

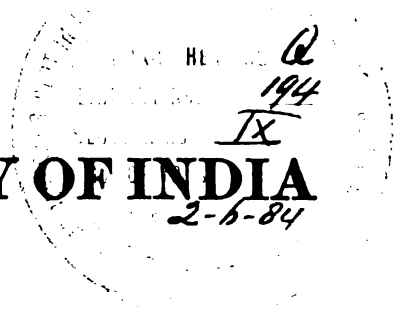
DIAGRAM
OF THE
NORTH-EAST QUADRILATERAL
OF THE
G. T. SURVEY OF INDIA

C. S. G. S. S. S.

Photostereographed at the Office of the Topographical Branch, Survey of India, Dehra Dun, December 1908

C. S. S. S.

SYNOPSIS OF THE RESULTS OF THE OPERATIONS OF
THE GREAT TRIGONOMETRICAL SURVEY OF INDIA
VOLUME XVIII.



DESCRIPTIONS AND CO-ORDINATES
OF THE
PRINCIPAL AND SECONDARY STATIONS AND OTHER FIXED POINTS OF
THE HURILAONG MERIDIONAL SERIES
OR SERIES P
AND THE CHENDWAR MERIDIONAL SERIES
OR SERIES Q
OF THE
NORTH-EAST QUADRILATERAL.

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



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B. V. HUGHES.

1883.

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ERRATA ET ADDENDA.

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PAGE			
23—P.	line 7 from bottom, col. 2	<i>for</i> 456	<i>read</i> 455
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42—P.	in footnote	<i>for</i> tower	<i>read</i> pillar

CHENDWAR MERIDIONAL SERIES.

1—Q.	<i>passim</i>	<i>for</i> Mahar	<i>read</i> Maher												
12—Q.	in triangle No. 32	" Sarhad Semaphore	" Sarhad Semaphore s.												
14—Q.	before line 18 from bottom, cols. 5 and 6	<i>insert</i> SARHAD SEMAPHORE s. Kasiátu, XLIV Chendwár h.s.	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="text-align: center;">°</td> <td style="text-align: center;">'</td> <td style="text-align: center;">"</td> <td style="border-left: 1px solid black; text-align: center;">82</td> </tr> <tr> <td style="text-align: center;">8</td> <td style="text-align: center;">21</td> <td style="text-align: center;">43</td> <td style="border-left: 1px solid black; text-align: center;">82</td> </tr> <tr> <td style="text-align: center;">311</td> <td style="text-align: center;">0</td> <td style="text-align: center;">24</td> <td style="border-left: 1px solid black; text-align: center;">82</td> </tr> </table>	°	'	"	82	8	21	43	82	311	0	24	82
°	'	"	82												
8	21	43	82												
311	0	24	82												
21—Q.	line 24 from bottom, col. 3	<i>for</i> 225	<i>read</i> 224												

15—q. to 22—q. The following stations of the Ganges River Triangulation are given by their adopted local names only, whereas they ought also to have been distinguished by their proper numbers in the River Triangulation. This omission is supplied in the following table.

Stations of Ganges River Triangulation.	
Name in Co-ordinate List.	Proper number of the Station.
Rasimchak s.	Ganges River No. 201 s.
Panahpur s.	„ No. 202 s.
Karamchak s.	„ No. 203 s.
Dígha s.	„ No. 204 s.
Sabalpur No. 5 s.	„ No. 205 s.
Patna Gola s.	„ No. 206 s.
Sabalpur No. 3 s.	„ No. 207 s.
Sabalpur No. 4 s.	„ No. 208 s.
Sabalpur No. 2 s.	„ No. 209 s.
Sabalpur No. 1 s.	„ No. 210 s.
Latái s.	„ No. 211 s.
Sukwarpur s.	„ No. 212 s.
Patna, Mehndíbágh s.	„ No. 213 s.
Jáfarabad s.	„ No. 214 s.
Patna, Jáfar Khán's Garden Cupola s.	„ No. 215 s.
Rustampur s.	„ No. 216 s.
Jetíli s.	„ No. 217 s.
Mohanpur s.	„ No. 218 s.
Samáspur s.	„ No. 219 s.
Raghupur s.	„ No. 220 s.
Juráwanpur No. 1 s.	„ No. 221 s.
Juráwanpur No. 4 s.	„ No. 222 s.
Maksúdpur s.	„ No. 223 s.
Káládehr s.	„ No. 224 s.
Ghiáspur s.	„ No. 225 s.
Baijnáth Tola Flag	„ No. 226
Champápur s.	„ No. 227 s.

NOTE.—The preceding portion of this Triangulation to the west will be found in the Co-ordinate List of the Hurálóng Meridional Series, page 32—q. of this Volume.

May, 1883.

W. H. COLE,
In charge of Computing Office.

REFERENCES.



The abbreviations employed in the text are as follows:—

h.s. denotes hill station secondary
s. „ station secondary

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

The latitudes and longitudes of all points shown on the Chart at the end of each series 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: the 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.

May, 1883.

W. H. COLE,

In charge of Computing Office.

P R E F A C E.



The Huriláong and the Chendwár Meridional Series are the seventh and the eighth meridional series from the west of the sixteen chains of triangles included in the Section of the Principal Triangulation of the Survey of India which has been named the North-East Quadrilateral. This Section embraces the area within the Meridians of 78° and 92° and the Parallels of 23° and 30° ; and for reasons explained in Section 7 of Chapter I of Volume II of the *Account of the Operations of the Great Trigonometrical Survey*, its general reduction was postponed till that of the neighbouring Quadrilaterals, *viz.*, the North-West and South-East, had been completed, whereby two of the Series, the Great Arc, Section 24° to 30° , and the Calcutta Longitudinal, entering the periphery of the North-East Quadrilateral, became finally fixed. The general principles of the Simultaneous Reduction, and the procedure followed in carrying it out, are the same as 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 Volumes VII and VIII of the *Account of the Operations, &c.*

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 as follows;—
For the several Series forming the North-West Quadrilateral,

- I. Great Indus Series.
- II. Great Arc, Section 24° to 30° .
- III. Karáchi Longitudinal Series.
- IV. Gurhágárh Meridional Series.
- V. Rahún Meridional Series.
- VI. Jogi-Tíla and Sutlej Series.
- VII. North-West Himalaya Series.

For those forming the South-East Quadrilateral,

- VIII. Great Arc, Section 18° to 24° .
- IX. Jabalpur Meridional Series.
- X. Bider Longitudinal Series.
- XI. Biláspur Meridional Series.
- XII. Calcutta Longitudinal Series.
- XIII. East Coast Series.

And for the following Series of the North-East Quadrilateral,

- XIV. Budhon Meridional Series.
- XV. Rangír Meridional Series.
- XVI. Amua and Karára Meridional Series.
- XVII. Gurwáni and Gora Meridional Series.

Already published.

The present is the 18th Synoptical Volume and the fifth of those appertaining to the North-East Quadrilateral; and it has been made to include both the Huriláong and the Chendwár Meridional Series, partly because portions of the same districts enter both series and it is therefore convenient to have all the results in one volume, and partly because the available matter is insufficient for two volumes.

It gives the results of the whole of the triangulation executed in connection with these series, both the principal, which was executed with theodolites having azimuthal circles of 18, 24 and 36 inches in diameter read by 3 and 5 micrometer microscopes, and the secondary, which was executed with smaller theodolites 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 North-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 Introductions to each series and the Names and Descriptions of the Principal Stations were originally prepared for Volume VIII 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 Alphabetical and Numerical Lists of Principal Stations, pages 1—*P*. and 2—*P*., and 1—*Q*. and 2—*Q*., were printed prior to the year 1868, when the general programme for the final reduction of the whole of the Triangulation of India was drawn up; there was then a long pause in the printing, while the Simultaneous Reductions of the North-West, South-East and North-East Quadrilaterals were being completed; this was done by the year 1877, when the secondary triangulation was adjusted in accordance with the principal, and then the printing of this volume was resumed.

The paging of each series starts from unity and is therefore not continuous throughout this volume. This was necessitated by the order of routine which had to be adopted in printing the successive subjects embraced in each and which is the same for all. The paging of each series is however distinguished by using a capital letter as a subscript to the numerals; thus all the paging which has reference to the Huriláong Meridional Series has the subscript *P*, and that to the Chendwár Meridional Series the subscript *Q*.

The data given in this volume are the following:—

First (pages 1—*P*., 1—*Q*.), alphabetical lists 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 (pages 2—*P*., 2—*Q*.), numerical lists giving the names corresponding to the numbers.

Third (pages 3—*P*., 3—*Q*.), descriptions of the principal stations—of their structure and positions—as taken from the original records of the observations, and supplemented by Addenda (pages 9*—*P*., 9*—*Q*.) giving the most recent information of their condition which has been received up to date.

Fourth (pages 9—*P*., 9—*Q*.), the angles and sides of the principal triangles, numbered and arranged in order from south to north.

Fifth (pages 13—*P*., 12—*Q*.), 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 (pages 18—*P*., 13—*Q*.), the azimuths of surrounding stations and points, at principal, principal-auxiliary, and secondary stations, the latter arranged in alphabetical order.

Seventh (pages 22—*P*., 15—*Q*.), the co-ordinates and descriptions of all stations and points arranged in alphabetical order.

The heights of the stations of the Huriláong Meridional Series depend in the first instance on the finally determined values of the stations of Khaira Pándu and Huriláong of the Calcutta Longitudinal Series (of the

South-East Quadrilateral), and on the spirit-leveled height of Nuáon and Patjirwa of this Series and of Bakwa and Naunangarhi of the North-East Longitudinal Series, whilst those of the Chendwár Meridional Series depend on the finally determined values of the stations of Kasiátu and Chendwár of the Calcutta Longitudinal Series, on the fixed heights of Amua and Madanpur of the North-East Longitudinal Series and on the spirit-leveled height of Phulwaria, Paládpur, Harpur and Sáwajpur. The manner in which the heights of the remaining stations have been made to accord with those above designated, is explained in Section 7 of Chapter II, Part I of Volume VII of the *Account of the Operations, &c.* The datum to which all heights have been referred is the mean sea level of Karáchi (Kurrachee). It may be here stated that all trigonometrically determined heights invariably refer to the upper surfaces of the central masonry pillars which are constructed for the instruments to stand on. Spirit-leveled values sometimes refer to the upper surface and sometimes to the basement of the pillar, whichever the leveling staff was set on; a description of the exact point referred to is given in each instance in footnotes to the pages of the Co-ordinate Lists, commencing on pages 22—*p.* and 15—*q.* respectively.

It has not been considered necessary to publish the whole of the details of the secondary triangulation, portions having been executed originally for preliminary geographical purposes, to facilitate the construction of a first map of India, and the objects observed having in many instances been flags and temporary marks which must long since have disappeared. The sides and angles of 98 triangles for the Huriláong Meridional Series and of 8 triangles for the Chendwár Meridional Series, which were selected as most likely to be of future 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 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, $80^{\circ} 17' 21''$, 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. $5^{\text{h}} 20^{\text{m}} 59^{\text{s}}.42 = 80^{\circ} 14' 51''.30$. 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. The Alphabetical and Numerical Lists of Principal Stations, for each series, were printed before the year 1868, in accordance with the rules introduced by Colonel Everest for use in the Survey Department. Subsequently, in 1874, several provincial lists of spellings, constructed under the immediate orders of the Government of India, were received; and thereafter the newly authorised spellings were adopted for all names and other words contained in these lists; but for words for which there was no specific authority, the spellings have been framed in accordance with the methods followed in the preparation of the published lists, reference being made in the present instance more particularly to the Gazetted Lists for the North-West Provinces and Bengal. As a general rule the pronunciations of the vowels are as follows:—*a* has a variable sound as in woman, rural, paltry; *á* as in tartan; *í* as in bit; *é* as in ravine; *u* as in bull; *ú* as in rural; *o* as in note; *e* as *a* in say; *au* as *ou* in cloud; *ai* as *i* in ride.

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 the field books, whenever it was found practicable to do so, in order to facilitate the future identification of the stations; all the information which is forthcoming has now 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, B.E., F.R.S., and Mr. Cole, M.A. Major Herschel moreover supervised the Simultaneous Reduction of the North-East Quadrilateral of which these Series form a portion, while the Introduction to the Huriláong Meridional Series was written by Mr. C. Wood and that to the Chendwár Meridional Series by Colonel B. R. Branfill. Great pains have been taken to secure the utmost accuracy in preparing the data and passing them through the press.

(for GENERAL J. T. WALKER)

MUSCOOREE, }
 May, 1883. }

J. B. N. HENNESSEY,

Offg. Dy. Surveyor General,

In charge Great Trigonometrical Survey of India.

HURILAONG MERIDIONAL SERIES.

HURILAONG MERIDIONAL SERIES—(LONG. 84° 24').

INTRODUCTION.

In the year 1848 the triangulating party which had recently completed the Gora Meridional Series became available for undertaking another of the meridional chains now comprised in the North-East Quadrilateral, and, all to the westward having been already finished, the Huriláong Series—so called because it starts from the station of that name belonging to the Calcutta Longitudinal Series—was taken up.

The operation consists of twenty-nine stations, seven of the southernmost being on hills. The rest are tower stations (averaging 27 feet in height), in the plains north of the Soane river.

To begin with, in the hilly tract the first twelve stations were laid out in a double series of triangles so as to form a compound figure with two central stations, followed by an hexagonal, together covering a distance of about 85 miles on the meridian. The rest of the Series traverses the plains in a single chain of twenty triangles which closes upon the side Bakwa-Naunangarhi (LXIX-LXXI) of the North-East Longitudinal Series.

The entire length of the triangulation is 208 miles from south to north, in the course of which, leaving the Lohardugga district of Chota Nagpore, the Series traverses the districts of Gya, Shahabad, Ghazipur, Sarun and Chumparun, chiefly in the province of Behar. The time occupied was four seasons, from 1848 to 1852.

The executive charge of the work was entrusted to Mr. Principal Sub-Assistant J. W. Armstrong who had already on several occasions (in the Rangir and Karára Series) had sole charge of a principal series. He was now furnished with Troughton and Simms' 18-inch theodolite No. 2*, with which all the principal angles horizontal and vertical were observed during the first two seasons—1848-49, 1849-50; subsequently this instrument was changed for Barrow's 24-inch theodolite No. 2* with which the rest of the principal angles were measured.

The Huriláong Series party, as per margin, left recess quarters at Allahabad on the 4th of October and was employed till the end of the month, whilst the season was still too unhealthy to be safe for entering the hilly tract of jungle to the southward, in carrying on the Ganges River triangulation eastwards from Bindháchal, the point to which it had been carried during the

Season 1848-49.

PERSONNEL.

Mr. J. W. Armstrong, 2nd Principal Sub-Assist.
 „ G. Terry, Senior 1st Class „
 „ N. A. Belletty, 3rd „ „

operations of the Gurwáni Series.

* For a description of these instruments see pages 50-53, and 65-66 of the Appendices to Vol. II of the *Account of the Operations, &c.*

Early in November the party proceeded to Huriláong and pushed on the approximate series rapidly, so that Mr. Armstrong was ready early in December to begin the final observing which he completed at the undermentioned stations, as follows :—

at	Majholi	H.S.	I	between	December 10th	and	December 17th,	1848
„	Banka	„	II	„	20th	„	22nd	„
„	Huriláong	„	XLII*	„	27th	„	January 3rd,	1849
„	Sewádhi	„	XXXVIII*	„	January 11th	„	14th	„
„	Khaira Pándu	„	XL*	„	20th	„	25th	„
„	Teona	„	III	„	31st	„	February 7th	„
„	Dhánras	„	IV	„	February 10th	„	18th	„
„	Phulwaria	„	V	„	May 5th	„	May 13th	„
„	Bakan	„	VI	„	30th	„	June 4th	„

A complete set of star observations for azimuth was taken at Huriláong.

The party was much crippled by sickness this season, and both his assistants being prostrated at the same time, Mr. Armstrong had to carry on the work single-handed. Mr. Terry fell sick in December and did not again rejoin the party. Nevertheless a very creditable out-turn of results was secured, consisting of sixteen principal stations selected, at four of which towers were built and all the rays connected with them cleared, besides the final observing at nine of them, and the azimuth above mentioned. A large amount of secondary triangulation was also done.

The party went into recess quarters at Chunar, which place was reached on the 15th June, and the reduction of the season's work was then taken in hand as usual and completed early in October.

Mr. Armstrong proceeded to take the field again on the 15th of October and

Season 1849-50.

PERSONNEL.

Mr. J. W. Armstrong, 2nd Principal Sub-Assist.
 „ J. W. Rossenrode, Jun. 1st Class „
 „ N. A. Belletty, 3rd „ „

prosecuted the work in the usual manner, commencing with the approximate series which he conducted in person until the end of January, when he took up the final observing with the same instrument he had used the

previous season, and completed the work at the undermentioned stations, as follows :—

at	Pahára	H.S.	VIII	between	January 20th	and	January 23rd,	1850
„	Phulwaria	„	V	„	27th	„	29th	„
„	Bakan	„	VI	„	February 5th	„	February 9th	„
„	Kanap	T.S.	IX	„	11th	„	14th	„
„	Mednipur	„	VII	„	15th	„	27th	„
„	Bisunpur	„	XI	„	March 7th	„	March 10th	„
„	Durgádi	„	X	„	12th	„	20th	„
„	Baráon	„	XII	„	21st	„	23rd	„
„	Kesath	„	XIII	„	24th	„	April 2nd	„
„	Hetampur	„	XIV	„	April 2nd	„	13th	„
„	Nuáon	„	XV†	„	14th	„	25th	„

NOTE.—The Roman numeral after the name of a station indicates its order in the series.

* Of the Calcutta Longitudinal Series. † This station was revisited the next season and the first observations were not used.

A complete series of star observations for azimuth was observed at Mednipur T. S. Eight new tower stations were selected and built, thirteen rays triangulated, and twenty-one rays cleared. The unfavourableness of the weather at the beginning and end of the field season prevented a larger amount of work being done. The party marched into recess quarters at Ghazipur at the end of May and took up the computations which were completed by the end of September.

Barrow's 24-inch theodolite No. 2, already referred to, was received on the 30th September for use on the Huriláong Series during the ensuing seasons.

The party (as per margin) resumed the field operations on the 5th of October at Ghazipur by taking up the river Ganges minor triangulation, continuing it eastwards, and connecting with the

Season 1850-51.
PERSONNEL.
Mr. J. W. Armstrong, 2nd Principal Sub-Assist.
" J. W. Rossenrode, Jun. 1st Class "
" N. A. Belletty, 2nd " "
" F. S. Paschaud, 3rd " "

main series on the way through the stations of Nuáon and Nauranga. The principal triangulation (approximate series) was also carried on as usual, and the final observing begun by the end of January 1851, and completed at the undermentioned stations, as follows:—

at Nuáon	T.S. XV	between January 29th	and February 8th,	1851
" Kesath	" XIII	" February 9th	" " 10th	"
" Hetampur	" XIV	" " 10th	" " 12th	"
" Nauranga	" XVI	" " 15th	" " 20th	"
" Bin Chapra	" XVII	" " 26th	" March 4th	"
" Núrpur	" XVIII	" March 23rd	" April 4th	"
" Khádípur	" XIX	" April 14th	" " 18th	"
" Jalálpur	" XX	" " 22nd	" " 27th	"
" Katwárpur	" XXI	" May 7th	" May 14th	"
" Nauranga	" XVI	" " 19th	" " 27th	"

Azimuth observations were commenced at Núrpur but had to be abandoned owing to the very unfavourable weather at the time.

A large portion of the strength of the party having been spent on the minor triangulation along the courses of the rivers Ganges, Soane and Gogra, less progress was made in the principal series this season, but the weather was reported to be unusually bad for extended operations.

The party went into recess quarters at Dinapore on the 6th of June, and proceeded with the computations of the season's work as usual completing them by the end of September.

The party took the field again on the 1st of October but was delayed for a whole month by the flooded state of the country, and only reached the scene of the work on the 13th of November. The three

Season 1851-52.
PERSONNEL.
Mr. J. W. Armstrong, 2nd Principal Sub-Assist.
" N. A. Belletty, 2nd Class Sub-Assistant.
" F. S. Paschaud, 3rd " "

ensuing months were spent in laying out and preparing the remainder of the Series to its junction with the North-East Longitudinal Series. On the completion of this Mr.

Armstrong returned southwards, leaving Mr. Belletty to complete the tower-building and ray-clearing, and resumed the final observing and brought it to a conclusion as follows:—

at	Jalálpur	T.S. xx	between February 12th	and February 21st,	1852
,,	Katwárpur	,, XXI	,, " 24th	,, " 29th	,,
,,	Jhúnápur	,, XXII	,, March 3rd	,, March 13th	,,
,,	Nautan	,, XXIII	,, " 14th	,, April 5th	,,
,,	Tháwa	,, XXIV	,, April 5th	,, " 22nd	,,
,,	Gidaha	,, XXV	,, " 24th	,, May 8th	,,
,,	Mathenia	,, XXVI	,, May 12th	,, " 23rd	,,
,,	Daunáha	,, XXVII	,, " 24th	,, " 28th	,,
,,	Binharwa	,, XXIX	,, " 30th	,, June 6th	,,
,,	Patjirwa	,, XXVIII	,, June 8th	,, " 10th	,,
,,	Bakwa	,, LXIX*	,, " 11th	,, " 12th	,,
,,	Naunangarhi	,, LXXI*	,, " 13th	,, " 26th	,,

Two sets of star observations for azimuth were taken, at Jalálpur and at Naunangarhi. This completed the Series, and the party marched into recess quarters at Ghazipur which place was reached by the middle of July.

On the completion of the Simultaneous Reduction of the North-East Quadrilateral, it was found that the undermentioned errors had been actually dispersed over the Huriláong Series, between its origin, Sewádhi-Khaira Pándu-Huriláong, of the Calcutta Longitudinal Series, and its terminus, Bakwa-Naunangarhi, of the North-East Longitudinal Series:—

In Logarithm of the latter side $+0.000,0048,1 = 0.7$ inches per mile.

,, Azimuth	,,	$+4''.997$
,, Latitude of Naunangarhi	,,	$+0.129$
,, Longitude	,,	$+0.151$

The trigonometrical determinations of the height of the stations of this Series above mean sea level, were derived in the first place from those of Sewádhi, Khaira Pándu, and Huriláong, as trigonometrically determined between Sironj and Calcutta by the Calcutta Longitudinal Series adjusted to the spirit-leveled values of its origin and terminus. The height of three of the stations, however, was subsequently determined by connection with the lines of spirit-levels executed of late years by the Survey Department, and corrections have been applied to the trigonometrical values to make them correspond with the former.

The actual corrections applied to the trigonometrical heights of the twenty-nine stations of this Series, as brought up from origin to terminus, a distance of 208 miles, average 0.3 of a foot per station; the largest cumulative error disclosed being at Patjirwa (xxviii), + 8.1 feet. For further information regarding the details of the dispersion of these errors, see page 40 of Part I of Vol. VII of the *Account of the Operations, &c.*

* Of the North-East Longitudinal Series.

Secondary Triangulation.

A very considerable amount of secondary triangulation was done by the Hurílaóng Series party, chiefly for the purpose of laying down the course of the three large rivers which intersect the Series, as well as in tracing the rays between contiguous principal stations in the plains. In addition, certain minor triangulation which was executed in the course of the old Calcutta Longitudinal Series between the years 1825 and 1830, as well as the triangulation along the Gunduk river done by a party of the Chendwár Series in 1847, has been exhibited for convenience in the Synoptical Volume of this Series. Of the river surveys as well as of the 'ray-traces', it may be said that the primary objects in view being respectively the determination of the course of the rivers and of the direction of the lines between two contiguous stations, the stations were not permanently marked and are therefore not now forthcoming: consequently the usual data of the triangles are not given in the Synoptical Volume, but merely the latitudes and longitudes of the stations and of such buildings and other permanent marks in their immediate neighbourhood as appeared desirable to fix for topographical purposes. The particulars of these minor triangulations are as follows:—

Firstly.—In the extreme southern portion of the Series, there is a fair amount of triangulation, executed by a party of the old Calcutta Longitudinal Series, with an 18-inch theodolite by Cary. This fixed amongst others the position of the important town of Gya and of several semaphores and forts, including Sherghotty and Rohtagarh.

Secondly.—There is a considerable amount of secondary triangulation in the hills, which was mainly executed by Mr. Armstrong, *pari passú* with the principal series, by the measurement—with the 18-inch theodolite—of the angles at the principal stations to the surrounding secondary stations and other prominent objects (with which the country abounded), the angles at the secondary stations being measured with smaller theodolites.

Thirdly.—The Soane River Survey. This triangulation was executed chiefly with a 12-inch theodolite, by Mr. Armstrong during the season 1850-51 while the principal stations in advance were being selected and built; and when that officer resumed the principal observations in the end of January, the work was continued by Mr. Belletty. It determined the course of the river for a distance of about 120 miles to its junction with the Ganges near Dinapore. The triangulation was checked by connection *en route* with the principal stations of Khaira Pándu, Phulwaria, Mednipur, Bisunpur, and Baráon, between the position-values of which the southern portion of this triangulation has been adjusted. The adjustment of the portion of the triangulation between the principal series and Dinapore rests on the position-values of Baráon and Phulwaria (xiv of the Chendwár Meridional Series) by comparison at Dinapore Flagstaff to which a series had been carried from the latter station by a party of the Chendwár Series in 1845. In the course of this work the positions of several permanent buildings were fixed in Rohtas, Dehree, Arrah, and Dinapore.

Fourthly.—The Ganges River Survey. Of this operation the section Bindháchal to Chunar was executed in October 1848 by Messrs. J. W. Armstrong and G. Terry. The for-

mer observer used a 12-inch theodolite working along one flank of the river, and the latter a 7-inch along the other bank. The Series emanated at Bindháchal h.s. (or Ganges River No. 47 s. of the Gurwáni Meridional Series) and closed on the side Murli h.s. to Chunar Fort Flagstaff—thus determining the course of the river for a distance of 31 miles; and the triangulation has been adjusted between the finally determined position-values of its origin and terminus. The position of some permanent buildings, temples, &c., visible on both banks of the river, as well as of several important points in Mirzapur have been fixed by this operation; and the results will be found exhibited in the Synoptical Volume of the Gurwáni Series. The next section was executed during the season of 1850-51: it was begun at Ghazipur and continued eastwards by Mr. Armstrong who carried it down to the junction of the Gogra with the Ganges, thus determining the course of the latter river for a distance of about 90 miles. The observations on this section were made partly with a 12-inch and partly with a 7-inch theodolite, and were connected *en route* with the principal stations of Nuáon and Nauranga; upon the position-values of these, as well as of Ghazipur Church—determined by the operations of the Gora Series—this portion of the triangulation rests. The easternmost section of the Ganges River Survey was executed—chiefly with a 12-inch theodolite—by Mr. Belletty in continuation of the Soane river triangulation, with the northern portion of which it forms a circuit resting on the principal stations of Baráon and Nauranga. This section has been adjusted between the position-values of its origin—as determined by the adjustment of the portion of the Soane river triangulation between Baráon and Dinapore—and of Nauranga. It determines the course of the river for a distance of 20 miles, thereby completing the entire distance between Ghazipur and Dinapore. The positions of Dumraon, Chupra, and several permanent points in Buxar have been fixed by this triangulation. A small portion of the work—for about 15 miles to the east of Ghazipur—has been published for convenience in the Synoptical Volume of the Gora Series.

Fifthly.—The Gogra River Survey. It was originally intended that this triangulation should be executed in the season 1851-52, so that it might be concluded contemporaneously with the principal work; but, owing to the transfer of his Senior Sub-Assistant, Mr. Armstrong found enough on the principal series to keep himself and his two assistants well employed. This river triangulation was therefore not taken in hand till 1852-53 when Mr. Belletty, working with a 12-inch theodolite, determined the course of the Gogra for a distance of about 350 miles above its junction with the Ganges. This Series emanated from stations 172 and 173 of the Ganges River Survey and crossed successively the Hurílaong, Gora, Gurwáni, Karára, and North-East Longitudinal Series, with stations of each of which the triangulation was connected: the portions which lie within reach of the four last-named principal series have for convenience been published with their results, so that the only portion exhibited in the Hurílaong Series is that up to stations 59 and 60. This latter part of the triangulation has been adjusted in sections as follows:—Between stations 1 and 21, on the position-values of its origin (172-173 of the Ganges River Survey) and Núrpur (xvii); between stations 21 and 28, on those of Núrpur (xvii) and Khádípur (xix); and the portion westwards of station 28, on those of Khádípur (xix) and Baniápár (xviii of the Gora Series).

Sixthly.—A minor series to Bettiah, executed by Mr. Belletty in 1851-52 with a 12-inch theodolite. This was carried from the station of Patjirwa (xxviii), and after fixing several temples and buildings in Bettiah was continued north-westwards so as to close on Naunangarhi (Lxxi of the North-East Longitudinal Series). The stations of this triangulation were not permanently marked, hence no details of the triangles have been given.

Seventhly.—Ray-Traces. These consist of chains of triangles which were carried between contiguous principal stations in the plains. The stations were only about a mile or two apart, and were marked by a stout wooden pin, driven firmly into the ground, over which a flagstaff was set up for observation. The three angles of each of these small triangles were observed with either a 12- or a 7-inch theodolite which admitted of the requisite direction between the principal stations being determined without any *a priori* knowledge of their side-lengths which could only be obtained with accuracy after the sides of the principal triangles had been determined; see Chapter II, Part IV, of the Manual of Survey for India by Colonels Thuillier and Smyth. In the course of the execution of these ray-traces, observations were taken to all such visible points in the vicinity as it was hoped might be useful to fix for topographical purposes: thus, some of the ray-traces became of additional importance, and the details of thirty-three of them are given in manuscript Vol. XI, Part 3 of "The Trigonometrical Survey of the Peninsula of India." In this volume also will be found the position-values of several hundred villages which were fixed by an azimuth and perambulator distance from a principal or secondary station, and which thus furnished a considerable amount of additional data for topographical purposes.

Lastly.—The Gunduk River Survey. Though not executed as a part of the operations under notice, a portion of this work—which was done by Mr. H. Keelan in 1847 with a 12-inch theodolite, in connection with the operations of the Chendwár Series—has been published in the Synoptical Volume of the Huriláong Series. The triangulation emanated from a side of the ray-trace from Bájra to Bakwa (Lxviii to Lxix) of the North-East Longitudinal Series and closed on the side Patna Gola s. to Dígha s. of the work from Phulwaria (xiv of the Chendwár Series) to Dinapore, and has been adjusted between the final position-values of its origin and terminus. This operation determines the course of the river for about 120 miles above its junction with the Ganges; but the portion of it that lies to the west of the 85° meridian is all that is published in the Synoptical Volume of the series under notice, the remainder being given in that of the Chendwár Series. A few permanent points were fixed by this minor series, amongst others some additional points in Bettiah.

The account of the Principal Triangulation was chiefly compiled by Colonel B. R. Branfill. It was completed, and the account of the Secondary Triangulation added by

DEHRA DÚN: }
 May 1882. }

C. WOOD,
 Surveyor 2nd Grade.

HURILAONG MERIDIONAL SERIES.

1—P.

ALPHABETICAL LIST OF STATIONS.

Bákan	VI.	Kesath	XIII.
Bakwa (of North-East Longitudinal Series).	LXIX.	Khádípúr	XIX.
Bánka	II.	Khaira Pándu (of Calcutta Longitudinal Series).	XL.
Baráon	XII.	Majholi	I.
Bin Chapra	XVII.	Mathenia	XXVI.
Binharwa	XXIX.	Mednípúr	VII.
Bisunpúr	XI.	Naonangarhi (of North-East Longitudinal Series).	LXXI.
Daonáha	XXVII.	Naoranga	XVI.
Dháúras	IV.	Naotan	XXIII.
Durgádi	X.	Nuáoñ	XV.
Fulwária	V.	Núrpúr	XVIII.
Gidáha	XXV.	Pahára	VIII.
Hetampúr	XIV.	Patjirwa	XXVIII.
Hurílaong (of Calcutta Longitudinal Series).	XLII.	Sewádhi (of Calcutta Longitudinal Series).	XXXVIII.
Jalálpúr	XX.	Teona	III.
Jhúnápúr	XXII.	Tháwa	XXIV.
Kanap	IX.		
Katwárpúr	XXI.		

NUMERICAL LIST OF STATIONS.

XXXVIII	.	.	.	.	Sewádhi. (of Calcutta Longitudinal Series).	XV	.	.	.	.	Nuáoñ.
XL	.	.	.	.	Khaira Pándu. (of Calcutta Longitudinal Series).	XVI	.	.	.	.	Naoranga.
XLII	.	.	.	.	Huríláong. (of Calcutta Longitudinal Series).	XVII	.	.	.	.	Bin Chapra.
I	.	.	.	.	Majholi.	XVIII	.	.	.	.	Núrpúr.
II	.	.	.	.	Bánka.	XIX	.	.	.	.	Khádípúr.
III	.	.	.	.	Teona.	XX	.	.	.	.	Jalálpúr.
IV	.	.	.	.	Dháñras.	XXI	.	.	.	.	Katwárpúr.
V	.	.	.	.	Fulwária.	XXII	.	.	.	.	Jhúnápúr.
VI	.	.	.	.	Bákan.	XXIII	.	.	.	.	Naotan.
VII	.	.	.	.	Mednípúr.	XXIV	.	.	.	.	Tháwa.
VIII	.	.	.	.	Pahára.	XXV	.	.	.	.	Gidáha.
IX	.	.	.	.	Kanap.	XXVI	.	.	.	.	Mathenia.
X	.	.	.	.	Durgádi.	XXVII	.	.	.	.	Daonáha.
XI	.	.	.	.	Bisunpúr.	XXVIII	.	.	.	.	Patjirwa.
XII	.	.	.	.	Baráon.	XXIX	.	.	.	.	Binharwa.
XIII	.	.	.	.	Kesath.	LXIX	.	.	.	.	Bakwa. (of North-East Longitudinal Series).
XIV	.	.	.	.	Hetampúr.	LXXI	.	.	.	.	Naonangarhi. (of North-East Longitudinal Series).

HURILAONG MERIDIONAL SERIES.

DESCRIPTION OF PRINCIPAL STATIONS.



Of the 29 Principal Stations composing this Series, the 8 southernmost, as also the 3 initial stations, are on hills: each consists of a square platform which either encloses a central solid pillar of masonry or is built around a mark (circle and centre) engraved on the rock *in situ*: the central pillar has at its summit a mark-stone which is adjusted in the normal of a mark at the base. Station III is alone excepted, for here no platform was considered necessary. When the Series entered on the plains, suitable artificial elevations had to be constructed, as usual, to admit of overlooking the curvature of the earth. Of these structures, each of those built at stations X to XXIV inclusive consisted of a tower, sometimes circular and sometimes square, generally from 25 to 35 feet in height and having mark-stones, imbedded in it at vertical intervals of 5 or 6 feet, the highest being at the summit of the tower: at station XXII, an additional pillar 15 feet high was subsequently erected over the tower, and a bamboo scaffolding was run up around it for the accommodation of the observatory tent. Further northwards, at stations XXV to XXIX, and at LXIX (of the North-East Longitudinal Series) which is one of the terminal stations of the Series, each of the artificial structures consisted of a perforated pillar of masonry 20 or 30 feet in height, having two or more mark-stones at the basement and a mark transferred to the top of the pillar by the plumb-line,—access being had to the mark at about ground level through an arched passage which was left expressly for the purpose. Around the pillars built at stations XXV to XXIX, a bamboo scaffolding was erected for the support of the observatory tent; while at station LXIX, a platform of sun-dried bricks and mud cement, 20 feet square at base and 14 feet square at top was erected for the same purpose. The other terminal station, *viz*: LXXI (of the North-East Longitudinal Series) having been fixed on a sufficiently elevated site, all that was considered necessary to be built here was a low platform enclosing a central solid pillar of masonry 2 feet in height.

The following descriptions have been compiled from those given in the MS. General Report and the original records of this Series, supplemented in respect to the neighbouring villages by information obtained from the Revenue Survey Maps of the country traversed. The information as to the local sub-divisions in which the several stations occur has been derived from the latest Annual Reports received from the District Officers to whose charge the stations have been committed.

XXXVIII.—(*Of the Calcutta Longitudinal Series*). Sewádhi Hill Station, lat. $23^{\circ} 58'$, long. $83^{\circ} 48'$ —observed at in 1828, 1844, 1849 and 1864—is situated on an isolated hill densely covered with bamboo jungle: thána Rámkunda, pargana Palamow, district Lohardugga.

The pillar is solid and contains two marks, the upper one being 2 feet above the lower which is engraved on the rock *in situ*, having been placed there in 1828. The station was revisited in 1844 for the purpose of originating the Gora Meridional Series, and again in 1849 to commence the Hurílaong Meridional Series when no alteration in its construction seems to have been made. On again visiting it in 1864, the upper mark-stone had disappeared, but the platform remained and its height was adopted for the pillar then built. The distances and bearings of surrounding villages are:—Sewádhi, about 1 mile N.N.W.; Ranka, about $2\frac{1}{4}$ miles N.E.; and Hurdag, nearly 1 mile S.E.

XL.—(Of the Calcutta Longitudinal Series). Khaira Pándu Hill Station, lat. $24^{\circ} 21'$, long. $83^{\circ} 59'$ —observed at in 1849 and 1864—is situated on the highest point of a remarkably high peak cropping out of a range of low hills: thána Husainabad, pargana Belanju, district Lohardugga.

The pillar is solid and contains two marks, the upper one being 3·17 feet above the lower which is engraved on the rock *in situ*. This station was first established as a secondary point in 1829 and a mark placed on the rock *in situ*. When the Huriláong Meridional Series was commenced the station was incorporated as a Principal Station of this series, the mark of 1829 having been found and adopted. On visiting it again in 1864, the mark was still in existence, and a pillar with another mark was then placed over it. The distances and bearings of surrounding villages are:—Kajaru, about $3\frac{1}{2}$ miles E.; Mahúr Khás, about $2\frac{3}{4}$ miles N.N.W.; Murma Khurd, about $2\frac{3}{4}$ miles W. by S.; and Tísíbar, $1\frac{3}{4}$ miles S.S.W.

XLII.—(Of the Calcutta Longitudinal Series). Huriláong Hill Station, lat. $24^{\circ} 2'$, long. $84^{\circ} 24'$ —observed at in 1828, 1848-49, 1864 and 1866—is on the highest point of a small, detached, flat-topped hill: thána Daltonganj, pargana Palamow, district Lohardugga.

The pillar is solid and contains two marks, the upper one being 3 feet above the lower which is engraved on the rock *in situ*, having been placed there in 1828. The station was revisited in 1848 for the purpose of originating the Huriláong Meridional Series, but no alteration in its construction appears to have been then made. In 1864 the upper mark-stone of the old station had not been disturbed, but a new pillar was then built to the same height as before. The distances and bearings of surrounding villages are:—Huriláong, about 1 mile W.N.W.; Turási, about 5 miles N.W.; Dema, $2\frac{1}{2}$ miles S.S.E.; and Bannái, $2\frac{1}{2}$ miles W.S.W.

I. Majholi Hill Station, lat. $24^{\circ} 17'$, long. $84^{\circ} 16'$ —observed at in 1848—stands on the northern face of the western extremity of a high range of hills which intersect the northern portion of the Palamow pargana, and is named after the village of Majholi which lies at about 2 miles W: thána Chhatarpur, pargana Palamow, district Lohardugga.

The station is marked on a high projecting part of a solid, out cropping block of rock around which a square platform has been built. A secondary station (fixed on the same hill by the operations of the Calcutta Longitudinal Series) occupies a position nearly 30 feet W.S.W. of the Principal Station here described. The distances and bearings of surrounding villages are:—Moramdag, $3\frac{3}{4}$ miles W.; Jowadh, $2\frac{3}{4}$ miles N.E. by E.; Rajgarwa, about $1\frac{1}{2}$ miles S.E.; and the town of Chhatarpur, $6\frac{1}{2}$ miles N.N.W.

II. Banka (Bánka) Hill Station, lat. $24^{\circ} 20'$, long. $84^{\circ} 30'$ —observed at in 1848—stands at the eastern extremity (locally called Banka) of the same range of hills on which the station of Majholi is located, and is situated in the lands of the village of Bhahora: tahsíl Gya, thána and pargana Sherghotty, district Gya.

The station is marked on the rock *in situ*, around which a platform flanked by two large boulders has been built. The distances and bearings of surrounding villages are:—Bhiraj, about 2 miles N.E.; Ekghara, $2\frac{1}{2}$ miles S.S.E.; and Ráipur, $2\frac{3}{4}$ miles W.

III. Teona Hill Station, lat. $24^{\circ} 35'$, long. $84^{\circ} 13'$ —observed at in 1849—is situated on the summit of a hill which rises immediately above the village of Teona, and which is resorted to both by Hindus and Mahomedans as a place of worship: thána Nabínagar, tahsíl Gya, pargana Kutumba, district Gya.

The station is marked on the rock *in situ*, around which it was not considered necessary to build a platform (the surface of the hill top being of itself sufficiently level). The villages of Swan and Nawabar are in the immediate vicinity of the station, and the distances and bearings of other circumjacent places are:—the town of Nabínagar, $3\frac{1}{2}$ miles N.W. by W.; Kutumba fort, $3\frac{1}{2}$ miles N.E.; and Jhari village, about $1\frac{1}{2}$ miles E.S.E.

IV. Dhánras (Dhánras) Hill Station, lat. $24^{\circ} 34'$, long. $84^{\circ} 29'$ —observed at in 1849—stands on the highest point of the range, locally called Dhánras, that divides the plains of Behar from the southern hilly tract. The only practicable ascent up the hill is from the north: thána and pargana Sherghotty, tahsíl and district Gya.

The station consists of a square platform 3 feet high, enclosing a central isolated pillar which, it is assumed, carries the usual mark-stone. The distances and bearings of surrounding villages are:—Birna, about $5\frac{1}{2}$ miles N.W. by W.; Súraj Kund, about $7\frac{1}{2}$ miles N.; and Sagarpur, $3\frac{1}{2}$ miles E.S.E.

V. Phulwaria (*Fulwária*) Hill Station, lat. $24^{\circ} 47'$, long. $84^{\circ} 3'$ —observed at in 1849 and 1850—stands close to the eastern bold precipitous face of the Rohtas range of hills which line the western bank of the Soane river, and is situated about 2 miles N.E. of the village of Phulwaria which lies in a gorge. The ascent up the range is difficult in several places, and is made by the Chaurághát: thána Sasseram, pargana Rohtas, district Shahabad.

The station consists of a platform 2 feet high which, it is assumed, is marked in the usual manner. The distances and bearings of surrounding villages are:—Aurungabad, about $4\frac{1}{2}$ miles E.N.E.; Rámðhera, 3 miles E.; Ranjítganj, about $3\frac{1}{2}$ miles S.E. by E.; and Churesur, $1\frac{1}{2}$ miles S.W.

VI. Bakan (*Bákan*) Hill Station, lat. $24^{\circ} 49'$, long. $84^{\circ} 29'$ —observed at in 1849 and 1850—stands on the central and lowest one of three rocky eminences which conjointly form the farthest outlying hills in this portion of the district: thána Aurungabad, pargana Siris, tahsíl and district Gya.

No description of the construction of the station is forthcoming, but it may be assumed with certainty that the mark was left either on the rock *in situ* or on a pillar or platform as at the neighbouring stations. The distances and bearings of surrounding villages are:—Chota Basdia, about $1\frac{1}{2}$ miles W. by S.; Bakhari, about $1\frac{1}{2}$ miles N.E. by N.; Madárpura, about $1\frac{1}{2}$ miles E.; and the town of Aurungabad, 6 miles S. W. by S.

