,,
318	Kumarái, LXIV	20 3 8	4·569270	37091	7·025	,,
	Renghá Hill Mark		5·009137	102126	19·342	
	Maripillí, LXI	6 27 0	4·554946	35888	6·797	,,
319	Kumarái, LXIV	154 54 24	5·131889	135484	25·660	,,
	Sarnat Modí Hill Mark		5·009137	102126	19·342	
	Maripillí, LXI	61 13 14	5·074655	118756	22·492	,,
320	Bor, LXIII	90 36 18	5·131889	135484	25·660	,,
	Sarnat Modí Hill Mark		4·806000	63974	12·116	
	Ráwal, LIX	67 6 15	5·342555	220067	41·679	,,
321	Kandíwálsá, LXII	75 20 56	5·363838	231120	43·773	,,
	Dewodímundá h.s.		5·163105	145581	27·572	
	Kandíwálsá, LXII	74 27 22	5·327868	212749	40·293	,,
322	Amnám, LXV	85 14 56	5·342555	220067	41·679	,,
	Dewodímundá h.s.		4·884196	76594	14·506	
	Márkí, LXVI	156 22 1	5·063894	115850	21·941	,,
323	North End*, LXVIII	12 26 48	4·794392	62286	11·797	,,
	Keverlá Hill Mark		4·748687	56064	10·618	
	Bor, LXIII	78 12 35	4·812707	64969	12·305	,,
324	Kistnápuram, LXVII	30 11 36	4·523466	33378	6·322	,,
	Gopálpilí House		4·799169	62975	11·927	
	Márkí, LXVI	43 38 47	4·812707	64969	12·305	,,
325	Kistnápuram, LXVII	35 40 42	4·739571	54900	10·398	,,
	Gopálpilí House		4·966146	92501	17·519	
	Amnám, LXV	68 44 3	4·944198	87942	16·656	,,
326	Gumrú, LXIX	44 56 30	4·823867	66660	12·625	,,
	Viziánagram Rájá's House (helio.)		4·936641	86425	16·368	
	Kandíwálsá, LXII	11 49 26	4·580835	38092	7·214	,,
327	Amnám, LXV	12 30 27	4·604878	40260	7·625	,,
	Nandígaon Indigo Factory		4·884196	76594	14·506	
	Bor, LXIII	55 51 49	4·850809	70927	13·433	Inch 24
328	Gumrú, LXIX	40 4 19	4·741650	55163	10·448	,,
	Singarapakotá (heliotrope)		4·930599	85231	16·142	
	Márkí, LXVI	32 13 6	4·601694	39966	7·569	,,
329	Gumrú, LXIX	38 26 47	4·668486	46611	8·828	,,
	Erábadrápetá Indigo Factory		4·849634	70735	13·397	
	Kistnápuram, LXVII	54 21 33	4·601694	39966	7·569	,,
330	Gumrú, LXIX	73 8 34	4·672697	47065	8·914	,,
	Erábadrápetá Indigo Factory		4·591227	39015	7·389	
	Bor, LXIII	28 45 43	4·746578	55793	10·567	,,
331	Amnám, LXV	32 53 43	4·799162	62974	11·927	,,
	Kistnápuram Hill Temple		5·008821	102052	19·328	
	Bor, LXIII	25 18 4	4·591652	39053	7·396	,,
332	Gumrú, LXIX	43 33 49	4·799162	62974	11·927	,,
	Kistnápuram Hill Temple		4·930599	85231	16·142	
	Kandíwálsá, LXII	66 48 18	5·001065	100245	18·986	,,
333	Bor, LXIII	47 0 59	4·901912	79783	15·110	,,
	Amnám h.s.		4·998999	99770	18·896	
	Bor, LXIII	51 38 11	4·913290	81901	15·512	,,
334	Gumrú, LXIX	73 40 49	5·001065	100245	18·986	,,
	Amnám h.s.		4·930599	85231	16·142	

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	Shámpur s.	115 29 21	4·100406	12601	2·387	12
335	Páikpárá ,,	39 26 51	3·947906	8870	1·680	,,
	Fort Glo'ster ,,	25 3 48	3·771855	5914	1·120	,,
	Shámpur s.	67 25 10	4·412617	25859	4·898	,,
336	Páikpárá ,,	100 23 26	4·440075	27547	5·217	,,
	Máyápur ,,	12 11 24	3·771855	5914	1·120	,,
	Páikpárá s.	40 31 21	4·240999	17418	3·299	,,
337	Máyápur ,,	64 45 40	4·384682	24248	4·592	,,
	Sátgáchiá ,,	74 42 59	4·412617	25859	4·898	,,
	Máyápur s.	78 45 45	4·436725	27335	5·177	,,
338	Sátgáchiá ,,	62 33 24	4·393284	24733	4·684	,,
	Brúl ,,	38 40 51	4·240999	17418	3·299	,,

* Vizagapatam base-line. † The preceding portion of this series will be found in the Synopsis of Results of the Calcutta Longitudinal Series.

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
339	Máyápur	s.	32 8 36	4·119286	13161	2·493	12
	Brúl	„	58 47 29	4·325454	21157	4·007	„
	Ranmahal	„		4·393284	24733	4·684	
340	Máyápur	s.	52 39 53	4·230030	16984	3·217	„
	Ranmahal	„		4·020914	10493	1·987	
	Jagdíshpur	„	97 54 44	4·325454	21157	4·007	„
341	Máyápur	s.	102 30 20	4·429808	26903	5·095	„
	Jagdíshpur	„	55 6 44	4·354195	22605	4·281	„
	Fort Glo'ster	„	22 22 56	4·020914	10493	1·987	„
342	Brúl	s.	82 57 34	4·347044	22235	4·211	„
	Ranmahal	„		4·292426	19608	3·714	
	Bargarchumuk	„	35 58 29	4·119286	13161	2·493	„
343	Brúl	s.	60 56 59	4·386391	24344	4·611	„
	Bargarchumuk	„	74 17 32	4·428254	26807	5·077	„
	Phalta	„	44 45 29	4·292426	19608	3·714	„
344	Ranmahal	s.		4·386391	24344	4·611	
	Bargarchumuk	„	110 16 1	4·582480	38237	7·242	„
	Phalta	„	33 3 36	4·347044	22235	4·211	„
345	Bargarchumuk	s.	57 54 53	4·347727	22270	4·218	„
	Phalta	„	54 14 36	4·329003	21331	4·040	„
	Alpin	„	67 50 31	4·386391	24344	4·611	„
346	Phalta	s.	70 33 12	4·413002	25882	4·902	„
	Alpin	„	55 13 3	4·353027	22544	4·270	„
	Nílá	„	54 13 45	4·347727	22270	4·218	„
347	Alpin	s.	52 4 40	4·437694	27396	5·189	„
	Nílá	„	79 44 31	4·533704	34175	6·472	„
	Narsál	„	48 10 49	4·413002	25882	4·902	„
348	Nílá	s.	66 24 46	4·469339	29467	5·581	„
	Narsál	„	55 9 7	4·421398	26387	4·998	„
	Dhekuá	„	58 26 7	4·437694	27396	5·189	„
349	Nílá	s.	49 53 26	4·460735	28889	5·471	„
	Dhekuá	„	85 47 45	4·576008	37671	7·135	„
	Diamond Harbour Semaphore	„	44 18 49	4·421398	26387	4·998	„
350	Dhekuá	s.	88 12 11	4·613484	41066	7·778	„
	Diamond Harbour Semaphore	„	47 7 5	4·478658	30106	5·702	„
	Basdápur	„	44 40 44	4·460735	28889	5·471	„
351	Diamond Harbour Semaphore	s.	39 9 4	4·596316	39474	7·476	„
	Basdápur	„	99 47 26	4·789662	61611	11·669	„
	Rangáfalá	„	41 3 30	4·613484	41066	7·778	„
352	Basdápur	s.	94 11 22	4·712484	51580	9·769	12
	Rangáfalá	„	36 3 31	4·483476	30442	5·766	„
	Mahápurvu Chak	„	49 45 7	4·596316	39474	7·476	„
353	Rangáfalá	s.	47 38 33	4·592403	39120	7·409	„
	Mahápurvu Chak	„	55 22 17	4·639107	43562	8·250	„
	Ghoramára	„	76 59 10	4·712484	51580	9·769	„
354	Mahápurvu Chak	s.	63 17 56	4·651191	44791	8·483	„
	Ghoramára	„	65 25 0	4·658898	45593	8·635	„
	Gángrá	„	51 17 4	4·592403	39120	7·409	„
355	Ghoramára	s.	24 47 42	4·545581	35122	6·652	„
	Gángrá	„	122 52 23	4·847195	70339	13·322	„
	Kaukhálí	„	32 19 55	4·651191	44791	8·483	„
356	Shámpur	s.	21 41 28	3·523811	3340	0·633	„
	Fort Glo'ster	„	79 23 15	3·948583	8883	1·682	„
	Buj Buj	„		3·947906	8870	1·680	
357	Fort Glo'ster	s.	35 34 12	4·300640	19982	3·784	„
	Máyápur	„	5 34 50	3·523811	3340	0·633	*
	Buj Buj	„	138 50 58	4·354195	22605	4·281	*
358	Fort Glo'ster	s.	50 21 42	4·282528	19166	3·630	12
	Buj Buj	„	121 55 29	4·324765	21123	4·001	*
	Achitpur	„	7 42 49	3·523811	3340	0·633	*
359	Fort Glo'ster	s.	14 47 30	3·764720	5817	1·102	12
	Máyápur	„	67 58 48	4·324765	21123	4·001	„
	Achitpur	„	97 13 42	4·354195	22605	4·281	„
360	Fort Glo'ster	s.	47 0 32	4·294058	19681	3·728	„
	Máyápur	„	75 50 28	4·416470	26090	4·941	„
	Bauli Temple			4·354195	22605	4·281	
361	Shámpur	s.	44 7 18	4·294058	19681	3·728	„
	Máyápur	„	58 52 6	4·383798	24199	4·583	„
	Bauli Temple			4·440075	27547	5·217	
362	Brúl	s.		3·764214	5811	1·100	
	Phalta	„	88 24 29	4·435711	27272	5·165	„
	Dhajá	„	79 17 42	4·428254	26807	5·077	„
363	Phalta	s.	81 8 48	4·350206	22398	4·242	„
	Nílá	„		3·764214	5811	1·100	
	Dhajá	„	84 0 3	4·353027	22544	4·270	„
364	Brúl	s.	137 24 20	4·495104	31268	5·922	„
	Dhajá	„	6 24 59	3·712901	5163	0·978	„
	Hooghly River Creek Obelisk			4·435711	27272	5·165	

* Not known.

No. of triangle	Station	Corrected plane angle	Distance			Theodolite used
			Log. feet	Feet	Miles	
		° ′ ″				Inch
	Phalta s.	64 42 33	4·053390	11308	2·142	12
365	Dhaja „	87 36 27	4·096770	12496	2·367	„
	Phalta Point Mark		3·764214	5811	1·100	
				1		
	Phalta s.	54 6 57	4·256529	18052	3·419	„
366	Alpin „	34 6 49	4·096770	12496	2·367	„
	Phalta Point Mark		4·347727	22270	4·218	
	Dhajá s.	17 37 25	3·833061	6809	1·290	„
367	Nílá „	77 31 12	4·341574	21957	4·159	„
	Kurchíbáriá Mark		4·350206	22398	4·242	
	Nílá s.	8 16 14	4·185194	15318	2·901	„
368	Narsál „	6 38 17	4·090238	12309	2·331	„
	Tentíkolá Obelisk		4·437694	27396	5·189	
	Nílá s.	70 4 42	4·606554	40416	7·655	„
369	Dhekuá „	72 3 18	4·611694	40897	7·746	„
	Kamálpur, N. Temple		4·421398	26387	4·998	
				3		
	Narsál s.	135 52 31	4·606554	40416	7·655	„
370	Dhekuá „	13 37 11	4·135754	13670	2·589	„
	Kamálpur, N. Temple		4·469339	29467	5·581	
	Nílá s.	34 5 39	4·360956	22959	4·348	„
371	Diamond Harbour Semaphore „	32 47 44	4·346051	22185	4·202	„
	Kukráhátí, N. E. Temple		4·576008	37671	7·135	
	Dhekuá s.	64 38 1	4·419194	26254	4·972	„
372	Diamond Harbour Semaphore „	19 14 18	3·981077	9574	1·813	„
	Junhatiá Rájá's Mahal		4·460735	28889	5·471	
	Dhekuá s.	55 57 20	4·381373	24064	4·558	„
373	Diamond Harbour Semaphore „	39 55 26	4·270405	18638	3·530	„
	Tájnagar Temple		4·460735	28889	5·471	
				3		
	Diamond Harbour Semaphore s.	46 20 43	4·683501	48250	9·138	„
374	Rangáfalá „	21 9 7	4·381373	24064	4·558	„
	Tájnagar Temple		4·789662	61611	11·669	
	Diamond Harbour Semaphore s.	13 42 41	4·614757	41187	7·801	„
375	Rangáfalá „	7 3 22	4·329296	21345	4·043	„
	Kántábáriá Obelisk		4·789662	61611	11·669	
	Diamond Harbour Semaphore s.	11 56 3	3·929883	8509	1·612	„
376	Basdápur „	74 25 52	4·598124	39639	7·507	„
	Jamál Chak Temple		4·613484	41066	7·778	
				1		
	Dhekuá s.	98 43 56	4·598124	39639	7·507	„
377	Diamond Harbour Semaphore „	35 11 2	4·363763	23108	4·377	„
	Jamál Chak Temple		4·460735	28889	5·471	

No. of triangle	Station	Corrected plane angle	Distance			Theodolite used
			Log. feet	Feet	Miles	
		° ′ ″				Inch
	Diamond Harbour Semaphore s.	8 59 30	4·487619	30734	5·821	12
378	Rangáfalá „	9 16 2	4·500618	31668	5·998	„
	Jigarkhálí Semaphore		4·789662	61611	11·669	
	Diamond Harbour Semaphore s.	145 39 44	4·420338	26323	4·985	„
379	Kántábáriá Obelisk		3·762159	5783	1·095	
	Diamond Hr. Custom Houses. No. 1	27 13 9	4·329296	21345	4·043	„
				0		
	Diamond Harbour Semaphore s.	122 57 33	4·545932	35151	6·657	„
380	Jigarkhálí Semaphore		3·762159	5783	1·095	
	Diamond Hr. Custom Houses. No. 1	49 6 22	4·500618	31668	5·998	„
	Diamond Harbour Semaphore s.	43 13 28	3·629356	4259	0·807	„
381	Diamond Hr. Custom Houses. No. 1	25 11 3	3·422684	2647	0·501	„
	Hájípur Tomb		3·762159	5783	1·095	
	Diamond Harbour Semaphore s.	62 40 0	3·735434	5438	1·030	„
382	Diamond Hr. Custom Houses. No. 1	8 11 45	2·940838	873	0·165	„
	Diamond Hr. Burial Ground		3·762159	5783	1·095	
	Diamond Harbour Semaphore s.	12 20 44	4·370702	23480	4·447	„
383	Rangáfalá „	21 46 52	4·610126	40750	7·718	„
	Kulpí Obelisk		4·789662	61611	11·669	
	Rangáfalá s.	83 21 23	4·708020	51053	9·669	„
384	Ghoramára „	38 41 54	4·506979	32135	6·086	„
	Kasbáriá White Temple		4·639107	43562	8·250	
	Basdápur s.	69 7 48	4·569682	37126	7·032	„
385	Rangáfalá „	14 19 38	3·992657	9832	1·862	„
	Dhanghátá House		4·596316	39474	7·476	
	Ghoramára s	23 50 49	4·613377	41056	7·776	„
386	Gángrá „	2 19 32	3·614963	4121	0·780	„
	Saugor Mud Point		4·651191	44791	8·483	
				7		
	Mahápurvu Chak s.	57 16 42	4·613377	41056	7·776	„
387	Gángrá „	53 36 36	4·594217	39284	7·440	„
	Saugor Mud Point		4·658898	45593	8·635	
	Ghoramára s.	59 12 7	4·607876	40539	7·678	„
388	Mahápurvu Chak „	64 48 39	4·630498	42707	8·088	„
	Gángrá Semaphore		4·592403	39120	7·409	
				1		
	Ghoramára s.	6 12 53	3·714286	5179	0·981	„
389	Gángrá „	63 12 9	4·630498	42707	8·088	7
	Gángrá Semaphore		4·651191	44791	8·483	
	Gángrá s.	11 15 2	4·241739	17448	3·304	„
390	Kaukhálí „	11 52 27	4·264850	18401	3·485	12
	Kejirí Semaphore		4·545581	35122	6·652	

No. of triangle	Station	Corrected plane angle	Distance			Theodolite used
			Log. feet	Feet	Miles	
		° ′ ″				Inch
	Gángrá s.	13 5 20	3·808475	6434	1·219	7
391	Kejirí Semaphore „	27 16 45	4·114654	13021	2·466	12
	Tálpátí Bridge, S.W. Pillar		4·264850	18401	3·485	
	Gángrá s.	67 50 50	4·584515	38416	7·276	„
392	Kaukhálí „	54 17 29	4·527373	33680	6·379	„
	Auckland Mark		4·545581	35122	6·652	
	Ghoramára s.	47 16 44	4·527373	33680	6·379	„
393	Gángrá „	55 1 33	4·574786	37565	7·115	„
	Auckland Mark		4·651191	44791	8·483	
	NATSAL-KOELA					
	SECONDARY SERIES.					
	Sarisá, II	55 52 35	4·631672	42823	8·110	14
394	Natsal, III	22 18 32	4·293057	19636	3·719	„
	Diamond Hr. Custom Houses. No. 2	101 48 53	4·704432	50633	9·590	„
	Sarisá, II	55 51 24	4·524381	33449	6·335	„
395	Diamond Hr. Custom Houses. No. 2	95 4 27	4·604836	40257	7·624	„
	Hooghly Point s.	29 4 9	4·293057	19636	3·719	„
	Diamond Hr. Custom Houses. No. 2	15 9 9	4·008132	10189	1·930	„
396	Hooghly Point s.	43 57 4	4·432232	27054	5·124	„
	Latpatiá „	120 53 47	4·524381	33449	6·335	„
	Hooghly Point s.	107 4 27	4·218541	16540	3·133	„
397	Latpatiá „	36 50 58	4·016062	10377	1·965	„
	Natsal, III	36 4 35	4·008132	10189	1·930	„
	Natsal, III	56 25 29	3·940787	8725	1·653	„
398	Hooghly Point s.	41 20 12	3·839920	6917	1·310	„
	Fort Mornington „	82 14 19	4·016062	10377	1·965	„
	Natsal, III	84 55 14	3·947286	8857	1·677	12
399	Fort Mornington s.	44 0 38	3·790849	6178	1·170	„
	Kalkíchak „	51 4 8	3·839920	6917	1·310	„
	Natsal, III	53 2 49	3·906766	8068	1·528	„
400	Fort Mornington s.	83 42 27	4·001525	10035	1·901	„
	Malikpárá „	43 14 44	3·839920	6917	1·310	„
	Fort Mornington s.	39 41 49	3·763003	5794	1·097	„
401	Kalkíchak „	62 47 35	3·906766	8068	1·528	„
	Malikpárá „	77 30 36	3·947286	8857	1·677	„

No. of triangle	Station	Corrected plane angle	Distance			Theodolite used
			Log. feet	Feet	Miles	
		° ′ ″				Inch
	Natsal, III	41 32 18	4·076613	11929	2·259	12
402	Malikpárá s.	104 33 20	4·240853	17412	3·298	„
	Bánká „	33 54 22	4·001525	10035	1·901	„
	Malikpárá s.	70 17 28	4·055731	11369	2·153	„
403	Kalkíchak „	81 2 13	4·076613	11929	2·259	„
	Bánká „	28 40 19	3·763003	5794	1·097	„
	Malikpárá s.	73 57 32	4·162879	14551	2·756	„
404	Bánká „	54 2 56	4·088353	12256	2·321	„
	Purulpárá „	51 59 32	4·076613	11930	2·259	„
	Bánká s.	48 41 20	4·076815	11935	2·260	„
405	Purulpárá „	64 59 49	4·158361	14400	2·727	„
	Dingulbáriá „	66 18 51	4·162879	14551	2·756	„
	Purulpárá s.	49 5 4	4·095913	12471	2·362	„
406	Dingulbáriá „	84 35 57	4·215645	16430	3·112	„
	Gudarbeniá „	46 18 59	4·076815	11935	2·260	„
	Dingulbáriá s.	48 9 14	4·033519	10802	2·046	„
407	Gudarbeniá „	72 31 33	4·140879	13832	2·620	„
	Kalkákhálí „	59 19 13	4·095913	12471	2·362	„
	Gudarbeniá s.	53 37 44	4·069094	11724	2·221	„
408	Kalkákhálí „	78 28 50	4·154356	14268	2·702	„
	Tumlook „	47 53 26	4·033519	10802	2·046	„
	Gudarbeniá s.	47 44 26	4·026134	10620	2·011	„
409	Tumlook „	48 22 48	4·030489	10727	2·032	„
	Jhumjhumí „	83 52 46	4·154356	14268	2·702	„
	Tumlook s.	55 14 14	4·072795	11825	2·240	„
410	Jhumjhumí „	77 12 57	4·147276	14037	2·659	„
	Mathrí „	47 32 49	4·026134	10620	2·011	„
	Jhumjhumí s.	51 5 42	4·024444	10579	2·004	„
411	Mathrí „	68 27 57	4·101935	12645	2·395	„
	Anantapur „	60 26 21	4·072795	11825	2·240	„
	Sarisá, II	24 58 52	4·403252	25308	4·793	14
412	Natsal, III	32 41 0	4·510002	32359	6·129	„
	Kukráhátí, S. Temple		4·704432	50633	9·590	
	Sarisá, II	30 53 43	4·267143	18499	3·504	„
413	Diamond Hr. Custom Houses. No. 2	116 4 38	4·510002	32360	6·129	„
	Kukráhátí, S. Temple		4·293057	19636	3·719	
	Natsal, III	122 51 11	4·275698	18867	3·573	„
414	Fort Mornington s.	39 12 32	4·152205	14197	2·689	„
	Tetulbáriá Temple		3·839920	6917	1·310	

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
	Natsal, III		149 28 37	4·463771	29092	5·510	14
415	Fort Mornington	s.	23 35 14	4·360222	22920	4·341	,,
	Dharampur Temple			3·839920	6917	1·310	
					5		
	Sarisá, II		23 48 10	4·360222	22920	4·341	,,
416	Natsal, III		93 7 39	4·753635	56707	10·740	,,
	Dharampur Temple			4·704432	50633	9·590	
	Natsal, III		51 18 59	3·766467	5841	1·106	,,
417	Fort Mornington	s.	16 16 13	3·321453	2096	0·397	,,
	Gewákhálí Temple			3·839920	6917	1·310	
					0		
	Hooghly Point	s.	40 2 48	3·766467	5841	1·106	,,
418	Fort Mornington	,,	65 58 6	3·918601	8291	1·570	,,
	Gewákhálí Temple			3·940787	8725	1·653	
	Bánká	s.	150 58 36	4·399442	25087	4·751	12
419	Purulpárá	,,	12 40 46	4·054979	11350	2·150	,,
	Rámbág Temple			4·162879	14551	2·756	
					1		
	Natsal, III		39 30 53	4·054979	11350	2·150	14
420	Bánká	s.	63 1 18	4·201297	15896	3·011	12
	Rámbág Temple			4·240853	17412	3·298	
	Natsal, III		68 20 40	4·298586	19888	3·767	,,
421	Malikpárá	s.	83 41 16	4·327734	21270	4·028	7
	Kamálpur, S. Temple			4·001525	10035	1·901	
					4		
	Malikpárá	s.	94 49 36	4·384228	24223	4·588	,,
422	Purulpárá	,,	54 53 48	4·298586	19888	3·767	12
	Kamálpur, S. Temple			4·088353	12256	2·321	
	Purulpárá	s.	64 11 13	4·163191	14561	2·758	,,
423	Dingulbáriá	,,	68 15 50	4·176811	15025	2·846	,,
	Bánká Temple			4·076815	11935	2·260	
					1		
	Malikpárá	s.	75 9 12	4·176811	15025	2·846	7
424	Purulpárá	,,	52 48 8	4·092773	12381	2·345	12
	Bánká Temple			4·088353	12256	2·321	
	Jhumjhumí	s.	69 27 8	4·106534	12780	2·420	,,
425	Mathrí	,,	50 30 22	4·022527	10532	1·995	,,
	Tumlook House	,,	60 2 30	4·072795	11825	2·240	,,
	Jhumjhumí	s.	67 24 47	4·126572	13384	2·535	,,
426	Tumlook House	,,	65 59 5	4·121909	13241	2·508	,,
	Mathrí Temple			4·022527	10532	1·995	
					5		
	Jhumjhumí	s.	53 8 3	4·064072	11590	2·195	,,
427	Anantapur	,,	66 3 56	4·121909	13241	2·508	,,
	Mathrí Temple			4·101935	12645	2·395	

* Base deduced from ray trace.

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
	KEJIRÍ TIDE GAUGE						
	SECONDARY SERIES.						
			° ′ ″				Inch
	Gángrá, VI		28 15 21	3·847408	7037	1·333	14
428	Bámanchak	s.	58 32 57	4·103165	12681	2·402	,,
	Kejirí Tide Point	,,	93 11 42	4·171495	14842	2·811	,,
				*			
	Bámanchak	s.	90 16 39	4·120335	13193	2·499	,,
429	Kejirí Tide Point	,,	57 29 9	4·046301	11125	2·107	,,
	Kejirí House	,,	32 14 12	3·847408	7037	1·333	,,
	Kejirí Tide Point	s.	81 55 8	4·120370	13194	2·499	,,
430	Kejirí House	,,	16 11 39	3·570142	3717	0·704	,,
	Tálpátí Bridge Spire			4·120335	13193	2·499	
					5		
	Gángrá, VI		16 59 38	3·570142	3717	0·704	,,
431	Kejirí Tide Point	s.	68 45 43	4·073812	11853	2·245	,,
	Tálpátí Bridge Spire			4·103165	12681	2·402	
	Gángrá, VI		28 25 36	3·851785	7109	1·346	,,
432	Bámanchak	s.	67 53 57	4·141004	13836	2·620	,,
	Kejirí Tide Gauge			4·171495	14842	2·811	
	COAST LINE						
	***SECONDARY SERIES*—(Chandípúr-Nilgirí to Barnai-Dhanái).**						
	Chandípúr, XXII		46 44 59	4·872848	74619	14·132	12
433	Nilgirí, XXIV		16 6 10	4·453544	28415	5·382	,,
	Pándab Ghát	s.	117 8 51	4·959807	91161	17·265	,,
	Chandípúr, XXII		50 24 31	4·852378	71183	13·482	,,
434	Nilgirí, XXIV		30 17 58	4·668421	46604	8·826	,,
	Kusmalí	s.	99 17 31	4·959807	91161	17·265	,,
					0		
	Nilgirí, XXIV		14 11 48	4·263325	18337	3·473	,,
435	Pándab Ghát	s.	72 11 12	4·852378	71183	13·482	,,
	Kusmalí	,,	93 37 0	4·872848	74619	14·132	,,
	Nilgirí, XXIV		12 49 2	4·203774	15987	3·028	,,
436	Kusmalí	s.	86 9 36	4·856754	71904	13·618	,,
	Naurí	,,	81 1 22	4·852378	71183	13·482	,,

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
	Kusmalí	s.	38 0 14	4·080016	12023	2·277	12
437	Naurí	„	87 2 20	4·290056	19501	3·693	„
	Srijang	„	54 57 26	4·203774	15987	3·028	„
	Srijang	s.	64 52 41	4·097041	12504	2·368	„
438	Naurí	„	54 35 37	4·051389	11256	2·132	„
	Pinchápal	„	60 31 42	4·080016	12023	2·277	„
	Naurí	s.	46 14 27	4·062683	11553	2·188	„
439	Pinchápal	„	82 20 29	4·200102	15853	3·002	„
	Jánipur	„	51 25 4	4·097041	12504	2·368	„
	Pinchápal	s.	61 23 41	4·114257	13009	2·464	„
440	Jánipur	„	67 22 42	4·136025	13678	2·591	„
	Patná	„	51 13 37	4·062683	11553	2·188	„
	Jánipur	s.	60 10 57	4·085051	12163	2·304	„
441	Patná	„	51 41 51	4·041456	11002	2·084	„
	Dhobímú	„	68 7 12	4·114257	13009	2·464	„
	Patná	s.	76 45 38	4·211545	16276	3·083	„
442	Dhobímú	„	56 33 57	4·144681	13953	2·643	„
	Aldá	„	46 40 25	4·085051	12163	2·304	„
	Nilgirí, XXIV		23 56 5	4·595306	39383	7·459	„
443	Naurí	s.	108 16 24	4·964634	92179	17·458	„
	Nechanpur	„	47 47 31	4·856754	71904	13·618	„
	Dhobímú	s.	61 41 36	4·179835	15130	2·866	„
444	Aldá	„	47 1 27	4·099442	12573	2·381	„
	Nechanpur	„	71 16 57	4·211545	16276	3·083	„
	Aldá	s.	48 48 39	4·114018	13002	2·463	„
445	Nechanpur	„	70 3 49	4·210650	16242	3·076	„
	Galmátiá Chatí	„	61 7 32	4·179835	15130	2·866	„
	Nechanpur	s.	35 34 6	3·949549	8903	1·686	„
446	Galmátiá Chatí	„	86 16 39	4·183953	15274	2·893	„
	Puruán	„	58 9 15	4·114018	13002	2·463	„
	Galmátiá Chatí	s.	54 15 53	4·038360	10923	2·069	„
447	Puruán	„	84 18 47	4·126809	13391	2·536	„
	Untirá	„	41 25 20	3·949549	8903	1·686	„
	Puruán	s.	52 53 57	3·987100	9707	1·839	„
448	Untirá	„	63 16 12	4·036246	10870	2·059	„
	Kálikotí No. 1	„	63 49 51	4·038360	10923	2·069	„
	Untirá	s.	67 31 4	4·070178	11754	2·226	„
449	Kálikotí No. 1	„	62 44 32	4·053387	11308	2·142	„
	Uruá	„	49 44 24	3·987100	9707	1·839	„
	Kálikotí No. 1	s.	48 57 24	4·010994	10256	1·942	12
450	Uruá	„	71 14 15	4·109786	12876	2·439	„
	Chúráman	„	59 48 21	4·070178	11754	2·226	„
	Uruá	s.	43 59 15	3·924242	8399	1·591	„
451	Chúráman	„	78 0 41	4·072991	11830	2·241	„
	Mandárí	„	58 0 4	4·010994	10256	1·942	„
	Mandárí	s.	72 51 9	4·009558	10223	1·936	„
452	Chúráman	„	55 24 56	3·944858	8808	1·668	„
	Barí Mandárí	„	51 43 55	3·924242	8399	1·591	„
	Chúráman	s.	51 2 25	3·990275	9779	1·852	„
453	Barí Mandárí	„	74 34 49	4·083604	12123	2·296	„
	Kálipadan Chatí	„	54 22 46	4·009558	10223	1·936	„
	Barí Mandárí	s.	76 12 59	4·136650	13698	2·594	„
454	Kálipadan Chatí	„	59 53 24	4·086388	12201	2·311	„
	Kasantpur	„	43 53 37	3·990275	9779	1·852	„
	Kálipadan Chatí	s.	46 6 27	4·032936	10788	2·043	„
455	Kasantpur	„	67 40 59	4·141404	13849	2·623	„
	Bideipur Baurí No. 1	„	66 12 34	4·136650	13698	2·594	„
	Kasantpur	s.	69 12 15	4·215035	16407	3·107	„
456	Bideipur Baurí No. 1	„	72 52 4	4·224581	16772	3·176	„
	Bideipur	„	37 55 41	4·032936	10788	2·043	„
	Bideipur Baurí No. 1	s.	40 46 48	4·036774	10884	2·061	„
457	Bideipur	„	59 16 29	4·156067	14324	2·713	„
	Bideipur Baurí No. 2	„	79 56 43	4·215035	16407	3·107	„
	Bideipur	s.	79 41 2	4·241348	17432	3·302	„
458	Bideipur Baurí No. 2	„	62 25 6	4·196032	15705	2·974	„
	Káliábudá	„	37 53 52	4·036774	10884	2·061	„
	Bideipur Baurí No. 2	s.	33 15 7	4·017820	10419	1·973	„
459	Káliábudá	„	80 11 52	4·272398	18724	3·546	„
	Bálímundá	„	66 33 1	4·241348	17432	3·302	„
	Káliábudá	s.	68 8 26	4·154716	14280	2·704	„
460	Bálímundá	„	69 14 11	4·157956	14387	2·725	„
	Bejiáriá	„	42 37 23	4·017820	10419	1·973	„
	Bálímundá	s.	42 26 49	4·009839	10229	1·937	„
461	Bejiáriá	„	67 8 13	4·145060	13966	2·645	„
	Noásai	„	70 24 58	4·154716	14280	2·704	„
	Bejiáriá	s.	70 2 50	4·183198	15247	2·888	„
462	Noásai	„	70 51 29	4·185380	15324	2·902	„
	Utarsai	„	39 5 41	4·009839	10229	1·937	„

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
	Noásaí	s.	40 50 25	4·057152	11406	2·160	12
463	Utarsaí	,,	78 12 49	4·232351	17075	3·234	,,
	Karanj Mahal	,,	60 56 46	4·183198	15247	2·888	,,
	Utarsaí	s.	49 20 3	4·044458	11078	2·098	,,
464	Karanj Mahal	,,	79 18 42	4·156888	14351	2·718	,,
	Bujrápur	,,	51 21 15	4·057152	11406	2·160	,,
	Karanj Mahal	s.	56 19 32	4·090790	12325	2·334	,,
465	Bujrápur	,,	75 15 28	4·156024	14323	2·713	,,
	Kontiá	,,	48 25 0	4·044458	11078	2·098	,,
	Bujrápur	s.	46 5 11	4·024913	10590	2·006	,,
466	Kontiá	,,	76 56 38	4·155973	14321	2·712	,,
	Koetkolá	,,	56 58 11	4·090790	12325	2·334	,,
	Kontiá	s.	56 57 47	4·126338	13376	2·533	,,
467	Koetkolá	,,	81 27 10	4·198078	15779	2·988	,,
	Bálísaí	,,	41 35 3	4·024913	10590	2·006	,,
	Koetkolá	s.	62 53 17	4·131815	13546	2·566	,,
468	Bálísaí	,,	55 35 40	4·098852	12556	2·378	,,
	Kálínálí	,,	61 31 3	4·126338	13376	2·533	,,
	Bálísaí	s.	49 57 25	4·075290	11893	2·252	,,
469	Kálínálí	,,	69 21 14	4·162482	14537	2·753	,,
	Charnípál	,,	60 41 21	4·131815	13546	2·566	,,
	Kálínálí	s.	55 54 19	4·192334	15572	2·949	,,
470	Charnípál	,,	84 51 42	4·272497	18728	3·547	,,
	Talchuá	,,	39 13 59	4·075290	11893	2·252	,,
	Charnípál	s.	54 2 16	4·161768	14513	2·749	,,
471	Talchuá	,,	65 41 10	4·213265	16340	3·095	,,
	Budará	,,	60 16 34	4·192334	15572	2·949	,,
	Talchuá	s.	58 4 55	4·123175	13279	2·515	,,
472	Budará	,,	53 50 28	4·101447	12631	2·392	,,
	Khasmundá	,,	68 4 37	4·161768	14513	2·749	,,
	Budará	s.	54 32 34	4·060321	11490	2·176	,,
473	Khasmundá	,,	55 10 13	4·063669	11579	2·193	,,
	Putágoibálí	,,	70 17 13	4·123175	13279	2·515	,,
	Khasmundá	s.	57 44 17	4·104410	12718	2·409	8&12
474	Putágoibálí	,,	72 26 43	4·156525	14339	2·716	,,
	Bánsgar	,,	49 49 0	4·060321	11490	2·176	,,
	Putágoibálí	s.	55 42 49	4·174611	14949	2·831	,,
475	Bánsgar	,,	79 37 31	4·250350	17797	3·371	,,
	Maipárá	,,	44 39 40	4·104410	12718	2·409	8
	Maipárá	s.	48 4 37	4·147736	14052	2·661	8
476	Bánsgar	,,	79 35 36	4·268934	18575	3·518	,,
	Baguldiá	,,	52 19 47	4·174611	14949	2·831	,,
	Bánsgar	s.	49 17 39	4·125943	13364	2·531	,,
477	Baguldiá	,,	77 51 14	4·236403	17235	3·264	,,
	Burkolíkotí	,,	52 51 7	4·147736	14052	2·661	,,
	Baguldiá	s.	43 29 19	3·983574	9629	1·824	,,
478	Burkolíkotí	,,	63 43 41	4·098501	12546	2·376	,,
	Sátbhaiá	,,	72 47 0	4·125943	13364	2·531	,,
	Burkolíkotí	s.	62 26 22	4·003341	10077	1·909	,,
479	Sátbhaiá	,,	59 39 56	3·991709	9811	1·858	,,
	Satiában	,,	57 53 42	3·983574	9629	1·824	,,
	Sátbhaiá	s.	59 56 34	4·152200	14197	2·689	,,
480	Satiában	,,	82 9 7	4·210833	16249	3·078	,,
	Gobindapur	,,	37 54 19	4·003341	10077	1·909	,,
	Satiában	s.	40 39 54	4·036264	10871	2·059	,,
481	Gobindapur	,,	81 0 44	4·216895	16478	3·121	,,
	Káparmúrá	,,	58 19 22	4·152200	14197	2·689	,,
	Gobindapur	s.	59 41 43	4·157817	14382	2·724	,,
482	Káparmúrá	,,	79 34 5	4·214390	16383	3·103	,,
	Gopináthpur No. 2	,,	40 44 12	4·036264	10871	2·059	,,
	Káparmúrá	s.	40 15 7	4·026833	10637	2·015	,,
483	Gopináthpur No. 2	,,	78 52 2	4·208250	16153	3·059	,,
	Dalkhái	,,	60 52 51	4·157817	14382	2·724	,,
	Gopináthpur No. 2	s.	58 10 48	4·028639	10682	2·023	,,
484	Dalkhái	,,	64 1 16	4·053107	11301	2·140	,,
	Kuchlágar	,,	57 47 56	4·026833	10637	2·015	,,
	Dalkhái	s.	56 21 19	4·013707	10321	1·955	,,
485	Kuchlágar	,,	64 8 49	4·047530	11157	2·113	,,
	Chinchirí	,,	59 29 52	4·028639	10682	2·023	,,
	Kuchlágar	s.	57 4 9	3·986348	9691	1·835	,,
486	Chinchirí	,,	59 33 46	3·998016	9954	1·885	,,
	Káldíp	,,	63 22 5	4·013707	10321	1·955	,,
	Chinchirí	s.	68 0 54	4·035452	10851	2·055	,,
487	Káldíp	,,	56 4 34	3·987203	9710	1·839	,,
	Chitákholá	,,	55 54 32	3·986348	9691	1·835	,,
	Káldíp	s.	63 16 26	4·201452	15902	3·012	,,
488	Chitákholá	,,	79 10 37	4·242724	17487	3·312	,,
	Barni	,,	37 32 57	4·035452	10851	2·055	,,

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
	Chitákholá	s.	79 2 45	4·358354	22822	4·322	8
489	Barní	„	57 47 25	4·293763	19668	3·725	„
	Shukdebpur	„	43 9 50	4·201452	15902	3·012	„
	Barní	s.	53 5 32	4·368864	23381	4·428	„
490	Shukdebpur	„	75 36 10	4·452132	28323	5·364	„
	Garjang	„	51 18 18	4·358354	22822	4·322	„
	Barní	s.	38 15 9	4·243997	17539	3·322	„
491	Garjang	„	50 37 7	4·340362	21896	4·147	„
	Bagchalí	„	91 7 44	4·452132	28323	5·364	„
	Garjang	s.	72 19 54	4·311548	20490	3·881	„
492	Bagchalí	„	53 1 27	4·235020	17180	3·254	„
	Barpál	„	54 38 39	4·243997	17539	3·322	„
	Bagchalí	s.	59 12 29	4·331819	21469	4·066	„
493	Barpal	„	65 43 17	4·357594	22782	4·315	„
	Jambú	„	55 4 14	4·311548	20490	3·881	„
	Bagchalí	s.	50 18 40	4·349311	22352	4·233	„
494	Jambú	„	78 1 45	4·453540	28415	5·382	„
	Dowdeswell	„	51 39 35	4·357594	22782	4·315	„
	Jambú	s.	90 55 59	4·520616	33160	6·280	„
495	Dowdeswell	„	46 41 35	4·382619	24133	4·571	„
	Jungle	„	42 22 26	4·349311	22352	4·233	„
	Dowdeswell	s.	28 22 18	4·198008	15776	2·988	„
496	Jungle	„	64 26 54	4·476443	29953	5·673	„
	False Point Island	„	87 10 48	4·520616	33160	6·280	„
	Jungle	s.	71 22 27	4·353775	22583	4·277	„
497	False Point Island	„	67 10 19	4·341716	21964	4·160	„
	Lion's Rump	„	41 27 14	4·198008	15776	2·988	„
	Jungle	s.	62 40 45	4·335797	21667	4·104	„
498	Lion's Rump	„	53 4 42	4·289960	19497	3·693	„
	Bakud	„	64 14 33	4·341716	21964	4·160	„
	Lion's Rump	s.	78 36 47	4·402638	25272	4·786	„
499	Bakud	„	44 11 47	4·254579	17971	3·404	„
	Senkud	„	57 11 26	4·335797	21667	4·104	„
	Bakud	s.	60 29 26	4·353429	22565	4·274	„
500	Senkud	„	42 25 43	4·242865	17493	3·313	„
	Parádíp	„	77 4 51	4·402638	25272	4·786	„
	Senkud	s.	75 7 58	4·457992	28707	5·437	„
501	Parádíp	„	55 25 42	4·388399	24457	4·632	„
	Nosundoro	„	49 26 20	4·353429	22565	4·274	„
	Parádíp	s.	33 25 4	4·228819	16936	3·208	8
502	Nosundoro	„	77 35 37	4·477611	30034	5·688	„
	Konkordiá	„	68 59 19	4·457992	28707	5·473	„
	Nosundoro	s.	47 47 23	4·120658	13203	2·500	„
503	Konkordiá	„	60 22 36	4·190191	15495	2·935	„
	Naiágaon Tándá	„	71 50 1	4·228819	16936	3·208	„
	Konkordiá	s.	45 22 3	4·050680	11238	2·128	„
504	Naiágaon Tándá	„	77 54 27	4·188682	15441	2·924	„
	Madhuban	„	56 43 30	4·120658	13203	2·500	„
	Naiágaon Tándá	s.	49 59 21	4·043243	11047	2·092	„
505	Madhuban	„	78 49 40	4·150748	14150	2·680	„
	Nuliásai Tándá	„	51 10 59	4·050680	11238	2·128	„
	Madhuban	s.	51 21 16	4·102974	12676	2·401	„
506	Nuliásai Tándá	„	85 45 0	4·209114	16185	3·065	„
	Báliámurá	„	42 53 44	4·043243	11047	2·092	„
	Nuliásai Tándá	s.	60 1 59	4·202053	15924	3·016	„
507	Báliámurá	„	76 22 7	4·251969	17864	3·383	„
	Magarkhiá Tándá	„	43 35 54	4·102974	12676	2·401	„
	Báliámurá	s.	58 50 47	4·204570	16017	3·033	„
508	Magarkhiá Tándá	„	62 51 2	4·221508	16654	3·154	„
	Ambikí	„	58 18 11	4·202053	15924	3·016	„
	Magarkhiá Tándá	s.	75 3 44	4·318849	20838	3·947	„
509	Ambikí	„	56 58 45	4·257268	18083	3·425	„
	Pokhálkhiá Tándá	„	47 57 31	4·204570	16017	3·033	„
	Ambikí	s.	51 32 36	4·222850	16705	3·164	„
510	Pokhálkhiá Tándá	„	50 49 24	4·218459	16537	3·132	„
	Dasomat	„	77 38 0	4·318849	20838	3·947	„
	Pokhálkhiá Tándá	s.	63 54 41	4·267451	18512	3·506	„
511	Dasomat	„	61 56 52	4·259843	18190	3·445	„
	Balbhadrapur	„	54 8 27	4·222850	16705	3·164	„
	Dasomat	s.	42 35 31	4·112352	12952	2·453	„
512	Balbhadrapur	„	62 6 39	4·228290	16916	3·204	„
	Harichpur	„	75 17 50	4·267451	18512	3·506	„
	Balbhadrapur	s.	65 15 29	4·240360	17392	3·294	„
513	Harichpur	„	72 10 57	4·260831	18232	3·453	„
	Bálijorí	„	42 33 34	4·112352	12952	2·453	„
	Harichpur	s.	64 36 48	4·276450	18899	3·579	„
514	Bálijorí	„	59 8 40	4·254275	17959	3·401	„
	Kuspur	„	56 14 32	4·240360	17392	3·294	„