VII. Mednipur (*Mednípúr*) Tower Station, lat. $25^{\circ} 5'$, long. $84^{\circ} 25'$ —observed at in 1850—is situated in the village of Mednipur or Agni, and stands on a mound distant about 2 miles from the west bank of the Soane river and about half-a-mile E. of the road from Hariharganj to Arrah Indigo Factory: thána Dehree, pargana Danwár, district Shahabad.

The station consists of a tower 25 feet high, but no details of its construction are forthcoming. The distances and bearings of surrounding places are:—Dáudnagar town, $3\frac{1}{2}$ miles S.S.E.; Hariharganj town, 3 miles S.S.W.; Dhiyári village, $1\frac{1}{2}$ miles W.; and Mungraun, $1\frac{1}{2}$ miles E.N.E.

VIII. Pahára Hill Station, lat. $25^{\circ} 4'$, long. $84^{\circ} 3'$ —observed at in 1850—stands adjoining the eastern side of a small temple on one of the outlying hills N. of the Kaimúr range, and having the village of Pahára lying at the northern base of the hill: thána Nokha, pargana Sasseram, district Shahabad.

The station consists of a platform about 3 feet high, and is marked in the usual manner. The distances and bearings of circunjacent places are:—the telegraph tower of Bamani, on a hill distant 1 mile to the S.S.W.; Baráou village, $2\frac{1}{2}$ miles E.S.E.; Sonadeh village, $1\frac{1}{2}$ miles W.N.W.; and Farídpur village, nearly 2 miles N.E. by N.

IX. Kanap Tower Station, lat. $25^{\circ} 4'$, long. $84^{\circ} 34'$ —observed at in 1850—stands on the S. W. bastion of a ruined fort situated within the village of Kanap: thána Dáudnagar, pargana Arwal, tahsíl and district Gya.

The station consists of a tower 15 feet high which contains the usual marks but no other details of its construction are forthcoming. The distances and bearings of surrounding villages are:—Mádhapur, 1 mile W.; Pahárpura, $1\frac{1}{2}$ miles N.E. by E.; and Titrahi, $1\frac{1}{2}$ miles S.

X. Durgádi Tower Station, lat. $25^{\circ} 15'$, long. $84^{\circ} 20'$ —observed at in 1850—stands on the site of the high paka reservoir belonging to the ruined indigo factory of Tenduni; and is situated about 1 mile E. of the village of Durgádi, and about 200 yards W. of the road from Sasseram to Arrah: thána Dhangáin, pargana Danwár, district Shahabad.

The station consists of a circular tower 25 feet high, but no details of its construction are forthcoming. The distances and bearings of surrounding villages are:—Turthi, $1\frac{1}{2}$ miles S.E.; Bharkuudia, $1\frac{1}{2}$ miles W.S.W.; Murauna, 1 mile N.W.; and Indrathu Khurd, 1 mile N.E.

XI. Bisunpur (*Bisunpúr*) Tower Station, lat. $25^{\circ} 13'$, long. $84^{\circ} 31'$ —observed at in 1850—stands on a slightly elevated mound adjoining the village of Bisunpur, and about 2 miles W. of the road from Arrah to Hariharganj: thána and pargana Piaro, district Shahabad.

The station consists of a tower 30 feet high, but no details of its construction are forthcoming. The distances and bearings of surrounding villages are:—Amadpur, $1\frac{1}{2}$ miles E. by N.; Wursi, $1\frac{1}{2}$ miles W.N.W.; Bihta, $1\frac{1}{2}$ miles S.W.; and Múap Khurd, $\frac{1}{2}$ mile N.

XII. Baráon Tower Station, lat. $25^{\circ} 22'$, long. $84^{\circ} 27'$ —observed at in 1850—stands on a high mound near the village of Baráon, and is situated on the eastern skirt of a belt of jungle that stretches from Jagdíspur to about 4 miles S.W. of the station: thána and pargana Piaro, district Shahabad.

The station consists of a tower 10 feet high, but no details of its construction are forthcoming. The distances and bearings of surrounding places are:—the town of Piaro, about $2\frac{1}{4}$ miles S.; Dhandpokar village, 1 mile E.S.E.; Rajya village, $1\frac{1}{4}$ miles W.S.W.; Hathpokar village, $1\frac{1}{4}$ miles N.W.; and Akrahi village, 500 yards N.

XIII. Kesath Tower Station, lat. $25^{\circ} 25'$, long. $84^{\circ} 17'$ —observed at in 1850—stands on an elevated mound in the village of Kesath: thána Dumraon, pargana Bhojpur, district Shahabad.

The station consists of a tower 6 feet high, but no details of its construction are forthcoming. The distances and bearings of surrounding villages are:—Dehra, $2\frac{1}{2}$ miles E.S.E.; Kharaunian, $1\frac{1}{4}$ miles S.S.W.; Go-bindapur, $1\frac{1}{4}$ miles W.; and Dasiaun, $\frac{3}{4}$ mile N. by E.

XIV. Hetampur (*Hetampúr*) Tower Station, lat. $25^{\circ} 30'$, long. $84^{\circ} 26'$ —observed at in 1850—stands on a knoll about 200 yards S. W. of the village of Hetampur: thána Belauti, pargana Belhea, district Shahabad.

The station consists of a tower 30 feet high, but no details of its construction are forthcoming. The distances and bearings of surrounding villages are:—Jagdísipur, nearly 3 miles S.S.E.; Araila, $1\frac{1}{4}$ miles W. by S.; Mahúlaun, $1\frac{1}{4}$ miles N.; and Chakwa, over $1\frac{1}{4}$ miles N.E.

XV. Nuáon (*Nuáon*) Tower Station, lat. $25^{\circ} 35'$, long. $84^{\circ} 17'$ —observed at in 1851—stands on an elevated mound in the village of Nuáon situated a few yards south of the high road from Buxar to Arrah: thána Buxar, pargana Bhojpur, district Shahabad.

The station consists of a tower 20 feet high, having mark-stones imbedded in it “at vertical intervals of 5 feet.” The distances and bearings of surrounding places are:—the towns of Dumraon and Bhojpur, at $5\frac{1}{2}$ and 7 miles respectively to the W.S.W. and W.; Bara Patra village, $1\frac{1}{4}$ miles N.N.W.; Ránipur, $1\frac{1}{4}$ miles N.E. by N.; and Babhni, $1\frac{1}{4}$ miles S.E.

XVI. Nauranga (*Naoranga*) Tower Station, lat. $25^{\circ} 43'$, long. $84^{\circ} 27'$ —observed at in 1851—is situated about $\frac{1}{4}$ mile S.W. of the village of Nauranga, and is distant about 2 miles from the left bank of the river Ganges: thána Bairia, tahsíl and pargana Ballia, district Ghazipur.

The station consists of a tower 28 feet high, having mark-stones imbedded in it “at vertical intervals of 6 feet.” The distances and bearings of surrounding villages are:—Pandepur, about $1\frac{1}{4}$ miles N.; Udhopur, 3 miles E.; and Baikunthpur, $2\frac{1}{4}$ miles W.

XVII. Bin Chapra Tower Station, lat. $25^{\circ} 47'$, long. $84^{\circ} 16'$ —observed at in 1851—stands on an elevated mound in the village of Bin Chapra situated about $2\frac{1}{4}$ miles S.E. of the Suraha Tál or lake: thána Haldi, tahsíl and pargana Ballia, district Ghazipur.

The station consists of a tower 31 feet high, having mark-stones imbedded in it “at vertical intervals of 6 feet.” The distances and bearings of surrounding places are:—the town of Ballia, about $5\frac{1}{4}$ miles S.W.; Raghunáthpur village, about 2 miles W.; Sair village, about $1\frac{1}{4}$ miles N.; Chanáwak, about 2 miles E.; and Dumri, about 1 mile S.

XVIII. Núrpur (*Núrpur*) Tower Station, lat. $25^{\circ} 53'$, long. $84^{\circ} 25'$ —observed at in 1851—stands at the northern border of the village of Núrpur situated about $3\frac{1}{2}$ miles south of the Gogra river: thána Reoti, tahsíl Ballia, pargana Kharid, district Ghazipur.

The station consists of a tower 31 feet high, having mark-stones imbedded in it “at vertical intervals of 5 feet.” The distances and bearings of surrounding villages are:—Handia, $\frac{3}{4}$ mile S. W. by W.; Handia Mathea, over $\frac{1}{4}$ mile N.W. by W.; Bhatauli, $\frac{1}{4}$ mile N. by W.; and Chaprasaráin, $\frac{3}{4}$ mile E.S.E.

XIX. Khádípur (*Khádípur*) Tower Station, lat. $25^{\circ} 57'$, long. $84^{\circ} 15'$ —observed at in 1851—stands on the eastern border of the village of Khádípur distant about 1 mile from the

right bank of the Gogra river: thána Bânsdih, tahsíl and pargana Ballia, district Ghazipur.

The station consists of a tower 28 feet high, having mark-stones imbedded in it "at vertical intervals of 6 feet." The distances and bearings of surrounding villages are:—Sultánpur, 1 mile S.; Durgípur, 2¼ miles W.; Bijlípur, 1¼ miles N.W.; and Khirúchapra, 2½ miles E. by S.

XX. Jalálpur (*Jalálpúr*) Tower Station, lat. 26° 4', long. 84° 26'—observed at in 1851 and 1852—stands in an open plain at a distance of about 500 yards W. of the village of Jalálpur, and 2 miles S.E. of the bazar of Hasanpura or Rojanpura: thána Maharájganj, pargana Bál, district Sarun.

The station consists of a tower 40 feet high, having mark-stones imbedded in it "at vertical intervals of 5 feet." The distances and bearings of surrounding villages are:—Khwájepur, about 1 mile W.S.W.; Firozpur, 1½ miles N. by E.; Dibi, 1½ miles E.; Kotawa, 1½ miles S.E. by E.; and Madhuapur, 2 miles S.

XXI. Katwárpur (*Katwárpúr*) Tower Station, lat. 26° 7', long. 84° 16'—observed at in 1851 and 1852—stands on a mound adjoining the village of Katwárpur: thána Darauli, pargana Andar, district Sarun.

The station consists of a tower 31 feet high, having mark-stones imbedded in it "at vertical intervals of 6 feet." The distances and bearings of surrounding villages are:—Bardaha, nearly 1¼ miles N.N.W.; Biswania, 1¼ miles W. by S.; Hododipur, nearly 1¼ miles S.E. by S.; and Pachokhar, 1¼ miles E.N.E.

XXII. Jhúnápur (*Jhúnápur*) Tower Station, lat. 26° 14', long. 84° 26'—observed at in 1852—is situated about half-a-mile S. E. of the village of Jhúnápur: thána Sewan or Aliganj, pargana Bára, district Sarun.

The station as originally built consisted of a square tower 32 feet high; over this a pillar 15 feet high was subsequently added, having around it a bamboo scaffolding for the accommodation of the observatory tent. The distances and bearings of surrounding villages are:—Akhopur, 1 mile N. by W.; Ukhai, ¼ mile N.N.E.; Bari Muwári, nearly ¼ mile E.S.E.; and the town of Sewan or Aliganj, about 2½ miles to the S.W.

XXIII. Nautan (*Naotan*) Tower Station, lat. 26° 19', long. 84° 15'—observed at in 1852—stands on the east bank of a watercourse, and is distant about ¼ mile S. of the village of Nautan: thána Sewan, pargana Chaubár, district Sarun.

The station consists of a tower 32 feet high, having mark-stones imbedded in it "at vertical intervals of 6 feet." The distances and bearings of surrounding villages are:—Chapáwa, about 1¼ miles W.; Sagraha, 1 mile S.E. by E.; Nautan tola, nearly ¾ mile E.; and Hathuwa 6 miles N.E. by E.

XXIV. Tháwa Tower Station, lat. 26° 26', long. 84° 26'—observed at in 1852—stands on rising ground about 500 yards W. of the village of Tháwa which is pretty well known in this part of the district from the circumstance of an annual fair being held here in honor of a *devi* (Hindu deity) whose temple is situated at the distance of half-a-mile S.E. by S. from the station: thána Gopálganj, pargana Sipah, district Sarun.

The station consists of a tower 32 feet high, having mark-stones imbedded in it "at vertical intervals of 6 feet." The distances and bearings of surrounding places are:—Pipra masjid (temple), 1 mile W. N. W.; Jangmalua village, 2¼ miles E. S. E.; and the town of Báraogaon, about 7 miles W. S. W.

XXV. Gidaha (*Gidáha*) Tower Station, lat. 26° 30', long. 84° 15'—observed at in 1852—stands in an open field at a distance of about 400 yards N.N.W. of the village of Gidaha, a hamlet of which lies about 100 yards S. of the station: thána Báraogaon, pargana Kuari, district Sarun.

The station is marked by a perforated pillar 30 feet high, "having mark-stones at the basement, one below and the other above." The distances and bearings of surrounding villages are:—Gopálpur, 2 miles E. S. E.; Bangai, nearly 1¼ miles W. N. W.; Kaliánpur, 3 miles S. W.; and Lachmipur, 2¼ miles E. N. E.

XXVI. Mathenia Tower Station, lat. 26° 37', long. 84° 24'—observed at in 1852—stands on the bund constructed along the right bank of the Gandak river, and is situated on the east side of the village of Mathenia: thána Báraogaon, pargana Kuari, district Sarun.

The station is marked by a perforated pillar 30 feet high, having two mark-stones at the basement, and

another at the summit. The distances and bearings of surrounding villages are:—Sipahi, about $2\frac{1}{2}$ miles S.S.E.; Rámpur Mokund, about $1\frac{1}{2}$ miles W.; and Dauchak, nearly $\frac{3}{4}$ mile N. by W.

XXVII. Daunáha (*Daondha*) Tower Station, lat. $26^{\circ} 42'$, long. $84^{\circ} 16'$ —observed at in 1852—stands on an elevated mound about half-a-mile N. E. of the village of Daunáha: thána Turya Suján, tahsil Parauna, pargana Sidhua Jobna, district Gorakhpur.

The station is marked by a perforated pillar 20 feet high, having the usual mark-stones at the basement, and another at the summit. The distances and bearings of surrounding villages are:—Tumkahi, 3 miles W.S.W.; Sahibganj, about $1\frac{1}{2}$ miles N.E.; Ahrauli, $1\frac{1}{2}$ miles N.W.; and Sumahi, $1\frac{1}{2}$ miles S.E.

XXVIII. Patjirwa Tower Station, lat. $26^{\circ} 49'$, long. $84^{\circ} 26'$ —observed at in 1852—stands on a small mound (formed by the ruins of an old fort) about $\frac{1}{2}$ mile S.S.W. of the village of Patjirwa: thána Bettiah, pargana Majhauwa, district Chumparun.

The station is marked by a perforated pillar 20 feet high, having the usual mark-stones in the basement, and another at the summit. The distances and bearings of surrounding villages are:—Paighambarpur tola, $1\frac{1}{2}$ miles S.E.; Bandrahi, $\frac{3}{4}$ mile N.N.E.; Rámkot, $\frac{1}{2}$ mile N.N.W.; and the town of Bettiah, about 8 miles E.

XXIX. Binharwa Tower Station, lat. $26^{\circ} 53'$, long. $84^{\circ} 14'$ —observed at in 1852—stands in an extensive sandy plain; it is situated on the right bank of the Gandak, and is distant $1\frac{1}{2}$ miles N. by E. of the village of Binharwa: thána Bagaha, pargana Majhauwa, district Chumparun.

The station is marked by a perforated pillar 30 feet high, having the usual mark-stones at the basement, and another at the summit. The distances and bearings of surrounding places are:—Naugawa Factory Bungalow, 4 miles W.; Raghunáthpur village, $1\frac{1}{2}$ miles N.N.W.; and Kharáta Chotatola, $6\frac{1}{2}$ miles E.S.E.

LXIX.—(*Of the North-East Longitudinal Series*). Bakwa Tower Station, lat. $27^{\circ} 3'$, long. $84^{\circ} 14'$ —observed at in 1847 and 1852—is situated at $0\cdot4$ of a mile to the E.N.E. of the village of Bakwa: thána Bagaha, pargana Majhauwa, district Chumparun.

The station consists of a square earthen tower with sides at top and bottom, respectively, of 14 feet and 20 feet, enclosing a central perforated pillar of masonry, $6\frac{1}{2}$ feet square at base, 4 feet in diameter at top and 20 feet high, having a mark-stone at summit and another in the ground floor. The station was built in 1847 in the course of the operations of the North-East Longitudinal Series: and no change in its construction appears to have been made in 1852 when the station was revisited at the conclusion of the Huriláong Meridional Series. The distances and bearings of surrounding villages are:—Mathia, rather more than $\frac{1}{2}$ of a mile E. N. E.; Bisambharpur, $2\frac{1}{2}$ miles N. N. E.; Rajwatia, $3\frac{1}{2}$ miles N. W.; Chaudarpur, nearly $\frac{3}{4}$ mile W.; and Ratwal, nearly 2 miles S.

LXXI.—(*Of the North-East Longitudinal Series*). Naunangarhi (*Naonangarhi*) Tower Station, lat. $26^{\circ} 59'$, long. $84^{\circ} 26'$ —observed at in 1847 and 1852—stands on the highest part of the ruins of an ancient fortress elevated about 82 feet above the level of the surrounding country and distant $0\cdot6$ mile S. W. by W. of the village of Lauria: thána Bagaha, pargana Majhauwa, district Chumparun.

The station consists of a platform of burnt bricks and mud cement—14 feet square—enclosing a central pillar of masonry 2 feet high and 4 feet in diameter, having a mark-stone at its summit and another below. The station was built in 1847 in the course of the operations of the North-East Longitudinal Series: and no change in its construction appears to have been made in 1852 when the station was revisited at the conclusion of the Huriláong Meridional Series. The distances and bearings of surrounding villages are:—Phulwaria, $1\frac{1}{2}$ miles W.; Gundauli, $2\frac{1}{2}$ miles N.W.; Lakhampur, $2\frac{1}{2}$ miles E.; Marahia, about 400 yards S.; and a remarkable stone pillar is distant $1\frac{1}{2}$ miles N.E.

NOTE.—In a few instances, the names of principal stations, occurring in the foregoing descriptions, are given by two methods of spelling distinguished from one another by the use of Roman and Italic type; as in XVI. Nauranga (*Naoranga*); the latter spelling is taken from the Alphabetical and Numerical lists which precede the descriptions, and which were printed in 1869: the spelling in Roman type is in accordance with the method authorized by the Government and illustrated in lists of Indian proper names published in 1874 and subsequently. It will be seen that the two methods differ but slightly; notwithstanding where differences exist, both renderings are given, so as to remove all possible doubt as to the identity of a station. The method of spelling authorized by the Government, is hereafter exclusively adopted in the publication of this Series.

May 1879.

J. B. N. HENNESSEY,

In charge of Computing Office.

HURILAONG MERIDIONAL SERIES.

PRINCIPAL TRIANGULATION. ADDENDUM TO DESCRIPTION OF STATIONS.

NOTE.—Consequent on modern alterations of district and other boundaries, the sites occupied by the stations are in some instances now included in civil divisions of territory which differ from the district, pargana, or village, recorded in the preceding descriptions of stations: a complete list of all the stations of the Series including a suitably modified statement of the altered subdivisions in question is accordingly given in the following table, and is derived chiefly from the annual reports, up to 1881, made by the Civil Officials to whose care the stations have been committed. The statement also gives present condition of certain of the stations; where no entry regarding present condition is made against a station it is to be assumed that the station when last reported on by the district Official was in good order.

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. of Station	Local name	District	Pargana, &c.	Village in which the Station lies	Remarks on the Construction and Condition of the Station
XXXVIII	...	Lohardugga	P. Palamow, Thá. Rám-kunda	Sewádhi	... ..
XL	...	„	P. Belanju, Thá. Husainabad	Khaira Pándu	... ..
XLII	Hurílaong	„	P. Palamow, Thá. Daltonganj	Hurílaong	In 1866 a square protecting pillar of masonry was built over the circular pillar on which the large theodolite stood and which carries the true mark-stone. The square pillar is 3½ feet high, 28 inches square at base and 20 inches at top, and bears a sufficiently accurate mark for Topographical and Revenue Survey purposes, so that it is unnecessary to refer to the mark-stone which thus remains concealed and protected. A pyramidal pile of earth and stones, 7 feet square at base and 6 feet high, covers the protecting pillar.
I	...	Lohardugga	P. Palamow, Thá. Chhartarpur	Majholi	... ..
II	Banka	Gya	P. and Thá. Sherghotty, Tah. Gya	Bhahora	... ..
III	Teona	„	P. Kutumba, Tah. Gya, Thá. Nabinagar	Teona	... ..
IV	Badam	„	P. and Thá. Sherghotty, Tah. Gya, Táluka Pokardi	Balhári	... ..
V	Phulwaria	Shahabad	P. Rohtas, Thá. Sasseram	Phulwaria	Much dilapidated as reported in 1873.

NOTE.—Stations XXXVIII, XL and XLII appertain to the Calcutta Longitudinal Series of the South-East Quadrilateral. P. stands for pargana, Tah. for tahsil, and Thá. for thána.

No. of Station	Local name	District	Pargana, &c.	Village in which the Station lies	Remarks on the Construction and Condition of the Station
VI	Bájidpur	Gya	P. Siris, Tah. Gya, Thá. Aurangabad, Táluka Dadhar	Bájidpur	... ..
VII	Mednipur	Shahabad	P. Danwár, Thá. Debree	Mednipur	... ..
VIII	Bamania	"	P. Sasseram, Thá. Kargarh	Bamania	... ..
IX	Kanap	Gya	P. Arwal, Thá. Dáudnagar	Kanap	... ..
X	Durgádi	Shahabad	P. Danwár, Thá. Dhangáin	Durgádi	... ..
XI	Bisunpur	"	P. and Thá. Piaro	Bisunpur	... ..
XII	Baráon	"	Ditto.	Baráon	... ..
XIII	Kesath	"	P. Bhojpur, Thá. Dumráon	Kesath	... ..
XIV	Hetampur	"	P. Behea, Thá. Belauti	Hetampur	... ..
XV	Nuáon	"	P. Bhojpur, Thá. Dumráon	Nuáon	... ..
XVI	...	...	...	...	Washed away by the river Ganges as reported in 1875.
XVII	Chapra Bindwa	Ghazipur	P. and Tah. Ballia, Thá. Haldi	Bin Chapra	A mound of about 8 feet high marks the station as reported in 1874.
XVIII	Núrpur Rakaha	"	P. Kharid, Tah. Ballia, Thá. Reoti	Núrpur	Ditto.
XIX	Khádípur	"	P. and Tah. Ballia, Thá. Bánsdíh	Khádípur	Ditto.
XX	Minár	Sarun	P. Bál, Thá. Basantpur	Jalálpur	... ..
XXI	"	"	P. Andar, Thá. Darauli	Katwárpur	... ..
XXII	"	"	P. Bára, Thá. Sewan	Jhúnápur	... ..
XXIII	"	"	P. Chaubár, Thá. Sewan	Nautan	"The pillar is in unserviceable state, two trees grown over it, and all broken" as reported in 1866.
XXIV	"	"	P. Sipah, Thá. Gopálganj	Tháwa	Pillar 27 feet high as reported in 1866.
XXV	"	"	P. Kuari, Thá. Báragaon	Gidaha	"All fallen down only some bricks lying near the pillar" as reported in 1866.
XXVI	"	"	Ditto.	Mathenia	"All fallen down only some bricks lying near the pillar" as reported in 1870.

NOTE.—P. stands for pargana, Tah. for tahsil, and Thá. for thána.

No. of Station	Local name	District	Pargana, &c.	Village in which the Station lies	Remarks on the Construction and Condition of the Station
XXVII	...	Gorakhpur	P. Sidhua Jobna, Tah. Parauna, Thá. Turaya Suján	Daunáha	Pillar about 6 feet high and no mark-stone found as reported in 1867.
XXVIII	...	Chumparun	P. Majhauwa, Thá. Bettiah	Patjirwa	... ..
XXIX	Washed away by the river Gunduk as reported in 1873.
LXIX	Bakwa	Chumparun	P. Majhauwa, Thá. Bagaha	Bakwa	... ..
LXXI	...	"	Could not be traced as reported in 1873.

NOTE.—Stations LXIX and LXXI appertain to the North-East Longitudinal Series. P. stands for pargana, Tah. for tahsil, and Thá. for thána.

November, 1882.

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

HURILAONG MERIDIONAL SERIES.

PRINCIPAL TRIANGULATION. TRIANGLES.

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle			Distance		
						Log. feet	Feet	Miles
1	Khaira Pándu, XL	·61	25	20	50·09	4·9992405	99825·3	18·906
	Huriláong, XLII	·61	25	34	4·29	5·0027530	100635·9	19·060
	Majholi, I	·62	129	5	5·62	5·2576727	180997·5	34·280
2	Khaira Pándu, XL	·80	60	5	17·16	5·0383618	109235·0	20·688
	Majholi, I	·80	66	55	9·29	5·0642121	115934·4	21·957
	Teona, III	·79	52	59	33·55	5·0027530	100635·9	19·060
3	Khaira Pándu, XL	·82	33	46	42·16	4·9633080	91898·4	17·405
	Teona, III	·82	101	40	56·33	5·2091566	161866·4	30·657
	Phulwaria, V	·82	44	32	21·51	5·0642121	115934·4	21·957
4	Teona, III	·90	80	29	28·08	5·1561284	143261·2	27·133
	Phulwaria, V	·90	60	15	43·74	5·1008088	126127·2	23·888
	Bakan, VI	·90	39	14	48·18	4·9633080	91898·4	17·405
5	Khaira Pándu, XL	1·15	101	46	14·33	5·2899073	194942·9	36·921
	Majholi, I	1·15	47	52	22·57	5·1693413	147686·7	27·971
	Sewádhi, XXXVIII	1·14	30	21	23·10	5·0027530	100635·9	19·060

NOTES.—1. The values of the side are given in the same line with the opposite angle.

2. Stations Sewádhi, XXXVIII, Khaira Pándu, XL, and Huriláong, XLII, appertain to the Calcutta Longitudinal Series of the South-East Quadrilateral.

HURILAONG MERIDIONAL SERIES.

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle			Distance		
						Log. feet	Feet	Miles
6	Hurilaong, XLII	60	42	58	42.71	4.8933345	78223.0	14.815
	Majholi, I	60	76	33	50.03	5.0476733	111602.3	21.137
	Banka, II	60	60	27	27.26	4.9992405	99825.3	18.906
7	Majholi, I	52	42	21	45.63	4.9272717	84580.8	16.019
	Banka, II	52	99	5	21.26	5.0932393	123947.9	23.475
	Dhanras, IV	51	38	32	53.11	4.8933345	78223.0	14.815
8	Majholi, I	75	45	4	6.14	4.9561259	90391.2	17.120
	Teona, III	76	76	6	45.31	5.0932393	123947.9	23.475
	Dhanras, IV	75	58	49	8.55	5.0383618	109235.0	20.688
9	Khaira Pandu, XL	64	22	4	33.09	4.9561259	90391.2	17.120
	Teona, III	64	129	6	19.77	5.2709839	186631.1	35.347
	Dhanras, IV	64	28	49	7.14	5.0642121	115934.4	21.957
10	Teona, III	68	48	43	12.78	4.9779786	95055.8	18.003
	Dhanras, IV	68	85	40	4.10	5.1008088	126127.2	23.888
	Bakan, VI	67	45	36	43.12	4.9561259	90391.2	17.120
11	Dhanras, IV	1.07	60	2	54.57	5.1561284	143261.2	27.133
	Bakan, VI	1.07	84	51	31.80	5.2166351	164677.8	31.189
	Phulwaria, V	1.07	35	5	33.63	4.9779786	95055.8	18.003
12	Phulwaria, V	1.11	37	22	57.57	4.9964323	99181.9	18.784
	Bakan, VI	1.11	81	20	20.77	5.2081660	161497.6	30.587
	Mednipur, VII	1.11	61	16	41.66	5.1561284	143261.2	27.133
13	Bakan, VI	38	31	39	6.10	4.7218142	52700.4	9.981
	Mednipur, VII	38	67	23	11.40	4.9671163	92707.8	17.558
	Kanap, IX	39	80	57	42.50	4.9964323	99181.9	18.784
14	Mednipur, VII	21	62	28	22.07	4.7518723	56477.1	10.696
	Kanap, IX	21	61	41	7.10	4.7487090	56067.2	10.619
	Bisunpur, XI	20	55	50	30.83	4.7218142	52700.4	9.981
15	Mednipur, VII	23	59	32	37.35	4.7690065	58749.8	11.127
	Bisunpur, XI	24	65	6	17.32	4.7911364	61821.1	11.709
	Durgadi, X	23	55	21	5.33	4.7487090	56067.2	10.619
16	Phulwaria, V	95	45	57	52.21	5.0659992	116412.4	22.048
	Mednipur, VII	94	39	51	4.84	5.0160462	103763.9	19.652
	Pahara, VIII	95	94	11	2.95	5.2081660	161497.6	30.587
17	Mednipur, VII	53	69	27	59.28	5.0453952	111018.5	21.026
	Pahara, VIII	53	31	25	52.56	4.7911364	61821.1	11.709
	Durgadi, X	54	79	6	8.16	5.0659992	116412.4	22.048
18	Bisunpur, XI	23	58	47	38.67	4.7604837	57608.1	10.911
	Durgadi, X	23	60	29	0.30	4.7679855	58611.9	11.101
	Baraon, XII	23	60	43	21.03	4.7690065	58749.8	11.127
19	Durgadi, X	25	55	4	9.77	4.7624734	57872.7	10.961
	Baraon, XII	25	70	14	4.20	4.8223698	66430.9	12.582
	Kesath, XIII	24	54	41	46.03	4.7604837	57608.1	10.911
20	Baraon, XII	21	66	24	17.04	4.7732531	59327.1	11.236
	Kesath, XIII	20	50	13	26.26	4.6968427	49755.7	9.423
	Hetampur, XIV	21	63	22	16.70	4.7624734	57872.7	10.961

NOTE.—Stations Khaira Pandu, XL, and Hurilaong, XLII, appertain to the Calcutta Longitudinal Series of the South-East Quadrilateral.

PRINCIPAL TRIANGULATION. TRIANGLES.

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle				Distance		
			°	'	"	Log. feet	Feet	Miles	
21	Kesath, XIII	.24	61	47	55.72	4.7774056	59897.1	11.344	
	Hetampur, XIV	.23	57	24	10.47	4.7578444	57259.1	10.845	
	Nuáon, XV	.23	60	47	53.81	4.7732531	59327.1	11.236	
22	Hetampur, XIV	.34	64	37	13.78	4.8837625	76517.8	14.492	
	Nuáon, XV	.35	70	22	7.85	4.9018330	79768.8	15.108	
	Nauranga, XVI	.34	45	0	38.37	4.7774056	59897.1	11.344	
23	Nuáon, XV	.33	48	41	58.32	4.7927374	62049.4	11.752	
	Nauranga, XVI	.34	63	24	53.30	4.8684164	73861.2	13.989	
	Bin Chapra, XVII	.34	67	53	8.38	4.8837625	76517.8	14.492	
24	Nauranga, XVI	.26	59	35	54.05	4.7872876	61275.6	11.605	
	Bin Chapra, XVII	.25	59	32	47.78	4.7870573	61243.1	11.599	
	Núrpur, XVIII	.26	60	51	18.17	4.7927374	62049.4	11.752	
25	Bin Chapra, XVII	.25	56	30	36.33	4.7697303	58847.8	11.145	
	Núrpur, XVIII	.26	63	13	4.36	4.7992915	62992.9	11.930	
	Khádipur, XIX	.25	60	16	19.31	4.7872876	61275.6	11.605	
26	Núrpur, XVIII	.28	67	49	39.90	4.8356357	68491.3	12.972	
	Khádipur, XIX	.27	59	27	14.59	4.8041146	63696.4	12.064	
	Jalálpur, XX	.27	52	43	5.51	4.7697303	58847.8	11.145	
27	Khádipur, XIX	.26	54	10	58.89	4.7743836	59481.7	11.265	
	Jalálpur, XX	.27	56	47	43.65	4.7880020	61376.5	11.624	
	Katwárpur, XXI	.27	69	1	17.46	4.8356357	68491.3	12.972	
28	Jalálpur, XX	.28	69	14	9.78	4.8477488	70428.6	13.339	
	Katwárpur, XXI	.28	58	36	19.00	4.8081683	64293.7	12.177	
	Jhúnápur, XXII	.28	52	9	31.22	4.7743836	59481.7	11.265	
29	Katwárpur, XXI	.32	54	28	19.81	4.8130835	65025.5	12.315	
	Jhúnápur, XXII	.33	63	42	33.42	4.8551265	71635.2	13.567	
	Nautan, XXIII	.33	61	49	6.77	4.8477488	70428.6	13.339	
80	Jhúnápur, XXII	.53	63	51	7.56	4.8592886	72325.0	13.698	
	Nautan, XXIII	.33	62	20	17.02	4.8534646	71361.6	13.515	
	Tháwa, XXIV	.33	53	48	35.32	4.8130835	65025.5	12.315	
81	Nautan, XXIII	.31	54	45	51.17	4.8085710	64353.3	12.188	
	Tháwa, XXIV	.31	58	36	20.50	4.8277192	67254.2	12.738	
	Gidaha, XXV	.31	66	37	48.53	4.8592886	72325.0	13.698	
82	Tháwa, XXIV	.27	55	57	23.61	4.7822213	60565.0	11.471	
	Gidaha, XXV	.27	62	20	51.03	4.8111946	64743.3	12.262	
	Mathenia, XXVI	.27	61	41	45.36	4.8085710	64353.3	12.188	
83	Gidaha, XXV	.26	48	6	39.87	4.7454453	55647.5	10.539	
	Mathenia, XXVI	.26	77	46	15.38	4.8636479	73054.5	13.836	
	Daunáha, XXVII	.26	54	7	4.75	4.7822213	60565.0	11.471	
84	Mathenia, XXVI	.28	59	21	56.73	4.8190031	65917.9	12.484	
	Daunáha, XXVII	.28	74	3	2.85	4.8672356	73660.7	13.951	
	Patjirwa, XXVIII	.27	46	35	0.42	4.7454453	55647.5	10.539	
85	Daunáha, XXVII	.29	61	11	28.96	4.8216982	66328.2	12.562	
	Patjirwa, XXVIII	.29	58	15	19.18	4.8087019	64372.7	12.192	
	Binharwa, XXIX	.29	60	33	11.86	4.8190031	65917.9	12.484	

HURILAONG MERIDIONAL SERIES.

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle	Distance		
				Log. feet	Feet	Miles
36	Patjirwa, XXVIII	32	69 43 21.63	4.8728629	74621.3	14.133
	Binharwa, XXIX	31	53 47 18.73	4.8074365	64185.4	12.156
	Naunangarhi, LXXI	31	56 29 19.64	4.8216982	66328.2	12.562
37	Binharwa, XXIX	31	62 36 18.79	4.8522014	71154.3	13.476
	Naunangarhi, LXXI	31	48 47 6.10	4.7802162	60286.0	11.418
	Bakwa, LXIX	32	68 36 35.11	4.8728629	74621.3	14.133

NOTE.—Stations Bakwa, LXIX, and Naunangarhi, LXXI, appertain to the North-East Longitudinal Series.

November 1878.

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

HURILAONG MERIDIONAL 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			No. of Triangle	Station	Corrected Plane Angle ° ' "	Distance			Theodolite used
			Log. feet	Feet	Miles				Log. feet	Feet	Miles	
38	Majholi, I Dhánras, IV Manátu Hill	69 56 10 22 34 39	5' 066467 4' 677913 5' 093239	116538 47634 123948	22 072 9 022 23 475	48	Khaira Pándu, XL Dhánras, IV Arápúr Hill Peak	77 45 52 16 55 9	5' 262458 4' 736363 5' 270984	183003 54496 186631	34 660 10 321 35 347	Inch 18 "
39	Huriláong, XLII Majholi, I Manátu Hill	27 39 50 48 59 27	4' 677013 4' 888849 4' 999240	47634 77419 99825	9 022 14 663 18 906	44	Dhánras, IV Phulwaria, V Arápúr Hill Peak	71 21 26 58 31 11	5' 308193 5' 262458 5' 216635	203326 183003 164678	38 509 34 660 31 189	" " "
40	Huriláong, XLII Manátu Hill Bháng	70 24 11 h.s.	4' 871132 4' 066720 4' 888849	74324 11661 77419	14 077 2 208 14 663	45	Khaira Pándu, XL Arápúr Hill Peak Bagebar	29 32 42 h.s.	4' 378068 4' 317103 4' 736363	37850 20754 54496	7 169 3 931 10 321	" " 7
41	Huriláong, XLII Manátu Hill Patra	91 53 28 h.s.	4' 960919 4' 663546 4' 888849	91394 46084 77419	17 310 8 728 14 663	46	Arápúr Hill Peak Bagebar Belwájhonk	96 10 58 52 34 10	4' 393148 4' 675664 4' 578068	24726 47388 37850	4 683 8 975 7 109	" " "
42	Huriláong, XLII Bháng Barhi Masjid	32 8 51 121 6 50 h.s.	4' 139578 4' 346130 4' 066720	13790 22189 11661	2 612 4 202 2 208	47	Khaira Pándu, XL Bagebar Belwájhonk	38 35 7 56 41 59	4' 393148 4' 189959 4' 317103	24726 15487 20754	4 683 2 933 3 931	" " "

Notes.—1. Names followed by Roman numerals are those of Principal Stations. Stations Khaira Pándu, XL and Huriláong, XLII pertain to the Calcutta Longitudinal Series of the South-East Quadrilateral.

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

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	
48	Banks, II Dhánras, IV Dagra Chat Hill Mark (heliotrope)	103 19 37 16 32 0	4'977276 4'443325 4'927272	94902 27754 84581	17.974 5.256 16.019	Inch 18 "	61	Teona, III Orádi Kishanpur Temple	52 25 4 103 54 40	4'530137 4'618221 4'234820	33895 41517 17172	6.420 7.863 3.252	Inch 18 7
49	Majholi, I Dhánras, IV Dagra Chat Hill Mark (heliotrope)	44 41 11 22 0 54	4'977276 4'704038 5'093239	94902 50587 123948	17.974 9.581 23.475	"	62	Teona, III Dhánras, IV Birni	12 41 37 68 28 1	4'303219 4'929894 4'956126	20101 85093 90391	3.807 16.116 17.120	18 "
50	Banks, II Dhánras, IV Kasiára Hill Mark	83 55 49 26 14 26	4'952318 4'600320 4'927272	89602 39840 84581	16.970 7.545 16.019	"	68	Dhánras, IV Birni Basari Math	42 58 33 02 46 40	4'153433 4'208865 4'303219	14237 18572 20101	2.606 3.517 3.807	" 12
51	Majholi, I Dhánras, IV Kasiára Hill Mark	27 41 1 12 18 28	4'952318 4'613962 5'093239	89602 41111 123948	16.970 7.786 23.475	"	64	Dhánras, IV Birni Káchanpur Bungalow	23 49 26 33 14 50	3'985581 4'118259 4'303219	9673 13130 20101	1.832 2.487 3.807	18 12
52	Majholi, I Kasiára Hill Mark Bhondla	100 27 6 64 20 4	4'651808 4'078076 4'613962	44855 11970 41111	8.495 2.267 7.786	"	65	Dhánras, IV Birni Birna Imámbara	34 46 58 102 19 9	4'226496 4'460149 4'303219	16846 28850 20101	3.191 5.464 3.807	18 12
53	Majholi, I Dhánras, IV Sahasua Hill Mark	15 36 55 56 50 43	4'543952 5'036742 5'093239	34991 108828 123948	6.627 20.611 23.475	18	66	Teona, III Dhánras, IV Tamsi House	46 14 52 20 7 26	4'832892 4'530776 4'956126	71268 33945 90391	13.498 6.429 17.120	18 "
54	Teona, III Dhánras, IV Orádi	53 35 4 9 46 36	4'910513 4'234820 4'956126	81379 17172 90391	15.413 3.252 17.120	"	67	Teona, III Dhánras, IV Deo No. 1, Large Temple	22 10 23 82 49 35	4'547989 4'907768 4'956126	35317 92847 90391	6.689 17.585 17.120	" "
55	Teona, III Phulwaria, V Shankarpur	42 34 27 128 53 18	4'902418 4'243721 4'963308	79876 17528 91898	15.128 3.320 17.495	"	68	Teona, III Bakan, VI Deo No. 1, Large Temple	26 32 50 43 56 4	4'776756 4'907768 5'100809	59808 92847 126127	11.327 17.585 23.888	" "
56	Teona, III Orádi Shankarpur	118 12 6 31 15 2 30 32 52	4'473855 4'243721 4'234820	29775 17528 17172	5.639 3.320 3.252	18	69	Dhánras, IV Deo No. 1, Large Temple Kanipahár	48 45 22 89 6 37	4'424207 4'374674 4'547989	26559 23696 35317	5.030 4.488 6.689	" 12
57	Teona, III Orádi Gamaria Temple	94 37 0 14 56 14 70 26 46	4'259207 3'671834 4'234820	18164 4697 17172	3.440 0.890 3.252	18	70	Dhánras, IV Birni Kanipahár	63 6 56 50 49 49	4'364087 4'374674 4'303219	23125 23696 20101	4.380 4.488 3.807	18 12
58	Teona, III Shankarpur Gamaria Temple	147 10 54 6 45 38 26 3 28	4'334964 3'671834 4'243721	21625 4697 17528	4.096 0.890 3.320	18	71	Teona, III Kanipahár Manka Temple	5 16 26 98 11 57	4'007280 5'039423 5'031765	10169 109502 107588	1.926 20.739 20.377	18 12
59	Teona, III Shankarpur Langarkot	135 15 30 12 56 49	4'615089 4'740897 4'243721	41218 55068 17528	7.806 10.429 3.320	"	72	Dhánras, IV Birni Jigábiga Imámbara	19 2 28 140 13 3	4'267577 4'560126 4'303219	18517 36318 20101	3.507 6.878 3.807	18 12
60	Teona, III Langarkot Alinagar	48 53 10 112 36 40	4'277171 4'652659 4'740897	18931 44943 55068	3.385 8.512 10.429	"	78	Dhánras, IV Bakan, VI Umga Temple	53 19 7 33 7 3	4'882977 4'716296 4'977979	76380 52035 95056	14.466 9.855 18.003	18 "

* Base deduced by two sides and included angle.

SECONDARY TRIANGULATION. TRIANGLES.

No. of Triangle	Station	Corrected Plane Angle ° ' "	Distance			No. of Triangle	Station	Corrected Plane Angle ° ' "	Distance			Theodolite used
			Log. feet	Feet	Miles				Log. feet	Feet	Miles	
74	Teona, III Dhánras, IV Bájdur Semaphore	33 9 5 98 30 44	4.773713 5.035825 4.956126	59390 108599 90391	11.248 20.568 17.120	87	Dhánras, IV Bakan, VI Chándi Temple	32 5 53 42 38 54	4.718951 4.824462 4.977979	52554 66752 95056	9.916 12.642 18.003	Inch 18 "
75	Teona, III Phulwaria, V Bájdur Semaphore	96 3 37 46 15 16	5.174603 5.035825 4.963308	149487 108599 91898	28.312 20.568 17.405	88	Teona, III Dhánras, IV Pawai	52 20 49 49 55 0	4.864725 4.849874 4.956126	73236 70774 90391	13.870 13.404 17.120	" " "
76	Dhánras, IV Bájdur Semaphore Bisunpur	25 44 18 129 17 3	4.522716 4.510546 4.773713	33321 32400 59390	6.311 6.136 11.248	89	Dhánras, IV Bakan, VI Pawai	35 45 5 50 13 27	4.745664 4.864725 4.977979	55675 73236 95056	10.545 13.870 18.003	" " "
77	Dhánras, IV Kanipahár Bisunpur	66 48 31 69 50 8	4.501424 4.510546 4.374674	31727 32400 23696	6.009 6.136 4.488	90	Bakan, VI Bájdur Semaphore Jakhau	90 16 43 52 51 28	4.657500 4.435002 4.559048	45447 27265 36228	8.607 5.164 6.861	" 7 7
78	Dhánras, IV Bisunpur Deo No. 1, Small Temple	16 32 4 102 48 22	4.024390 4.559229 4.510546	10578 36243 32400	2.003 6.864 6.136	91	Bakan, VI Jákhau Kapasía Temple	78 40 27 48 37 15	4.526406 4.410212 4.435602	33605 25716 27265	6.365 4.871 5.164	18 7 7
79	Dhánras, IV Kanipahár Deo No. 1, Small Temple	50 16 27 88 54 22	4.445298 4.559229 4.374674	27880 36243 23696	5.280 6.864 4.488	92	Bakan, VI Jákhau Rajhoi Temple	56 56 4 48 26 18	4.374693 4.325467 4.435602	23697 21158 27265	4.488 4.007 5.164	18 7 7
80	Dhánras, IV Birni Jigábiga Mark	22 41 29 131 38 24	4.252891 4.54008c 4.303219	17902 34680 20101	3.390 6.568 3.807	93	Dhánras, IV Bakan, VI Bamandi Semaphore	24 42 59 68 39 49	4.600043 4.947899 4.977979	39815 88695 95056	7.541 16.798 18.003	18 "
81	Birni Bisunpur Jigábiga Mark	38 40 40 97 58 20	4.052946 4.252890 4.093719	11297 17902 12408	2.139 3.390 2.350	94	Dhánras, IV Phulwaria, V Bamandi Semaphore	35 19 57 29 3 26	5.023715 4.947899 5.216635	105612 88695 164678	20.002 16.798 31.189	" "
82	Dhánras, IV Kanipahár Deo No. 1, Rája's Kothi	48 36 14 89 39 30	4.426533 4.551373 4.374674	26701 35594 23696	5.057 6.741 4.488	95	Teona, III Phulwaria, V Siris Suspension Bridge	54 58 5 65 26 59	4.940816 4.986470 4.963308	87260 96933 91898	16.527 18.358 17.405	" "
83	Dhánras, IV Bisunpur Deo No. 1, Rája's Kothi	18 12 17 97 14 12	4.049576 4.551373 4.510546	11209 35594 32400	2.123 6.741 6.136	96	Teona, III Dhánras, IV Siris Suspension Bridge	74 14 37 55 31 11	5.053740 4.986470 4.956126	113172 96933 90391	21.434 18.358 17.120	" "
84	Teona, III Dhánras, IV Pahára	42 32 25 37 42 48	4.792456 4.748986 4.956126	62009 56103 90391	11.744 10.626 17.120	97	Teona, III Phulwaria, V Bárun Semaphore	44 55 40 75 55 36	4.878518 5.016346 4.963308	75599 103836 91898	14.318 19.666 17.405	" "
85	Kanipahár Bisunpur Siuganj Bridge	61 19 30 59 55 40	4.512691 4.506729 4.501424	32560 32117 31727	6.167 6.083 6.009	98	Teona, III Bakan, VI Bárun Semaphore	35 33 49 55 24 3	4.865500 5.016346 5.100809	73367 103836 126127	13.895 19.666 23.888	" "
86	Teona, III Dhánras, IV Chándi Temple	46 37 15 53 34 12	4.824462 4.868603 4.956126	66752 73893 90391	12.642 13.995 17.120	99	Bakan, VI Pahára, VIII Karaundia Semaphore	11 43 35 29 45 43	4.709226 5.097050 5.222385	51195 125040 166872	9.606 23.682 31.605	" "

* Base deduced by two sides and included angle.

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	
GYA SECONDARY SERIES.													
100	Khaira Pándu, XL Teona, III Datenia	25 27 7 108 28 30 46 4 23	4'839964 5'183764 5'064212	69177 152674 115934	13'102 28'915 21'957	Inch 18	111	Khaira Pándu, XL Rohtasgarh Japla	20 13 15 125 8 48	4'639319 4'855282 5'013280	43583 71661 103105	8'254 13'572 19'527	18 † †
101	Khaira Pándu, XL Datenia Manátu Hill Stone	35 15 9 69 44 50	4'960131 5'171103 5'183764	91229 148287 152674	17'278 28'085 28'915	"	112	Khaira Pándu, XL Jhirna Hill Mark Japla	30 12 12 95 53 18	4'649458 4'855282 4'945532	44613 71661 88213	8'449 13'572 16'707	18 † †
102	Datenia Manátu Hill Stone Murgara	116 36 4 39 19 7	5'109702 4'768972 4'960131	128737 58745 91229	24'382 11'126 17'278	"	113	Khaira Pándu, XL Japla Alinagar Fort	15 3 48 83 19 24	4'274735 4'856995 4'855282	18825 71944 71661	3'565 13'626 13'572	18 † †
103	Manátu Hill Stone Murgara Saga Semaphore	93 43 29 54 19 24	5'199056 5'109702 5'109702	158145 128737 91229	29'952 24'382 17'278	"	114	Majholi Jhirna Hill Mark Husainabad	21 29 25 34 46 43	4'718089 5'074142 4'910385	52250 118610 81355	9'806 22'465 15'408	18
104	Manátu Hill Stone Saga Semaphore Kasiátu, XLIV	69 14 9 46 24 33	5'294111 5'309982 5'199056	196839 204165 153145	37'280 38'668 29'952	"	115	Rohtasgarh Jhirna Hill Mark Husainabad	30 41 40 126 11 53	4'718089 4'603920 4'916991	52250 40172 82602	9'896 7'608 15'644	"
105	Saga Semaphore Kasiátu, XLIV Sarhad Semaphore	33 52 43 22 44 56	5'118551 4'959733 5'294111	131990 91145 196839	24'884 17'262 37'280	"	116	Teona, III Jhirna Hill Mark Rámnagar	33 37 27 132 55 55	4'390006 4'013107 4'511305	24547 10306 32457	4'649 1'952 6'147	"
106	Sewádhi, XXXVIII Khaira Pándu, XL Majholi	30 21 15 101 45 47 47 52 58	5'002656 5'289852 5'169341	100613 194918 147687	19'056 36'916 27'971	"	117	Khaira Pándu, XL Teona, III Nabinagar Idgáh	9 46 33 78 25 9	4'294350 5'055495 5'004212	19695 113631 115934	3'730 21'521 21'957	"
107	Khaira Pándu, XL Teona, III Majholi	60 5 46 52 58 44 66 55 30	5'038378 5'002656 5'064212	109239 100613 115934	20'689 19'056 21'957	"	118	Khaira Pándu, XL Teona, III Balwari Hill Rock	16 16 3 127 51 38	4'743686 5'193688 5'064212	55432 156203 115934	10'497 29'584 21'957	"
108	Khaira Pándu, XL Teona, III Rohtasgarh	40 50 56 60 38 13 78 30 51	4'888619 5'013280 5'064212	77378 103105 115934	14'655 19'527 21'957	"	119	Khaira Pándu, XL Teona, III Tilothu Temple	26 43 21 115 24 4	4'928966 5'231917 5'064212	84911 170576 115934	16'082 32'306 21'957	"
109	Khaira Pándu, XL Rohtasgarh Jhirna Hill Mark	50 25 27 55 24 1	4'916991 4'945532 5'013280	82602 88213 103105	15'644 16'707 19'527	"	120	Teona, III Datenia Tendua Temple	104 32 24 22 0 4	4'920879 4'508611 4'839964	83345 32256 69177	15'785 6'109 13'102	"
110	Khaira Pándu, XL Majholi Jhirna Hill Mark	50 31 15 56 48 58	4'910385 4'945532 5'002656	81355 88213 100613	15'408 16'707 19'056	"	121	Khaira Pándu, XL Teona, III Tendua Temple	7 0 27 146 59 6	4'508611 5'158537 5'064212	32256 144058 115934	6'109 27'284 21'957	"
						"	122	Teona, III Datenia Bhairapur	70 3 2 57 41 40	4'915053 4'868893 4'839964	82234 73942 69177	15'575 14'004 13'102	"
						"	123	Teona, III Rohtasgarh Bhairapur	120 50 15 30 19 11	5'110282 4'868893 4'888619	131608 73942 77378	24'926 14'004 14'655	"

NOTE.—Stations Sewádhi, XXXVIII, and Kasiátu, XLIV appertain to the Cal. Longl. Series of the S. E. Quadrilateral. * Base deduced by two sides and included angle. † Instrument not known.

SECONDARY TRIANGULATION. TRIANGLES.

No. of Triangle	Station	Corrected Plane Angle	Distance			No. of Triangle	Station	Corrected Plane Angle	Distance			Theodolite used	
			Log. feet	Feet	Miles				Log. feet	Feet	Miles		
124	Murgara	92 56 47	5.032154	107685	20.395	130	Saga Semaphore	24 33 23	4.557598	36108	6.839	Inch 18	
	Bhairabpur	36 42 51	4.809301	64462	12.209		Dugul	46 0 2	4.795872	62499	11.837		"
	Dugul	50 20 22	4.919128	83010	15.722		Baliari Semaphore		4.913433	81928	15.517		"
125	Murgara	65 32 24	4.913433	81928	15.517	131	Murgara	8 0 58	4.159566	14440	2.735	"	
	Saga Semaphore		4.809301	64462	12.209		Saga Semaphore	46 4 30	4.872625	74580	14.125		"
	Dugul	68 43 9	4.923601	83869	15.884		Madarpur Mosque		4.923601	83869	15.884		"
126	Murgara	72 6 2	5.145149	139685	26.455	132	Saga Semaphore	56 43 34	4.881772	76108	14.426	"	
	Dugul	81 51 1	5.162288	145307	27.520		Dugul	59 12 35	4.893553	78262	14.822		"
	Salga Semaphore		4.809301	64462	12.209		Charki Bungalow		4.913433	81928	15.517		"
127	Saga Semaphore	149 36 26	5.145149	139685	26.455	133	Saga Semaphore	72 49 53	5.053347	113070	21.415	"	
	Dugul	13 7 52	4.797433	62724	11.880		Dugul	63 21 24	5.024391	105777	20.034		"
	Salga Semaphore		4.913433	81928	15.517		Bodh Gya Pagoda		4.913433	81928	15.517		"
128	Murgara	65 17 12	4.808963	64411	12.199	134	Saga Semaphore	63 51 13	5.064788	116088	21.086	"	
	Dugul	49 19 46	4.730618	53780	10.186		Dugul	76 50 9	5.100105	125923	23.849		"
	Dumrai Temple		4.809301	64462	12.209		Gya, Brahmjoni Temple		4.913433	81928	15.517		"
129	Saga Semaphore	45 17 17	4.808963	64411	12.199	135	Saga Semaphore	61 54 8	5.100274	125924	23.858	"	
	Dugul	19 23 23	4.478432	30091	5.099		Dugul	83 5 16	5.151566	141764	26.849		"
	Dumrai Temple		4.913433	81928	15.517		Gya, Ramshila Pagoda		4.913433	81928	15.517		"

* Base deduced by two sides and included angle.

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

May 1879.

HURILONG MERIDIONAL 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	Name of station with azimuths of surrounding points	No. of triangle giving distance	Name of station with azimuths of surrounding points	No. of triangle giving distance
ALINAGAR s. Langarkot Teona, III	60 60	BAKAN, VI Kanap, IX Jákhan Rajhoi Temple Unga Temple Kapasia Temple Dhánras, IV	13 90 92 73 91 10	BANKA, II Majholi, I Kasiára Hill Mark Dhánras, IV	6 50 7
BAGEBAR h.s. Belwájhok Khaira Pándu, XL* Árapur Hill Peak	46 45 45	BAKWA, LXIX† Naunagarhi, LXXI† Binharwa, XXIX	87 87	BARAON, XII Durgádi, X Kesath, XIII Hetampur, XIV Bisunpur, XI	18 19 20 18
BAKAN, VI Deo No. 1, Large Temple Chándi Temple Teona, III Pawai Bamandi Semaphore Phulwaria, V Bárun Semaphore Karaundia Semaphore Mednipur, VII	68 87 4 89 93 4 98 99 12	BAMANDI SEMAPHORE Phulwaria, V Bakan, VI Dhánras, IV BANKA, II Huriláong, XLII* Dagra Chat Hill Mark (heliotrope)	94 93 93 6 48	BELWAJHONK h.s. Khaira Pándu, XL* Bagebar Árapur Hill Peak BHAIKAPUR h.s. Teona, III Rohtasgarh	47 46 46 122 123

* Of the Calcutta Longitudinal Series of the South-East Quadrilateral. † Of the North-East Longitudinal Series.

AZIMUTHS OF STATIONS AND INTERSECTED POINTS.

Name of station with azimuths of surrounding points	No. of triangle giving distance	Name of station with azimuths of surrounding points	No. of triangle giving distance	Name of station with azimuths of surrounding points	No. of triangle giving distance
BHAIRABPUR h.s. Dugul Datenia	124 122	DATENIA h.s. Khaira Pándu, XL* Teona, III Tendua Temple Bhairabpur Murgara Manátu Hill Stone	100 100 120 122 102 101	DUGUL h.s. Bodh Gya Pagoda Charaki Bungalow Salga Semaphore Saga Semaphore Dumrai Temple	133 132 126 125 128
BHANG h.s. Barhi Masjid Manátu Hill Hurláong, XLII*	42 40 40	DAUNABA, XXVII Gidaha, XXV Binharwa, XXIX Patjirwa, XXVIII Mathenia, XXVI	33 35 34 33	DURGADI, X Palára, VIII Kesath, XIII Baráon, XII Bisunpur, XI Mednipur, VII	17 19 18 15 15
BHONDIA h.s. Kasiára Hill Mark Majholi, I	52 52	DHANRAS, IV Manátu Hill Dagra Chat Hill Mark (heliotrope) Kasiára Hill Mark Majholi, I Arápur Hill Peak Khaira Pándu, XL* Sahasua Hill Mark Teona, III Órádi	88 48 50 7 43 9 53 8 54 66 63 11 65 84 80 72 86 96 93 76 62 78 67 82 10 74 64 69 73 7	GAMARIA TEMPLE s. Shankarpur Teona, III Órádi	58 57 57
BIN CHAPRA, XVII Khádipur, XIX Núrpur, XVIII Nauranga, XVI Nuáon, XV	25 24 23 23	BIN HARWA, XXIX Bakwa, LXIX† Naunangarhi, LXXI† Patjirwa, XXVIII Daunáha, XXVII	87 36 85 35	GIDAHA, XXV Daunáha, XXVII Mathenia, XXVI Tháwa, XXIV Nautan, XXIII	33 32 31 31
BIRNI h.s. Basari Math Teona, III Birna Imábára Jigábiga Mark Jigábiga Imábára Pawai	63 62 65 80 72 70 64 62	BIRNI h.s. Basari Math Phulwaria, V Birna Imábára Pahára Jigábiga Mark Jigábiga Imábára Pawai	66 63 11 65 84 80 72 86	HETAMPUR, XIV Kesath, XIII Nuáon, XV Nauranga, XVI Baráon, XII	20 21 22 20
BIRNÁ h.s. Basari Math Teona, III Birna Imábára Jigábiga Mark Jigábiga Imábára Kanipahár Kánchanpur Bungalow Dhánrás, IV	45 81 84 113 122 276 309 342	BIRNÁ h.s. Basari Math Phulwaria, V Birna Imábára Pahára Jigábiga Mark Jigábiga Imábára Pawai	88 96 93 76 62 78 67 82 10 74 64 69 73 7	HURILANG, XLII* Patra Bháng Khaira Pándu, XL* Barhi Masjid Majholi, I Manátu Hill Banks, II	41 40 1 42 1 39 6
BISUNPUR, XI Mednipur, VII Durgádi, X Baráon, XII Kanap, IX	14 15 18 14	BISUNPUR, XI Mednipur, VII Durgádi, X Baráon, XII Kanap, IX	10 74 64 69 73 7	HUSAINABAD s. Rohtasgarh Jhirna Hill Mark Majholi	115 114 114
BISUNPUR h.s. Jigábiga Mark Bájdipur Semaphore Suganj Bridge Deo No. 1, Small Temple Deo No. 1, Rája's Kothi Kanipahár Dhánrás, IV	81 76 85 78 88 77 76	DUGUL h.s. Baliári Semaphore Murgara Bhairabpur Gya, Rámshála Pagoda Gya, Brahmjoni Temple	180 124 124 135 134	JAKHAN h.s. Bájdipur Semaphore Kapasia Temple Rajhoi Temple Bakan, VI	90 91 92 90

* Of the Calcutta Longitudinal Series of the South-East Quadrilateral. † Of the North-East Longitudinal Series.

HURILAONG MERIDIONAL SERIES.

Name of station with azimuths of surrounding points	No. of triangle giving distance	Name of station with azimuths of surrounding points	No. of triangle giving distance	Name of station with azimuths of surrounding points	No. of triangle giving distance
JALAPUR, XX Núrur, XXVIII Kháidipur, XIX Katwárpur, XXI Jhúnápur, XXII	26 26 27 28	KHADIPUR, XIX Katwárpur, XXI Jalálpur, XX Núrur, XXVIII Bin Chapra, XVII	27 26 25 25	MATHENIA, XXVI Gidáha, XXV Dauháha, XXVII Patjirwa, XXVIII Tháwa, XXIV	32 33 34 32
JAPLA h.s. Khaira Pándu, XL* Rohtasgarh Jhirna Hill Mark Alinsgar Fort	111 111 112 113	KAIRA PANDU, XL* Belwáihonk Sewádhí, XXXVIII* Rohtasgarh Phulwaria, V Tilothu Temple Japla Nabinagar Idgáh Tendua Temple Alinsgar Fort Teona, III Jhirna Hill Mark Balwari Hill Rock Dháuras, IV Datenia Majholi, I Majholi Manátu Hill Stone Bagebar Hurilaong, XLII* Arápur Hill Peak	47 6 108 3 119 111 117 121 113 2 109 118 9 100 1 106 101 45 1 43	MEDNIPUR, VII Phulwaria, V Pahára, VIII Durgádi, X Bisumpur, XI Kanap, IX Bakan, VI	12 16 15 14 13 12
JHUNAPUR, XXII Jalálpur, XX Katwárpur, XXI Nautan, XXIII Tháwa, XXIV	28 28 29 30	MURGARA h.s. Manátu Hill Stone Datenia Dugul Madárpur Mosque Dumrai Temple Saga Semaphore Salga Semaphore	102 102 124 131 128 103 126	MURGARA h.s. Manátu Hill Stone Datenia Dugul Madárpur Mosque Dumrai Temple Saga Semaphore Salga Semaphore	102 102 124 131 128 103 126
KANAP, IX Bakan, VI Mednipur, VII Bisumpur, XI	13 13 14	LANGARKOT h.s. Shankarpur Teona, III Alinsgar	59 59 60	NAURANGA, XVI Hetampur, XIV Nuáon, XV Bin Chapra, XVII Núrur, XVIII	36 36 37
KANPAHAR h.s. Dháuras, IV Birni Bisumpur Deo No. 1, Small Temple Deo No. 1, Large Temple Deo No. 1, Raja's Kotbi Siaganj Bridge Manka Temple	69 70 77 79 69 82 85 71	MAJHOLI, I Sewádhí, XXXVIII* Khaira Pándu, XL* Bhondila Teona, III Sahasun Hill Mark Dháuras, IV Kasára Hill Mark Banka, II Dagra Chat Hill Mark (heliotrope) Manútu Hill Hurilaong, XLII* MAJHOLI h.s.	5 1 62 2 53 7 51 6 49 38 1	NAUNANGARHI, LXXI† Patjirwa, XXVIII Binharwa, XXIX Bakwa, LXXI†	36 36 37
KASATU, XIIV* Manátu Hill Stone Saga Semaphore Sarhad Semaphore	104 104 105	NAURANGA, XVI Hetampur, XIV Nuáon, XV Bin Chapra, XVII Núrur, XVIII	22 22 23 24	NAUTAN, XXIII Gidáha, XXV Tháwa, XXIV Jhúnápur, XXII Katwárpur, XXI	31 30 29 29
KATWARPUR, XXI Kháidipur, XIX Nautan, XXIII Jhúnápur, XXII Jalálpur, XX	27 29 28 28 27	NURPUR, XVIII Bin Chapra, XVII Nauranga, XVI Hetampur, XIV Kesath, XIII	23 21 21	NURPUR, XVIII Bin Chapra, XVII Nauranga, XVI Hetampur, XIV Kesath, XIII	23 22 21 21
KESATH, XIII Nuáon, XV Hetampur, XIV Baráon, XII Durgádi, X	21 20 19 19	NURPUR, XVIII Bin Chapra, XVII Kháidipur, XIX Jalálpur, XX Nauranga, XVI	24 25 26 24	NURPUR, XVIII Bin Chapra, XVII Kháidipur, XIX Jalálpur, XX Nauranga, XVI	24 25 26 24

* Of the Calcutta Longitudinal Series of the South-East Quadrilateral. † Of the North-East Longitudinal Series.

AZIMUTHS OF STATIONS AND INTERSECTED POINTS.

Name of station with azimuths of surrounding points.	No. of triangle ranging distance	Name of station with azimuths of surrounding points	No. of triangle ranging distance	Name of station with azimuths of surrounding points	No. of triangle ranging distance
ORADI h.s. Gamaria Temple Teona, III Shankarpur Dhanras, IV Kishanpur Temple	57 54 56 51 61	PHULWARIA, V Teona, III Shankarpur Arápur Hill Peak RAMNAGAR s. Jhirna Hill Mark Teona, III ROHTASGARH s. Khaira Pándu, XL† Bhairabpur Teona, III Jhirna Hill Mark Japla Husinabad	3 55 44	SHANKARPUR h.s. Teona, III Gamaria Temple TEONA, III Khaira Pándu, XL† Alinagar Langarkot Shankarpur Rohtasgarh Nabinagar Idgáh Phulwaria, V Tilothu Temple Bárun Semaphore Tendua Temple Siris Suspension Bridge Orádi Pawai Bhairabpur Bakan, VI Chándli Temple Tansi House Pahára Bájidpur Semaphore Deo No. 1, Large Temple Manka Temple Birni Kishanpur Temple Dhanras, IV Balwari Hill Rock Datania Gamaria Temple Rámagar Majholi, I Majholi	55 58
PAHARA, VIII Phulwaria, V Durgádi, X Mednipur, VII Karaundia Semaphore	16 17 16 99	SAGA SEMAPHORE s. Manátu Hill Stone Murgara Dumrai Temple Ballári Semaphore Dugul Madárpur Mosque Charki Bungalow Gya, Rámshila Pagoda Gya, Brahmjoni Temple Bodh Gya Pagoda Salza Semaphore Sarind Semaphore Kasiátu, XLIV†	103 103 129 130 125 131 132 135 134 133 127 105 104	SEWADHI, XXXVIII† Khaira Pándu, XL† Majholi Majholi, I SHANKARPUR h.s. Langarkot Phulwaria, V Orádi	80 80 81 82
PAHARA h.s. Teona, III Dhanras, IV	84 84	PAHARA h.s. Mathenia, XXVIII Daunáha, XXVII Binharwa, XXIX Naunangarhi, LXXI*	5 106 5	THAWA, XXIV Jhúnápur, XXII Nautan, XXIII Gidaha, XXV Mathenia, XXVI	90 80 81 82
PATRA h.s. Manátu Hill Hurliáong, XLII†	34 34 35 36	PAHARA h.s. Mathenia, XXVIII Daunáha, XXVII Binharwa, XXIX Naunangarhi, LXXI*	5 106 5	THAWA, XXIV Jhúnápur, XXII Nautan, XXIII Gidaha, XXV Mathenia, XXVI	90 80 81 82
PATRA h.s. Teona, III Bakan, VI Dhanras, IV	41 41 88 89 88	PAHARA h.s. Mathenia, XXVIII Daunáha, XXVII Binharwa, XXIX Naunangarhi, LXXI*	5 106 5	THAWA, XXIV Jhúnápur, XXII Nautan, XXIII Gidaha, XXV Mathenia, XXVI	90 80 81 82
PHULWARIA, V Khaira Pándu, XL† Pahára, VIII Mednipur, VII Bárun Semaphore Siris Suspension Bridge Bakan, VI Bamandi Semaphore Bájidpur Semaphore Dhanras, IV	3 16 12 97 95 4 94 75 11	PAHARA h.s. Mathenia, XXVIII Daunáha, XXVII Binharwa, XXIX Naunangarhi, LXXI*	5 106 5	THAWA, XXIV Jhúnápur, XXII Nautan, XXIII Gidaha, XXV Mathenia, XXVI	90 80 81 82

* Of the North-East Longitudinal Series. † Of the Calcutta Longitudinal Series of the South-East Quadrilateral.

May 1879.

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

HURILAONG MERIDIONAL 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. The trigonometrical heights always refer to the upper mark-stone or to the upper surface of the pillar on which the theodolite stood: the spirit leveled heights refer to the points on which the leveling staff stood as indicated in footnotes. 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. and s. The names in italics are those of the territories, states or districts in which the stations or points are situated.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
Aharaun Temple. (<i>Shahabad</i>) o ' " λ 24 59 33.5 L 84 16 41.1	Amarpur Date Tree. (<i>Sarun</i>) Near a masjid. o ' " λ 26 5 38 L 84 8 49	Árápur Hill Peak. (<i>Lohardugga</i>) About 1½ miles E. of Hatai, a large village, and 2 miles N.W. of Khokna village. o ' " λ 24 13 27 L 84 4 40 Nos. 43, 44
Ajaibganj Temple. (<i>Sarun</i>) λ 25 46 50.7 L 84 44 15.3	Amauna Temple, (<i>Gya</i>) Highest of several spires. λ 25 3 16.2 L 84 32 28.8	Arrah, Bhagawant Siwála No. 1. (<i>Shahabad</i>) λ 25 33 51.3 L 84 42 37.9
Akori House, (<i>Shahabad</i>) Paka, northern corner. λ 24 58 31.6 L 84 14 53.1	Andhári House. (<i>Shahabad</i>) Chimney of boiling house of indigo factory. λ 25 13 14.3 L 84 35 23.0	Arrah, Bhagawant Siwála No. 2. (<i>Shahabad</i>) To the north. λ 25 33 51.5 L 84 42 37.9
Alínagar Fort, (<i>Gya</i>) N. W. bastion. λ 24 30 3.5 L 84 6 32.1 No. 113	Andhári Indigo Factory, (<i>Shahabad</i>) Western chimney of Bungalow. λ 25 13 14.1 L 84 35 28.8	Arrah, Faujdári Court. (<i>Shahabad</i>) λ 25 33 48.0 L 84 42 30.3
Alínagar s. (<i>Gya</i>) On the N.E. bastion of an old stone fort, about ½ mile S.W. of the village of that name; thána Na- binagar, pargana Japla. λ 24 30 2.27 L 84 6 32.21 No. 60	Arai House, (<i>Gya</i>) Paka. λ 25 4 59.5 L 84 31 56.7	Arrah House. (<i>Shahabad</i>) Mardkhána of Kuar Singh's house, W. end of chimney. λ 25 33 35.8 L 84 42 38.7

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
Arrah, Mahájan Tola Siwála No. 1. (Shahabad)	Atmi Temple. (Shahabad)	Bakwa, LXIX*. (Vide page 8—P.)
λ 25 33 47·1 L 84 42 51·4	λ 25 4 23·8 L 84 24 19·5	λ 27 2 46·00 L 84 13 45·01 H _s 285·60† h 20·0 No. 37
Arrah, Mahájan Tola Siwála No. 2. (Shahabad)	Bádarjimi Imámbára, (Sarun) Top Kalas.	Baliári Semaphore. (Gya) On a range of hills, about 1½ miles S.W. of Bishanpur on the grand trunk road from Sherghotty to Aurungabad, and 1½ miles W. of Mircha village; thána Sherghotty.
λ 25 33 53·8 L 84 42 52·3	λ 26 21 22·8 L 84 24 27·0	λ 24 36 38·3 L 84 39 19·9 No. 130
Arrah Masjid, (Shahabad) Centre dome, in Kasái Tola.	Badram House, (Sarun) Paka, S. face, W. corner.	Balwari Hill Rock. (Gya)
λ 25 33 52·9 L 84 43 10·7	λ 26 9 35·9 L 84 25 39·2	λ 24 33 51·4 L 84 22 51·8 No. 118
Arrah No. 1 s. (Shahabad) On the S.E. turret of Dr. Batson's house.	Bagebar h.s. (Lohardugga) On a peak about 2 miles S.E. of Pándu, and 1½ miles S.W. of Khajuria village.	Bamandi Semaphore s. (Gya) On right bank of Batáne river, near the angle formed with it by the grand trunk road from Aurungabad to Dehree, and 3½ miles N.W. of Aurungabad sudder station; thána Aurungabad, pargana Siris.
λ 25 33 2·28 L 84 42 19·55	λ 24 19 15·09 L 84 2 8·41 No. 45	λ 24 46 55·05 L 84 22 20·24 Nos. 93, 94
Arrah No. 2 s. (Shahabad) On turret, E. corner of treasury.	Baghai s. (Chumparun) In a field and on the southern bank of a dry rivulet, marked by a square trench with a pin in its centre; thána Bettiah, pargana Majhauwa.	Bámáni Semaphore. (Shahabad) On hill, about a mile S.W. of Karup and 3 miles S.E. of Bhaluádi, which villages are on the road from Baráon to Jahanabad; thána Nokha.
λ 25 33 44·80 L 84 42 22·82	λ 26 46 3·31 L 84 29 52·44	λ 25 3 30·5 L 84 3 4·0
Arrah No. 3 s. (Shahabad) On Bábu Parameshwar Baksi's house.	Bagrásan Temple. (Ghazipur)	Bandu Temple. (Shahabad)
λ 25 33 45·36 L 84 42 43·08	λ 25 43 36·2 L 84 11 49·5	λ 24 32 43·6 L 83 55 57·5
Arrah No. 4 s. (Shahabad) On Kázi Tola house.	Bájidpur Semaphore. (Gya) On a detached hill at W. foot of which lies the village of Bájidpur, and about a mile N. of Bilahia village on the grand trunk road from Sherghotty to Aurungabad; thána Aurungabad, pargana Siris.	Bángra House, (Mozufferpore) S.W. corner.
λ 25 33 57·46 L 84 43 22·97	λ 24 43 27·2 L 84 29 59·2 Nos. 74, 75	λ 26 15 16·4 L 84 57 36·9
Arrah No. 5 s. (Shahabad) On Darogha's house in Tári Mahalla.	Bakan, VI. (Vide page 5—P.)	Banka, II. (Vide page 4—P.)
λ 25 33 58·41 L 84 42 40·96	λ 24 49 22·11 L 84 29 1·22 H 456 h Not forthcoming Nos. 4, 10	λ 24 19 44·09 L 84 30 7·64 H 1520 h Not forthcoming No. 6
Arrah No. 6 s. (Shahabad) On Judge's Court house.	Baknaur Factory, (Shahabad) Post of Well.	
λ 25 34 6·67 L 84 43 0·91	λ 24 38 27·2 L 84 0 29·6	
Arrah Siwála. (Shahabad) Chuni Lal's Siwála.		
λ 25 33 36·8 L 84 42 51·2		
Arrah Tomb, (Shahabad) With cupola, in burial ground.		
λ 25 33 41·0 L 84 42 11·0		
Atmi House. (Shahabad) N. end of paka house.		
λ 25 4 23·9 L 84 24 13·0		

* Of the North-East Longitudinal Series.

† This height refers to the mark-stone let into the ground floor of the tower.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
Bára Masjid, (<i>Ghazipur</i>) Centre dome, E. minaret. o ' " λ 25 30 42·1 L 83 54 2·7	Baruna Factory, (<i>Shahabad</i>) Chimney. o ' " λ 25 33 35·0 L 84 6 45·1	Bettiah Temple No. 3. (<i>Chumparua</i>) Shivji's temple. o ' " λ 26 47 59·6 L 84 34 10·5
Bára Temple No. 1. (<i>Ghazipur</i>) λ 25 30 48·7 L 83 53 27·6	Baryárpur Gola, (<i>Chumparua</i>) Flag. λ 26 37 44·6 L 84 30 31·5	Bettiah Temple No. 4, N. Spire. (<i>Chumparua</i>) Double spire temple in city. λ 26 48 8·0 L 84 32 47·2
Bára Temple No. 2. (<i>Ghazipur</i>) E. side. λ 25 30 39·5 L 83 54 23·3	Basari Math. (<i>Gya</i>) λ 24 35 10·4 L 84 26 15·3 No. 63	Bettiah Temple No. 4, S. Spire. (<i>Chumparua</i>) Double spire temple in city. λ 26 48 7·6 L 84 32 47·2
Baráon, XII. (<i>Vide page 6—P.</i>) λ 25 21 49·09 L 84 26 49·55 H 285 h 10 No. 18	Becháhi h.s. (<i>Gya</i>) On a hill on bank of Batáne river, about ½ a mile N. W. of the large village of Pawai; thána Aurungabad, Pargana Siris. λ 24 43 52 L 84 21 10	Bettiah Temple No. 5, N. Kalas. (<i>Chumparua</i>) Pathal Darwáza temple. λ 26 48 7·9 L 84 32 47·1
Barauli Math, (<i>Gya</i>) Old. λ 24 57 45·7 L 84 19 57·6	Belwájhonk h.s. (<i>Lohardugga</i>) On a hill about 1½ miles S.E. of Tisibar and ¼ mile N.W. of Lidla village. λ 24 18 9·28 L 83 57 50·92 Nos. 46, 47	Bettiah Temple No. 5, S. Kalas. (<i>Chumparua</i>) Pathal Darwáza temple. λ 26 48 7·4 L 84 32 47·1
Barhanpur Temple. (<i>Shahabad</i>) λ 25 35 39·0 L 84 20 34·8	Bettiah Chapel. (<i>Chumparua</i>) Cross of Roman Catholic chapel. λ 26 48 10·4 L 84 32 46·3	Bhágampur Temple. (<i>Gorakhpur</i>) λ 26 10 26·0 L 83 54 46·4
Barharwa Temple. (<i>Chumparua</i>) λ 26 51 5·7 L 84 29 55·3	Bettiah Palace. (<i>Chumparua</i>) Rája's palace, white building, N. turret. λ 26 48 6·2 L 84 32 41·2	Bhagwár Temple, (<i>Sarun</i>) Kalas. λ 26 27 22·0 L 84 39 56·8
Barhi Masjid, (<i>Lohardugga</i>) S.W. spire. λ 24 5 2·2 L 84 21 54·6 No. 42	Bettiah Rája's House. (<i>Chumparua</i>) Window of Rája's house. λ 26 48 6·4 L 84 32 39·9	Bhairabpur h.s. (<i>Gya</i>) About a mile E. of Páwai, a large village, and ½ mile S. of Chatra Kismath on road from Aurungabad to Páwai; thána Aurungabad, pargana Siris. λ 24 43 23·21 L 84 22 13·45 Nos. 122, 123
Bárun Dák Bungalow, (<i>Gya</i>) Top of roof. λ 24 52 15·0 L 84 15 24·1	Bettiah s. (<i>Chumparua</i>) On gateway of Rája's house. λ 26 48 6·82 L 84 32 46·40	Bháng h.s. (<i>Lohardugga</i>) On the northern of a group of hills, about a mile N. of Kasdi and 1½ miles N. W. of Huriláong village. λ 24 2 47·64 L 84 22 20·41 No. 40
Bárun Semaphore. (<i>Gya</i>) On the high road from Aurungabad to Dehree, about ¼ a mile S.E. of Bárun Dák Bungalow and 2 miles N. W. of Siris Dák Chauki; thána Aurungabad, pargana Siris. λ 24 51 33·8 L 84 15 57·9 Nos. 97, 98	Bettiah Temple No. 1. (<i>Chumparua</i>) Mahádeo temple. λ 26 47 56·6 L 84 33 11·4	Bháu House, (<i>Shahabad</i>) Kalas. λ 25 1 43·8 L 84 12 13·7
	Bettiah Temple No. 2. (<i>Chumparua</i>) Golden Kalas of Rája's temple on tank bank. λ 26 47 56·5 L 84 33 11·4	

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Bhojpur Factory, (<i>Shahabad</i>) House chimney. o ' "	Birpur House. (<i>Ghazipur</i>) Turret of a paka house. o ' "	Buxar, Bungalow No. 4, (<i>Shahabad</i>) Colonel Coventry's. o ' "
λ 25 35 3·5 L 84 11 5·9	λ 25 31 24·1 L 83 54 19·2	λ 25 33 33·5 L 83 59 47·5
Bhojpur House. (<i>Shahabad</i>) Kalas of zamindar's new house on mound.	Bisunpur, XI. (<i>Vide page 5—P.</i>)	Buxar, Bungalow No. 5. (<i>Shahabad</i>) Highest point of Commissariat Officer's Bungalow.
λ 25 35 18·8 L 84 11 52·3	λ 25 12 44·51 L 84 30 31·08 H 309 h 30 No. 14	λ 25 33 33·3 L 83 59 44·3
Bhojpur Indigo Factory, (<i>Shahabad</i>) Boiling house chimney.	Bisunpur Hill. (<i>Gya</i>) Date tree near Gosain's house.	Buxar Burial Ground. (<i>Shahabad</i>) Knob of tomb in burial ground.
λ 25 34 56·5 L 84 11 9·8	λ 24 38 33 L 84 26 35	λ 25 34 9 L 84 1 1
Bhojpur (Kadeem) Siwala. (<i>Shahabad</i>)	Bisunpur h.s. (<i>Gya</i>)	Buxar Fort, (<i>Shahabad</i>) Chimney or turret of a paka house.
λ 25 35 0·3 L 84 10 15·1	λ 24 38 39·24 L 84 27 2·48 Nos. 76, 77	λ 25 34 21·5 L 84 0 46·1
Bhondila h.s. (<i>Lohardugga</i>) On a detached hill at the southern foot of which lies the village of Chandrain, about 1½ miles S. E. of Bardiha and 2 miles N. E. of Kirki khurd which is on the grand trunk road from Chhatarpur to southward; thana Chhatarpur.	Bisunpur House. (<i>Patna</i>) Highest tiled house with a veranda in front.	Buxar Fort Flagstaff, (<i>Shahabad</i>) Old.
λ 24 18 27·38 L 84 15 3·21 No. 52	λ 25 29 21·2 L 84 47 30·4	λ 25 34 24 L 84 0 47
Bin Chapra, XVII. (<i>Vide page 6—P.</i>)	Bitaha s. (<i>Chumpara</i>) On the northern bank of a large mun or lake, 0·4 of a mile N.N.W. of the village so called and in the same direction 1·8 miles from Khada masjid; marked by a square trench with a pin in its centre: thana Bettiah, pargana Majhauwa.	Buxar Fort s. (<i>Shahabad</i>) On parapet of the S.W. bastion of the fort. It is marked by an iron pin driven into the masonry work.
λ 25 46 49·39 L 84 16 24·52 H 235 h 31 No. 23	λ 26 46 46·89 L 84 31 21·85	λ 25 34 20·34 L 84 0 43·57
Binharwa, XXIX. (<i>Vide page 8—P.</i>)	Bodh Gya Pagoda. (<i>Gya</i>)	Buxar Masjid, (<i>Shahabad</i>) South-easternmost minaret.
λ 26 52 50·12 L 84 14 26·86 H 288 h 30 No. 35	λ 24 41 43·3 L 85 2 4·6 No. 188	λ 25 34 27·3 L 84 1 8·3
Birna Imambara. (<i>Gya</i>)	Buxar, Bungalow No. 1, (<i>Shahabad</i>) Conical top.	Buxar, Raja's Kothi. (<i>Shahabad</i>) S. turret of Raja's kothi in Pandepatti.
λ 24 36 34·3 L 84 25 2·7 No. 65	λ 25 35 12·4 L 84 1 52·3	λ 25 34 12·4 L 84 0 31·9
Birni h.s. (<i>Gya</i>) On a detached hill about ¼ mile S.W. of Kurha and 1½ miles E. of Dhananwan; thana Aurangabad, pargana Chirkawan.	Buxar, Bungalow No. 2. (<i>Shahabad</i>)	Buxar, Ramchabutra, (<i>Shahabad</i>) S.W. corner.
λ 24 36 50·12 L 84 28 4·43. No. 62	λ 25 34 55 L 84 1 28	λ 25 34 8·4 L 84 0 31·3
	Buxar, Bungalow No. 3. (<i>Shahabad</i>) At the western end of the town.	Buxar Stud Stables. (<i>Shahabad</i>) Corner of S.W. building.
	λ 25 34 47 L 84 1 24	λ 25 33 3 L 84 0 1
		Buxar, Temple No. 1. (<i>Shahabad</i>) In Madanganj.
		λ 25 33 46·3 L 84 0 2·3

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Buxar, Temple No. 2, (Shahabad) Kalas, in Pándeppatti. λ 25 34 4·7 L 84 0 24·0	Chireti Fort, (Gya) Flag. λ 24 38 32·6 L 84 10 41·8	Darua House, (Gya) Paka, N.W. corner. λ 24 41 46·8 L 84 9 45·9
Chakia Masjid, (Shahabad) Centre dome. λ 25 33 30·7 L 83 59 24·1	Chitauna s. (Shahabad) On a mound, 0·6 of a mile S. of Bha- tauli village and 2½ miles E. of the Nokha Police Station; thána Nokha. λ 25 6 11·72 L 84 11 57·35	Datenia h.s. (Gya) On a hill N. of Munbar village and about 2 miles E. of Largara; thána and pargana Shergotty. λ 24 29 56·26 L 84 24 16·15 No. 100
Chandangarh House. (Gya) S.E. corner of turret of the highest paka building. λ 24 34 52·0 L 84 9 31·4	Chuhari Chapel. (Chumparun) Cross of the Roman Catholic chapel. λ 26 53 33·1 L 84 31 51·6	Dáudnagar Temple. (Gya) λ 25 2 38·0 L 84 26 35·9
Chándli Temple. (Gya) On hill. λ 24 42 57·2 L 84 22 40·4 Nos. 86, 87	Chupra Collectorate House, (Sarun) Flag. λ 25 46 40·4 L 84 46 47·4	Daulatganj Temple No. 1. (Sarun) λ 25 47 2·0 L 84 45 32·4
Chápri Temple. (Gya) In pargana Manora. λ 24 53 37·0 L 84 25 35·6	Dagra Chat Hill Mark (heliotrope). (Lohardugga) On a hill about ¼ mile S.E. of Dagra village and a mile N.E. of Gorhu village. λ 24 18 24·15 L 84 25 20·52 Nos. 48, 49	Daulatganj Temple No. 2. (Sarun) λ 25 47 13·0 L 84 45 54·3
Charki Bungalow. (Gya) λ 24 40 58·7 L 84 55 20·8 No. 132	Dagra House. (Lohardugga) S.W. corner of zamíndár's house in village. λ 24 18 56·8 L 84 25 2·5	Daunáha, XXVII. (Fide page 8—P.) λ 26 42 16·85 L 84 15 49·09 H 291 h 20 No. 33
Chaubebel House. (Ghasipur) E. corner of a large tiled house. λ 25 43 34·3 L 84 21 57·1	Daha Nadi Bridge, (Sarun) On road, S. face, E. pillar. λ 26 23 16·2 L 84 24 16·1	Dehree Factory Bungalow. (Shahabad) λ 24 54 5·2 L 84 13 35·5
Chauranga h.s. (Gya) On a chain of hills along the bank of the Batáne river, about 3 miles N.W. of the Aurungabad Police Station and 2 miles S.W. of Jasoi village which is on the high road from Aurungabad to Dehree; thána Aurungabad, pargana Siris. λ 24 45 6 L 84 21 49	Dahiaun Temple. (Sarun) λ 25 46 25·1 L 84 46 27·3	Dehree Monument, (Shahabad) On ghát, highest pillar. λ 24 53 57·6 L 84 13 39·9
Chausa Temple No. 1. (Shahabad) λ 25 30 53·7 L 83 56 23·4	Daniári Factory, (Gorakhpur) S.E. corner of roof of bungalow. λ 26 38 35·0 L 84 21 38·2	Dehree Temple. (Shahabad) On ghát. λ 24 53 53·4 L 84 13 41·9
Chausa Temple No. 2, (Shahabad) Dome (broken). λ 25 30 45·4 L 83 56 7·6	Darauli Temple No. 1, (Sarun) High. λ 26 4 26·3 L 84 10 17·2	Dekáha Temple, (Chumparun) Kalas. λ 26 17 47·0 L 84 52 8·9
Chiránd House, (Sarun) Flag. λ 25 43 51·7 L 84 52 10·6	Darauli, Temple No. 2, (Sarun) Square, with dome. λ 26 4 26·3 L 84 10 17·5	Delia Temple, (Shahabad) Kalas. λ 25 1 36·8 L 84 9 2·6