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
	Bálíjorí	s.	76 24 11	4·347816	22275	4·219	8
515	Kuspur	,,	48 2 25	4·231510	17042	3·228	,,
	Bendrí Thákuráni	,,	55 33 24	4·276450	18899	3·579	,,
	Kuspur	s.	50 44 44	4·246458	17638	3·341	,,
516	Bendrí Thákuráni	,,	51 19 27	4·250005	17783	3·368	,,
	Bijiniá	,,	77 55 49	4·347816	22275	4·219	,,
	Bendrí Thákuráni	s.	70 6 7	4·287684	19395	3·673	,,
517	Bijiniá	,,	51 7 20	4·205669	16057	3·041	,,
	Tándá	,,	58 46 33	4·246458	17638	3·341	,,
	Bijiniá	s.	54 22 49	4·210801	16248	3·077	,,
518	Tándá	,,	49 36 40	4·182527	15224	2·883	,,
	Jharling	,,	76 0 31	4·287684	19395	3·673	,,
	Tándá	s.	60 48 7	4·232564	17083	3·235	,,
519	Jharling	,,	63 4 17	4·241737	17448	3·304	,,
	Maktumjání	,,	56 7 36	4·210801	16248	3·077	,,
	Jharling	s.	54 3 56	4·184870	15306	2·899	12&8
520	Maktumjání	,,	61 17 20	4·219577	16580	3·140	,,
	Sangpatná	,,	64 38 44	4·232564	17083	3·235	,,
	Maktumjání	s.	62 48 49	4·160147	14459	2·739	,,
521	Sangpatná	,,	46 51 33	4·074119	11861	2·246	,,
	Daluákoná	,,	70 19 38	4·184870	15306	2·899	,,
	Sangpatná	s.	77 17 55	4·259247	18165	3·440	,,
522	Daluákoná	,,	51 45 37	4·165113	14626	2·770	,,
	Tirkoná	,,	50 56 28	4·160147	14459	2·739	,,
	Daluákoná	s.	52 43 45	4·197054	15742	2·981	12
523	Tirkoná	,,	60 35 29	4·236348	17232	3·264	,,
	Tundáhá	,,	66 40 46	4·259247	18165	3·440	,,
	Tirkoná	s.	61 53 8	4·192131	15564	2·948	,,
524	Tundáhá	,,	54 58 51	4·159922	14452	2·737	,,
	Telikud	,,	63 8 1	4·197054	15742	2·981	,,
	Tundáhá	s.	50 31 38	4·149452	14108	2·672	,,
525	Telikud	,,	71 4 57	4·237761	17289	3·274	,,
	Nanjíkoná	,,	58 23 25	4·192131	15564	2·948	,,
	Telikud	s.	52 51 14	4·134494	13630	2·581	,,
526	Nanjíkoná	,,	71 33 16	4·210076	16221	3·072	,,
	Kurijang	,,	55 35 30	4·149452	14108	2·672	,,
	Nanjíkoná	s.	48 50 31	4·040214	10970	2·078	,,
527	Kurijang	,,	61 51 32	4·108843	12848	2·433	,,
	Kundiá Nadí	,,	69 17 57	4·134494	13630	2·581	,,
	Kurijang	s.	80 44 37	4·260806	18231	3·453	12
528	Kundiá Nadí	,,	62 49 19	4·215689	16432	3·112	,,
	Madipur	,,	36 26 4	4·040214	10970	2·078	,,
	Kundiá Nadí	s.	46 17 0	4·120287	13191	2·498	,,
529	Madipur	,,	46 25 5	4·121261	13221	2·504	,,
	Black Pagoda	,,	87 17 55	4·260806	18231	3·453	,,
	Madipur	s.	48 8 14	4·142003	13868	2·626	,,
530	Black Pagoda	,,	86 45 22	4·269299	18591	3·521	,,
	Rámchandí	,,	45 6 24	4·120287	13191	2·498	,,
	Madipur	s.	46 2 4	4·142726	13891	2·631	,,
531	Rámchandí	,,	59 32 16	4·221029	16635	3·151	,,
	Sutaná	,,	74 25 40	4·269299	18591	3·521	,,
	Rámchandí	s.	78 48 21	4·303742	20125	3·812	,,
532	Sutaná	,,	58 34 41	4·243212	17507	3·316	,,
	Kusbadrá	,,	42 36 58	4·142726	13891	2·631	8
	Sutaná	s.	38 42 0	4·111397	12924	2·448	12
533	Kusbadrá	,,	64 29 14	4·270791	18655	3·533	8
	Olandá	,,	76 48 46	4·303742	20125	3·812	,,
	Kusbadrá	s.	72 3 31	4·173641	14916	2·825	,,
534	Olandá	,,	52 25 11	4·094290	12425	2·353	,,
	Baleshwar No. 1	,,	55 31 18	4·111397	12924	2·448	,,
	Olandá	s.	61 12 7	4·215301	16417	3·109	,,
535	Baleshwar No. 1	,,	66 1 57	4·233477	17119	3·242	,,
	Chatiáná	,,	52 45 56	4·173641	14916	2·825	,,
	Baleshwar No. 1	s.	60 11 57	4·173645	14916	2·825	,,
536	Chatiáná	,,	47 1 58	4·099606	12578	2·382	,,
	Baleshwar No. 2	,,	72 46 5	4·215301	16417	3·109	,,
	Chatiáná	s.	61 50 55	4·186659	15369	2·911	,,
537	Baleshwar No. 2	,,	59 19 1	4·175836	14991	2·839	,,
	Beldár	,,	58 50 4	4·173645	14916	2·825	,,
	Baleshwar No. 2	s.	48 7 45	4·079508	12009	2·274	,,
538	Beldár	,,	59 30 8	4·142885	13896	2·632	,,
	Bálíkhand No. 1	,,	72 22 7	4·186659	15369	2·911	,,
	Beldár	s.	78 23 51	4·191011	15524	2·940	,,
539	Bálíkhand No. 1	,,	52 20 8	4·098485	12545	2·376	,,
	Samangará	,,	49 16 1	4·079508	12009	2·274	,,
	Bálíkhand No. 1	s.	56 17 57	4·134243	13622	2·580	,,
540	Samangará	,,	52 14 15	4·112080	12944	2·452	,,
	Bálíkhand No. 2	,,	71 27 48	4·191011	15524	2·940	,,

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
	Samangará	s.	84 49 31	4·289751	19487	3·691	8
541	Bálikhand No. 2	„	51 3 14	4·182358	15218	2·882	„
	Utarkoná	„	44 7 15	4·134243	13622	2·580	„
	Bálikhand No. 2	s.	55 2 21	4·233500	17120	3·242	„
542	Utarkoná	„	56 4 24	4·238877	17333	3·283	„
	Gobarsaí	„	68 53 15	4·289751	19487	3·691	„
	Barnai, XXXVII		81 38 1	5·249661	177689	33·653	„
543	Dhanái, XL		52 41 7	5·154849	142840	27·053	„
	Gobarsaí	s.	45 40 52	5·108895	128498	24·337	„
	Utarkoná	s.	55 35 40	4·205230	16041	3·038	„
544	Gobarsaí	„	62 41 47	4·237445	17276	3·272	„
	Dámodarpur	„	61 42 33	4·233500	17120	3·242	„
	Gobarsaí	s.	58 47 11	4·164299	14598	2·765	„
545	Dámodarpur	„	51 12 5	4·123944	13303	2·519	„
	Batkiapukri	„	70 0 44	4·205230	16041	3·038	„
	Dámodarpur	s.	67 39 2	4·241013	17419	3·299	„
546	Batkiapukri	„	61 31 59	4·218961	16556	3·136	„
	Bondálo	„	50 48 59	4·164299	14598	2·765	„
	Batkiapukri	s.	47 4 52	4·136402	13690	2·593	„
547	Bondálo	„	64 12 20	4·226118	16831	3·188	„
	Korábanth	„	68 42 48	4·241013	17419	3·299	„
	Bondálo	s.	76 21 29	4·215823	16437	3·113	„
548	Korábanth	„	49 36 25	4·109988	12882	2·440	„
	Dádrákund	„	54 2 6	4·136402	13690	2·593	„
	Korábanth	s.	51 49 3	4·127740	13420	2·542	„
549	Dádrákund	„	53 51 43	4·139488	13788	2·611	„
	Harchandí	„	74 19 14	4·215823	16437	3·113	„
	Dádrákund	s.	76 8 45	4·241874	17453	3·306	„
550	Harchandí	„	55 33 50	4·171022	14826	2·808	„
	Padampurodího	„	48 17 25	4·127740	13420	2·542	„
	Harchandí	s.	48 21 17	4·174592	14948	2·831	„
551	Padampurodího	„	70 53 45	4·276510	18902	3·580	„
	Borchondá	„	60 44 58	4·241874	17453	3·306	„
	Padampurodího	s.	56 32 2	4·217657	16507	3·126	„
552	Borchondá	„	74 24 2	4·280081	19058	3·610	„
	Dasman	„	49 3 56	4·174592	14948	2·831	„
	Barnai, XXXVII		31 48 13	4·924075	83961	15·902	„
553	Gobarsaí	s.	84 29 1	5·200241	158577	30·034	„
	Arákudá	„	63 42 46	5·154849	142840	27·053	„

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
	Borchondá	s.	54 22 48	4·253218	17915	3·393	8
554	Dasman	„	77 7 2	4·332110	21484	4·069	„
	Arákudá	„	48 30 10	4·217657	16507	3·126	„
	Kusmalí	s.	121 50 31	4·433752	27149	5·142	12
555	Nauri	„	28 8 29	4·178204	15073	2·855	„
	Bardhanpur Temple			4·203774	15987	3·028	
	Pándab Ghát	s.	51 1 29	4·178204	15073	2·855	„
556	Kusmalí	„	57 56 5	4·215660	16431	3·112	„
	Bardhanpur Temple			4·263325	18337	3·473	
	Pándab Ghát	s.	24 49 23	3·997154	9935	1·882	„
557	Kusmalí	„	104 23 0	4·360263	22923	4·341	„
	Chanchiná Temple			4·263325	18337	3·473	
	Kusmalí	s.	75 23 36	4·219020	16558	3·136	„
558	Naurí	„	35 29 30	3·997154	9935	1·882	„
	Chanchiná Temple			4·203774	15987	3·028	
	Jánipur	s.	15 54 4	3·687806	4873	0·923	„
559	Patná	„	31 6 16	3·963244	9188	1·740	„
	Kherang Temple			4·114257	13009	2·464	
	Jánipur	s.	44 16 53	3·891672	7792	1·476	„
560	Dhobimú	„	55 24 48	3·963244	9188	1·740	„
	Kherang Temple			4·041456	11002	2·084	
	Nechanpur	s.	11 19 2	3·572114	3733	0·707	„
561	Puruán	„	115 16 51	4·235602	17203	3·258	„
	Puntá	„	53 24 7	4·183953	15274	2·893	„
	Puruán	s.	73 27 53	4·040850	10986	2·081	„
562	Kálikotí No. 1	„	34 59 49	3·817750	6573	1·245	„
	Puruán Temple			4·036246	10870	2·059	
	Untirá	s.	89 6 4	4·040850	10986	2·081	„
563	Kálikotí No. 1	„	28 50 2	3·724195	5299	1·004	„
	Puruán Temple			3·987100	9707	1·839	
	Puruán	s.	13 23 34	3·512062	3251	0·616	„
564	Kálikotí No. 1	„	115 51 21	4·101467	12632	2·392	„
	Kálikotí No. 2	„		4·036246	10870	2·059	
	Puruán	s.	35 57 36	3·993736	9857	1·867	„
565	Puntá	„	131 11 19	4·101467	12632	2·392	„
	Kálikotí No. 2	„		3·572114	3733	0·707	
	Uruá	s.	145 8 15	4·179871	15131	2·866	„
566	Mandárí	„	8 19 1	3·583087	3829	0·725	„
	Erim Temple			4·072991	11830	2·241	

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
	Chúráman	s.	87 46 50	4·030263	10722	2·031	12
567	Mandárí	,,	40 42 5	3·844914	6997	1·325	,,
	Uruá Salt Golá			3·924242	8399	1·591	
					1		
	Uruá	s.	63 26 38	4·030263	10722	2·031	,,
568	Mandárí	,,	17 17 59	3·551981	3564	0·675	,,
	Uruá Salt Golá			4·072991	11830	2·241	
	Chúráman	s.	54 18 56	3·851766	7108	1·346	,,
569	Mandárí	,,	51 59 40	3·838580	6896	1·306	,,
	Chúráman Salt Golá			3·924242	8399	1·591	
					0		
	Uruá	s.	35 6 27	3·838580	6896	1·306	,,
570	Chúráman	,,	23 41 45	3·682926	4819	0·913	,,
	Chúráman Salt Golá			4·010994	10256	1·942	
	Kálikotí No. 1	s.	26 36 41	3·775833	5968	1·130	,,
571	Chúráman	,,	78 16 37	4·115462	13046	2·471	,,
	Kondrápárá	,,	75 6 42	4·109786	12876	2·439	,,
	Dowdeswell	s.	66 29 39	4·489812	30890	5·850	8
572	Jambú	,,	71 56 3	4·505477	32024	6·065	,,
	False Point Light-house	,,	41 34 18	4·349311	22352	4·233	,,
					2		
	False Point Island	s.	67 59 36	4·489812	30890	5·850	,,
573	Jambú	,,	8 45 15	3·705067	5071	0·960	,,
	False Point Light-house	,,	103 15 9	4·510944	32430	6·142	,,
				*			
	Jambú	s.	80 35 42	4·544990	35074	6·643	,,
574	False Point Light-house	,,	39 4 47	4·350484	22412	4·245	,,
	Reddie Head Beacon			4·489812	30890	5·850	
					1		
	Dowdeswell	s.	86 41 29	4·350484	22412	4·245	,,
575	Jambú	,,	8 39 39	3·528990	3381	0·640	,,
	Reddie Head Beacon			4·349311	22352	4·233	
	Jambú	s.	41 37 19	4·324044	21088	3·994	,,
576	False Point Light-house	,,	35 0 44	4·260461	18216	3·450	,,
	Plowdin's Island, E. Beacon			4·489812	30890	5·850	
					1		
	Dowdeswell	s.	54 13 16	4·260461	18216	3·450	,,
577	Jambú	,,	30 18 44	4·054334	11333	2·146	,,
	Plowdin's Island, E. Beacon			4·349311	22352	4·233	
	Jambú	s.	43 11 18	4·338813	21818	4·132	,,
578	False Point Light-house	,,	32 30 0	4·233720	17129	3·244	,,
	Plowdin's Island, W. Beacon			4·489812	30890	5·850	
					2		
	Dowdeswell	s.	48 19 14	4·233720	17129	3·244	,,
579	Jambú	,,	28 44 45	4·042549	11029	2·089	,,
	Plowdin's Island, W. Beacon			4·349311	22352	4·233	

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
	False Point Island	s.	60 1 33	3·669186	4669	0·884	8
580	False Point Light-house	,,	49 46 40	3·614378	4115	0·779	,,
	False Point Bungalow			3·705067	5071	0·960	
	Madhuban	s.	114 51 39	4·126702	13388	2·536	,,
581	Nuliásaí Tándá	,,	16 39 41	3·626386	4230	0·801	,,
	Kujang Temple			4·043243	11047	2·092	
					1		
	Nuliásaí Tándá	s.	69 5 19	4·169988	14791	2·801	,,
582	Báliámurá	,,	57 43 39	4·126702	13388	2·536	,,
	Kujang Temple			4·102974	12676	2·401	
	Balbhadrapur	s.	12 38 9	3·792140	6196	1·174	,,
583	Bálijorí	,,	27 25 42	4·115545	13048	2·471	,,
	Bálijorí Coast	,,	139 56 9	4·260831	18232	3·453	,,
	Bálijorí	s.	141 44 19	4·306680	20262	3·837	,,
584	Bálijorí Coast	,,	27 20 42	4·176955	15030	2·847	,,
	Bendrí Thákuráni Coast	,,	10 54 59	3·792140	6196	1·174	,,
					2		
	Bálijorí	s.	12 43 34	3·610461	4078	0·772	,,
585	Bendrí Thákuráni	,,	54 16 47	4·176955	15030	2·847	,,
	Bendrí Thákuráni Coast	,,	112 59 39	4·231510	17042	3·228	,,
	Bendrí Thákuráni	s.	118 32 37	4·136636	13697	2·594	,,
586	Bendrí Thákuráni Coast	,,	46 17 41	4·051998	11272	2·135	,,
	Deví River	,,	15 9 42	3·610461	4078	0·772	,,
					1		
	Bendrí Thákuráni	s.	10 11 38	3·728280	5349	1·013	,,
587	Tándá	,,	21 53 50	4·051998	11272	2·135	,,
	Deví River	,,	147 54 32	4·205669	16057	3·041	,,
	Kurijang	s.	68 1 12	4·185449	15327	2·903	12
588	Kundiá Nadí	,,	70 23 42	4·192286	15570	2·949	,,
	Black Pagoda			4·040214	10970	2·078	
					1		
	Kundiá Nadí	s.	38 42 37	3·985322	9668	1·831	,,
589	Black Pagoda	,,	82 30 15	4·185449	15327	2·903	,,
	Black Pagoda			4·121261	13221	2·504	
	Chatiáná	s.	112 11 42	4·220332	16609	3·146	8
590	Beldár	,,	11 6 44	3·538718	3457	0·655	,,
	Chatiáná Temple			4·175836	14991	2·839	
					1		
	Baleshwar No. 2	s.	58 11 50	4·220332	16609	3·146	,,
591	Beldár	,,	69 56 48	4·263820	18358	3·477	,,
	Chatiáná Temple			4·186659	15369	2·911	
	Chatiáná	s.	67 21 12	4·200067	15851	3·002	,,
592	Beldár	,,	51 51 33	4·130610	13509	2·558	,,
	Baleshwar Temple			4·175836	14991	2·839	

* Base deduced by two sides and included angle.

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
	Baleshwar No. 1	s.	54 51 27	4·130610	13509	2·558	8
593	Chatiáná	,,	41 31 41	4·039509	10952	2·074	,,
	Baleshwar Temple			4·215301	16417	3·109	
	Bálikhand No. 2	s.	47 2 52	4·160211	14461	2·739	,,
594	Utarkoná	,,	52 27 0	4·194922	15665	2·967	,,
	Pooree Great Temple			4·289751	19487	3·691	
	Samangará	s.	40 24 46	4·160211	14461	2·739	,,
595	Utarkoná	,,	96 34 15	4·345579	22160	4·197	,,
	Pooree Great Temple			4·182358	15218	2·882	
	Bálikhand No. 2	s.	6 10 33	3·329420	2135	0·404	,,
596	Gobarsaí	,,	54 40 28	4·209315	16193	3·067	,,
	Galmandab Temple			4·238877	17333	3·283	
	Gobarsaí	s.	114 57 19	4·156397	14335	2·715	,,
597	Batkiapukri	,,	7 45 39	3·329420	2135	0·404	,,
	Galmandab Temple			4·123944	13303	2·519	
	Dádrákund	s.	76 19 4	4·242809	17491	3·313	,,
598	Padampurodího	,,	48 14 12	4·127994	13427	2·543	,,
	Harchandi Temple			4·171022	14826	2·808	
	Korábanth	s.	51 53 39	4·127994	13427	2·543	,,
599	Dádrákund	,,	53 41 24	4·138331	13751	2·604	,,
	Harchandí Temple			4·215823	16437	3·113	
	Korábanth	s.	60 38 23	4·207076	16109	3·051	,,
600	Dádrákund	,,	56 34 36	4·188272	15427	2·922	,,
	Baraikudá	,,	62 47 1	4·215823	16437	3·113	,,
	Korábanth	s.	8 49 20	3·443794	2778	0·526	,,
601	Harchandí	,,	121 37 5	4·188272	15427	2·922	,,
	Baraikudá	,,	49 33 35	4·139488	13788	2·611	,,
	Dádrákund	s.	22 29 53	4·005322	10123	1·917	,,
602	Harchandí	,,	127 1 16	4·324746	21123	4·000	,,
	Baramat	,,	30 28 51	4·127740	13420	2·542	,,
	Borchondá	s.	22 29 52	4·005322	10123	1·917	,,
603	Harchandí	,,	23 6 9	4·016226	10381	1·966	,,
	Baramat	,,	134 23 59	4·276510	18902	3·580	,,
	Harchandí	s.	20 55 41	4·004378	10101	1·913	,,
604	Borchondá	,,	21 0 57	4·006114	10142	1·921	,,
	Baramat Temple			4·276510	18902	3·580	
	Harchandí	s.	2 10 28	2·585419	385	0·073	,,
605	Baramat	,,	91 39 52	4·006114	10142	1·921	,,
	Baramat Temple			4·005322	10123	1·917	
	Borchondá	s.	112 34 19	4·278597	18993	3·597	8
606	Baramat	,,	37 7 4	4·093853	12412	2·351	,,
	Potámohan	,,	30 18 37	4·016226	10381	1·966	,,
	Arákudá	s.	32 19 3	4·093853	12412	2·351	,,
607	Borchondá	,,	35 24 1	4·128707	13450	2·547	,,
	Potámohan	,,	112 16 56	4·332110	21484	4·069	,,
	Arákudá	s.	74 43 20	4·148053	14062	2·663	,,
608	Potámohan	,,	37 57 50	3·952671	8967	1·698	,,
	Haribasá	,,	67 18 50	4·128707	13450	2·547	,,
	Arákudá	s.	27 47 21	3·886084	7693	1·457	,,
609	Haribasá	,,	119 17 26	4·158085	14391	2·726	,,
	Khonduákudá	,,	32 55 13	3·952671	8967	1·698	,,
	Arákudá	s.	50 18 34	4·086226	12196	2·310	,,
610	Khonduákudá	,,	14 55 0	3·610646	4080	0·773	,,
	Arákudá Temple No. 1			4·158085	14391	2·726	
	Haribasá	s.	136 1 13	4·086226	12196	2·310	,,
611	Khonduákudá	,,	18 0 13	3·734680	5429	1·028	,,
	Arákudá Temple No. 1			3·886084	7693	1·457	
	Arákudá	s.	30 29 14	4·139945	13802	2·614	5
612	Khonduákudá	,,	117 34 33	4·382270	24114	4·567	8
	Babeswal Temple			4·158085	14391	2·726	
	Arákudá	s.	58 16 35	4·318992	20845	3·948	5
613	Haribasá	,,	100 15 31	4·382270	24114	4·567	8
	Babeswal Temple			3·952671	8967	1·698	

COAST LINE

SECONDARY SERIES—(Ráegará-Dhobá Dhobaní to Mal).

	Ráegará, XLVII		86 4 32	5·090817	123259	23·344	24
614	Dhobá Dhobaní, XLVIII		33 56 21	4·838714	68979	13·064	,,
	Ichápur	h.s.		5·029303	106980	20·261	
	Ráegará, XLVII		21 9 54	4·588436	38765	7·342	,,
615	Bodágirí, XLIX		39 58 34	4·838714	68979	13·064	,,
	Ichápur	h.s.		4·973273	94031	17·809	
	Bodágirí, XLIX		35 13 27	4·372840	23596	4·469	,,
616	Ichápur	h.s.	73 24 51	4·593376	39208	7·426	8
	Kotlingá	,,	71 21 42	4·588436	38765	7·342	,,

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
	Ichápur	h.s.	77 52 1	4·426153	26678	5·053	8
617	Kotlingá	„	42 16 56	4·263839	18359	3·477	„
	Naiágaon	„	59 51 3	4·372840	23596	4·469	„
	Bodágirí, XLIX		39 12 32	4·426153	26678	5·053	„
618	Kotlingá	h.s.	29 4 46	4·311989	20511	3·885	„
	Naiágaon	„	111 42 42	4·593376	39208	7·426	„
	Bodágirí, XLIX		58 5 5	4·340152	21885	4·145	„
619	Naiágaon	h.s.	69 12 35	4·382090	24104	4·565	„
	Landarípat	s.	52 42 20	4·311989	20511	3·885	„
	Bodágirí, XLIX		36 48 25	4·237562	17281	3·273	„
620	Landarípat	s.	86 30 21	4·459240	28790	5·453	„
	Puthmaí	„	56 41 14	4·382090	24104	4·565	„
	Landarípat	s.	48 0 4	4·253935	17945	3·399	„
621	Puthmaí	„	86 18 5	4·381949	24096	4·564	„
	Idalpalam	„	45 41 51	4·237562	17281	3·273	„
	Puthmaí	s.	68 57 3	4·408149	25595	4·847	„
622	Idalpalam	„	70 10 50	4·411622	25800	4·886	„
	Golá Gundí	„	40 52 7	4·253935	17945	3·399	„
	Puthmaí	s.	56 33 55	4·367961	23333	4·419	„
623	Golá Gundí	„	56 6 0	4·365612	23207	4·395	„
	Borgaon No. 1	„	67 20 5	4·411622	25800	4·886	„
	Golá Gundí	s.	49 39 56	4·296919	19812	3·752	„
624	Borgaon No. 1	„	66 28 13	4·377105	23829	4·513	„
	Palwálsá	h.s.	63 51 51	4·367961	23333	4·419	„
	Golá Gundí	s.	46 52 42	4·303993	20137	3·814	„
625	Palwálsá	h.s.	73 23 2	4·422203	26436	5·007	„
	Mukhal	s.	59 44 16	4·377105	23829	4·513	„
	Palwálsá	h.s.	45 39 57	4·450942	28245	5·349	„
626	Mukhal	s.	103 40 26	4·583981	38369	7·267	„
	Mal, LI		30 39 37	4·303993	20137	3·814	„
	Palwálsá	h.s.	48 42 37	4·181262	15180	2·875	„
627	Mukhal	s.	36 40 43	4·081613	12067	2·285	„
	Barwa Temple			4·303993	20137	3·814	
	Mal, LI		68 57 3	4·425014	26608	5·039	„
628	Mukhal	s.	13 13 24	3·814362	6522	1·235	„
	Rati Hill Mark			4·450942	28245	5·349	

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	

COAST LINE

SECONDARY SERIES—(Mal to Sálihundan).

			° ′ ″				Inch
	Mal, LI		51 0 13	4·474554	29823	5·648	8
629	Palwálsá	h.s.	38 9 2	4·374827	23704	4·489	„
	Yalmel	„	90 50 45	4·583981	38369	7·267	„
	Mal, LI		66 15 39	4·424881	26600	5·038	„
630	Yalmel	h.s.	59 4 43	4·396699	24929	4·721	„
	Murkhí	„	54 39 38	4·374827	23704	4·489	„
	Mal, LI		38 15 58	4·202086	15925	3·016	„
631	Murkhí	h.s.	65 56 0	4·370679	23479	4·447	„
	Báthpuram	„	75 48 2	4·396699	24929	4·721	„
	Murkhí	h.s.	63 8 38	4·218439	16536	3·132	„
632	Báthpuram	„	57 37 55	4·194669	15656	2·965	„
	Penbiram	s.	59 13 27	4·202086	15925	3·016	„
	Báthpuram	h.s.	71 54 14	4·279069	19014	3·601	„
633	Penbiram	s.	52 20 12	4·199614	15835	2·999	„
	Khirsingá	„	55 45 34	4·218439	16536	3·132	„
	Penbiram	s.	66 24 57	4·278532	18990	3·597	„
634	Khirsingá	„	47 0 19	4·180577	15156	2·870	„
	Bendí	h.s.	66 34 44	4·279069	19014	3·601	„
	Khirsingá	s.	80 55 35	4·332443	21500	4·072	„
635	Bendí	h.s.	38 21 27	4·130700	13511	2·559	„
	Púndí	s.	60 42 58	4·278532	18990	3·597	„
	Bendí	h.s.	53 24 16	4·243741	17528	3·320	„
636	Púndí	s.	46 36 4	4·200388	15863	3·004	„
	Murárípur	h.s.	79 59 40	4·332443	21500	4·072	„
	Bendí	h.s.	68 20 8	4·248525	17722	3·357	„
637	Murárípur	„	55 22 29	4·195680	15692	2·972	„
	Mathikpur	„	56 17 23	4·200388	15863	3·004	„
	Murárípur	h.s.	58 2 33	4·220450	16613	3·146	„
638	Mathikpur	„	57 7 15	4·216013	16444	3·114	„
	Muní	„	64 50 12	4·248525	17722	3·357	„
	Murárípur	h.s.	54 40 53	4·281985	19142	3·625	„
639	Muní	„	80 48 53	4·364717	23159	4·386	„
	Kothpetá	s.	44 30 14	4·216013	16444	3·114	„

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			o ′ ″				Inch
	Muní	h.s.	64 20 31	4·315997	20701	3·921	8
640	Kothpetá	s.	59 11 55	4·295049	19726	3·736	„
	Borgaon No. 2	„	56 27 34	4·281985	19142	3·625	„
	Kothpetá	s.	74 32 42	4·372258	23565	4·463	„
641	Borgaon No. 2	„	47 35 51	4·256560	18053	3·419	„
	Rálímolpetá	„	57 51 27	4·315997	20701	3·921	„
	Borgaon No. 2	s.	52 40 39	4·279634	19039	3·606	„
642	Rálímolpetá	„	47 29 40	4·246731	17649	3·343	„
	Naupadá	„	79 49 41	4·372258	23565	4·463	„
	Rálímolpetá	s.	45 44 31	4·166493	14672	2·779	„
643	Naupadá	„	65 55 29	4·271932	18704	3·542	„
	Nungur	„	68 20 0	4·279634	19039	3·606	„
	Naupadá	s.	62 24 19	4·190668	15512	2·938	„
644	Nungur	„	60 38 16	4·183400	15255	2·889	„
	Lokaváram	„	56 57 25	4·166493	14672	2·779	„
	Nungur	s.	51 3 15	4·114007	13002	2·462	„
645	Lokaváram	„	60 50 16	4·164307	14598	2·765	„
	Megáváram No. 1	„	68 6 29	4·190668	15512	2·938	„
	Lokaváram	s.	84 43 9	4·308419	20343	3·853	„
646	Megáváram No. 1	„	55 45 21	4·227587	16888	3·199	„
	Kankarpili	„	39 31 30	4·114007	13002	2·462	„
	Lokaváram	s.	84 43 12	4·308407	20343	3·853	7
647	Kankarpili	„	39 31 18	4·113963	13001	2·462	„
	Megáváram No. 2	„	55 45 30	4·227587	16888	3·199	„
	Kankarpili	s.	56 10 49	4·229713	16971	3·214	„
648	Megáváram No. 2	„	39 3 6	4·109575	12870	2·437	„
	Malgám	„	84 46 5	4·308407	20343	3·853	„
	Kankarpili	s.	78 15 2	4·212578	16315	3·090	„
649	Malgám	„	51 11 10	4·113415	12984	2·459	„
	Thirwalá	h.s.	50 33 48	4·109575	12870	2·437	„
	Malgám	s.	60 18 51	4·278781	19001	3·599	„
650	Thirwalá	h.s.	71 26 51	4·316707	20735	3·927	„
	Onashtípuram	s.	48 14 18	4·212578	16315	3·090	„
	Thirwalá	h.s.	80 21 2	4·367026	23282	4·410	„
651	Onashtípuram	s.	46 4 49	4·230736	17011	3·222	„
	Bodápád	h.s.	53 34 9	4·278781	19001	3·599	„
	Onashtípuram	s.	52 56 18	4·362178	23024	4·361	„
652	Bodápád	h.s.	73 15 47	4·441383	27630	5·233	„
	Pedákondá	„	53 47 55	4·367026	23282	4·410	„
	Onashtípuram	s.	51 33 2	4·357975	22802	4·319	7
653	Pedákondá	h.s.	56 49 50	4·386880	24371	4·616	„
	Kotherevú	s.	71 37 8	4·441383	27630	5·233	„
	Pedákondá	h.s.	82 17 33	4·457284	28661	5·428	„
654	Kotherevú	s.	45 40 15	4·315736	20689	3·918	„
	Rálpád	h.s.	52 2 12	4·357975	22802	4·319	„
	Kotherevú	s.	70 25 0	4·511171	32447	6·145	„
655	Rálpád	h.s.	53 15 23	4·440855	27597	5·227	„
	Calingápatam	s.	56 19 37	4·457284	28661	5·428	„
	Rálpád	h.s.	68 28 39	4·508531	32250	6·108	„
656	Calingápatam	s.	42 8 27	4·366613	23260	4·405	„
	Sálihundam, LVIII		69 22 54	4·511171	32447	6·145	„
	Bendí	h.s.	9 45 30	3·682186	4810	0·911	8
657	Púndí	s.	39 29 24	4·256453	18049	3·418	„
	Púndí Custom House			4·332443	21500	4·072	
	Khirsingá	s.	70 0 24	4·256453	18049	3·418	„
658	Bendí	h.s.	28 35 57	3·963494	9194	1·741	„
	Púndí Custom House			4·278532	18990	3·597	
	Khirsingá	s.	15 26 10	3·558893	3622	0·686	„
659	Púndí	„	81 20 23	4·128764	13451	2·548	„
	Púndí Temple			4·130700	13511	2·559	
	Khirsingá	s.	65 29 25	4·259012	18156	3·439	„
660	Bendí	h.s.	42 23 11	4·128764	13451	2·548	„
	Púndí Temple			4·278532	18990	3·597	
	Murárípur	h.s.	82 40 4	4·317544	20776	3·935	„
661	Mathikpur	„	39 32 37	4·125021	13336	2·526	„
	Penthátíkelá Bungalow			4·248525	17722	3·357	
	Nungur	s.	65 36 59	4·224498	16769	3·176	„
662	Lokaváram	„	56 58 25	4·188536	15436	2·923	„
	Naupadá Temple			4·190668	15512	2·938	
	Kotherevú	s.	59 59 48	4·396820	24936	4·723	7
663	Rálpád	h.s.	35 31 28	4·223517	16731	3·169	„
	Calingápatam Flagstaff No. 2			4·457284	28661	5·428	
	Rálpád	h.s.	74 38 37	4·542145	34845	6·599	„
664	Sálihundam, LVIII		65 17 19	4·516224	32826	6·217	„
	Calingápatam Beacon			4·366613	23260	4·405	
	Kotherevú	s.	75 27 34	4·516224	32826	6·217	„
665	Rálpád	h.s.	47 5 25	4·395456	24857	4·708	„
	Calingápatam Beacon			4·457284	28661	5·428	

COAST LINE

SECONDARY SERIES—(Sálihundam to Kandíwálsá).

No. of triangle	Station		Corrected plane angle	Distance: Log. feet	Distance: Feet	Distance: Miles	Theodolite used
			° ′ ″				Inch
	Sálihundam, LVIII		66 28 8	4·502991	31841	6·031	7
666	Calingápatam	s.	45 18 41	4·392528	24690	4·676	„
	Vacháwálsá	„	68 13 11	4·508531	32250	6·108	„
	Sálihundam, LVIII		69 41 10	4·429748	26900	5·095	„
667	Vacháwálsá	s.	50 54 34	4·347581	22263	4·216	„
	Lingalwálsá	„	59 24 16	4·392528	24690	4·676	„
	Vacháwálsá	s.	56 37 25	4·413974	25940	4·913	„
668	Lingalwálsá	„	63 23 1	4·443599	27771	5·260	„
	Kundívádápet	„	59 59 34	4·429748	26900	5·095	„
	Lingalwálsá	s.	65 12 26	4·525297	33519	6·348	„
669	Kundívádápet	„	70 9 37	4·540719	34731	6·578	„
	Yerámantí	h.s.	44 37 57	4·413974	25940	4·913	„
	Kundívádápet	s.	47 38 59	4·498610	31522	5·970	„
670	Yerámantí	h.s.	80 32 54	4·624006	42073	7·968	„
	Koiam	s.	51 48 7	4·525297	33519	6·348	„
	Yerámantí	h.s.	58 42 16	4·451509	28282	5·356	„
671	Koiam	s.	49 2 51	4·397890	24997	4·734	„
	Ráipili	h.s.	72 14 53	4·498610	31522	5·970	„
	Koiam	s.	82 49 58	4·576671	37729	7·146	„
672	Ráipili	h.s.	49 6 53	4·458612	28748	5·445	„
	Kucharlú	s.	48 3 9	4·451509	28282	5·356	„
	Ráipili	h.s.	57 40 58	4·628502	42511	8·051	„
673	Kucharlú	s.	73 43 28	4·683831	48287	9·145	„
	Chitáwálsá	h.s.	48 35 34	4·576671	37729	7·146	„
	Kucharlú	s.	50 49 46	4·519742	33093	6·268	„
674	Chitáwálsá	h.s.	44 21 52	4·474903	29847	5·653	„
	Rámchandarpur	„	84 48 22	4·628502	42511	8·051	„
	Chitáwálsá	h.s.	67 10 9	4·633946	43047	8·153	„
675	Rámchandarpur	„	67 42 53	4·635664	43218	8·185	„
	Kandíwálsá, LXII		45 6 58	4·519742	33093	6·268	„
	Kundívádápet	s.	19 7 53	4·041213	10995	2·082	„
676	Yerámantí	h.s.	73 18 14	4·506983	32135	6·086	„
	Chicácol, N. Spire			4·525297	33519	6·348	
	Lingalwálsá	s.	77 5 3	4·506983	32135	6·086	Inch 7
677	Kundívádápet	„	51 1 44	4·408792	25633	4·855	„
	Chicácol, N. Spire			4·413974	25940	4·913	
	Kundívádápet	s.	19 1 32	4·038782	10934	2·071	„
678	Yerámantí	h.s.	73 2 0	4·506251	32081	6·076	„
	Chicácol, S. Spire			4·525297	33519	6·348	
	Lingalwálsá	s.	76 54 26	4·506251	32081	6·076	„
679	Kundívádápet	„	51 8 5	4·409018	25646	4·857	„
	Chicácol, S. Spire			4·413974	25940	4·913	

COAST LINE

SECONDARY SERIES—(Kandíwálsá to Amnám).

No. of triangle	Station		Corrected plane angle	Distance: Log. feet	Distance: Feet	Distance: Miles	Theodolite used
			° ′ ″				
	Kandíwálsá, LXII		62 36 47	4·599443	39760	7·530	7
680	Rámchandarpur	h.s.	43 22 13	4·487842	30750	5·824	„
	Mathiálámá	„	74 1 9	4·633946	43047	8·153	„
	Kandíwálsá, LXII		52 34 51	4·430080	26920	5·099	„
681	Mathiálámá	h.s.	62 17 57	4·477277	30011	5·684	„
	Koiparlí	s.	65 7 12	4·487842	30750	5·824	„
	Mathiálámá	h.s.	50 36 46	4·391114	24610	4·661	„
682	Koiparlí	s.	71 40 11	4·480390	30227	5·725	„
	Rámchandarpet	„	57 43 3	4·430080	26920	5·099	„
	Koiparlí	s.	66 47 24	4·461746	28956	5·484	„
683	Rámchandarpet	„	61 50 50	4·443716	27779	5·261	„
	Hakíváram	„	51 21 46	4·391114	24610	4·661	„
	Rámchandarpet	s.	57 37 49	4·450398	28210	5·343	„
684	Hakíváram	„	62 15 40	4·470723	29561	5·599	„
	Amnám, LXV		60 6 31	4·461746	28956	5·484	„
	Kandíwálsá, LXII		18 56 21	4·102220	12654	2·397	„
685	Mathiálámá	h.s.	33 7 37	4·328506	21306	4·035	„
	Barnikam Pagoda			4·487842	30750	5·824	
	Kandíwálsá, LXII		43 40 26	4·495674	31309	5·930	„
686	Rámchandarpur	h.s.	28 1 46	4·328506	21306	4·035	„
	Barnikam Pagoda			4·633946	43047	8·153	
	Kandíwálsá, LXII		45 12 11	4·484987	30548	5·786	„
687	Rámchandarpur	h.s.	45 22 35	4·486288	30640	5·803	„
	Santapili Light-house	s.	89 25 14	4·633946	43047	8·153	„

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″		°		Inch
	Kandíwálsá, LXII		17 24 36	3·968099	9292	1·760	7
688	Mathiálámá	h.s.	80 37 31	4·486288	30640	5·803	„
	Santapili Light-house	s.	81 57 53	4·487842	30750	5·824	„
	COAST LINE†						
	SECONDARY SERIES—(Amnám to Bimlípatam).						
	Amnám, LXV		73 16 37	4·482009	30340	5·746	7
689	Hakíváram	s.	43 47 25	4·340896	21923	4·152	„
	Rájápá Lová	h.s.	62 55 58	4·450398	28210	5·343	„

No. of triangle	Station		Corrected plane angle	Distance			Theodolite used
				Log. feet	Feet	Miles	
			° ′ ″				Inch
	Amnám, LXV		63 46 15	4·392217	24673	4·673	7
690	Rájápá Lová	h.s.	63 22 46	4·390742	24589	4·657	„
	Bimlipatam	„	52 50 59	4·340896	21923	4·152	„
	Rájápá Lová	h.s.	59 52 57	4·409546	25677	4·863	„
691	Bimlipatam	„	63 53 57	4·425817	26657	5·049	„
	Ánandapur	„	56 13 6	4·392217	24673	4·673	„
	Rájápá Lová	h.s.	72 24 37	4·405833	25458	4·822	„
692	Ánandapur	„	21 5 23	3·982725	9610	1·820	„
	Chitíwálsá Sugar Factory			4·425817	26657	5·049	
					°		
	Bimlipatam	h.s.	71 39 43	4·405833	25458	4·822	„
693	Ánandapur	„	35 7 43	4·188448	15433	2·923	„
	Chitíwálsá Sugar Factory			4·409546	25677	4·863	

† The continuation of this Series will be found in the Synopsis of Results of the Bider Longitudinal Series.

September 1877.

J. B. N. HENNESSEY,

In charge of Computing Office.

EAST COAST SERIES.

AZIMUTHS OF SURROUNDING STATIONS AND POINTS, AT PRINCIPAL, PRINCIPAL-AUXILIARY, AND SECONDARY STATIONS.

The following table contains, in the first column, the name of each Principal, Principal-Auxiliary, or Secondary Station, at which azimuths of surrounding Points have been measured; immediately followed by those azimuths. The second column contains the number of the triangle which gives the distance between the Station and the Point.

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
ACHITPUR s.			
Fort Glo'ster	s.	226 22 49	358
Buj Buj	„	234 5 38	358
Máyápur	„	323 36 31	359
ÁDAPAL H.S.			
Tanjharn	H.S.	19 4 16·9	101
Murosil	„	56 29 5.3	104
Jharghátí	„	110 40 42·0	106
Pariá	„	308 45 51·8	101
AKRIMETA h.s.			
Wondáwá	h.s.	281 20 56	298
Ráwal, LIX		354 29 8	298
ALDA s.			
Galmátiá Chatí	s.	5 11 22	445
ALDA s.			
Patná	s.	222 40 51	442
Dhobímú	„	269 21 16	442
Nechanpur	„	316 22 43	444
ALPIN s.			
Narsál	s.	9 50 6	347
Bargarchumuk	„	194 41 52	345
Phalta	„	262 32 23	345
Phalta Point Mark		296 39 12	366
Nílá	„	317 45 26	346
AMBIKI s.			
Dasomat	s.	30 48 54	510
Báliámurá	„	223 59 22	508
Magarkhiá Tándá	„	282 17 33	508
Pokhálkhiá Tándá	„	339 16 18	509
AMNAM, LXV			
Bimlipatam	h.s.	32 29 39	690
Gumrú, LXIX		87 11 32·89	83
Rájápá Lová	„	96 15 54	689
Kistnápuram Hill Temple		107 16 56	331
Dewodímundá	„	121 3 16	322
Bor, LXIII		140 10 39·28	82
Viziánagram Rájá's House (helio.)		155 55 36	326
Hakívúram	s.	169 32 31	684
Kandíwálsá, LXII		206 18 12·01	82
Nandígaon Indigo Factory		218 48 39	327
Rámchandarpet	„	229 39 2	684
ANALBARIA, IX			
Kálsábhangá, X		10 9 32·22	10
Kúdí, XI		70 36 14·27	11
Arjunnagar Temple		172 33 20	142
Júkiá Temple		223 2 32	140
Kharodá Temple		231 40 56	141

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
ANALBARIA, IX			
Dhojíbhangá, VII		245 47 32·84	9
Dariápúr, VIII		308 59 32·27	9
ÁNANDAPUR h.s.			
Rájápá Lová	h.s.	219 29 34	691
Chitiwálsá Sugar Factory		240 34 57	692
Bimlipatam	„	275 42 40	691
ANANTAPUR s.			
Jhumjhumí	s.	18 11 3	411
Mathrí	„	78 37 24	411
Mathrí Temple		84 14 59	427
ARAKUDA s.			
Khonduákudá	s.	24 45 27	609
Babeswal Temple		55 14 41	612
Barnai, XXXVII		188 39 17	553
Dasman	„	201 25 33	554
Borchondá	„	249 55 43	554
Gobarsaí	„	252 22 3	553
Potámohan	„	282 14 46	607
Arákudá Temple No. 1		334 26 53	610
Haribasá	„	356 58 6	608
BAGCHALI s.			
Jambú	s.	19 38 38	493
Barpál	„	78 51 7	492
Garjang	„	131 52 34	491
Barní	„	223 0 18	491
Dowdeswell	„	329 19 58	494
BAGULDIA s.			
Sátbhaiá	s.	60 17 36	478
Burkolíkotí	„	103 46 55	477
Bánsgar	„	181 38 9	476
Maipárá	„	233 57 56	476
BAIDESWAR h.s.			
T, Trijunction Pillar		30 15 54	208
Chiklíkhái, XXXIX		68 42 8	186
Gumáriá, XXXIII		216 43 17	187
Rattágarh Village Temple		250 7 25	188
Duduá, XXXVIII		309 9 11	186
F, Trijunction Pillar		342 32 33	210
BAISNALI H.S.			
Kampalí	H.S.	102 49 17·7	98
Seojharn	„	171 29 7·8	97
Machkhání	„	229 13 10·4	95
Kanaijoná	„	267 17 54·4	95

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
BAJRO SULIA h.s.			
Maltí, XLIV		40 47 4	238
Rasalkondá Hill Fort (heliotrope)		97 32 4	240
Patharkumúdá, XLII		185 24 12	239
Khundábolo, XLI		284 16 31	238
BAKUD s.			
Parádíp	s.	58 22 53	500
Jungle	„	249 27 7	498
Lion's Rump	„	313 41 40	498
Senkud	„	357 53 27	499
BALARAMGARHI HOUSE s.			
Chandípúr, XXII		24 41 1	146
Baiasore Juma Masjid		91 45 44	152
Balarámgarhí Tide Point	s.	112 2 4	146
Balarámgarhí Coast Flagstaff		338 18 33	148
BALARAMGARHI TIDE POINT s.			
Chandípúr, XXII		21 14 30	145
Nilgirí, XXIV		89 23 46	145
Balarámgarhí House	s.	292 2 1	146
Balarámgarhí Coast Flagstaff		329 42 52	147
BALBHADRAPUR s.			
Bálíjorí Coast	s.	30 23 10	583
Bálijorí	„	43 1 19	513
Harichpur	„	108 16 48	512
Dasomat	„	170 23 27	511
Pokhálkhiá Tándá	„	224 31 54	511
BALESHWAR No. 1 s.			
Baleshwar No. 2	s.	75 44 20	536
Baleshwar Temple		81 4 50	593
Chatiáná	„	135 56 17	535
Olandá	„	201 58 14	534
Kusbadrá	„	257 29 32	534
BALESHWAR No. 2 s.			
Bálíkhand No. 1	s.	75 30 46	538
Beldár	„	123 38 31	537
Chatiáná Temple		181 50 21	591
Chatiáná	„	182 57 32	536
Baleshwar No. 1	„	255 43 37	536
BALIAMURA s.			
Ambikí	s.	44 0 4	508
Kujang Temple		211 3 31	582
Madhuban	„	225 53 26	506
Nuliásaí Tándá	„	268 47 10	506
Magarkhiá Tándá	„	345 9 17	507

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
BALIJORI s.			
Bendrí Thákuráni Coast	s.	32 10 35	584
Bendrí Thákuráni	„	44 54 9	515
Kuspur	„	121 18 20	514
Harichpur	„	180 27 0	513
Balbhadrapur	„	223 0 34	513
Bálíjorí Coast	„	250 26 16	583
BALIJORI COAST s.			
Bendrí Thákuráni Coast	s.	43 5 55	584
Bálíjorí	„	70 26 37	583
Balbhadrapur	„	210 22 46	583
BALIKHAND No. 1 s.			
Bálíkhand No. 2	s.	74 29 46	540
Samangará	„	130 47 43	539
Beldár	„	183 7 51	538
Baleshwar No. 2	„	255 29 58	538
BALIKHAND No. 2 s.			
Galmandab Temple		70 45 6	596
Gobarsaí	s.	76 55 39	542
Pooree Great Temple		84 55 8	594
Utarkoná	„	131 58 0	541
Samangará	„	183 1 14	540
Bálíkhand No. 1	„	254 29 2	540
BALIMUNDA s.			
Bejiáriá	s.	23 57 52	460
Káliábudá	„	93 12 3	459
Bideipur Baurí No. 2	„	159 45 4	459
Noásaí	„	341 31 3	461
BALISAI s.			
Kálínálí	s.	43 20 54	468
Koetkolá	„	98 56 34	467
Kontiá	„	140 31 37	467
Charnípál	„	353 23 29	469
BAMANCHAK s.			
Kejirí House	s.	19 46 14	429
Gángrá, VI		230 56 38	428
Kejirí Tide Point	„	289 29 35	428
Kejirí Tide Gauge		298 50 35	432
BANCHA t.s.			
Kitkisol, XIX		64 27 13	143
Gobindapur Temple		244 10 52	144
Sahárá, XVIII		320 34 42	143

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Baniajori, XXVII			
Dhanái Needle Rock		3 47 36	169
Bodásil, XXX		4 25 47·34	36
Daiterí, XXIX		36 27 59·54	34
Kohilí Hurí	H.S.	94 31 55·1	89
Mauldiá Hill Mark		117 44 35	108
Megásiní, XXV		233 2 46·82	32
Bolpál, XXVI		279 32 57·04	33
Bolá, XXVIII		311 59 2·45	32
Santoshpur	h.s.	345 1 19	168
Baniban, LXXXIV			
Mirzápúr, I		3 39 32·38	1
Samalia, LXXXVII		299 16 11·27	1
Banka s.			
Dingulbáriá	s.	143 1 19	405
Purulpárá	,,	191 42 39	404
Malikpárá	,,	245 45 35	402
Kalkíchak	,,	274 25 54	403
Natsal, III		279 39 57	402
Rámbág Temple		342 41 15	419
Bankmundi h.s.			
Nimidá, XXXIV		208 57 47	179
Gumáriá, XXXIII		272 25 16	179
Bansgar s.			
Baguldiá	s.	1 38 11	476
Burkolíkotí	,,	50 55 50	477
Khasmundá	,,	152 36 4	474
Putágoibálí	,,	202 25 4	474
Maipárá	,,	282 2 35	475
Baraikuda s.			
Dádrákund	s.	186 7 45	600
Harchandí	,,	199 21 11	601
Korábanth	,,	248 54 46	600
Baramat s.			
Potámohan	s.	64 52 6	606
Borchondá	,,	101 59 10	603
Baramat Temple		144 43 17	605
Dádrákund	,,	205 54 18	602
Harchandí	,,	236 23 9	602
Bargarchumuk s.			
Alpin	s.	14 42 14	345
Ranmahal	,,	206 31 20	342
Brúl	,,	242 29 49	342
Phalta	,,	316 47 21	343

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Bari Mandari s.			
Mandárí	s.	134 52 46	452
Chúráman	,,	186 36 41	452
Kálípadan Chatí	,,	261 11 30	453
Kasantpur	,,	337 24 29	454
Bari Phuljhari H.S.			
Kanaijoná	H.S.	93 15 19·3	92
Machkhání	,,	122 4 50·6	93
Injorí Hill Mark		132 30 52	113
Sikásar Conical Peak		146 48 22	111
Dalmundá	,,	192 40 38·1	91
Gumhur Hill Mark		224 34 21	109
Daiterí, XXIX		255 54 31·0	91
Barnai, XXXVII			
Arákudá	s.	8 40 43	553
Dhanái, XL		58 30 29·77	44
Dhaniá Hill Mark		59 0 32	214
Sardaí Hill Mark		86 3 36	212
Duduá, XXXVIII		126 35 38·59	43
Kansári Hill Mark		151 40 13	201
Gumáriá, XXXIII		166 50 48·58	42
Dauliá Hill Mark		209 20 23	203
Cuttack, XXXV		211 50 8·40	42
Rangarh Hill Mark		304 45 59	216
Kálupárá Hill Temple		314 9 11	217
Gobarsaí	s.	336 52 29	543
Barni s.			
Bagchalí	s.	43 1 13	491
Garjang	,,	81 16 22	490
Shukdebpur	,,	134 21 54	489
Chitákholá	,,	192 9 19	488
Káldíp	,,	229 42 16	488
Barpal s.			
Garjang	s.	204 11 14	492
Bagchalí	,,	258 49 53	492
Jambú	,,	324 33 10	493
Basdapur s.			
Dhanghátá House		19 13 58	385
Mahápurvu Chak	s.	44 17 32	352
Jamál Chak Temple		135 52 52	376
Dhekuá	,,	165 38 0	350
Diamond Harbour Semaphore	,,	210 18 44	350
Rangáfalá	,,	310 6 10	351

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Bathpuram h.s.			
Khirsingá	s.	17 46 0	633
Penbiram	,,	89 40 14	632
Murkhí	h.s.	147 18 9	631
Mal, LI		223 6 11	631
Batkiapukri s.			
Korábanth	s.	67 54 8	547
Bondálo	,,	114 59 0	546
Dámodarpur	,,	176 30 59	545
Gobarsaí	,,	246 31 43	545
Galmandab Temple		254 17 22	597
Begunia h.s.			
Nilgirí, XXIV		21 43 16	149
Katiliá Hill Mark		27 25 23	162
Kimhírá, XXIII		122 3 36	149
Mantrí High Temple		182 11 25	156
Kátí, XX		261 12 20	150
Balasore Temple		298 46 19	153
Balasore Chapel		299 10 10	155
Bejiaria s.			
Káliábudá	s.	161 20 7	460
Bálímundá	,,	203 57 30	460
Noásaí	,,	271 5 43	461
Utarsaí	,,	341 8 33	462
Beldar s.			
Bálíkhand No. 1	s.	3 7 53	538
Samangará	,,	81 31 44	539
Chatiáná Temple		233 40 57	590
Chatiáná	,,	244 47 41	537
Baleshwar Temple		296 39 14	592
Baleshwar No. 2	,,	303 37 45	537
Bendi h.s.			
Murárípur	h.s.	6 44 32	636
Mathikpur	,,	75 4 40	637
Penbiram	s.	208 24 5	634
Khirsingá	,,	274 58 49	634
Púndí Custom House		303 34 46	657
Púndí	,,	313 20 16	635
Púndí Temple		317 22 0	660
Bendri Thakurani s.			
Devi River	s.	37 42 50	586
Tándá	,,	47 54 28	517
Bijiniá	,,	118 0 35	516
Kuspur	,,	169 20 2	515
Bálíjorí	,,	224 53 26	515
Bendrí Thákuráni Coast	,,	279 10 13	585

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Bendri Thakurani Coast s.			
Devi River	s.	52 52 46	586
Bendri Thákuráni	„	99 10 27	585
Bálijorí	„	212 10 6	584
Bálijorí Coast	„	223 5 5	584
Bideipur s.			
Kasantpur	s.	158 12 2	456
Bideipur Baurí No. 1	„	196 7 43	456
Bideipur Baurí No. 2	„	255 24 12	457
Káliábudá	„	335 5 14	458
Bideipur Bauri No. 1 s.			
Bideipur	s.	16 8 0	456
Kasantpur	„	89 0 4	455
Kálipadan Chatí	„	155 12 38	455
Bideipur Baurí No. 2	„	335 21 12	457
Bideipur Bauri No. 2 s.			
Káliábudá	s.	12 59 46	458
Bideipur	„	75 24 52	457
Bideipur Baurí No. 1	„	155 21 35	457
Bálimundá	„	339 44 39	459
Bignabari s.			
Gángrá, VI		40 3 45	136
Rámnagar, IV		220 4 45	135
Silver Tree Obelisk		321 7 41	135
Bijinia s.			
Jharling	s.	43 29 48	518
Kuspur	„	220 3 50	516
Bendrí Thákuráni	„	297 59 39	516
Tándá	„	349 6 59	517
Bimlipatam h.s.			
Ánandapur	h.s.	95 44 1	691
Rájápá Lová	„	159 37 58	690
Chitiválsá Sugar Factory		167 23 44	693
Amnám, LXV		212 28 57	690
Black Pagoda s.			
Rámchandí	s.	80 8 49	530
Madipur	„	166 54 11	529
Black Pagoda		171 41 51	589
Kundiá Nadí	„	254 12 6	529

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Bodagiri, XLIX			
Kanchilí Travellers' Bungalow		5 40 44	283
Besí Rámchandarpur Temple		15 18 5	285
Mal, LI		15 20 59·18	62
Jalantrá Highest Temple		22 14 13	284
Mahendragirí, L		69 59 54·09	61
Mahendragirí Hill Temple		70 4 47	278
Jarádá Hill		94 25 30	276
Dhobá Dhobaní, XLVIII		131 16 1·99	60
Nakoí Hill Mark		152 46 55	272
Ráegará, XLVII		194 35 45·37	60
Kotlingá	h.s.	199 20 52	616
Ámpur Hill Temple		223 55 11	273
Ichápur	„	234 34 19	615
Indrásí Temple		234 56 55	274
Naiágaon	„	238 33 24	618
Sonpur Salt Bungalow		249 35 28	275
Landarípat	s.	296 38 29	619
Puthmai	„	333 26 54	620
Kanchilí Hill Mark		351 39 4	280
Bodapad h.s.			
Pedákondá	h.s.	28 57 9	652
Thirwalá	„	262 7 13	651
Onashtípuram	s.	315 41 22	651
Bodasil, XXX			
Kaplás, XXXII		41 56 30·50	37
Udaigirí, XXXI		75 25 55·12	39
Daiterí, XXIX		129 46 18·04	35
Tomaká	h.s.	147 27 8	173
Baniájorí, XXVII		184 24 54·56	36
Bolá, XXVIII		214 55 48·38	35
Bodasil h.s.			
Daiterí, XXIX		129 47 12	171
Tomaká	h.s.	147 28 1	172
Bolá, XXVIII		214 55 16	171
Bola, XXVIII			
Bodásil	h.s.	35 0 32	171
Bodásil, XXX		35 1 0·40	35
Daiterí, XXIX		70 5 42·93	34
Dhanái Needle Rock		86 2 14	169
Santoshpur	h.s.	125 42 45	168
Baniájorí, XXVII		132 3 24·77	32
Megásiní, XXV		192 16 29·10	31
Bolpal, XXVI		240 56 21·66	31
Bolpal, XXVI			
Bolá, XXVIII		61 0 46·18	31
Baniájorí, XXVII		99 41 45·51	33
Megásiní, XXV		157 44 38·16	29

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Bolpal, XXVI			
Dobigarh Hill Mark		172 58 1	165
Kimhirá, XXIII		209 42 17·63	28
Dobsilá	h.s.	247 27 30	159
Nilgirí, XXIV		249 18 7·20	28
Jugjurí	„	272 12 25	163
Bondalo s.			
Dádrákund	s.	75 31 53	548
Dámodarpur	„	244 9 5	546
Batkiapukri	„	294 58 4	546
Korábanth	„	359 10 24	547
Bor, LXIII			
Gumrú, LXIX		14 10 56·54	81
North End,* LXVIII		23 45 40·54	79
Márkí, LXVI		62 19 14·29	78
Gopálpilí House		67 7 40	324
Singarapakotá (heliotrope)		70 2 46	328
Sarnat Modí Hill Mark		106 33 29	320
Kumarái, LXIV		110 38 5·85	77
Maripillí, LXI		197 9 46·72	76
Kandíwálsá, LXII		275 31 47·02	76
Amnám, LXV		320 7 9·19	82
Amnám	h.s.	322 32 46	333
Kistnápuram Hill Temple		348 52 52	331
Kistnápuram, LXVII		348 55 5·24	84
Borchonda s.			
Potámohan	s.	34 32 53	606
Arákudá	„	69 56 54	554
Dasman	„	124 19 42	552
Padampurodího	„	198 43 44	551
Harchandí	„	259 28 42	551
Baramat Temple		280 29 39	604
Baramat	„	281 58 34	603
Borgaon No. 1 s.			
Palwálsá	h.s.	15 45 4	624
Puthmai	s.	241 56 46	623
Golá Gundí	„	309 16 51	623
Borgaon No. 2 s.			
Naupadá	s.	15 11 18	642
Muni	h.s.	218 27 14	640
Kothpetá	s.	274 54 48	640
Rálímolpetá	„	322 30 39	641
Brul s.			
Phalta	s.	1 34 1	343
Dhajá	„	13 51 50	362

* Of Vizagapatam base-line.

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Brul s.			
Bargarchumuk	s.	62 31 0	342
Ranmahal	„	145 28 34	339
Hooghly River Creek Obelisk		151 16 10	364
Máyápur	„	204 16 3	338
Sátgáchiá	„	242 56 54	338
Budara s.			
Khasmundá	s.	39 41 41	472
Talchuá	„	93 32 9	471
Charnípál	„	153 48 43	471
Putágoibálí	„	345 9 7	473
Buj Buj s.			
Máyápur	s.	37 11 12	357
Achitpur	„	54 6 41	358
Fort Glo'ster	„	176 2 10	356
Shámpur	„	254 57 27	356
Bujrapur s.			
Utarsaí	s.	147 47 54	464
Karanj Mahal	„	199 9 9	464
Kontiá	„	274 24 37	465
Koetkolá	„	320 29 48	466
Burkolikoti s.			
Satiában	s.	49 56 10	479
Bánsgar	„	230 55 0	477
Baguldiá	„	283 46 7	477
Sátbhaiá	„	347 29 48	478
Calingapatam s.			
Vacháwálsá	s.	59 42 33	666
Sálihundam, LVIII		105 1 14	656
Rálpád	h.s.	147 9 41	655
Kotherevú	s.	203 29 18	655
Chanchunia, XXXVI			
Gosingá Hill Mark		17 5 53	204
Chiklikhái, XXXIX		38 29 41·41	49
Manibhadrá Hill Mark		82 16 26	175
Nimidá, XXXIV		188 58 5·77	47
Budí Hill Mark		201 0 16	177
Gumáriá, XXXIII		252 36 11·48	47
Kumrangiá Hill Mark		303 5 9	182
Mahá Parbat	h.s.	311 29 18	195
Páni Kurirá Hill Mark		324 56 29	198
Duduá, XXXVIII		327 51 8·50	48
Rámnáth Hill Temple		328 39 1	191
Singnáth Hill Mark		330 56 5	196
Putkol	h.s.	339 42 59	185
Fathigarh Hill Mark		354 27 23	206

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Chandikho, XLIII			
Tárá Tarní, XLV		46 56 45·88	52
Khundábolo, XLI		129 33 39·75	51
Kálábandiá Hill Mark		140 0 19	233
Kálígiri Hill Mark		192 43 6	224
Sextasal Hill Mark		198 23 45	226
Dhanáí, XL		213 13 12·93	51
Solári Hill Mark		216 28 41	235
Sonákalá Bungalow		225 15 36	234
Inonopur Temple		242 33 17	237
Chandipur, XXII			
Kusmalí	s.	46 25 28	434
Pándab Ghát	„	50 5 0	433
Nilgirí, XXIV		96 49 59·36	26
Balasore Juma Masjid		114 6 27	151
Kátí, XX		150 50 23·95	25
Balarámgarhí Tide Point	„	201 14 12	145
Balarámgarhí House	„	204 40 40	146
Sahárá, XVIII		207 31 0·72	25
Balarámgarhí Coast Flagstaff		216 45 26	147
Chandli h.s.			
Murosil	h.s.	195 59 59·1	105
Tanjharn	„	225 39 58·9	103
Raun	„	281 44 26·8	103
Changardhi h.s.			
Dhobá Dhobaní, XLVIII		51 31 1	260
Girdábádí, XLVI		127 15 56	260
Porámárí Rájá's House		131 38 30	262
Ráegará, XLVII		309 2 55	261
Charnipal s.			
Talchuá	s.	27 50 32	470
Kálinálí	„	112 42 14	469
Bálísaí	„	173 23 35	469
Budará	„	333 48 16	471
Chatiana s.			
Baleshwar No. 2	s.	2 57 34	536
Beldár	„	64 48 29	537
Chatiáná Temple		177 0 11	590
Olandá	„	263 9 40	535
Baleshwar No. 1	„	315 55 36	535
Baleshwar Temple		357 27 17	592
Chiklikhai, XXXIX			
Asrákol Hill Mark		5 15 31	231
Khundábolo, XLI		16 44 0·57	50
Sália Hill Mark		26 2 5	220

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Chiklikhai, XXXIX			
Patharkumúdá, XLII		55 47 38·86	54
Palabá Hill Mark		73 17 3	222
Chánchuniá, XXXVI		218 25 19·51	49
Gosingá Hill Mark		243 39 9	205
Baideswar	h.s.	248 36 15	186
Duduá, XXXVIII		256 59 17·59	45
Fathigarh Hill Mark		258 53 13	206
T, Trijunction Pillar		262 22 0	209
Sátbhaiá Hill Mark		312 14 48	219
Dhanáí, XL		320 45 40·60	45
Tamná Hill Mark		356 59 55	228
China Malapuram, LIV			
Sálihundam, LVIII		5 10 59·09	71
Nalakondá, LVI		68 54 51·41	67
Himágirí, LV		119 33 49·36	66
Deodongar, LIII		179 16 1·44	65
Phúlsará, LII		248 6 27·76	65
Chinchiri s.			
Chitákholá	s.	57 4 52	487
Dalkháí	„	230 0 20	485
Kuchlágar	„	289 30 12	485
Káldíp	„	349 3 58	486
Chitakhola s.			
Barní	s.	12 9 31	488
Shukdebpur	„	91 12 16	489
Chinchiri	„	237 4 22	487
Káldíp	„	292 58 54	487
Chitawalsa h.s.			
Kandíwálsá, LXII		52 5 22	675
Ráipili	h.s.	251 57 47	673
Kucharlú	s.	300 33 21	673
Rámchandarpur	h.s.	344 55 13	674
Churaman s.			
Barí Mandárí	s.	6 36 46	452
Mandárí	„	62 1 42	451
Chúráman Salt Golá		116 20 38	569
Uruá	„	140 2 23	450
Uruá Salt Golá		149 48 32	567
Kálikotí No. 1	„	199 50 44	450
Kondrápárá	„	278 7 21	571
Kálípadan Chatí	„	315 34 21	453
Cuttack, XXXV			
Barnai, XXXVII		31 54 36·07	42
Gumáriá, XXXIII		105 59 24·29	41
Kaplás, XXXII		155 35 57·66	41

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Dadrakund s.			
Harchandí Temple		3 14 39	598
Harchandí	s.	3 24 58	549
Baraikudá	„	6 7 51	600
Baramat	„	25 54 51	602
Padampurodího	„	79 33 43	550
Bondálo	„	255 31 9	548
Korábanth	„	309 33 15	548
Daiteri, XXIX			
Kaplás, XXXII		4 24 37·23	37
Udaigirí, XXXI		37 56 19·68	38
Bari Phuljhári	H.S.	76 1 44·3	91
Dalmundá	„	122 39 51·4	90
Kohilí Hurí	„	174 36 24·5	89
Baniájori, XXVII		216 22 26·13	34
Dhanái Needle Rock		238 4 25	170
Bolá, XXVIII		249 55 50·36	34
Tomaká	h.s.	277 45 41	172
Bodásil, XXX		309 41 40·70	35
Bodásil	„	309 42 35	171
Dalkhai s.			
Chinchirí	s.	50 0 52	485
Káparmúrá	„	228 45 26	483
Gopínathpur No. 2	„	289 38 17	483
Kuchlágar	„	353 39 33	484
Dalmunda H.S.			
Bari Phuljhári	H.S.	12 41 54·3	91
Kanaijoná	„	58 40 41·7	92
Injorí Hill Mark		64 51 47	114
Machkhání	„	89 19 7·8	93
Kohilí Hurí	„	231 26 37·0	90
Gumhur Hill Mark		283 28 9	109
Daiterí, XXIX		302 33 52·0	90
Daluakona s.			
Tundáhá	s.	63 38 11	523
Tirkoná	„	116 21 56	522
Sangpatná	„	168 7 33	521
Maktumjání	„	238 27 11	521
Damodarpur s.			
Bondálo	s.	64 9 58	546
Utarkoná	„	243 36 18	544
Gobarsaí	„	305 18 51	544
Batkiapukri	„	356 30 56	545

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Dantun, XVI			
Patná, XV		27 40 53·87	18
Sátpautiá, XVII		91 31 43·46	19
Sautiá, XIII		324 43 55·72	18
Dariapur, VIII			
Kálsábhangá, X		80 51 8·42	10
Analbariá, IX		129 3 19·58	9
Dhojíbhangá, VII		166 28 10·09	8
Gángrá, VI		223 49 42·12	8
Ságar Light-house		311 48 21	139
Dasman s.			
Arákudá	s.	21 25 56	554
Padampurodího	„	255 14 58	552
Borchondá	„	304 18 54	552
Dasomat s.			
Harichpur	s.	32 58 47	512
Ambiki	„	210 48 24	510
Pokhálkhiá Tándá	„	288 26 24	510
Balbhadrapur	„	350 23 16	511
Deodongar, LIII			
Himágirí, LV		72 5 33·76	66
Mahendragirí, L		258 55 21·21	64
Phúlsará, LII		313 38 56·92	64
China Malapuram, LIV		359 15 57·78	65
Devi River s.			
Tándá	s.	69 47 53	587
Bendrí Thákuráni	„	217 42 25	586
Bendrí Thákuráni Coast	„	232 52 7	586
Dewodimunda h.s.			
Ráwal, LIX		243 2 54	321
Kandíwálsá, LXII		280 35 43	321
Amnám, LXV		300 53 25	322
Dhaja s.			
Phalta Point Mark		0 45 32	365
Kurchíbáriá Mark		14 46 33	367
Hooghly River Creek Obelisk		187 26 24	364
Brúl	s.	193 51 23	362
Phalta	„	273 9 5	362
Nílá	„	357 9 8	363
Dhanai, XL			
Solári Hill Mark		30 56 22	236
Chandíkho, XLIII		33 16 54·36	51
Khundábolo, XLI		70 45 28·25	50

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Dhanai, XL			
Sextasali Hill Mark		71 27 45	227
Kálígiri Hill Mark		112 43 52	225
Sália Hill Mark		114 14 30	221
Chiklíkbáí, XXXIX		140 50 33·94	45
Sátbhaiá Hill Mark		150 53 47	218
Duduá, XXXVIII		193 48 28·78	44
Sardaí Hill Mark		215 50 38	212
Dhaniá Hill Mark		238 13 15	215
Barnai, XXXVII		238 23 55·59	44
Rangarh Hill Mark		247 57 6	216
Kálupárá Hill Temple		254 23 29	217
Gobarsaí	s.	291 5 3	543
Dhekua s.			
Kamálpur, N. Temple		99 34 16	369
Narsál	s.	113 11 27	348
Nílá	„	171 37 34	348
Diamond Harbour Semaphore	„	257 25 19	349
Tájnagar Temple		315 22 39	373
Junhatiá Rája's Mahal		322 3 20	372
Basdápur	s.	345 37 30	350
Jamál Chak Temple		356 9 15	377
Dhoba Dhobani, XLVIII			
Girdábádí, XLVI		186 40 27·85	59
Porámárí Rájá's House		209 52 16	262
Bisangiri Temple		218 46 11	264
Paláshpur Temple		227 31 33	256
Andrá Temple		229 22 46	254
Changardhí	h.s.	231 27 14	260
Digpondi Temple		238 19 20	267
Matiáburí	„	239 34 53	257
Padnápur Temple		240 48 57	268
Khejurpáli Temple		248 36 10	269
Ráegará, XLVII		259 25 42·52	59
Nakoí Hill Mark		291 22 30	271
Ichápur	h.s.	293 22 4	614
Bodágirí, XLIX		311 11 23·09	60
Jarádá Hill		336 34 5	276
Mahendragirí Hill Temple		356 18 24	279
Mahendragirí, L		356 22 4·84	61
Dhobimu s.			
Nechanpur	s.	27 40 42	444
Aldá	„	89 22 18	442
Patná	„	145 56 15	441
Kherang Temple		158 38 39	560
Jánipur	„	214 3 27	441

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Dhojibhanga, VII			
Analbariá, IX		65 50 18·58	9
Arjunnagar Temple		79 44 57	142
Kharodá Temple		88 8 21	141
Júkiá Temple		104 20 33	140
Tetulbariá, V		224 48 0·37	7
Gángrá, VI		288 41 26·93	7
Dariápur, VIII		346 27 7·81	8
Diamond Harbour Custom House s. No. 1.			
Hájípur Tomb		277 56 44	381
Diamond Harbour Burial Ground		294 56 2	382
Diamond Harbour Semaphore	s.	303 7 47	379
Káutábáriá Obelisk		330 20 56	379
Jigarkhálí Semaphore		352 14 9	380
Diamond Harbour Custom House s. No. 2.			
Kukráhátí, S. Temple		78 42 52	413
Latpatiá	s.	84 33 54	396
Natsal, III		92 58 37	394
Hooghly Point	,,	99 43 3	395
Sarisá, II		194 47 30	394
Diamond Harbour Semaphore s.			
Jigarkhálí Semaphore		0 10 34	378
Basdápur	s.	30 20 8	350
Tájnagar Temple		37 31 47	373
Jamál Chak Temple		42 16 11	376
Junhatiá Rájá's Mahal		58 12 55	372
Dhekuá	s.	77 27 13	349
Kukráhátí, N.E. Temple		88 58 18	371
Nílá	,,	121 46 2	349
Diamond Hr. Custom H. s. No. 1.		123 8 7	379
Hájípur Tomb		166 21 35	381
Diamond Harbour Burial Ground		185 48 7	382
Kántábáriá Obelisk		337 28 23	375
Kulpí Obelisk		338 50 20	383
Rangáfalá	s.	351 11 4	351
Dingulbaria s.			
Kalkákhálí	s.	123 56 42	407
Gudarbeniá	,,	172 5 56	406
Purulpárá	,,	256 41 53	405
Bánká	,,	323 0 44	405
Bánká Temple		324 57 43	423
Dobsila h.s.			
Nilgirí, XXIV		18 29 37	158
Bolpál, XXVI		67 34 13	159
Kimhírá, XXIII		145 39 47	158

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Dowdeswell s.			
False Point Island	s.	22 37 23	496
False Point Light-house	,,	31 11 37	572
Plowdin's Island, E. Beacon		43 28 0	577
Plowdin's Island, W. Beacon		49 22 2	579
Jungle	s.	50 59 41	495
Jambú	,,	97 41 16	494
Bagchalí	,,	149 20 51	494
Reddie Head Beacon		184 22 45	575
Dudua, XXXVIII			
F, Trijunction Pillar		10 59 33	210
Dhanái, XL		13 50 20·39	44
Sátbhaiá Hill Mark		39 19 59	218
Sália Hill Mark		60 37 14	220
T, Trijunction Pillar		64 6 41	208
Fathigarh Hill Mark		72 42 28	207
Chiklíkhái, XXXIX		77 6 5·67	45
Gosingá Hill Mark		89 52 23	204
Manibhadrá Hill Mark		108 14 37	175
Baideswar	h.s.	129 10 6	186
Singnáth Hill Mark		141 3 55	197
Putkol	,,	141 17 28	184
Konáká Hill Mark		143 10 4	180
Ránnáth Hill Temple		145 2 12	190
Chánchuniá, XXXVI		147 53 36·63	48
Kumrangiá Hill Mark		203 42 27	183
Gumáriá, XXXIII		205 41 45·93	43
Rattágarh Village Temple		235 41 11	189
Ragarí Temple No. 1		250 19 6	192
Ragarí Temple No. 2		250 20 6	193
Mahá Parbat	h.s.	261 35 26	194
Dauliá Hill Mark		279 21 31	202
Kansári Hill Mark		285 12 21	200
Khurdá Bungalow		305 46 55	211
Páni Kurirá Hill Mark		305 53 40	199
Barnai, XXXVII		306 30 53·25	43
Dhaniá Hill Mark		326 39 12	214
Sardaí Hill Mark		346 58 47	213
False Point Island s.			
Lion's Rump	s.	48 15 34	497
False Point Light-house	,,	92 51 46	573
Jungle	,,	115 25 53	496
False Point Bungalow		152 53 19	580
Dowdeswell	,,	202 36 41	496
False Point Light-house s.			
Jambú	s.	169 36 18	572

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
False Point Light-house s.			
Plowdin's Island, W. Beacon		202 6 18	578
Plowdin's Island, E. Beacon		204 37 2	576
Reddie Head Beacon		208 41 5	574
Dowdeswell	s.	211 10 36	572
False Point Bungalow		223 4 47	580
False Point Island	,,	272 51 27	573
Fort Glo'ster s.			
Máyápur	s.	31 36 21	341
Achitpur	,,	46 23 51	358
Jagdíshpur	,,	53 59 17	341
Shámpur	,,	276 38 54	335
Páikpárá	,,	301 42 42	335
Bauli Temple		344 35 49	360
Buj Buj	,,	356 2 9	356
Fort Mornington s.			
Natsal, III		14 16 20	398
Kalkíchak	s.	58 16 58	399
Malikpárá	,,	97 58 47	400
Hooghly Point	,,	292 2 1	398
Tetulbáriá Temple		335 3 48	414
Dharampur Temple		350 41 6	415
Gewákhálí Temple		358 0 7	417
Galmatia Chati s.			
Untirá	s.	26 51 20	447
Aldá	,,	185 11 16	445
Nechanpur	,,	246 18 48	445
Puruán	,,	332 35 27	446
Gangra, VI			
Kejirí Tide Gauge		22 31 48	432
Kejirí Tide Point	s.	22 42 3	428
Tálpátí Bridge Spire		39 41 41	431
Dariápur, VIII		43 52 34·08	8
Bámanchak	s.	50 57 24	428
Dhojíbhangá, VII		108 45 22·02	7
Tetulbariá, V		164 19 20·77	6
Nandígaon Temple		170 48 46	137
Sandiá Semaphore		209 21 21	132
Deobhog Temple		211 25 35	128
Bignábárí	s.	220 1 31	136
Rámnagar, IV		220 1 52·79	6
Phulbáriá Semaphore		221 38 41	131
Silver Tree Obelisk		250 47 10	134
Ságar Light-house		350 48 43	139

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Gangra s.			
Kejirí Semaphore	s.	15 34 14	390
Kaukhálí	„	26 49 16	355
Tálpátí Bridge, S.W. Pillar		28 39 34	391
Nandígaon Temple		172 22 0	138
Gángrá Semaphore		200 44 44	389
Mahápurvu Chak	s.	212 39 49	354
Ghorámára	„	263 56 53	354
Saugor Mud Point		266 16 25	386
Auckland Mark		318 58 26	392
Garjang s.			
Barpál	s.	24 11 40	492
Shukdebpur	„	209 56 21	490
Barní	„	261 14 39	490
Bagchalí	„	311 51 46	491
Ghoraisini h.s.			
Maltí, XLIV		161 12 22	244
Tárá Tarní, XLV		262 7 59	244
Nanda Bans	h.s.	288 55 52	246
Barhámpur House		331 32 1	251
Barhámpur	s.	336 49 52	250
Ghoramara s.			
Auckland Mark		36 43 6	393
Kaukhálí	s.	59 12 8	355
Saugor Mud Point		60 9 1	386
Gángrá	„	83 59 50	354
Gángrá Semaphore.		90 12 43	388
Mahápurvu Chak	„	149 24 50	353
Kasbáriá White Temple		187 42 6	384
Rangáfalá	„	226 24 0	353
Girdabadi, XLVI			
Dhobá Dhobaní, XLVIII		6 41 5·65	59
Maltí, XLIV		221 44 19·14	57
Tárá Tarní, XLV		270 41 53·78	58
Osuda Temple		280 34 59	259
Andrá Temple		281 27 44	255
Paláshpur Temple		282 39 46	256
Matiáburí	h.s.	294 54 37	258
Porámárí Rájá's House		303 30 44	263
Changardhí	„	307 12 47	260
Ráegará, XLVII		307 58 44·00	57
Bisangiri Temple		321 47 39	264
Gobarsai s.			
Batkiapukri	s.	66 32 26	545
Arákudá	„	72 26 49	553
Dhanáí, XL		111 14 58	543
Dámodarpur	„	125 19 37	544

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Gobarsai s.			
Barnai, XXXVII		156 55 50	543
Utarkoná	s.	188 1 24	542
Bálíkhand No. 2	„	256 54 39	542
Galmandab Temple		311 35 7	596
Gobindapur s.			
Gopináthpur No. 2	s.	49 15 54	482
Káparmúrá	„	108 57 37	481
Satiában	„	189 58 21	480
Sátbhaiá	„	227 52 40	480
Gola Gundi s.			
Mukhal	s.	32 45 14	625
Palwálsá	h.s.	79 37 56	624
Borgaon No. 1	s.	129 17 52	623
Puthmaí	„	185 23 52	622
Idalpalam	„	226 15 59	622
Gopinathpur No. 2 s.			
Kuchlágar	s.	51 28 6	484
Dalkháí	„	109 38 54	483
Káparmúrá	„	188 30 56	482
Gobindapur	„	229 15 8	482
Gudarbenia s.			
Kalkákhálí	s.	64 37 22	407
Tumlook	„	118 15 6	408
Jhumjhumí	„	165 59 32	409
Purulpárá	„	305 46 50	406
Dingulbáriá	„	352 5 49	406
Gumaria, XXXIII			
Ragarí Temple No. 2		7 31 39	193
Ragarí Temple No. 1		7 33 9	192
Mahá Parbat	h.s.	10 28 37	194
Duduá, XXXVIII		25 44 26·19	43
Kumrangiá Hill Mark		26 40 47	182
Rámnáth Hill Temple		34 38 32	190
Baideswar	h.s.	36 46 52	187
Chánchuniá, XXXVI		72 41 21·39	47
Konáká Hill Mark		79 15 21	180
Bánkmundí	h.s.	92 31 50	179
Ambetí Hill Mark		108 13 21	176
Budí Hill Mark		119 11 23	177
Nimidá, XXXIV		136 59 11·12	46
Udaigirí, XXXI		185 50 42·35	40

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Gumaria, XXXIII			
Kaplás, XXXII		242 35 19·82	40
Cuttack, XXXV		285 52 45·69	41
Dauliá Hill Mark		331 35 33	202
Barnai, XXXVII		346 48 41·21	42
Rattágarh Village Temple		348 17 5	188
Kausári Hill Mark		353 45 24	200
Gumru, LXIX			
South End*, LXX		78 42 35·45	87
Márkí, LXVI		126 7 5·60	81
Singarapakotá (Heliotrope)		154 5 31	328
Erábadrápetá Indigo Factory		164 33 53	329
North End*, LXVIII		175 34 27·24	86
Bor, LXIII		194 9 49·52	81
Viziánagram Rájá's House (helio.)		222 10 27	326
Kistnápuram, LXVII		237 42 26·42	86
Kistnápuram Hill Temple		237 43 39	332
Amnám, LXV		267 6 57·45	83
Amnám	h.s.	267 50 39	334
Hakivaram s.			
Rájápá Lová	h.s.	33 19 40	689
Koiparlí	s.	235 54 49	683
Rámchandarpet	„	287 16 35	683
Amnám, LXV		349 32 15	684
Harchandi s.			
Baraikudá	s.	19 21 14	601
Baramat	„	56 23 39	602
Baramat Temple		58 34 7	604
Borchondá	„	79 29 48	551
Padampurodího	„	127 51 5	550
Dádrákund	„	183 24 55	549
Korábanth	„	257 44 9	549
Haribasa s.			
Khonduákudá	s.	57 40 42	609
Babeswal Temple		76 42 37	613
Arákudá	„	176 58 8	608
Arákudá Temple No. 1		193 41 55	611
Potámohan	„	244 16 58	608
Harichpur s.			
Bálíjorí	s.	0 27 1	513
Kuspur	„	65 3 49	514
Dasomat	„	212 58 14	512
Balbhadrapur	„	288 16 4	512

* Of Vizagapatam base-line.