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Deo No. 1, Large Temple. (Gya) Dome of Surajkund temple, E. of house. λ 24 39 29·7 L 84 28 48·3 Nos. 67, 68	Dugásin Hill Peak. (Gya) About ½ mile E. of Dugásin Nizámat and at the same distance S.W. of Muhammadpur; thána Sherghotty. λ 24 30 7 L 84 39 44	Gahhirár Temple. (Sarun) λ 25 57 39·2 L 84 22 16·6
Deo No. 1, Rája's Kothi. (Gya) Flag on N.E. corner. λ 24 39 32·5 L 84 28 49·1 Nos. 82, 83	Dugul h.s. (Gya) On a range of hills running from north to south, about 2 miles S.W. of Dugul Salimpur and at the same distance E. of Hasaupur; thána Aurungabad, pargana Chirkánwan. λ 24 42 12·75 L 84 41 38·84 Nos. 124, 125	Galaura Karbala. (Azamgarh) λ 26 10 52 L 83 51 56
Deo No. 1, Small Temple. (Gya) λ 24 39 38·2 L 84 28 37·3 Nos. 78, 79	Dumaria Temple, (Sarun) Kulas. λ 26 22 48·5 L 84 45 41·0	Gamaria Temple s. (Gya) On hill. λ 24 34 6·19 L 84 13 29·76 Nos. 57, 58
Deo No. 2, Old Temple. (Shahabad) λ 25 7 3·7 L 84 23 49·8	Dumrai Temple. (Gya) λ 24 31 37·9 L 84 42 49·5 Nos. 128, 129	Ganges River No. 68* s. (Ghazipur) On left bank. λ 25 32 54·49 L 83 49 30·57
Dhangáin House. (Gya) Western point of the highest house. λ 24 57 15·7 L 84 21 42·0	Dumraon Siwála No. 1. (Shahabad) In Rája's garden house. λ 25 33 55·1 L 84 11 32·0	Ganges River No. 69* s. (Ghazipur) On right bank. λ 25 31 30·95 L 83 49 47·61
Dhánras, IV. (Vide page 4—P.) λ 24 33 40·44 L 84 29 10·77 H 1489 h 3 Nos. 7, 8, 9	Dumraon Siwála No. 2. (Shahabad) In Rája's house (Thákurdwára). λ 25 32 59·2 L 84 11 43·4	Ganges River No. 70 s. (Ghazipur) On left bank, 0·7 of a mile S.W. of Firozpur village; pargana Zamánia. λ 25 31 46·53 L 83 51 9·37
Dhúmnagar Karbala. (Chumparun) λ 26 46 9 L 84 33 34	Dumri No. 1, Fort. (Gya) λ 24 34 56·2 L 84 25 2·5	Ganges River No. 71 s. (Ghazipur) On right bank, 1·0 mile N. of Gahmar; pargana Zamánia. λ 25 30 50·74 L 83 51 20·37
Didri House, (Lohardugga) Tiled. λ 24 3 25·8 L 84 16 4·4	Dumri No. 2, Fort. (Shahabad) λ 25 38 19·8 L 84 13 44·0	Ganges River No. 72 s. (Ghazipur) On left bank, 1·3 miles S.E. of Firozpur and 1·5 miles S.W. of Bírpur village; pargana Zamánia. λ 25 31 11·31 L 83 52 44·59
Dinapore Flagstaff. (Patna) λ 25 38 19·4 L 85 5 9·9	Durgádi, X. (Vide page 5—P.) λ 25 14 34·43 L 84 20 2·74 H 319 h 25 Nos. 15, 17	Ganges River No. 73 s. (Ghazipur) On right bank on a mound in Bára vil- lage; pargana Zamánia. λ 25 30 50·15 L 83 53 43·09
Diúr Tomb. (Chumparun) Top of dome of Rája Bain's tomb. λ 26 20 1·4 L 84 53 52·4	Firozpur House. (Ghazipur) W. end of a paka house. λ 25 32 2 L 83 51 54	Ganges River No. 74 s. (Ghazipur) On left bank, 0·7 of a mile E. of Bírpur village; pargana Muhammadabad. λ 25 31 16·55 L 83 54 58·84
Domath Imámbára. (Gorakhpur) λ 26 40 44·2 L 84 18 48·4		

* The preceding portion of this triangulation will be found in the Co-ordinate List of the Gora Meridional Series.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
Ganges River No. 75 s. (Ghazipur) On right bank, 0·2 of a mile N.W. of Naubatpur and 0·8 of a mile W. of Chausa village; pargana Zamania. λ 25 30 45·39 L 83 55 27·27	Ganges River No. 84 s. (Ghazipur) On left bank, 0·5 of a mile S.W. of Sarai village and 0·7 of a mile S.W. by S. of Ujowar; pargana Garha. λ 25 34 40·00 L 84 0 23·38	Ganges River No. 94 s. (Ghazipur) On left bank close to and S.E. of Barka Khet, 0·9 of a mile E. of Lachmanpur and 1·5 miles E. by S. of Pipara village; pargana Garha. λ 25 39 7·64 L 84 4 17·06
Ganges River No. 76 s. (Ghazipur) On left bank about a mile S.W. of Pália village; pargana Muhammadabad. λ 25 31 23·30 L 83 56 2·15	Ganges River No. 85 s. (Shahabad) On right bank close to and N. of Buxar fort; pargana Bhojpur. λ 25 34 29·84 L 84 0 46·05	Ganges River No. 95 s. (Shahabad) On right bank, 0·7 of a mile N.W. of Amarpur village (new); pargana Bhojpur. λ 25 39 32·36 L 84 5 47·43
Ganges River No. 77 s. (Shahabad) On right bank, 0·6 of a mile N.E. of Chausa village; pargana Chausa. λ 25 31 7·22 L 83 56 42·35	Ganges River No. 86 s. (Ghazipur) On left bank, 0·2 of a mile S. of Barauli village; pargana Garha. λ 25 35 42·83 L 84 1 31·91	Ganges River No. 96 s. (Ghazipur) On left bank, 0·6 of a mile S. of Bamnauli village, 1·7 miles E. of Bilária village and 2·2 miles S.E. of the large village of Narhi; pargana Garha. λ 25 40 25·42 L 84 5 10·01
Ganges River No. 78 s. (Ghazipur) On left bank, 0·4 of a mile S. of Pália village; pargana Muhammadabad. λ 25 31 34·83 L 83 56 37·71	Ganges River No. 87 s. (Shahabad) On right bank close to and N.E. of Sári village; pargana Bhojpur. λ 25 35 25·89 L 84 2 8·72	Ganges River No. 97 s. (Shahabad) On right bank, 0·4 of a mile N.W. of Kesapur village; pargana Bhojpur. λ 25 40 28·33 L 84 6 45·24
Ganges River No. 79 s. (Shahabad) On right bank, 0·3 of a mile W. of Kumária village and close to and N. of Misroliá (chhota); pargana Chausa. λ 25 32 7·95 L 83 57 18·71	Ganges River No. 88 s. (Ghazipur) On left bank in pargana Garha. λ 25 36 42·59 L 84 2 37·37	Ganges River No. 98 s. (Ghazipur) On left bank, 0·6 of a mile S.E. of Kot village and 1·0 mile S. of Anjoarpur village; pargana Ballia. λ 25 42 0·66 L 84 6 24·44
Ganges River No. 80 s. (Ghazipur) On left bank, 1·5 miles S.W. of the large village of Náráyanpur; pargana Muhammadabad. λ 25 33 24·58 L 83 57 48·11	Ganges River No. 89 s. (Shahabad) On right bank in pargana Bhojpur. λ 25 36 24·01 L 84 3 23·63	Ganges River No. 99 s. (Shahabad) On right bank, 0·8 of a mile N.W. of Mámkipur village; pargana Bhojpur. λ 25 40 59·00 L 84 7 36·63
Ganges River No. 81 s. (Shahabad) On right bank, 0·7 of a mile W. of Suijpara and 0·9 of a mile N.W. of Baláhi village; pargana Chausa. λ 25 32 59·95 L 83 58 21·83	Ganges River No. 90 s. (Ghazipur) On left bank in pargana Garha. λ 25 37 25·94 L 84 3 27·49	Ganges River No. 100 s. (Ghazipur) On left bank, 0·7 of a mile S. of Biláspur; pargana Ballia. λ 25 41 56·14 L 84 7 32·97
Ganges River No. 82 s. (Ghazipur) On left bank on centre roof of Major Sheror's house, 0·7 of a mile S.E. of Náráyanpur village and 3·3 miles S.E. by S. of Kanwau village; pargana Garha. λ 25 33 57·00 L 83 59 12·96	Ganges River No. 91 s. (Shahabad) On right bank in pargana Bhojpur. λ 25 37 17·09 L 84 4 29·82	Ganges River No. 101 s. (Shahabad) On right bank, 1·1 miles N. of Málibákia village; pargana Bhojpur. λ 25 41 17·61 L 84 8 33·06
Ganges River No. 83 s. (Shahabad) On right bank, 0·6 of a mile N.E. of Rámjibanganj village; pargana Bhojpur. λ 25 33 32·05 L 83 59 23·52	Ganges River No. 92 s. (Ghazipur) On left bank, 0·7 of a mile E. of Basantapura village and 0·8 of a mile S.E. of Sorai village; pargana Garha. λ 25 38 6·33 L 84 3 47·17	Ganges River No. 102 s. (Ghazipur) On left bank, 1·2 miles S. of Sháh-pur village and 1·3 miles S.E. of Hasnapura village; pargana Ballia. λ 25 42 18·61 L 84 8 39·97
	Ganges River No. 93 s. (Shahabad) On right bank, 1·2 miles S.W. of Amarpur village (new); pargana Bhojpur. λ 25 38 28·94 L 84 5 7·54	

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Ganges River No. 103 s. (Shahabad) On right bank close to and W. of Bichak Tola and 1.1 miles N. of Rájpur village; pargana Bhojpur. " " " λ 25 41 42.90 L 84 9 42.11	Ganges River No. 113 s. (Shahabad) On right bank, close to and E. of Rájpur, 1.5 miles N.E. of Dubauli village and 1.7 miles N.E. by E. of Akauna; pargana Bhojpur. " " " λ 25 40 26.13 L 84 14 1.24	Ganges River No. 123 s. (Shahabad) In Sunara village on right bank, close to and W. of Gáighát and 0.6 of a mile N. of Ujwalia village; pargana Bhojpur. " " " λ 25 37 19.08 L 84 17 40.36
Ganges River No. 104 s. (Ghazipur) On left bank, 1.0 mile S. of Taranpur village; pargana Ballia. λ 25 42 42.30 L 84 9 58.83	Ganges River No. 114 s. (Ghazipur) On left bank, in pargana Ballia. λ 25 39 17.32 L 84 14 56.64	Ganges River No. 124 s. (Ghazipur) On left bank, in pargana Ballia. λ 25 38 5.30 L 84 17 38.91
Ganges River No. 105 s. (Shahabad) On right bank, close to and N. of Lotan Missar's Dera and 0.7 of a mile N.E. of Tilak Rái-ku-hátha; pargana Bhojpur. λ 25 42 4.26 L 84 11 1.26	Ganges River No. 115 s. (Shahabad) On right bank, close to and N.E. of Kharatar village; pargana Bhojpur. λ 25 39 1.74 L 84 13 38.82	Ganges River No. 125 s. (Shahabad) On right bank, 0.3 of a mile S.W. of Shitalpur, 0.4 of a mile W. of Simára and 0.3 of a mile N. of Bagáhi; pargana Bhojpur. λ 25 38 27.23 L 84 18 13.72
Ganges River No. 106 s. (Ghazipur) On left bank, 0.7 of a mile S.W. of Bagrasan village; pargana Ballia. λ 25 42 58.51 L 84 11 30.66	Ganges River No. 116 s. (Ghazipur) On left bank, in pargana Ballia. λ 25 38 22.74 L 84 14 40.25	Ganges River No. 126 s. (Ghazipur) On left bank, 0.3 of a mile E. of Shibpur Diár village; pargana Ballia. λ 25 39 21.44 L 84 17 52.28
Ganges River No. 107 s. (Shahabad) On right bank, 1.2 miles E.N.E. of Dula Pa village; pargana Bhojpur. λ 25 42 14.92 L 84 12 3.00	Ganges River No. 117 s. (Shahabad) On right bank, 0.4 of a mile S.E. of Dumri village; pargana Bhojpur. λ 25 37 27.19 L 84 14 21.08	Ganges River No. 127 s. (Shahabad) On right bank, in pargana Bhojpur. λ 25 39 40.12 L 84 18 46.88
Ganges River No. 108 s. (Ghazipur) On left bank, 0.5 of a mile S. of Sirámpur, the same distance W. of Takar village and 0.7 of a mile N.W. of Rájpur; pargana Ballia. λ 25 43 6.06 L 84 13 10.48	Ganges River No. 118 s. (Ghazipur) On left bank, in pargana Ballia. λ 25 37 33.86 L 84 15 15.73	Ganges River No. 128 s. (Ghazipur) On left bank, 1.6 miles S. of Jawahi village; pargana Ballia. λ 25 40 14.22 L 84 18 5.56
Ganges River No. 109 s. (Shahabad) On right bank, in pargana Bhojpur. λ 25 42 14.32 L 84 13 4.86	Ganges River No. 119 s. (Shahabad) On right bank, 0.4 of a mile N.W. of Chhotu Urak and 0.5 of a mile E. of Bara Urak village; pargana Bhojpur. λ 25 36 59.04 L 84 15 45.51	Ganges River No. 129 s. (Shahabad) On right bank, in pargana Bhojpur. λ 25 40 29.68 L 84 19 23.64
Ganges River No. 110 s. (Ghazipur) On left bank, close to and N.W. of Khulphat Chapra and 0.3 of a mile S.E. of Gán-goli village; pargana Ballia. λ 25 42 12.77 L 84 14 28.10	Ganges River No. 120 s. (Ghazipur) On left bank, in pargana Ballia. λ 25 37 25.27 L 84 15 46.65	Ganges River No. 130 s. (Ghazipur) On left bank, 1.2 miles S. of Nauka-gaon village; pargana Ballia. λ 25 41 13.14 L 84 18 51.26
Ganges River No. 111 s. (Shahabad) On right bank, in pargana Bhojpur. λ 25 41 27.16 L 84 14 4.73	Ganges River No. 121 s. (Shahabad) On right bank, close to and N. of Badauli, 0.5 of a mile N.W. by N. of Bhariár and 1.0 mile N.W. by W. of Jogía village; pargana Bhojpur. λ 25 36 58.87 L 84 16 40.90	Ganges River No. 131 s. (Shahabad) On right bank, 0.5 of a mile N.W. of Hempur village; pargana Bhojpur. λ 25 41 4.26 L 84 20 3.25
Ganges River No. 112 s. (Ghazipur) On left bank, 0.8 of a mile S.W. of Shibpur Diár village; pargana Ballia. λ 25 40 47.76 L 84 15 3.80	Ganges River No. 122 s. (Ghazipur) On left bank, in pargana Ballia. λ 25 37 27.80 L 84 16 55.49	Ganges River No. 132 s. (Ghazipur) On left bank, 1.6 miles S. of Haldi, a large and well known village; pargana Ballia. λ 25 42 4.40 L 84 20 9.82

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Ganges River No. 133 s. (Shahabad) On right bank, in pargana Behea. o ' " λ 25 41 40.08 L 84 21 1.27	Ganges River No. 143 s. (Shahabad) On right bank, about 1½ miles N. of Ishwarpur and 2 miles N.E. of Bhím Patti; pargana Behea. o ' " λ 25 40 50.86 L 84 24 46.00	Ganges River No. 153 s. (Shahabad) On right bank, about ¼ of a mile W.N.W. of Sarangpur; pargana Behea. o ' " λ 25 40 40.65 L 84 29 35.32
Ganges River No. 134 s. (Ghazipur) On left bank, 0.8 of a mile S. of Chaudabel and 1.1 miles S.W. of Bábubel village; pargana Ballia. λ 25 42 45.43 L 84 21 14.52	Ganges River No. 144 s. (Ghazipur) On left bank, in pargana Ballia. λ 25 41 1.14 L 84 25 31.63	Ganges River No. 154 s. (Ghazipur) On left bank, 0.9 of a mile S.W. of Gurária village; pargana Ballia. λ 25 41 26.83 L 84 29 43.32
Ganges River No. 135 s. (Shahabad) On right bank, in pargana Behea. λ 25 42 27.55 L 84 21 55.77	Ganges River No. 145 s. (Shahabad) On right bank, 0.3 of a mile N.W. of Sohia village, 1.0 mile E. of Rámdátáhi and 1.1 miles S. E. of Sonbarsa village; pargana Behea. λ 25 39 34.53 L 84 25 20.62	Ganges River No. 155 s. (Shahabad) On right bank, about ¼ of a mile W.N. W. of Birsinga; pargana Behea. λ 25 41 2.61 L 84 30 43.34
Ganges River No. 136 s. (Ghazipur) On left bank, close to and S.E. of Pokraha village and 0.3 of a mile S.W. of Gáighát village; pargana Ballia. λ 25 43 40.20 L 84 22 29.37	Ganges River No. 146 s. (Ghazipur) On left bank, in pargana Ballia. λ 25 40 4.26 L 84 26 9.37	Ganges River No. 156 s. (Ghazipur) On left bank, about ¼ of a mile E. of Gutária village; pargana Ballia. λ 25 42 4.16 L 84 30 58.80
Ganges River No. 137 s. (Shahabad) On right bank, in pargana Behea. λ 25 42 53.79 L 84 23 4.36	Ganges River No. 147 s. (Shahabad) On right bank, 0.6 of a mile W. of Sonaki Pipra village; pargana Behea. λ 25 38 37.29 L 84 26 21.88	Ganges River No. 157 s. (Shahabad) On right bank, about 1½ miles E.N.E. of Birsinga village; pargana Behea. λ 25 41 21.37 L 84 31 53.23
Ganges River No. 138 s. (Ghazipur) On left bank, 0.3 of a mile S. of Rudarpur and 0.4 of a mile W. of Jag Chapra village; pargana Ballia. λ 25 43 52.52 L 84 23 40.94	Ganges River No. 148 s. (Ghazipur) On left bank, in pargana Ballia. λ 25 39 25.93 L 84 26 55.05	Ganges River No. 158 s. (Ghazipur) On left bank, close to and S.W. of Aggar village; pargana Ballia. λ 25 42 1.04 L 84 32 10.93
Ganges River No. 139 s. (Shahabad) On right bank, in pargana Behea. λ 25 43 0.16 L 84 23 58.23	Ganges River No. 149 s. (Shahabad) On right bank, 1.2 miles N. of Pandápur and close to and S. of Ratanpura village; pargana Behea. λ 25 38 34.65 L 84 27 39.00	Ganges River No. 159 s. (Shahabad) On right bank, in pargana Behea. λ 25 41 36.85 L 84 33 22.71
Ganges River No. 140 s. (Ghazipur) On left bank, 1.1 miles S.W. of Beruarpur village; pargana Ballia. λ 25 43 17.37 L 84 24 55.55	Ganges River No. 150 s. (Ghazipur) On left bank, in pargana Ballia. λ 25 39 42.16 L 84 27 55.00	Ganges River No. 160 s. (Ghazipur) On left bank, close to and S. of Bisanpura and 0.5 of a mile E.S.E. of Doketi village; pargana Ballia. λ 25 42 12.42 L 84 33 46.70
Ganges River No. 141 s. (Shahabad) On right bank, in pargana Behea. λ 25 41 59.04 L 84 24 23.87	Ganges River No. 151 s. (Shahabad) In Bahoranpur village on right bank, 0.3 of a mile S.W. of Bahoran Tola; pargana Behea. λ 25 39 38.61 L 84 28 51.96	Ganges River No. 161 s. (Shahabad) On right bank, 2.0 miles W.N.W. of Tirbhauni village; pargana Arrah. λ 25 41 38.22 L 84 34 47.89
Ganges River No. 142 s. (Ghazipur) On left bank, about ¼ of a mile S.W. of Chak Nauranga; pargana Ballia. λ 25 42 6.20 L 84 25 16.76	Ganges River No. 152 s. (Ghazipur) On left bank, 1.9 miles S. of Jámania village and 2.0 miles S. W. of Dámodarpur; pargana Ballia. λ 25 40 36.47 L 84 28 50.24	Ganges River No. 162 s. (Ghazipur) On left bank, about a mile S. of Hariláhi and 1½ miles E.S.E. of Gangápur village; pargana Ballia. λ 25 42 11.41 L 84 36 9.29

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
Ganges River No. 163 s. (Shahabad) On right bank, in pargana Arrah. o ' " λ 25 41 15·73 L 84 36 38·84	Ganges River No. 173 s. (Sarun) On left bank, about 2 miles W. of Nawajipur; pargana Bál. o ' " λ 25 45 6·14 L 84 44 40·97	Ganges River No. 182 s. (Sarun) On right bank on Chiránd island, in pargana Chiránd. o ' " λ 25 43 2·63 L 84 51 44·92
Ganges River No. 164 s. (Ghazipur) On left bank, in pargana Ballia. λ 25 42 17·67 L 84 37 54·95	Ganges River No. 174 s. (Sarun) On sand bank, 0·1 of a mile from left bank and 1½ miles S.W. of Nawajipur; pargana Bál. λ 25 44 26·30 L 84 45 20·09	Ganges River No. 183 s. (Sarun) On left bank, about ¼ a mile S.E. of the large village of Chiránd; pargana Chiránd. λ 25 43 39·33 L 84 52 40·92
Ganges River No. 165 s. (Shahabad) On right bank, close to and N.N.E. of Puraha village; pargana Arrah. λ 25 41 54·63 L 84 38 31·11	Ganges River No. 175 s. (Shahabad) On right bank, 0·3 of a mile E. by S. of Sarab Rái Tola, the same distance N. of Rámnáth Tola and 1·4 miles N.W. of Bishwambhar Rái Tola; pargana Arrah. λ 25 42 55·22 L 84 45 20·83	Ganges River No. 184 s. (Sarun) On right bank on Chiránd island, in pargana Chiránd. λ 25 42 57·34 L 84 52 52·82
Ganges River No. 166 s. (Ghazipur) On left bank, in pargana Ballia. λ 25 42 53·87 L 84 39 27·00	Ganges River No. 176 s. (Sarun) On left bank, in pargana Bál. λ 25 43 26·25 L 84 46 24·84	Ganges River No. 185 s. (Sarun) On left bank, 1·3 miles W. of Singhai Tola; pargana Chiránd. λ 25 43 29·88 L 84 53 23·54
Ganges River No. 167 s. (Shahabad) On right bank, close to and N.W. of Sinha village; pargana Arrah. λ 25 42 22·34 L 84 39 46·21	Ganges River No. 177 s. (Shahabad) On right bank, 0·3 of a mile N.N.W. of Akona village, 0·6 of a mile N.N.E. of Bichak Tola and 0·8 of a mile N.E. by E. of Shibcharan Rái Tola; pargana Arrah. λ 25 42 16·34 L 84 46 54·90	Ganges River No. 186 s. (Sarun) On right bank on Chiránd island, in pargana Chiránd. λ 25 42 49·97 L 84 54 12·05
Ganges River No. 168 s. (Ghazipur) On left bank, 0·4 of a mile S.S.E. of Bati Tola; pargana Ballia. λ 25 43 8·15 L 84 41 4·63	Ganges River No. 178 s. (Sarun) On left bank, 2·1 miles S.S.E. of Tikairauth Tola and 1·8 miles S. of Gháru Tola; pargana Chiránd. λ 25 43 5·22 L 84 48 47·54	Ganges River No. 187 s. (Sarun) On left bank, 0·6 of a mile S.E. of Singhai Bara and 0·7 of a mile S. of Dumri; pargana Chiránd. λ 25 43 17·51 L 84 55 9·82
Ganges River No. 169 s. (Shahabad) On right bank, close to and E. of Jibanpur, 0·2 of a mile W. of Simária and 1·5 miles N. of Pharada village; pargana Arrah. λ 25 42 23·67 L 84 42 9·16	Ganges River No. 179 s. (Shahabad) On right bank, about ¼ of a mile N.W. of Dhusaria; pargana Arrah. λ 25 42 23·84 L 84 48 46·27	Ganges River No. 188 s. (Patna) On right bank, about 2½ miles N.E. of Rámpur Ghoghur Arázi; pargana Maner. λ 25 42 36·63 L 84 56 13·34
Ganges River No. 170 s. (Ghazipur) On left bank, about ½ of a mile S.E. of Loha Tola and 1½ miles E.S.E. of Baiju Tola; pargana Ballia. λ 25 43 38·35 L 84 42 53·73	Ganges River No. 180 s. (Sarun) On right bank on Chiránd island, 1·1 miles N.N.W. of Subhalpur, 1·0 mile N.N.E. of Dayál Chak and 2·0 miles N.E. of Jamunia; pargana Chiránd. λ 25 42 22·52 L 84 50 7·90	Ganges River No. 189 s. (Sarun) On left bank, 0·9 of a mile S.E. by S. of Ballia and the same distance S. by W. of Barua; pargana Chiránd. λ 25 43 20·30 L 84 56 29·32
Ganges River No. 171 s. (Shahabad) On right bank, 1·2 miles S.S.W. of Ugan Singh Tola and 0·3 of a mile S.W. of Alekhi Tola No. 1; pargana Arrah. λ 25 43 29·59 L 84 43 58·77	Ganges River No. 181 s. (Sarun) On left bank, 1·5 miles S. by E. of Goldinganj, 1·2 miles S. by W. of Mahárájganj and 1·3 miles S.S.W. by W. of Dariáganj; pargana Chiránd. λ 25 43 27·82 L 84 50 46·05	Ganges River No. 190 s. (Patna) On right bank, about 3¼ miles N. by W. of Langa Tola; pargana Maner. λ 25 43 2·25 L 84 57 32·69
Ganges River No. 172 s. (Ghazipur) On left bank, 1·5 miles E.N.E. of Loha Tola and 1·8 miles in the same direction of Baiju Tola; pargana Ballia. λ 25 44 31·34 L 84 43 27·00	Ganges River No. 191 s. (Sarun) On left bank, about a mile W. of Sabarna Chhota; pargana Kasmar. λ 25 43 47·83 L 84 58 21·89	

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Ganges River No. 192 s. (Patna) On right bank, about 1½ miles E. of Bhe-riári Ghát; pargana Maner.</p> <p style="text-align: center;">o ' "</p> <p>λ 25 42 51·66 L 84 58 50·77</p>	<p>Garhání Siwála. (Shahabad)</p> <p style="text-align: center;">o ' "</p> <p>λ 25 24 32·0 L 84 35 55·8</p>	<p>Gogra River No. 3 s. (Sarun) On left bank, on the middle bastion of the W. side of the old mud fort of Godna; the height of the station mark above the level of the ground is about 83 feet; the road to Gorakhpur passes 0·1 of a mile N. and a branch of the Gogra flows 0·3 of a mile S. of the station; pargana Mánjhi.</p> <p style="text-align: center;">o ' "</p> <p>λ 25 46 49·54 L 84 41 37·00</p>
<p>Ganges River No. 193 s. (Sarun) On left bank, 1·0 mile S.S.E. of Sabarna Chhota, 1·2 miles S. of Panápur and close to and W.S.W. of Dara Sukopur; pargana Kasmar.</p> <p>λ 25 43 6·93 L 84 59 57·01</p>	<p>Ghiáspur Temple. (Sarun)</p> <p>λ 25 55 13·7 L 84 28 22·6</p>	<p>Gogra River No. 4 s. (Ghazipur) On right bank, 0·1 of a mile W.N.W. of Gariba Roy Tola and 0·3 of a mile E. of Rawa Roy Tola; pargana Ballia.</p> <p>λ 25 46 25·52 L 84 40 33·72</p>
<p>Ganges River No. 194 s. (Patna) On right bank, about ¼ of a mile N.W. of Bagai; pargana Maner.</p> <p>λ 25 41 56·91 L 84 59 53·90</p>	<p>Gidaha, XXV. (Vide page 7—P.)</p> <p>λ 26 30 14·10 L 84 15 10·94 H 279 h 30 No. 31</p>	<p>Gogra River No. 5 s. (Sarun) On left bank, on paka house of Rámdás Agarwála in Simaria village; pargana Mánjhi. It is marked by an iron pin driven into the masonry.</p> <p>λ 25 47 38·52 L 84 40 0·44</p>
<p>Ganges River No. 195 s. (Sarun) On left bank, 0·3 of a mile S.S.W. of Lálbegwa village and 0·4 of a mile S.S.E. of Ganar-ka-Tola; pargana Kasmar.</p> <p>λ 25 42 2·67 L 85 0 39·33</p>	<p>Godna House. (Sarun) Khúblál Bania's paka house.</p> <p>λ 25 46 54·9 L 84 41 40·2</p>	<p>Gogra River No. 6 s. (Ghazipur) On right bank, 0·5 of a mile N. W. of Chaku Tola and 0·4 of a mile N.N.E. of Lakhál Tola; pargana Ballia.</p> <p>λ 25 46 50·61 L 84 39 38·42</p>
<p>Ganges River No. 196 s. (Patna) On right bank, about a mile S. of Bagai and ½ a mile N.W. of Bangarpál No. 2; pargana Maner.</p> <p>λ 25 40 25·06 L 85 0 18·13</p>	<p>Godna Masjid, (Sarun) Centre dome.</p> <p>λ 25 46 55·2 L 84 41 38·1</p>	<p>Gogra River No. 7 s. (Ghazipur) On right bank, close to edge of water in a patch of Jhau jungle; pargana Ballia.</p> <p>λ 25 47 43·87 L 84 38 35·39</p>
<p>Ganges River No. 197 s. (Sarun) On left bank, 0·3 of a mile S. by E. of Lálbegwa and 0·6 of a mile S.S.W. of Rámpur vil-lage; pargana Kasmar.</p> <p>λ 25 40 57·90 L 85 1 39·41</p>	<p>Godna Siwála No. 1, (Sarun) Rája of Bettiah's.</p> <p>λ 25 46 42·4 L 84 42 4·4</p>	<p>Gogra River No. 8 s. (Sarun) On left bank, close to and W. of Parsa Tola and 0·4 of a mile N.W. of Ferry Ghát; par-gana Mánjhi.</p> <p>λ 25 48 49·86 L 84 38 33·91</p>
<p>Ganges River No. 198 s. (Patna) On right bank, about ¼ of a mile N. by E. of the large village of Sherpur; pargana Maner.</p> <p>λ 25 39 36·21 L 85 1 15·09</p>	<p>Godna Siwála No. 2, (Sarun) Sundar Sháh's.</p> <p>λ 25 46 44·3 L 84 41 48·3</p>	<p>Gogra River No. 9 s. (Ghazipur) On right bank, close to edge of water in a patch of Jhau jungle; pargana Ballia.</p> <p>λ 25 48 30·20 L 84 37 12·60</p>
<p>Ganges River No. 199* s. (Sarun) On left bank, about 1½ miles E. of Sherpur Ghát and a mile W. of Chak Dalíp; pargana Kas-mar.</p> <p>λ 25 39 56·13 L 85 2 57·54</p>	<p>Godna s. (Sarun) On the W. turret of a paka house belong-ing to the Rája of Bettiah. It is marked by an iron pin driven into the masonry work.</p> <p>λ 25 46 42·40 L 84 42 3·15</p>	<p>Gogra River No. 10 s. (Sarun) On left bank, on S.E. mound of Mánjhi mud fort on the village land, 0·2 of a mile W. of the thána and the same distance S.S.W. of the vil-lage site; pargana Mánjhi.</p> <p>λ 25 49 57·56 L 84 37 8·49</p>
<p>Ganges River No. 200* s. (Patna) On right bank, about a mile S.E. of Chit-náwán village; pargana Maner.</p> <p>λ 25 38 22·95 L 85 2 58·92</p>	<p>Gogra River No. 1 s. (Sarun) On left bank, 0·9 of a mile S. of Ajáib-ganj and 1·0 mile S.W. of Nabíganj village; pargana Mánjhi.</p> <p>λ 25 46 1·91 L 84 44 14·62</p>	<p>Gogra River No. 11 s. (Ghazipur) On right bank, close to a small stream, 0·8 of a mile N.N.W. of Chandíára village and 0·5 of a mile W. of Dhera village; pargana Ballia.</p> <p>λ 25 49 17·43 L 84 35 12·29</p>
<p>Garaulia Temple. (Chumparun)</p> <p>λ 26 50 41·8 L 84 31 13·2</p>	<p>Gogra River No. 2 s. (Ghazipur) On right bank, 1·0 mile E.S.E. of Shibchuran Tola and 0·3 of a mile N.N.E. of Sahabara Tola; pargana Ballia.</p> <p>λ 25 45 39·98 L 84 42 12·37</p>	

* The continuation of this triangulation will be found in the Co-ordinate List of the Chendwár Meridional Series.

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Gogra River No. 12 s. (Sarun) On left bank, in the village of Dumri; pargana Mánjhi. λ 25 51 33·26 L 84 35 32·58	Gogra River No. 21 s. (Ghazipur) On right bank, 1·3 miles N. of Bhu-pálpur and 1·5 miles N.N.E. of Jainchakra vil-lage; pargana Kharid. λ 25 55 26·89 L 84 24 57·01	Gogra River No. 80 s. (Sarun) On left bank, close to water's edge, 2·0 miles S.S.W. of the large village of Patár; par-gana Andar. λ 26 0 37·68 L 84 14 32·64
Gogra River No. 18 s. (Ghazipur) On right bank, close to and N.E. of Tara Tola village; pargana Ballia. λ 25 51 8·63 L 84 32 52·45	Gogra River No. 22 s. (Sarun) On left bank, in Bhágar village and about a mile W. by S. of Harpur village; pargana Narhan. λ 25 56 53·40 L 84 24 56·47	Gogra River No. 81 s. (Ghazipur) On right bank, in the village of Ilas-garh, about 0·4 of a mile N.E. of Manír village and 0·2 of a mile S. of Manír ferry ghát; pargana Kharid. λ 25 59 35·08 L 84 13 23·84
Gogra River No. 14 s. (Sarun) On left bank, 0·3 of a mile N.W. of Du-maigarh ghát temple and 0·6 of a mile S.E. of Phul-warria village; pargana Mánjhi. λ 25 53 3·86 L 84 32 29·24	Gogra River No. 23 s. (Ghazipur) On right bank, on an island near a Sota and about a mile N.E. of Chándpur village; pargana Kharid. λ 25 55 17·84 L 84 23 56·02	Gogra River No. 82 s. (Sarun) On left bank, 0·4 of a mile S. of Raghu-bar Roy Tola; thána Darauli. λ 26 1 48·13 L 84 12 28·10
Gogra River No. 15 s. (Ghazipur) On right bank, 1·0 mile W.N.W. of the large village of Gopálnagar and 0·6 of a mile E.N.E. of Mohan Roy Tola; pargana Kharid. λ 25 52 6·41 L 84 30 48·52	Gogra River No. 24 s. (Sarun) On left bank, in Gabhirár village, 0·5 of a mile E.S.E. of Gabhirár Tola and 1·8 miles S.S.W. of Tánri village; pargana Narhan. λ 25 57 32·92 L 84 21 58·70	Gogra River No. 83 s. (Ghazipur) On right bank, 0·2 of a mile E.S.E. of Nipánia village, 1·4 miles S.S.E. of Nipánia ferry and 0·5 of a mile N. of Bahádura; pargana Kharid. λ 26 1 13·94 L 84 10 31·09
Gogra River No. 16 s. (Sarun) On left bank, the road to Darauli passes a short distance N. of this station; pargana Mánjhi. λ 25 54 34·04 L 84 29 41·51	Gogra River No. 25 s. (Ghazipur) On right bank, S. of a Sota and about 1·4 miles N.E. of Suara village; pargana Kharid. λ 25 56 8·51 L 84 20 43·30	Gogra River No. 84 s. (Sarun) On left bank, 1·5 miles S.S.E. of Da-rauli a large village and 0·7 of a mile S. of Harna Tola; thána Darauli. λ 26 3 14·38 L 84 10 54·90
Gogra River No. 17 s. (Ghazipur) On right bank, 0·7 of a mile N.N.E. of Rámnapur and 0·3 of a mile E. of Semra village; pargana Kharid. λ 25 53 47·25 L 84 28 24·50	Gogra River No. 26 s. (Sarun) On left bank, N. of a nala, 0·7 of a mile E.S.E. of Nowáda and 0·5 of a mile W.S.W. of Ba-santpur village; pargana Narhan. λ 25 58 22·95 L 84 19 32·81	Gogra River No. 85 s. (Azamgarh) On right bank, 0·4 of a mile N.W. of Jindápur, 0·2 of a mile N. of Kharid and W. of the ruins of Kázipur city; pargana Sikandarpur. λ 26 2 40·71 L 84 9 36·11
Gogra River No. 18 s. (Sarun) On left bank, on a mud fort in Ghíaspur village; pargana Mánjhi. λ 25 55 14·92 L 84 28 18·16	Gogra River No. 27 s. (Ghazipur) On right bank, close to and W. of Moti Tola, 0·9 of a mile N.W. of Mohan Tola and 0·4 of a mile N.E. of Tikula village; pargana Kharid. λ 25 56 59·39 L 84 17 48·51	Gogra River No. 86 s. (Sarun) On left bank, 0·6 of a mile S.E. of Amar-pur masjid in ruins, 0·9 of a mile in the same direc-tion of Amarpur village and 0·5 of a mile W.N.W. of Duba village; thána Darauli. The road to Gorakh-pur passes a few paces S. of the station. λ 26 5 16·02 L 84 9 17·15
Gogra River No. 19 s. (Ghazipur) On right bank, 0·7 of a mile N.N.W. of Kishanpur village and 0·9 of a mile N.N.E. of Ba-hádurpur village; pargana Kharid. λ 25 54 30·73 L 84 26 44·00	Gogra River No. 28 s. (Sarun) On left bank, 1·8 miles S.S.E. of Rudra-pur village, 0·7 of a mile N.W. of Narhan ferry ghát and close to and N.N.E. of Narhan masjid; pargana Narhanpur. λ 25 58 35·58 L 84 17 31·16	Gogra River No. 87 s. (Azamgarh) On right bank, 0·5 of a mile N.N.W. of Basárikpur and 0·6 of a mile N.E. of the large village of Sisotar; pargana Sikandarpur. λ 26 3 56·14 L 84 7 27·96
Gogra River No. 20 s. (Sarun) On left bank, on a mound in Sisawan vil-lage; pargana Narhan. λ 25 56 13·40 L 84 26 18·73	Gogra River No. 29 s. (Ghazipur) On right bank, on a mound in the vil-lage of Navágaon, 1·4 miles E.S.E. of Nayágaon math and close to and N.W. of the village; par-gana Kharid. λ 25 59 5·45 L 84 14 51·83	Gogra River No. 88 s. (Sarun) On left bank, 0·2 of a mile W.N.W. of Kauntalia village, 0·3 of a mile S.W. of Khor village and 1·2 miles S. of Akrairi village; thána Darauli. λ 26 6 9·50 L 84 7 24·00