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Harnkuli, XIV			
Sahárá, XVIII		70 24 36·16	16
Patná, XV		136 26 26·78	15
Sautiá, XIII		192 39 11·09	14
Júkí, XII		255 34 38·77	14
Himagiri, LV			
Yarákanchámá, LVII		55 30 32·04	68
Deodongar, LIII		252 0 13·90	66
Koligiri Hill Mark (heliotrope)		269 52 49	292
China Malapuram, LIV		299 28 27·77	66
Nalakondá, LVI		350 52 34·37	67
Hooghly point s.			
Natsal, III		70 42 21	397
Gewákhálí Temple		71 59 45	418
Fort Mornington	s.	112 2 33	398
Sarisá, II		250 36 41	395
Diamond Hr. Custom H. s. No. 2		279 40 50	395
Latpatiá	s.	323 37 54	396
Ichapur h.s.			
Naiágaon	h.s.	50 8 58	617
Bodágirí, XLIX		54 36 8	615
Dhobá Dhobaní, XLVIII		113 28 33	614
Kotlingá	h.s.	128 0 59	616
Ráegará, XLVII		173 27 40	614
Idalpalam s.			
Golá Gundí	s.	46 17 1	622
Puthmaí	,,	116 27 51	621
Landarípat	,,	162 9 42	621
Jagdishpur s.			
Ranmahal	s.	26 59 17	340
Fort Glo'ster	,,	233 57 49	341
Máyápur	,,	289 4 33	340
Jambu s.			
Jungle	s.	8 35 54	495
Barpál	,,	144 33 56	493
Bagchalí	,,	199 38 10	493
Reddie Head Beacon		269 0 16	574
Dowdeswell	,,	277 39 55	494
Plowdin's Island, W. Beacon		306 24 40	578
Plowdin's Island, E. Beacon		307 58 39	576
False Point Light-house	,,	349 35 58	572
Janipur s.			
Dhobímú	s.	34 3 51	441
Kherang Temple		78 20 44	559
Patná	,,	94 14 48	440
Janipur s.			
Pinchápal	s.	161 37 30	439
Naurí	,,	213 2 34	439
Jharghati h.s.			
Mundher Hill Mark		0 38 26	115
Murosil	h.s.	11 46 51·9	106
Dongrí Hill Mark		22 54 36	117
Sambalpur Hill Temple		41 48 20	119
Lohár	h.s.	50 11 56·3	107
Ádápal	,,	290 35 59·5	106
Jharling s.			
Maktumjání	s.	2 33 58	519
Sangpatná	,,	56 37 54	520
Bijiniá	,,	223 29 10	518
Tándá	,,	299 29 41	518
Jhumjhumi s.			
Tumlook	s.	69 52 8	409
Tumlook House	,,	77 37 57	425
Mathrí Temple		145 2 44	426
Mathrí	,,	147 5 5	410
Anantapur	,,	198 10 47	411
Gudarbeniá	,,	345 59 22	409
Jogi Naiagaon, XXI			
Nilgirí, XXIV		10 51 37·05	23
Kimhírá, XXIII		68 27 21·45	24
Mádhabpur Village Temple		122 3 33	160
Kitkisol, XIX		259 29 36·08	22
Kátí, XX		318 38 25·60	22
Jugjuri h.s.			
Bolpál, XXVI		92 13 13	163
Megásiní, XXV		151 53 2	164
Patámundái Rock		162 28 39	167
Kimhírá, XXIII		204 21 39	163
Juki, XII			
Harnkulí, XIV		75 38 54·71	14
Sautiá, XIII		129 56 1·28	13
Kúdí, XI		188 16 29·61	12
Kálsábhangá, X		256 29 27·30	12
Jungle s.			
Lion's Rump	s.	6 47 28	497
Bakud	,,	69 28 13	498
Jambú	,,	188 35 41	495
Dowdeswell	,,	230 58 7	495
False Point Island	,,	295 25 1	496
Kaldip s.			
Barní	s.	49 43 5	488
Chitákholá	,,	112 59 31	487
Chinchirí	,,	169 4 5	486
Kuchlágar	,,	232 26 10	486
Kaliabuda s.			
Bideipur	s.	155 5 39	458
Bideipur Baurí No. 2	,,	192 59 31	458
Bálimundá	,,	273 11 23	459
Bejiáriá	,,	341 19 49	460
Kalikoti No. 1 s.			
Chúráman	s.	19 51 1	450
Uruá	,,	68 48 25	449
Untirá	,,	131 32 57	448
Puruán Temple		160 22 59	562
Puruán	,,	195 22 48	448
Kálikotí No. 2	,,	311 14 9	564
Kondrápárá	,,	353 14 20	571
Kalikoti No. 2 s.			
Kálikoti No. 1	s.	131 14 18	564
Puruán	,,	181 59 23	564
Puntá	,,	194 50 28	565
Kalinali s.			
Koetkolá	s.	161 49 16	468
Bálísai	,,	223 20 19	468
Charnípál	,,	292 41 33	469
Talchuá	,,	348 35 52	470
Kalipadan Chati s.			
Kasantpur	s.	21 18 43	454
Bari Mandárí	,,	81 12 7	453
Chúráman	,,	135 34 53	453
Bideipur Baurí No. 1	,,	335 12 16	455
Kalkakhali s.			
Tumlook	s.	166 7 53	408
Gudarbeniá	,,	244 36 43	407
Dingulbáriá	,,	303 55 56	407
Kalkichak s.			
Bánká	s.	94 26 40	403
Malikpárá	,,	175 28 53	401
Fort Mornington	,,	238 16 28	399
Natsal, III		289 20 36	399

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
KALSABHANGA, X			
Júkí, XII		76 33 8·38	12
Kúdí, XI		126 53 59·56	11
Analbariá, IX		190 8 51·49	10
Dariápur, VIII		260 46 41·27	10
KAMPALI H.S.			
Raun	H.S.	64 16 40·5	102
Tanjharn	„	122 58 7·9	100
Pariá	„	174 46 57·6	99
Seojharn	„	223 34 24·8	98
Baisnalí	„	282 43 36·8	98
KANAIJONA H.S.			
Baisnalí	H.S.	87 25 42·4	95
Seojharn	„	124 5 49·5	96
Machkhání	„	163 34 47·3	94
Sikásar Conical Peak		212 28 11	111
Injorí Hill Mark		231 22 57	113
Dalmundá	„	238 32 7·3	92
Bari Phuljhári	„	273 8 3·5	92
KANDIWALSA, LXII			
Nandígaon Indigo Factory		14 30 35	327
Amnám, LXV		26 20 1·02	82
Amnám	h.s.	28 48 50	333
Koiparlí	s.	32 22 8	681
Kistnápuram, LXVII		59 11 23·46	84
Bor, LXIII		95 37 7·81	76
Dewodímundá	h.s.	100 47 23	321
Marípillí, LXI		131 25 19·22	74
Ráwal, LIX		176 8 19·10	75
Pindí, LX		220 35 44·50	74
Chitáwálsá	„	232 3 32	675
Rámchandarpur	„	277 10 30	675
Barnikam Pagoda		320 50 56	685
Santapili Light-house	s.	322 22 41	687
Mathiálámá	h.s.	339 47 17	680
KANKARPILI s.			
Thirwalá	h.s.	59 47 5	649
Lokaváram	s.	245 49 56	646
Megáváram No. 2	„	285 21 14	647
Megáváram No. 1	„	285 21 26	646
Malgám	„	341 32 3	648
KAPARMURA s.			
Gopínáthpur No. 2	s.	8 31 4	482
Dalkháí	„	48 46 11	483
Satiában	„	230 37 37	481
Gobindapur	„	288 56 59	481

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
KAPLAS, XXXII			
Gumáriá, XXXIII		62 40 1·99	40
Udaigirí, XXXI		129 58 56·86	38
Daiterí, XXIX		184 23 52·03	37
Bodásil, XXX		221 51 10·85	37
Cuttack, XXXV		335 33 59·67	41
KARANJ MAHAL s.			
Bujrápur	s.	19 9 23	464
Utarsai	„	98 28 5	463
Noásai	„	159 24 51	463
Kontiá	„	322 49 51	465
KASANTPUR s.			
Barí Mandárí	s.	157 24 47	454
Kálípadan Chatí	„	201 18 24	454
Bideipur Baurí No. 1	„	268 59 23	455
Bideipur	„	338 11 38	456
KATI, XX			
Nilgirí, XXIV		56 37 7·44	23
Beguniá	h.s.	81 15 29	150
Kimhírá, XXIII		104 38 23·25	27
Jogí Naiágaon, XXI		138 41 18·67	22
Kitkisol, XIX		193 38 1·82	21
Sahárá, XVIII		258 58 20·17	21
Chandípur, XXII		330 48 32·27	25
KAUKHALI s.			
Nandígaon Temple		190 18 12	138
Gángrá	s.	206 48 13	355
Kejirí Semaphore	„	218 40 40	390
Ghoramára	„	239 8 8	355
Auckland Mark		261 5 42	392
KEJIRI HOUSE s.			
Bámanchak	s.	199 45 59	429
Tálpátí Bridge Spire		215 48 32	430
Kejiri Tide Point	„	232 0 11	429
KEJIRI SEMAPHORE s.			
Kaukhálí	s.	38 41 23	390
Tálpátí Bridge, S. W. Pillar		168 17 9	391
Gángrá	„	195 33 54	390
KEJIRI TIDE POINT s.			
Kejirí House	s.	52 0 53	429
Bámanchak	„	109 30 2	428
Tálpátí Bridge Spire		133 56 1	430
Gángrá, VI		202 41 44	428

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
KHASMUNDA s.			
Talchuá	s.	151 36 32	472
Budará	„	219 41 9	472
Putágoibálí	„	274 51 22	473
Bánsgar	„	332 35 39	474
KHIRSINGA s.			
Púndí	s.	14 4 17	635
Púndí Custom House		24 59 28	658
Púndí Temple		29 30 27	659
Bendí	h.s.	94 59 52	634
Penbiram	s.	142 0 11	633
Báthpuram	h.s.	197 45 45	633
KHONDUAKUDA s.			
Babeswal Temple		87 10 33	612
Arákudá	s.	204 45 6	609
Arákudá Temple No. 1		219 40 6	610
Haribasá	„	237 40 19	609
KHUNDABOLO, XLI			
Tárá Tarní, XLV		10 29 23·16	52
Aská Sugar Factory		48 53 26	242
Maltí, XLIV		72 26 36·76	53
Bajro Suliá	h.s.	104 20 49	238
Patharkumúdá, XLII		135 22 10·27	54
Palabá Hill Mark		167 21 6	222
Chiklíkháí, XXXIX		196 41 25·85	50
Káláhandiá Hill Mark		222 17 40	232
Asrákol Hill Mark		228 52 12	230
Kálígiri Hill Mark		235 46 57	224
Tamná Hill Mark		240 10 13	228
Sextasal Hill Mark		250 21 58	226
Dhanáí, XL		250 38 3·98	50
Sonákalá Bungalow		273 34 48	234
Solári Hill Mark		278 13 4	235
Inonopur Temple		300 32 13	237
Chandikho, XLIII		309 29 59·07	51
KIMHIRA, XXIII			
Jugjurí	h.s.	24 24 46	163
Bolpál, XXVI		29 46 13·40	28
Patámundái Rock		66 33 46	167
Megásiní, XXV		84 21 4·93	29
Mádhabpur Village Temple		219 59 48	160
Jogí Naiágaon, XXI		248 23 29·65	24
Mantrí High Temple		275 43 36	156
Kátí, XX		284 31 39·32	27
Balasore Temple		300 29 24	154
Beguniá	h.s.	302 0 3	149
Dobsilá	„	325 36 59	158

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
KIMHIRA, XXIII			
Nilgirí, XXIV		328 17 48·91	24
Katiliá Hill Mark		342 43 23	161
KISTNAPURAM, LXVII			
Gumrú, LXIX		57 44 11·81	86
North End*, LXVIII		104 30 11·06	85
Erábadrápetá Indigo Factory		112 5 45	330
Gopálpilí House		138 44 8	324
Bor, LXIII		168 55 44·16	84
Kandíwálsá, LXII		239 6 43·02	84
KITKISOL, XIX			
Kátí, XX		13 38 59·98	21
Jogí Naiágaon, XXI		79 33 28·13	22
Sátpautiá, XVII		203 15 46·46	20
Gobindapur Temple		244 14 49	144
Banchá	t.s.	244 26 55	143
Patná, XV		259 24 31·44	17
Sahárá, XVIII		316 19 23·07	17
KOETKOLA s.			
Bujrápur	s.	140 30 23	466
Kontiá	„	197 28 34	466
Bálísaí	„	278 55 44	467
Kálinálí	„	341 49 1	468
KOHILI HURI H.S.			
Gumhur Hill Mark		19 22 46	110
Dalmundá	H.S.	51 31 53·4	90
Mauldiá Hill Mark		235 38 37	108
Baniájorí, XXVII		274 25 33·2	89
Daiterí, XXIX		354 35 38·9	89
KOIAM s.			
Kucharlú	s.	62 23 20	672
Ráipili	h.s.	145 13 18	671
Yerámantí	„	194 16 9	670
Kundívádápet	s.	246 4 16	670
KOIPARLI s.			
Hakíváram	s.	55 56 3	683
Kandíwálsá, LXII		212 21 16	681
Mathiálámá	h.s.	277 28 28	681
Rámchandarpet	s.	349 8 39	682

* Of Vizagapatam base-line.

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
KONDRAPARA s.			
Chúráman	s.	98 7 44	571
Kálikotí No. 1	„	173 14 26	571
KONKORDIA s.			
Madhuban	s.	39 0 17	504
Parádíp	„	224 16 19	502
Nosundoro	„	293 15 38	502
Naiágaon Tándá	„	353 38 14	503
KONTIA s.			
Koetkolá	s.	17 28 46	466
Bujrápur	„	94 25 24	465
Karanj Mahal	„	142 50 24	465
Bálísaí	„	320 30 59	467
KORABANTH s.			
Baraikudá	s.	68 55 37	600
Harchandí Temple		77 40 21	599
Harchandí	„	77 44 57	549
Dádrákund	„	129 34 0	548
Bondálo	„	179 10 25	547
Batkiapukri	„	247 53 13	547
KOTHEREVU s.			
Calingápatam Beacon		18 37 17	665
Calingápatam	s.	23 29 51	655
Calingápatam Flagstaff No. 2		33 55 3	663
Rálpád	h.s.	93 54 51	654
Pedákondá	„	139 35 6	653
Onashtípuram	s.	211 12 14	653
KOTHPETA s.			
Rálímolpetá	s.	20 23 15	641
Borgaon No. 2	„	94 55 57	640
Muní	h.s.	154 7 52	639
Murárípur	„	198 38 6	639
KOTLINGA h.s.			
Bodágirí, XLIX		19 21 36	616
Ichápur	h.s.	307 59 54	616
Naiágaon	„	350 16 50	617
KUCHARLU s.			
Rámchandarpur	h.s.	69 45 34	674
Chítáwálsá	„	120 35 20	673
Ráipili	„	194 18 48	672
Koiam	s.	242 21 57	672

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
KUCHLAGAR s.			
Káldíp	s.	52 26 39	486
Chinchirí	„	109 30 48	485
Dalkháí	„	173 39 37	484
Gopínáthpur No. 2	„	231 27 33	484
KUDI, XI			
Júkí, XII		8 16 58·39	12
Sautiá, XIII		83 21 25·62	13
Analbariá, IX		250 32 19·82	11
Kálsábhangá, X		306 50 46·60	11
KUMARAI, LXIV			
Sarnat Modí Hill Mark		96 57 22	319
Renghá Hill Mark		231 48 38	318
Maripillí, LXI		251 51 45·52	77
Bor, LXIII		290 33 52·32	77
Márkí, LXVI		359 45 48·57	78
KUNDIA NADI s.			
Black Pagoda	s.	74 12 51	529
Black Pagoda		112 55 28	588
Madipur	„	120 29 51	528
Kurijang	„	183 19 10	527
Nanjikoná	„	252 37 7	527
KUNDIVADAPET s.			
Koiam	s.	66 6 21	670
Yerámantí	h.s.	113 45 20	669
Chicácol, S. Spire		132 46 52	678
Chicácol, N. Spire		132 53 13	676
Lingalwálsá	s.	183 54 57	668
Vacháwálsá	„	243 54 31	668
KURIJANG s.			
Kundiá Nadí	s.	3 19 13	527
Black Pagoda		71 20 25	588
Madipur	„	84 3 50	528
Telíkud	„	245 52 11	526
Nanjikoná	„	301 27 41	526
KUSBADRA s.			
Baleshwar No. 1	s.	77 30 15	534
Olandá	„	149 33 46	533
Sutaná	„	214 3 0	532
Rámchandí	„	256 39 58	532
KUSMALI s.			
Naurí	s.	40 56 11	436
Srijang	„	78 56 25	437
Chanchiná Temple		116 19 47	557
Nilgirí, XXIV		127 3 47	434
Bardhanpur Temple		162 46 42	555

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
KUSMALI S.			
Pándab Ghát	S.	220 42 47	435
Chandípúr, XXII		226 23 18	434
KUSPUR S.			
Bijiniá	S.	40 4 31	516
Harichpur	„	245 2 50	514
Bálijorí	„	301 17 22	514
Bendrí Thákuráni	„	349 19 47	515
LANDARIPAT S.			
Puthmaí	S.	30 9 21	620
Bodágirí, XLIX		116 39 42	619
Naiágaon	H.S.	169 22 2	619
Idalpalam	S.	342 9 17	621
LATPATIA S.			
Natsal, III		106 47 20	397
Hooghly Point	S.	143 38 18	396
Diamond Hr. Custom H. S. No. 2		264 32 5	396
LINGALWALSA S.			
Kundívádápet	S.	3 55 3	668
Yerámantí	H.S.	69 7 29	669
Chicácol, S. Spire		80 49 29	679
Chiçácol, N. Spire		81 0 6	677
Sálihundam, LVIII		241 7 46	667
Vacháwálsá	S.	300 32 2	667
LION'S RUMP S.			
Senkud	S.	55 5 50	499
Bakud	„	133 42 37	498
Jungle	„	186 47 19	497
False Point Island	„	228 14 33	497
LOHAR H.S.			
Jharghátí	H.S.	230 7 23·7	107
Sambalpur Hill Temple		243 29 14	118
Dongrí Hill Mark		243 36 36	117
Sambalpur Temple No. 2		246 59 13	121
Sambalpur Temple No. 1		247 19 23	120
Sambalpur Kachahrí		261 16 7	122
Mundher Hill Mark		285 30 38	115
Murosil	H.S.	299 13 1·1	107
LOKAVARAM S.			
Kankarpili	S.	65 50 47	646
Naupadá Temple		223 18 57	662
Naupadá	„	223 19 57	644
Nungur	„	280 17 22	644
Megáváram No. 2	„	341 7 35	647
Megáváram No. 1	„	341 7 58	645

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
MACHKHANI H.S.			
Baisnalí	H.S.	49 19 30·6	95
Seojharn	„	96 35 49·8	96
Sikásar Conical Peak		265 56 40	112
Dalmundá	„	269 9 0·2	93
Bari Phuljhári	„	301 56 2·5	93
Kanaijoná	„	343 33 17·1	94
MADHUBAN S.			
Báliámurá	S.	45 54 8	506
Kujang Temple		109 24 31	581
Konkordiá	„	218 59 42	504
Naiágaon Tándá	„	275 43 12	504
Nuliásaí Tándá	„	354 32 52	505
MADIPUR S.			
Rámchandí	S.	35 2 14	530
Sutaná	„	81 4 18	531
Kuríjang	„	264 2 51	528
Kundiá Nadí	„	300 28 55	528
Black Pagoda	„	346 54 0	529
MAGARKHIA TANDA S.			
Pokhálkhiá Tándá	S.	27 14 46	509
Ambikí	„	102 18 30	508
Báliámurá	„	165 9 32	507
Nuliásaí Tándá	„	208 45 26	507
MAHA PARBAT h.s.			
Páni Kurirá Hill Mark		58 44 0	198
Duduá, XXXVIII		81 37 7	194
Singnáth Hill Mark		108 40 43	196
Chánchuniá, XXXVI		131 33 27	195
Gumáriá, XXXIII		190 27 38	194
Khurdá Bungalow		322 6 44	211
MAHAPURVU CHAK S.			
Gángrá	S.	32 41 27	354
Gángrá Semaphore		34 12 10	388
Deobhog Temple		216 32 36	129
Basdápur	„	224 16 7	352
Rangáfalá	„	274 1 14	352
Ghoramára	„	329 23 31	353
Saugor Mud Point		335 24 45	387
MAHENDRAGIRI, L			
Phúlsará, LII		28 3 6·88	63
Garabandá Hill		30 51 24	290
Deodongar, LIII		79 1 20·28	64
Dhobá Dhobaní, XLVIII		176 22 26·25	61
Jarádá Hill		216 3 41	277

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
MAHENDRAGIRI, L			
Bodágirí, XLIX		249 55 38·41	61
Kanchilí Travellers' Bungalow		267 26 39	282
Kanchilí Hill Mark		268 25 51	280
Jalantrá Highest Temple		273 5 41	284
Besí Rámchandarpur Temple		285 15 26	285
Mal, LI		322 10 22·15	62
Newalkondá Hill Mark (helio.)		343 8 5	287
MAIPARA S.			
Baguldiá	S.	53 58 52	476
Bánsgar	„	102 3 29	475
Putágoibálí	„	146 43 9	475
MAKTUMJANI S.			
Daluákoná	S.	58 27 47	521
Sangpatná	„	121 16 36	520
Jharling	„	182 33 56	519
Tándá	„	238 41 32	519
MAL, LI			
Báthpuram	H.S.	43 7 5	631
Phúlsará, LII		80 5 23·16	63
Murkhí	„	81 23 3	630
Newalkondá Hill Mark (helio.)		82 12 7	288
Garabandá Hill		94 8 35	289
Mahendragirí, L		142 13 11·06	62
Mahendragirí Hill Temple		142 20 24	278
Yalmel	H.S.	147 38 42	629
Bodágirí, XLIX		195 19 33·89	62
Besí Rámchandarpur Temple		195 22 18	286
Kanchilí Travellers' Bungalow		198 36 24	282
Palwálsá	H.S.	198 38 55	626
Kanchilí Hill Mark		203 27 59	281
Mukhal	S.	229 18 32	626
Rati Hill Mark		298 15 35	628
MALGAM S.			
Onashtípuram	S.	50 2 15	650
Thirwalá	H.S.	110 21 6	649
Kankarpili	S.	161 32 16	648
Megáváram No. 2	„	246 18 21	648
MALIKPARA S.			
Kamálpur, S. Temple		44 54 15	421
Bánká Temple		64 34 39	424
Bánká	S.	65 46 19	402
Purulpárá	„	139 43 51	404
Fort Mornington	„	277 58 15	400
Natsal, III		321 12 59	400
Kalkíchak	„	355 28 51	401

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Malti, XLIV			
Girdábádí, XLVI		41 49 7·09	57
Káliambá Hill Mark		132 56 40	241
Patharkumúdá, XLII		206 42 28·24	55
Bajro Suliá	h.s.	220 44 13	238
Káláhandiá Hill Mark		249 17 24	232
Khundábolo, XLI		252 19 26·84	53
Tárá Tarní, XLV		314 10 47·98	53
Nanda Bans	h.s.	319 18 13	245
Hingelíkat Hill Mark		336 4 14	243
Aská Sugar Factory		340 42 5	242
Ghoráisiní	„	341 10 18	244
Ráegará, XLVII		355 48 34·19	56
Mandari s.			
Uruá	s.	184 1 10	451
Chúráman Salt Golá		190 1 34	569
Erim Temple		192 20 11	566
Uruá Salt Golá		201 19 9	567
Chúráman	s.	242 1 14	451
Barí Mandárí	„	314 52 23	452
Maripilli, LXI			
Bor, LXIII		17 10 48·08	76
Kumaráí, LXIV		71 57 1·68	77
Sarnat Modí Hill Mark		78 24 2	319
Renghá Hill Mark		161 9 5	317
Rámbhadrapuram Hill Mark (helio.)		173 48 55	316
Ráwal, LIX		223 23 44·97	73
Pindí, LX		270 28 16·32	73
Kandíwálsá, LXII		311 20 58·32	74
Marki, LXVI			
Keverlá Hill Mark		125 40 10	323
Kumaráí, LXIV		179 45 49·51	78
Gopálpilí House		239 19 49	325
Bor, LXIII		242 15 3·00	78
Erábadrápetá Indigo Factory		273 50 57	329
North End*, LXVIII		282 2 11·49	79
Gumrú, LXIX		306 4 2·65	81
South End*, LXX		315 50 35·63	80
Mathialama h.s.			
Rámchandarpet	s.	46 53 8	682
Koiparlí	„	97 29 54	681
Kandíwálsá, LXII		159 47 51	680
Barníkam Pagoda		192 55 28	685
Rámchandarpur	h.s.	233 48 51	680
Santapili Light-house	s.	240 25 22	688
Mathikpur h.s.		° ′ ″	
Muní	h.s.	8 28 27	638
Bendí	„	255 3 49	637
Murárípur	„	311 21 12	637
Penthátíkelá Bungalow		350 53 49	661
Mathri s.			
Tumlook	s.	14 37 28	410
Tumlook House	„	17 35 1	425
Anantapur	„	258 36 42	411
Jhumjhumí	„	327 4 39	410
Matiaburi h.s.			
Tarbarí House		8 11 38	270
Dhobá Dhobaní, XLVIII		59 40 18	257
Digpondi Temple		66 27 57	266
Girdábádí, XLVI		114 59 24	258
Osuda Temple		210 10 40	259
Ráegará, XLVII		341 42 37	257
Mayapur s.			
Brúl	s.	24 16 44	338
Ranmahal	„	56 25 20	339
Jagdíshpur	„	109 5 13	340
Achitpur	„	143 36 45	359
Fort Glo'ster	„	211 35 33	341
Buj Buj	„	217 10 23	357
Shámpur	„	228 33 55	336
Páikpárá	„	240 45 19	336
Bauli Temple		287 26 1	360
Sátgáchiá	„	305 30 59	337
Megasini, XXV			
Bolá, XXVIII		12 18 22·47	31
Baniájorí, XXVII		53 9 5·12	32
Kimhírá, XXIII		264 14 33·73	29
Nilgirí, XXIV		292 2 18·31	30
Dobigarh Hill Mark		292 44 36	166
Jugjurí	h.s.	331 49 38	164
Bolpál, XXVI		337 42 5·10	29
Megavaram No. 1 s.			
Kankarpili	s.	105 22 31	646
Lokaváram	„	161 7 52	645
Nungur	„	229 14 21	645
Megavaram No. 2 s.			
Malgám	s.	66 19 13	648
Kankarpili	„	105 22 19	647
Lokaváram	„	161 7 49	647
Mirzapur, I		° ′ ″	
Natsal, III		7 10 19·96	3
Baniban, LXXXIV†		183 39 14·76	1
Samalia, LXXXVII†		243 13 43·43	1
Sarisá, II		308 12 39·14	2
Nílá	s.	345 9 2	123
Núrpur Tide Gauge		353 3.30	124
Mukhal s.			
Rati Hill Mark		36 6 20	628
Mal, LI		49 19 44	626
Palwálsá	h.s.	153 0 10	625
Barwa Temple		189 40 53	627
Golá Gundí	s.	212 44 26	625
Mulang h.s.			
Pindí, LX		126 16 23	310
Singpur	h.s.	245 52 58	311
Sálíhundam, LVIII		257 1 2	310
Muni h.s.			
Borgaon No. 2	s.	38 27 55	640
Mathikpur	h.s.	188 28 19	638
Murárípur	„	253 18 31	638
Kothpetá	s.	334 7 24	639
Muraripur h.s.			
Kothpetá	s.	18 38 31	639
Penthátíkelá Bungalow		48 41 53	661
Muní	h.s.	73 19 24	638
Mathikpur	„	131 21 57	637
Bendí	„	186 44 26	636
Púndí	s.	266 44 6	636
Murkhi h.s.			
Penbiram	s.	30 26 20	632
Yalmel	h.s.	206 42 2	630
Mal, LI		261 21 40	630
Báthpuram	„	327 17 40	631
Murosil h.s.			
Chandlí	h.s.	16 2 16·9	105
Lohár	„	119 16 21·8	107
Sambalpur Temple No. 2		147 38 0	121
Sambalpur Temple No. 1		147 51 16	120
Sambalpur Kachahrí		148 45 13	122
Sambalpur Hill Temple		156 24 4	118
Jharghátí	h.s.	191 45 41·2	106
Ádápal	„	236 23 13·7	104
Mundher Hill Mark		240 37 13	116
Tanjharn	„	299 26 30·9	104

* Of Vizagapatam base-line. † Of the Calcutta Longitudinal Series.

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Naiagaon h.s.			
Bodágirí, XLIX		58 34 24	618
Kotlingá	h.s.	170 17 6	617
Ichápur	„	230 8 9	617
Landarípat	s.	349 21 49	619
Naiagaon Tanda s.			
Nuliásaí Tándá	s.	45 44 32	505
Madhuban	„	95 43 53	504
Konkordiá	„	173 38 20	503
Nosundoro	„	245 28 21	503
Nairalwalsa h.s.			
Daliáli Hill		80 21 19	305
Ráwal, LIX		85 11 28	293
Wondáwá	h.s.	151 52 1	296
Pálkondá Fort		220 47 26	299
Gopálpur, S. Chimney		226 7 45	304
Nalakondá, LVI		250 59 31	294
Angaradá Bungalow		319 37 27	306
Waialwálsá House		345 32 44	307
Pindí, LX		349 0 59	293
Sítárámpuram Temple		353 16 54	308
Malkondá Hill Temple		355 24 17	309
Nalakonda, LVI			
Pindí, LX		14 48 31·35	70
Sítárámpuram Temple		44 16 49	308
Waialwálsá House		52 20 24	307
Angaradá Bungalow		55 6 42	306
Nairalwálsá	h.s.	71 1 45	294
Ráwal, LIX		78 57 18·55	69
Gopálpur, S. Chimney		84 46 59	303
Gopálpur, N. Chimney		85 13 29	302
Pálkondá Fort		102 19 54	299
Wondáwá	h.s.	108 9 3	295
Pálkondá Temple		113 59 43	301
Yarákanchams, LVII		128 42 31·95	68
Himágirí, LV		170 53 20·55	67
Koligiri Hill Mark (heliotrope)		176 10 20	291
China Malapuram, LIV		248 50 17·79	67
Calingápatam House No. 1		309 54 21	314
Calingapatam House No. 2		310 46 15	315
Sálihundam, LVIII		322 8 36·39	71
Singpur Hill Temple		329 45 3	313
Nanda Bans h.s.			
Gopálpur House		11 56 6	253
Barhámpur House		53 12 46	252
Barhámpur	s.	61 55 33	249
Ghoráisiní	h.s.	109 0 16	246
Maltí, XLIV		139 24 41	245

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Nanda Bans h.s.			
Tárá Tarní, XLV		158 23 49	245
Beplingi Temple		251 27 27	247
Ganjam Fort Mark (heliotrope)		279 41 49	248
Nanjikona s.			
Kundiá Nadí	s.	72 37 51	527
Kurijang	„	121 28 22	526
Telikud	„	193 1 38	525
Tundáhá	„	251 25 3	525
Narsal s.			
Kamálpur, N. Temple		69 2 9	370
Alpin	s.	189 49 42	347
Tentíkolá Obelisk		231 22 14	368
Nilá	„	238 0 31	347
Dhekuá	„	293 9 38	348
Natsal, III			
Tetulbariá, V		40 23 34·95	5
Rámbág Temple		60 10 13	420
Kamálpur, S. Temple		72 52 44	421
Bánká	s.	99 41 6	402
Kalkíchak	„	109 20 59	399
Malikpárá	„	141 13 24	400
Mirzápur, I		187 9 54·84	3
Fort Mornington	„	194 16 13	398
Gewákhálí Temple		245 35 12	417
Sarisá, II		250 37 13·07	3
Hooghly Point	„	250 41 42	397
Diamond Hr. Custom H. s. No. 2		272 55 45	394
Kukráhátí, S. Temple		283 18 13	412
Latpatiá	s.	286 46 17	397
Guábáriá Temple		308 17 50	126
Tetulbáriá Temple		317 7 24	414
Rámnagar, IV		317 58 14·28	4
Dharampur Temple		343 44 52	415
Naupada s.			
Lokaváram	s.	43 20 32	644
Borgaon No. 2	„	195 11 3	642
Rálimolpetá	„	275 0 44	642
Nungur	„	340 56 13	643
Nauri s.			
Nechanpur	s.	31 37 45	443
Jánipur	„	33 3 7	439
Pinchápal	„	79 17 34	438
Srijang	„	133 53 11	437

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Nauri s.			
Nilgirí, XXIV		139 54 9	436
Chanchiná Temple		185 26 1	558
Bardhanpur Temple		192 47 2	555
Kusmalí	s.	220 55 31	436
Nechanpur s.			
Puntá	s.	19 26 26	561
Puruán	„	30 45 28	446
Galmátiá Chatí	„	66 19 34	445
Aldá	„	136 23 23	444
Nilgirí, XXIV		163 48 55	443
Dhobímú	„	207 40 20	444
Naurí	„	211 36 26	443
Nila s.			
Narsál	s.	58 2 5	347
Kamálpur, N. Temple		61 42 1	369
Tentíkolá Obelisk		66 18 19	368
Kurchibáriá Mark		99 38 0	367
Alpin	s.	137 46 36	346
Mirzápur, I		165 9 40	123
Dhajá	„	177 9 12	363
Phalta	„	192 0 21	346
Sarisá, II		265 51 41	123
Diamond Harbour Semaphore	„	301 43 53	349
Kukráhátí, N.E. Temple		335 49 32	371
Dhekuá	„	351 37 19	348
Nilgiri, XXIV			
Katiliá Hill Mark		35 38 28	161
Bolpál, XXVI		69 24 43·50	28
Dobigarh Hill Mark		112 0 33	165
Megásiní, XXV		112 11 30·38	30
Kimhírá, XXIII		148 20 31·47	24
Jogí Naiágaon, XXI		190 50 28·99	23
Mantrí High Temple		193 0 59	157
Dobsilá	h.s.	198 29 31	158
Beguniá	„	201 42 25	149
Kátí, XX		236 33 7·47	23
Balasore Chapel		259 20 48	155
Balasore Temple		263 45 18	153
Balasore Juma Masjid		268 17 42	151
Balarámgarhí Tide Point	s.	269 17 38	145
Chandípur, XXII		276 44 8·74	26
Pándab Ghát	„	292 50 19	433
Kusmalí	„	307 2 7	434
Naurí	„	319 51 9	436
Nechanpur	„	345 47 14	443

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Nimida, XXXIV			
Chánchuniá, XXXVI		8 59 3·96	47
Konáká Hill Mark		17 42 32	181
Bánkmundí	h.s.	29 0 8	179
Ambetí Hill Mark		67 13 15	176
Udaigirí, XXXI		254 15 27·60	46
Dhenkánál Rájá's House		297 38 5	174
Gumáriá, XXXIII		316 54 57·51	46
Budi Hill Mark		349 14 45	178
Noasai s.			
Utarsaí	s.	20 14 53	462
Bejiáriá	,,	91 6 22	461
Bálímundá	,,	161 31 20	461
Karanj Mahal	,,	339 24 28	463
Nosundoro s.			
Naiágaon Tándá	s.	65 29 12	503
Konkordiá	,,	113 16 35	502
Parádíp	,,	190 52 12	501
Senkud	,,	240 18 32	501
Nuliasai Tanda s.			
Magarkhiá Tándá	s.	28 45 57	507
Báliámurá	,,	88 47 56	506
Kujang Temple		157 53 15	581
Madhuban	,,	174 32 56	505
Naiágaon Tándá	,,	225 43 55	505
Nungur s.			
Megáváram No. 1	s.	49 14 58	645
Lokaváram	,,	100 18 13	644
Naupadá	,,	160 56 29	643
Naupadá Temple		165 55 12	662
Rálímolpetá	,,	229 16 29	643
Olanda s.			
Baleshwar No. 1	s.	21 58 34	534
Chatiáná	,,	83 10 41	535
Sutaná	,,	252 44 37	533
Kusbadrá	,,	329 33 23	533
Onashtipuram s.			
Kotherevú	s.	31 12 56	653
Pedákondá	h.s.	82 45 58	652
Bodápád	,,	135 42 16	651
Thirwalá	,,	181 47 5	650
Malgám	s.	230 1 23	650

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Padampurodiho s.			
Borchondá	s.	18 44 1	551
Dasman	,,	75 16 3	552
Dádrákund	,,	259 32 51	550
Harchandi Temple		307 47 3	598
Harchandí	,,	307 50 16	550
Paikpara s.			
Sátgáchiá	s.	20 15 30	337
Máyápur	,,	60 46 51	336
Fort Glo'ster	,,	121 43 26	335
Shámpur	,,	161 10 17	335
Palwalsa h.s.			
Mal, LI		18 39 36	626
Yalmel	h.s.	56 48 38	629
Borgaon No. 1	s.	195 44 46	624
Golá Gundí	,,	259 36 37	624
Barwa Temple		284 17 2	627
Mukhal	,,	332 59 39	625
Pandab Ghat s.			
Kusmalí	s.	40 43 33	435
Chanchiná Temple		65 32 56	557
Bardhanpur Temple		91 45 2	556
Nilgirí, XXIV		112 54 45	433
Chandípur, XXII		230 3 36	433
Paradip s.			
Nosundoro	s.	10 52 31	501
Konkordiá	,,	44 17 35	502
Bakud	,,	238 21 58	500
Senkud	,,	315 26 49	500
Pabia h.s.			
Tanjharn	h.s.	63 39 7·6	100
Ádápal	,,	128 49 42·3	101
Seojharn	,,	291 12 57·2	99
Kampalí	,,	354 46 18·5	99
Patharkumuda, XLII			
Bajro Suliá	h.s.	5 24 29	239
Maltí, XLIV		26 45 39·79	55
Kálíambá Hill Mark		54 47 36	241
Rasalkondá Hill Fort (heliotrope)		57 55 26	240
Palabá Hill Mark		216 27 37	223
Chiklikhái, XXXIX		235 41 0·24	54
Tamná Hill Mark		288 55 8	229
Asrákol Hill Mark		291 41 46	230
Khundábolo, XLI		315 18 9·34	54

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Patna, XV			
Sahárá, XVIII		19 22 48·66	16
Kitkisol, XIX		79 29 1·78	17
Sátpautiá, XVII		144 29 16·19	19
Dántún, XVI		207 39 3·13	18
Sautiá, XIII		249 22 10·29	15
Harnkulí, XIV		316 23 55·46	15
Patna s.			
Aldá	s.	42 41 27	442
Pinchápal	,,	223 0 21	440
Jánípur	,,	274 13 58	440
Kherang Temple		305 20 14	559
Dhobímú	,,	325 55 49	441
Pedakonda h.s.			
Rálpád	h.s.	41 51 53	654
Bodápád	,,	208 56 32	652
Onashtípuram	s.	262 44 27	652
Kotherevú	,,	319 34 17	653
Penbiram s.			
Bendí	h.s.	28 24 29	634
Murkhí	,,	210 25 53	632
Báthpuram	,,	269 39 20	632
Khirsingá	s.	321 59 32	633
Phalta s.			
Nílá	s.	12 0 40	346
Phalta Point Mark		28 26 55	365
Alpin	,,	82 33 52	345
Dhajá	,,	93 9 28	362
Bargarchumuk	,,	136 48 28	343
Ranmahal	,,	169 52 4	344
Brúl	,,	181 33 57	343
Phulsara, LII			
China Malapuram, LIV		68 9 54·98	65
Deodongar, LIII		133 42 29·06	64
Garabandá Hill		199 59 54	289
Mahendragirí, L		208 0 41·78	63
Newalkondá Hill Mark (heliotrope)		259 2 33	287
Mal, LI		260 0 10·77	63
Pinchapal s.			
Patná	s.	43 0 57	440
Srijang	,,	198 45 5	438
Naurí	,,	259 16 47	438
Jánípur	,,	341 37 16	439
Pindi, LX			
Kandíwálsá, LXII		40 38 58·05	74
Maripillí, LXI		90 35 53·09	73
Ráwal, LIX		137 32 54·65	70

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
PINDI, LX			
Malkondá Hill Temple		154 5 38	309
Nairalwálsá	h.s.	169 1 52	293
Nalakondá, LVI		194 47 9·50	70
Singpur	„	263 1 56	312
Sálihundam, LVIII		268 30 6·37	72
Mulang	„	306 15 16	310
POKHALKHIA TANDA s.			
Balbhadrapur	s.	44 32 40	511
Dasomat	„	108 27 21	510
Ambikí	„	159 16 45	509
Magarkhiá Tándá	„	207 14 16	509
POTAMOHAN s.			
Haribasá	s.	64 17 42	608
Arákudá	„	102 15 32	607
Borchondá	„	214 32 28	606
Baramat	„	244 51 5	606
PUNDI s.			
Murárípur	h.s.	86 45 4	636
Púndí Temple		112 43 43	659
Bendí	„	133 21 8	635
Púndí Custom House		172 50 32	657
Khirsingá	s.	194 4 6	635
PUNTA s.			
Kálikotí No. 2	s.	14 50 38	565
Puruán	„	146 1 57	561
Nechanpur	„	199 26 4	561
PURUAN s.			
Kálikotí No. 2	s.	1 59 25	564
Kálikotí No. 1	„	15 22 59	448
Untirá	„	68 16 56	447
Puruán Temple		88 50 52	562
Galmátiá Chatí	„	152 35 43	446
Nechanpur	„	210 44 58	446
Puntá	„	326 1 49	561
PURULPARA s.			
Bánká	s.	11 42 51	404
Bánká Temple		12 31 27	423
Kamálpur, S. Temple		14 37 7	422
Dingulbáriá	„	76 42 40	405
Gudarbeniá	„	125 47 44	406
Malikpárá	„	319 43 19	404
Rámbág Temple		359 2 5	419

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
PUTAGOIBALI s.			
Bánsgar	s.	22 25 22	474
Khasmundá	„	94 52 5	473
Budará	„	165 9 18	473
Maipárá	„	326 42 33	475
PUTHMAI s.			
Golá Gundí	s.	5 24 0	622
Borgaon No. 1	„	61 57 55	623
Bodágirí, XLIX		153 27 38	620
Landaripat	„	210 8 52	620
Idalpalam	„	296 26 57	621
PUTKOL h.s.			
Chánchuniá, XXXVI		159 43 35	185
Kumrangiá Hill Mark		281 30 10	184
Duduá, XXXVIII		321 15 35	184
RAEGARA, XLVII			
Bodágirí, XLIX		14 37 6·60	60
Nakoí Hill Mark		49 50 36	271
Dhobá Dhobaní, XLVIII		79 31 44·80	59
Bisangiri Temple		118 9 9	265
Padnápur Temple		126 5 3	268
Girdábádí, XLVI		128 4 10·75	57
Changardhí	h.s.	129 5 10	261
Tarbarí House		132 23 24	270
Digpondi Temple		136 16 46	266
Matiáburí	„	161 43 14	257
Khejurpáli Temple		164 55 26	269
Andrá Temple		165 18 38	254
Maltí, XLIV		175 49 16·47	56
Tárá Tarní, XLV		229 56 16·17	56
Indrásí Temple		302 49 56	274
Ámpur Hill Temple		316 11 42	273
Sonpur Salt Bungalow		325 43 0	275
Ichápur	h.s.	353 27 13	614
RAIPILI h.s.			
Kucharlú	s.	14 19 18	672
Chitáwálsá	h.s.	72 0 16	673
Yerámantí	„	252 57 32	671
Koiam	s.	325 12 25	671
RAJAPA LOVA h.s.			
Ánandapur	h.s.	39 30 27	691
Hakiváram	s.	213 18 46	689
Amnám, LXV		276 14 44	689
Chitíwálsá Sugar Factory		327 5 50	692
Bimlipatam	h.s.	339 37 30	690

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
RALIMOLPETA s.			
Nungur	s.	49 17 16	643
Naupadá	„	95 1 47	642
Borgaon No. 2	„	142 31 27	641
Kothpetá	„	200 22 54	641
RALPAD h.s.			
Sálihundam, LVIII		35 37 22	656
Pedákondá	h.s.	221 51 8	654
Kotherevú	s.	273 53 20	654
Calingápatam Flagstaff No. 2		309 24 48	663
Calingápatam Beacon		320 58 45	664
Calingápatam	s.	327 8 43	655
RAMCHANDARPET s.			
Amnám, LXV		49 40 15	684
Hakiváram	s.	107 18 4	683
Koiparlí	„	169 8 54	682
Mathiálámá	h.s.	226 51 57	682
RAMCHANDARPUR h.s.			
Santapili Light-house	s.	51 50 13	687
Mathiálámá	h.s.	53 50 35	680
Barnikam Pagoda		69 11 2	686
Kandiwálsá, LXII		97 12 48	675
Chitáwálsá	„	164·55 41	674
Kucharlú	s.	249 44 3	674
RAMCHANDI s.			
Kusbadrá	s.	76 40 59	532
Sutaná	„	155 29 20	531
Madipur	„	215 1 36	530
Black Pagoda	„	260 8 0	530
RAMNAGAR, IV			
Silver Tree Obelisk		2 17 50	134
Phulbáriá Semaphore		34 38 58	130
Gángrá, VI		40 5 25·98	6
Bignábárí	s.	40 6 4	135
Sandiá Semaphore		47 41 36	133
Tetulbariá, V		88 45 27·26	5
Natsal, III		138 0 37·76	4
Guábáriá Temple		157 13 57	125
Kámálpur Temple		186 57 50	127
Sarisá, II		192 0 2·61	4
RANGAFALA s.			
Ghoramára	s.	46 26 7	353
Mahápurvu Chak	„	94 4 40	352
Deobhog Temple		110 40 4	129
Dhanghátá House		115 48 33	385
Kasbáriá White Temple		129 47 30	384
Basdápur	s.	130 8 11	351

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Rangafala s.			
Tájnagar Temple		150 2 34	374
Jigarkhálí Semaphore		161 55 39	378
Diamond Harbour Semaphore	s.	171 11 41	351
Kántábáriá Obelisk		178 15 3	375
Kulpí Obelisk		192 58 33	383
Ranmahal s.			
Bargarchumuk	s.	26 32 0	342
Jagdíshpur	„	206 58 45	340
Máyápur	„	236 24 8	339
Brúl	„	325 28 3	339
Phalta	„	349 51 37	344
Raun h.s.			
Chandlí	h.s.	101 50 43·2	103
Tanjharn	„	177 37 42·8	102
Kampalí	„	244 10 31·0	102
Rawal, LIX			
Maripillí, LXI		43 27 36·41	73
Dewodímundá	h.s.	63 14 2	321
Renghá Hill Mark		64 31 27	317
Rámbhadrapuram Hill Mark	(helio.)	77 11 2	316
Akrimetá	h.s.	174 29 23	298
Yarákanchámá, LVII		203 1 23·86	69
Nalakondá, LVI		258 52 6·89	69
Nairalwálsá	„	265 8 33	293
Pindí, LX		317 29 6·84	70
Kandíwálsá, LXII		356 7 47·04	75
Sahara, XVIII			
Chandípur, XXII		27 33 9·44	25
Kátí, XX		79 2 21·40	21
Kitkisol, XIX		136 22 27·00	17
Banchá	t.s.	140 37 28	143
Patná, XV		199 21 23·18	16
Harnkulí, XIV		250 20 40·13	16
Salihundam, LVIII			
Lingalwálsá	s.	61 8 50	667
Mulang	h.s.	77 5 9	310
Pindí, LX		88 35 20·45	72
Singpur	„	106 31 40	311
Singpur Hill Temple		108 7 56	313
Nalakondá, LVI		142 12 30·74	71
China Malapuram, LIV		185 10 22·15	71
Rálpád	h.s.	215 36 38	656
Calingápatam House No. 1		256 35 16	314
Calingápatam House No. 2		265 29 46	315
Calingápatam Beacon		280 53 57	664
Calingápatam	s.	284 59 32	656
Vachawálsá	„	351 27 40	666

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Samalia, LXXXVII*			
Sarisá, II		20 22 0·87	2
Mirzápur, I		63 18 11·04	1
Baniban, LXXXIV*		119 20 22·29	1
Samangara s.			
Bálikhand No. 2	s.	3 1 16	540
Pooree Great Temple		47 26 1	595
Utarkoná	„	87 50 47	541
Beldár	„	261 31 0	539
Bálikhand No. 1	„	310 47 1	539
Sangpatna s.			
Tirkoná	s.	65 25 17	522
Jhárling	„	236 37 5	520
Maktumjání	„	301 15 49	520
Daluákoná	„	348 7 22	521
Santapili Light-house s.			
Mathiálámá	h.s.	60 25 49	688
Kandíwálsá, LXII		142 23 42	687
Rámchandarpur	„	231 48 56	687
Santoshpur h.s.			
Baniájorí, XXVII		165 1 35	168
Bolá, XXVIII		305 38 38	168
Sarisa, II			
Rámnagar, IV		12 0 50·86	4
Diamond Hr. Custom H. s. No. 2		14 47 50	394
Guábáriá Temple		26 1 19	125
Kukráhátí, S. Temple		45 41 33	412
Dharampur Temple		46 52 15	416
Hooghly Point	s.	70 39 14	395
Natsal, III		70 40 25·40	3
Kamálpur Temple		72 5 35	127
Núrpur Tide Gauge		79 4 53	124
Nilá	s.	85 53 51	123
Mirzápur, I		128 15 26·88	2
Samalia, LXXXVII*		200 20 21·84	2
Satbhaia s.			
Gobindapur	s.	47 53 25	480
Satiában	„	107 49 59	479
Burkolikotí	„	167 29 55	478
Baguldiá	„	240 16 55	478
Satgachia s.			
Brúl	s.	62 58 33	338
Máyápur	„	125 31 57	337
Páikpárá	„	200 14 56	337

Name of station with azimuths of surrounding points		° ′ ″	No. of triangle giving distance
Satiaban s.			
Gobindapur	s.	9 58 30	480
Káparmúrá	„	50 38 24	481
Burkolíkotí	„	229 55 41	479
Sátbhaiá	„	287 49 23	479
Satpautia, XVII			
Kitkisol, XIX		23 17 42·00	20
Dántún, XVI		271 27 16·04	19
Patná, XV		324 26 40·37	19
Sautia, XIII			
Harnkulí, XIV		12 40 4·13	14
Patná, XV		69 25 35·32	15
Dántún, XVI		144 45 30·55	18
Kúdí, XI		263 17 32·37	18
Júkí, XII		309 52 37·49	13
Senkud s.			
Nosundoro	s.	60 19 49	501
Parádíp	„	135 27 47	500
Bakud	„	177 53 30	499
Lion's Rump	„	235 4 56	499
Seojharn h.s.			
Kampalí	h.s.	43 39 11·0	98
Pariá	„	111 18 24·7	99
Machkhání	„	276 28 30·3	96
Kanaijoná	„	303 57 1·9	96
Baisnalí	„	351 28 11·1	97
Shampur s.			
Baulí Temple		4 28 1	361
Máyápur	s.	48 35 19	336
Buj Buj	„	74 58 2	356
Fort Glo'ster	„	96 39 30	335
Páikpárá	„	341 10 9	335
Shukdebpur s.			
Garjang	s.	29 57 4	490
Chitákholá	„	271 11 4	489
Barní	„	314 20 54	489
Singpur h.s.			
Mulang	h.s.	65 55 53	311
Pindí, LX		83 6 58	312
Sálihundam, LVIII		286 30 28	311

* Of the Calcutta Longitudinal Series.

Name of station with azimuths of surrounding points			No. of triangle giving distance
Srijang s.		° ′ ″	
Pinchápal	s.	18 45 18	438
Kusmalí	,,	258 55 11	437
Naurí	,,	313 52 37	437
Sutana s.			
Kusbadrá	s.	34 3 40	532
Olandá	,,	72 45 40	533
Madipur	,,	261 3 19	531
Rámchandí	,,	335 28 59	531
Talchua s.			
Kálinálí	s.	168 36 6	470
Charnípál	,,	207 50 5	470
Budará	,,	273 31 15	471
Khasmundá	,,	331 36 10	472
Tanda s.			
Maktumjání	s.	58 42 25	519
Jharling	,,	119 30 32	518
Bijiniá	,,	169 7 12	517
Bendrí Thákuráni	,,	227 53 45	517
Deví River	,,	249 47 35	587
Tanjharn h.s.			
Chandlí	h.s.	45 46 0·1	103
Murosil	,,	119 30 16·3	104
Ádápal	,,	199 2 12·3	101
Pariá	,,	243 33 14·2	100
Kampalí	,,	302 51 37·9	100
Raun	,,	357 37 25·0	102
Tara Tarni, XLV			
Barhámpur House		24 7 29	251
Barhámpur	s.	31 51 12	249
Ráegará, XLVII		50 1 10·27	56
Ghoráisiní	h.s.	82 11 35	244
Hingelíkat Hill Mark		87 27 28	243
Girdábádí, XLVI		90 52 17·70	58
Maltí, XLIV		134 16 27·88	53
Khundábolo, XLI		190 27 56·73	52
Chandíkho, XLIII		226 51 41·02	52
Ganjam Fort Mark (heliotrope)		307 11 35	248
Beplingi Temple		317 49 24	247
Nanda Bans	h.s.	338 23 1	245
Gopálpur House		359 58 3	253

Name of station with azimuths of surrounding points			No. of triangle giving distance
Telikud s.		° ′ ″	
Nanjíkoná	s.	13 1 49	525
Kurijang	,,	65 53 3	526
Tirkoná	,,	238 48 51	524
Tundáhá	,,	301 56 52	524
Tetulbaria, V			
Dhojíbhangá, VII		44 50 46·83	7
Natsal, III		220 21 14·11	5
Rámnagar, IV		268 40 43·61	5
Deobhog Temple		280 11 52	128
Phulbáriá Semaphore		283 10 20	130
Sandiá Semaphore		312 16 15	132
Nandígaon Temple		336 45 4	137
Gángrá, VI		344 18 11·36	6
Thirwala h.s.			
Onashtípuram	s.	1 47 7	650
Bodápád	h.s.	82 8 9	651
Kankarpili	s.	239 46 28	649
Malgám	,,	290 20 16	649
Tirkona s.			
Telikud	s.	58 49 35	524
Sangpatná	,,	245 24 30	522
Daluákoná	,,	296 20 58	522
Tundáhá	,,	356 56 27	523
Tomaka h.s.			
Daiterí, XXIX		97 48 4	172
Bodásil, XXX		327 24 54	173
Bodásil	h.s.	327 25 48	172
Tumlook House s.			
Mathrí Temple		191 38 10	426
Mathrí	s.	197 34 45	425
Jhumjhumí	,,	257 37 15	425
Tumlook s.			
Mathrí	s.	194 37 14	410
Jhumjhumí	,,	249 51 28	409
Gudarbeniá	,,	298 14 16	408
Kalkákhálí	,,	346 7 42	408
Tundaha s.			
Nanjíkoná	s.	71 26 1	525
Telikud	,,	121 57 39	524
Tirkoná	,,	176 56 30	523
Daluákoná	,,	243 37 16	523

Name of station with azimuths of surrounding points			No. of triangle giving distance
Udaigiri, XXXI		° ′ ″	
Gumáriá, XXXIII		5 51 18·56	40
Nimidá, XXXIV		74 20 19·12	46
Daiterí, XXIX		217 51 24·30	38
Bodásil, XXX		255 16 25·27	39
Kaplás, XXXII		309 54 49·28	38
Dhenkánál Rájá's House		354 0 31	174
Untira s.			
Uruá	s.	19 3 33	449
Galmátiá Chatí	,,	206 50 57	447
Puruán Temple		222 26 25	563
Puruán	,,	248 16 17	447
Kálikotí No. 1	,,	311 32 29	448
Urua s.			
Mandárí	s.	4 1 13	451
Untirá	,,	199 3 19	449
Erim Temple		218 52 58	566
Kálikotí No. 1	,,	248 47 43	449
Uruá Salt Golá		300 34 35	568
Chúráman	,,	320 1 58	450
Chúráman Salt Golá		355 8 25	570
Utarkona s.			
Pooree Great Temple		4 24 8	594
Gobarsaí	s.	8 1 32	542
Dámodarpur	,,	63 37 12	544
Samangará	,,	267 49 53	541
Bálikhand No. 2	,,	311 57 8	541
Utarsai s.			
Bejiáriá	s.	161 8 52	462
Noásaí	,,	200 14 33	462
Karanj Mahal	,,	278 27 22	463
Bujrápur	,,	327 47 25	464
Vachawalsa s.			
Kundívádápet	s.	63 55 53	668
Lingalwálsá	,,	120 33 18	667
Sálihundam, LVIII		171 27 52	666
Calingápatam	,,	239 41 3	666
Vizagapatam base-line, N. End, LXVIII			
South End,* LXX		19 38 58·10	80
Márkí, LXVI		102 5 7·40	79
Keverlá Hill Mark		114 31 55	323
Bor, LXIII		203 44 25·91	79
Kistnápuram, LXVII		284 28 18·00	85
Gumrú, LXIX		355 34 19·83	86

*Of Vizagapatam base-line.

Name of station with azimuths of surrounding points			No. of triangle giving distance
VIZAGAPATAM BASE-LINE S. End, LXX		° ′ ″	
Márkí, LXVI		135 52 53·71	80
North End,* LXVIII		199 38 20·73	80
Gumrú, LXIX		258 41 50·76	87
WONDAWA h.s.			
Koparawálsá Factory		98 1 0	297
Akrimetá	h.s.	101 23 10	298
Yarákanchámá, LVII		168 55 31	295
Nalakondá, LVI		288 5 50	295
Pálkondá Fort		291 57 55	300
Nairalwálsá	h.s.	331 51 3	296

Name of station with azimuths of surrounding points			No. of triangle giving distance
YALMEL h.s.		° ′ ″	
Murkhí	h.s.	26 42 42	630
Palwálsá	,,	236 47 14	629
Mal, LI		327 37 59	629
YARAKANCHAMA, LVII			
Daliálí Hill		12 6 34	305
Ráwal, LIX		23 3 2·75	69
Koparawálsá Factory		35 46 48	297
Himágirí, LV		235 27 42·88	68
Koligiri Hill Mark (heliotrope)		239 17 41	291
Nalakondá, LVI		308 38 57·75	68

Name of station with azimuths of surrounding points			No. of triangle giving distance
YARAKANCHAMA, LVII		° ′ ″	
Pálkondá Temple		313 44 20	301
Gopálpur, N. Chimney		326 28 44	302
Gopálpur, S. Chimney		326 35 27	303
Wondáwá	h.s.	348 55 10	295
YERAMANTI h.s.			
Koiam	s.	14 16 34	670
Raipili	h.s.	72 58 50	671
Chicácol, N. Spire		220 25 26	676
Chicácol, S. Spire		220 41 40	678
Lingalwálsá	s.	249 5 43	669
Kundívádápet	,,	293 43 40	669

*Of Vizagapatam base-line.

January 1878.

J. B. N. HENNESSEY,
In charge of Computing Office.

EAST COAST SERIES.

CO-ORDINATES AND DESCRIPTIONS OF ALL STATIONS AND POINTS.

The following table gives the co-ordinates of all the stations and other fixed points, arranged in alphabetical order, also the descriptions of the secondary and intersected (or unvisited) points, and references to the preceding pages where the descriptions of the principal stations are given. In certain instances numbers are added which have reference to the given data of the triangles by which the station or point has been fixed; when these numbers are omitted it is to be understood that no triangles are given.

NOTE.—λ stands for Latitude North; L for Longitude East of Greenwich; H for Height of station in feet above mean sea level if determined trigonometrically, H_s for the Height when found by spirit leveling and h for Height of station tower or pillar. For visited stations and for other points of superior accuracy the values of λ and L are given to two places of decimals; for well determined objects to one place, and for the remaining points to the nearest second. Principal stations are distinguished by the Roman numerals I, II, &c.; secondary stations by the letters H.S., h.s., t.s. and s.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
A Hill. (*Jaipur*) Southern and higher of a double peaked hill. ° ′ ″ λ 18 47 24 L 83 25 31	**Ádápal** H.S. (*Bumra*) On the summit of a hill about 1·3 miles N. of Dumarmúrá hamlet and 4 miles N.E. of the well known village of Badromar, on the old road between Calcutta and Bombay. A circle and dot engraved on the rock *in situ* denote the site of observation. ° ′ ″ λ 21 31 31·02 L 84 20 49·99 H 1639 No. 101	**Ákupur Village,** (*Midnapore*) Tree flag. ° ′ ″ λ 22 8 39 L 88 8 29
Abdulpur Village, (*24-Pergunnahs*) Tree flag. λ 22 12 44 L 88 11 51	**Akál Meg Village,** (*24-Pergunnahs*) Tree flag. λ 22 16 22 L 88 8 8	**Álámandá Auxiliary h.s.** (*Vizagapatam*) On the summit of the small hill S. of the village of that name and close to that part of the Vizianagram road which runs between Bhímsingí and Kotewálsá travellers' bungalows. The station is marked by an isolated masonry pillar surrounded by a platform of stones and earth. λ 17 59 32·46 L 83 16 51·94
Achaipur Village, (*Midnapore*) Tree flag. λ 22 25 5 L 87 57 50	**Akrimetá h.s.** (*Vizagapatam*) On the summit of a low isolated hill about 1 mile S. of the small village of Pedimpetá; táluk Búbilí. A circle and dot cut on the rock *in situ* denote the site of observation. λ 18 39 41·25 L 83 34 53·06 No. 298	**Álámandá Bungalow.** (*Vizagapatam*) Top of highest bungalow. λ 17 59 36·0 L 83 16 53·7
Achitpur s. (*24-Pergunnahs*) On staircase of factory house. λ 22 26 58·64 L 88 10 15·35 H 60 Nos. 358, 359		

Name of station, district, description, co-ordinates &c.

Aldá s.
(*Balasore*) On the bank of a tank about 80 yards N. of Aldá village, which latter is about 0·3 of a mile W. of the large assemblage of villages consisting of Bishnupur, Shámsherpur &c. A kachá platform with a mark-stone at top denotes the site of observation.

	° ′ ″
λ	21 15 34·97
L	86 51 14·13

No. 442

Algubili Mark.
(*Vizagapatam*) Pole and brush.

λ	18 5 48
L	83 14 27

Alpin s.
(*Hooghly*) Tree station in centre of village, 39 feet above ground.

λ	22 17 34·62
L	88 5 0·79
H	48

No. 845

Ámbáriá Village,
(*Hooghly*) Tree flag.

λ	22 16 26
L	88 0 36

Ambetí Hill Mark.
(*Hindol Estate*)

λ	20 41 28·19
L	85 11 40·45

No. 176

Ambikí s.
(*Cuttack*) On high ground about 10 feet above the surrounding country, in the midst of a low jungle, close to and N. of Ambikí village and about 500 feet S.W. of Bálokondá stream. A paká pillar 3 feet high (including foundation) defines the site of observation.

λ	20 8 53·35
L	86 30 5·83

No. 508

Ambikí Tree.
(*Cuttack*) Single palm tree.

λ	20 9 7
L	86 30 13

Amnám, LXV.
(*Vide page 17—C.*)

λ	17 56 48·46
L	83 31 28·74
H	836
h	*Not forthcoming*

No. 82

Name of station, district, description, co-ordinates &c.

Amnám h.s.
(*Vizagapatam*)

	° ′ ″
λ	17 56 35·95
L	83 30 42·38

Nos. 333, 334

Ámpur Hill Temple,
(*Ganjam*) Spire.

λ	19 12 2·1
L	84 47 14·9

No. 273

Amritbáriá Village,
(*Midnapore*) Tree flag.

λ	22 13 18
L	88 1 5

Analbariá, IX.
(*Vide page 7—C.*)

λ	21 55 9·93
L	87 44 19·87
H	46
h	29

No. 9

Ánandapur h.s.
(*Vizagapatam*) On a single detached hill at the junction of the two roads from Vizagapatam to Barhámpur and Pálkondá. A pillar 2 feet high (including foundation) defines the site of observation.

λ	17 53 48·20
L	83 24 47·35

No. 691

Anantapur s.
(*Hooghly*) On a mound of earth on N. boundary of village and close to the khál that separates it from Sasatí village; pargana Mandalghát.

λ	22 20 9·07
L	88 0 42·07

No. 411

Anantapur Village.
(*Hooghly*) Flag on tamarind tree S. E. end of village.

λ	22 19 22
L	88 0 11

Andarwá Village Mark.
(*Ranpur Estate*)

λ	20 0 20·7
L	85 23 19·4

Ándhariá House.
(*Ganjam*) Centre of roof of tiled house.

λ	19 25 0·7
L	85 0 32·7

Name of station, district, description, co-ordinates &c.

Andrá Temple.
(*Ganjam*) Spire of white temple.

	° ′ ″
λ	19 27 2·6
L	84 39 4·3

Nos. 254, 255

Angaradá Bungalow,
(*Vizagapatam*) Cone.

λ	18 31 25·3
L	83 46 16·9

No. 306

Angu Village,
(*Ganjam*) Tree flag.

λ	19 27 55
L	84 57 59

Arákudá s.
(*Pooree*) About ½ of a mile N. W. of Arákudá Temple No. 1 and the same distance N. of Temple No. 2 of the same name.

λ	19 43 37·43
L	85 37 27·36

Nos. 553, 554

Arákudá Temple No. 1.
(*Pooree*)

λ	19 43 0·9
L	85 37 45·8

Nos. 610, 611

Arákudá Temple No. 2.
(*Pooree*)

λ	19 42 53·1
L	85 37 30·3

Arjunnagar Temple,
(*Midnapore*) Spire.

λ	21 56 58·2
L	87 44 4·7

No. 142

Aská Sugar Factory,
(*Ganjam*) Great chimney centre.

λ	19 36 19·1
L	84 42 44·8

No. 242

Asrákol Hill Mark.
(*Nayagar Estate*)

λ	19 55 53·91
L	85 6 24·99

Nos. 230, 231

Auckland Mark.
See Hooghly River.

Name of station, district, description, co-ordinates &c.

Aunliáchak Village,
(*Midnapore*) Tree flag.

	°	′	″
λ	22	23	33
L	87	57	49

B. Hill.
(*Jaipur*) High and distant conical peak.

λ	18	48	25
L	83	12	29

Babeswal Temple.
(*Pooree*)

λ	19	41	21·1
L	85	34	0·0

Nos. 612, 613

Baboiá Village,
(*Midnapore*) Tree flag.

λ	22	25	58
L	87	55	17

Bagchalí s.
(*Cuttack*) Close to the mouth of river so called. A paká pillar 1·5 feet high, enclosing a mark-stone, defines the site of observation.

λ	20	28	23·77
L	86	47	18·49

No. 491

Baguldiá s.
(*Cuttack*) Close to the fresh water springs called Gaur Matha and right on the sea shore. A paká pillar 12 feet high, with a mark-stone, defines the site of observation.

λ	20	39	40·11
L	87	1	24·42

No. 476

Baideswar h.s.
(*Bánki Estate*) On the summit of a low isolated hill on the very edge of the S. bank of the Mahánadi. Baideswar village lies at the N.E. foot of the hill and is so close to it as to be invisible from the station.

λ	20	21	9·23
L	85	25	15·98

Nos. 186, 187

Baikuntpur Village,
(*Hooghly*) Tree flag.

λ	22	22	23
L	88	0	11

Baisnalí H.S.
(*Ungúl Estate*)

λ	21	1	47·78
L	84	48	56·53
H	1844		

No. 95

Name of station, district, description, co-ordinates &c.

Bajro Suliá h.s.
(*Ganjam*) On the summit of a high isolated hill of conical shape about a mile from the villages of Kumundá and Káderpárá; estate Gúmsur. It is so called by the inhabitants in contradistinction to Suliá, a hill in the Naiágarh estate.

	°	′	″
λ	19	54	15·25
L	84	48	9·01

Nos. 238, 239

Bakud s.
(*Cuttack*) Near the bund of a tank, 378 feet E. of corner of nearest house in village so called and to the N. of Mahánadi river. A paká pillar 12 feet high denotes the site of observation.

λ	20	19	46·77
L	86	42	8·17

No. 498

Balarámgarhí Coast Buoy.
(*Balasore*) Balasore Roads outer Buoy.

λ	21	26	19
L	87	8	39

Balarámgarhí Coast Flag Staff.
(*Balasore*) Master Attendant's flag staff.

λ	21	28	2·9
L	87	5	39·4

Nos. 147, 148

Balarámgarhí House s.
(*Balasore*) On roof of a paká house, formerly the Salt Kachahrí but now much dilapidated, on the left bank of and 0·8 of a mile from the mouth of Budhabalanga river. Denoted by a mark cut on the roof directly above the walls of the apartments.

λ	21	28	31·66
L	87	5	27·13

No. 146

Balarámgarhí Tide Point s.
(*Balasore*) On left bank of Budhabalanga river, 410 feet from the Tide Gauge. A paká pillar with a mark-stone at top and another 5·00 feet below at the ground level, defines the station. The mark-stones have the heights 15 and 10 feet respectively engraved on them. Balarámgarhí is a salt manufacturing village on the Balasore Sea Coast.

λ	21	28	34·50
L	87	5	19·63
H	14·98*		
h	5		

No. 145

Balarámpur Village,
(*Balasore*) Brush.

λ	20	58	0
L	86	51	57

Balásai Tree.
(*Balasore*) Flag.

λ	21	17	51
L	86	55	38

Name of station, district, description, co-ordinates &c.

Balasore Chapel.
(*Balasore*) Mark on roof.

	°	′	″
λ	21	30	5·01
L	86	58	9·33
H	64		

No. 155

Balasore Dák Bungalow,
(*Balasore*) S.W. angle.

λ	21	29	23·7
L	86	57	52·3

Balasore, House No. 1.
(*Balasore*) Flag on Mr. Bond's house.

λ	21	29	45·0
L	86	59	19·7

Balasore, House No. 2.
(*Balasore*) Turret of Rádhá Shám Das's house.

λ	21	28	46·3
L	86	59	18·2

Balasore Juma Masjid,
(*Balasore*) Centre dome.

λ	21	28	41·8
L	86	59	32·8

Nos. 151, 152

Balasore Kachahrí.
(*Balasore*) Mark on roof.

λ	21	30	9·26
L	86	58	15·26

Balasore Spire.
(*Balasore*)

λ	21	30	4
L	86	58	11

Balasore Temple.
(*Balasore*) Spire of highest temple.

λ	21	29	30·1
L	86	59	24·3

Nos. 153, 154

Balbhadrapur s.
(*Cuttack*) On a high sand height between the sea and Nunmathiá stream, about 0·8 of a mile S.E. of Nuriásaí village and 415 feet from the high water mark. A paká pillar 5 feet high (including foundation) defines the site of observation.

λ	20	3	31·63
L	86	29	9·36

No. 511

Baleshwar No. 1 s.
(*Poorse*) On a sand height 1060 feet from the high water mark and to E. of Baleshwar temple.

λ	19	50	7·40
L	86	1	1·53

No. 534

* This height was obtained by local tidal observations, and refers to the mark in the upper surface of the pillar.

Name of station, district, description, co-ordinates &c.

Baleshwar No. 2 s.
(*Pooree*) On a sand height 459 feet from the high water mark and 0·4 of a mile W. of Baleshwar temple.

	°	′	″
λ	19	49	36·67
L	85	58	53·82

No. 536

Baleshwar Temple.
(*Pooree*)

λ	19	49	50·6
L	85	59	8·2

Nos. 592, 593

Báliámurá s.
(*Cuttack*) In jungle on the bank of river so called and about midway between Ambikí and Kujang. A paká pillar 3·5 feet high (including foundation) denotes the site of observation.

λ	20	10	52·11
L	86	32	7·27

No. 506

Bálíjorí Coast s.
(*Pooree*) On the high water mark of the sea and between it and Bálíjorí river. There is nothing remarkable in the vicinity. A paká pillar 2 feet high (including foundation) defines the site of observation.

λ	20	1	40·06
L	86	28	0·13

No. 583

Bálíjorí s.
(*Pooree*) On the highest of several mounds between a thick jungle to the N. and W. and Bálíjorí river quite close to S. and E. There is nothing remarkable in the vicinity. A paká pillar 5 feet high (including foundation) denotes the site of observation.

λ	20	1	19·50
L	86	26	58·89

No. 513

Bálíkhand No. 1 s.
(*Pooree*) On a sand height 772 feet from the high water mark. A paká pillar 3 feet high defines the site of observation.

λ	19	49	2·19
L	85	56	32·89

No. 538

Bálíkhand No. 2 s.
(*Pooree*) On a sand height 875 feet from the high water mark and a short distance E. of Pooree station. A paká pillar 6 feet high defines the site of observation.

λ	19	48	27·88
L	85	54	22·24

No. 540

Name of station, district, description, co-ordinates &c.

Bálímundá s.
(*Balasore*) About 3 miles E. of salt agent's bungalow at Kurunjariá, about 15 paces from the mouth of a nala or tidal creek and about 15 feet from the high water mark. A pillar 2 feet high, with a mark-stone, defines the site of observation.

	°	′	″
λ	20	59	18·82
L	86	55	7·70

No. 459

Bálísaí s.
(*Balasore*) On the highest point of sand ridge skirting the coast and 0·5 of a mile E. of the site of a former village of this name. A paká pillar 2 feet high with a mark-stone denotes the site of observation.

λ	20	50	35·26
L	87	0	14·82

No. 467

Bámanchak s.
(*Midnapore*) On bank of Tálpátí khál about 200 yards S. of Bámanchak village; pargana Kiruámal.

λ	21	53	24·15
L	88	0	10·05

Banchá t.s.
(*Mayurbhanja Estate*) Flag on old tower.

λ	21	45	36·19
L	87	2	53·52

No. 143

Ban Gopálpur Village,
(*Midnapore*) Tree flag.

λ	22	8	2
L	88	9	18

Bandhanhariá Village,
(24-*Pergunnahs*) Tree flag.

λ	22	28	23
L	88	13	16

Baniájorí, XXVII.
(*Vide page* 10—C.)

λ	21	25	50·90
L	86	6	18·85
H	1171		
h	2		

Nos. 32, 33

Baniban, LXXXIV.*
(*Vide page* 5—C.)

λ	22	31	23·63
L	88	7	13·29
H	60		
h	39		

No. 1

Name of station, district, description, co-ordinates &c.

Bánká s.
(*Midnapore*) On Government embankment about 200 yards N.E. of an old Shiválá; pargana Myeadul.

	°	′	″
λ	22	12	30·45
L	88	2	18·16

Nos. 402, 403

Bánká Temple,
(*Midnapore*) Spire. Also called Mosítalá.

λ	22	12	26·3
L	88	2	14·9
H	39		

Nos. 423, 424

Bánká Village,
(*Midnapore*) Tree flag.

λ	22	12	17
L	88	2	24

Bankáti Village,
(*Mayurbhanja Estate*) Tree flag.

λ	21	45	12
L	87	5	8

Bánkmundí h.s.
(*Hindol Estate*)

λ	20	34	51·93
L	85	16	54·06
H	2086		

No. 179

Banpur Village,
(*Midnapore*) Tree flag.

λ	22	24	50
L	87	56	44

Bánsbáriá Village,
(*Hooghly*) Tree flag.

λ	22	26	39
L	87	58	11

Bansgar s.
(*Cuttack*) On the Maipárá river. A paká pillar 1 foot high denotes the site of observation.

λ	20	41	59·33
L	87	1	28·64

No. 474

Baraburá Village,
(*Hooghly*) Tree flag.

λ	22	16	48
L	88	4	12

Bar Amritbáriá Village,
(*Midnapore*) Tree flag.

λ	22	14	13
L	88	0	47

* Of the Calcutta Longitudinal Series.

Name of station, district, description, co-ordinates &c.

Barahachak Village,
(*Midnapore*) Tree flag.

	°	′	″
λ	22	12	6
L	88	3	45

Baraikudá s.
(*Pooree*) On a sand height 547 feet from the high water mark and opposite Harchandí temple, between the sea and river.

λ	19	44	58·68
L	85	44	3·59

Nos. 600, 601

Baramat s.
(*Pooree*) On a sand height 389 feet from the high water mark and just above the small temple so called.

λ	19	44	29·12
L	85	42	44·95

Nos. 602, 603

Baramat Temple.
(*Pooree*)

λ	19	44	32·2
L	85	42	42·6

Nos. 604, 605

Baramba Base, E. End.
(*Baramba Estate*) On road leading from the Rájá's house to the large tank S. of village.

λ	20	25	10·16
L	85	22	51·00

Baramba Base, W. End.
(*Baramba Estate*) On road leading from the Rájá's house to the large tank S. of village.

λ	20	25	9·43
L	85	22	50·15

Barampur Village,
(*Mayurbhanja Estate*) Tree flag.

λ	21	43	45
L	87	3	34

Baratalá Village,
(*24-Pergunnahs*) Tree flag.

λ	22	23	33
L	88	10	41

Bardhanpur Temple,
(*Balasore*) Spire.

λ	21	23	41·2
L	86	57	46·4

Nos. 555, 556

Bargarchumuk s.
(*Hooghly*) Tree station in centre of village, 33 feet above ground.

λ	22	20	59·08
L	88	5	58·45
H	42		

No. 342

Name of station, district, description, co-ordinates &c.

Barhámpur House.
(*Ganjam*) Centre of roof of Captain Phillip's house.

	°	′	″
λ	19	18	11·7
L	84	51	13·7

Nos. 251, 252

Barhámpur s.
(*Ganjam*)

λ	19	18	58·49
L	84	49	42·60

Nos. 249, 250

Barí Mandárí s.
(*Balasore*) On a small ant hill about 150 yards S. of a bund of small extent, but of considerable height, about 2 miles N. of Kasantpur village and 2·5 miles N.E. of Rámchandarpur. Denoted by a mark-stone fixed on the hill.

λ	21	6	11·74
L	86	50	12·81

No. 452

Bari Phuljhari H.S.
(*Dhenkánál Estate*)

λ	21	1	40·52
L	85	30	54·36
H	1718		

No. 91

Bari Phuljhari Hill Tree.
(*Dhenkánál Estate*) W. of large rock.

λ	21	1	39
L	85	30	55

Barnai, XXXVII.
(*Vide page* 11—C.)

λ	20	9	31·41
L	85	41	37·85
H	1002		
h	2		

No. 42

Barní s.
(*Cuttack*) About 2·3 miles N.E. of the mouth of river so called and right on the sea coast. A paká pillar 2 feet high, with a mark-stone, defines the site of observation.

λ	20	31	2·46
L	86	49	55·63

No. 488

Barníkam Pagoda.
(*Vizagapatam*) Top of the highest of two pagodas in village so called.

λ	18	5	25·3
L	83	39	40·2

Nos. 685, 686

Name of station, district, description, co-ordinates &c.

Barpál s.
(*Cuttack*) On an open spot close to the small village so called and 0·5 of a mile N.E. of Barpál Mat. A kachá-paká pillar 7 feet high, with a mark-stone, denotes the site of observation.

	°	′	″
λ	20	27	44·46
L	86	43	47·04

No. 492

Barpút Village,
(*Banki Estate*) Tree flag.

λ	20	19	36
L	85	28	46

Barwa Temple,
(*Ganjam*) Spire.

λ	18	52	47·8
L	84	37	21·1

No. 627

Basdápur s.
(*Midnapore*) Tree station in centre of village, 22 feet above ground.

λ	22	5	16·97
L	88	10	6·42
H	41		

No. 350

Bastah (New) Tree flag.
(*Balasore*)

λ	21	40	34
L	87	6	38

Báthpuram h.s.
(*Ganjam*) On the highest part of an isolated hill 0·3 of a mile E. of village so called. A circle and dot cut on the rock define the site of observation.

λ	18	44	27·04
L	84	30	24·48

No. 631

Batkiapukri s.
(*Pooree*) On a sand height 0·2 of a mile from the high water mark with nothing remarkable near. A paká pillar 3 feet high denotes the site of observation.

λ	19	46	56·48
L	85	49	17·61

No. 545

Bauli Temple,
(*24-Pergunnahs*) Spire.

λ	22	25	13·8
L	88	14	12·3
H	87		

Nos. 360, 361

Name of station, district, description, co-ordinates &c.

Beguniá h.s.
(*Nílgirí Estate*) On a low isolated hill at the northern termination of the Nílgirí range, about 0·3 of a mile S.E. of Beguniá village. A small stone platform surrounds the station.

	o ′ ″
λ	21 33 53·26
L	86 50 52·65
H	229

Nos. 149, 150

Bejiáriá s.
(*Balasore*) On a high spot of ground said to be the site of an old village so called, 2·3 miles N. of Panchtikrí village and about 0·3 of a mile N.E. of 2 or 3 houses inhabited by cowherds. A mark-stone imbedded in the firm earth denotes the site of observation.

λ	20 57 9·48
L	86 54 6·50

No. 460

Beldár s.
(*Pooree*) Inside the village garden enclosure and between the village and Sur lake. A kachá pillar 8 feet high denotes the site of observation.

λ	19 51 1·06
L	85 56 39·76

No. 537

Benápur Village,
(*Hooghly*) Tree flag.

λ	22 24 19
L	87 59 28

Bendí h.s.
(*Ganjam*) On the N. extremity of a range of hills, about 0·3 of a mile W. of village so called and to N.W. of Púndí village. A circle and dot cut on the rock denote the site of observation.

λ	18 42 13·91
L	84 26 17·37

No. 634

Bendrí Thákuráni s.
(*Pooree*) On the highest of several sand heights between two streams and about 1·5 miles from the sea. A paká pillar 7 feet high (including foundation) defines the site of observation.

λ	19 59 19·83
L	86 24 52·75

No. 515

Bendrí Thákuráni Coast s.
(*Pooree*) On a spit of land at the mouth of Devi river. The station is on the high water mark and is denoted by a paká pillar 2 feet high (including foundation).

λ	19 59 13·39
L	86 25 34·97

Nos. 584, 585

Name of station, district, description, co-ordinates &c.

Beniá Village,
(*Hooghly*) Flag on tamarind tree in centre of village.

	o ′ ″
λ	22 18 6
L	88 0 18

Beplingi Temple,
(*Ganjam*) Spire.

λ	19 24 20·9
L	85 1 11·3

No. 247

Besí Rámchandarpur Temple,
(*Ganjam*) Spire.

λ	18 55 6·5
L	84 35 27·1

Nos. 285, 286

Bhaddarpur Village,
(*24-Pergunnahs*) Tree flag.

λ	22 12 16
L	88 14 55

Bhagwánpur Village,
(*Hooghly*) Tree flag.

λ	22 17 2
L	88 5 8

Bhetápukriá s.
(*Midnapore*) In village of the same name; pargana Bálijorá.

λ	21 46 20·80
L	87 53 4·64

Bholsera Village,
(*Midnapore*) Tree flag.

λ	22 12 48
L	88 1 14

Bhowanipur Village,
(*24-Pergunnahs*) Tree flag.

λ	22 12 54
L	88 8 42

Bideipur Baurí No. 1 s.
(*Balasore*) In the aurung of that name, about 4·5 miles N.E. of Bideipur village and about 2·8 miles E. of Kasantpur village. The station is on the line of the high flood tide and is denoted by a pillar with a mark-stone.

λ	21 4 21·96
L	86 52 56·22

No. 455

Bideipur Baurí No. 2 s.
(*Balasore*) In the aurung of that name, 90 feet from the high water mark and about 3 miles N. E. of Bideipur village. A pillar with a mark-stone denotes the site of observation.

λ	21 2 12·92
L	86 53 59·28

No. 457

Name of station, district, description, co-ordinates &c.

Bideipur s.
(*Balasore*) On a high spot in the Ánkura bund, 1 mile N.E. of Bideipur village and to the W. of a wide plain inhabited by herds of wild buffaloes. A mark-stone denotes the site of observation.

	o ′ ″
λ	21 1 45·74
L	86 52 8·09

No. 456

Bideipur Village,
(*Balasore*) Tree flag.

λ	21 1 0
L	86 51 31

Biguábárí s.
(*Midnapore*)

λ	22 1 35·48
L	88 8 11·66
H	17
h	Not forthcoming

Nos. 135, 136

Bijiniá s.
(*Pooree*) On a high mound 108 feet S.W. of village so called. A paká pillar 3 feet high (including foundation) denotes the site of observation.

λ	20 0 41·92
L	86 22 9·43

No. 516

Bimlipatam h.s.
(*Vizagapatam*) On a low hill on the sea coast. The town of Bimlipatam is situated at the foot of the hill.

λ	17 53 22·82
L	83 29 11·94

No. 690

Biram Coast Staff.
(*Ganjam*)

λ	18 47 45
L	84 35 45

Bisangiri Temple.
(*Ganjam*) Spire of white temple in centre of village.

λ	19 23 3·5
L	84 30 48·6

Nos. 264, 265

Bisás Village,
(*Midnapore*) Tree flag.

λ	22 20 36
L	87 58 59

Bisturámpur Village,
(*24-Pergunnahs*) Tree flag.

λ	22 9 16
L	88 15 1

Name of station, district, description, co-ordinates &c.

Black Pagoda,
(*Pooree*) Iron rod.

	°	′	″
λ	19	53	12·4
L	86	8	15·6

Nos. 588, 589

Black Pagoda s.
(*Pooree*) On a sand height close to the sea and opposite the pagoda so named. A paká pillar 3 feet high, with usual mark-stones, defines the site of observation.

λ	19	51	37·59
L	86	8	30·24

No. 529

Bodágirí, XLIX.
(*Vide page* 14—*c.*)

λ	19	2	29·90
L	84	37	34·61
H	815		
h	4		

No. 60

Bodápád h.s.
(*Ganjam*) On the highest part of an isolated rocky hill at the N. E. foot of which is situated the village so called. A circle and dot cut on rock denote the site of observation.

λ	18	29	2·49
L	84	10	57·82

No. 651

Bodásil, XXX.
(*Vide page* 10—*c.*)

λ	20	56	19·92
L	86	3	52·80
H	957		
h	0		

Nos. 35, 36

Bodásil h.s.
(*Cuttack*) On the same hill and 34·4 feet S. of the principal station so called. It is identical with the Ganjam Topographical Survey station.

λ	20	56	19·59
L	86	3	52·81

No. 171

Boga Bungalow.
(*Midnapore*) S. end of gable, W. side.

λ	21	50	33·1
L	87	55	47·1

Bogra Village,
(*Ganjam*) Tree flag.

λ	19	27	26
L	84	58	2

Bolá, XXVIII.
(*Vide page* 10—*c.*)

λ	21	15	42·59
L	86	18	19·51
H	1816		
h	0		

No. 31

Name of station, district, description, co-ordinates &c.

Bolpál, XXVI.
(*Vide page* 9—*c.*)

	°	′	″
λ	21	22	0·94
L	86	30	27·25
H	1652		
h	0		

No. 28

Bondálo s.
(*Pooree*) On a bund 1750 feet S.E. of village so called and surrounded by cultivated land on all sides. A kachá pillar 3 feet high denotes the site of observation.

λ	19	48	9·39
L	85	46	32·24

No. 546.

Bor, LXIII.
(*Vide page* 16—*c.*)

λ	18	9	45·23
L	83	20	10·88
H	466		
h	2		

No. 76

Borchondá s.
(*Pooree*) On a sand height near village so called, about 0·3 of a mile S. of Chalupur village, and 3 miles N.E. of Arákudá Temple No. 1.

λ	19	44	50·48
L	85	40	58·64

No. 551

Borgaon No. 1 s.
(*Ganjam*) On a tank bank about 100 yards S.E. of village so called. A nail fixed in a wooden peg, 4 feet long, driven into the bank, denotes the site of observation.

λ	18	56	26·41
L	84	36	15·30

No. 623

Borgaon No. 2 s.
(*Ganjam*) On an elevated spot of ground immediately in front of village so called. A stone with circle and dot cut thereon and imbedded in the ground denotes the site of observation.

λ	18	36	17·79
L	84	21	6·56

No. 640

Brúl s.
(*24-Pergunnahs*) On semaphore, 37 feet above ground.

λ	22	22	28·79
L	88	9	3·77
H	47		

No. 338

Name of station, district, description, co-ordinates &c.

Budará s.
(*Cuttack*) On a sand bank a short distance S. of the Dhámra river and close to the high water mark. There is no village in the neighbourhood and the surrounding country is covered with dense and prickly jungle and intersected with innumerable nalas or tidal creeks. A paká pillar defines the site of observation.

	°	′	″
λ	20	45	46·80
L	87	1	48·48

No. 471

Budí Hill Mark.
(*Hindol Estate*) On the W. end of a large hill of that name, the end of a range running from the eastward. Bolpol village, from which the hill is ascended, lies about 1¾ miles to the west of south. It is identical with the Ganjam Topographical Survey station.

λ	20	39	42·74
L	85	24	51·55

Nos. 177, 178

Buj Buj s.
(*24-Pergunnahs*) On Mr. Dicken's house 35·2 feet above ground. Marked with an iron nail.

λ	22	28	50·00
L	88	13	0·89
H	43		

Nos. 356, 357

Bujrápur s.
(*Balasore*) On a small artificial mound, the site of a former village, about 4 miles S. W. of Panchtikrí village, 4·3 miles W. of Panchtikrí Golá and 5·5 miles N. E. of Chára village. A mark-stone denotes the site of observation.

λ	20	52	45·39
L	86	56	19·43

No. 464

Burkolíkotí s.
(*Cuttack*) In a very dense part of the jungle, close to the right bank of the Bánagar river. A kachá-paká pillar 3 feet high, with a mark-stone, defines the station.

λ	20	40	11·65
L	86	59	7·72

No. 477

C. s.
(*Midnapore*)

λ	21	49	3·99
L	87	53	18·55

Calingápatam (Calingapatam) Beacon.
(*Ganjam*)

λ	18	18	57·1
L	84	10	13·2

Nos. 664, 665

Calingápatam (Calingapatam) Factory.
(*Ganjam*) Centre of long factory.

λ	18	20	26
L	84	9	48

Name of station, district, description, co-ordinates &c.

Calingápatam (Calingapatam) F. Staff No. 1.
(*Ganjam*)

	°	′	″
λ	18	20	24
L	84	10	0

Calingápatam (Calingapatam) F. Staff No. 2.
(*Ganjam*)

λ	18	20	33·0
L	84	9	58·7

No. 663

Calingápatam (Calingapatam) House No. 1.
(*Ganjam*) Cone of Mr. Valley's bungalow.

λ	18	21	13·0
L	84	9	27·8

No. 314

Calingápatam (Calingapatam) House No. 2.
(*Ganjam*) Turret of Mr. Miller's house.

λ	18	20	27·5
L	84	9	51·3

No. 315

Calingápatam (Calingapatam) House No. 3.
(*Ganjam*) Centre of long house.

λ	18	20	15
L	84	9	40

Calingápatam (Calingapatam) River.
(*Ganjam*) Staff at mouth.

λ	18	20	35
L	84	10	0

Calingápatam (Calingapatam) S.
(*Ganjam*) On a high sand mound 1403 feet from the high water mark, near the salt pans, about 0·8 of a mile E. of Jhonegí village and 1 mile S. of Calingapatam town.

λ	18	18	39·71
L	84	9	41·38

No. 655

Chanchiná Temple,
(*Balasore*) Spire.

λ	21	22	2·2
L	86	56	59·4

Nos. 557, 558

Chánchuniá, XXXVI.
(*Vide page* 11—C.)

λ	20	29	46·32
L	85	20	48·22
H	2137		
h	1		

No. 47

Name of station, district, description, co-ordinates &c.

Chandíkho, XLIII.
(*Vide page* 13—C.)

	°	′	″
λ	19	42	43·59
L	85	11	36·63
H	1517		
h	*Not forthcoming*		

No. 51

Chandípur, XXII.
(*Vide page* 9—C.)

λ	21	26	36·99
L	87	4	30·84
H	51		
h	11		

No. 25

Chandípur Village,
(*24-Pergunnahs*) Tree flag.

λ	22	26	10
L	88	11	54

Chándkuá Village,
(*Midnapore*) Tree flag.

λ	22	15	19
L	87	58	46

Chandlí H.S.
(*Sonpur*) On the summit of a range of hills about 1 mile N. of the small village of Kurapálí and 2·5 miles N. W. of the large village of Kurusmálí. The station is denoted by a platform 23 inches high with a mark at top and another engraved on the rock *in sitú*.

λ	21	0	48·75
L	83	58	27·03
H	1644		

No. 108

Changardhí h.s.
(*Ganjam*) On the highest of a group of hills about 0·1 of a mile N. of Mudgal village and 4 miles S.W. of Digpondí village; Bara Khimedí estate. The station, denoted by a circle and dot engraved on the rock *in sitú*, is not on the highest part owing to the summit being inaccessible.

λ	19	22	53·05
L	84	34	45·27

Nos. 260, 261

Chará Chandrabárí Village,
(*Midnapore*) Tree flag.

λ	22	18	41
L	87	58	16

Charnípál S.
(*Balasore*) On a sand hill of no great height, on the point of land formed by the Dhamra river and the sea coast, and on the N. bank of the former. There was formerly a village 0·5 of a mile to the W. of the station. A masonry pillar denotes the site of observation.