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Gogra River No. 39 s. (<i>Azamgarh</i>) On right bank, 0·4 of a mile N.W. of Lachmipur, 0·4 of a mile E. of Chakia Tola and 0·8 of a mile S.E. of Baraucha village; pargana Sikandarpur.</p> <p style="text-align: center;">o ' "</p> <p>λ 26 4 59·55 L 84 5 27·39</p>	<p>Gogra River No. 48 s. (<i>Gorakhpur</i>) On left bank, 0·2 of a mile W.N.W. of Mathia village, 0·3 of a mile nearly in the same direction of Dhaurāra and 0·7 of a mile S.S.E. of Takia; pargana Salempur.</p> <p style="text-align: center;">o ' "</p> <p>λ 26 7 35·03 L 83 56 49·61</p>	<p>Gogra River No. 57 s. (<i>Gorakhpur</i>) On left bank, close to and S. of Maili village, 1·0 mile N.W. of Nariaun and close to the high road to Gorakhpur; pargana Salempur.</p> <p style="text-align: center;">o ' "</p> <p>λ 26 13 12·57 L 83 53 46·23</p>
<p>Gogra River No. 40 s. (<i>Sarun</i>) On left bank, on a high mound in Dumarhar village at junction of the Gogra and Chhoti Gunduk nadi and 0·9 of a mile S.S.E. of Mairitaur village; thāna Darauli.</p> <p>λ 26 6 51·83 L 84 5 59·31</p>	<p>Gogra River No. 49 s. (<i>Azamgarh</i>) On right bank, 0·6 of a mile S. of Sonbarsa village and 1·3 miles N.W. of Dhaurāra; pargana Sikandarpur.</p> <p>λ 26 6 32·15 L 83 56 29·87</p>	<p>Gogra River No. 58 s. (<i>Gorakhpur</i>) On left bank, 0·3 of a mile S.E. of Akdānga village and 0·8 of a mile S.S.W. of Barhauna village; pargana Salempur.</p> <p>λ 26 14 28·24 L 83 51 5·65</p>
<p>Gogra River No. 41 s. (<i>Azamgarh</i>) On right bank, close to and N.W. of Kutumbganj; pargana Sikandarpur.</p> <p>λ 26 6 4·49 L 84 4 12·16</p>	<p>Gogra River No. 50 s. (<i>Azamgarh</i>) On right bank, 0·4 of a mile W. of Karimganj, 0·5 of a mile S.E. of Majhwālia and 0·6 of a mile S.S.E. of Korā; pargana Sikandarpur.</p> <p>λ 26 7 52·73 L 83 55 20·08</p>	<p>Gogra River No. 59* s. (<i>Azamgarh</i>) On right bank, near a Sota on an island and surrounded by Jhau jungle.</p> <p>λ 26 12 57·76 L 83 49 17·96</p>
<p>Gogra River No. 42 s. (<i>Gorakhpur</i>) On left bank, 0·6 of a mile S. of Churia and 0·9 of a mile S.E. of Nadauli village; pargana Salempur.</p> <p>λ 26 8 40·17 L 84 3 29·65</p>	<p>Gogra River No. 51 s. (<i>Gorakhpur</i>) On left bank, 0·3 of a mile S. of Balia and 1·3 miles W.N.W. of Saia village; pargana Salempur.</p> <p>λ 26 9 0·61 L 83 55 21·90</p>	<p>Gogra River No. 60* s. (<i>Gorakhpur</i>) On left bank, 0·8 of a mile W. of the large village of Painah.</p> <p>λ 26 15 14·53 L 83 48 50·66</p>
<p>Gogra River No. 43 s. (<i>Azamgarh</i>) On right bank, on a Gosān's paka house in Duha village; pargana Sikandarpur.</p> <p>λ 26 6 47·83 L 84 1 38·63</p>	<p>Gogra River No. 52 s. (<i>Azamgarh</i>) On right bank, on a mound in Turtipār village, 0·8 of a mile S. of Khaira ghāt (ferry); pargana Sikandarpur.</p> <p>λ 26 9 13·92 L 83 54 20·22</p>	<p>Goiti House, (<i>Sarun</i>) Tiled, E. corner.</p> <p>λ 26 7 50·5 L 84 18 0·8</p>
<p>Gogra River No. 44 s. (<i>Gorakhpur</i>) On left bank, 0·3 of a mile W. of Miānpur and 1·1 miles S. W. of Puri village; pargana Salempur.</p> <p>λ 26 8 30·95 L 84 0 58·16</p>	<p>Gogra River No. 53 s. (<i>Gorakhpur</i>) On left bank, on a mound in Bhāgalpur village; pargana Salempur.</p> <p>λ 26 10 8·16 L 83 54 38·16</p>	<p>Goldinganj Temple No. 1. (<i>Sarun</i>)</p> <p>λ 25 44 42·9 L 84 50 35·7</p>
<p>Gogra River No. 45 s. (<i>Azamgarh</i>) On right bank, 0·2 of a mile W.N.W. of Behara and 0·5 of a mile N.N.E. of Mathia village; pargana Sikandarpur.</p> <p>λ 26 7 9·04 L 83 59 58·43</p>	<p>Gogra River No. 54 s. (<i>Azamgarh</i>) On right bank, on the ruins of a paka fort called Khairadi, 0·2 of a mile N. of Khairadi village and 1·1 miles E.S.E. of Gulaura Tola; pargana Sikandarpur.</p> <p>λ 26 10 10·78 L 83 53 50·79</p>	<p>Goldinganj Temple No. 2. (<i>Sarun</i>)</p> <p>λ 25 44 47·4 L 84 50 40·4</p>
<p>Gogra River No. 46 s. (<i>Gorakhpur</i>) On left bank, 0·4 of a mile E.S.E. of Mathia village and 0·2 of a mile S. of Dumri village; pargana Salempur.</p> <p>λ 26 7 53·87 L 83 58 54·88</p>	<p>Gogra River No. 55 s. (<i>Gorakhpur</i>) On left bank, in the village of Dausia; pargana Salempur.</p> <p>λ 26 11 27·86 L 83 54 23·84</p>	<p>Gopālpur Math. (<i>Shahabad</i>)</p> <p>λ 25 12 49·4 L 84 6 53·2</p>
<p>Gogra River No. 47 s. (<i>Azamgarh</i>) On right bank, on a high mound in Haldi village and 1·2 miles E.N.E. of Mathia village; pargana Sikandarpur.</p> <p>λ 26 6 42·28 L 83 58 4·45</p>	<p>Gogra River No. 56 s. (<i>Azamgarh</i>) On right bank, 0·4 of a mile S.S.E. of Semara and 1·3 miles N.E. of Chainpur; pargana Sikandarpur.</p> <p>λ 26 11 42·21 L 83 51 56·00</p>	<p>Gunduk River No. 1 s. (<i>Chumparua</i>) On right bank, 0·6 of a mile N.W. of Ninaha village; thāna Bagaha, pargana Majhauwa.</p> <p>λ 26 58 53·28 L 84 13 30·75</p>
		<p>Gunduk River No. 2 s. (<i>Chumparua</i>) On left bank, close to and S.W. of Bharwalia village; thāna Lauria, pargana Majhauwa.</p> <p>λ 26 59 37·33 L 84 15 4·76</p>

* The continuation of this triangulation will be found in the Co-ordinate List of the Gogra Meridional Series.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
Gunduk River No. 3 s. (Chumparun) On right bank, in thána Bagaha, pargana Majhauwa. λ 26 58 6.24 L 84 14 32.05	Gunduk River No. 13 s. (Chumparun) On right bank, about ¼ of a mile N. of Churaman Purena; pargana Majhauwa. λ 26 53 33.60 L 84 19 13.02	Gunduk River No. 23 s. (Gorakhpur) On right bank, in thána Bettiah, par- gana Majhauwa. λ 26 44 44.27 L 84 20 54.40
Gunduk River No. 4 s. (Chumparun) On left bank, in thána Lauria, par- gana Majhauwa. λ 26 58 27.93 L 84 16 2.04	Gunduk River No. 14 s. (Chumparun) On left bank, about 1½ miles S.W. of Kewanpur; thána Bettiah, pargana Majhauwa. λ 26 53 4.76 L 84 20 25.21	Gunduk River No. 24 s. (Chumparun) On left bank, 0.6 of a mile W.N.W. by W. of Gobarhi village and close to and W. by S. of Rájghát village; thána Bettiah, pargana Ma- jhauwa. λ 26 44 17.85 L 84 22 42.20
Gunduk River No. 5 s. (Chumparun) On right bank, in thána Bagaha, pargana Majhauwa. λ 26 57 17.64 L 84 16 12.37	Gunduk River No. 15 s. (Chumparun) On right bank, 0.3 of a mile N.N.E. of Bhartapatti; thána Bettiah, pargana Majhauwa. λ 26 52 6.86 L 84 19 49.33	Gunduk River No. 25 s. (Gorakhpur) On right bank, close to and E.N.E. by E. of Jangli Patti village and 0.6 of a mile in the same direction of Parsa village; thána Kasia, par- gana Sidhua Jobna. λ 26 43 1.05 L 84 20 54.36
Gunduk River No. 6 s. (Chumparun) On left bank, in thána Lauria, par- gana Majhauwa. λ 26 58 11.49 L 84 18 7.88	Gunduk River No. 16 s. (Chumparun) On left bank, about a mile W. by N. of Chaumukha; thána Bettiah, pargana Majhauwa. λ 26 51 40.93 L 84 21 24.96	Gunduk River No. 26 s. (Chumparun) On left bank, about 2 miles S.W. of the large village of Bijua; thána Bettiah, pargana Majhauwa. λ 26 41 51.08 L 84 22 50.46
Gunduk River No. 7 s. (Chumparun) On left bank, 0.4 of a mile W.S.W. of Pakri; thána Lauria, pargana Majhauwa. λ 26 56 38.18 L 84 17 45.84	Gunduk River No. 17 s. (Chumparun) On right bank, close to and E. of Rámnagar Kharkhunta; thána Bettiah, pargana Majhauwa. λ 26 50 56.41 L 84 20 27.08	Gunduk River No. 27 s. (Gorakhpur) On right bank, 0.2 of a mile E. of Jaunwahi and same distance N. of Gauraha; thána Kasia, pargana Sidhua Jobna. λ 26 40 28.69 L 84 21 38.80
Gunduk River No. 8 s. (Chumparun) On right bank, in thána Bagaha, pargana Majhauwa. λ 26 56 9.62 L 84 17 1.77	Gunduk River No. 18 s. (Chumparun) On left bank, 0.8 of a mile S. of Chau- mukha Gola and 1.9 miles S.S.W. by W of Chau- mukha village; thána Bettiah, pargana Majhauwa. λ 26 50 4.63 L 84 22 1.83	Gunduk River No. 28 s. (Chumparun) On left bank, about 1½ miles S.W. of Jagadishpur and 2½ miles W. of Rámnagar; thána Bettiah, pargana Majhauwa. λ 26 40 55.09 L 84 24 9.31
Gunduk River No. 9 s. (Chumparun) On right bank, in thána Bagaha, pargana Majhauwa. λ 26 55 30.83 L 84 17 47.05	Gunduk River No. 19 s. (Chumparun) On right bank, about 2½ miles E. by S. of Mednipur or Kursaha; thána Bettiah, par- gana Majhauwa. λ 26 48 55.63 L 84 21 16.80	Gunduk River No. 29 s. (Gorakhpur) On right bank, 0.6 of a mile N.E. of Makunchápra, 0.8 of a mile N. of Jalála and 0.4 of a mile W.N.W. of Bhawánipur; thána Kasia, pargana Sidhua Jobna. λ 26 38 47.65 L 84 23 37.06
Gunduk River No. 10 s. (Chumparun) On left bank, about a mile N.N.W. of Nawalpur Gola; thána Lauria, pargana Majhau- wa. λ 26 55 54.65 L 84 18 57.14	Gunduk River No. 20 s. (Chumparun) On left bank, 0.9 of a mile N. by W. of Srinagar; thána Bettiah, pargana Majhauwa. λ 26 48 17.25 L 84 22 48.33	Gunduk River No. 30 s. (Chumparun) On left bank, about ¼ a mile S. of Rámnagar; thána Bettiah, pargana Majhauwa. λ 26 40 12.71 L 84 26 8.01
Gunduk River No. 11 s. (Chumparun) On right bank, in thána Bagaha, pargana Majhauwa. λ 26 54 48.68 L 84 18 49.28	Gunduk River No. 21 s. (Chumparun) On right bank, in thána Bettiah, par- gana Majhauwa. λ 26 46 45.23 L 84 21 32.50	Gunduk River No. 31 s. (Gorakhpur) On right bank, in Jogipur village, 1.1 miles W.N.W. of Náráyanpur village, 0.7 of a mile N. of Kurmipatti village and 0.8 of a mile E. of Sihorawa; thána Kasia, pargana Sidhua Jobna. λ 26 38 42.33 L 84 26 6.40
Gunduk River No. 12 s. (Chumparun) On left bank, about ¼ of a mile S.E. of Nawalpur Gola; pargana Majhauwa. λ 26 54 43.99 L 84 19 56.01	Gunduk River No. 22 s. (Chumparun) On left bank, 0.9 of a mile S. by E. of Bhagwánpur, 0.8 of a mile N.W. of Gulária and 0.3 of a mile N.N.E. by E. of Nautan; thána Bet- tiah, pargana Majhauwa. λ 26 45 54.97 L 84 22 57.32	

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Gunduk River No. 32 s. (<i>Chumparun</i>) On left bank, 0.6 of a mile S.S.W. of Bindhari village and 1.7 miles S. of Gobind Bhakat-ka Tola; thána Bettiah, pargana Majhauwa.</p> <p>λ 26 39 49.52 L 84 27 55.00</p>	<p>Gunduk River No. 41 s. (<i>Sarun</i>) On right bank, about 2 miles S.E. of Chutáhi village and $\frac{1}{2}$ a mile E. of the large village of Doma Hate; thána Barauli.</p> <p>λ 26 31 59.61 L 84 32 50.79</p>	<p>Gunduk River No. 50 s. (<i>Chumparun</i>) On left bank, about $1\frac{1}{2}$ miles S.W. of Gobindganj Police Station; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 29 6.89 L 84 40 8.67</p>
<p>Gunduk River No. 33 s. (<i>Sarun</i>) On right bank, 1.2 miles N.E. of Khar-gauli village and same distance N. of Rájápur; thána Barauli.</p> <p>λ 26 38 1.13 L 84 28 33.39</p>	<p>Gunduk River No. 42 s. (<i>Chumparun</i>) On left bank, about $\frac{1}{2}$ a mile S. of the large village of Sakhwa; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 30 14.70 L 84 35 45.03</p>	<p>Gunduk River No. 51 s. (<i>Chumparun</i>) On left bank, about $\frac{1}{2}$ of a mile S. of Gobindganj and same distance W. of Nawáda village; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 29 9.04 L 84 41 21.67</p>
<p>Gunduk River No. 34 s. (<i>Chumparun</i>) On left bank, 0.9 of a mile S.S.E. of Kharmini village, 1.0 mile W. of Mangalpur village and 0.5 of a mile N.W. of Bishwambharpur village; thána Bettiah, pargana Majhauwa.</p> <p>λ 26 38 55.32 L 84 29 52.23</p>	<p>Gunduk River No. 43 s. (<i>Sarun</i>) On right bank, about $\frac{1}{2}$ a mile N.E. of Gausin village and $1\frac{1}{2}$ miles E. of Bisanpur village; thána Barauli.</p> <p>λ 26 28 39.40 L 84 33 52.34</p>	<p>Gunduk River No. 52 s. (<i>Sarun</i>) On right bank, about $\frac{1}{2}$ a mile N. of Salimpur factory; thána Barauli.</p> <p>λ 26 28 17.45 L 84 41 36.71</p>
<p>Gunduk River No. 35 s. (<i>Sarun</i>) On right bank, 1.3 miles N.E. by N. of Machua village and 2.0 miles N.E. of Tengrahi village; thána Barauli.</p> <p>λ 26 37 14.90 L 84 30 15.21</p>	<p>Gunduk River No. 44 s. (<i>Chumparun</i>) On left bank, a mile N.W. of Pakri and about $\frac{1}{2}$ a mile S. of Mangraha; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 28 37.28 L 84 37 14.76</p>	<p>Gunduk River No. 53 s. (<i>Chumparun</i>) On left bank, about a mile N.W. of the large village of Sangrámpur; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 28 41.73 L 84 42 51.00</p>
<p>Gunduk River No. 36 s. (<i>Chumparun</i>) On left bank, 0.9 of a mile N.W. by N. of Shámpur Kutarha, 0.4 of a mile E.N.E. of Nautan and 0.7 of a mile S.E. of Kotahi village; thána Bettiah, pargana Majhauwa.</p> <p>λ 26 37 49.57 L 84 31 48.32</p>	<p>Gunduk River No. 45 s. (<i>Sarun</i>) On right bank, about $\frac{1}{2}$ of a mile S.E. of Dharampur and $\frac{1}{2}$ a mile N.E. of Baluhe village; thána Barauli.</p> <p>λ 26 26 43.81 L 84 35 27.63</p>	<p>Gunduk River No. 54 s. (<i>Sarun</i>) On right bank, about $1\frac{1}{2}$ miles S.E. of Salimpur factory and $1\frac{1}{2}$ miles N.E. of Dairawa village; thána Barauli.</p> <p>λ 26 27 11.17 L 84 42 48.42</p>
<p>Gunduk River No. 37 s. (<i>Sarun</i>) On right bank, close to Bhojeli and about $1\frac{1}{2}$ miles N. of Rajwáhi village; thána Barauli.</p> <p>λ 26 35 48.90 L 84 31 59.78</p>	<p>Gunduk River No. 46 s. (<i>Sarun</i>) On right bank, about $1\frac{1}{2}$ miles E. of Muldipur Pakária village and same distance N.E. of Isápur; thána Barauli.</p> <p>λ 26 26 32.83 L 84 37 47.92</p>	<p>Gunduk River No. 55 s. (<i>Chumparun</i>) On left bank, about $\frac{1}{2}$ a mile S.W. of Puchuria Sugar manufactory and $\frac{1}{2}$ of a mile in the same direction of Tole Gopalpur; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 27 10.57 L 84 44 15.01</p>
<p>Gunduk River No. 38 s. (<i>Chumparun</i>) On left bank, about 2 miles N.W. of Majharia Tola; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 36 25.62 L 84 33 33.58</p>	<p>Gunduk River No. 47 s. (<i>Chumparun</i>) On left bank, about 2 miles S. of the large village of Sarea, $1\frac{1}{2}$ miles S.E. of Pakri village and $2\frac{1}{2}$ miles S.W. of Gobindganj Police Station; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 28 0.99 L 84 39 6.33</p>	<p>Gunduk River No. 56 s. (<i>Sarun</i>) On right bank, about $\frac{1}{2}$ a mile E. of Sálápur; thána Barauli.</p> <p>λ 26 25 56.06 L 84 44 17.17</p>
<p>Gunduk River No. 39 s. (<i>Sarun</i>) On right bank, about $1\frac{1}{2}$ miles E. of Rajwáhi village; thána Barauli.</p> <p>λ 26 34 14.48 L 84 32 39.28</p>	<p>Gunduk River No. 48 s. (<i>Sarun</i>) On right bank, about a mile S.W. of Bagwar temple; thána Barauli.</p> <p>λ 26 26 47.60 L 84 39 27.07</p>	<p>Gunduk River No. 57 s. (<i>Chumparun</i>) On left bank, about $1\frac{1}{2}$ miles S.W. of Bhawanipur village; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 26 4.39 L 84 45 34.78</p>
<p>Gunduk River No. 40 s. (<i>Chumparun</i>) On left bank, close to the large village of Chatia; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 33 42.32 L 84 34 57.46</p>	<p>Gunduk River No. 49 s. (<i>Sarun</i>) On right bank, about $\frac{1}{2}$ a mile N. of Bagwar temple and same distance W. of Salimpur factory; thána Barauli.</p> <p>λ 26 28 1.02 L 84 40 15.18</p>	<p>Gunduk River No. 58 s. (<i>Sarun</i>) On right bank, about a mile E. of Shítalpur and $\frac{1}{2}$ of a mile N. of Kawal Tola; thána Barauli.</p> <p>λ 26 24 25.19 L 84 45 22.06</p>

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Gunduk River No. 59 s. (Chumparun) On left bank, about a mile W. of Pakri village; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 25 11·39 L 84 46 38·40</p>	<p>Gunduk River No. 68 s. (Chumparun) On left bank, 1·4 miles S. by E. of Karhan and 0·7 of a mile W.S.W. of Munjwanis village; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 19 25·43 L 84 50 57·32</p>	<p>Gunduk River No. 76 s. (Mozufferpore) On left bank, 0·9 of a mile S.W. of Pakri village, the same distance W. by S. of Manain and 1·8 miles N.N.W. of Naya Tola; thána Páru.</p> <p>λ 26 13 40·63 L 84 58 7·21</p>
<p>Gunduk River No. 60 s. (Chumparun) On left bank, close to Dumaria village; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 23 53·77 L 84 46 31·48</p>	<p>Gunduk River No. 69 s. (Sarun) On right bank, 0·5 of a mile E. of Usári, 1·4 miles S.E. by E. of Bansghát and the same distance N.W. by N. of Banhauil village; thána Barauli, pargana Marhal.</p> <p>λ 26 17 52·63 L 84 49 56·65</p>	<p>Gunduk River No. 77 s. (Sarun) On right bank, 0·9 of a mile N. of Matia; 0·8 of a mile N.E. by N. of Bhagwánpur and 0·3 of a mile E.N.E. of Saraunja village; thána Mashrak, pargana Gowa.</p> <p>λ 26 12 2·27 L 84 56 40·26</p>
<p>Gunduk River No. 61 s. (Sarun) On right bank, close to and E. of Damária village; thána Barauli.</p> <p>λ 26 22 52·98 L 84 45 57·98</p>	<p>Gunduk River No. 70 s. (Chumparun) On left bank, close to and S.W. by W. of Manjháris; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 18 31·52 L 84 51 39·64</p>	<p>Gunduk River No. 78 s. (Mozufferpore) On left bank, 1·5 miles S.W. of Jagadishpur temple, close to and W. by S. of Dhobarda and 0·9 of a mile N.N.E. of Husápur village; thána Páru, pargana Ratti.</p> <p>λ 26 11 19·64 L 84 58 41·19</p>
<p>Gunduk River No. 62 s. (Chumparun) On left bank, about ¼ a mile S.W. of Arázi Máfi and one mile W. of Sirámpur village; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 23 2·69 L 84 47 6·58</p>	<p>Gunduk River No. 71 s. (Sarun) On left bank, 0·7 of a mile W. by S. of Sathar, 0·5 of a mile N.N.W. of Kánpura and 0·4 of a mile E. N. E. of Pakáha village; thána Barauli, pargana Marhal.</p> <p>λ 26 16 53·28 L 84 52 10·46</p>	<p>Gunduk River No. 79 s. (Sarun) On right bank, 1·1 miles N. by E. of Sarangpur, 0·8 of a mile E.N.E. of Basia No. 2 village and 0·9 of a mile E.S.E. of Narha; thána Mashrak, pargana Gowa.</p> <p>λ 26 9 45·02 L 84 56 56·19</p>
<p>Gunduk River No. 63 s. (Sarun) On right bank, close to and S.E. of Tandapur village and about ¼ a mile N.E. of Harpur Tengráhi; thána Barauli.</p> <p>λ 26 21 54·76 L 84 47 6·11</p>	<p>Gunduk River No. 72 s. (Chumparun) On left bank, close to and W. by N. of Sundarpur village; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 18 4·15 L 84 54 1·24</p>	<p>Gunduk River No. 80* s. (Mozufferpore) On left bank, close to and S. by W. of the large village of Soháni and about 1½ miles N.W. of Dharfaripatti; thána Páru, pargana Ratti.</p> <p>λ 26 9 31·53 L 84 58 27·69</p>
<p>Gunduk River No. 64 s. (Chumparun) On left bank, about 1½ miles N.W. of the large village of Husaini; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 22 28·12 L 84 48 34·41</p>	<p>Gunduk River No. 73 s. (Sarun) On right bank, 1·2 miles N.W. of Sonauth, 1·4 miles N.N.W. of Matiári village and 1·1 miles N.E. by N. of Bochahi; thána Barauli, pargana Marhal.</p> <p>λ 26 15 32·36 L 84 54 29·56</p>	<p>Gunduk River No. 81* s. (Sarun) On right bank, close to and S.E. by S. of Koni, 0·7 of a mile N.N.E. by E. of Chhota Bhagwánpur and 1·3 miles N.W. of Sanguni village; thána Mashrak, pargana Gowa.</p> <p>λ 26 7 35·03 L 84 57 57·17</p>
<p>Gunduk River No. 65 s. (Sarun) On right bank, about ¼ a mile N.E. of Gogoráha and 1 mile E. of Kharampur village; thána Barauli.</p> <p>λ 26 20 58·72 L 84 48 17·89</p>	<p>Gunduk River No. 74 s. (Mozufferpore) On left bank, 0·8 of a mile S.W. by S. of Mádhopur village, 2·5 miles S.W. of Sáhebganj factory house and 2·3 miles S. of Jagiraha village; thána Páru.</p> <p>λ 26 16 14·39 L 84 56 11·89</p>	<p>Gya Brahmjoni Temple. (Gya)</p> <p>λ 24 46 11·3 L 85 2 10·8</p> <p>No. 134</p>
<p>Gunduk River No. 66 s. (Chumparun) On left bank, 0·6 of a mile S. by E. of the large village of Husaini, 0·7 of a mile S.W. of Renrwania village and the same distance W.N.W. of Benipur; thána Gobindganj, pargana Majhauwa.</p> <p>λ 26 21 33·47 L 84 50 11·80</p>	<p>Gunduk River No. 75 s. (Sarun) On right bank, 1·6 miles N.N.W. of Chintámanpur, 1·3 miles N.N.E. of Chakia and 0·6 of a mile E. of Muhammadpur village; thána Mashrak, pargana Gowa.</p> <p>λ 26 13 30·72 L 84 56 12·40</p>	<p>Gya Rámshíla Pagoda. (Gya)</p> <p>λ 24 48 42·9 L 85 3 17·1</p> <p>No. 135</p>
<p>Gunduk River No. 67 s. (Sarun) On right bank, close to and N.N.E. of Hatishi, 0·9 of a mile E. of Muháráni and 1·2 miles S.E. of Gogoráha village; thána Barauli, pargana Marhal.</p> <p>λ 26 19 38·53 L 84 49 1·39</p>		

* The continuation of this triangulation will be found in the Co-ordinate List of the Chendwár Meridional Series.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Haldi Mud Fort, (<i>Ghaziipur</i>) Tree.</p> <p>λ 25 43 25 L 84 20 38</p>	<p>Jákhan h.s. (<i>Gya</i>) On a hill, about $\frac{1}{2}$ of a mile N.E. of Amarpura and $\frac{1}{2}$ a mile S.E. of Pacharia; thána Aurungabad, pargana Siris.</p> <p>λ 24 50 3'20 L 84 33 53'76 No. 90</p>	<p>Jigábiga Mark. (<i>Gya</i>) On mound.</p> <p>λ 24 38 1'95 L 84 25 7'03 Nos. 80, 81</p>
<p>Hasanpura Temple. (<i>Sarun</i>)</p> <p>λ 26 4 36'9 L 84 24 5'4</p>	<p>Jalálpur, XX. (<i>Vide page 7—P.</i>)</p> <p>λ 26 3 39'42 L 84 25 36'64 H 232 h 40 No. 26</p>	<p>Jirápur House. (<i>Ghaziipur</i>) Turret of tiled house.</p> <p>λ 25 43 39'8 L 84 12 43'5</p>
<p>Hathuwa Masjid, (<i>Sarun</i>) Centre dome.</p> <p>λ 26 21 47'0 L 84 21 34'6</p>	<p>Jámanpura Temple. (<i>Sarun</i>)</p> <p>λ 26 5 4'8 L 84 19 23'1</p>	<p>Jirápur (?) Temple. (<i>Ghaziipur</i>) Bhairakji's temple.</p> <p>λ 25 43 19'0 L 84 12 14'5</p>
<p>Hathuwa, Rája's Mahal, (<i>Sarun</i>) Chimney, S.E. corner.</p> <p>λ 26 21 37'3 L 84 20 20'9</p>	<p>Jamira Siwála. (<i>Shahabad</i>)</p> <p>λ 25 32 38'9 L 84 44 19'8</p>	<p>Jítbiga Siwála. (<i>Gya</i>)</p> <p>λ 24 32 3 L 84 2 35</p>
<p>Hátta Temple. (<i>Sarun</i>)</p> <p>λ 26 5 6'4 L 84 22 37'2</p>	<p>Jámor Temple. (<i>Gya</i>)</p> <p>λ 24 45 43'9 L 84 20 55'9</p>	<p>Kabra Siwála. (<i>Gya</i>)</p> <p>λ 24 31 47'3 L 83 56 43'2</p>
<p>Hetampur, XIV. (<i>Vide page 6—P.</i>)</p> <p>λ 25 30 1'31 L 84 26 21'64 H 253 h 30 No. 20</p>	<p>Japla h.s. (<i>Gya</i>)</p> <p>λ 24 31 33'33 L 84 3 33'43 Nos. 111, 112</p>	<p>Kachnár s. (<i>Sarun</i>) On a mound in the ruins of an old mud fort in village of the same name, 0'3 of a mile N. of Oriánpur, 1'5 miles S.W. of Bharwália and 1'6 miles W.S.W. of Koli Chapra; thána Durauli, pargana Narhan.</p> <p>λ 25 58 6'60 L 84 24 2'67</p>
<p>Huríláong, XLII*. (<i>Vide page 4—P.</i>)</p> <p>λ 24 2 5'99 L 84 24 17'76 H 1378 h 3 No. 1</p>	<p>Jhirna Hill Mark. (<i>Lohardugga</i>) On a hill, about $1\frac{1}{2}$ miles E. of Hotia village and $4\frac{1}{2}$ miles N.W. of the large village of Deogan; thána Chhatarpur.</p> <p>λ 24 29 29'72 L 84 11 17'23 Nos. 109, 110</p>	<p>Kálápahár Hill, (<i>Lohardugga</i>) Tree.</p> <p>λ 24 8 34 L 84 17 25</p>
<p>Husainabad s. (<i>Gya</i>) The station is 27 feet from the S.W. corner of an Idgah.</p> <p>λ 24 31 29'63 L 84 2 6'85 Nos. 114, 115</p>	<p>Jhúnápur, XXII. (<i>Vide page 7—P.</i>)</p> <p>λ 26 14 16'12 L 84 25 50'37 H 253 h 47 No. 28</p>	<p>Kalua Hill Rock. (<i>Hazáribágh</i>) About 2 miles N. of the large village of Dantára and the same distance E. of Ketháribár; pargana Dantára.</p> <p>λ 24 22 36 L 84 54 34</p>
<p>Jabra Hill Mark. (<i>Shahabad</i>) On a hill, about 3 miles N. of Baraon village and the same distance W. of the Nokha Police Station; thána Nokha.</p> <p>λ 25 5 48'89 L 84 6 40'17</p>	<p>Jigábiga Imámbára. (<i>Gya</i>)</p> <p>λ 24 38 28'6 L 84 25 15'1 No. 72</p>	<p>Kanap, IX. (<i>Vide page 5—P.</i>)</p> <p>λ 25 3 58'81 L 84 34 1'41 H 323 h 15 No. 13</p>

* Of the Calcutta Longitudinal Series of the South-East Quadrilateral.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Kánchanpur Bungalów. (Gya) Turret of Rája's bungalów. " " "</p> <p>λ 24 35 49·8 L 84 29 25·9 No. 64</p>	<p>Kastar Math. (Shahabad) " " "</p> <p>λ 25 15 9·2 L 84 20 38·3</p>	<p>Khájápur House, (Sarwa) Turret. " " "</p> <p>λ 26 3 19·7 L 84 24 42·5</p>
<p>Kanipahár h.s. (Gya) About $\frac{1}{4}$ of a mile S.E. of Burha, $\frac{1}{2}$ a mile N. of Pánkardi and $1\frac{1}{2}$ miles W. of Cháledohar village; thána Shergotty.</p> <p>λ 24 36 25·29 L 84 32 13·56 Nos. 69, 70</p>	<p>Katwárpur, XXI. (Vide page 7—P.)</p> <p>λ 26 7 18·61 L 84 15 30·97 H 255 h 31 No. 27</p>	<p>Khanuaun House. (Patna) Little red flag on house.</p> <p>λ 25 30 45·2 L 84 47 45·9</p>
<p>Kánt s. (Shahabad) On a mound, 1·1 miles W. of Shibpur village; thána Buxar, pargana Bhojpur.</p> <p>λ 25 34 56·50 L 84 21 44·38</p>	<p>Kázichak House, (Shahabad) Centre of two gables.</p> <p>λ 25 23 4·6 L 84 46 55·9</p>	<p>Kharauni House, (Shahabad) Tiled.</p> <p>λ 25 28 43 L 84 41 45</p>
<p>Kapasía Temple. (Gya)</p> <p>λ 24 45 22·8 L 84 30 37·1 No. 91</p>	<p>Kázimahal Siwála. (Patna)</p> <p>λ 25 38 22·6 L 85 5 24·7</p>	<p>Kishanpur Temple, (Gya) Higher of two.</p> <p>λ 24 34 20·7 L 84 20 23·0 No. 61</p>
<p>Kára Masjid. (Gya)</p> <p>λ 24 55 3·2 L 84 23 45·5</p>	<p>Késath, XIII. (Vide page 6—P.)</p> <p>λ 25 25 10·92 L 84 16 58·81 H 298 h 6 No. 19</p>	<p>Koilwar House. (Shahabad) Staircase of paka house.</p> <p>λ 25 34 25·3 L 84 50 20·6</p>
<p>Karaundia Semaphore. (Shahabad)</p> <p>λ 24 56 39·4 L 84 7 50·6 No. 99</p>	<p>Khádípur, XIX. (Vide page 6—P.)</p> <p>λ 25 57 10·73 L 84 15 21·27 H 235 h 28 No. 25</p>	<p>Koilwar Masjid. (Shahabad)</p> <p>λ 25 34 38·9 L 84 50 32·4</p>
<p>Karbásan House, (Shahabad) Tiled.</p> <p>λ 25 14 39 L 84 38 56</p>	<p>Khaira House, (Azamgarh) Paka.</p> <p>λ 26 10 4·8 L 83 54 2·1</p>	<p>Korantadih Stud Stables, (Ghazipur) Eastern side.</p> <p>λ 25 34 40 L 84 0 16</p>
<p>Kasiára Hill Mark. (Lohardugga) On a hill, about $1\frac{1}{2}$ miles N.E. of Bírhorði and 2 miles S.W. of the large village of Kúku; thána Chhatarpur.</p> <p>λ 24 20 1·21 L 84 22 57·25 Nos. 50, 51</p>	<p>Khaira Pándu, XL*. (Vide page 4—P.)</p> <p>λ 24 20 35·45 L 83 58 41·84 H 1866 h 3 No. 1</p>	<p>Kotáwa Temple, (Ghazipur) Kalas.</p> <p>λ 25 33 53·8 L 83 58 45·8</p>
<p>Kasiátu, XLIV*. (Chota Nagpore) On the highest point of an isolated hill overlooking a partially level and densely wooded country; pargana Goría. Marked by a solid pillar with mark-stones at top and bottom.</p> <p>λ 23 58 29·68 L 84 56 46·76 H 2650 h 3 No. 54 See Synoptical Volume of the Calcutta Longitudinal Series (of the South-East Quadrilateral).</p>		<p>Kotila Peak. (Lohardugga) About $\frac{1}{2}$ a mile N.W. of Kotila vil- lage and $2\frac{1}{2}$ miles W. of the large village of Tendwa; thána Chhatarpur.</p> <p>λ 24 31 51 L 84 15 56</p>
		<p>Kutumba Temple. (Gya)</p> <p>λ 24 36 31·9 L 84 15 58·7</p>
		<p>Labádnabad Temple. (Gya)</p> <p>λ 24 59 30·1 L 84 21 1·6</p>

* Of the Calcutta Longitudinal Series of the South-East Quadrilateral.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Lakraha Hill Mark. (Gya) On a chain of hills running along the right bank of Batane river, about 1½ miles W. of Jasoi village which is on the grand trunk road from Aurungabad to Dehree; thána Aurungabad, pargana Siris.</p> <p>λ 24 45 25 L 84 21 48</p>	<p>Maharājganj Temple, (Sarun) N.W. of village.</p> <p>λ 25 44 41·3 L 84 50 44·0</p>	<p>Maner Temple No. 2, (Patna) Kalas, south of village.</p> <p>λ 25 38 13·6 L 84 55 3·2</p>
<p>Lakri Dargáh, (Sarun) Highest cupola.</p> <p>λ 26 21 37·7 L 84 26 2·7</p>	<p>Maili House. (Gorakhpur) Top of Gosain's house.</p> <p>λ 26 11 45·5 L 83 54 17·6</p>	<p>Mánjhi Masjid, (Sarun) Centre dome.</p> <p>λ 25 50 13·0 L 84 37 14·8</p>
<p>Lakri (?) Temple. (Sarun)</p> <p>λ 26 22 34·8 L 84 25 36·4</p>	<p>Majholi, I. (Vide page 4—P.)</p> <p>λ 24 16 53·78 L 84 16 22·65 H 1917 h Not forthcoming No. 1</p>	<p>Manka Temple. (Gya)</p> <p>λ 24 38 5·9 L 84 32 18·4 No. 71</p>
<p>Langarkot h.s. (Gya) On a hill close to and W. of village of the same name and a mile E. of Japla; thána Nabínagar, pargana Japla.</p> <p>λ 24 31 33·03 L 84 3 32·81 No. 59</p>	<p>Majholi h.s. (Lohardugga) Close to and W. by S. of the principal station of Majholi, about 1½ miles S.E. of Hulsum and a mile S. of Chuchrumánd; thána Chhatarpur.</p> <p>λ 24 16 53·69 L 84 16 22·37 Nos. 106, 107</p>	<p>Mathenia, XXVI. (Vide page 7—P.)</p> <p>λ 26 36 32·76 L 84 23 48·29 H 272 h 30 No. 82</p>
<p>Lathán Fort s. (Shahabad) On a mound in village.</p> <p>λ 25 20 41·88 L 84 21 55·27</p>	<p>Máli Fort. (Gya) About 1½ miles W. of the large village of Sori; thána Nabínagar, pargana Kutumba.</p> <p>λ 24 41 7·6 L 84 16 18·3</p>	<p>Mathia House. (Ghasipur) Large tiled house.</p> <p>λ 25 41 53 L 84 5 21</p>
<p>Lesliganj s. (Lohardugga) On a mound close to and N. of Lesliganj Police Station.</p> <p>λ 24 2 37·85 L 84 15 11·38</p>	<p>Manátu Hill, (Lohardugga) Round knob, about 2½ miles N.W. of Manátu village which is on the road side and 1½ miles W. of Chunka.</p> <p>λ 24 14 52·8 L 84 24 40·2 Nos. 38, 39</p>	<p>Maudia Temple. (Shahabad)</p> <p>λ 25 2 44·7 L 84 8 2·0</p>
<p>Lesliganj Thána, (Lohardugga) Flag.</p> <p>λ 24 2 33·5 L 84 15 11·0</p>	<p>Manátu Hill Stone. (Lohardugga) Close to and E. by S. of Manátu Hill, round knob.</p> <p>λ 24 14 52·7 L 84 24 40·6 No. 101</p>	<p>Mednipur, VII. (Vide page 5—P.)</p> <p>λ 25 5 14·02 L 84 24 34·13 H 335 h 25 No. 12</p>
<p>Lohárpur House. (Ghasipur) W. end of a tiled house.</p> <p>λ 25 32 48·3 L 83 57 6·7</p>	<p>Maner Rauza. (Patna)</p> <p>λ 25 38 27·6 L 84 55 0·6</p>	<p>Mehindaura House. (Shahabad) Centre of three large houses.</p> <p>λ 25 18 59·7 L 84 43 56·7</p>
<p>Madanpur s. (Gya) In village of the same name which is on the high road from Sherghotty to Aurungabad, close to and N. of the Dák Bungalow; thána Aurungabad, pargana Chirkánwan.</p> <p>λ 24 39 12·84 L 84 37 44·70</p>	<p>Maner Temple No. 1. (Patna)</p> <p>λ 25 38 53·3 L 84 54 59·1</p>	<p>Mírganj House, (Sarun) Paka, S.E. corner.</p> <p>λ 26 21 52·5 L 84 22 49·3</p>
<p>Madárpur Mosque. (Gya)</p> <p>λ 24 32 8·1 L 84 46 50·9 No. 131</p>		<p>Muhibb Alípur Temple. (Patna)</p> <p>λ 25 19 48·6 L 84 46 19·6</p>

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Murgara h.s. (Gya) On a hill, about $\frac{1}{2}$ of a mile N. of Bathán and a mile N.W. of Kaaha village; thána Sherghotty.</p> <p style="text-align: center;">o ' "</p> <p>λ 24 34 29·40 L 84 33 37·98 No. 102</p>	<p>Nasriganj Masjid. (Shahabad)</p> <p style="text-align: center;">o ' "</p> <p>λ 25 2 46·6 L 84 22 5·6</p>	<p>Niranjanpur Well. (Shahabad) Pillar on Well.</p> <p style="text-align: center;">o ' "</p> <p>λ 25 11 19·6 L 84 27 9·0</p>
<p>Murli Hill Peak. (Shahabad) About a mile N. of the Akbarpur Indigo Factory Bungalow and the same distance S. of Gurmia village; pargana Rohatas.</p> <p>λ 24 39 16 L 84 1 20</p>	<p>Naunangarhi, LXXI*. (Vide page 8—P.)</p> <p>λ 26 59 10·19 L 84 26 14·04 H 344 h 2 No. 86</p>	<p>Nonaur Indigo Factory, (Shahabad) House chimney.</p> <p>λ 25 18 15·9 L 84 42 15·4</p>
<p>Nabiganj Temple. (Sarun)</p> <p>λ 25 46 47·1 L 84 45 15·3</p>	<p>Nauner Temple. (Gya)</p> <p>λ 24 57 45·6 L 84 19 57·6</p>	<p>Nondra House. (Gya) High tiled house on mound in village.</p> <p>λ 25 3 27·7 L 84 32 9·5</p>
<p>Nabínagar Fort. (Gya) Palmyra tree in an old mud fort.</p> <p>λ 24 36 15·2 L 84 10 13·6</p>	<p>Nauranga, XVI. (Vide page 6—P.)</p> <p>λ 25 43 10·76 L 84 26 58·85 H 217 h 28 No. 22</p>	<p>Nuáon, XV. (Vide page 6—P.)</p> <p>λ 25 34 37·94 L 84 16 43·04 H_s 250·97† h 20·0 No. 21</p>
<p>Nabínagar Idgáh. (Gya)</p> <p>λ 24 36 20·0 L 84 9 51·1 No. 117</p>	<p>Nauranga Dák Bungalow. (Gya)</p> <p>λ 24 45 8·4 L 84 25 2·3</p>	<p>Nuáon Mandir. (Shahabad)</p> <p>λ 25 32 38·4 L 84 0 21·2</p>
<p>Nabínagar Temple. (Gya)</p> <p>λ 24 36 4 L 84 10 22</p>	<p>Nautan, XXIII. (Vide page 7—P.)</p> <p>λ 26 19 7·98 L 84 15 13·47 H 255 h 32 No. 29</p>	<p>Nunsári Mound. (Shahabad)</p> <p>λ 25 7 29 L 84 4 44</p>
<p>Námnagar Fort s. (Gya) In thána Aurungabad, pargana Manora.</p> <p>λ 24 56 39·85 L 84 30 51·93</p>	<p>Nawáda Temple, (Chumparun) Kalas.</p> <p>λ 26 29 2·8 L 84 41 49·5</p>	<p>Núrpur, XVIII. (Vide page 6—P.)</p> <p>λ 25 53 9·03 L 84 25 7·86 H 221 h 31 No. 24</p>
<p>Nanságar Indigo Factory, (Shahabad) Staircase.</p> <p>λ 25 26 34·3 L 84 48 32·0</p>	<p>Nawalpur Gola, (Chumparun) Flag.</p> <p>λ 26 55 11·4 L 84 19 28·9</p>	<p>Obra Math. (Gya)</p> <p>λ 24 53 10·4 L 84 24 54·4</p>
<p>Naráyanpur House. (Ghasipur) Turret or chimney of a paka house on N. bank of the Ganges.</p> <p>λ 25 33 56·6 L 83 59 11·7</p>	<p>Nayágaon Siwála. (Ghasipur)</p> <p>λ 25 58 54·7 L 84 14 56·5</p>	<p>Orádi h.s. (Gya) In thána Nabínagar, pargana Kutumba.</p> <p>λ 24 36 49·05 L 84 14 53·48 No. 54</p>
<p>Narhan Temple. (Sarun)</p> <p>λ 25 58 59·2 L 84 17 43·0</p>		<p>Pahára, VIII. (Vide page 5—P.)</p> <p>λ 25 4 7·47 L 84 3 29·92 H 510 h 3 No. 16</p>