λ	20	48	12·13
L	87	0	32·46

No. 469

Name of station, district, description, co-ordinates &c.

Chatiáná S.
(*Pooree*) On the Sur lake bund near an angle where a good sized banian tree grows, and 0·7 of a mile S. of Chatiáná Temple. A kachá pillar denotes the site of observation.

	°	′	″
λ	19	52	4·33
L	85	59	1·90

No. 535

Chatiáná Temple.
(*Pooree*)

λ	19	52	38·6
L	85	59	0·0

Nos. 590, 591

Chattarpur Village,
(*Ganjam*) Tree flag.

λ	19	21	17
L	85	1	21

Chauliá S.
(*Hooghly*) On the embankment at the mouth of the Nakol khál.

λ	22	22	26·64
L	87	59	44·38

Chauliá Village,
(*Hooghly*) Tree flag.

λ	22	22	45
L	88	0	1

Chaurá Sankorará S.
(*Midnapore*) On a small embankment N. of village; pargana Tumlook.

λ	22	15	50·80
L	87	59	34·55

Chicácol (Chicacole) N. Spire,
(*Ganjam*) Muhammadan mosque.

λ	18	17	36·2
L	83	56	32·8

Nos. 676, 677

Chicácol (Chicacole) River, Staff No. 1.
(*Ganjam*) At mouth.

λ	18	13	0
L	83	59	3

Chicácol (Chicacole) River, Staff No. 2.
(*Vizagapatam*) At mouth.

λ	18	12	56
L	83	58	44

Chicácol (Chicacole) S. Spire,
(*Ganjam*) Muhammadan mosque.

λ	18	17	35·4
L	83	56	32·8

Nos. 678, 679

Name of station, district, description, co-ordinates &c.

Chiklíkhái, XXXIX.
(*Vide page* 12—C.)

	° ′ ″
λ	20 14 53·11
L	85 8 15·87
H	2418
h	2

Nos. 45, 49

China Malapuram, LIV.
(*Vide page* 15—C.)

λ	18 40 27·64
L	84 6 14·37
H	1615
h	1

No. 65

Chinchirí s.
(*Cuttack*) In jungle 0·4 of a mile S.E. of the small village of Chinchirí or Chochar. A kachá-paká pillar 4 feet high, with a mark-stone, denotes the site of observation.

λ	20 34 28·86
L	86 51 56·66

No. 485

Chintapili Coast Staff.
(*Vizagapatam*) On a sand height near village so called.

λ	18 4 16
L	83 41 41

Chitákholá s.
(*Cuttack*) About 0·3 of a mile N. of village so called, the same distance E. of Bara village and 0·5 of a mile S.W. of Koithá village. A kachá-paká pillar 1·5 feet high, with a mark-stone, defines the site of observation.

λ	20 33 36·55
L	86 50 30·87

No. 487

Chitáwálsá h.s.
(*Vizagapatam*) On a low hill attached to the high range so called and about 0·3 of a mile S. W. of Chitáwálsá village. A circle and dot cut on stone define the station.

λ	18 12 32·52
L	83 43 14·31

No. 673

Chitíwálsá Sugar Factory.
(*Vizagapatam*) Top of chimney.

λ	17 55 52·2
L	83 28 37·1

Nos. 692, 693

Chúráman Salt Golá,
(*Balasore*) Brush.

λ	21 8 22·7
L	86 49 20·0

Nos. 569, 570

Chúráman s.
(*Balasore*) On a sand ridge about 1·5 miles from coast and the same distance E. of Chúráman village. Denoted by a mark-stone protected by an annulus of bricks, 3 courses thick.

	° ′ ″
λ	21 7 52·39
L	86 50 25·25

No. 450

Coast Hut,
(*Vizagapatam*) Single and conical.

λ	18 10 58
L	83 54 48

Coast Staff No. 1.
(*Vizagapatam*) On a sand height on sea coast between Kucharlú and Rámchandarpur.

λ	18 8 1
L	83 48 4

Coast Staff No. 2.
(*Vizagapatam*) On a sand height on sea coast near a small pagoda.

λ	17 59 16
L	83 36 13

Coast Staff No. 3.
(*Vizagapatam*) On the extreme bend of sea coast between Rámchandarpet and Amnám stations.

λ	17 57 44
L	83 35 10

Coast Staff No. 4.
(*Vizagapatam*) On palm tree.

λ	17 57 19
L	83 34 20

Coast Staff No. 5.
(*Vizagapatam*) Between Bimlipatam and Amnám stations.

λ	17 55 20
L	83 31 35

Cuttack, XXXV.
(*Vide page* 11—C.)

λ	20 29 0·68
L	85 54 28·61
H	132
h	*Not forthcoming*

No. 41

Cuttack House.
(*Cuttack*) Turret of Commissioner's house.

λ	20 27 33·4
L	85 53 50·9

Dádrákund s.
(*Pooree*) In cultivated ground 0·1 of a mile from Jagannáthpur village. A kachá pillar denotes the site of observation.

	° ′ ″
λ	19 47 37·46
L	85 44 21·60

No. 548

Daiterí, XXIX.
(*Vide page* 10—C.)

λ	21 6 23·24
L	85 50 59·70
H	2870
h	0

No. 34

Daliálí Hill,
(*Vizagapatam*) Conical rock.

λ	18 31 47·8
L	83 38 8·6

No. 305

Dalkhái s.
(*Cuttack*) In the midst of a dense jungle surrounded by creeks. A kachá-paká pillar 8 feet high, with a mark-stone, defines the site of observation.

λ	20 35 39·93
L	86 53 26·63

No. 483

Dalmundá H.S.
(*Keonjhar Estate*) So called from a swamp about 1 mile S. On the summit of a range of hills running nearly N. and S. about 5 miles S. of Gaurám village and the same distance E. of Kisanpur village. A circle and dot, engraved on the rock *in situ* and surrounded by a platform of stones and earth, denote the site of observation.

λ	21 16 19·90
L	85 34 25·41
H	2328

No. 90

Daluákoná s.
(*Pooree*) On a sand height 216 feet from the high water mark and 0·4 of a mile S. of Daluákoná village. A paká pillar 3 feet high defines the site of observation.

λ	19 55 1·76
L	86 18 25·57

No. 521

Dámodarpur s.
(*Pooree*) On a small bund, the boundary of temple land, about 0·8 of a mile from Dámodarpur village. A raised road runs close W. and parallel with the bund. A kachá pillar 8 feet high denotes the site of observation.

λ	19 49 20·92
L	85 49 8·32

No. 544

Name of station, district, description, co-ordinates &c.

Dántún (Dántan), XVI.
(*Vide page* 8—C.)

	° ′ ″
λ	21 56 10·27
L	87 19 10·07
H	116
h	30

No. 18

Dariápur, VIII.
(*Vide page* 7—C.)

λ	21 47 27·95
L	87 54 30·50
H	63
h	20

No. 8

Dariápur Temple,
(*Midnapore*) Kalas.

λ	21 47 22·2
L	87 54 8·1

Darila Village,
(*Midnapore*) Tree flag.

λ	22 22 23
L	87 58 13

Dasalapalam Auxiliary t. s.
(*Vizagapatam*) Close to and E. of the village of that name. Marked by a tower 12 feet high.

λ	17 59 44·48
L	83 14 5·30

Dasman s.
(*Pooree*) In cultivated ground about 750 feet S. W. of Bálísaí village.

λ	19 46 22·74
L	85 38 35·89

No. 552

Dasomat s.
(*Cuttack*) On a pretty high mound surrounded by salt pans, 0·8 of a mile N.W. of Koledá and Durgapur villages and 250 feet S. of the Dasomatjorí stream. A paká pillar 5 feet high (including foundation) denotes the site of observation.

λ	20 6 32·56
L	86 28 36·93

No. 510

Dauliá Hill Mark.
(*Pooree*)

λ	20 16 21·44
L	85 45 42·14

Nos. 202, 203

Daulpatá Village.
(*Midnapore*) Tamarind tree in centre of village; pargana Kiruámal.

λ	21 49 41
L	87 53 37

Name of station, district, description, co-ordinates &c.

Deobhog Temple,
(*Midnapore*) Spire.

	° ′ ″
λ	22 3 42·91
L	88 7 57·41
H	76

Nos. 128, 129

Deodongar, LIII.
(*Vide page* 14—C.)

λ	18 54 32·37
L	84 6 3·02
H	4534
h	2

No. 64

Deoli Village,
(*Hooghly*) Tree flag.

λ	22 16 22
L	88 1 13

Devi River s.
(*Pooree*) Near the mouth of river so called and close to the sea. A paká pillar 2 feet high (including foundation) denotes the site of observation.

λ	19 57 51·43
L	86 23 40·46

Nos. 586, 587

Dewáli Hill.
(*Cuttack*) Flag on tree.

λ	20 46 7
L	86 10 41

Dewodímundá h.s.
(*Jaipur*) On the summit of the highest point of the portion of Vindhyan range known as Galí parvatam or Galí kondá. A circle and dot engraved on the rock *in situ* denote the site of observation.

λ	18 14 53·98
L	82 59 57·44
H	5396

Nos. 321, 322

Dhaelá Village,
(*Midnapore*) Tree flag.

λ	22 19 27
L	87 58 35

Dhajá s.
(*Hooghly*) On roof of semaphore, 14 feet above ground. Marked with an iron nail.

λ	22 18 6·39
L	88 7 54·18
H	24

Nos. 362, 363

Dhamra River, Black Buoy.
(*Cuttack*)

λ	20 47 18
L	87 4 27

Name of station, district, description, co-ordinates &c.

Dhanáí, XL.
(*Vide page* 12—C.)

	° ′ ″
λ	19 58 25·00
L	85 22 28·97
H	1895
h	2

No. 44

Dhanáí Needle Rock.
(*Keonjhar Estate*)

λ	21 14 52·3
L	86 5 32·3

Nos. 169, 170

Dhanbáriá Village,
(24-*Pergunnahs*) Tree flag.

λ	22 10 55
L	88 14 50

Dhanghátá House.
(*Midnapore*) N.E. angle of staircase of white paká building.

λ	22 3 45·0
L	88 9 32·0

No. 385

Dhangiri Hill,
(*Ganjam*) Single tree.

λ	19 21 14
L	84 13 38

Dhaniá Hill Mark.
(*Pooree*)

λ	20 6 39·41
L	85 36 34·80

Nos. 214, 215

Dharampur Temple.
(*Midnapore*) Spire of old white temple in village. Also called Daribáriá.

λ	22 8 23·4
L	88 6 29·1
H	64

Nos. 415, 416

Dhekuá s.
(*Midnapore*) Tree station in centre of village, 37 feet above ground.

λ	22 10 5·99
L	88 8 46·94
H	42

No. 348

Dhenkánál Rájá's House.
(*Dhenkánál Estate*) Centre of turret.

λ	20 38 48·9
L	85 38 27·7

No. 174

Name of station, district, description, co-ordinates &c.

Dhobá Dhobaní, XLVIII.
(*Vide page* 14—*c.*)

	° ′ ″
λ	19 14 18·30
L	84 23 23·99
H	4165
h	1

No. 59

Dhobímú s.
(*Balasore*) On a sand hill 115 feet from the high water mark and about 1 mile N.E. of Rúpkund village. A paká pillar, with mark-stones at top and bottom, denotes the site of observation.

λ	21 15 36·76
L	86 54 6·21

No. 441

Dhojíbhangá, VII.
(*Vide page* 7—*c.*)

λ	21 58 15·73
L	87 51 43·37
H	41
h	24

No. 7

Dhorámoná Village,
(*Hooghly*) Tree flag.

λ	22 26 27
L	87 57 37

Diamond Harbour Burial Ground,
(*24-Pergunnahs*) Highest tomb.

λ	22 11 16·9
L	88 13 47·9

No. 382

Diamond Harbour Custom House s. No. 1.
(*24-Pergunnahs*) On top of house. Marked by an iron nail. Also called Kalagáchhia.

λ	22 11 39·60
L	88 12 55·44
H	34

Nos. 379, 380

Diamond Harbour Custom House s. No. 2.
(*24-Pergunnahs*) On N.E. corner of house. Denoted by a station mark.

λ	22 11 39·59
L	88 12 55·97

No. 394

Diamond Harbour, Mooring Buoy No. 1.
(*24-Pergunnahs*)

λ	22 10 40
L	88 13 57

Diamond Harbour, Mooring Buoy No. 2.
(*24-Pergunnahs*)

λ	22 10 52
L	88 13 45

Diamond Harbour, Mooring Buoy No. 3.
(*24-Pergunnahs*)

	° ′ ″
λ	22 11 3
L	88 13 32

Diamond Harbour, Mooring Buoy No. 4.
(*24-Pergunnahs*)

λ	22 11 7
L	88 13 26

Diamond Harbour, Mooring Buoy No. 5.
(*24-Pergunnahs*)

λ	22 11 19
L	88 13 11

Diamond Harbour, Mooring Buoy No. 6.
(*24-Pergunnahs*) At the mouth of creek.

λ	22 11 1
L	88 13 51

Diamond Harbour Semaphore s.
(*24-Pergunnahs*) 46 feet high.

λ	22 11 8·27
L	88 13 46·98
H	46

No. 349

Diamond Harbour Staff,
(*24-Pergunnahs*) Near semaphore.

λ	22 11 7
L	88 13 47

Digpondí Temple.
(*Ganjam*) Central of 3 spires of temple E. of town.

λ	19 22 14·2
L	84 36 57·5

Nos. 266, 267

Dimandalghát Village.
(*Hooghly*) Flag on tamarind tree in centre of village.

λ	22 17 20
L	88 0 8

Dinán Village,
(*Midnapore*) Tree flag.

λ	22 25 47
L	87 55 48

Dingulbáriá s.
(*Midnapore*) On embankment N. of village so called.

λ	22 14 24·45
L	88 0 45·95

No. 405

Dingulbáriá Village,
(*Midnapore*) Tree flag.

λ	22 14 28
L	88 0 27

Dobigarh Hill Mark.
(*Mayurbhanja Estate*)

	° ′ ″
λ	21 35 54·30
L	86 28 37·31

Nos. 165, 166

Dobsilá h.s.
(*Nílgirí Estate*)

λ	21 29 7·56
L	86 48 48·07

Nos. 158, 159

Dolgaon Village,
(*Midnapore*) Tree flag.

λ	21 56 10
L	87 9 44

Dongrí Hill Mark.
(*Sambalpur*)

λ	21 31 3·97
L	84 5 46·90

No. 117

Dowdeswell s.
(*Cuttack*) On N. side of the island so called and 0·4 of a mile S.E. of a paká well. A paká pillar 4·5 feet high, with a mark-stone, denotes the site of observation.

λ	20 24 21·49
L	86 49 50·87

No. 494

Duduá, XXXVIII.
(*Vide page* 11—*c.*)

λ	20 19 8·60
L	85 27 53·01
H	724
h	2

Nos. 43, 48

Erábadrápetá Indigo Factory,
(*Vizagapatam*) Chimney.

λ	18 2 27·9
L	83 14 44·3

Nos. 329, 330

Erim Temple.
(*Balasore*)

λ	21 9 39·8
L	86 49 41·1

No. 566

F s.
(*Midnapore*)

λ	21 46 55·56
L	87 51 57·37

False Bay,
(*Cuttack*) Red buoy.

λ	20 25 27
L	86 49 17

Name of station, district, description, co-ordinates &c.

False Point Bungalow.
(*Cuttack*) Robert and Charriot's home close to Government pier.

	o	′	″.
λ	20	20	23·7
L	86	47	30·1

No. 580

False Point Island s.
(*Cuttack*) On a sand hill, about 1 mile E. of the Light-house so called. A paká pillar, 2 feet high, denotes the site of observation.

λ	20	19	47·43
L	86	47	49·79

No. 496

False Point Light-house s.
(*Cuttack*) On gallery of the Light-house on N.E. side of lantern. A circle and dot define the site of observation.

λ	20	19	49·94
L	86	46	56·57

Nos. 572, 573

Farmanandan Chak Village,
(*Midnapore*) Tree flag.

λ	22	3	3
L	88	8	41

Fathigarh (Futtehgarh) Hill Mark.
(*Kandpárá Estate*)

λ	20	17	26·11
L	85	22	4·37

Nos. 206, 207

Fort Glo'ster s.
(*Hooghly*) On staircase of S. mill, 65 feet above ground.

λ	22	29	23·02
L	88	12	58·43
H	80		

Nos. 335, 341

Fort Mornington s.
(*Hooghly*) On a high embankment S. of the fort and close to the river at the point where the Roopnarayan falls into the Hooghly.

λ	22	13	7·88
L	88	5	38·99

No. 398

Galmandab Temple.
(*Pooree*)

λ	19	47	34·9
L	85	51	42·1

Nos. 596, 597

Name of station, district, description, co-ordinates &c.

Galmátiá Chatí s.
(*Balasore*) So called from a salt chatí in the low ground through which the Kansbans river flows and about 0·25 of a mile N.E. of Buchedá village. Denoted by a kachá pillar 13 feet high, with a lower mark placed on the elevated platform of the chatí and an upper mark about midway in the height of the pillar.

	o	′	″
λ	21	12	54·64
L	86	50	58·61

No. 445

Gándábáriá Village,
(*24-Pergunnahs*) Tree flag.

λ	22	13	50
L	88	9	6

Gangárám Village,
(*Ganjam*) Staff on large tree in centre of village.

λ	18	28	57
L	84	13	28

Gángrá, VI.
(*Vide page 6—C.*)

λ	21	54	56·82
L	88	2	12·46
H	49		
h	30		

No. 6

Gángrá s.
(*Midnapore*) Tree station 31 feet high in centre of village.

λ	21	55	20·65
L	88	1	58·89
H	42		

No. 354

Gángrá Semaphore,
(*Midnapore*) Trunk. Also called Sautkhálí Semaphore.

λ	21	56	8·7
L	88	2	18·4
H	47		

Nos. 388, 389

Gángrá Village,
(*Midnapore*) Tree flag.

λ	21	54	51
L	88	2	10

Ganiwádá Auxiliary h.s.
(*Vizagapatam*) On the highest part of a small rocky ridge S.W. of the hamlet of the same name. The station is denoted by an isolated masonry pillar surrounded by a platform of stones and earth. There is a mark at its upper surface and another on the rock *in situ*.

λ	17	58	10·23
L	83	13	56·09

Name of station, district, description, co-ordinates &c.

Ganjam Fort Mark (heliotrope).
(*Ganjam*)

	o	′	″
λ	19	22	26·61
L	85	5	58·48

No. 248

Ganjará Hill,
(*Vizagapatam*) Conical.

λ	18	42	6·0
L	83	44	35·7

Ganjípur Village,
(*Hooghly*) Jháu tope.

λ	22	14	35
L	88	4	42

Gar Kantámolín Village,
(*Pooree*) Tree flag.

λ	20	14	56
L	85	31	38

Gar Karing Village,
(*Pooree*) Tree flag.

λ	20	14	35
L	85	36	53

Gar Tarkai Village,
(*Pooree*) Tree flag.

λ	20	15	23
L	85	37	19

Garabandá Hill,
(*Ganjam*) Conical rock.

λ	18	48	17·5
L	84	18	25·6

Nos. 289, 290

Garjang s.
(*Cuttack*) About 0·4 of a mile N. of the salt golá of that name, about the same distance S. of Boranpala village and 0·7 of a mile S.W. of Basantpur village. A kachá-paká pillar 6 feet high, with a mark-stone, denotes the site of observation.

λ	20	30.	19·79
L	86	45	1·10

No. 490

Gaunia Hill.
(*Ranpur Estate*) Middle of inaccessible knob.

λ	19	59	7
L	85	18	31

Gewákhálí Temple,
(*Midnapore*) Spire.

λ	22	12	10·0
L	88	5	41·2

Nos. 417, 418

Name of station, district, description, co-ordinates &c.

Ghoráisiní h.s.
(*Ganjam*)

	° ′ ″
λ	19 27 53·42
L	84 45 41·47

No. 244

Ghoramára s.
(24-*Pergunnahs*) Tree station 14 feet high W. of Casuarina grove at N. end of Saugor Island.

λ	21 56 7·26
L	88 9 52·04
H	31

No. 353

Gilátalá Village,
(24-*Pergunnahs*) Tree flag.

λ	22 20 6
L	88 8 50

Girdábádí, XLVI.
(*Vide page* 13—C.)

λ	19 29 42·09
L	84 25 17·99
H	3398
h	1

Nos. 57, 58

Gobarsaí s.
(*Pooree*) On a high sand elevation close to and S. W. of the town of Pooree and opposite to Galmandab temple which latter is on the sea side. A paká pillar 14 feet high (including foundation) defines the site of observation.

λ	19 47 48·99
L	85 51 25·41

Nos. 542, 543

Gobindapur s.
(*Cuttack*) On a sand hill close to the sea and immediately above the village of Gobindapur which latter lies 0·1 of a mile N.E. A paká pillar 1 foot high, with a mark-stone, defines the site of observation.

λ	20 36 50·47
L	86 57 22·76

No. 480

Gobindapur Temple,
(*Mayurbhanja Estate*) Spire.

λ	21 46 40·0
L	87 5 14·7

No. 144

Gobindapur Village,
(*Mayurbhanja Estate*) Tree flag.

λ	21 46 40
L	87 5 22

Name of station, district, description, co-ordinates &c.

Gobra Village No. 1,
(*Mayurbhanja Estate*) Tree flag.

	° ′ ″
λ	21 44 46
L	87 5 2

Gobra Village No. 2,
(*Midnapore*) Tree flag.

λ	22 24 27
L	87 57 46

Gogal Hill,
(*Cuttack*) Flag.

λ	20 45 18
L	86 13 27

Golá Gundí s.
(*Ganjam*) On the sea coast about 100 yards W. of a little village so called and 69 yards from the high water mark. A nail hammered into a wooden peg about 4 feet long and driven into the sand, denotes the site of observation.

λ	18 53 59·93
L	84 39 23·43

No. 622

Golághátá Village,
(*Hooghly*) Tree flag.

λ	22 13 48
L	88 4 6

Gopálpilí House.
(*Vizagapatam*) Flag on top of E. corner of Rájá's new house.

λ	18 7 36·5
L	83 14 52·0

Nos. 324, 325

Gopálpur House,
(*Ganjam*) Centre of roof.

λ	19 12 57·6
L	84 56 28·4

No. 253

Gopálpur, N. Chimney,
(*Vizagapatam*) Of factory.

λ	18 34 48·4
L	83 46 59·7

No. 302

Gopálpur s.
(*Midnapore*) On right bank of the Roopnarayan river, near village.

λ	22 25 25·86
L	87 56 14·57

Gopálpur, S. Chimney,
(*Vizagapatam*) Of factory.

λ	18 34 46·2
L	83 46 59·7

Nos. 303, 304

Name of station, district, description, co-ordinates &c.

Gopálpur Village,
(*Midnapore*) Tree flag.

	° ′ ″
λ	22 25 31
L	87 56 6

Gopínáth Temple,
(*Baramba Estate*) Centre of spire.

λ	20 25 8·3
L	85 22 27·9

Gopínáthpur No. 1 s.
(*Midnapore*) In village of the same name; pargana Bálíjorá.

λ	21 47 13·51
L	87 52 54·38

Gopínáthpur No. 2 s.
(*Cuttack*) On a high sand bank close to the sea and S. of Kharikolá village. A paká pillar 1 foot high, with a mark-stone, denotes the site of observation.

λ	20 35 4·49
L	86 55 12·09

No. 482

Gopínáthpur Village,
(*Hooghly*) Tree flag.

λ	22 22 58
L	87 59 51

Gorahar Village,
(*Midnapore*) Flag on tree.

λ	21 51 14
L	87 55 33

Gosingá, Hill Mark.
(*Kandpárá Estate*) On the northern of two peaks which are seen from a great distance and supposed to have been so named from their resemblance to horns. Kumtabund village lies about 1 mile S.W. It is identical with a station of the Ganjam Topographical Survey.

λ	20 19 6·96
L	85 17 19·74

Nos. 204, 205

Grants' Range, Hill Mark.
(*Jaipur*)

λ	18 15 53·95
L	83 1 29·61

Guábáriá Temple.
(*Midnapore*) Spire of small white temple.

λ	22 8 17·7
L	88 10 24·9

Nos. 125, 126

Gudarbeniá s.
(*Hooghly*) On Government embankment S. of village; pargana Mandalghát.

λ	22 16 26·87
L	88 0 27·70

No. 406

Name of station, district, description, co-ordinates &c.

Gudarbeniá Village,
(*Hooghly*) Tree flag.

	o ′ ″
λ	22 16 29
L	88 0 29

Gumáriá, XXXIII.
(*Vide page* 10—C.)

λ	20 34 6·42
L	85 35 31·83
H	1922
h	2

No. 40

Gumgar, Bamboo Grove,
(*Midnapore*) N. end.

λ	21 58 6
L	88 2 33

Gumgar, Bamboo Grove,
(*Midnapore*) S. end.

λ	21 58 1
L	88 2 40

Gumhur Hill Mark.
(*Keonjhar Estate*)

λ	21 14 10·04
L	85 44 2·53

Nos. 109, 110

Gummi Nadí Tree,
(*Balasore*) N. brush.

λ	21 8 43
L	86 50 31

Gumrú, LXIX.
(*Vide page* 18—C.)

λ	17 56 5·91
L	83 16 34·57
H	1449
h	2

Nos. 81, 83, 86, 88

Gurikhál Village,
(*Balasore*) Tree flag.

λ	21 44 25
L	87 11 25

Gután Hill,
(*Cuttack*) Flag.

λ	20 40 1
L	86 8 42

Hájípur Tomb.
(*24-Pergunnahs*) Red old tomb N. of bázár.

λ	22 11 33·8
L	88 13 40·3

No. 381

Name of station, district, description, co-ordinates &c.

Hakíváram s.
(*Vizagapatam*) On rising ground near village so called. A pillar 7 feet high (including foundation) denotes the site of observation.

	o ′ ″
λ	18 1 23·50
L	83 30 35·67

No. 683

Hara Village,
(*24-Pergunnahs*) Tree flag.

λ	22 9 42
L	88 15 3

Harchandí s.
(*Pooree*) Close by Harchandí temple which latter is a prominent object on a height. A paká pillar 3·7 feet high defines the site of observation.

λ	19 45 24·67
L	85 44 13·23

No. 549

Harchandí Temple.
(*Pooree*) On low hill.

λ	19 45 24·6
L	85 44 13·6

Nos. 598, 599

Haribasá s.
(*Pooree*) On the high water mark about 0·8 of a mile S. of Arákudá temple No. 2.

λ	19 42 8·66
L	85 37 32·32

No. 608

Harichpur s.
(*Cuttack*) In the midst of a jungle between Patwá and Chawálkí nalas and to N.E. of Harichpur Gar. A paká pillar 4 feet high, built on the trunk of a fine large tree about 10 feet high, denotes the site of observation.

λ	20 4 11·89
L	86 27 0·33

No. 512

Harichpur Staff.
(*Cuttack*)

λ	20 3 36
L	86 27 43

Harindángá Village,
(*24-Pergunnahs*) Tree flag.

λ	22 12 28
L	88 14 21

Harnkulí, XIV.
(*Vide page* 8—C.)

λ	21 40 39·64
L	87 21 1·35
H	43
h	30

No. 14

Name of station, district, description, co-ordinates &c.

Hijlí s.
(*Midnapore*) In the waste lands contiguous to the village so called.

	o ′ ″
λ	21 49 40·99
L	87 55 32·43

Hijlí Village Tree.
(*Midnapore*) Middle of 3 Palmyra trees on bank of the Rasulpur river.

λ	21 47 56
L	87 56 3

Hill No. 24.
(*Dhenkánál Estate*) Forked tree.

λ	20 54 51
L	85 28 18

Himágirí, LV.
(*Vide page* 15—C.)

λ	18 49 27·29
L	83 49 33·87
H	3709
h	1

No. 66

Hingelíkat Hill Mark.
(*Ganjam*)

λ	19 28 53·79
L	84 47 3·56

No. 243

Hipilí Village,
(*Ganjam*) Staff on a cocoanut tree in centre of village.

λ	18 14 50
L	84 0 18

Hírágani Village,
(*Hooghly*) Tree flag.

λ	22 25 18
L	88 10 2

Hooghly Point,
(*24-Pergunnahs*) Flagstaff.

λ	22 12 36
L	88 7 6

Hooghly Point s.
(*24-Pergunnahs*) On roof of semaphore N. of staff.

λ	22 12 35·43
L	88 7 5·07
H	25

No. 395

Hooghly River, Auckland Mark.
(*Hooghly-Midnapore*) Marine mark on Auckland island.

λ	21 51 8·8
L	88 5 53·6
H	26

Nos. 392, 393

Name of station, district, description, co-ordinates &c.

Hooghly River Creek Obelisk,
(*Hooghly*) Paká pillar cone. Also called Palpárá Pilot's mark.

	°	′	″
λ	22	23	13·7
L	88	8	37·3

No. 364

Hooghly River Mark.
(*24-Pergunnahs*) Deep water marine mark.

λ	22	3	19
L	88	16	0
H	10		

Hooghly River No. 1 s.
(*Midnapore*) Flagstaff on sand bank.

λ	21	51	24
L	88	1	11

Hooghly River No. 2 s.
(*Midnapore*) Flagstaff on sand bank.

λ	21	50	27
L	88	0	13

Hooghly River No. 3a s.
(*24-Pergunnahs*) On E. bank of the Hooghly river.

λ	22	24	30
L	88	11	20

Hooghly River No. 3b s.
(*Midnapore*) Flagstaff on sand bank.

λ	21	49	5
L	87	59	1

Hugláchará s.
(*Midnapore*) On a high embankment near a small khál N. of hamlet of Hugláchará.

λ	22	21	34·50
L	87	59	14·28

Hunan Village,
(*Midnapore*) Tree flag.

λ	22	23	19
L	87	58	7

Ichápur h.s.
(*Ganjam*) On the highest of a range of hills 1·5 miles N. of Ichápur village. The hill is also known as Suthkonda on account of its needle-like shape. A circle and dot, engraved on the rock on the highest peak, define the site of observation.

λ	19	6	12·59
L	84	43	4·04

Nos. 614, 615

Ichápur Village,
(*Midnapore*) Tree flag.

λ	22	14	50
L	87	59	51

Name of station, district, description, co-ordinates &c.

Idalpalam s.
(*Ganjam*) On a high sand ridge that forms the sea coast, about 0·3 of a mile E. of a small fishing village so called and 60 yards from the high water mark. A nail hammered into a wooden peg 5 feet long and driven into the sand, denotes the site of observation.

	°	′	″
λ	18	56	55·31
L	84	42	36·12

No. 621

Indrásí Temple.
(*Ganjam*) Spire of small white temple.

λ	19	11	38·4
L	84	51	18·4

No. 274

Injorí Hill Mark.
(*Dhenkánál Estate*)

λ	21	10	20·31
L	85	20	49·54

Nos. 113, 114

Inonopur Temple,
(*Pooree*) Spire.

λ	19	43	51·3
L	85	13	54·3

No. 237

Jagannáthpur Village,
(*Bánki Estate*) Tree flag.

λ	20	19	24
L	85	25	38

Jagdíshpur s.
(*Hooghly*) Tree station in centre of village, 37 feet above ground.

λ	22	26	46·22
L	88	9	6·42
H	45		

No. 340

Jagli Rámeswarpur Village,
(*Hooghly*) Tree flag.

λ	22	17	2
L	88	5	50

Jalábád Village,
(*Hooghly*) Tree flag.

λ	22	14	17
L	88	3	43

Jalantrá Highest Temple,
(*Ganjam*) Spire.

λ	18	57	23·6
L	84	35	23·0

No. 284

Name of station, district, description, co-ordinates &c.

Jamál Chak Temple,
(*Midnapore*) Spire.

	°	′	″
λ	22	6	17·5
L	88	9	3·4
H	54		

Nos. 376, 377

Jamálpur Village,
(*24-Pergunnahs*) Tree flag.

λ	22	26	26
L	88	11	22

Jambú s.
(*Cuttack*) Near the mouth of the Jambú river and 0·3 of a mile from temple tree. A kachá-paká pillar 2·5 feet high and enclosing a mark-stone, denotes the site of observation.

λ	20	24	51·09
L	86	45	57·96

No. 493

Jambú Temple.
(*Cuttack*) Flag on tamarind tree on N. side of mouth of the Jambú river.

λ	20	25	29
L	86	45	40

Jamithiá Village,
(*Midnapore*) Tree flag.

λ	22	24	15
L	87	57	55

Jangalpárá Village,
(*24-Pergunnahs*) Tree flag.

λ	22	12	49
L	88	11	14

Jánípur s.
(*Balasore*) On a sand mound on the sea coast, about 0·75 of a mile from the village so called and 30 feet from the high water mark. A masonry pillar 5 feet high, with mark-stones at top and bottom, defines the site of observation.

λ	21	17	7·09
L	86	55	11·37

No. 439

Janka Village,
(*Midnapore*) Flag on tree.

λ	21	50	55
L	87	57	3

Jarádá Hill,
(*Ganjam*) Conical rock.

λ	19	3	9·9
L	84	28	28·6

Nos. 276, 277

Name of station, district, description, co-ordinates &c.

Jharghátí H.S.
(*Sambalpur*) Locally known as Gurpatí, on a range of hills running nearly E. and W. Porapalí village bears 9° 38′ at 1·3 miles, Jharghátí village 64° 50′ at 0·8 mile, Rengalí village 141° 2′ at 3·2 miles and Kúhboga village 213° 56′ at 4·0 miles. The station is identical with that of the Ganjam Topographical Survey, and is denoted by a platform about 5 feet in diameter and 15 inches high, with a circle and dot cut on stone.

	°	′	″
λ	21	36	1·80
L	84	8	1·42
H	1698		

No. 106

Jharling S.
(*Pooree*) In a paddy field about 0·2 of a mile W. of village so called and the same distance from Ghorakunta nala. A paká pillar 11 feet high (including foundation) denotes the site of observation.

λ	19	58	52·44
L	86	20	19·56

No. 518

Jhumjhumí S.
(*Hooghly*) On an embankment S. of village; pargana Kánkoi.

λ	22	18	10·01
L	88	0	0·04

No. 409

Jhumjhumí Village.
(*Hooghly*) Flag on tamarind tree at S. end of village.

λ	22	18	51
L	88	0	5

Jigarkhálí Semaphore,
(*Midnapore*) Trunk.

λ	22	5	54·4
L	88	13	46·0
H	28		

No. 378

Jogí Naiágaon, XXI.
(*Vide page 9—C.*)

λ	21	43	25·78
L	86	51	37·30
H	148		
h	41		

No. 22

Jugjurí H.S.
(*Nilgirí Estate*)

λ	21	21	56·22
L	86	32	37·67

Nos. 163, 164

Name of station, district, description, co-ordinates &c.

Júkí, XII.
(*Vide page 7—C.*)

	°	′	″
λ	21	43	25·57
L	87	32	33·56
H	75		
h	23		

No. 12

Júkiá Temple,
(*Midnapore*) Spire.

λ	21	59	5·3
L	87	48	15·6

No. 140

Jungle S.
(*Cuttack*) In the midst of a thick jungle, about 2·3 miles W. of the False Point Light-house. A paká pillar 10 feet high denotes the site of observation.

λ	20	20	54·56
L	86	45	20·04

No. 495

Junhatiá Rájá's Mahal,
(*Midnapore*) N.E. angle of a red building.

λ	22	8	51·2
L	88	9	49·6

No. 372

Káláhandiá Hill Mark.
(*Pooree*)

λ	19	53	1·15
L	85	2	28·73

Nos. 232, 233

Kálápátar Village,
(*Bánki Estate*) Tree flag.

λ	20	18	57
L	85	25	23

Káldíp S.
(*Cuttack*) On a high sand bank close to the sea. A paká pillar 1·5 feet high, with a mark-stone, defines the site of observation.

λ	20	32	54·55
L	86	52	10·00

No. 486

Káliábudá S.
(*Balasore*) On a white-ant hill on the plain E. of the well known village of Kurunjuriá, and about 1 mile N.E. of the salt agent's bungalow. There is a single tree 60 feet to S. W. and another in the same direction about 0·1 of a mile from the station. A mark-stone denotes the site of observation.

λ	20	59	24·57
L	86	53	17·90

No. 458

Name of station, district, description, co-ordinates &c.

Káliambá Hill Mark.
(*Ganjam*)

	°	′	″
λ	19	51	18·49
L	84	32	15·84

No. 241

Kálígiri Hill Mark.
(*Ranpur-Nayagar Estates*)

λ	20	0	59·56
L	85	15	58·36

Nos. 224, 225

Kálíkákánta Village,
(*Midnapore*) Tree flag.

λ	22	8	21
L	88	3	41

Kálíkotí No. 1 S.
(*Balasore*) On an old salt mound in the midst of a salt manufactory N. E. of the villages of Erim and Uruá. Denoted by a mark-stone protected by an annulus of kachá bricks, 3 courses thick.

λ	21	9	52·42
L	86	51	11·45

No. 448

Kálíkotí No. 2 S.
(*Balasore*) On the sea coast, about 0·25 of a mile S.E. of Kálíkotí No 1 S. The station is denoted by a mark-stone and a pillar 2 feet high imbedded in the mud, and marks the range of the ordinary high tide.

λ	21	9	31·18
L	86	51	37·29

Nos. 564, 565

Kálínagar Village No. 1,
(*Hooghly*) Tree flag.

λ	22	25	48
L	88	10	1

Kálínagar Village No. 2,
(*24-Pergunnahs*) Tree flag.

λ	22	11	44
L	88	14	28

Kálínálí S.
(*Balasore*) On a mound on the edge of the jungle bordering on the Dhamra river, 200 yards N. of Kálínálí and 3 miles E. of Jagulá. A mark-stone defines the site of observation.

λ	20	48	57·62
L	86	58	36·79

No. 468

Kálípadan Chatí S.
(*Balasore*) On the border of a belt of mangrove jungle separating it from the coast, about 2·7 miles N.E. of Kasantpur village and 3·7 miles S.E. of Churáman salt golá. A paká pillar with a mark-stone defines the site of observation.

λ	21	6	26·57
L	86	51	54·89

No. 453

Name of station, district, description, co-ordinates &c.

Kalkákhálí S.
(*Midnapore*) On Government embankment on N. side of village so called; pargana Tumlook. A pin driven into the ground marks the station.

	° ′ ″
λ	22 15 40·98
L	87 58 43·78

No. 407

Kalkíchak S.
(*Midnapore*) On Government embankment opposite the small hamlet so called; pargana Mysadul.

λ	22 12 21·73
L	88 4 18·80

No. 399.

Kalkíchak Village,
(*Midnapore*) Tree flag.

λ	22 12 20
L	88 4 22

Kalsaba Village,
(*Hooghly*) Tree flag.

λ	22 28 55
L	88 9 53

Kálsábhangá, X.
(*Vide page 7—c.*)

λ	21 45 39·20
L	87 42 30·39
H	54
h	30

No. 10

Kaltháliá Village,
(*Midnapore*) Palmyra tree; pargana Kiruámal.

λ	21 48 45
L	87 52 54

Kálupárá Hill Temple.
(*Pooree*)

λ	20 4 48·1
L	85 46 46·7

No. 217

Kamálpur, N. Temple,
(*Midnapore*) Spire.

λ	22 11 12·4
L	88 1 42·8
H	72

Nos. 369, 370

Kamálpur, S. Temple.
(*Midnapore*) Spire of high temple at Rájá's gate. Also called Mysadul Rathgorá.

λ	22 10 59·4
L	88 1 44·5
H	86

Nos. 421, 422

Name of station, district, description, co-ordinates &c.

Kamálpur Temple.
(*24-Pergunnahs*) Spire of the highest temple.

	° ′ ″
λ	22 14 30·7
L	88 12 52·7

No. 127

Kamálpur Village No. 1,
(*24-Pergunnahs*) Tree flag.

λ	22 19 32
L	88 8 58

Kamálpur Village No. 2,
(*Hooghly*) Jhau or Casuarina tree.

λ	22 15 53
L	88 2 17

Kamálpur Village No. 3,
(*Midnapore*) Tree flag.

λ	22 12 28
L	88 2 5

Kambochak Village,
(*Midnapore*) Tree flag.

λ	22 12 5
L	88 3 8

Kampalí H.S.
(*Rudukol-Áthmallik*) Marked by a platform 1·8 feet high with two marks, one engraved on the rock *in sitú* and another cut on a stone imbedded level with the surface of the platform.

λ	21 5 9·62
L	84 33 8·06
H	1893

No. 98

Kanaijoná H.S.
(*Tálcher Estate*)

λ	21 2 44·14
L	85 10 40·27
H	1104

No. 92

Kánchanpur Village,
(*Midnapore*) Tree flag.

λ	21 57 9
L	88 2 8

Kanchilí Hill Mark.
(*Ganjam*)

λ	18 58 18·50
L	84 38 13·39

Nos. 280, 281

Kanchilí Traveller's Bungalow,
(*Ganjam*) Centre of conical roof.

λ	18 58 29·4
L	84 37 9·5

Nos. 282, 283

Name of station, district, description, co-ordinates &c.

Kandíwálsá, LXII.
(*Vide page 16—c.*)

	° ′ ″
λ	18 8 9·15
L	83 37 20·71
H	1765
h	1

Nos. 74, 75

Kandíwálsá River Staff,
(*Vizagapatam*) At mouth.

λ	18 4 53
L	83 42 43

Kankarpili S.
(*Ganjam*) On the highest of several black rocks in the midst of the 3 villages of Kankarpili, Jonápadá and Antálora. A pillar 1 foot high, with a mark-stone on top, defines the site of observation.

λ	18 30 30·38
L	84 15 49·52

No. 646

Kansári Hill Mark.
(*Pooree*)

λ	20 16 39·54
L	85 37 33·21

Nos. 200, 201

Kántábáriá Obelisk,
(*24-Pergunnahs*) Cone.

λ	22 7 52·9
L	88 15 14·0
H	63

No. 375

Kántábáriá Village,
(*24-Pergunnahs*) Tree flag.

λ	22 7 12
L	88 15 38

Kántapukhariá S.
(*Hooghly*) On a small mound of earth between the river and the embankment S of village.

λ	22 26 6·62
L	87 59 14·94

Kántapukhariá Village,
(*Hooghly*) Tree flag.

λ	22 25 39
L	87 59 21

Káparmúrá S.
(*Cuttack*) In a very thick jungle. A kachá-paká pillar 3 feet high, with a mark-stone, denotes the site of observation.

λ	20 37 25·47
L	86 55 34·51

No. 481

Name of station, district, description, co-ordinates &c.

Kaplás, XXXII.
(*Vide page* 10—C.)

	°	′	″
λ	20	40	36·89
L	85	48	52·96
H	2087		
h	0		

No. 37

Karanj Mahal s.
(*Balasore*) About 3·5 miles E. of Panchtikrí village, 290 feet from the high water mark and separated from the plain by a strip of low jungle running parallel to the coast. A pillar defines the site of observation.

λ	20	54	29·11
L	86	56	57·77

No. 463

Kardápallí Village,
(*Bánki Estate*) Tree flag.

λ	20	18	7
L	85	26	42

Karisol Palm Tree.
(*Mayurbhanja Estate*)

λ	21	45	51
L	87	3	20

Karmá Village.
(*Ganjam*) Staff on cocoanut tree in centre of village.

λ	18	16	12
L	84	2	57

Kasantpur s.
(*Balasore*) About 0·3 of a mile E. of village so called and 150 yards W. of Ankora bund. Denoted by a kachá pillar 2·5 feet high with a mark-stone at bottom.

λ	21	4	20·09
L	86	51	2·32

No. 454

Kasantpur Village,
(*Balasore*) Tree flag.

λ	21	4	34
L	86	50	28

Kasariá Village,
(*Midnapore*) Tree flag.

λ	21	52	2
L	87	59	9

Kasbáriá White Temple,
(*Midnapore*) Spire.

λ	22	4	28·7
L	88	11	4·8
H	37		

No. 384

Name of station, district, description, co-ordinates &c.

Kátí, XX.
(*Vide page* 9—C.)

	°	′	″
λ	21	35	7·35
L	86	59	26·31
H	102		
h	43		

No. 21

Katiliá Hill Mark.
(*Nilgirí Estate*)

λ	21	25	3·69
L	86	45	59·23

Nos. 161, 162

Katká Shámpur s.
(*Midnapore*) On a salt mound about 0·25 of a mile W. of Boga village and 0·5 of a mile from E. bank of the Rasulpur river.

λ	21	50	44·13
L	87	55	38·14

Kaukhálí s.
(*Midnapore*) On Light-house at the back of the lantern, 65 feet high above ground.

λ	21	50	10·00
L	87	59	10·67
H	87		

No. 355

Kází Basan Village,
(*Midnapore*) Centre; pargana Bálíjorá.

λ	21	46	22
L	87	52	36

Kejirí House s.
(*Midnapore*) On a paká house, in centre of village, the property of the ijárádár; pargana Bálíjorá. A circle and dot engraved on the highest part denote the site of observation.

λ	21	51	40·39
L	87	59	30·10

No. 429

Kejirí Semaphore s.
(*Midnapore*) On semaphore tripod 50 feet high. Marked with an iron nail.

λ	21	52	24·98
L	88	1	6·44
H	70		

No. 390

Kejirí Staff.
(*Midnapore*) On bend of road Kejirí to Contai.

λ	21	51	27
L	88	0	31

Kejirí Tide Gauge,
(*Midnapore*) Mast.

λ	21	52	50·2
L	88	1	16·2

No. 432

Name of station, district, description, co-ordinates &c.

Kejirí Tide Point s. or Bedford's station.
(*Midnapore*) On the right bank of the Hooghly river about 0·75 of a mile N.E. of the Kejirí semaphore and 1·75 miles S.W. of Gángrá station; pargana Kiruámal A triangular masonry pillar, originally constructed by Mr. Bedford, 1 foot 7 inches high, with the usual circle and dot engraved on top, denotes the site of observation.

	°	′	″
λ	21	53	0·88
L	88	1	20·49
H	13·42*		
h	2		

No. 428

Kejirí Village,
(*Midnapore*) Tree flag.

λ	21	52	31
L	88	0	46

Kenjákhálí Village,
(*Hooghly*) Tree flag.

λ	22	26	14
L	88	9	56

Keverlá Hill Mark.
(*Jaipur*)

λ	18	8	58·96
L	82	57	57·51
H	5133		

No. 323

Kewá Village,
(*Midnapore*) Tree flag.

λ	22	25	41
L	87	57	4

Khákjalá Village,
(*24-Pergunnahs*) Tree flag.

λ	22	13	1
L	88	9	42

Kharibáriá Village,
(*24-Pergunnahs*) Tree flag.

λ	22	28	15
L	88	13	12

Kharodá Temple.
(*Midnapore*) Spire of small temple.

λ	21	58	9·7
L	87	48	23·8

No. 141

Khároi Village,
(*Midnapore*) Tree flag.

λ	22	24	37
L	87	57	8

* This height was obtained by local tidal observations, and refers to the mark in the upper surface of the pillar.

Name of station, district, description, co-ordinates &c.

Khasmundá s.
(*Cuttack*) In the plain 0·7 of a mile E. of village so called, N.E. of Garat village and E. of Mundá Maláng Pípal tree. A mark-stone with a kachá-paká pillar denotes the site of observation.

	° ′ ″
λ	20 44 5·52
L	87 0 19·11

No. 472

Khejurpáli Temple,
(*Ganjam*) Spire.

λ	19 20 45·4
L	84 40 47·1

No. 269

Kherang Temple.
(*Balasore*)

λ	21 16 48·7
L	86 53 36·2

Nos. 559, 560

Khirsingá s.
(*Ganjam*) On a small height on the sea coast, covered entirely with sand, about 0·3 of a mile N. of village so called. A circle and dot cut on the rock define the site of observation.

λ	18 41 57·54
L	84 29 34·20

No. 633

Kholakháli Village,
(*24-Pergunnahs*) Tree flag.

λ	22 12 58
L	88 11 1

Khonduá Kudá s.
(*Pooree*) On the sea coast, 250 feet from the high water mark.

λ	19 41 27·88
L	85 36 24·28

No. 609

Khundábolo, XLI.
(*Vide page* 12—*c.*)

λ	19 51 12·90
L	85 0 44·61
H	3115
h	*Not forthcoming*

No. 50

Khurdá Bungalow,
(*Pooree*) Centre of roof.

λ	20 10 45·6
L	85 40 11·5

No. 211

Kidárchak s.
(*Midnapore*) On a small mound about 500 yards W. of the small village so called; pargana Kiruámal.

λ	21 52 25·63
L	87 58 4·10

Name of station, district, description, co-ordinates &c.

Kimhírá, XXIII.
(*Vide page* 9—*c.*)

	° ′ ″
λ	21 39 34·01
L	86 41 10·16
H	582
h	0

Nos. 24, 27

Kistnápuram, LXVII.
(*Vide page* 17—*c.*)

λ	17 59 32·49
L	83 22 16·31
H	960
h	3

No. 84

Kistnápuram Hill Temple.
(*Vizagapatam*)

λ	17 59 32·6
L	83 22 16·7

Nos. 331, 332

Kitkisol, XIX.
(*Vide page* 8—*c.*)

λ	21 45 14·00
L	87 2 3·83
H	149
h	30

Nos. 17, 20

Koarh Hát Village,
(*Balasore*) Tree flag.

λ	21 52 48
L	87 10 2

Koela s.
(*Midnapore*) On a mound on right bank of the Roopnarayan river.

λ	22 26 47·46
L	87 54 53·32

Koetkolá s.
(*Balasore*) On the open plain about 0·3 of a mile W. of the deserted village of that name, where there is one well yielding a short supply of slightly brackish water. A mark-stone defines the site of observation.

λ	20 50 55·86
L	86 57 55·49

No. 466

Kohilí Hurí H.S.
(*Keonjhar Estate*)

λ	21 27 7·51
L	85 48 54·22
H	2191

No. 89

Name of station, district, description, co-ordinates &c.

Koiam Coast Staff.
(*Vizagapatam*) On a sand height opposite station so named.

	° ′ ″
λ	18 10 56
L	83 54 50

Koiam s.
(*Vizagapatam*) On rising ground close to village so called and about 0·5 of a mile from the sea coast.

λ	18 11 10·30
L	83 53 58·17

No. 670

Koiam Village,
(*Vizagapatam*) Single, highest palm tree near village.

λ	18 11 9
L	83 53 54

Koiparlí s.
(*Vizagapatam*) On a sand height on N. bank of the Konádá river and near the village of Koiparlí. A pillar 4 feet high (including foundation) denotes the site of observation.

λ	18 3 57·82
L	83 34 34·16

No. 681

Kolanchak Village,
(*Midnapore*) Tree flag.

λ	22 12 8
L	88 4 31

Koligiri Hill Mark (heliotrope).
(*Vizagapatam*)

λ	18 49 27·46
L	83 50 57·79

Nos. 291, 292

Konádá River.
(*Vizagapatam*) Staff on a high red sand height at mouth of the river.

λ	18 0 26
L	83 36 25

Konádá Village,
(*Vizagapatam*) Staff.

λ	18 1 1
L	83 36 21

Konáká Hill Mark.
(*Hindol-Narsinghpur Estates*)

λ	20 31 2·12
L	85 18 25·54
H	2469

Nos. 180, 181

Kondrápárá s.
(*Balasore*) About 100 yards from the belt of mangrove jungle skirting the coast and 1·1 and 2·5 miles respectively S.E. of the station and village of Churáman. A paká pillar marks the site of observation.

λ	21 7 44·03
L	86 51 27·67

No. 571

Name of station, district, description, co-ordinates &c.

Konkordiá s.
(*Cuttack*) On low ground in the midst of jungle, near village so called and 619 feet from corner of the Rájá's Gar. A paká pillar 10 feet high (including foundation) denotes the site of observation.

	° ′ ″
λ	20 14 42·71
L	86 35 51·36

No. 502

Kontiá s.
(*Balasore*) On a strip of sand separated from the main land by a salt marsh of considerable extent. No village in sight and no tree within a near range. A pillar denotes the site of observation.

λ	20 52 35·98
L	86 58 29·03

No. 465

Koparawálsá Factory,
(*Vizagapatam*) N.E. angle.

λ	18 38 58·2
L	83 37 13·0

No. 297

Korábanth s.
(*Pooree*) On elevated sand bank, 836 feet from the high water mark with nothing remarkable in the vicinity. A paká pillar 3 feet high defines the site of observation.

λ	19 45 53·69
L	85 46 34·31

No. 547

Kotápaliam Village.
(*Vizagapatam*) Staff on large tree in centre of village and near traveller's bungalow.

λ	18 8 5
L	83 46 23

Kotherevú s.
(*Ganjam*) On a high sand height 946 feet from the high water mark, near the small fishing village so called and about a mile S.E. of the large village of Lachmipuram. A nail fixed in a wooden peg 4 feet long and driven into the sand, denotes the station.

λ	18 22 50·64
L	84 11 35·61

No. 653

Kothpetá s.
(*Ganjam*) On the sea coast about 0·8 of a mile N. of village so called. A nail fixed in a wooden peg 4 feet long and driven into the sand, denotes the site of observation.

λ	18 36 0·18
L	84 24 41·02

No. 639

Name of station, district, description, co-ordinates &c.

Kotlingá h.s.
(*Ganjam*) On the highest part of a low elongated hill about 1 mile E. of village so called. A circle and dot engraved on the rock define the site of observation.

	° ′ ″
λ	19 8 36·63
L	84 39 50·11

No. 616

Kucharlú s.
(*Vizagapatam*) On a sand height 1490 feet from the high water mark, about 0·8 of a mile E. of village so called.

λ	18 8 58·15
L	83 49 33·97

No. 672

Kuchlágar s.
(*Cuttack*) On a high sand bank on the sea coast, S. of Kharikolá village. A paká pillar 1 foot high, with a mark-stone, defines the site of observation.

λ	20 33 54·70
L	86 53 39·05

No. 484

Kúdí, XI.
(*Vide page 7—C.*)

λ	21 51 42·94
L	87 33 51·06
H	48
h	30

No. 11

Kujang Staff.
(*Cuttack*) Rájá's staff.

λ	20 13 5
L	86 33 31

Kujang Temple.
(*Cuttack*)

λ	20 12 57·7
L	86 33 27·4

Nos. 581, 582

Kukráhátí, N.E. Temple.
(*Midnapore*) Spire of N.E. of two temples S.E. of the hát.

λ	22 11 4·1
L	88 9 42·7
H	46

No. 371

Kukráhátí, S. Temple,
(*Midnapore*) Spire.

λ	22 11 3·7
L	88 9 42·9

Nos. 412, 413

Name of station, district, description, co-ordinates &c.

Kulpí Obelisk,
(*24-Pergunnahs*) Cone.

	° ′ ″
λ	22 4 51·6
L	88 16 23·4
H	73

No. 383

Kumaráí, LXIV.
(*Vide page 16—C.*)

λ	18 14 36·77
L	83 6 39·29
H	3982
h	2

No. 77

Kumrangiá Hill Mark.
(*Baramba Estate*)

λ	20 24 1·37
L	85 30 9·38

Nos. 182, 183

Kundiá Nadí s.
(*Pooree*) On a sand height close to the sea with no remarkable object in the vicinity. The station is named from a nadi which flows on the north and falls into the sea a short distance up the coast to E. by N. It however flows only during the rains after which the mouth closes up and on each flooding effects a new outlet for the season.

λ	19 52 13·26
L	86 10 43·54

No. 527

Kundívádápet s.
(*Ganjam*) On a sand height on the sea coast near the small fishing village so called and about a mile S.W. of the large village of Hipilí.

λ	18 13 59·38
L	84 0 37·20

No. 668

Kunjipur Village,
(*Midnapore*) Tree flag.

λ	21 53 12
L	87 59 22

Kupilí Bungalow,
(*Vizagapatam*) Top.

λ	18 10 45·0
L	83 51 5·1

Kurchíbáriá Mark.
(*Hooghly*) Marine mark. Also called Shibganj mark.

λ	22 14 36·0
L	88 6 54·6
H	14

No. 367

Name of station, district, description, co-ordinates &c.

Kuríjang s.
(*Pooree*) On a sand height 0·3 of a mile S.E. of village, so called. There is a sandy plain towards the sea and cultivation at foot of the height to N. A pillar 3 feet high denotes the site of observation.

	°	′	″
λ	19	54	1·82
L	86	10	50·20

No. 526

Kusbadra (Kusbhadra) Old s.
(*Pooree*) About 0·7 of a mile N.W. of Kusbhadra s.

λ	19	51	0·49
L	86	2	43·75

Kusbadra (Kusbhadra) s.
(*Pooree*) On a sand height 1230 feet from the high water mark and between the sea and Kusbhadra river. Tikona village lies to N.E.

λ	19	50	34·06
L	86	3	8·61

No. 532

Kusdiá Village,
(*Balasore*) Tree flag.

λ	21	44	20
L	87	4	59

Kusmalí s.
(*Balasore*) On a sand mound, the highest spot on the ridge, which lies parallel to the line of the high water mark. The station is on the site of the village so called, which was washed away by the sea several years ago, and is denoted by a masonry pillar 3 feet in diameter and 2·5 feet high, with mark-stones at top and bottom. The pillar is 85 feet from the high water mark, and 2 feet of its height is sunk in the sand.

λ	21	21	18·50
L	86	58	33·62

Nos. 434, 435

Kuspalá Village,
(*Pooree*) Tree flag.

λ	20	13	2
L	85	30	2

Kuspur s.
(*Pooree*) On an ant-hill about 10 feet high, in the midst of a large patch of paddy field, 997 feet S. of Kuspur village tree. A pillar 4 feet high denotes the site of observation.

λ	20	2	56·82
L	86	24	9·50

No. 514

Kuspur Village,
(*Ganjam*) Tree flag.

λ	19	27	26
L	84	58	12

Name of station, district, description, co-ordinates &c.

Landarípat s.
(*Ganjam*)

	°	′	″
λ	19	0	42·71
L	84	41	19·18

No. 619

Latpatiá s.
(*Midnapore*) On embankment near the Latpatiá khál and S.W. of the village.

λ	22	11	14·12
L	88	8	9·37

No. 396

Lingalwálsá House,
(*Vizagapatam*) Square turret.

λ	18	29	46
L	83	45	43

Lingalwálsá s.
(*Ganjam*) On rising ground quite near and E. of village so called, about 1 mile S. of Amfol village and 0·5 of a mile W. of the high road from Vizagapatam to Barhámpur.

λ	18	18	15·96
L	84	0	55·59

No. 667

Lion's Rump s.
(*Cuttack*) On the highest of several high sand mounds quite near the mouth of the Patákund river and about 2·5 miles S. of the False Point Light-house. A paká pillar 2 feet high (including foundation) denotes the site of observation.

λ	20	17	18·38
L	86	44	52·76

No. 497

Lohár H.S.
(*Sambalpur*) On a range of hills running nearly N. and S. and on the boundary line of the villages of Kuntapalí and Lahirá. Lahirá village bears 107° 56′ at 2·2 miles, Kuntapalí village 213° 0′ at 1·8 miles, Sigirdí village 227° 42′ at 1·6 miles and Bujamúrá 264° 20′ at 1·7 miles. The station is identical with that of the Ganjam Topographical Survey, and is denoted by a platform about 5 feet in diameter and 13 inches high, with a circle and dot cut on stone.

λ	21	26	21·76
L	83	55	38·40
H	1271		

No. 107

Lokaváram s.
(*Ganjam*) On the bank of an irrigation pond close to the village so called. A pillar 2 feet high (including foundation) denotes the site of observation.

λ	18	31	38·91
L	84	18	29·66

No. 644

Name of station, district, description, co-ordinates &c.

Lokaváram Village.
(*Ganjam*) Staff on a large tree in centre of village.

	°	′	″
λ	18	31	53
L	84	18	37

Machkháni H.S.
(*Tálcher-Lahadá Estates*)

λ	21	15	58·92
L	85	6	30·37
H	1153		

Nos. 93, 94

Mádhabpur Village Temple.
(*Mayurbhanja Estate*) Also called Sasun temple.

λ	21	46	6·4
L	86	47	2·7

No. 160

Madhuban s.
(*Cuttack*) On a high sand height with a small patch of paddy field at the foot, surrounded by several other mounds and jungle, 0·3 of a mile S.W. of Naiágaon village and 0·5 of a mile S.E. of Kujang Gar.

λ	20	12	43·76
L	86	34	9·30

No. 504

Madipur s.
(*Pooree*) On a sand height 368 feet S.W. of village so called and a short distance N.E. of the Black Pagoda. A stone pillar 3 feet high denotes the site of observation.

λ	19	53	44·95
L	86	7	58·91

No. 528

Magarkhiá Tándá s.
(*Cuttack*) On a high mound 264 feet from the high water mark, with nothing remarkable in the vicinity. A paká pillar 5 feet high (including foundation) defines the site of observation.

λ	20	8	19·53
L	86	32	50·09

No. 507

Magindipur Village,
(*24-Pergunnahs*) Tree flag.

λ	22	13	10
L	88	8	53

Magrápatá Village,
(*Hooghly*) Tree flag.

λ	22	13	6
L	88	5	27

Name of station, district, description, co-ordinates &c.

Mahá Parbat h.s.
(*Bánki Estate*) Also called Bánki Peak, a well known and highest of the numerous isolated hills rising out of the alluvial tract. A circular pillar of loose stones, with a mark-stone on top, was found on the hill; but this was removed and replaced by a new mark on the rock *in sitú*, 18·4 inches from the normal of the old upper mark.

	°	′	″
λ	20	19	49·07
L	85	32	43·75

Nos. 194, 195

Mahápurvu Chak s.
(*Midnapore*) Tree station 31 feet high, at E. end of village.

λ	22	1	40·98
L	88	6	20·45
H	39		

No. 352

Mahendragirí, L.
(*Vide page* 14—C.)

λ	18	57	57·53
L	84	24	29·43
H	4923		
h	4		

No. 61

Mahendragirí Hill Temple,
(*Ganjam*) Spire.

λ	18	57	59·1
L	84	24	30·4

Nos. 278, 279

Maipárá s.
(*Cuttack*) Close to the mouth of the river of the same name. A small paká pillar with a mark-stone denotes the station.

λ	20	41	28·40
L	87	4	2·65

No. 475

Maishcharáa Village,
(24-*Pergunnahs*) Tree flag.

λ	22	13	4
L	88	9	52

Maktumjáni s.
(*Pooree*) On a sand height a short distance N.E. of the Muhammadan shrine so called, 0·1 of a mile from the high water mark and 0·8 of a mile S.E. of Balbhadrapur Palmyra tree. A paká pillar 3 feet high (including foundation) defines the site of observation.

λ	19	56	3·27
L	86	20	11·53

No. 519

Name of station, district, description, co-ordinates &c.

Mal, LI.
(*Vide page* 14—C.)

	°	′	″
λ	18	47	16·97
L	84	33	11·49
H	481		
h	2		

No. 62

Malgám Coast Staff.
(*Ganjam*) On a sand height opposite station so named.

λ	18	28	3
L	84	17	25

Malgám s.
(*Ganjam*) On high ground about a mile from the sea coast and 0·1 of a mile N. E. of Malgám village.

λ	18	28	29·35
L	84	16	31·88

No. 648

Malgám Village.
(*Ganjam*) Staff on a large tree about 100 feet from village.

λ	18	28	12
L	84	16	25

Malikpárá s.
(*Hooghly*) On Government embankment S. of Malikpárá hamlet of the Seebpore village; pargana Mandalghát.

λ	22	13	18·98
L	88	4	13·94

Nos. 400, 401

Malikpárá Village,
(*Hooghly*) Tree flag.

λ	22	13	26
L	88	4	15

Malkondá Hill Temple,
(*Vizagapatam*) Spire.

λ	18	23	21·4
L	83	45	45·8

No. 309

Maltí, XLIV.
(*Vide page* 13—C.)

λ	19	44	51·50
L	84	39	35·49
H	1717		
h	*Not forthcoming*		

Nos. 53, 55

Name of station, district, description, co-ordinates &c.

Mandárí s.
(*Balasore*) On the embankment of the canal which joins the Gummi nadi and Motái nala, about 0·1 of a mile E. of Mandárí village and 0·3 of a mile S. of Churáman village. A mark-stone imbedded on the W. embankment of the canal defines the site of observation.

	°	′	″
λ	21	7	13·34
L	86	49	6·89

No. 451

Maniáband s.
(*Baramba Estate*) In village.

λ	20	26	28·79
L	85	28	26·50

Manibhadrá Hill Mark.
(*Daspalá Estate*)

λ	20	27	17·52
L	85	1	32·77

No. 175

Mansinber Village,
(*Midnapore*) Tree flag.

λ	21	53	44
L	88	0	9

Mantrí High Temple,
(*Mayurbhanja Estate*) In village.

λ	21	38	38·0
L	86	51	4·3

Nos. 156, 157

Maripillí, LXI.
(*Vide page* 16—C.)

λ	18	19	51·23
L	83	23	26·87
H	1609		
h	2		

No. 73

Márkí, LXVI.
(*Vide page* 17—C.)

λ	18	2	59·06
L	83	6	42·30
H	2107		
h	0		

No. 78

Mathiálámá h.s.
(*Vizagapatam*) On a detached rocky hill about 0·5 of a mile from the sea coast, the same distance S. of Pativádá village and 2 miles S. of the Santapilí Lighthouse. A circle and dot engraved on the rock define the site of observation.

λ	18	3	23·04
L	83	39	10·83

No. 680

Name of station, district, description, co-ordinates &c.

Mathikpur h.s.
(*Ganjam*) On the centre of a low range of hills about 0·3 of a mile W. of village so called. A circle and dot cut on the rock define the site of observation.

	° ′ ″
λ	18 41 33·83
L	84 23 39·62

No. 637

Mathrí s.
(*Midnapore*)

λ	22 19 48·38
L	87 58 51·59

No. 410

Mathrí Temple,
(*Midnapore*) South-western of four domes.

λ	22 19 57·6
L	87 58 39·2

Nos. 426, 427

Matiáburí h.s.
(*Ganjam*) On a low isolated hill about 0·3 of a mile S. W. from the small village of that name; thánah Moherí, Bara Khimedí estate. The station, denoted by a circle and dot engraved on the rock *in sitú*, is not on the highest part, the high, projecting rocks not affording room for it.

λ	19 23 21·52
L	84 39 40·33

Nos. 257, 258

Maukhálí Hát Village,
(*24-Pergunnahs*) Tree flag.

λ	22 26 48
L	88 11 15

Mauldiá Hill Mark.
(*Keonjhar Estate*) On a low detached hill.

λ	21 31 14·51
L	85 55 20·58

No. 108

Máyápur s.
(*24-Pergunnahs*) On a semaphore so called, 42 feet above ground.

λ	22 26 12·23
L	88 10 52·14
H	53

No. 336

Máyápur Village,
(*24-Pergunnahs*) Tree flag.

λ	22 26 15
L	88 11 19

Megásiní (Meghásani), XXV.
(*Vide page 9—C.*)

λ	21 37 55·00
L	86 23 29·59
H	3823
h	0

Nos. 29, 30

Name of station, district, description, co-ordinates &c.

Megáváram No. 1 s.
(*Ganjam*) On the sea coast, about a mile S.E. of Megáváram village. A nail hammered into a wooden peg about 4 feet long and driven into the sand, denotes the site of observation.

	° ′ ″
λ	18 29 36·93
L	84 19 13·36

No. 645

Megáváram No. 2 s.
(*Ganjam*) On a high sand height on the high water mark, and about 0·3 of a mile S.W. of Megávárám village.

λ	18 29 36·95
L	84 19 13·36

No. 647

Megáváram Village.
(*Ganjam*) Staff in centre of village.

λ	18 30 0
L	84 19 35

Mentádá Coast Staff.
(*Vizagapatam*) On a sand height near village so called.

λ	18 5 54
L	83 44 2

Mírpur Village,
(*Midnapore*) Tree flag.

λ	22 14 35
L	88 0 5

Mirzápur, I.
(*Vide page 6—C.*)

λ	22 20 11·95
L	88 6 27·12
H	48
h	35

No. 1

Mirzápur Bridge,
(*Midnapore*) Flag on S. pier.

λ	21 47 25·0
L	87 52 38·3

Mirzápur Village,
(*Hooghly*) Tree flag.

λ	22 20 9
L	88 6 13

Mochíchak Village,
(*Midnapore*) Tree flag.

λ	22 12 8
L	88 4 2

Name of station, district, description, co-ordinates &c.

Mukhal s.
(*Ganjam*)

	° ′ ″
λ	18 50 19·50
L	84 36 54·49

No. 625

Mulang h.s.
(*Vizagapatam*)

λ	18 17 9·75
L	83 51 11·34

No. 310

Mundher Hill Mark.
(*Sambalpur*) Captain Saxton's Topographical Survey station. Mark indistinct and appearing close to the single tree.

λ	21 23 10·59
L	84 7 52·21

Nos. 115, 116

Muní h.s.
(*Ganjam*) On the highest part of an isolated hill about 0·3 of a mile S. of village so called and 2 miles W. of Penthátikelá bungalow. A circle and dot cut on the rock denote the site of observation.

λ	18 38 50·93
L	84 23 14·15

No. 638

Murárípur Coast Staff.
(*Ganjam*)

λ	18 37 39
L	84 26 45

Murárípur h.s.
(*Ganjam*) On the highest part of a low hill about 0·1 of a mile E. of village so called. A circle and dot cut on the rock define the site of observation.

λ	18 39 37·73
L	84 25 58·00

No. 636

Murkhí h.s.
(*Ganjam*) On an isolated, conical hill about 0·3 of a mile N. of Pentíputra village and half way between it and the public road. A circle and dot denote the site of observation.

λ	18 46 39·90
L	84 28 54·94

No. 630

Murosil H.S.
(*Sambalpur*) On the highest peak of a group of hills, in the lands of Thákurmal village. Jhakurkhálí village bears 344° 6′ at 1·3 miles, Porapalí village 67° 21′ at 2·3 miles, Kajúrpalí 75° 21′ at 2·0 miles, and Kesapalí 96°20′ at 2·8 miles. A circle and dot engraved on the rock *in sitú*, at the very summit of the peak, denote the site of observation.

λ	21 21 33·54
L	84 4 48·10
H	1943

Nos. 104, 105

Name of station, district, description, co-ordinates &c.

Naiáchará s.
(*Midnapore*) On an embankment N.E. of village; pargana Tumlook.

	o	′	″
λ	22	25	11·40
L	87	58	1·43

Naiáchará Village,
(*Midnapore*) Tree flag.

λ	22	24	45
L	87	57	48

Naiáganj Village,
(*Hooghly*) Tree flag.

λ	22	13	11
L	88	5	12

Naiágaon h.s.
(*Ganjam*) On an isolated, conical hill about 0·1 of a mile E. of Gadipadar village. A circle and dot cut on stone imbedded in the ground, denote the site of observation.

λ	19	4	15·95
L	84	40	37·08

Nos. 617, 618

Naiágaon Tándá s.
(*Cuttack*) On the highest of several sand heights, 112 feet from the high water mark, and 0·3 of a mile S.E. of the nearest Naiágaon village.

λ	20	12	32·65
L	86	36	6·72

No. 503

Nairalwálsá h.s.
(*Vizagapatam*)

λ	18	32	54·27
L	83	44	57·60

Nos. 293, 294

Nakoí Hill Mark.
(*Ganjam*)

λ	19	10	40·49
L	84	33	9·02

Nos. 271, 272

Nakol Village,
(*Hooghly*) Tree flag.

λ	22	22	35
L	88	0	11

Nalakondá, LVI.
(*Vide page* 15—*c.*)

λ	18	35	12·20
L	83	51	57·89
H	2142		
h	1		

No. 67

Name of station, district, description, co-ordinates &c.

Nanda Bans h.s.
(*Ganjam*) Also called Mandia Gundá. On a low isolated hill in the Serishtan estate. The villages of Pundápalli, Nanda Bans and Dhanáí Barhámpur are about 0·5 of a mile from the station bearing respectively N., E. and W. A mark engraved on the rock *in situ* and surmounted by a pole and brush, denotes the site of observation.

	o	′	″
λ	19	23	36·15
L	84	58	50·51

Nos. 245, 246

Nandí Auxiliary h.s.
(*Vizagapatam*) On the summit of an isolated hill of that name and about 4·3 miles in a direct line W. from Gumrú H.S. The village of Ganga Pude is immediately below the N.E. shoulder of the hill. The station is denoted by an isolated masonry pillar surrounded by a platform of stones and earth. There are two marks, one engraved on the rock *in situ* and the other on a stone imbedded flush with the surface of the pillar.

λ	17	56	46·31
L	83	12	44·03

Nandígaon Indigo Factory,
(*Vizagapatam*) Chimney.

λ	18	1	42·7
L	83	35	36·2

No. 327

Nandígaon Temple,
(*Midnapore*) Spire.

λ	22	0	38·52
L	88	1	13·20
H	71		

Nos. 137, 138

Nanjíkoná s.
(*Pooree*) On a sand height so called, close to the sea, with nothing remarkable in the vicinity. A pillar 3 feet high defines the site of observation.

λ	19	52	51·29
L	86	12	52·03

No. 525

Náráyanpur Village,
(*Midnapore*) Tree flag near salt golá.

λ	22	16	3
L	87	58	17

Narbárí Village,
(*24-Pergunnahs*) Tree flag.

λ	22	11	35
L	88	15	8

Narsál s.
(*Midnapore*) Tree station in centre of village, 48 feet above ground.

λ	22	12	0·92
L	88	3	58·67
H	54		

No. 347

Name of station, district, description, co-ordinates &c.

Natsal, III.
(*Vide page* 6—*c.*)

	o	′	″
λ	22	12	1·45
L	88	5	20·84
H	47		
h	33		

No. 3

Naupadá s.
(*Ganjam*) On the bank of a tank to S. of village so called. A circle and dot cut on stone imbedded in the bank define the site of observation.

λ	18	33	28·92
L	84	20	18·49

No. 642

Naupadá Temple.
(*Ganjam*)

λ	18	33	39·9
L	84	20	29·3

No. 662

Naupalá s.
(*Hooghly*)

λ	22	27	4·51
L	87	56	26·63

Naurí s.
(*Balasore*) On the line of sand mounds skirting the sea coast, about 0·3 of a mile from the outlet of Jamdá nala and the same distance from Encholí village. The station is on the site of a deserted village of that name, and is denoted by a masonry pillar 3 feet high with mark-stones at top and bottom.

λ	21	19	18·79
L	86	56	42·81

No. 436

Nechanpur s.
(*Balasore*) On the sand ridge skirting the sea coast, 480 feet from the high water mark, 200 yards N.E. of Nechanpur village, 0·3 of a mile S. of Bargidol village and about 0·5 of a mile N. of the Nechanpur river. A pillar, with mark-stones at top and bottom, denotes the site of observation.

λ	21	13	46·40
L	86	53	4·48

Nos. 443, 444

Newalkondá Hill Mark (heliotrope).
(*Ganjam*)

λ	18	46	37·06
L	84	28	6·02

Nos. 287, 288

Nichandápur Village,
(*Hooghly*) Tree flag.

λ	22	21	33
L	88	6	50

Name of station, district, description, co-ordinates &c.

Nichandípur Village,
(*24-Pergunnahs*) Tree flag.

	°	′	″
λ	22	27	17
L	88	12	7

Nílá S.
(*24-Pergunnahs*) On obelisk 73 feet high near the anchoring creek on left bank of the Hooghly river.

λ	22	14	24·71
L	88	8	6·02
H	87		

Nos. 123, 346

Nilgirí (Nílgirí), XXIV.
(*Vide page* 9—C.)

λ	21	28	23·72
L	86	48	32·40
H	1788		
h	2		

Nos. 23, 26

Nimidá, XXXIV.
(*Vide page* 11—C.)

λ	20	46	10·29
L	85	23	33·34
H	1029		
h	5		

No. 46

Nimidá Village Mark.
(*Dhenkánál Estate*) Nimidá is a double village. A stone with a circle and dot engraved thereon was buried between the two sections of the village.

λ	20	45	32·6
L	85	22	55·7

Nimkí Bágbáriá Village,
(*Hooghly*) Tree flag.

λ	22	25	43
L	87	59	38

Noásaí S.
(*Balasore*) About 0·5 of a mile E. of the site of the old village so called and 3·3 miles N.E. of Panchtikrí village. The station is 12 feet from the spring tide mark, and is denoted by a pillar.

λ	20	57	7·54
L	86	55	54·42

No. 461

Nosundoro S.
(*Cuttack*)

λ	20	13	36·39
L	86	38	34·77

No. 501

Name of station, district, description, co-ordinates &c.

Nuliásaí Tándá S.
(*Cuttack*) On the high water mark, between the sea and Jotádar Noi and S.E. of Nuliásaí village. A paká pillar 5 feet high (including foundation) defines the site of observation.

	°	′	″
λ	20	10	54·76
L	86	34	20·32

No. 505

Núnan Village,
(*Midnapore*) Tree flag.

λ	22	21	33
L	87	58	28

Nungur S.
(*Ganjam*) On the sea coast and about 0·1 of a mile S. of small village so called. A nail hammered into a wooden peg about 4 feet long and driven into the sand, denotes the site of observation.

λ	18	31	11·43
L	84	21	8·29

No. 643

Núrpur Tide Gauge,
(*24-Pergunnahs*) Staff on left bank of the Hooghly with two flags.

λ	22	13	37·5
L	88	7	18·7

No. 124

Núrpur Village,
(*24-Pergunnahs*) Tree flag.

λ	22	13	13
L	88	7	48

Olandá S.
(*Pooree*) On a sand height close to and S.W. of Olandá village which latter is on right bank of the Kusbhadra river. A paká pillar 3 feet high defines the site of observation.

λ	19	52	24·51
L	86	2	0·00

No. 533

Onashtípuram S.
(*Ganjam*) On rising ground, about 0·3 of a mile S.E. of village so called, a mile from Kotherevu village and 0·5 of a mile from the coast.

λ	18	26	17·30
L	84	13	46·77

No. 650

Onashtípuram Village.
(*Ganjam*) Staff on a large tree in centre of village.

λ	18	26	44
L	84	13	25

Orphulí S.
(*Hooghly*)

λ	22	26	5·94
L	87	57	40·15

Name of station, district, description, co-ordinates &c.

Orphulí Village,
(*Hooghly*) Tree flag.

	°	′	″
λ	22	26	13
L	87	57	15

Osuda Temple,
(*Ganjam*) Spire.

λ	19	26	46·3
L	84	41	45·9

No. 259

Padampurodího S.
(*Pooree*) About 0·3 of a mile S.W. of Nágeswar temple.

λ	19	47	10·82
L	85	41	48·90

No. 550

Paddapukur Village,
(*24-Pergunnahs*) Tree flag.

λ	22	21	2
L	88	9	9

Padmautí Village,
(*Ganjam*) Tree flag.

λ	19	24	57
L	84	58	8

Padnápur Temple.
(*Ganjam*) Spire of high temple in centre of village.

λ	19	21	11·6
L	84	36	24·4

No. 268

Páikpárá S.
(*24-Pergunnahs*) Tree station in centre of village, 45 feet above ground.

λ	22	28	17·37
L	88	14	52·73
H	60		

See Synoptical Vol. of the Calcutta Longl. Series.

Palabá Hill Mark.
(*Nayagar Estate*)

λ	20	11	23·19
L	84	55	56·92

Nos. 222, 223

Paláshpur Temple.
(*Ganjam*) Spire of white temple.

λ	19	26	59·1
L	84	38	0·8

No. 256

Paliámá Village,
(*Ganjam*) Tree flag.

λ	19	26	51
L	84	58	11

Name of station, district, description, co-ordinates &c.

Pálkondá Fort.
(*Vizagapatam*) Centre bastion of S. wall of mud fortress within the town. A circle and dot on a large stone denote the point.

	°	′	″
λ	18	36	3·97
L	83	47	49·30

Nos. 299, 300

Pálkondá Temple.
(*Vizagapatam*) Spire of temple N. of town.

λ	18	36	39·2
L	83	48	32·8

No. 301

Palwálsá h.s.
(*Ganjam*) On the highest part of an isolated hill about 100 yards from the small village so called. A circle and dot cut on the rock define the site of observation.

λ	18	53	17·37
L	84	35	19·28

No. 624

Panchamá Hill Tree.
(*Baramba Estate*) On a height of that name, at the eastern end of an extensive range, named Konaka, which extends into Ongul.

λ	20	29	13
L	85	27	3

Panchtikrí Village,
(*Balasore*) Tree flag.

λ	20	55	10
L	86	53	46

Pándab Ghát s.
(*Balasore*)

λ	21	23	36·24
L	87	0	40·20

No. 433

Pání Kurirá Hill Mark.
(*Bánki Estate*)

λ	20	18	0·02
L	85	29	33·44

Nos. 198, 199

Parádíp s.
(*Cuttack*) On a height in the midst of thick jungle and 0·5 of a mile S.E. of Parádíp Gar. A paká pillar 8 feet high (including foundation) defines the site of observation.

λ	20	18	15·84
L	86	39	31·65

No. 500

Paraulía Village,
(*Mayurbhanja Estate*) Tree flag.

λ	21	45	47
L	87	5	20

Name of station, district, description, co-ordinates &c.

Pariá H.S.
(*Rairakhol—Bámra Estates*) On the summit of a lofty peak of a great mass of hills extending about 25 miles from E. to W. and from 12 to 16 miles in breadth. The station is about 5 miles from the large village of Kaisar, and is denoted by a platform 10 inches high with a mark on top and another engraved on the rock *in situ*.

	°	′	″
λ	21	23	36·85
L	84	31	20·10
H	2503		

No. 99

Patámundái Rock.
(*Mayurbhanja Estate*)

λ	21	34	23
L	86	28	25

No. 167

Patharkumúdá, XLII.
(*Vide page* 12—C.)

λ	20	2	28·55
L	84	48	58·39
H	1777		
h	4		

No. 54

Pátharpárá Village,
(*Hooghly*) Tree flag.

λ	22	13	17
L	88	4	39

Pativádá Coast Staff.
(*Vizagapatam*) On a sand height near village so called.

λ	18	2	53
L	83	39	42

Patná, XV.
(*Vide page* 8—C.)

λ	21	47	20·83
L	87	14	12·71
H	80		
h	37		

No. 15

Patná s.
(*Balasore*) On an ant-hill in the plain W. of Kherang temple, about 0·5 of a mile from Kherang village and 0·3 of a mile S. of Gílodu village. A perforated kachá-paká pillar 4 feet high, with a mark-stone fixed on the ant-hill, defines the site of observation.

λ	21	17	16·62
L	86	52	54·17

No. 440

Pattarpárá Village,
(*Bánki Estate*) Tree flag.

λ	20	19	50
L	85	29	6

Name of station, district, description, co-ordinates &c.

Pedákondá h.s.
(*Ganjam*) On the highest of several rocky hills to N. of Gadavalsá village. A circle and dot cut on the rock denote the site of observation.

	°	′	″
λ	18	25	42·74
L	84	9	2·05

No. 652

Penbiram s.
(*Ganjam*) On an elevated spot about 100 yards E. of village so called. A circle and dot cut on a stone imbedded in the ground denote the site of observation.

λ	18	44	26·08
L	84	27	32·39

No. 632

Penthátíkelá Bungalow.
(*Ganjam*)

λ	18	38	10·5
L	84	24	13·8

No. 661

Phalta Point Mark.
(*24-Pergunnahs*) Marine mark on left bank of the Hooghly and opposite the mouth of the Damoodur river.

λ	22	16	14·3
L	88	7	52·6

Nos. 365, 366

Phalta s.
(*24-Pergunnahs*) On N. staircase of the old hotel, 28 feet above ground.

λ	22	18	3·22
L	88	8	55·97
H	42		

Nos. 343, 344

Phulbáriá Semaphore,
(*Midnapore*) Staff.

λ	22	2	52·3
L	88	9	46·2
H	51		

Nos. 130, 131

Phulbáriá Village,
(*Midnapore*) Tree flag; pargana Kiruámal.

λ	21	51	55
L	87	57	37

Phúlsará, LII.
(*Vide page* 14—C.)

λ	18	44	34·65
L	84	17	0·41
H	1433		
h	2		

No. 63

Name of station, district, description, co-ordinates &c.

Pinchápal s.
(*Balasore*) Directly N. and 100 yards from the small village so called. The mark is fixed on the top of an ant-hill.

	°	′	″
λ	21	18	55·75
L	86	54	32·85

No. 438

Pindí, LX.
(*Vide page* 16—c.)

λ	18	19	38·28
L	83	47	39·36
H	768		
h	2		

Nos. 70, 72

Plowdin's Island, E. Beacon.
(*Cuttack*)

λ	20	23	0·0
L	86	48	28·9

Nos. 576, 577

Plowdin's Island, W. Beacon.
(*Cuttack*)

λ	20	23	10·3
L	86	48	22·9

Nos. 578, 579

Point Palmyras Tree.
(*Cuttack*) About 0·7 of a mile N.W. of Budará s.

λ	20	46	14
L	87	1	24

Pokhálkhiá Tándá s.
(*Cuttack*) On a high sand height between the Komonopoká river and the sea, about a mile E. of Padampur village and 307 feet from the high water mark. A paká pillar 6 feet high (including foundation) defines the site of observation.

λ	20	5	40·16
L	86	31	23·22

No. 509

Ponkiá Village,
(*Midnapore*) Flag on tree; pargana Kiruámal.

λ	21	51	53
L	87	57	10

Pooree Great Temple.
(*Pooree*) Or Jagannáth temple.

λ	19	48	14·1
L	85	51	38·8

Nos. 594, 595

Porámárí Rájá's House,
(*Ganjam*) Cone of square turret.

λ	19	26	19·3
L	84	30	40·6

Nos. 262, 263

Name of station, district, description, co-ordinates &c.

Porámárí Village,
(*Ganjam*) Tree flag.

	°	′	″
λ	19	26	15
L	84	30	43

Potámohan s.
(*Pooree*) On a sand height 63 feet from the high water mark and a short distance E. of the mouth of the Chilka lake. A paká pillar 3 feet high defines the site of observation.

λ	19	43	9·13
L	85	39	44·95

Nos. 606, 607

Pránballabhpur s.
(*Hooghly*) On a mound in a field between the river embankment and the village; pargana Mandalghát.

λ	22	23	57·53
L	87	59	29·46

Pratáppur Village,
(*Ganjam*) Tree flag.

λ	19	29	39
L	85	0	12

Pukeriá Village,
(*Midnapore*) Flag on tar tree; pargana Kiruámal.

λ	21	51	55
L	87	58	59

Púndí Bungalow.
(*Ganjam*)

λ	18	40	50
L	84	28	59

Púndí Custom House.
(*Ganjam*)

λ	18	40	34·9
L	84	28	53·8

Nos. 657, 658

Púndí s.
(*Ganjam*) On the sea coast, 0·8 of a mile S. of village so called. A nail fixed in a wooden peg 4 feet long and driven into the sand, denotes the site of observation.

λ	18	39	47·60
L	84	29	0·03

No. 635

Púndí Temple.
(*Ganjam*)

λ	18	40	1·5
L	84	28	25·3

Nos. 659, 660

Name of station, district, description, co-ordinates &c.

Puntá s.
(*Balasore*) About 0·3 of a mile S.E. of and opposite to Puruán and separated from the sea by a belt of mangrove jungle. The masonry pillar at this station marks the distance attained by the sea at spring tides.

	°	′	″
λ	21	11	5·61
L	86	52	3·97

No. 561

Purba Sirámpur Village,
(*Midnapore*) Tree flag.

λ	22	11	57
L	88	2	45

Puruán s.
(*Balasore*) On an ant-hill on the sand ridge skirting the sea coast, about 0·8 of a mile E. of Puruán village and 0·3 of a mile from the sea. A kachá pillar 1·5 feet high, with a mark-stone at bottom, defines the site of observation.

λ	21	11	36·30
L	86	51	41·92

No. 446

Puruán Temple.
(*Balasore*)

λ	21	11	35·0
L	86	50	32·5

Nos. 562, 563

Purulpárá s.
(*Hooghly*) On a mound S. of village so called and close to the river; pargana Mandalghát.

λ	22	14	51·65
L	88	2	49·60

No. 404

Purulpárá Village,
(*Hooghly*) Tree flag.

λ	22	14	56
L	88	2	53

Purwágariá Village,
(*Pooree*) Tree flag.

λ	20	14	46
L	85	25	26

Putágoibálí s.
(*Cuttack*) In Mundá Maláng. Marked by a small paká pillar.

λ	20	43	55·86
L	87	2	19·74

No. 473

Puthmaí s.
(*Ganjam*) So called from a deity worshipped there, on the eastern knob of a range of hills about 100 yards N. of Sirámpálí village. A circle and dot engraved on the rock define the site of observation.

λ	18	58	14·57
L	84	39	48·72

No. 620

Name of station, district, description, co-ordinates &c.

Putkol h.s.
(*Baramba Estate*) On a low hill at the S.E. foot of which lies Baramba village.