* Of the North-East Longitudinal Series. † This height refers to the mark-stone at the upper surface of the tower.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Pahára h.s. (Gya) On a hill along the right bank of the Batáne river, about $\frac{1}{2}$ a mile S. of a Pathra and the same distance N. of Jhilhánwan; thána Nabinagar, pargana Kutumba.</p> <p>o ' "</p> <p>λ 24 40 27.40 L 84 20 47.33 No. 84</p>	<p>Phulwaria, V. (Vide page 5—P.)</p> <p>o ' "</p> <p>λ 24 46 59.62 L 84 3 14.16 H 1508 h 2 Nos. 8, 11</p>	<p>Rámjibanganj Bungalow. (Shahabad)</p> <p>o ' "</p> <p>λ 25 33 12.5 L 83 58 54.9</p>
<p>Páli House. (Shahabad) E. end of a high tiled house.</p> <p>λ 24 54 27.1 L 84 14 5.5</p>	<p>Piania Siwála. (Shahabad)</p> <p>λ 25 29 41.3 L 84 41 46.2</p>	<p>Rámnagar s. (Gya) On N.E. angle of an old fort.</p> <p>λ 24 33 1.67 L 84 13 27.56 No. 116</p>
<p>Palia House. (Ghasipur) Large tiled house.</p> <p>λ 25 31 57.0 L 83 56 46.5</p>	<p>Pipara House, (Shahabad) On a high bank.</p> <p>λ 25 38 32.9 L 84 26 58.9</p>	<p>Rámnagar Temple. (Shahabad)</p> <p>λ 25 25 56.2 L 84 21 6.3</p>
<p>Panch Pokri s. (Shahabad) On mud fort in village; thána Nokha.</p> <p>λ 25 2 35.04 L 84 11 8.88</p>	<p>Pokarbinda Temple. (Sarun)</p> <p>λ 26 28 21.7 L 84 20 14.2</p>	<p>Ránidik Hill Peak. (Gya) About $\frac{1}{2}$ of a mile W. of village of the same name and the same distance S. of Dehura village; thána Aurungabad, pargana Chirkánwan.</p> <p>λ 24 43 32 L 84 37 9</p>
<p>Parbatpur House. (Ghasipur)</p> <p>λ 25 44 45 L 84 23 46</p>	<p>Pokhra House. (Ghasipur) E. window of large tiled house.</p> <p>λ 25 43 42.7 L 84 22 23.7</p>	<p>Ratanpur Temple. (Sarun)</p> <p>λ 25 47 20.2 L 84 46 24.7</p>
<p>Patanwár Indigo Factory, (Shahabad) Bungalow.</p> <p>λ 24 50 54.3 L 84 10 3.6</p>	<p>Pucharía Sugar Manufactory, (Chumparun) Steam engine chimney.</p> <p>λ 26 27 23.5 L 84 44 51.3</p>	<p>Ratanpura House, (Shahabad) Highest.</p> <p>λ 25 38 21.4 L 84 27 35.0</p>
<p>Patjirwa, XXVIII. (Vide page 8—P.)</p> <p>λ 26 48 35.15 L 84 25 41.82 H_s 261.41* h 20.1 No. 34</p>	<p>Pujáha s. (Chumparun) In an extensive plain, on a boundary mark between the grounds of Pujáha and Ranáha villages, 1.1 miles S. of the former and 0.9 of a mile S. W. of the latter village; marked by a square trench with a pin in its centre: thána Bettiah, pargana Majhauwa.</p> <p>λ 26 47 16.27 L 84 25 18.56</p>	<p>Rathua House, (Shahabad) Paka turret.</p> <p>λ 25 34 23.1 L 84 18 55.7</p>
<p>Patra h.s. (Lohardugga) On a hill, about $\frac{1}{2}$ a mile S.E. of Dhala, $\frac{1}{2}$ miles N.E. of Gopápur village and a mile S.E. of Lesliganj Police Station.</p> <p>λ 24 2 2.96 L 84 16 0.61 No. 41</p>	<p>Pura Indigo Factory, (Gya) Top of bungalow.</p> <p>λ 25 7 20.9 L 84 30 43.0</p>	<p>Ratwal s. (Chumparun) On left bank of the Gunduk and S.E. of town of that name; a square trench having a wooden pin driven into the ground for its centre, marks the station.</p> <p>λ 27 0 35.62 L 84 14 23.03</p>
<p>Pawai Building. (Gya) S.W. corner.</p> <p>λ 24 43 34 L 84 21 32</p>	<p>Pura Well Post, (Gya) Indigo factory.</p> <p>λ 25 7 26.4 L 84 30 41.0</p>	<p>Revelgunge Bungalow. (Sarun) Chimney of Hathuwa Rája's bungalow.</p> <p>λ 25 47 2.6 L 84 40 54.4</p>
<p>Pawai h.s. (Gya) On the southern side of the village; thána Aurungabad, pargana Siris.</p> <p>λ 24 43 25.12 L 84 21 20.69 Nos. 88, 89</p>	<p>Rajhoi Temple. (Gya)</p> <p>λ 24 46 45.9 L 84 31 34.4 No. 92</p>	<p>Revelgunge, House No. 1. (Sarun) Bettiah Rája's paka house.</p> <p>λ 25 46 56.7 L 84 41 8.4</p>
		<p>Revelgunge, House No. 2. (Sarun) Thákur Sháh Kalwár's paka house.</p> <p>λ 25 47 2.7 L 84 41 15.7</p>

* This height refers to the mark-stone let into the ground floor of the tower.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
Revelgunge, Mahádeo Temple. (Sarun) " " " λ 25 47 18·7 L 84 40 31·1	Rohitasgarh s. (Shahabad) On a building. " " " λ 24 37 36·40 L 83 59 17·88 No. 108	Sanhai Hill Peak. (Gya) About $\frac{1}{2}$ a mile S. of Sheorájpur and $1\frac{1}{2}$ miles W. of Nág Mayana, a village on the high road from Sherghotty to Aurungabad; thána Aurungabad, pargana Chirkánwan. " " " λ 24 39 48 L 84 34 43
Revelgunge s. (Sarun) On Bettiah Rája's paka house No. 2 close to and E. of Revelgunge Ghát. It is marked by an iron pin. λ 25 46 57·10 L 84 41 8·52	Saga Semaphore s. (Hazáribágh) On a hill, about a mile S. E. of Lemuía and $1\frac{1}{2}$ miles N. W. of Jabra village; pargana Dantára. λ 24 29 58·22 L 84 47 56·61 No. 103	Sara Tower, (Shahabad) Ruined, on mound. λ 25 27 7·2 L 84 20 12·0
Revelgunge Thákurdwára. (Sarun) λ 25 47 8·7 L 84 40 45·4	Sahár House, (Shahabad) Paka, E. corner of turret. λ 25 14 48·2 L 84 40 4·5	Saráha s. (Chumparun) On the eastern bank of a large mun or lake, 0·6 of a mile S. W. of village so called and 0·2 of a mile N. W. of Ujwáli; marked by a square trench with a pin in its centre: thána Bettiah, pargana Majhauwa. λ 26 47 14·53 L 84 29 33·49
Rohitas Fort Bastion, (Shahabad) Madaran. λ 24 39 21·8 L 83 58 21·2	Sahasua Hill Mark. (Gya) On a hill, about $1\frac{1}{2}$ miles E. of Deori village and $1\frac{1}{2}$ miles W. of the village of Dura; thána Nabínagar, pargana Kutumba. λ 24 33 51·37 L 84 22 51·91 No. 53	Sarai Kothi, (Gharápur) Chimney. λ 25 34 53·5 L 84 0 24·0
Rohitas Fort Cupola, (Shahabad) Near N. E. gateway. λ 24 38 14·1 L 83 59 15·4	Saia Mound, (Goráhpur) In village. λ 26 7 28 L 83 56 13	Sarai or Aurungabad, Imámbára No. 1. (Shahabad) Large, with enclosure. λ 24 47 39·8 L 84 7 11·5
Rohitas Fort, Kumár Samád. (Shahabad) λ 24 37 36·0 L 83 59 18·0	Saijpura House. (Shahabad) N. corner of Rája's paka house. λ 25 15 25·0 L 84 15 57·0	Sarai or Aurungabad, Imámbára No. 2. (Shahabad) Large, without enclosure. λ 24 47 53·1 L 84 7 20·7
Rohitas Fort, Marara Ghát, (Shahabad) Gateway. λ 24 38 17·6 L 83 59 14·7	Sakhwa Temple, (Chumparun) Kalas. λ 26 30 5·5 L 84 37 12·3	Sarhad Semaphore. (Hazáribágh) λ 24 19 57·7 L 85 0 12·9 No. 105
Rohitas Fort Palace, (Shahabad) Dome. λ 24 37 23·0 L 83 57 39·7	Salga Semaphore. (Gya) λ 24 24 6·4 L 84 57 16·2 Nos. 126, 127	Sasseram Rauza No. 1. (Shahabad) Top of dome of Salím Sháh's Rauza. λ 24 56 46·7 L 84 3 26·6
Rohitas Fort, Rájghát Gateway. (Shahabad) λ 24 36 55·4 L 83 57 30·9	Salímpur Factory, (Sarun) Bungalow chimney (in ruins). λ 26 28 2·4 L 84 41 20·5	Sasseram Rauza No. 2. (Shahabad) Top of dome of Sher Sháh's Rauza. λ 24 56 58·5 L 84 3 8·3
Rohitas Fort Temple. (Shahabad) λ 24 37 7·7 L 83 57 30·9	Salímpur Temple, (Sarun) Kalas. λ 26 27 41·3 L 84 42 5·6	

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Sasseram s. (<i>Shahabad</i>) On Chandan Shahid's tomb on hill.</p> <p>λ 24 56 27·27 L 84 4 53·04</p>	<p>Siris Suspension Bridge. (<i>Gya</i>) On grand trunk road over the Poonpoon river.</p> <p>λ 24 49 44·4 L 84 18 43·9 Nos. 95, 96</p>	<p>Soane River No. 5 s. (<i>Gya</i>) On right bank, 0·6 of a mile W. of Sanpura village and 0·4 of a mile N.W. by N. of Saijwan village; thána Nabínagar, pargana Japla.</p> <p>λ 24 31 56·08 L 83 58 34·45</p>
<p>Semraun s. (<i>Shahabad</i>) On mound in village, about a mile S.W. of Deodi and $\frac{1}{2}$ of a mile N.E. of Badhera, a village on the grand trunk road from Arrah to Piaro; pargana Pawánr.</p> <p>λ 25 23 43·12 L 84 33 32·37</p>	<p>Sirsia s. (<i>Chumparun</i>) On the western bank of a mun or lake that stretches south and north through a patch of jungle, 0·4 of a mile S.E. of the village so called; marked by a square trench with a pin in its centre; thána Bettiah, pargana Majhauwa.</p> <p>λ 26 47 15·55 L 84 27 16·44</p>	<p>Soane River No. 6 s. (<i>Shahabad</i>) On left bank, about $\frac{1}{4}$ miles S.E. of Khandaul and $\frac{1}{2}$ miles W. of Khaira Bara; pargana Rohtas.</p> <p>λ 24 33 32·37 L 83 58 7·82</p>
<p>Sewádhí, XXXVIII*. (<i>Vide page 3—P.</i>)</p> <p>λ 23 58 24·17 L 83 47 40·02 H 1956 h 2 No. 5</p>	<p>Sisáwa Turret. (<i>Sarun</i>)</p> <p>λ 26 2 20 L 84 23 12</p>	<p>Soane River No. 7 s. (<i>Gya</i>) On right bank, on a detached rock called Badhwa hill, about $\frac{1}{4}$ of a mile N.E. of Deori village and $\frac{1}{4}$ miles S. by W. of Badhwa; thána Nabínagar, pargana Japla.</p> <p>λ 24 33 8·31 L 84 0 49·24</p>
<p>Sháhpur s. (<i>Gya</i>) On a mound in old fort close to and S.E. of the village from which it takes its name, 0·4 of a mile W. of Pipardi and 0·5 of a mile N. N. W. of Kamabiga village; thána Aurungabad, pargana Siris.</p> <p>λ 24 44 27·76 L 84 25 19·41</p>	<p>Sísawan Siwála. (<i>Sarun</i>)</p> <p>λ 25 56 25·0 L 84 26 6·8</p>	<p>Soane River No. 8 s. (<i>Shahabad</i>) On left bank, in pargana Rohtas.</p> <p>λ 24 34 36·23 L 83 59 57·63</p>
<p>Shankarpur h.s. (<i>Gya</i>) In thána Nabínagar, pargana Kutumba.</p> <p>λ 24 35 14·73 L 84 9 47·77 Nos. 55, 56</p>	<p>Siuganj Bridge, (<i>Gya</i>) Centre arch, on grand trunk road.</p> <p>λ 24 41 42·9 L 84 31 52·7 No. 85</p>	<p>Soane River No. 9 s. (<i>Gya</i>) On right bank, 0·6 of a mile W. by S. of Saibara village and 1·2 miles S.W. of Barapur; thána Nabínagar, pargana Japla.</p> <p>λ 24 34 42·09 L 84 1 26·14</p>
<p>Sherghotty Fort. (<i>Gya</i>)</p> <p>λ 24 33 23 L 84 50 29</p>	<p>Soane River No. 1 s. (<i>Lohardugga</i>) On right bank at its junction with the Koil, about $\frac{1}{4}$ a mile N. of Sondipura.</p> <p>λ 24 31 7·00 L 83 54 2·93</p>	<p>Soane River No. 10 s. (<i>Shahabad</i>) On left bank, 1·0 mile S.S.E. of Akbarpur, a large village, 0·9 of a mile S.E. by E. of Jalálabad and 1·0 mile E. of Kosdhera; pargana Rohtas.</p> <p>λ 24 37 8·50 L 84 0 59·02</p>
<p>Sherpur Bungalow, (<i>Patna</i>) W. end.</p> <p>λ 25 39 11·9 L 85 1 45·5</p>	<p>Soane River No. 2 s. (<i>Shahabad</i>) On Gághát hill on left bank, close to Noadi village and about $\frac{1}{4}$ miles W. by S. of Nawara; pargana Rohtas.</p> <p>λ 24 32 42·42 L 83 54 14·03</p>	<p>Soane River No. 11 s. (<i>Gya</i>) On a sand bank, about 150 yards from the right bank, a mile W. of Dumraha and $\frac{1}{4}$ miles S. E. of Dingwar; thána Nabínagar, pargana Japla.</p> <p>λ 24 36 52·41 L 84 2 52·12</p>
<p>Sherpur Siwála, (<i>Patna</i>) On ghát.</p> <p>λ 25 39 18·3 L 85 1 23·9</p>	<p>Soane River No. 3 s. (<i>Gya</i>) On right bank on a mound in Kabra village; thána Nabínagar, pargana Japla.</p> <p>λ 24 31 49·81 L 83 56 39·92</p>	<p>Soane River No. 12 s. (<i>Shahabad</i>) On a sand bank, about 250 yards from the left bank, $\frac{1}{4}$ miles E.N.E. of Akbarpur, a large village and the same distance E. of Baknaur Indigo Factory; pargana Rohtas.</p> <p>λ 24 38 31·48 L 84 1 48·95</p>
<p>Silsila House. (<i>Shahabad</i>)</p> <p>λ 25 26 18 L 84 21 5</p>	<p>Soane River No. 4 s. (<i>Shahabad</i>) On left bank in Bandu village, 0·8 of a mile S.S.E. of the Khaira Indigo Factory; pargana Rohtas.</p> <p>λ 24 33 0·47 L 83 56 30·48</p>	<p>Soane River No. 13 s. (<i>Gya</i>) On a sand bank, about 300 yards from the right bank, 1·3 miles S. W. of Naur, 0·8 of a mile W. by S. of Bagádábar and 0·7 of a mile N.N.W. of Koiridi; thána Nabínagar, pargana Japla.</p> <p>λ 24 38 37·25 L 84 3 59·96</p>

* Of the Calcutta Longitudinal Series of the South-East Quadrilateral.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Soane River No. 14 s. (<i>Shahabad</i>) On a sand bank, about 300 yards from the left bank, 1·6 miles E.N.E. by E. of Simautha, 0·3 of a mile S.E. by S. of Labura (Dáudpur) and 0·9 of a mile S.S.E. by S. of Banjári; pargana Rohtas.</p> <p>λ 24 40 3·56 L 84 2 43·72</p>	<p>Soane River No. 23 s. (<i>Gya</i>) On right bank, about $\frac{1}{2}$ of a mile N.W. of Amda and a mile W. by S. of Sasana village; thána Nabínagar, pargana Kutumba.</p> <p>λ 24 47 8·47 L 84 10 10·23</p>	<p>Soane River No. 32 s. (<i>Shahabad</i>) On left bank, 1·2 miles S. E. by S. of Darihat, 0·9 of a mile E. of Bhusauli and 3·5 miles S.S.W. by W. of Panduri; pargana Rohtas.</p> <p>λ 24 57 18·36 L 84 17 10·48</p>
<p>Soane River No. 15 s. (<i>Gya</i>) On right bank, close to and S.W. by S. of Jhikutia village; thána Nabínagar, pargana Kutumba.</p> <p>λ 24 41 16·82 L 84 5 10·65</p>	<p>Soane River No. 24 s. (<i>Shahabad</i>) On left bank, close to and S.W. of Jhara village; pargana Rohtas.</p> <p>λ 24 49 25·67 L 84 9 15·63</p>	<p>Soane River No. 33 s. (<i>Gya</i>) On right bank, 0·4 of a mile N.W. by N. of Jánpur; thána Aurungabad, pargana Siris.</p> <p>λ 24 57 0·71 L 84 19 8·65</p>
<p>Soane River No. 16 s. (<i>Shahabad</i>) On a sand bank, about 300 yards from the left bank, 0·7 of a mile E.N.E. of Rasúlpur, 0·4 of a mile E.S.E. of Khajuria village and 0·8 of a mile S.S.E. by S. of the Tilkap Indigo Factory; pargana Rohtas.</p> <p>λ 24 41 57·80 L 84 3 48·29</p>	<p>Soane River No. 25 s. (<i>Gya</i>) On right bank, 0·3 of a mile W. by S. of Shnikhpura, the same distance N. of Meh and 1·0 mile N.N.E. by E. of Lerari village; thána Aurungabad, pargana Siris.</p> <p>λ 24 49 16·78 L 84 12 16·89</p>	<p>Soane River No. 34 s. (<i>Shahabad</i>) On left bank, about 50 yards from edge, 0·7 of a mile S. by W. of Panrawar and 0·5 of a mile E.S.E. of Majhiaun; pargana Rohtas.</p> <p>λ 24 58 40·69 L 84 18 10·09</p>
<p>Soane River No. 17 s. (<i>Gya</i>) On right bank, 0·6 of a mile W. of Dhundua village; thána Nabínagar, pargana Kutumba.</p> <p>λ 24 42 47·03 L 84 6 2·02</p>	<p>Soane River No. 26 s. (<i>Shahabad</i>) On left bank, 1·7 miles E.N.E. by N. of Patawar and 1·1 miles S. by E. of Báediha village; pargana Rohtas.</p> <p>λ 24 51 35·60 L 84 11 31·50</p>	<p>Soane River No. 35 s. (<i>Gya</i>) On right bank, 1·2 miles S.W. of Labadnabad, 1·0 mile W. N. W. by W. of Dehra and 1·7 miles N. by E. of Nauner; thána Aurungabad, pargana Siris.</p> <p>λ 24 58 49·39 L 84 20 26·38</p>
<p>Soane River No. 18 s. (<i>Shahabad</i>) On a sand bank, about 200 yards from the left bank and 0·8 of a mile N. by W. of Tumba village; pargana Rohtas.</p> <p>λ 24 44 10·60 L 84 5 14·11</p>	<p>Soane River No. 27 s. (<i>Gya</i>) On right bank, about $1\frac{1}{2}$ miles W. of the Bárun Semaphore and $\frac{1}{4}$ of a mile N.W. of Dhamni; thána Aurungabad, pargana Siris.</p> <p>λ 24 51 32·32 L 84 14 29·22</p>	<p>Soane River No. 36 s. (<i>Shahabad</i>) On left bank, 0·7 of a mile S.S.E. of Panruri; pargana Rohtas.</p> <p>λ 24 59 52·11 L 84 19 16·96</p>
<p>Soane River No. 19 s. (<i>Gya</i>) On right bank, 0·5 of a mile N. W. of Baghunáthpur and 0·7 of a mile N. by E. of Rámnagar village; thána Nabínagar, pargana Kutumba.</p> <p>λ 24 44 24·60 L 84 7 50·91</p>	<p>Soane River No. 28 s. (<i>Shahabad</i>) On left bank, 1·2 miles S. by E. of Dehree village; pargana Rohtas.</p> <p>λ 24 53 38·90 L 84 13 29·03</p>	<p>Soane River No. 37 s. (<i>Gya</i>) On a sand bank, about 300 yards from the right bank and 0·5 of a mile W.S.W. of Taijpara; thána Aurungabad, pargana Siris.</p> <p>λ 25 0 7·82 L 84 21 31·57</p>
<p>Soane River No. 20 s. (<i>Shahabad</i>) On left bank, about $\frac{1}{2}$ of a mile E. of Bauli; pargana Rohtas.</p> <p>λ 24 46 10·55 L 84 6 1·53</p>	<p>Soane River No. 29 s. (<i>Gya</i>) On right bank, 2·0 miles W. by N. of Mahutha, 1·0 mile N.N.E. by E. of Bárun sarai, 0·4 of a mile N.W. by W. of Kochar and 0·8 of a mile N.W. of Pipra; thána Aurungabad, pargana Siris.</p> <p>λ 24 53 10·28 L 84 16 6·33</p>	<p>Soane River No. 38 s. (<i>Shahabad</i>) On a sand bank, about 500 yards from the left bank, 0·8 of a mile E.N.E. of Labadala Purán, 0·5 of a mile E. of Labadala Naya and 0·7 of a mile S.S.W. of Umiaun; thána Nokha.</p> <p>λ 25 1 40·59 L 84 20 52·58</p>
<p>Soane River No. 21 s. (<i>Gya</i>) On right bank, about a mile W. by N. of Mahuanwan and $1\frac{1}{4}$ miles S.W. of Amda village; thána Nabínagar, pargana Kutumba.</p> <p>λ 24 46 8·76 L 84 9 16·67</p>	<p>Soane River No. 30 s. (<i>Shahabad</i>) On left bank, 0·7 of a mile N. E. by E. of Mukrain, the same distance E.S.E. by S. of Abaranpur and 1·5 miles S. of Birkap; pargana Rohtas.</p> <p>λ 24 55 19·47 L 84 15 4·39</p>	<p>Soane River No. 39 s. (<i>Gya</i>) On right bank, 2·2 miles W. of the large village of Ancha, 0·4 of a mile E.N.W. by N. of Purni Bhoia and 0·6 of a mile N.N.E. by N. of Mahadewa village; thána Dáudnagar, pargana Ancha.</p> <p>λ 25 1 10·78 L 84 23 9·89</p>
<p>Soane River No. 22 s. (<i>Shahabad</i>) On left bank, close to and S. by W. of Saraisa, a large village; pargana Rohtas.</p> <p>λ 24 47 49·62 L 84 7 28·07</p>	<p>Soane River No. 31 s. (<i>Gya</i>) On a sand bank, about 100 yards from the right bank, 1·5 miles S.W. by W. of Bagain and 0·4 of a mile N.N.W. by N. of Ghotauli; thána Aurungabad, pargana Siris.</p> <p>λ 24 55 3·52 L 84 17 38·36</p>	<p>Soane River No. 40 s. (<i>Shahabad</i>) On left bank, 0·3 of a mile E. by S. of Huriharganj, a large village, 0·9 of a mile S.S.E. of Badila and 0·6 of a mile S. W. by W. of Jamálpur; thána Nokha.</p> <p>λ 25 2 56·89 L 84 23 11·69</p>

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Soane River No. 41 s. (<i>Gya</i>) On right bank, about $\frac{1}{2}$ of a mile N. of Ancha village; thána Dáudnagar, pargana Ancha.</p> <p style="text-align: center;">o ' "</p> <p>λ 25 2 10·08 L 84 24 41·85</p>	<p>Soane River No. 49 s. (<i>Gya</i>) On right bank, 0·7 of a mile W. by S. of Mainpura and the same distance N. by W. of Belaun; pargana Arwal.</p> <p style="text-align: center;">o ' "</p> <p>λ 25 8 56·80 L 84 30 46·33</p>	<p>Soane River No. 58 s. (<i>Shahabad</i>) On a sand bank, about 400 yards from the left bank, 0·8 of a mile E.S.E. of Dhauri, 1·6 miles S. by E. of Pairkhap and 0·4 of a mile S.W. of Khaira village; pargana Piaro.</p> <p style="text-align: center;">o ' "</p> <p>λ 25 14 1·66 L 84 37 53·11</p>
<p>Soane River No. 42 s. (<i>Shahabad</i>) On left bank, 1·4 miles E.S.E. of Pokrahn, 2·2 miles S.S.W. of Mugraun and 0·6 of a mile W. by S. of Mahadewa; thána Dhangáin, pargana Danwár.</p> <p>λ 25 3 44·34 L 84 25 4·12</p>	<p>Soane River No. 50 s. (<i>Shahabad</i>) On left bank, 2·1 miles E. by N. of the Danwár Indigo Factory, 1·1 miles S.S.E. of Beta, a large village and 1·4 miles S.S.W. by S. of Rájpur; pargana Piaro.</p> <p>λ 25 10 34·19 L 84 30 8·39</p>	<p>Soane River No. 59 s. (<i>Gya</i>) On right bank, 1·0 mile N.N.E. by N. of Bigaha, 0·6 of a mile N.W. by N. of Anra and 0·9 of a mile W.N.W. of Hasanpur; pargana Arwal.</p> <p>λ 25 13 17·59 L 84 39 3·06</p>
<p>Soane River No. 43 s. (<i>Gya</i>) On right bank, 1·7 miles W. by S. of Mahauri, 0·8 of a mile W. by N. of Sipaha and 1·2 miles N.N.E. of Dáudnagar; thána Dáudnagar, pargana Ancha.</p> <p>λ 25 3 12·46 L 84 27·20·13</p>	<p>Soane River No. 51 s. (<i>Gya</i>) On right bank, 0·4 of a mile S.S.W. by W. of Sonsa and 1·7 miles W.S.W. of Bhagwánpur village; pargana Arwal.</p> <p>λ 25 10 8·93 L 84 31 45·83</p>	<p>Soane River No. 60 s. (<i>Shahabad</i>) On left bank, close to and S.E. of Sahár village and 0·5 of a mile E. of Abdilla; pargana Piaro.</p> <p>λ 25 14 42·82 L 84 40 8·65</p>
<p>Soane River No. 44 s. (<i>Shahabad</i>) On left bank, 1·0 mile E. of Nuauin village; thána Dhangáin, pargana Danwár.</p> <p>λ 25 4 54·94 L 84 26 56·17</p>	<p>Soane River No. 52 s. (<i>Shahabad</i>) On left bank, 1·6 miles S.S.W. by S. of Himádpur; pargana Piaro.</p> <p>λ 25 11 39·36 L 84 31 26·43</p>	<p>Soane River No. 61 s. (<i>Gya</i>) On right bank, 1·3 miles S.W. of Áyápur, 0·3 of a mile W. by N. of the Arwal Indigo Factory and 0·7 of a mile N.E. of Arwal Murádpur Ujra; pargana Arwal.</p> <p>λ 25 14 45·00 L 84 41 55·48</p>
<p>Soane River No. 45 s. (<i>Gya</i>) On right bank, 2·3 miles S.S.W. of Muhamnádpur, 1·4 miles S.W. by W. of Mayár and 0·6 of a mile N. by W. of Kara; thána Dáudnagar, pargana Ancha.</p> <p>λ 25 4 26·20 L 84 28 55·80</p>	<p>Soane River No. 53 s. (<i>Gya</i>) On right bank, 0·5 of a mile N.W. by N. of Masádpur, 1·2 miles W. by N. of Kamta and 0·7 of a mile S.W. of Matia village; pargana Arwal.</p> <p>λ 25 11 11·83 L 84 33 9·69</p>	<p>Soane River No. 62 s. (<i>Shahabad</i>) On left bank, 0·4 of a mile N.E. by N. of Pior and 0·7 of a mile E.S.E. of Bausidihári village; pargana Piaro.</p> <p>λ 25 16 18·03 L 84 41 22·05</p>
<p>Soane River No. 46 s. (<i>Shahabad</i>) On a sand bank, about 700 yards from the left bank, 1·3 miles E. by S. of Khirraun and 0·9 of a mile E. of Nabínagar; thána Dhangáin, pargana Danwár.</p> <p>λ 25 6 29·85 L 84 27 57·59</p>	<p>Soane River No. 54 s. (<i>Shahabad</i>) On left bank, 0·3 of a mile S.S.W. of Ándhári and 0·9 of a mile S.E. by S. of Harpur village; pargana Piaro.</p> <p>λ 25 12 41·77 L 84 33 3·15</p>	<p>Soane River No. 63 s. (<i>Gya</i>) On right bank, 0·5 of a mile S.W. by S. of Chapra village, 0·6 of a mile N.W. by W. of Ibrahim Sakari and 0·3 of a mile N. by W. of Khidirpur Tola; pargana Arwal.</p> <p>λ 25 16 54·12 L 84 43 4·06</p>
<p>Soane River No. 47 s. (<i>Gya</i>) On a sand bank, about 500 yards from the right bank, 0·9 of a mile W. by N. of Hichanbiga, 1·8 miles N.W. by N. of Agánur and 0·6 of a mile N. by W. of Muhamnádpur; pargana Arwal.</p> <p>λ 25 6 59·62 L 84 29 30·30</p>	<p>Soane River No. 55 s. (<i>Gya</i>) On right bank, close to and W. of Badh village; pargana Arwal.</p> <p>λ 25 12 6·69 L 84 34 50·47</p>	<p>Soane River No. 64 s. (<i>Shahabad</i>) On a sand bank, about $\frac{1}{2}$ a mile from the left bank and 0·5 of a mile S. of Nonaur village; pargana Piaro.</p> <p>λ 25 17 55·94 L 84 42 28·90</p>
<p>Soane River No. 48 s. (<i>Shahabad</i>) On left bank, 1·4 miles E. of Kaithi and 1·1 miles S.E. by E. of Kachawa village; thána Dhangáin, pargana Danwár.</p> <p>λ 25 8 20·76 L 84 28 45·46</p>	<p>Soane River No. 56 s. (<i>Shahabad</i>) On left bank, 0·4 of a mile E. by S. of Mathia and 1·0 mile S.S.W. of Khariaun Bara village; pargana Piaro.</p> <p>λ 25 13 12·57 L 84 35 30·04</p>	<p>Soane River No. 65 s. (<i>Gya</i>) On right bank, 1·2 miles W.N.W. of Bara, 1·3 miles N. by E. of Kunka and 1·0 mile N.E. by N. of Fidarápur; pargana Arwal.</p> <p>λ 25 17 55·79 L 84 44 37·16</p>

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Soane River No. 66 s. (<i>Shahabad</i>) On left bank, close to and E. by N. of Danua, 1½ miles S.E. by E. of Chillhar and 1½ miles S. by W. of Baga; pargana Piaro.</p> <p>λ 25 19 22·84 L 84 45 4·74</p>	<p>Soane River No. 75 s. (<i>Patna</i>) On right bank, 0·8 of a mile S.S.E. of Manoharpur and 0·9 of a mile S.S.W. by S. of Berar.</p> <p>λ 25 27 21·53 L 84 49 18·43</p>	<p>Soane River No. 84 s. (<i>Shahabad</i>) On left bank, in dry bed of the river about 100 yards from water's edge and ¼ a mile N.E. of Dandiha.</p> <p>λ 25 33 30·03 L 84 49 49·66</p>
<p>Soane River No. 67 s. (<i>Patna</i>) On right bank, about ¼ of a mile N. by E. of Muhib Alipur; pargana Masaurhi.</p> <p>λ 25 20 18·50 L 84 46 29·10</p>	<p>Soane River No. 76 s. (<i>Shahabad</i>) On left bank, 0·6 of a mile N.N.W. of Sarangpur; pargana Pawánr.</p> <p>λ 25 27 55·61 L 84 48 23·49</p>	<p>Soane River No. 85 s. (<i>Patna</i>) On an island, about a mile N. by E. of Pario village which is on right bank and ¼ a mile S. of Sarauda; pargana Maner.</p> <p>λ 25 34 24·80 L 84 51 1·28</p>
<p>Soane River No. 68 s. (<i>Shahabad</i>) On left bank, 0·6 of a mile S.S.E. of Nurpur and 2·1 miles S. by W. of Khandoli village; pargana Pawánr.</p> <p>λ 25 21 4·74 L 84 46 3·97</p>	<p>Soane River No. 77 s. (<i>Patna</i>) On right bank, in dry bed of the river about 0·1 of a mile from water's edge, 0·3 of a mile S.S.W. by S. of Nisarpura, close to and W.N.W. of Ikbálganj and 0·2 of a mile N.N.W. of Bhirdaul.</p> <p>λ 25 28 22·03 L 84 48 48·40</p>	<p>Soane River No. 86 s. (<i>Shahabad</i>) On left bank, close to and S.E. of Koilwar, a large village.</p> <p>λ 25 34 45·64 L 84 50 43·15</p>
<p>Soane River No. 69 s. (<i>Patna</i>) On right bank, 2·6 miles S.W. by S. of Dhang, 1·2 miles W. by N. of Jalpura and 0·9 of a mile N.N.W. by W. of Masaurhi; pargana Masaurhi.</p> <p>λ 25 21 54·54 L 84 47 29·19</p>	<p>Soane River No. 78 s. (<i>Shahabad</i>) On left bank, 1·0 mile S. E. by S. of Bisunpur village.</p> <p>λ 25 28 36·78 L 84 48 8·45</p>	<p>Soane River No. 87 s. (<i>Patna</i>) On an island in the river, 0·6 of a mile N.E. by E. of Sarauda which is on right bank and 0·5 of a mile N.W. of Mudai; pargana Maner.</p> <p>λ 25 35 12·39 L 84 51 36·70</p>
<p>Soane River No. 70 s. (<i>Shahabad</i>) On left bank, 0·6 of a mile S.S.E. by E. of Sirkichak; pargana Pawánr.</p> <p>λ 25 23 9·02 L 84 46 58·82</p>	<p>Soane River No. 79 s. (<i>Patna</i>) On right bank, 0·9 of a mile W. by S. of Rámubiga, 0·7 of a mile S.W. by S. of Mauwar and 1·0 mile W.S.W. by S. of Ghoratap.</p> <p>λ 25 29 38·64 L 84 48 39·09</p>	<p>Soane River No. 88 s. (<i>Shahabad</i>) On left bank, close to and S.S.E. of Champura and 0·6 of a mile E.S.E. of Karipur village.</p> <p>λ 25 36 40·03 L 84 50 55·51</p>
<p>Soane River No. 71 s. (<i>Patna</i>) On right bank, 1·2 miles S.W. by W. of Lathar and 1·8 miles S.S.W. by W. of Budhu Chapra; pargana Masaurhi.</p> <p>λ 25 23 43·87 L 84 48 36·10</p>	<p>Soane River No. 80 s. (<i>Shahabad</i>) On left bank, close to and E. by S. of Kosgaon village and 1·2 miles S. by W. of Khán-gaon.</p> <p>λ 25 29 58·33 L 84 47 38·85</p>	<p>Soane River No. 89 s. (<i>Patna</i>) On right bank, 2·0 miles N.W. of Kateshwar village; pargana Maner.</p> <p>λ 25 36 41·26 L 84 51 45·74</p>
<p>Soane River No. 72 s. (<i>Shahabad</i>) On left bank, close to and S. of Raipura, 0·9 of a mile S.S.E. of Chillhos and 1·0 mile N.E. by N. of Tukaulia village; Pargana Pawánr.</p> <p>λ 25 25 14·19 L 84 48 3·30</p>	<p>Soane River No. 81 s. (<i>Patna</i>) On right bank, 0·6 of a mile W.S.W. by S. of Bindaul, 0·7 of a mile W.N.W. by N. of Kellanpur and 0·3 of a mile N.N.E. by E. of Tarengna.</p> <p>λ 25 31 12·13 L 84 48 40·54</p>	<p>Soane River No. 90 s. (<i>Shahabad</i>) On left bank, about ¼ of a mile E.N.E. of Muwi village and the same distance E.S.E. of Muhammadpur.</p> <p>λ 25 37 23·73 L 84 51 47·38</p>
<p>Soane River No. 73 s. (<i>Patna</i>) On right bank, 1·3 miles S. of Janpára, 0·7 of a mile W.S.W. of Laladpur and 1·0 mile N.W. of Saidabad; pargana Masaurhi.</p> <p>λ 25 25 45·82 L 84 49 25·04</p>	<p>Soane River No. 82 s. (<i>Shahabad</i>) On left bank, 1·2 miles S.E. by S. of Chanri village.</p> <p>λ 25 31 46·58 L 84 48 23·07</p>	<p>Soane River No. 91 s. (<i>Patna</i>) On right bank, about ¼ of a mile N.N.W. of Balwan Tola; pargana Maner.</p> <p>λ 25 37 14·06 L 84 52 52·54</p>
<p>Soane River No. 74 s. (<i>Shahabad</i>) On left bank, 1·0 mile E.N.E. of Fatehpur, the same distance E. by N. of Nasratpur and 1·2 miles S.E. by E. of Náráyanpur; pargana Pawánr.</p> <p>λ 25 26 47·15 L 84 48 27·74</p>	<p>Soane River No. 83 s. (<i>Patna</i>) On right bank, 1·7 miles N.N.W. by W. of Náthupur and 1·3 miles N. by W. of Dohara.</p> <p>λ 25 32 51·79 L 84 50 8·16</p>	<p>Soane River No. 92 s. (<i>Shahabad</i>) On left bank.</p> <p>λ 25 38 4·46 L 84 52 42·55</p>

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
Soane River No. 93 s. (Patna) On right bank, in pargana Maner. o ' " λ 25 37 58.57 L 84 54 0.75	Soane River No. 103 s. (Patna) On right bank, 1.0 mile N. by W. of Sadipur and 1.7 miles N.E. of Mainawa; pargana Maner. o ' " λ 25 39 56.16 L 84 57 55.79	Telanga Hill Mark. (Lohardugga) Also called Salaia Pahār, about 1½ miles N.E. of Rajkheta and 2½ miles N.W. of Ekghara village. o ' " λ 24 18 45.23 L 84 29 18.03 See Synoptical Vol. of the Calcutta Longitudinal Series of the South-East Quadrilateral.
Soane River No. 94 s. (Shahabad) On left bank. λ 25 38 51.89 L 84 53 41.17	Soane River No. 104 s. (Patna) On left bank, about ¼ a mile E.S.E. of Jirakan Tola; pargana Maner. λ 25 39 50.69 L 84 58 49.22	Tendua Temple. (Gya) λ 24 39 53.9 L 84 13 53.0 Nos. 120, 121
Soane River No. 95 s. (Patna) On right bank, on a mound close to and W. of Maner; pargana Maner λ 25 38 45.36 L 84 54 49.97	Soane River No. 105 s. (Patna) On right bank, 0.6 of a mile W. by N. of Biapur, 1.3 miles N.N.E. by N. of Bājīdipur, and close to and E.N.E. by E. of Darbeshpur; pargana Maner. λ 25 39 11.49 L 84 59 7.47	Teona, III. (Vide page 4—p.) λ 24 34 38.94 L 84 12 53.60 H 74.0 h Not forthcoming No. 2
Soane River No. 96 s. (Shahabad) On left bank, 0.3 of a mile E. by N. of Polasi Tola. λ 25 39 37.76 L 84 54 29.75	Soane River No. 106 s. (Patna) On left bank, about a mile W.S.W. of Bangarpál; pargana Maner. λ 25 39 38.99 L 84 59 51.14	Tháwa, XXIV. (Vide page 7—p.) λ 26 26 2.87 L 84 26 1.84 H 255 h 32 No. 80
Soane River No. 97 s. (Patna) On right bank, 0.7 of a mile N.N.E. by N. of Maner village; pargana Maner. λ 25 39 30.37 L 84 55 20.74	Soane River No. 107 s. (Patna) In bed of the river at junction with the Ganges, close to and N. of Sherpur village; pargana Maner. λ 25 39 25.77 L 85 1 7.33	Tiár House, (Shahabad) Kalas. λ 25 31 51.5 L 84 23 0.3
Soane River No. 98 s. (Shahabad) On left bank, close to and N.N.E. by E. of Hāthi Tola, 0.3 of a mile S.S.W. by S. of Dudhaila and 1.1 miles S.W. by S. of Náku Tola. λ 25 40 6.75 L 84 55 11.61	Sundari Siwála. (Sarun) λ 26 19 52.9 L 84 26 48.0	Tilkap Indigo Factory, (Shahabad) Well post. λ 24 42 38.8 L 84 3 27.2
Soane River No. 99 s. (Patna) On right bank, close to and N.E. of Chihantar village; pargana Maner. λ 25 39 58.97 L 84 56 5.45	Sunháthu s. (Gya) On a mound in village, about a mile S.E. of Kaithe Rámpur and the same distance S. of Dhamni village; thána Dáudnagar, pargana Ancha. λ 24 59 0.46 L 84 32 48.94	Tilothu House No. 1. (Shahabad) Tulárám's large paka house at S. end of village. λ 24 48 15.5 L 84 7 48.1
Soane River No. 100 s. (Patna) On left bank, about ¼ of a mile E. by S. of Náku Tola and ¼ a mile W. by S. of Nílkánt Tola; pargana Maner. λ 25 40 43.23 L 84 56 37.73	Tadháwa s. (Chumparun) On a road running S. of a dry rivulet, 1.3 miles N. of the village so called and 0.4 of a mile E. of Nandpur village; marked by a square trench with a pin in its centre: thána Bettiah, pargana Majhauwa. λ 26 45 58.76 L 84 28 27.31	Tilothu House No. 2. (Shahabad) Doorway of white house at N. end of village. λ 24 48 27.2 L 84 7 59.5
Soane River No. 101 s. (Patna) On right bank, about a mile N.E. of Jáhángirpur; Pargana Maner. λ 25 40 18.94 L 84 57 5.32	Tamsi House. (Gya) W. chimney of Tikári Rája's paka house. λ 24 38 26.3 L 84 17 24.6 No. 66	Tilothu Temple. (Shahabad) λ 24 47 39.9 L 84 7 11.3 No. 119
Soane River No. 102 s. (Patna) On left bank, about ¼ of a mile S. of Langa Tola; pargana Maner. λ 25 40 23.78 L 84 58 10.81		

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Trijunction Mark X s. (<i>Sarun-Gorakhpur</i>) Same as the Revenue Survey pillar P, is on a small mound between the parganas Kalyánpur Kuwári, Gopálganj and Sidhua Jobna.</p> <p style="text-align: center;">° ' "</p> <p>λ 26 36 51·43 L 84 25 23·55</p>	<p>Turtipár Siwála No. 1. (<i>Azamgarh</i>) At S. end of village.</p> <p style="text-align: center;">° ' "</p> <p>λ 26 9 5·1 L 83 54 25·4</p>	<p>Udayapur Mound. (<i>Shahabad</i>)</p> <p style="text-align: center;">° ' "</p> <p>λ 25 7 19 L 84 13 0</p> <p>Umga Temple. (<i>Gya</i>)</p> <p>λ 24 38 52·0 L 84 36 40·0 No. 78</p>
<p>Trijunction Mark Y s. (<i>Sarun-Chumparan</i>) Same as the Revenue Survey pillar Y between the parganas Kalyánpur Kuwári, Sipáh and Majhauwa.</p> <p>λ 26 35 13·24 L 84 27 2·88</p>	<p>Turtipár Siwála No. 2. (<i>Azamgarh</i>) At N. end of village.</p> <p>λ 26 9 19·9 L 83 54 7·4</p>	<p>Utardaha s. (<i>Shahabad</i>) On fort.</p> <p>λ 25 30 46·73 L 84 24 58·09</p>

July 1879.

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

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MERIDIONAL SERIES

OR

SERIES P

OF THE

EAST QUADRILATERAL

and photozincographed under the orders of

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GENERAL J. T. WALKER, C.B., R.E., F.R.S., &C.,

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Surveyor General of India

Commandant of the Great Trigonometrical Survey

at the Office of the Survey, Dehra Dún, August 1881.