	°	′	″
λ	20	25	29·92
L	85	22	28·75

Nos. 184, 185

Rádháballabhchak s.
(*Hooghly*) On the left bank of the Roopnarayan river.

λ	22	24	49·21
L	87	59	22·19

Rádháp ur Village,
(*Hooghly*) Tree flag.

λ	22	15	12
L	88	2	22

Ráegará, XLVII.
(*Vide page* 13—C.)

λ	19	17	31·95
L	84	41	42·02
H	2890		
h	3		

No. 56

Ragarí Temple No. 1,
(*Bánki Estate*) Highest and northernmost.

λ	20	21	6·3
L	85	33	42·2

No. 192

Ragarí Temple No. 2,
(*Bánki Estate*) Lowest and southernmost.

λ	20	21	6·3
L	85	33	42·5

No. 193

Raghunáthpur Village No. 1,
(*24-Pergunnahs*) Tree flag.

λ	22	27	24
L	88	11	24

Raghunáthpur Village No. 2,
(*Hooghly*) Tree flag.

λ	22	21	43
L	88	7	52

Ráibaniá Village,
(*Balasore*) Tree flag.

λ	21	54	55
L	87	14	16

Ráidíá Village,
(*Mayurbhanja Estate*) Tree flag.

λ	21	45	0
L	87	4	45

Name of station, district, description, co-ordinates &c.

Ráipili Auxiliary s.
(*Vizagapatam*) On the high ground about 0·3 of a mile E. of the village of that name, 0·5 of a mile N. of Katkápili village and the same distance S. of the hills of Kudipallam. The station is denoted by an isolated masonry pillar surrounded by a platform and carrying two marks, one engraved on the rock *in situ* and the other on a stone imbedded level with the surface of the pillar.

	°	′	″
λ	17	57	52·10
L	83	16	36·15

Ráipili h.s.
(*Vizagapatam*) On a moderately high detached conical hill in the lands of village so called and about 0·5 of a mile S.E. of Eliánágram village.

λ	18	15	0·59
L	83	51	10·76

No. 671

Rájápá Lová h.s.
(*Vizagapatam*) On a low hill, at the foot of which is situated the village so named and to the N. W. of which runs the high road from Vizagapatam to Vizianagram. A pillar 3 feet high (including foundation) defines the site of observation.

λ	17	57	12·14
L	83	27	42·98

No. 689

Rájárámpur Village No. 1,
(*24-Pergunnahs*) Tree flag.

λ	22	27	11
L	88	10	51

Rájárámpur Village No. 2,
(*24-Pergunnahs*) Tree flag.

λ	22	19	9
L	88	9	5

Rájípur Village,
(*24-Pergunnahs*) Tree flag.

λ	22	27	26
L	88	10	31

Rálímolpetá s.
(*Ganjam*) On the sea coast, about 100 yards from a narrow creek that flows into the sea and about 4 miles S. of Naupadá village. A nail fixed in a wooden peg 4 feet long and driven into the sand, denotes the site of observation.

λ	18	33	12·40
L	84	23	35·65

No. 641

Rálpád h.s.
(*Ganjam*) On the highest of several black rocks close to and S.E. of village so called. Mupidí village is close by to the S.W. and the high road from Calingapatam to Palkondá runs about 0·3 of a mile to N.

λ	18	23	9·97
L	84	6	38·65

No. 654

Name of station, district, description, co-ordinates &c.

Rámbág Temple.
(*Midnapore*) White temple, centre spire.

	°	′	″
λ	22	10	43·1
L	88	2	54·1
H	75		

Nos. 419, 420

Rámbhadrapuram Hill Mark (heliotrope).
(*Vizagapatam*)

λ	18	29	15·97
L	83	22	22·73

No. 316

Rámchandarpet s.
(*Vizagapatam*) On the highest of several black rocks near village so called and 1·5 miles S.W. of Konádá.

λ	17	59	58·18
L	83	35	22·19

No. 682

Rámchandarpur h.s.
(*Vizagapatam*) On a pretty high hill about 0·8 of a mile from the sea coast. The high road between Vizagapatam and Chicacole runs at the foot of the hill to E. Rámchandarpur village to which the hill belongs is situated at the foot and Tikelí village is also quite near. A circle and dot engraved on the rock *in situ* denote the site of observation.

λ	18	7	15·71
L	83	44	43·59

No. 674

Rámchandí s.
(*Pooree*) On a high sandy ground close to temple now being built (1858), near the junction of the Kusbhadra river with the sea. A remarkable palmyra tree stands close by.

λ	19	51	14·05
L	86	6	7·09

No. 530

Rámchandí Tree.
(*Pooree*) Palm tree.

λ	19	51	14
L	86	6	9

Rámnagar, IV.
(*Vide page* 6—C.)

λ	22	5	27·78
L	88	11	41·47
H	48		
h	38		

No. 4

Rámnáth Hill Temple,
(*Bánki Estate*) Highest and northernmost.

λ	20	21	23·5
L	85	26	13·0

Nos. 190, 191

Name of station, district, description, co-ordinates &c.

Rámrámpur Village,
(*24-Pergunnahs*) Tree flag.

	°	′	″
λ	22	12	8
L	88	13	19

Rangáfalá S.
(*24-Pergunnahs*) On obelisk, 66 feet high.

λ	22	1	4·89
L	88	15	27·35
H	82		

No. 351

Rangarh Hill Mark.
(*Poores*)

λ	20	7	7·16
L	85	45	17·80

No. 216

Ranmahal S.
(*Hooghly*) Tree station in centre of village, 56 feet above ground.

λ	22	24	16·24
L	88	7	44·28
H	63		

No. 339

Rasalkondá Hill Fort (heliotrope).
(*Ganjam*)

λ	19	55	35·78
L	84	37	22·56

No. 240

Rasúl S.
(*Hindol Estate*) Station mark 390 feet from the skirt of the village so called and in the direction opposite to that in which the Principal Station of Chánchuniá is situated.

λ	20	37	52·67
L	85	21	17·26

Rasúlpur S.
(*Midnapore*) About 0·3 of a mile S. of village so called.

λ	21	49	51·85
L	87	54	32·40

Rasúlpur Salt Golá.
(*Midnapore*) Top of pent roof of hut.

λ	21	50	33
L	87	55	17

Rati Hill Mark.
(*Ganjam*)

λ	18	46	46·35
L	84	34	11·28

No. 628

Name of station, district, description, co-ordinates &c.

Rattágarh Village Temple.
(*Bánki Estate*) On a hill on the N. bank of the Mahánadi.

	°	′	″
λ	20	25	18·3
L	85	37	28·0

Nos. 188, 189

Raun H.S.
(*Rairakhol Estate*) On a very conspicuous and well known hill about 3 miles S.W. of the village so called. The station is on the eastern knob and is denoted by a mark engraved on the rock *in situ*.

λ	20	57	22·68
L	84	15	58·06
H	2208		

No. 102

Rautrápur Flag,
(*Balasore*) On large tree.

λ	21	11	40
L	86	52	58

Ráwal, LIX.
(*Vide page* 16—C.)

λ	18	32	9·22
L	83	35	38·81
H	874		
h	2		

No. 69

Reddie Head Beacon.
(*Cuttack*)

λ	20	24	54·9
L	86	49	53·6

Nos. 574, 575

Renghá Hill Mark.
(*Vizagapatam*)

λ	18	25	39·24
L	83	21	22·39

Nos. 317, 318

Roopnarayan River, a. s.
(*Midnapore*) On the Náráyanpur khál.

λ	22	16	8·58
L	87	58	56·33

Roopnarayan River, b. s.
(*Hooghly*) On the left bank of the Roopnarayan river.

λ	22	18	3·21
L	87	59	32·39

Roopnarayan River, c. s.
(*Midnapore*) On the right bank of the Roopnarayan river, opposite Jhumjhumí ghát.

λ	22	19	19·09
L	87	59	11·91

Roopnarayan River, d. s.
(*Hooghly*) On the left bank of the Roopnarayan river.

λ	22	20	7·24
L	88	0	0·12

Name of station, district, description, co-ordinates &c.

Roopnarayan River, e. s.
(*Hooghly*) On the left bank of the Roopnarayan river close to Gopínáthpur village.

	°	′	″
λ	22	23	2·84
L	87	59	29·20

Roopnarayan River, f. s.
(*Midnapore*) On the right bank of the Roopnarayan river.

λ	22	23	51·29
L	87	58	19·73

Roopnarayan River, h. s.
(*Midnapore*) On the right bank of the Roopnarayan river.

λ	22	24	40·27
L	87	58	34·83

Roopnarayan River, i. s.
(*Midnapore*) On the right bank of the Roopnarayan river.

λ	22	25	46·32
L	87	58	50·99

Roopnarayan River, k. s.
(*Midnapore*) On the right bank of the Roopnarayan river.

λ	22	25	16·95
L	87	57	47·26

Roopnarayan River, l. s.
(*Midnapore*) On the right bank of the Roopnarayan river.

λ	22	24	59·30
L	87	57	1·89

Roopnarayan River, m. s.
(*Hooghly*) On the left bank of the Roopnarayan river.

λ	22	25	44·15
L	87	56	28·27

Roopnarayan River, n. s.
(*Hooghly*) On the left bank of the Roopnarayan river.

λ	22	25	57·22
L	87	55	46·52

Rúpnagar Village,
(*Midnapore*) Centre; pargana Kiruámal.

λ	21	48	39
L	87	53	49

Sahárá, XVIII.
(*Vide page* 8—C.)

λ	21	37	6·40
L	87	10	21·56
H	49		
h	35		

No. 16

Name of station, district, description, co-ordinates &c.

Sahirá Village,
(*Midnapore*) Tree flag.

	°	′	″
λ	22	22	2
L	87	58	17

Sália (Sulia) Hill Mark.
(*Nayagar Estate*) On a high hill, very difficult of ascent, about 5 miles S. W. of Nayagar. Kamarisar village lies about 4½ miles N.E. It is identical with the Ganjam Topographical Survey Station.

λ	20	6	19·79
L	85	3	50·44

Nos. 220, 221

Sálíhundam, LVIII.
(*Vide page* 15—C.)

λ	18	20	2·50
L	84	4	18·00
H	412		
h	2		

No. 71

Samalia, LXXXVII*
(*Vide page* 6—C.)

λ	22	25	41·14
L	88	18	9·90
H	75		
h	63		

No. 1

Samangará s.
(*Pooree*) In rice fields between the village of that name and the Sur lake, and about 0·3 of a mile N.W. of the chief village.

λ	19	50	42·72
L	85	54	29·76

No. 539

Samangará Tree.
(*Pooree*) Cocoanut tree.

λ	19	50	27
L	85	54	39

Samaspur s.
(*Hooghly*)

λ	22	21	31·23
L	88	0	58·66

Sambalpur Hill Temple.
(*Sambalpur*) Spire of Buda Rájá's temple.

λ	21	29	0·8
L	84	1	19·3

Nos. 118, 119

Sambalpur Kachahrí.
(*Sambalpur*) Top of cone of bungalow.

λ	21	27	9·4
L	84	1	10·4

No. 122

Name of station, district, description, co-ordinates &c.

Sambalpur Temple No. 1.
(*Sambalpur*) Spire of highest and biggest temple.

	°	′	″
λ	21	28	12·0
L	84	0	20·5

No. 120

Sambalpur Temple No. 2.
(*Sambalpur*) Near Temple No. 1.

λ	21	28	12·8
L	84	0	17·7

No. 121

Sandiá Semaphore,
(*Midnapore*) Staff. Also called Kandímárá.

λ	21	59	59·9
L	88	5	15·3
H	46		

Nos. 132, 133

Sangpatná s.
(*Pooree*) In waste jungle ground 766 feet N. E. of corner of Bairágí's house in Sangpatná village. A paká pillar 11 feet high (including foundation) denotes the site of observation.

λ	19	57	22·03
L	86	17	54·38

No. 520

Santapili Light-house s.
(*Vizagapatam*) On a low hill about 0·8 of a mile from the sea coast and near Pativádá village. The station mark is on one of the stones imbedded to brace the lantern.

λ	18	4	8·52
L	83	40	34·60

Nos. 687, 688

Santapili Rocks.
(*Vizagapatam*) Sunken rocks about 7 miles from the Light-house of that name. The surface of the rocks is 27·7 feet below the surface of the water.

λ	18	0	11·8
L	83	45	33·5

Sántipur Village,
(*Balasore*) Tree flag.

λ	21	53	28
L	87	14	16

Santoshpur h.s.
(*Keonjhar Estate*) On a rocky height in the midst of a mass of hills and named after the large village which lies on the left bank of the Baitarní river about 2½ miles to S.W. A mark cut on the rock *is sitú* denotes the station. It is identical with the Ganjam Topographical Survey Station.

λ	21	23	18·01
L	86	7	2·53

No. 168

Name of station, district, description, co-ordinates &c.

Sardaí Hill Mark.
(*Pooree*)

	°	′	″
λ	20	8	47·30
L	85	30	25·13

Nos. 212, 213

Sarisá, II.
(*Vide page* 6—C.)

λ	22	14	47·73
L	88	13	49·34
H	54		
h	34		

No. 2

Sarnat Modí Hill mark.
(*Jaipur*) A somewhat lower point than and about 0·8 of a mile E. by N. from Dewodímundá h.s. Taylor's knoll is visible from this point and lies about 1·5 miles E.

λ	18	15	19·77
L	83	0	29·61
H	5080		

Nos. 319, 320

Sasatí Village,
(*Hooghly*) Tree flag.

λ	22	20	32
L	88	0	10

Sáthbhaiá Hill Mark.
(*Nayagar Estate*)

λ	20	7	2·93
L	85	17	23·69

Nos. 218, 219

Sátbhaiá s.
(*Cuttack*) On a sand hill N.E. of village so called. A paká pillar 1 foot high, with a mark-stone, denotes the site of observation.

λ	20	38	38·47
L	86	59	29·67

No. 478

Sátgáchiá s.
(*24-Pergunnahs*) Tree station in centre of village, 48 feet above ground.

λ	22	24	31·93
L	88	13	23·25
H	55		

No. 337

Sathpurí Hill,
(*Keonjhar Estate*) Tree.

λ	21	26	38
L	85	42	19

* Of the Calcutta Longitudinal Series.

Name of station, district, description, co-ordinates &c.

Satiában s.
(*Cuttack*) In a very dense jungle, N. of Sátbhaiá village. A kachá-paká pillar 3 feet high, with a mark-stone, defines the site of observation.

	° ′ ″
λ	20 39 9·05
L	86 57 48·64

No. 479

Sátpautiá, XVII.
(*Vide page* 8—c.)

λ	21 56 27·66
L	87 7 14·31
H	220
h	35

No. 19

Satsimlí Village,
(*Midnapore*) Tree flag.

λ	21 51 15
L	87 59 35

Saugor Light-house.
(*24-Pergunnahs*)

λ	21 38 40·1
L	88 5 1·5

No. 139

Saugor Mud Point.
(*24-Pergunnahs*) Marine mark at N. end of island.

λ	21 55 46·9
L	88 9 14·1

Nos. 386, 387

Sautiá, XIII.
(*Vide page* 8—c.)

λ	21 50 34·48
L	87 23 24·40
H	77
h	30

No. 13

Selimpur Village,
(*Hooghly*) Tree flag.

λ	22 21 5
L	88 6 38

Senkud s.
(*Cuttack*) On a high sand mound surrounded by jungle, on the bank of the Patákund river. Nothing remarkable in the vicinity. A paká pillar 3 feet high denotes the site of observation.

λ	20 15 36·43
L	86 42 17·94

No. 499

Seojharn H.S.
(*Rairakhol-Bámra Estates*)

	° ′ ″
λ	21 18 8·91
L	84 46 19·78
H	1487

Nos. 96, 97

Sextasal (Sekstasal) Hill Mark.
(*Ranpur Estate*)

λ	19 56 30·26
L	85 16 27·39

Nos. 226, 227

Shámchak Village,
(*Midnapore*) Centre; pargana Kiruámal.

λ	21 49 18
L	87 54 1

Shámpur s.
(*24-Pergunnahs*) On semaphore, 49·5 feet above ground.

λ	22 29 12·84
L	88 14 32·38
H	60

See Synoptical Vol. of the Calcutta Longl. Series.

Shámpur Village,
(*Hooghly*) Tree flag.

λ	22 18 34
L	88 3 59

Shyámsundarpur Village,
(*24-Pergunnahs*) Tree flag.

λ	22 18 44
L	88 9 2

Shukdebpur s.
(*Cuttack*) In village so called and 0·4 of a mile W. of Balarámpur village. A kachá-paká pillar 6 feet high, with a mark-stone, denotes the site of observation.

λ	20 33 40·61
L	86 47 3·91

No. 489

Siálgutná Village,
(*Midnapore*) Tree flag.

λ	22 23 57
L	87 57 47

Sikásar Conical Peak,
(*Lahadá Estate*) Highest of 3 cones.

λ	21 16 53·3
L	85 20 17·0

Nos. 111, 112

Silver Tree Obelisk,
(*24-Pergunnahs*) Cone.

	° ′ ″
λ	21 57 55·2
L	88 11 22·0
H	84

No. 134

Singarapakotá (heliotrope),
(*Vizagapatam*) On top.

λ	18 6 38·38
L	83 11 13·24

No. 328

Singnáth Hill Mark.
(*Baramba Estate*) On a small hill in Mahánadi.

λ	20 22 11·57
L	85 25 16·23

Nos. 196, 197

Singpur h.s.
(*Ganjam*)

λ	18 21 7·57
L	84 0 28·21

Nos. 311, 312

Singpur Hill Temple,
(*Ganjam*) Spire.

λ	18 21 13·8
L	84 0 29·8

No. 313

Sinklí Hill,
(*Ganjam*) Single tree.

λ	19 1 34
L	84 32 8

Sírámpur Village,
(*Hooghly*) Tree flag.

λ	22 20 19
L	88 6 40

Sirsaní Village,
(*Hooghly*) Tree flag.

λ	22 16 32
L	88 4 47

Sítárámpuram Temple.
(*Vizagapatam*) Spire of a high black temple in centre of village.

λ	18 28 50·3
L	83 45 27·7

No. 308

Sohadigí s.
(*Midnapore*) On embankment in front of and close to village.

λ	22 22 57·74
L	87 58 14·35

Name of station, district, description, co-ordinates &c.

Sohadigí Village,
(*Midnapore*) Tree flag.

	°	′	″
λ	22	22	49
L	87	58	13

Solári Hill Mark.
(*Pooree*)

λ	19	49	2·61
L	85	16	32·81

Nos. 235, 236

Sonáchará Village,
(*Midnapore*) Tree flag.

λ	21	54	39
L	88	0	51

Sonákalá Bungalow.
(*Pooree*) Middle of roof of the largest bungalow.

λ	19	50	5·4
L	85	19	28·0

No. 234

Sonpur Salt Bungalow,
(*Ganjam*) Centre of tiled conical roof.

λ	19	6	41·9
L	84	49	28·2

No. 275

Srijang S.
(*Balasore*) Near an ant-hill, about 0·3 of a mile from and on the same sloping ground as the village so called. A mark engraved on a large square stone carefully let into the ground, denotes the site of observation.

λ	21	20	41·39
L	86	55	11·14

No. 437

Srikristapur Village,
(*Midnapore*) Jháu tree.

λ	22	9	47
L	88	7	38

Sutaná S.
(*Pooree*) About 279 feet S. of village so called and 397 feet W. of a palm tree on edge of paddy field.

λ	19	53	19·33
L	86	5	6·70

No. 531

Tájnagar Temple,
(*Midnapore*) Spire, at N. end of village.

λ	22	7	59·1
L	88	11	11·1
H	52		

Nos. 373, 374

Name of station, district, description, co-ordinates &c.

Talchuá S.
(*Cuttack*) About 40 feet from the S. bank of a small nala (which joins the Dhamra river at about 100 yards from the station) and 0·5 of a mile N.E. of the deserted village of Talchuá on S. side of the Dhamra river. A mark-stone denotes the site of observation.

	°	′	″
λ	20	45	55·65
L	86	59	15·82

No. 470

Táljorí Hill,
(*Ganjam*) Single tree.

λ	19	9	10
L	84	34	58

Tálpátí Bridge, S. Pier.
(*Midnapore*) Flag on southern pier of the suspension bridge over the Gángrá khál.

λ	21	53	26·4
L	88	0	52·1

Nos. 430, 431

Tálpátí Bridge, S.W. Pillar.
(*Midnapore*) S. W. pillar of the suspension bridge over the Gángrá khál.

λ	21	53	27·4
L	88	0	52·6

No. 391

Tálpátí Village,
(*Midnapore*) Tree flag.

λ	21	53	27
L	87	59	43

Tamná Hill Mark.
(*Nayagur Estate*)

λ	19	55	51·73
L	85	9	19·16

Nos. 228, 229

Tándá S.
(*Pooree*) On an island height about 1·5 miles N.E. of Nuriásaí or Tándá village and 0·1 of a mile from the sea. A paká pillar 3 feet high (including foundation) denotes the site of observation.

λ	19	57	33·12
L	86	22	47·83

No. 517

Tanjharn H S.
(*Sambalpur*) On the highest peak of a range of hills stretching in a N. E. and S. W. direction, about 5 miles S.E. of Jamloi village and 7 miles S.W. of Megpál, on the old road from Cuttack to Sambalpur. The station is denoted by a platform 3·23 feet high with a mark at top and another engraved on the rock *in sitú*.

λ	21	16	5·02
L	84	15	8·47
H	1995		

No. 100

Name of station, district, description, co-ordinates &c.

Táráganj Village,
(*24-Pergunnahs*) Tree flag.

	°	′	″
λ	22	17	10
L	88	8	47

Tárá Tarní, XLV.
(*Vide page 13—C.*)

λ	19	29	17·79
L	84	56	27·84
H	708		
h	*Not forthcoming*		

No. 52

Tarbarí House.
(*Ganjam*) E. gable end of a tiled house.

λ	19	19	46
L	84	39	8

No. 270

Telikud S.
(*Pooree*) On a sand height covered with jungle having the small village of Telikud close below on N. side.

λ	19	55	7·53
L	86	13	25·35

No. 524

Tentíkolá Obelisk,
(*Hooghly*) Cone. Also called Hope's Obelisk.

λ	22	13	35·7
L	88	6	6·0
H	64		

No. 368

Tetulbariá, V.
(*Vide page 6—C.*)

λ	22	5	12·06
L	87	59	7·17
H	48		
h	35		

No. 5

Tetulbáriá Temple.
(*Midnapore*) Spire of old red temple.

λ	22	10	18·3
L	88	7	3·6

No. 414

Thákuranchak Village,
(*Hooghly*) Tree flag.

λ	22	16	12
L	88	1	9

Name of station, district, description, co-ordinates &c.

Thirwalá h.s.
(*Ganjam*) On the highest part of a detached rocky hill W. of Ulalsá village. Gangárám and Kanakthertham villages are situated at the S. W. and Narsápuram at the N. E. foot of the hill. A circle and dot engraved on the rock denote the site of observation.

	°	′	″
λ	18	29	25·59
L	84	13	52·92

No. 649

Tigiria (old) s.
(*Tigiria Estate*) In a field immediately outside and to N. of village.

λ	20	27	6·40
L	85	33	41·72

Tirkoná s.
(*Pooree*) On an old ant-hill on waste ground with paddy fields between it and the small village so called and 0·5 of a mile W. of the large village of Ratanpur. A pillar 7·5 feet high denotes the site of observation.

λ	19	56	21·71
L	86	15	34·95

No. 522

Tomaká h.s.
(*Cuttack-Keonjhar Estate*) On the western of two very remarkable peaks, which rise abruptly from the hill for several hundred feet. Champadar, a village of ironsmiths, lies about 1½ miles to S.E. in a valley from which the hill is ascended. It is identical with the Ganjam Topographical Survey Station.

λ	21	5	32·29
L	85	57	37·05

Nos. 172, 173

Totalbáriá Village,
(*Midnapore*) Tree flag.

λ	22	15	5
L	87	59	5

Tree No. 1.
(*Cuttack*) Large round tree about 2·2 miles N. W. of Magarkhiá s.

λ	20	9	41
L	86	31	23

Tree No. 2.
(*Cuttack*) Single Palmyra tree about 0·6 of a mile S.W. of Balbhadrapur s.

λ	20	3	13
L	86	28	43

Tree No. 3.
(*Pooree*) Single cocoanut tree on plain.

λ	19	48	19
L	85	50	21

Trijunction Pillar F,
(*Pooree*) Flag.

λ	20	15	31·9
L	85	27	8·4

No. 210

Name of station, district, description, co-ordinates &c.

Trijunction Pillar T,
(*Pooree-Kandpárá Estate*) Flag.

	°	′	″
λ	20	16	40·5
L	85	22	29·8

Nos. 208, 209

Tumlook House s.
(*Midnapore*) Centre mark on E. side of roof of the salt Agent's residence.

λ	22	17	47·64
L	87	58	10·47

No. 425

Tumlook s.
(*Midnapore*) About 80 yards E. of the house owned by the Rájá or Zamíndár of that place.

λ	22	17	33·78
L	87	58	13·85

No. 408

Tumlook Tope.
(*Midnapore*) Centre of S. Casuarina or Jháu tope N. of town.

λ	22	17	59
L	87	58	9

Tundáhá s.
(*Pooree*) On a sand height 264 feet from the high water mark and opposite Tundáhá village. A pillar 3 feet high denotes the site of observation.

λ	19	53	45·88
L	86	15	43·76

No. 523

Udaigirí, XXXI.
(*Vide page* 10—*c.*)

λ	20	49	47·30
L	85	37	14·28
H	1435		
h	0		

Nos. 38, 39

Untirá s.
(*Balasore*) In rice fields, 150 yards S. of the village so called and 0·3 of a mile N.E. of Dámodarpur village. The station is denoted by a kachá pillar 4·5 feet high with a mark-stone at bottom.

λ	21	10	56·23
L	86	49	54·67

No. 447

Uruá s.
(*Balasore*) On cultivated plain about 0·3 of a mile N.W. of Uruá village and the same distance S. W. and N. E. respectively of Erim and Nandapur villages. A kachá pillar 9·3 feet high, with a mark-stone at top, defines the site of observation.

λ	21	9	10·29
L	86	49	15·66

No. 449

Name of station, district, description, co-ordinates &c.

Uruá Salt Golá,
(*Balasore*) Brush.

	°	′	″
λ	21	8	52·3
L	86	49	48·1

Nos. 567, 568

Usmánpur Village,
(*Hooghly*) Tree flag.

λ	22	21	25
L	88	0	29

Utarkoná s.
(*Pooree*) In rice fields, about 0·7 of a mile E. of the small village so called. A kachá pillar 10·5 feet high denotes the site of observation.

λ	19	50	37·04
L	85	51	50·44

No. 541

Utarsaí s.
(*Balasore*) On the top of an artificial mound of earth on the site of an old village, about 1·5 miles W. of Panchtikrí village and 2·5 miles N.E. of Chárá village. A mark-stone defines the site of observation.

λ	20	54	45·75
L	86	54	58·75

No. 462

Vacháwálsá s.
(*Ganjam*) On a very high sand height 1453 feet from the high water mark, quite near the small fishing village so called and about 1·5 miles from the large village of Kurma where a celebrated annual festival is held.

λ	18	16	0·42
L	84	4	56·05

No. 666

Virágotam Village.
(*Vizagapatam*) Flag on a large pípal tree adjoining Kodá Rájá's house in centre of village.

λ	18	41	11
L	83	39	6

Vizagapatam base-line, A.s.
(*Vizagapatam*) On the straight line from S. end to N. end of the Vizagapatam base-line and 2·1 miles from the former.

λ	17	57	19·94
L	83	14	47·36

Vizagapatam base-line, B.s.
(*Vizagapatam*) On the straight line from S. end to N. end of the Vizagapatam base-line and 2·3 miles from the latter.

λ	17	59	9·37
L	83	15	28·18

Vizagapatam base-line, N. End, LXVIII.
(*Vide page* 17—C.)

	°	′	″
λ	18	1	2·91
L	83	16	10·54
H	181*		

Nos. 79, 85

Vizagapatam base-line, S. End, LXX.
(*Vide page* 18—C.)

λ	17	55	38·16
L	83	14	9·41
H_s	310·57*		

Nos. 80, 87

Vizagapatam Tide Point s.
(*Vizagapatam*) Established on the Jetty, from the wall of which the Tide Gauge stood at a distance of 8 feet: a permanent mark was fixed on the Tide Point Station and its height above mean sea level obtained by reference to the Gauge for comparison with the trigonometrically determined value.

λ	17	41	15·57
L	83	19	52·75
H	2·47		

Viziánagram Rájá's House (heliotrope),
(*Vizagapatam*) In Dhobá garden.

	°	′	″
λ	18	6	51·84
L	83	26	46·79

No. 326

Waialwálsá House.
(*Vizagapatam*) W. turret of tiled and square roof.

λ	18	30	31·1
L	83	45	36·3

No. 307

Wondáwá h.s.
(*Vizagapatam*) On the higest peak of a low isolated group of hills immediately N.W. of the small but well known village so called; thána Pálkondá. A circle and dot cut on the rock *in situ* define the site of observation.

λ	18	38	20·46
L	83	41	54·61

Nos. 295, 296

Yalmel h.s.
(*Ganjam*) On the highest part of an isolated hill about 0·1 of a mile W. of Rájpuram village. A circle and dot cut on the rock denote the site of observation.

	°	′	″
λ	18	50	35·48
L	84	30	59·39

No. 629

Yarákanchámá, LVII.
(*Vide page* 15—C.)

λ	18	43	43·09
L	83	40	48·33
H	1765		
h	1		

No. 68

Yerámantí h.s.
(*Vizagapatam*) On the highest of several rocky hills, about 0·3 of a mile S.W. of Thotápaliam village and about 1·5 miles in the same direction from the town of Chicacole. The hill is so named by the natives on account of the redness of its soil.

λ	18	16	13·18
L	83	55	18·80

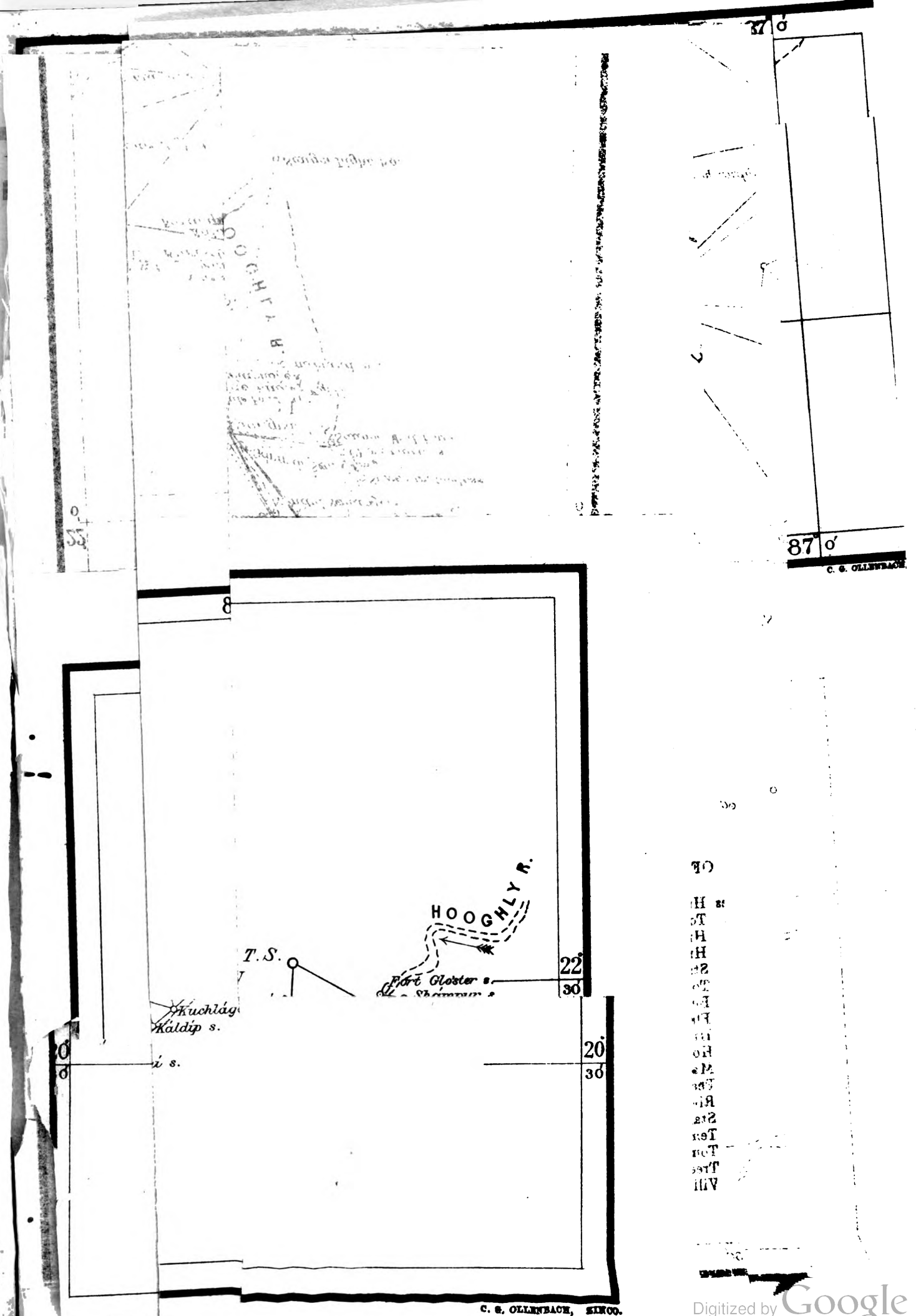
No. 669

* These heights refer to the base-line dots, which are placed at 1 foot above ground level and are protected by closed masonry domes whose apices rise to a height of 10 feet above the dots.

NOTE.—Heights determined Trigonometrically and indicated in preceding tables by the symbol H, always refer to the upper markstones or to the upper surfaces of the pillars marking the stations.

April 1878.

J. B. N. HENNESSEY,
In charge of Computing Office.

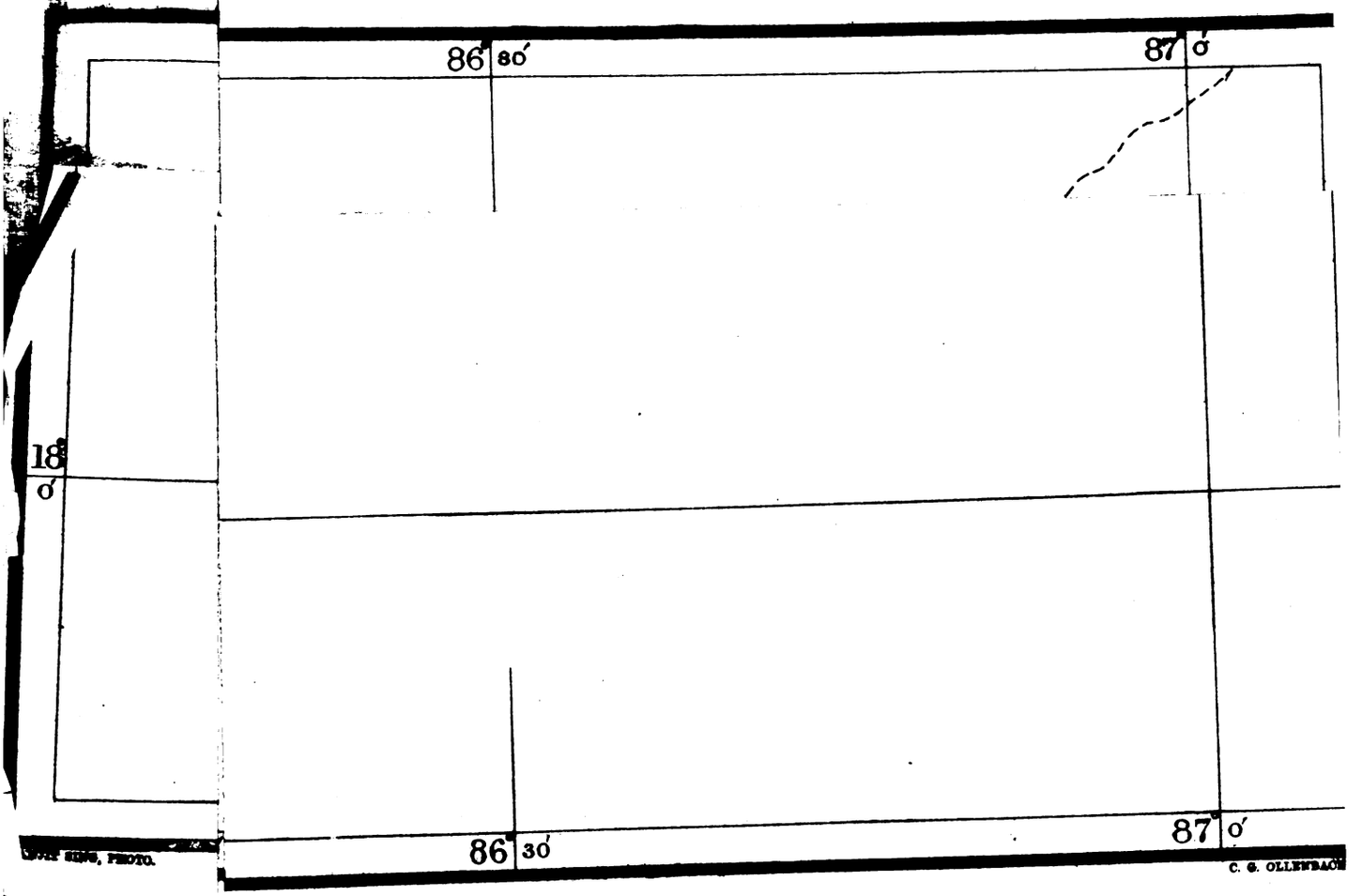


Name of station, district, des co-ordinates &c.	
Vizagapatam base-line, N. E (*Vide page* 17—*c.*)	
	° ′
λ	18 1
L	83 16 1
H	181*
Nos. 79, 85	
Vizagapatam base-line, S. E (*Vide page* 18—*c.*)	
λ	17 55 3
L	83 14
H_s	310·57*
Nos. 80, 87	
Vizagapatam Tide Point s. (*Vizagapatam*) Established on th wall of which the Tide Gauge stood 8 feet: a permanent mark was fix Point Station and its height above r tained by reference to the Gauge fo the trigonometrically determined v	
λ	17 41 1
L	83 19 5
H	2·47

* These heights refer to the ba of 10 feet above the dots.

NOTE.—Heights determined Tr the pillars marking the stations.

April 1878.



List of Published Works of the Great Trigonometrical Survey of India.

An Account of the Measurement of an Arc of the meridian between the parallels of 18° 3′ and 24° 7′, being a continuation of the Grand Meridional Arc of India as detailed by the late Lieutenant-Colonel Lambton in the Volumes of the Asiatic Society of Calcutta. By Captain George Everest, of the Bengal Artillery, F.R.S., &c. London, 1830.

An Account of the Measurement of two Sections of the Meridional Arc of India, bounded by the parallels of 18° 3′ 5″; 24° 7′ 11″; and 29° 30′ 18″. By Lieutenant-Colonel Everest, F.R.S., &c., late Surveyor General of India, and his Assistants. London, 1847.

Account of the Operations of the Great Trigonometrical Survey of India.

Volume I. The Standards of Measure and the Base-Lines, also an Introductory Account of the early Operations of the Survey, during the period of 1800-1830. By Colonel J. T. Walker, R.E., F.R.S., &c., &c., Superintendent of the Survey. Dehra Dún, 1870.

Do. II. History and General Description of the Principal Triangulation and of its Reduction. By Colonel J. T. Walker, C.B., R.E., F.R.S., &c., &c., Surveyor General of India and Superintendent of the Survey, and his Assistants. Dehra Dún, 1879.

Do. III. The Principal Triangulation, the Base-Line Figures, the Karáchi Longitudinal, N.W. Himalaya, and Great Indus Series of the North-West Quadrilateral. By Colonel J. T. Walker, R.E., F.R.S., &c., &c., Superintendent of the Survey, and his Assistants. Dehra Dún, 1879.

Do. IV. The Principal Triangulation, the Great Arc (Section 24°-30°), Rahún, Gurhágarh and Jogí-Tíla Meridional Series, and the Sutlej Series of the North-West Quadrilateral. By Colonel J. T. Walker, R.E., F.R.S., &c., &c., Superintendent of the Survey, and his Assistants. Dehra Dún, 1879.

Do. V. Details of the Pendulum Operations by Captains J. P. Basevi, R.E., and W. J. Heaviside, R.E., and of their Reduction. Prepared under the directions of Major-General J. T. Walker, C.B., R.E., F.R.S., &c., &c., Surveyor General of India and Superintendent of the Trigonometrical Survey. Dehra Dún and Calcutta, 1879.

Do. VI. The Principal Triangulation of the South-East Quadrilateral including the Great Arc—Section 18° to 24°, the East Coast Series, the Calcutta and the Bider Longitudinal Series, the Jabalpur and the Biláspur Meridional Series, and the details of their Simultaneous Reduction. Prepared under the directions of Major-General J. T. Walker, C.B., R.E., F.R.S., &c., &c., Surveyor General of India and Superintendent of the Trigonometrical Survey. Dehra Dún, 1880.

List of Published Works of the Great Trigonometrical Survey of India.—(Continued).

Synopses of the Results of the Great Trigonometrical Survey of India, comprising Descriptions, Co-ordinates, &c., of the Principal and Secondary Stations and other Fixed Points, of the several Series of Triangles, as follows;—

Volume I. The Great Indus Series, or Series *D* of the North-West Quadrilateral. By Colonel J. T. Walker, R.E., F.R.S., &c., &c., Superintendent of the Survey, and his Assistants. Dehra Dún, 1874.

Do. II. The Great Arc—Section 24° to 30°, or Series *A* of the North-West Quadrilateral. By Colonel J. T. Walker, R.E., F.R.S., &c., &c., Superintendent of the Survey, and his Assistants. Dehra Dún, 1874.

Do. III. The Karáchi Longitudinal Series, or Series *B* of the North-West Quadrilateral. By Colonel J. T. Walker, R.E., F.R.S., &c., &c., Superintendent of the Survey, and his Assistants. Dehra Dún, 1874.

Do. IV. The Gurhágarh Meridional Series, or Series *F* of the North-West Quadrilateral. By Colonel J. T. Walker, R.E., F.R.S., &c., &c., Superintendent of the Survey, and his Assistants. Dehra Dún, 1875.

Do. V. The Rahún Meridional Series, or Series *E* of the North-West Quadrilateral. By Colonel J. T. Walker, R.E., F.R.S., &c., &c., Superintendent of the Survey, and his Assistants. Dehra Dún, 1875.

Do. VI. The Jogí-Tíla Meridional Series, or Series *G*, and the Sutlej Series, or Series *H* of the North-West Quadrilateral. By Colonel J. T. Walker, R.E., F.R.S., &c., &c., Superintendent of the Survey, and his Assistants. Dehra Dún, 1875.

Do. VII. The North-West Himalaya Series, or Series *C* of the North-West Quadrilateral, and the Triangulation of the Kashmir Survey. By Major-General J. T. Walker, C.B., R.E., F.R.S., &c., &c., Surveyor General of India and Superintendent of the Survey, and his Assistants. Dehra Dún, 1879.

Do. VIII. The Great Arc—Section 18° to 24°, or Series *A* of the South-East Quadrilateral. By Colonel J. T. Walker, C.B., R.E., F.R.S., &c., &c., Superintendent of the Survey, and his Assistants. Dehra Dún, 1878.

Do. IX. The Jabalpur Meridional Series, or Series *E* of the South-East Quadrilateral. By Colonel J. T. Walker, C.B., R.E., F.R.S., &c., &c., Surveyor General of India and Superintendent of the Survey, and his Assistants. Dehra Dún, 1878.

Do. X. The Bider Longitudinal Series, or Series *D* of the South-East Quadrilateral. By Major-General J. T. Walker, C.B., R.E., F.R.S., &c., &c., Surveyor General of India and Superintendent of the Survey, and his Assistants. Dehra Dún, 1880.

Do. XI. The Biláspur Meridional Series, or Series *F* of the South-East Quadrilateral. By Major-General J. T. Walker, C.B., R.E., F.R.S., &c., &c., Surveyor General of India and Superintendent of the Survey, and his Assistants. Dehra Dún, 1880.

Do. XII. The Calcutta Longitudinal Series, or Series *B* of the South-East Quadrilateral. By Major-General J. T. Walker, C.B., R.E., F.R.S., &c., &c., Surveyor General of India and Superintendent of the Survey, and his Assistants. Dehra Dún, 1880.

8th December 1880.