Scale 1 inch = 8 miles or $\frac{1}{506880}$

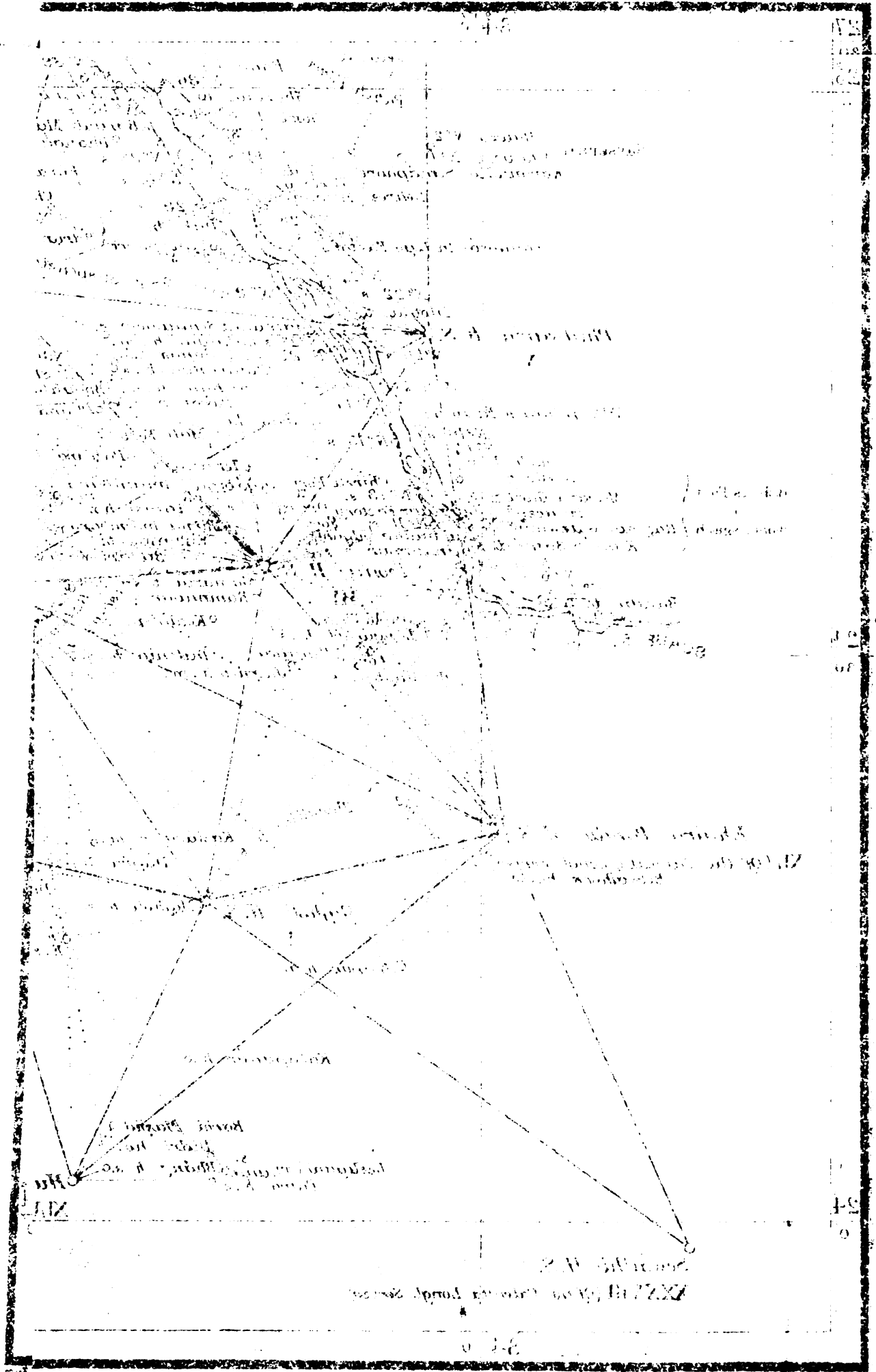


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EXPLANATION OF SYMBOLS USED ON THIS CHART.

- H.S. signifies Hill Station (Principal)
- T.S. " Tower Station "
- h.s. " Hill Station (Secondary)
- s. " Station (Secondary, in the plains)
- t.s. " Temple Station (Secondary)



CHENDWAR MERIDIONAL SERIES.

CHENDWAR MERIDIONAL SERIES—(LONG. 85° 29').

INTRODUCTION.

The completion of the Budhon Meridional Series—the first and westernmost of the thirteen meridional chains within the limits of the North-East Quadrilateral—in the year 1843, set free for fresh employment three triangulating parties, those under Lieutenant Renny, Mr. W. N. James, and Mr. G. Logan.

The second and third of these series (Rangír and Amua) had been already finished, and the fourth (Karára) was in progress, when the Government determined only to take up each alternate chain of the original design in the first instance. The three next to be taken in hand were the sixth, eighth, and tenth (the Gora, Chendwár and Malúncha), postponing for the time the intermediate series, the fifth, seventh, and ninth [the Gurwáni, Huríláong and Párasnáth (Pareshnáth)].

To Mr. James was assigned the Gora Series; and the Chendwár, the subject of this account, to Mr. Logan, who had already had independent charge of a principal triangulating party, and many years experience of trigonometrical operations.

The Chendwár Meridional Series emanates from the side Chendwár-Kasiátu of the Calcutta Longitudinal Series, amongst the hills in the vicinity of Hazáribágh, whence it is carried northwards for about 180 miles, following the meridian of Chendwár (85° 29'): it traverses the district of Hazáribágh in Chota Nagpore (Nágpur), and those of Gya (Gaya), Patna, and Mozufferpore (Muzaffarpur) or Tirhoot (Tirhút) in the province of Behar (Bihár); it crosses the Ganges a little below Patna (the ancient Pátaliputra), and is concluded on the side Madanpur-Amua of the North-East Longitudinal Series, not far south of the Nepál border.

The operation consists of twenty-eight stations, nine of which are situate in the hilly country between Hazáribágh and Behar, a distance of 80 to 90 miles, and are platform stations of the usual kind. The remaining nineteen stations are circular towers, with a solid masonry pier in the centre, built to an average height of about 30 feet.

Throughout the hilly country the Series is laid out in a double chain of triangles, forming a pentagon, a quadrilateral, and a hexagon. Thenceforward for the remaining 90 miles, the Series lies entirely in the plains, and proceeds in a single chain of seventeen symmetrical triangles, with sides about 11 miles in length.

A considerable amount of secondary triangulation was accomplished, by which the positions of the principal places within reach of the Series were duly determined. The work

occupied Mr. Logan, with a party of the usual strength, two-and-a-third seasons, of which a more particular account is now given.

The party, composed as given in the margin, left the Surveyor General's head-quarters at Dehra Dún on the 1st of October 1843, and proceeded by ordinary marches, in company with the Gora and Malúncha Series parties, towards the Lower Provinces.

Season 1843-44.

PERSONNEL.

Mr. G. Logan, 1st Assistant.
 „ G. E. Terry, Senior 1st Class Sub-Assistant.
 „ J. W. Rossenrode, Junior „
 „ C. A. Olliver, 3rd Class „
 (joined the party at end of February 1844).

Mr. Logan and his party reached Hazáribágh on the 16th of December. The principal instrumental equipment consisted of Troughton and Simms' 18-inch Theodolite, No. 2*, which had been used on the Amua and Budhon Series;

besides the usual complement of argand lamps and heliotropes as signals of observation for the principal angles, and the necessary small theodolites, &c., for the minor operations.

Whilst starting the approximate series, Mr. Logan also began the final work by taking a set of circumpolar star observations for azimuth to δ Ursæ Minoris, at both (E. and W.) elongations, which he successfully completed between the 22nd and 29th of December. This done, he pushed on the approximate series as rapidly as possible, proceeding by the east flank himself, whilst Mr. Terry took the west, and Mr. Rossenrode followed, measuring the angles as soon as the stations were selected. For a month previous to 23rd February Mr. Rossenrode was absent on sick leave, which, as Mr. Olliver did not join till after that date, left the party very short handed.

By the end of January 1844 the approximate series was well advanced, and Mr. Logan returned southward for the final observations, which he completed at the undermentioned stations as follows, using the ordinary luminous signals throughout:—

at	H.S.	(I)	between	February	8th	and	February	11th, 1844
„ Sindraili	„	(I)	„	February	8th	„	February	11th
„ Sarhad	„	(II)	„	„	13th	„	„	14th
„ Kasiátu	„	(XLIV)†	„	„	16th	„	„	17th
„ Chendwár	„	(LIII)†	„	„	21st	„	„	22nd
„ Paraia	„	(III)	„	„	26th	„	„	29th
„ Loháwar	„	(IV)	„	March	3rd	„	March	6th
„ Mahar	„	(V)	„	„	14th	„	„	17th
„ Budua	„	(VI)	„	„	21st	„	April	7th
„ Job Makanpur	T.S.	(IX)	„	April	16th	„	„	24th
„ Handia	H.S.	(VII)	„	„	25th	„	„	29th
„ Barábar	„	(VIII)	„	May	2nd	„	May	3rd
„ Dumri	T.S.	(X)	„	„	5th	„	„	6th
„ Behar	H.S.	(XI)	„	„	7th	„	„	8th

Secondary triangulation was carried on until the end of May when the party went into recess quarters at Dígha (between Dinapore and Patna), having done a satisfactory season's work, comprising, besides the long march from Dehra Dún to Hazáribágh, the selection and

* For description of this instrument see pages 65 and 66 of the Appendices to Volume II of the *Account of the Operations, &c.*
 † Of the Calcutta Longitudinal Series.

building of eleven principal stations, at which the final vertical and horizontal measurements were completed, advancing the Series a distance of nearly 90 miles, the observation of an astronomical Azimuth, and a considerable amount of minor triangulation.

The party took the field again about the middle of October at the point it had reached the previous season, *viz.*, Dumri-Behar (x-xi), where the Series enters the Gangetic plain.

Season 1844-45.

PERSONNEL.

Mr. G. Logan, 1st Assistant.
 „ G. E. Terry, Senior 1st Class Sub-Assistant.
 „ J. W. Rossenrode, Junior „
 „ C. A. Olliver, 3rd Class „

The work of selecting the stations in advance, building the towers, and tracing and clearing the rays between them, was begun at once and prosecuted without interrup-

tion; but it was the end of March (1845) before Mr. Logan could take up the final observing of the principal horizontal and vertical angles. He completed them all however, successfully, as follows:—

at Dumri	T.S. (x)	between	April 9th	and	April 11th,	1845
„ Behar	H.S. (xi)	„	„ 11th	„	„ 12th	„
„ Chaurási	T.S. (xii)	„	„ 13th	„	„ 18th	„
„ Barra	„ (xiii)	„	„ 19th	„	„ 24th	„
„ Phulwaria	„ (xiv)	„	„ 24th	„	„ 26th	„
„ Mukhtiárpur	„ (xv)	„	„ 27th	„	„ 29th	„
„ Dúbauli	„ (xvi)	„	„ 30th	„	May 2nd	„
„ Bhartpur	„ (xvii)	„	May 3rd	„	„ 6th	„
„ Turki	„ (xviii)	„	„ 6th	„	„ 8th	„
„ Chapra	„ (xix)	„	„ 11th	„	„ 12th	„
„ Paládpur	„ (xxi)	„	„ 13th	„	„ 15th	„
„ Kamtaul	„ (xx)	„	„ 15th	„	„ 16th	„
„ Sáwajpur	„ (xxiii)	„	„ 18th	„	„ 20th	„
„ Harpur	„ (xxii)	„	„ 21st	„	„ 22nd	„

The Series was thus advanced a distance of about 70 miles to the northward by twelve principal triangles, which the Surveyor General, considering the difficult nature of the country, deemed very satisfactory progress.

The party reached recess quarters at Monghyr (Munger) in the month of June, and brought up the computations as usual by the latter end of September.

The party took the field again early, leaving recess quarters at Monghyr on the 25th of September, and reached the scene of the operations on the 12th of October, equipped for this season's final obser-

Season 1845-46.

PERSONNEL.

Mr. G. Logan, 1st Assistant.
 „ H. Keelan, Senior 1st Class Sub-Assistant.
 „ J. W. Rossenrode, Junior „
 „ J. B. N. Hennessey, 3rd Class „

ations with the 36-inch theodolite by Barrow*, which had been used principally by Colonel Everest himself on the northern portions of the Great Arc.

Of the Chendwár Meridional Series proper there only remained some six principal triangles; the scope of Mr. Logan's instructions however, like those issued from the first to the

* For description of this instrument see pages 33 to 37 of the Appendices to Volume II of the *Account of the Operations, &c.*

officers entrusted with the conduct of each of the other meridional chains included in the scheme, extended not only to the meridional portion of the Series, but also to the westerly bend, or longitudinal return, that each Series was to take on reaching the northern frontier of British Indian territory, and along the line of which it was to be continued until a junction was effected with the head of the adjacent Meridional Series to the west, or with some other portion of the northern frontier chain already completed. The single continuous chain formed by joining all these longitudinal portions is now called the North-East Longitudinal Series.

Mr. Logan made rapid progress with the approximate series, and by the beginning of December had completed the selection of seventeen station sites, extending the N.E. Longitudinal portion of the Series to the vicinity of the meridian of Huríláong, the next series to the west of the Chendwár, and he then lost no time in the requisite ray-clearing and tower-building; but it was the beginning of March before he was able to take up the final observations, which however he completed as follows:—

at	Sáwajpur	T.S. (XXIII)	between	March 2nd	and	March 5th,	1846
„	Harpur	„ (XXII)	„	„ 5th	„	„ 7th	„
„	Ghosauth	„ (XXIV)	„	„ 7th	„	„ 11th	„
„	Rámpur	„ (XXVI)	„	„ 11th	„	„ 14th	„
„	Amua	„ (LXXXIII)*	„	„ 15th	„	„ 19th	„
„	Madanpur	„ (LXXXV)*	„	„ 29th	„	April 1st	„
„	Pota	„ (XXV)	„	April 1st	„	„ 6th	„
„	Sáwajpur	„ (XXIII)	„	„ 7th	„	„ 8th	„

At Pota a set of circumpolar star observations for azimuth was taken to a Ursæ Minoris at both (E. and W.) elongations.

This completed the principal triangles which have been assigned to the Chendwár Meridional Series. The account of the rest of this season's work done by Mr. Logan's party will be found in the introductory account of the North-East Longitudinal Series, to which it belongs. It will suffice here to state that the whole out-turn was considered an uncommonly good season's work, embracing the selection of seventeen stations, the clearing of thirty-two rays in a well wooded, flat country, and the erection of sixteen towers, besides the final observations.

The Calcutta Longitudinal Series was revised in 1863-69; it was then necessary to construct a new station at Chendwár, in place of the original one which had been destroyed, and to connect the revised triangulation with the adjacent stations of the Chendwár Series which still remained intact. This was accomplished by Mr. Keelan with Colonel Waugh's 24-inch theodolite No. 1†. The horizontal and vertical angles of the two new triangles, by which the connection was effected, were completed as follows:—

at	Paraia	H.S. (III)	between	April 24th	and	April 25th,	1869
„	Sindraili	„ (I)	„	„ 27th	„	„ 30th	„
„	Chendwár	„ (LIII)‡	„	May 3rd	„	May 17th	„
„	Kasiátu	„ (XLIV)‡	„	„ 22nd	„	„ 24th	„

* Of the North-East Longitudinal Series.

† For description of this instrument see pages 54 to 57 of the Appendices to Volume II of the *Account of the Operations, &c.*

‡ Of the Calcutta Longitudinal Series.

On the completion of the Simultaneous Reduction of the North-East Quadrilateral, the following errors were found to have been actually dispersed over the entire length of the Chendwár Series, between its origin Chendwár-Kasiátu and its terminus Madanpur-Amua :—

In Logarithm of the latter side— $0.000,011,03 = 1.6$ inches per mile nearly.

„ Azimuth	„	—0" 702
„ Latitude of Madanpur		—0 158
„ Longitude	„	+0 047

The trigonometrical heights of this Series were derived from those of its origin, Chendwár-Kasiátu of the Calcutta Longitudinal Series—determined through nearly 200 miles of unchecked trigonometrical leveling—and were computed throughout in the first instance, in these terms, to the northern terminus. Subsequently, four of the stations were connected with the spirit-leveling operations of the Survey Department, when the preliminary trigonometrical values were found in error by -0.5 , -5.6 , -4.0 , and -8.5 feet (the maximum cumulative error disclosed), at those stations.

Eventually, the final corrections, which it was found necessary to apply to the unchecked trigonometrical values throughout the Series, to make them accord with the spirit-leveled values, amounted on the average to only 2.5 feet for each station. The details concerning the determinations of height will be found at pages 48—Q to 53—Q, Vol. VIII; and a statement of the method and particulars of the dispersion of the errors, at page 41 of Part I of Volume VII of the *Account of the Operations, &c.*

Secondary Triangulation.

Whilst the Series lay in the hilly country to the south of the Ganges, the positions of all the conspicuous landmarks that could be observed from two or more of the principal stations were fixed by intersection with the large theodolite, in the course of the principal triangulation.

On entering the champaign country to the north of Behar but little secondary triangulation could be accomplished, except by special operations undertaken for the purpose, for which there was but scanty means available, all hands being fully occupied with the principal operations.

Three of the ray-trace triangulations however, done with a 12-inch theodolite, were utilized for determining the positions of the points that could be observed from their stations. On the ray-trace Behar-Chaurási by Mr. Keelan in May 1846, six good points were determined; on that between Phulwaria and Mukhtiárpur by Mr. Terry in May-June 1845, thirteen points were determined; and by a considerable amount of ray-trace triangulation between Paládpur and Sáwajpur, observed by Mr. Keelan in February-March 1846, ten points in and about Tirhoot or Mozufferpore civil station were determined.

In June 1845, in continuation of the ray-trace Mukhtiárpur-Phulwaria, Mr. Terry executed a minor series with a 12-inch theodolite along the course of the Ganges, by which several points in and about Patna, Bankipore (Bákípur), Dígha, and Dinapore (Dánápur) were fixed.

This triangulation was afterwards checked by connection with the Gunduk (Gandak) River Survey, a minor series done by Mr. Keelan in March-April-May 1847 with a 12-inch theodolite, emanating from a side of the ray-trace triangulation based on the side Bájra-Bakwa (LXVIII-LXIX) of the North-East Longitudinal Series. The portion of the Gunduk River Survey to the south of its stations Nos. 82, 83, is published with the Chendwár Series, the rest will be found with the Huriláong Series.

The numerical results of these operations have been adjusted to fit in duly between the final position-values of the principal stations and sides between which they lie and on which they depend.

Where, as was generally the case in these secondary operations, the stations of observation were not permanently marked by masonry or otherwise, and the points are therefore not likely to be found, the details of the triangles are not now published, but only the latitudes and longitudes of the points whose position was determined.

The number of secondary points determined, appertaining to the Chendwár Series, amounts to 160, whereas the area covered by the principal and secondary triangulation is about 3500 square miles, so that there is one fixed on the average for every twenty-two square miles.

September 1881.

B. R. BRANFILL.

CHENDWAR MERIDIONAL SERIES.

ALPHABETICAL LIST OF STATIONS.

Amúia (of North-East Longitudinal Series).	LXXXIII	Job Makanpúr	IX
Barábar	VIII	Kámtaol	XX
Barra	XIII	Kasíátu (of Calcutta Longitudinal Series).	XLIV
Behár	XI	Loháwar	IV
Bhartpúr	XVII	Madanpúr (of North-East Longitudinal Series).	LXXXV
Budúa	VI	Mahar	V
Chaorási	XII	Múktíárpúr	XV
Chapra	XIX	Paládpúr	XXI
Chendwár (of Calcutta Longitudinal Series).	LIII	Paraia	III
Damri	X	Pota	XXV
Dúbaoli	XVI	Rámpúr	XXVI
Fúlbáría	XIV	Sarhad	II
Ghosoath	XXIV	Sáwájpúr	XXIII
Handía	VII	Sindraili	I
Hárpúr	XXII	Túrki	XVIII

CHENDWAR MERIDIONAL SERIES.

NUMERICAL LIST OF STATIONS.

XLIV	.	.	.	.	Kasíátu. (of Calcutta Longitudinal Series).	XIV	.	.	.	.	Fúlbaría.
LIII	.	.	.	.	Chendwár. (of Calcutta Longitudinal Series).	XV	.	.	.	.	Múktíárpúr.
I	.	.	.	.	Sindraili.	XVI	.	.	.	.	Dúbaoli.
II	.	.	.	.	Sarhad.	XVII	.	.	.	.	Bhartpúr.
III	.	.	.	.	Paraia.	XVIII	.	.	.	.	Túrki.
IV	.	.	.	.	Loháwar.	XIX	.	.	.	.	Chapra.
V	.	.	.	.	Mahar.	XX	.	.	.	.	Kámtaol.
VI	.	.	.	.	Budúa.	XXI	.	.	.	.	Paládpúr.
VII	.	.	.	.	Handía.	XXII	.	.	.	.	Hárpúr.
VIII	.	.	.	.	Barábar.	XXIII	.	.	.	.	Sáwájpúr.
IX	.	.	.	.	Job Makanpúr.	XXIV	.	.	.	.	Ghosoath.
X	.	.	.	.	Damri.	XXV	.	.	.	.	Pota.
XI	.	.	.	.	Behár.	XXVI	.	.	.	.	Rámpúr.
XII	.	.	.	.	Chaurási.	LXXXIII	.	.	.	.	Amúa. (of North-East Longitudinal Series).
XIII	.	.	.	.	Barra.	LXXXV	.	.	.	.	Madanpúr. (of North-East Longitudinal Series).

CHENDWAR MERIDIONAL SERIES.

DESCRIPTION OF PRINCIPAL STATIONS.



Of the 26 Principal Stations composing this Series, stations I to VIII and XI, as also the 2 initial stations, are on hills: each consists of a square platform which either encloses a central solid pillar of masonry or is built around a mark (circle and centre) engraved on the rock *in situ*: the central pillar has at its summit a mark-stone which is adjusted in the normal of a mark at the base. Station LIII (of the Calcutta Longitudinal Series) which is one of the initial stations of the Series, and station IV are excepted: at the former, instead of the platform an observatory has been built around the central pillar which has here an additional mark-stone; and at the latter, no platform was considered necessary. When the Series entered on the plains, suitable artificial elevations had to be constructed, as usual, to admit of overlooking the curvature of the earth. Each of these structures (excluding that at XIII) consisted of a circular earthen tower of between 19 to 27 feet in diameter at base, and 14 to 16 feet in diameter at top, enclosing a central solid pillar. The pillars were of masonry, and varied in height from 22 to 36 feet (excepting at IX where the pillar was but 10 feet high, and had only the uppermost 4 feet of masonry): at the base, the pillars were either square with a side of 6 or $6\frac{1}{2}$ feet, or circular with a diameter of 5 or 6 feet; but at the top they were invariably circular with a diameter of $3\frac{1}{2}$ or 4 feet. In respect to mark-stones with the usual circle and central dot engraved, each pillar had one on its summit, and another generally in its base with others fixed intermediately. At station XIII, instead of the usual earthen tower, a bamboo scaffolding was run up around the central pillar for the accommodation of the observatory tent.

The following descriptions have been compiled from those given in the MS. General Report and the original records of this Series, supplemented in respect to the neighbouring villages by information obtained from the Revenue Survey Maps of the country traversed. The information as to the local sub-divisions in which the several stations occur has been derived from the latest Annual Reports received from the District Officers to whose charge the stations have been committed.

XLIV.—(*Of the Calcutta Longitudinal Series*). Kasiátu Hill Station, lat. $23^{\circ} 58'$; long. $84^{\circ} 57'$ —observed at in 1829, 1844, 1865-66 and 1869—is on the highest point of an isolated hill overlooking a partially level and densely wooded country: thána Simaria, pargana Goría, tahsíl and district Hazáribágh.

The pillar is solid and contains two marks, the upper 3 feet above the lower which is engraved on the rock *in situ*, having been placed there in 1829. The station was visited in 1844 for the purpose of originating the Chendwár Meridional Series, but no alteration in its construction is mentioned. In 1864, the upper mark-stone had not been disturbed but a new pillar was then built to the same height as before. It was again visited in 1869, but no alteration was then made. The distances and bearings of surrounding villages are:—Kasiátu, about 1 mile W.; Nawáda, $1\frac{1}{2}$ miles N.W.; Padumpur, 2 miles E.N.E.; and Jhírmakoma, $2\frac{1}{2}$ miles S.

LIII.—(*Of the Calcutta Longitudinal Series*). Chendwár Hill Station, lat. $23^{\circ} 57'$, long. $85^{\circ} 29'$ —observed at in 1867 and 1869—is on the highest and northernmost peak of a thickly wooded and small isolated range of hills running north and south and having the surrounding lands extensively covered with Tea plantations belonging to the Rámgar Tea Company: pargana Bráhmañbai, thána, tahsíl and district Hazáribágh.

The pillar is solid. Mr. Taylor employed this station for latitude observations during the season 1865-66 and built a pillar around a certain mark found at the ground level; this mark was afterwards ascertained to be at some distance from the

mark of 1829* ; the latter was revisited and employed in 1843-44 for the purpose of originating the Chendwár Meridional Series, but subsequently it was evidently destroyed and the mark-stone displaced as found in 1865. Mr. Taylor also erected an observatory over the station having its paka floor raised 1 foot above the mark-stone. In 1867, Mr. Keelan, when revising the triangulation along the Calcutta Longitudinal Series, built up the pillar to a height of 3·00 feet above the floor of the observatory and placed a mark-stone at the top and another flush with the floor of the observatory : it was again visited in 1869, but no alteration was then made. The distances and bearings of surrounding places are :—Chendwár village, about 1 mile S. E. ; Marheta village, at the base of the hill to the S. W. ; and the station of Hazáribágh, about 5 miles N. W.

I. Sindraili Hill Station, lat. $24^{\circ} 12'$, long. $85^{\circ} 16'$ —observed at in 1844 and 1869—is situated in the lands of the village of Dahori from which it is distant 1 mile N. by W., and stands on one of the eminences of a range of hills running east and west : thána Chatra, pargana Ahuri, tahsíl and district Hazáribágh. The station Mahúda of the Calcutta Longitudinal Series is on the same hill at about $1\frac{1}{2}$ miles W. by S.

The station consists of a square platform enclosing a circular masonry pillar 3·5 feet high which has a mark-stone at its upper surface and a mark engraved on the rock *in situ*. The station was originally built in 1844 in the course of the operations of the Chendwár Meridional Series : it was revisited in 1869 for the purpose of connecting that series with the revised triangulation on the Calcutta Longitudinal Series ; and as the upper mark-stone was found removed, the masonry pillar above indicated was thus built over the original mark engraved on the rock *in situ*. The distances and bearings of surrounding villages are :—Jhardág, $\frac{3}{4}$ mile S.S.W. ; Arra, 1 mile N.E. by N. ; Barikola, $2\frac{1}{4}$ miles E. by S. ; and Dahori, 1 mile S. by E.

II. Sarhad Hill Station, lat. $24^{\circ} 20'$, long. $85^{\circ} 0'$ —observed at in 1844—is situated about 25 feet S.S.E. of the Sarhad Semaphore, and stands on a spur of the range of low hills that lie between the Lilájan and Maháne rivers : thána Hunterganj, pargana Dantára, tahsíl and district Hazáribágh.

The station consists of a low platform which has a mark-stone at its upper surface, and a mark engraved on the rock *in situ*. The distances and bearings of surrounding villages are :—Luta, 1 mile N.E. ; Sarhad, 1 mile S.W. ; Rusna, 2 miles S.E. ; and Umartari, $3\frac{3}{4}$ miles W. by S.

III. Paraia Hill Station, lat. $24^{\circ} 20'$, long. $85^{\circ} 28'$ —observed at in 1844—is situated about $\frac{3}{4}$ mile N.W. of the village of Paraia, and stands on a low hill the eastern base of which is washed by the Barákar river : thána Burhee, pargana Barsot, tahsíl and district Hazáribágh.

The station is marked on the rock *in situ*, around which the usual platform has been built. The distances and bearings of surrounding villages are :—Burhee, on the Grand Trunk Road, about 2 miles S.S.W. ; Bindyi, $1\frac{3}{4}$ miles W.N.W. ; and Khanri, $2\frac{1}{4}$ miles N.

IV. Loháwar Hill Station, lat. $24^{\circ} 28'$, long. $85^{\circ} 13'$ —observed at in 1844—stands on the western part of a well known hill called Loháwar ; it is situated immediately below the crest of the hill which is occupied by a huge rock rising perpendicularly, and is distant $2\frac{1}{2}$ miles E. of the Maháne river : thána Barichatti, pargana Maher, tahsíl and district Gya.

The station is marked on the rock *in situ*, which, being sufficiently broad and flat, removed the necessity for building a platform. The distances and bearings of surrounding places are :—Dhanua Dák Bungalow, on the Grand Trunk Road, 2 miles S. ; Baijnáthpur village, $2\frac{1}{2}$ miles W. by S. ; and Mutgudha village, $2\frac{1}{2}$ miles N. by W.

V. Mahar Hill Station, lat. $24^{\circ} 44'$, long. $85^{\circ} 12'$ —observed at in 1844—stands on the highest part of an isolated hill running north and south, and is situated about $1\frac{1}{2}$ miles N.N.E. of the large village of Maher : pargana Maher, thána, tahsíl and district Gya.

The station consists of a low platform which has a mark-stone at its upper surface, and a mark engraved on the rock *in situ*. The distances and bearings of surrounding villages are :—Noaganj, $\frac{1}{2}$ mile E. ; Saiyidpur, $1\frac{3}{4}$ miles W. by S. ; Putend Mungawan, 2 miles W.N.W. ; and Teluria, 2 miles N.E.

VI. Budua (*Budúa*) Hill Station, lat. $24^{\circ} 42'$, long. $85^{\circ} 38'$ —observed at in 1844—stands on the western point of a long flat range, and takes its name from the village of Budua which is distant about $1\frac{1}{2}$ miles to the north : thána Nowáda, pargana Pachrukhi, tahsíl and district Gya.

The station consists of a low platform which has a mark-stone at its upper surface, and a mark engraved on the rock *in situ*. The distances and bearings of surrounding villages are :—Rajauli, about 6 miles S.W. ; Pachrukhi, $4\frac{3}{4}$ miles N.W. by N. ; and Belmau, nearly 3 miles S.E.

VII. Handia (*Handía*) Hill Station, lat. $24^{\circ} 58'$, long. $85^{\circ} 26'$ —observed at in 1844—stands on a long flat-topped hill, and is situated about $1\frac{1}{2}$ miles N.W. of the village of Handia : thána Atari, pargana Narhat, tahsíl and district Gya.

* This mark is elsewhere designated Chendwár h.s., Chendwár (old), and Chendwár Azimuth Station.

The station is marked on a high rock *in situ*, around which the usual platform has been built. The distances and bearings of surrounding villages are :—Rajgir, 2 miles N.E.; Pachia, 1½ miles S.S.E.; and Chukra, 3½ miles W.

VIII. Barábar Hill Station, lat. 25° 1', long. 85° 6'—observed at in 1844—stands on the highest of a cluster of isolated hills, and is distant about 2½ miles due west of the junction of the Sona stream with the Phalgu river: thána Tikari, pargana Sanaut, tahsíl and district Gya.

The station is marked on a high rock *in situ*, around which the usual platform has been built. The distances and bearings of surrounding villages are :—Jamunganj, 2½ miles N.E.; Panari, 2 miles S. by E.; and Dhunuwan, 2½ miles W.

IX. Job Makanpur (*Job Makanpúr*) Tower Station, lat. 25° 0', long. 85° 40'—observed at in 1844—stands on an elevated site in the centre of the village of Job Makanpur distant about 1 mile E. of the left bank of the Sakri river: thána Nowáda, pargana Samái, tahsíl and district Gya.

The station consists of a circular tower of unburnt bricks—with diameters at top and bottom, respectively, of 14 and 19 feet—enclosing a central solid pillar 10 feet high, of which only the uppermost 4 feet is of paka masonry; the latter has—it is assumed—a mark-stone at its summit, and another at bottom. The distances and bearings of surrounding villages are :—Kutri, 2½ miles N.N.W.; Mahsanabad Korawan, nearly 3 miles E.; Rámchandarpur, 2 miles S.; and Samái, 4 miles S.W.

X. Dumri (*Damri*) Tower Station, lat. 25° 13', long. 85° 21'—observed at in 1844—stands on a slightly elevated spot at the S.W. corner of the small village of Dumri: thána Hilsa, pargana Tilra, district Patna.

The station consists of a tower of unburnt bricks—with diameters at top and bottom, respectively, of 14 and 21 feet—enclosing a central solid pillar of masonry 22 feet high and 5 feet in diameter at base; the latter has—it is assumed—a mark-stone at its summit, and another at bottom. The distances and bearings of surrounding villages are :—Sibnagar, 1·2 miles N.W. by W.; Gaura, 3·7 miles N. by E.; Khiraunti, 0·8 mile S.E. by E.; and Pawai, 1·1 miles S.E. by S.

XI. Behar (*Behár*) Hill station, lat. 25° 12', long. 85° 33'—observed at in 1844—stands on a low hill distant 1 mile N.W. of the town of Behar: thána and pargana Behar, district Patna.

The station consists of a platform of burnt bricks and mud cement, 14 feet square, enclosing a central solid pillar of masonry 7 feet high and 4 feet in diameter; the latter has a mark-stone at its summit, and another at the surface of the ground. The distances and bearings of surrounding villages are :—Salempur Soh, nearly 1½ miles N. by E.; Mogultra, 1½ miles S.W.; and Hazúrpur, 2½ miles S.S.E.

XII. Chaurási (*Chaurási*) Tower Station, lat. 25° 21', long. 85° 23'—observed at in 1845—stands on a slightly elevated spot of ground distant 500 or 600 yards to the east of the small village of Chaurási: thána Hilsa, pargana Pilich, district Patna.

The station consists of a tower of unburnt bricks—with diameters at top and bottom, respectively, of 16 and 25 feet—enclosing a central solid pillar of masonry 30 feet high, 6 feet in diameter at base and 3½ feet at top; the latter has a mark-stone at its summit, in the normal of which—it is assumed—other mark-stones have been fixed in the solid pillar. The distances and bearings of surrounding villages are :—Saidanpur, 0·4 mile S. by W.; Bandha, 1·2 miles N.W. by N.; Mahodipur, 0·8 mile N.E. by E.; and Rámpur, 1·1 miles E.S.E.

XIII. Barra Tower Station, lat. 25° 25', long. 85° 33'—observed at in 1845—stands on the bank of a small water-course, and is situated in the centre of an extensive plain at a distance of 2½ miles N. by E. of the village of Barra: thána Barh, pargana Sháhjahánpur, district Patna.

The station consists of a solid masonry pillar 30 feet high, with diameters at top and bottom, respectively, of 3½ and 11½ feet; it has a mark-stone at its summit, in the normal of which—it is assumed—other mark-stones have been fixed in the solid pillar. The distances and bearings of surrounding villages are :—Sirsi, 2·2 miles S.W. by S.; Barun Biga, 2·3 miles W.N.W.; Karnauti, 2·9 miles E.N.E.; and Birju Milki, 1·7 miles S.E. by S.

XIV. Phulwaria (*Fúlbária*) Tower Station, lat 25° 30', long. 85° 24'—observed at in 1845—stands on the right bank of the Ganges, immediately E. of the village of Phulwaria: thána Futwah, pargana Baikuntpur, district Patna.

The station consists of a tower of unburnt bricks—with diameters at top and bottom, respectively, of 16 and 25 feet—enclosing a central solid pillar of masonry 30 feet high, 6 feet in diameter at base and 3½ feet at top; the latter has a mark-stone at its summit, in the normal of which—it is assumed—other mark-stones have been fixed in the solid pillar. The distances and bearings of surrounding villages are :—Shaikh Muhammadpur, 1½ miles S.S.W.; Futwah, 2½ miles W.; Raghupur, 1½ miles N. by E.; and Baikuntpur, 2½ miles E.S.E.

XV. Mukhtiárpur (*Múktiárpúr*) Tower Station, lat. 25° 36', long. 85° 33'—observed at in 1845—is

situated at the northern end of the village of Mukhtíarpur: thána Hajeeapore, pargana Joruha, district Mozufferpore.

The station consists of a tower of unburnt bricks—with diameters at top and bottom, respectively, of 16 and 26 feet—enclosing a central solid pillar of masonry 36 feet high, 6 feet square at base and $3\frac{1}{2}$ feet in diameter at top; the latter has a mark-stone at its summit, in the normal of which—it is assumed—other mark-stones have been fixed in the solid pillar. The distances and bearings of surrounding villages are:—Chakeso, 0·3 mile W. by S.; Lawapur, 0·4 mile N.E. by N.; Alipur, 0·4 mile S.E.; and Manjlispur, 0·2 mile S.

XVI. Dúbauli (*Dúbaoli*) Tower Station, lat. $25^{\circ} 40'$, long. $85^{\circ} 23'$ —observed at in 1845—stands on the site of an old village, and is distant $\frac{1}{2}$ mile S.W. by W. of the village of Dúbauli: thána Hajeeapore, pargana Joruha, district Mozufferpore.

The station consists of a tower of unburnt bricks—with diameters at top and bottom, respectively, of 16 and 26 feet—enclosing a central solid pillar of masonry 36 feet high, 6 feet square at base and $3\frac{1}{2}$ feet in diameter at top; the latter has a mark-stone at its summit, in the normal of which—it is assumed—other mark-stones have been fixed in the solid pillar. The distances and bearings of surrounding villages are:—Bara Kakreta, 0·3 mile S.W. by W.; Bishunpur Saäd, 3 miles N.E. by E.; and Kakreta, 0·2 mile S.E. by E.

XVII. Bhartpur (*Bhartpúr*) Tower Station, lat. $25^{\circ} 46'$, long. $85^{\circ} 31'$ —observed at in 1845—stands in a hamlet distant 0·8 mile N.E. of the village of Bhartpur, and is situated 3 miles W. of the Tal Baraila lake: thána Mahuwa, pargana Bisára Chakla Garjaul, district Mozufferpore.

The station consists of a tower of unburnt bricks—with diameters at top and bottom, respectively, of 16 and $25\frac{1}{2}$ feet—enclosing a central solid pillar of masonry 33 feet high, 6 feet in diameter at base and $3\frac{1}{2}$ feet at top; the latter has a mark-stone at its summit, in the normal of which—it is assumed—other mark-stones have been fixed in the solid pillar. The distances and bearings of surrounding villages are:—Adalpur, 0·9 mile S.S.W.; Chitwarakupur, 4 miles N.W. by N.; Dhaspara, 1·2 miles E.; and Chak Umar, $\frac{1}{2}$ mile N.N.E.

XVIII. Turki (*Túrki*) Tower Station, lat. $25^{\circ} 50'$, long. $85^{\circ} 22'$ —observed at in 1845—stands on the site of an old village, and is distant 0·4 mile S. of the village of Turki: thána Mahuwa, pargana Bisára Chakla Garjaul, district Mozufferpore.

The station consists of a tower of unburnt bricks—with diameters at top and bottom, respectively, of 16 and 26 feet—enclosing a central solid pillar of masonry 31 feet high, 6 feet square at base and $3\frac{1}{2}$ feet in diameter at top; the latter has a mark-stone at its summit, in the normal of which—it is assumed—other mark-stones have been fixed in the solid pillar. The distances and bearings of surrounding villages are:—Chak Bhoa, 0·4 mile W. by S.; Basa, 1·4 miles N.; Saringhi, 0·5 mile N.E. by E.; and Chak Asoi, 0·6 mile S.E.

XIX. Chapra Tower Station, lat. $25^{\circ} 55'$, long. $85^{\circ} 30'$ —observed at in 1845—stands on a slight swell of ground distant 0·9 mile E.S.E. of the large village of Chapra: thána Mahuwa, pargana Bisára Chakla Garjaul, district Mozufferpore.

The station consists of a tower of unburnt bricks—with diameters at top and bottom, respectively, of 16 and 25 feet—enclosing a central solid pillar of masonry 30 feet high, 6 feet in diameter at base and $3\frac{1}{2}$ feet in diameter at top; the latter has a mark-stone at its summit, in the normal of which—it is assumed—other mark-stones have been fixed in the solid pillar. The distances and bearings of surrounding villages are:—Chota Chapra, 0·9 mile S.W.; Birokhara, 0·3 mile N.N.E.; Sherpur, 1 mile S.E. by E.; and Purena, 1·2 miles S.S.E.

XX. Kamtaul (*Kámtaol*) Tower Station, lat. $25^{\circ} 59'$, long. $85^{\circ} 21'$ —observed at in 1845—stands in a field belonging to the village of Kamtaul, and is situated at a short distance to the west of the high road from Lálganj to Mozufferpore: pargana Bisára Chakla Garjaul, thána and district Mozufferpore.

The station consists of a tower of unburnt bricks—with diameters at top and bottom, respectively, of 16 and 25 feet—enclosing a central solid pillar of masonry 35 feet high, 6 feet square at base and $3\frac{1}{2}$ feet in diameter at top; the latter has a mark-stone at its summit, in the normal of which—it is assumed—other mark-stones have been fixed in the solid pillar. The distances and bearings of surrounding villages are:—Fatehpur, 0·5 mile S. W.; Kamtauldih, 1·1 miles N.; Karhani, 1·2 miles E. by S.; and Deogan, 0·7 mile S. E. by S.

XXI. Paládpur (*Paládpúr*) Tower Station, lat. $26^{\circ} 4'$, long. $85^{\circ} 30'$ —observed at in 1845—stands on a slight swell of ground distant 0·5 mile E. of the village of Paládpur: pargana Bisára Chakla Garjaul, thána and district Mozufferpore.

The station consists of a tower of unburnt bricks—with diameters at top and bottom, respectively, of 16 and 24 feet—enclosing a central solid pillar of masonry 32 feet high, 6 feet in diameter at base and $3\frac{1}{2}$ feet at top; the latter has a mark-stone

at its summit, another at the ground floor, and others—it is assumed—fixed intermediately. The distances and bearings of surrounding places are:—Gangapur village, 0·8 mile N.N.W.; Musahri Indigo Factory, 3·2 miles N. by W.; Nawáda village, 0·4 mile E. N. E.; and Chapra village, 1·1 miles S. E. by S.

XXII. Harpur (*Hárpúr*) Tower Station, lat. $26^{\circ} 8'$, long. $85^{\circ} 20'$ —observed at in 1845 and 1846—stands on the elevated bank of a tank, and is distant 0·3 mile S. of the village of Harpur: pargana Bisára Chakla Garjaul, thána and district Mozufferpore.

The station consists of a tower of unburnt bricks—with diameters at top and bottom, respectively, of 16 and 27 feet—enclosing a central solid pillar of masonry 30 feet high, 6 feet in diameter at base and 4 feet at top; the latter has a mark-stone at its summit, another at the ground floor, and others—it is assumed—fixed intermediately. The distances and bearings of surrounding villages are:—Rathunia, 1·3 miles S. S. W.; Mitapura, 0·4 mile N.W.; Madhupur Machia, 0·2 mile E. N. E.; and Madhuban, 1·1 miles S. by E.

XXIII. Sáwajpur (*Sáwájpúr*) Tower Station, lat. $26^{\circ} 14'$, long. $85^{\circ} 30'$ —observed at in 1845 and 1846—stands on the site of an old village elevated about 10 feet above the surrounding low ground and distant about 450 yards N.W. by N. of the village of Sáwajpur: pargana Morwahkhurd, thána and district Mozufferpore.

The station consists of a tower of unburnt bricks—with diameters at top and bottom, respectively, of 16 and 25 feet—enclosing a central solid pillar of masonry 32 feet high, 6 feet square at base and 4 feet in diameter at top; the latter has a mark-stone at its summit, another at the ground floor, and others—it is assumed—fixed intermediately. The distances and bearings of surrounding villages are:—Básudeb tola (of Semraha), 0·6 mile S. S. W.; Madhupur, 0·8 mile N.; Púranwara, 1 mile N. E. by N.; and Charkurwa, 0·6 mile S.

XXIV. Ghosauth (*Ghosoath*) Tower Station, lat. $26^{\circ} 17'$, long. $85^{\circ} 19'$ —observed at in 1846—stands on a slight swell of ground distant 0·6 mile N.W. of the village of Ghosauth, and a mile N. of the Burh Gunduk river: pargana Morwahkalán, thána and district Mozufferpore.

The station consists of a tower of unburnt bricks—with diameters at top and bottom, respectively, of 14 and 20 feet—enclosing a central solid pillar of masonry 25 feet high, $6\frac{1}{2}$ feet square at base and 4 feet in diameter at top; the latter has a mark-stone at its summit, in the normal of which—it is assumed—other mark-stones have been fixed in the solid pillar. The distances and bearings of surrounding villages are:—Surjan Pakri, 1·5 miles N. by E.; Dharpur, about $1\frac{1}{2}$ miles E.N.E.; Madhuban Kánti, about $1\frac{1}{2}$ miles S.E.; and Mursandi, 3 miles W.

XXV. Pota Tower Station, lat. $26^{\circ} 23'$, long. $85^{\circ} 29'$ —observed at in 1846—stands on an artificial mound situated N.W. of the village of Pota: pargana Tilakcháund, thána and district Mozufferpore.

The station consists of a tower of unburnt bricks—with diameters at top and bottom, respectively, of 14 and 20 feet—enclosing a central solid pillar of masonry 26 feet high, $6\frac{1}{2}$ feet square at base and 4 feet in diameter at top; the latter has a mark-stone at its summit, in the normal of which—it is assumed—other mark-stones have been fixed in the solid pillar. The distances and bearings of surrounding villages are:—Nonaura, 0·7 mile N.W. by W.; Kharka, 1·3 miles N.N.E.; and Ráipur, nearly 2 miles S.E. by S.

XXVI. Rámpur (*Rámpúr*) Tower Station, lat. $26^{\circ} 27'$, long. $85^{\circ} 19'$ —observed at in 1846—stands on the N.E. corner of a tank bank distant about 600 yards N.E. by N. of the village of Rámpur Keso: thána Shiuhar, pargana Babra, district Mozufferpore.

The station consists of a tower of unburnt bricks—with diameters at top and bottom, respectively, of 14 and 20 feet—enclosing a central solid pillar of masonry 30 feet high, $6\frac{1}{2}$ feet square at base and 4 feet in diameter at top; the latter has a mark-stone at its summit, in the normal of which—it is assumed—other mark-stones have been fixed in the solid pillar. The distances and bearings of surrounding villages are:—Bowara, 1·9 miles S.S.W.; Dúma, 1·3 miles N.N.E.; Rúpwará, 2·3 miles E.N.E.; and Hairama 1·2 miles E.S.E.

LXXXII.—(*Of the North-East Longitudinal Series*). Amua (*Amúa*) Tower Station, lat. $26^{\circ} 36'$, long. $85^{\circ} 19'$ —observed at in 1846—stands on the boundary between the Amua and Bailwa mauzas, and is situated at 0·68 miles N. of the village of Amua: thána Shiuhar, pargana Babra, district Mozufferpore.

The station consists of a tower of unburnt bricks—with diameters at top and bottom, respectively, of 15 and 22 feet—enclosing a central solid pillar of masonry 35 feet high, $6\frac{1}{2}$ feet square at base and 4 feet in diameter at top; the latter has a mark-stone at its summit, in the normal of which—it is assumed—other mark-stones have been fixed in the solid pillar. It was not necessary to revisit this station in the course of the North-East Longitudinal Series operations, as all the observations both for this and the Amua Meridional Series were completed at the same time. The distances and bearings of surrounding villages are:—Bailwa, 1·2 miles N.; Inarwa, 1·1 miles N.N.E.; and Náráyanpur, across the Bágmati river, about $2\frac{1}{2}$ miles W.

LXXXV.—(*Of the North-East Longitudinal Series*). Madanpur (*Madanpúr*) Tower Station, lat. $26^{\circ} 31'$, long. $85^{\circ} 29'$ —observed at in 1846 and 1849—stands on a slightly elevated piece of ground situated W. of the village of Madanpur and close to the road from Mozufferpore to Mahalla: thána Seetamurhee, pargana Mahalla, district Mozufferpore.

The station as built in 1846 consists of a tower of unburnt bricks—with diameters at top and bottom, respectively, of 14 and 20 feet—enclosing a central solid pillar of masonry 25 feet high, $6\frac{1}{2}$ feet square at base and 4 feet in diameter at top; the latter has a mark-stone at its summit, in the normal of which—it is assumed—other mark-stones have been fixed in the solid pillar. The station was revisited in 1849 in the course of the North-East Longitudinal Series operations, but no alteration in its construction appears to have been then made. The distances and bearings of surrounding villages are:—Dhurwa, 2 miles S.W. by W.; Dhoadni, 0·8 mile N.W. by W.; Dhanger village, 0·8 mile N.: and Chota Parsoni temple, 3 miles W. S. W.

NOTE.—In a few instances, the names of principal stations, occurring in the foregoing descriptions, are given by two methods of spelling distinguished from one another by the use of Roman and Italic type; as in VI. Budua (*Budúa*); the latter spelling is taken from the Alphabetical and Numerical lists which precede the descriptions, and which were printed in 1870; the spelling in Roman type is in accordance with the method authorized by the Government and illustrated in lists of Indian proper names published in 1874 and subsequently. It will be seen that the two methods differ but slightly; notwithstanding where differences exist, both renderings are given, so as to remove all possible doubt as to the identity of a station. The method of spelling authorized by the Government, is hereafter exclusively adopted in the publication of this Series.

June 1879.

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

CHENDWAR MERIDIONAL SERIES.

PRINCIPAL TRIANGULATION. ADDENDUM TO DESCRIPTION OF STATIONS.

NOTE.—Consequent on modern alterations of district and other boundaries, the sites occupied by the stations are in some instances now included in civil divisions of territory which differ from the district, pargana, or village, recorded in the preceding descriptions of stations: a complete list of all the stations of the Series including a suitably modified statement of the altered subdivisions in question is accordingly given in the following table, and is derived chiefly from the annual reports, up to 1881, made by the Civil Officials to whose care the stations have been committed. The statement also gives present condition of certain of the stations; where no entry regarding present condition is made against a station it is to be assumed that the station when last reported on by the district Official was in good order.

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. of Station	Local name	District	Pargana, &c.	Village in which the Station lies	Remarks on the Construction and Condition of the Station
XLIV	Kasiátu	Hazáribágh	Tah. Simaria	Kasiátu	In 1869 a square protecting pillar of masonry was built over the circular pillar on which the large theodolite stood and which carries the true mark-stone. The square pillar is 3½ feet high, 28 inches square at base and 20 inches at top, and bears a sufficiently accurate mark for Topographical and Revenue Survey purposes, so that it is unnecessary to refer to the mark-stone which thus remains concealed and protected. A pyramidal pile of earth and stones, 7 feet square at base and 6 feet high, covers the protecting pillar.
LIII	Chendwár	Hazáribágh	Tah. Hazáribágh	Marheta	Ditto.
I	Sinduri	„	Thá. Chatra	Sinduri	Ditto.
II	Sarhad	„	Thá. Hunterganj	Sarhad	... ..
III	Paraia	„	Thá. Burhee	Paraia	In 1869 a square protecting pillar of masonry was built over the circular pillar on which the large theodolite stood and which carries the true mark-stone. The square pillar is 3½ feet high, 28 inches square at base and 20 inches at top, and bears a sufficiently accurate mark for Topographical and Revenue Survey purposes, so that it is unnecessary to refer to the mark-stone which thus remains concealed and protected. A pyramidal pile of earth and stones, 7 feet square at base and 6 feet high, covers the protecting pillar.
IV	Loháwar	Gya	Tah. Gya, P. Maher, Táluka Lakaipur, Thá. Báráchatí	Loháwar	... ..
V	Mahar	„	Tah. and Thá. Gya, P. Maher, Táluka Puro- nia	Nowagarh	... ..
VI	Budua	„	Tah. Gya, P. Pachrukhi, Táluka Woldi, Thá. Nowáda	Chirki	... ..

NOTE.—Stations XLIV and LIII appertain to the Calcutta Longitudinal Series of the South-East Quadrilateral.

P. stands for pargana, Tah. for tahsil, and Thá. for thána.

No. of Station	Local name	District	Pargana, &c.	Village in which the Station lies	Remarks on the Construction and Condition of the Station
VII	Handia	Gya	Thá. Gya, P. Narhat, Táluka Titua, Thá. Atari	Handia	...
VIII	Murlipahári	"	Thá. Gya, P. Sanant, Táluka Jemoute, Thá. Tikári	Sultanpur	Platform fallen down as reported in 1871.
IX	...	...	...	...	Completely destroyed as reported in 1871.
X	Dumri	Patna	Thá. Hilsa, P. Tilra	Dumri	...
XI	Behar	"	Thá. and P. Behar	Behar	...
XII	Chaurási	"	Thá. Hilsa, P. Pilich	Chaurási	...
XIII	Barh	"	Thá. Barh, P. Sháhjahánpur	Barh	...
XIV	Phulwári	"	Thá. Futwah, P. Baikuntpur	Phulwári	...
XV	...	Mozufferpore	Thá. Hajeepore, P. Joruha	Mukhtiárpur	Pillar 30 feet high as reported in 1878.
XVI	...	"	Ditto.	Dúbauli	...
XVII	...	"	Thá. Mahuwa, P. Bisára	Bhartpur	...
XVIII	...	"	Ditto.	Turki	...
XIX	...	"	Ditto.	Chapra and Bhorkehorea	...
XX	...	"	Thá. Mozufferpore, P. Bisára	Kamtaul	Pillar 32 feet high as reported in 1878.
XXI	...	"	Ditto.	Pahládpur	...
XXII	...	"	Ditto.	Harpur	...
XXIII	...	"	Thá. Mozufferpore, P. Morwahkhurd	Shahbázipur	...
XXIV	...	"	Thá. Mozufferpore, P. Morwahkalán	Gusaut	...
XXV	...	"	Thá. Seetamurhee, P. Tilakháund	Pota	Pillar 20 feet high as reported in 1878.
XXVI	...	"	Thá. Shiuhar, P. Babra	Rámpur	Pillar 24 feet high as reported in 1878.
LXXXIII	...	"	Ditto.	Amua	...
LXXXV	...	"	Thá. Seetamurhee, P. Mahalla	Madanpur	...

NOTE.—Stations LXXXIII and LXXXV appertain to the North-East Longitudinal Series.

P. stands for pargana, Tah. for tahsil, and Thá. for thána.

September, 1882.

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In charge of Computing Office.

CHENDWAR MERIDIONAL SERIES.

PRINCIPAL TRIANGULATION. TRIANGLES.

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle			Distance		
						Log. feet	Feet	Miles
1	Kasiátu, XLIV	1'19	39	51	55'08	5'0557012	113684'5	21'531
	Chendwár, LIII	1'19	48	25	9'94	5'1227685	132668'7	25'127
	Sindraili, I	1'19	91	42	54'98	5'2486588	177279'6	33'576
2	Chendwár, LIII	'76	38	11	55'70	4'9309321	85296'7	16'155
	Sindraili, I	'77	86	17	37'16	5'1387590	137644'5	26'069
	Paraia, III	'76	55	30	27'14	5'0557012	113684'5	21'531
3	Sindraili, I	'60	61	47	41'98	4'9833068	96229'2	18'225
	Paraia, III	'60	66	50	22'83	5'0017099	100394'5	19'014
	Loháwar, IV	'59	51	21	55'19	4'9309321	85296'7	16'155
4	Kasiátu, XLIV	'95	44	9	18'81	4'9967279	99249'4	18'797
	Sindraili, I	'96	67	13	39'15	5'1184957	131369'9	24'881
	Sarhad, II	'96	68	37	2'04	5'1227685	132668'7	25'127
5	Sindraili, I	'62	52	58	2'59	4'9495643	89035'7	16'863
	Sarhad, II	'63	64	10	33'16	5'0017099	100394'5	19'014
	Loháwar, IV	'63	62	51	24'25	4'9967279	99249'4	18'797

NOTES.—1. The values of the side are given in the same line with the opposite angle.

2. Stations Kasiátu, XLIV, and Chendwár, LIII appertain to the Calcutta Longitudinal Series of the South-East Quadrilateral.

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle				Distance		
			°	'	"	Log. feet	Feet	Miles	
6	Paraia, III	1'07	80	33	10'68	5'1983721	157896'4	29'905	
	Loháwar, IV	1'06	62	29	33'35	5'152221	141971'8	26'889	
	Budua, VI	1'06	36	57	15'97	4'9833068	96229'2	18'225	
7	Loháwar, IV	1'08	62	30	50'01	5'1530374	142245'1	26'940	
	Budua, VI	1'07	37	30	38'87	4'9896074	97635'4	18'492	
	Mahar, V	1'08	79	58	31'12	5'1983721	157896'4	29'905	
8	Paraia, III	'61	27	42	46'31	4'9896074	97635'4	18'492	
	Loháwar, IV	'61	125	0	24'89	5'2354442	171966'7	32'569	
	Mahar, V	'60	27	16	48'80	4'9833068	96229'2	18'225	
9	Mahar, V	1'00	54	42	23'29	5'0762131	119182'7	22'572	
	Budua, VI	1'00	48	21	5'13	5'0378721	109111'9	20'665	
	Handia, VII	1'00	76	56	31'58	5'1530374	142245'1	26'940	
10	Budua, VI	'67	41	11	1'05	4'9080743	80923'4	15'326	
	Handia, VII	'68	62	56	8'16	5'0391671	109437'7	20'727	
	Job Makampur, IX	'68	75	52	50'79	5'0762131	119182'7	22'572	
11	Handia, VII	'52	57	10	11'87	4'9384393	86783'9	16'436	
	Job Makampur, IX	'53	71	14	39'62	4'9903173	97795'1	18'522	
	Behar, XI	'52	51	35	8'51	4'9080743	80923'4	15'326	
12	Handia, VII	'45	38	54	2'04	4'8061650	63997'8	12'121	
	Behar, XI	'46	67	26	26'35	4'9736544	94114'0	17'825	
	Dumri, X	'46	73	39	31'61	4'9903173	97795'1	18'522	
13	Mahar, V	'82	61	48	9'08	5'0471732	111473'9	21'112	
	Handia, VII	'81	58	34	55'32	5'0331837	107940'3	20'443	
	Barábar, VIII	'82	59	36	55'60	5'0378721	109111'9	20'665	
14	Handia, VII	'76	65	28	6'81	5'0497038	112125'4	21'236	
	Barábar, VIII	'75	49	46	56'69	4'9736544	94114'0	17'825	
	Dumri, X	'75	64	44	56'50	5'0471732	111473'9	21'112	
15	Dumri, X	'26	82	34	0'36	4'8882113	77305'7	14'641	
	Behar, XI	'26	42	15	30'76	4'7195540	52426'9	9'929	
	Chaurási, XII	'26	55	10	28'88	4'8061650	63997'8	12'121	
16	Behar, XI	'34	45	1	48'81	4'7768519	59820'8	11'330	
	Chaurási, XII	'34	68	52	4'21	4'8969038	78868'6	14'937	
	Barra, XIII	'34	66	6	6'98	4'8882113	77305'7	14'641	
17	Chaurási, XII	'22	60	26	27'28	4'7632220	57972'5	10'980	
	Barra, XIII	'22	55	43	2'54	4'7409005	55068'2	10'430	
	Phulwaria, XIV	'23	63	50	30'18	4'7768519	59820'8	11'330	
18	Barra, XIII	'25	58	59	22'32	4'7796943	60213'6	11'404	
	Phulwaria, XIV	'25	65	24	15'49	4'8053679	63880'4	12'099	
	Mukhtiárpur, XV	'25	55	36	22'19	4'7632220	57972'5	10'980	
19	Phulwaria, XIV	'25	61	54	36'12	4'7908369	61778'4	11'700	
	Mukhtiárpur, XV	'25	58	47	19'72	4'7773650	59891'5	11'343	
	Dúbauli, XVI	'25	59	18	4'16	4'7796943	60213'6	11'404	
20	Mukhtiárpur, XV	'24	54	15	16'27	4'7504704	56295'1	10'662	
	Dúbauli, XVI	'24	62	47	14'18	4'7901731	61684'1	11'683	
	Bhartpur, XVII	'25	62	57	29'55	4'7908369	61778'4	11'700	

PRINCIPAL TRIANGULATION. TRIANGLES.

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle	Distance		
				Log. feet	Feet	Miles
21	Dúbauli, XVI	21	57 8 4'57	4'7329502	54069'2	10'240
	Bhartpur, XVII	21	61 52 35'57	4'7541340	56772'0	10'752
	Turki, XVIII	21	60 59 19'86	4'7504704	56295'1	10'662
22	Bhartpur, XVII	21	61 1 15'40	4'7418682	55191'0	10'453
	Turki, XVIII	20	59 59 44'89	4'7374732	54635'3	10'348
	Chapra, XIX	20	58 58 59'71	4'7329502	54069'2	10'240
23	Turki, XVIII	20	55 32 8'78	4'7229481	52838'2	10'007
	Chapra, XIX	21	65 0 48'65	4'7640915	58088'7	11'002
	Kamtaul, XX	21	59 27 2'57	4'7418682	55191'0	10'453
24	Chapra, XIX	20	59 46 56'30	4'7381770	54723'9	10'364
	Kamtaul, XX	21	63 40 12'60	4'7540351	56759'1	10'750
	Paládpur, XXI	20	56 32 51'10	4'7229481	52838'2	10'007
25	Kamtaul, XX	21	61 37 24'44	4'7448932	55576'8	10'526
	Paládpur, XXI	20	58 20 25'17	4'7305098	53766'3	10'183
	Harpur, XXII	20	60 2 10'39	4'7381770	54723'9	10'364
26	Paládpur, XXI	23	66 23 5'40	4'7853074	60996'9	11'552
	Harpur, XXII	22	57 0 57'74	4'7469606	55842'0	10'576
	Sáwajpur, XXIII	22	56 35 56'86	4'7448932	55576'8	10'526
27	Harpur, XXII	24	61 17 48'68	4'7804233	60314'7	11'423
	Sáwajpur, XXIII	24	56 11 58'45	4'7569551	57142'0	10'822
	Ghosauth, XXIV	24	62 30 12'87	4'7853074	60996'9	11'552
28	Sáwajpur, XXIII	23	62 22 54'13	4'7784525	60041'6	11'372
	Ghosauth, XXIV	23	54 44 3'48	4'7429389	55327'2	10'479
	Pota, XXV	24	62 53 2'39	4'7804233	60314'7	11'423
29	Ghosauth, XXIV	24	60 40 46'50	4'7765573	59780'2	11'322
	Pota, XXV	24	58 11 29'63	4'7654177	58266'3	11'035
	Rámpur, XXVI	24	61 7 43'87	4'7784525	60041'6	11'372
30	Pota, XXV	21	63 54 1'70	4'7716055	59102'5	11'194
	Rámpur, XXVI	21	50 49 26'62	4'7077333	51019'2	9'663
	Madanpur, LXXXV	22	65 16 31'68	4'7765573	59780'2	11'322
31	Rámpur, XXVI	22	63 55 59'63	4'7747894	59537'4	11'276
	Madanpur, LXXXV	22	52 58 35'26	4'7235906	52916'4	10'022
	Amúa, LXXXIII	22	63 5 25'11	4'7716055	59102'5	11'194

NOTE.—Stations Amúa, LXXXIII, and Madanpur, LXXXV appertain to the North-East Longitudinal Series.

February 1879.

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

CHENDWAR MERIDIONAL SERIES.
SECONDARY TRIANGULATION. TRIANGLES.

PRINCIPAL-AUXILIARY STATIONS AND INTERSECTED POINTS.

No. of Triangle	Station	Corrected Plane Angle ° ' "	Distance			No. of Triangle used	Station	Corrected Plane Angle ° ' "	Distance			Theodolite used
			Log. feet	Feet	Miles				Log. feet	Feet	Miles	
32	Kasiātu, XLIV Chendwār Sarhad Semaphore	h.s. 84 1 52 38 36 49 57 21 19	5° 32' 09.70"	209397	39.658	36	Mahar, V Handia, VII Biju biga	s. 44 14 23 97 22 1	4° 88' 51.17"	76757	14.537	Inch 12 "
			5° 11' 85.01"	131390	24.884				4° 83' 46.02"	68329	12.941	
			5° 24' 86.59"	177280	33.576				5° 03' 78.72"	109112	20.665	
33	Sindraili, I Parāia, III Naraina Bungalow	h.s. 22 31 22 43 12 11	4° 55' 43.89"	35842	6.788	37	Mahar, V Handia, VII Ghanta	s. 38 41 1 48 31 11	4° 95' 9.177"	91028	17.240	"
			4° 80' 6.501"	64056	12.132				5° 16' 27.66"	145468	27.551	
			4° 93' 09.32"	85297	16.155				5° 03' 78.72"	109112	20.665	
34	Sindraili, I Parāia, III Rāmpur Palace	h.s. 22 23 28 95 11 55	4° 56' 42.00"	36661	6.943	38	Mahar, V Barābar, VIII Budhain	h.s. 58 51 28 60 40 25	5° 02' 51.61"	105965	20.069	"
			4° 98' 15.68"	95845	18.152				5° 03' 23.07"	107723	20.402	
			4° 93' 09.32"	85297	16.155				5° 03' 31.84"	107940	20.443	
35	Mahar, V Handia, VII Dādūpur	s. 48 31 45 63 57 34	4° 95' 9.014"	90994	17.234	39	Handia, VII Job Makampur, IX Giriak Hill Mark	21 12 54 24 25 44	4° 61' 23.14"	40956	7.757	"
			5° 05' 00.13"	112205	21.251				4° 67' 03.05"	46806	8.865	
			5° 03' 78.72"	109112	20.665				4° 90' 8.074"	80923	15.326	

NOTE.—Kasiātu, XLIV, and Chendwār h.s. appertain to the Calcutta Longitudinal Series of the South-East Quadrilateral.

February 1879.

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

CHENDWAR MERIDIONAL 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	Name of station with azimuths of surrounding points	No. of triangle giving distance	Name of station with azimuths of surrounding points	No. of triangle giving distance
AMUA, LXXXIII* Rámpur, XXVI Madanpur, LXXXV*	81 81	BHARPUR, XVII Dúbauli, XVI Turki, XVIII Chapra, XIX Mukhtíárpur, XV	20 21 22 20	CHAPRA, XIX Turki, XVIII Kamtaul, XX Paládpur, XXI Bhartpur, XVII	22 23 24 22
BARABAR, VIII Dumri, X Budhain Handia, VII Mahar, V	14 88 18 18	BIJU BIGA s. Mahar, V Handia, VII	86 86	CHAURASI, XII Dumri, X Phulwaria, XIV Barra, XIII Behar, XI	15 17 16 15
BARRA, XIII Chaurási, XII Phulwaria, XIV Mukhtíárpur, XV Behar, XI	16 17 18 16	BUDHAIN h.s. Mahar, V Barábar, VIII	88 88	CHENDWAR, LIII† Kasiátu, XLIV† Sindrauli, I Parais, III	1 1 2
BEHAR, XI Handia, VII Dumri, X Chaurási, XII Barra, XIII Job Makanpur, IX	11 12 15 16 11	BUDWA, VI Parais, III Loháwar, IV Mahar, V Handia, VII Job Makanpur, IX	6 6 7 9 10	CHENDWAR h.s. Kasiátu, XLIV† Sarhad Semaphore	32 32

* Of the North-East Longitudinal Series. † Of the Calcutta Longitudinal Series of the South-East Quadrilateral.

Name of station with azimuths of surrounding points	No. of triangle giving distance	Name of station with azimuths of surrounding points	No. of triangle giving distance	Name of station with azimuths of surrounding points	No. of triangle giving distance
DADUPUR s. Mahar, V Handia, VII	85 85	KAMTAUL, XX Harpur, XXII Paládpur, XXI Chapra, XIX Turki, XVIII	25	PARAIA, III Naraina Bungalow Loháwar, IV Mahar, V Rámpur Palace Budua, VI Chendwár, LIII*	38 3 8 34 6 2
DUBAUI, XVI Turki, XVIII Bhartpur, XVII Mukhtíárpur, XV Phulwaria, XIV	21 20 19 19	KASIATU, XLIV* Sarhad Semaphore Sarhad, II Sindraili, I Chendwár, LIII* Chendwár	82 4 1 1 32	PHULWARIA, XIV Chaurási, XII Dúbaui, XVI Mukhtíárpur, XV Barra, XIII	17 19 18 17
DUMRI, X Barábar, VIII Chaurási, XII Behar, XI Handia, VII	14 15 12 12	LOHAWAR, IV Sarhad, II Mahar, V Budua, VI Paraia, III Sindraili, I	6 7 6 8 3	POTA, XXV Ghosauth, XXIV Rámpur, XXVI Madanpur, LXXXV† Sáwajpur, XXIII	28 29 30 30 28
GHANTA s. Mahar, V Handia, VII	87 87	MADANPUR, LXXXV† Pota, XXV Rámpur, XXVI Amúa, LXXXIII†	30 30 31	RAMPUR, XXVI Amúa, LXXXIII† Madanpur, LXXXV† Pota, XXV Ghosauth, XXIV	31 30 29 29
HANDIA, VII Biju Biga Mahar, V Barábar, VIII Dumri, X Behar, XI Giriak Hill Mark Job Makanpur, IX Ghanta Budua, VI Dádúpur	96 9 13 12 11 39 10 37 9 35	MAHAR, V Barábar, VIII Budhain Handia, VII Ghanta Biju Biga Dádúpur Budua, VI Paraia, III Loháwar, IV MUKHTIARPUR, XV Barra, XIII Phulwaria, XIV Dúbaui, XVI Bhartpur, XVII PALADPUR, XXI Kamtaul, XX Harpur, XXII Sáwajpur, XXIII Paládpur, XXI Kamtaul, XX	18 38 9 37 36 85 7 8 7 18 18 19 20 24 25 26 24 2	SARHAD, II Kasiátu, XLIV* Loháwar, IV Sindraili, I SAWAJPUR, XXIII Harpur, XXII Ghosauth, XXIV Pota, XXV Paládpur, XXI. SINDRAILI, I Kasiátu, XLIV* Sarhad, II Loháwar, IV Naraina Bungalow Rámpur Palace Paraia, III Chendwár LIII* TURKI, XVIII Kamtaul, XX Chapra, XIX Bhartpur, XVII Dúbaui, XVI	4 5 4 26 27 28 26 1 4 8 38 84 2 1 23 22 21 21
JOB MAKANPUR, IX Budua, VI Handia, VII Giriak Hill Mark Behar, XI	10 10 39 11	PARAIA, III Sindraili, I	2		

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In charge of Computing Office.

* Of the Calcutta Longitudinal Series of the South-East Quadrilateral. † Of the North-East Longitudinal Series.

March 1879.

CHENDWAR MERIDIONAL 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; for description of the principal stations, see pages 1—Q to 8—Q. 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. The trigonometrical heights always refer to the upper mark-stone or to the upper surface of the pillar on which the theodolite stood: the spirit leveled heights refer to the points on which the leveling staff stood as indicated in footnotes. 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. and s. The names in italics are those of the territories, states or districts in which the stations or points are situated.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
Amúa, LXXXIII*. o ' "	Barra, XIII. o ' "	Bhartpur, XVII. o ' "
λ 26 35 44·89	λ 25 25 27·31	λ 25 45 59·94
L 85 19 10·76	L 85 32 52·15	L 85 30 48·48
H 241	H 174	H 184
h 35	h 30	h 33
No. 31	No. 16	No. 20
Baijnáth Tola Flag. (Mozufferpore)	Behar, XI.	Bhíkánpur Sugar Factory, (Mozufferpore) W. chimney of the steam engine.
λ 25 30 52	λ 25 12 26·05	λ 26 10 23·4
L 85 31 22	L 85 32 58·51	L 85 26 15·3
Baikuntpur N. Temple. (Patna)	H 391	Biju Biga s. (Gya) On a mud bank, running across paddy fields and about $\frac{1}{2}$ of a mile S.E. of the village of that name. It is identical with the Revenue Survey triple junction station of the parganas Narhat, Jarra and Maher, and was found marked by a small quantity of charcoal buried in the earth with pits dug around it.
λ 25 29 46·9	h 7	λ 24 45 7·71
L 85 25 8·7	No. 11	L 85 24 41·82
Bára Temple Kalas. (Patna)	Behar Hill Mosque, (Patna) Dome Kalas.	No. 36
λ 25 15 9·7	λ 25 12 17·5	Budhain h.s. (Gya) About a mile N.W. of Handia principal station.
L 85 28 28·3	L 85 32 50·1	λ 24 58 12·01
Barábar, VIII.	Behar Temple, (Patna) Kalas, in city, Bundela Bhulan Singh's.	L 85 24 36·01
λ 25 1 5·24	λ 25 11 57·5	No. 38
L 85 5 39·92	L 85 34 11·5	
H 1017		
h Mark on summit of a high rock.		
No. 13		

* Appertains to the North-East Longitudinal Series.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Budua, VI.</p> <p style="text-align: center;">o ' "</p> <p>λ 24 41 40·22 L 85 37 55·08 H 1821 h Not forthcoming No. 6</p>	<p>Chendwār h.s. (<i>Hazribāgh</i>) Also called Chendowār Azimuth station and which was completely destroyed between the years 1843 and 1865.</p> <p style="text-align: center;">o ' "</p> <p>λ 23 57 13·62 L 85 28 36·44 H 2814</p>	<p>Futwah, E. Temple. (<i>Patna</i>)</p> <p style="text-align: center;">o ' "</p> <p>λ 25 30 35·0 L 85 21 28·1</p>
<p>Budua Referring Mark. (<i>Gya</i>)</p> <p>λ 24 41 35·99 L 85 37 4·79</p>	<p>Dádúpur s. (<i>Gya</i>) At the foot of a tank bank about 600 yards to the W. of the small village of that name and 1½ miles N.E. of the large village of Dhamaul. It is fixed on an artificial mound about 1 ft. high and 2 ft. in diameter, having a peg in its centre and pits around. It is identical with the Revenue Survey triple junction station of the parganas Pachrukhi, Narhat and Jarra.</p> <p>λ 24 44 14·09 L 85 32 39·50 No. 85</p>	<p>Futwah House. (<i>Patna</i>) Turret of a large paka house.</p> <p>λ 25 30 31·3 L 85 21 31·2</p>
<p>Búr Gunduk River, A s. (<i>Mozufferpore</i>) On left bank.</p> <p>λ 26 7 50·30 L 85 27 5·63</p>	<p>Dígha Castle, (<i>Patna</i>) Chimney.</p> <p>λ 25 38 55·7 L 85 6 58·6</p>	<p>Ghanta s. (<i>Gya</i>) On an artificial mound 1½ ft. high and 2 ft. in diameter, on the edge of a field ¼ mile W. of the hamlet of Ghanta. It is identical with the Behar Revenue Survey triple junction station of the parganas Samái, Pachrukhi and Narhat. It was found marked by a quantity of charcoal in the centre of the mound, with traces of the usual pits around.</p> <p>λ 24 48 18·12 L 85 38 19·25 No. 87</p>
<p>Búr Gunduk River, B s. (<i>Mozufferpore</i>) On left bank.</p> <p>λ 26 8 8·23 L 85 27 7·72</p>	<p>Dígha Jail, (<i>Patna</i>) W. Cupola.</p> <p>λ 25 38 59·6 L 85 7 30·7</p>	<p>Ghiáspur s. (<i>Patna</i>) On S. bank of the Ganges and a little to the east of the village of the same name; thána Futwah, pargana Ghiáspur.</p> <p>λ 25 29 14·44 L 85 29 41·73</p>
<p>Búr Gunduk River, C s. (<i>Mozufferpore</i>)</p> <p>λ 26 8 14·28 L 85 26 22·45</p>	<p>Dígha s. (<i>Patna</i>) On the turret of a two storied house, known as Banswari-ki-kothi, midway betwixt Bankipore and Dinapore; a circle and dot engraved on the top of the turret marks the station.</p> <p>λ 25 38 52·56 L 85 8 10·50</p>	<p>Ghosauth, XXIV.</p> <p>λ 26 17 24·49 L 85 19 28·13 H 214 h 25 No. 27</p>
<p>Champápur s. (<i>Patna</i>) On a char towards the south side of the Ganges and to the north-east of the village of the same name; thána Futwah and pargana Ghiáspur.</p> <p>λ 25 28 22·98 L 85 33 2·50</p>	<p>Dinapore Flag Staff. (<i>Patna</i>) In cantonments.</p> <p>λ 25 38 19·4 L 85 5 9·9</p>	<p>Ghusrawan s. (<i>Patna</i>) On old fort.</p> <p>λ 25 5 16·11 L 85 37 17·62</p>
<p>Chapra, XIX.</p> <p>λ 25 54 58·96 L 85 29 55·03 H 188 h 30 No. 23</p>	<p>Dúbauli, XVI.</p> <p>λ 25 40 16·23 L 85 22 43·71 H 189 h 36 No. 19</p>	<p>Giriak Hill Mark. (<i>Patna</i>)</p> <p>λ 25 1 33·13 L 85 32 55·97 No. 39</p>
<p>Chaurási, XII.</p> <p>λ 25 21 22·91 L 85 22 57·83 H 185 h 30 No. 15</p>	<p>Dumri, X.</p> <p>λ 25 12 50·90 L 85 21 22·13 H 204 h 22 Nos. 12, 14</p>	<p>Goncha Hill, (<i>Gya</i>) Point.</p> <p>λ 24 28 36 L 85 15 44</p>
<p>Chendwār, LIII.*</p> <p>λ 23 57 13·75 L 85 28 36·47 H 2817 h 3 No. 1</p>		<p>Goni Hill, (<i>Gya</i>) Top.</p> <p>λ 24 56 3 L 85 33 3</p>

* Appertains to the Calcutta Longitudinal Series of the South-East Quadrilateral.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Gunduk River No. 82* s. (<i>Mozufferpore</i>) On left bank, 0·2 of a mile N. of Singhi and 0·6 of a mile S. of Mádhopur village; thána Páru, pargana Ratti.</p> <p>λ 26 7 18·31 L 84 59 56·04</p>	<p>Gunduk River No. 90 s. (<i>Sarua</i>) On right bank, 0·6 of a mile N. of Hajarpur and 1·1 miles N.E. of Madhubani village; thána Parsa, pargana Maker.</p> <p>λ 26 0 8·48 L 85 1 20·09</p>	<p>Gunduk River No. 98 s. (<i>Mozufferpore</i>) On left bank, 0·4 of a mile S. of Rámdhuli and 0·3 of a mile N.W. of Chak Pítámbur village; thána Lálganj, pargana Ratti.</p> <p>λ 25 58 10·96 L 85 6 50·58</p>
<p>Gunduk River No. 83* s. (<i>Sarua</i>) On right bank, 0·5 of a mile N. of Jimnaha temple and 0·7 of a mile S. E. of Rajwara village; thána Mashrak, pargana Gowa.</p> <p>λ 26 5 54·86 L 84 58 25·97</p>	<p>Gunduk River No. 91 s. (<i>Mozufferpore</i>) On left bank, 0·8 of a mile S. W. of Kuádi and 1 mile N. of Dumeri village; thána Páru, pargana Ratti.</p> <p>λ 26 2 9·42 L 85 2 15·57</p>	<p>Gunduk River No. 99 s. (<i>Sarua</i>) On right bank, 0·8 of a mile S. of Bhatni and 0·3 of a mile E. of Bhata Dhi village; thána Parsa, pargana Maker.</p> <p>λ 25 57 17·63 L 85 6 17·20</p>
<p>Gunduk River No. 84 s. (<i>Mozufferpore</i>) On left bank, 0·5 of a mile W. of Kaliánpur and 1 mile S. W. of Mánikpur village; thána Páru, pargana Ratti.</p> <p>λ 26 5 21·69 L 85 0 14·30</p>	<p>Gunduk River No. 92 s. (<i>Mozufferpore</i>) On left bank, about 1½ miles N.E. of Bhaqákol and at the same distance N.W. of Bali Dihí village; thána Páru, pargana Ratti.</p> <p>λ 26 0 36·09 L 85 3 10·78</p>	<p>Gunduk River No. 100 s. (<i>Mozufferpore</i>) On left bank, 0·3 of a mile S. W. of Semra and at the same distance W. of Milik village; thána Lálganj, pargana Ratti.</p> <p>λ 25 56 44·19 L 85 7 6·51</p>
<p>Gunduk River No. 85 s. (<i>Sarua</i>) On right bank, 0·5 of a mile E. of Bania village; thána Mashrak, pargana Gowa.</p> <p>λ 26 4 6·66 L 84 58 45·15</p>	<p>Gunduk River No. 93 s. (<i>Sarua</i>) On right bank, 0·4 of a mile N.E. of Jamálpur and 0·5 of a mile S.W. of Dinhi village; thána Parsa, pargana Maker.</p> <p>λ 25 58 54·09 L 85 3 17·32</p>	<p>Gunduk River No. 101 s. (<i>Sarua</i>) On right bank, 0·8 of a mile N. W. of Hasanpura and 0·5 of a mile N. of Munjauna; thána Parsa, pargana Maker.</p> <p>λ 25 56 15·65 L 85 6 30·68</p>
<p>Gunduk River No. 86 s. (<i>Mozufferpore</i>) On left bank, 0·4 of a mile W. of Entelabad and at the same distance E. of Sohágpur village; thána Páru, pargana Ratti.</p> <p>λ 26 3 49·88 L 85 0 12·54.</p>	<p>Gunduk River No. 94 s. (<i>Mozufferpore</i>) On left bank, 0·3 of a mile S.E. of Dihí and 0·8 of a mile W. of Ajothpur village; thána Páru, pargana Ratti.</p> <p>λ 25 59 57·03 L 85 4 18·08</p>	<p>Gunduk River No. 102 s. (<i>Sarua</i>) On right bank, 0·3 of a mile N.W. of Mudai village; thána Parsa, pargana Maker.</p> <p>λ 25 55 41·33 L 85 7 32·98</p>
<p>Gunduk River No. 87 s. (<i>Sarua</i>) On right bank, 0·9 of a mile N. E. of Rasápur and 0·8 of a mile S. E. of Fatehpur; thána Mashrak, pargana Gowa.</p> <p>λ 26 2 27·52 L 84 58 7·70</p>	<p>Gunduk River No. 95 s. (<i>Sarua</i>) On right bank, 0·7 of a mile S.E. of Mananar and 0·5 of a mile W. of Madhaul village; thána Parsa, pargana Maker.</p> <p>λ 25 58 54·34 L 85 4 40·90</p>	<p>Gunduk River No. 103 s. (<i>Mozufferpore</i>) On left bank, 0·9 of a mile W. of the old fort of Chak Rasúl and 0·7 of a mile N.W. of Jabarpur village; thána Lálganj, pargana Ratti.</p> <p>λ 25 56 5·56 L 85 8 0·63</p>
<p>Gunduk River No. 88 s. (<i>Mozufferpore</i>) On left bank, 1·7 miles S. of Fatuabad Tola and 1·8 miles S. W. of Biásapur village; thána Páru, pargana Ratti.</p> <p>λ 26 2 21·18 L 85 0 19·84</p>	<p>Gunduk River No. 96 s. (<i>Mozufferpore</i>) On left bank, 0·3 of a mile S. of Rewa mosque, and at the same distance S.E. of Rewa village; thána Páru, pargana Ratti.</p> <p>λ 25 59 22·07 L 85 6 24·32</p>	<p>Gunduk River No. 104 s. (<i>Mozufferpore</i>) On left bank, 0·8 of a mile S.W. of Almapur and 1·2 miles W. of Salempur village; thána Lálganj, pargana Ratti.</p> <p>λ 25 55 23·60 L 85 8 43·78</p>
<p>Gunduk River No. 89 s. (<i>Sarua</i>) On right bank, 0·2 of a mile N. E. of Pasrámpur house and 0·9 of a mile W. of Maksúd-pur village; thána Parsa, pargana Maker.</p> <p>λ 25 59 50·12 L 84 59 28·98</p>	<p>Gunduk River No. 97 s. (<i>Sarua</i>) On right bank, 0·6 of a mile S.E. of Pachari village; thána Parsa, pargana Maker.</p> <p>λ 25 58 13·50 L 85 5 55·04</p>	<p>Gunduk River No. 105 s. (<i>Sarua</i>) On right bank, 0·4 of a mile N. of Rusanpur and 0·5 of a mile S. of Balgawan Chak; thána Parsa, pargana Maker.</p> <p>λ 25 54 45·17 L 85 7 57·63</p>

* The preceding portion of this triangulation will be found in the Co-ordinate List of the Hurlóng Meridional Series.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
Gunduk River No. 106 s. (Mozufferpore) On left bank, 0·5 of a mile S.W. of Birdhaband and 0·4 of a mile N.W. of Kaniha Chak village; thána Lalganj, pargana Ratti. λ 25 53 44·59 L 85 9 31·94	Gunduk River No. 114 s. (Mozufferpore) On left bank, 1 mile N. of Balaha village; thána Lalganj, pargana Ratti. λ 25 49 52·04 L 85 12 12·86	Gunduk River No. 123 s. (Sarun) On right bank, 0·1 of a mile E. of Shikarpur and 0·2 of a mile S.E. of Chapra village; thána Digwára, pargana Kasmar. λ 25 45 7·74 L 85 12 54·99
Gunduk River No. 107 s. (Sarun) On right bank, 0·8 of a mile N.E. of Bankarwa and 0·5 of a mile S.E. of Mankinan village; thána Parsa, pargana Maker. λ 25 53 13·16 L 85 8 11·62	Gunduk River No. 115 s. (Sarun) On right bank, 0·3 of a mile N. of Saraisa village; thána Parsa, pargana Maker. λ 25 49 33·51 L 85 11 17·43	Gunduk River No. 124 s. (Mozufferpore) On left bank, 0·2 of a mile S. of Dumari village; thána Hajeeopore, pargana Jarua. λ 25 44 16·62 L 85 13 54·19
Gunduk River No. 108 s. (Sarun) On right bank, 0·3 of a mile N.W. of Barwa temple and 0·9 of a mile N. of Naya Tola village; thána Parsa, pargana Maker. λ 25 52 18·54 L 85 9 1·82	Gunduk River No. 116 s. (Mozufferpore) On left bank, 0·8 of a mile W. of Ghataro village; thána Lalganj. λ 25 48 39·02 L 85 12 32·57	Gunduk River No. 125 s. (Sarun) On right bank, 0·3 of a mile S.E. of Semra Kaliánpur village; thána Digwára, pargana Kasmar. λ 25 43 52·21 L 85 13 22·48
Gunduk River No. 109 s. (Mozufferpore) On left bank, 0·4 of a mile S.W. of Ithwarpur and 0·6 of a mile N.E. of Biarpur village; thána Lalganj, pargana Ratti. λ 25 52 26·86 L 85 10 31·98	Gunduk River No. 117 s. (Sarun) On right bank, about a mile N.W. of Margarpál; thána Parsa, pargana Maker. λ 25 48 10·64 L 85 11 42·47	Gunduk River No. 126 s. (Mozufferpore) On left bank, 0·4 of a mile S. of Akilabad and at the same distance N.W. of Chakboj village; thána Hajeeopore, pargana Jarua. λ 25 43 12·55 L 85 14 28·31
Gunduk River No. 110 s. (Sarun) On right bank, 0·4 of a mile E. of Turki and 0·6 of a mile N.E. of Dhariára village; thána Parsa, pargana Maker. λ 25 51 16·75 L 85 10 25·25	Gunduk River No. 118 s. (Sarun) On right bank, 0·8 of a mile N. of Khushálpur village; thána Parsa, pargana Maker. λ 25 47 23·21 L 85 12 41·35	Gunduk River No. 127 s. (Sarun) On right bank, 0·5 of a mile S.E. of Bajalpur village; thána Digwára, pargana Kasmar. λ 25 42 33·14 L 85 13 46·27
Gunduk River No. 111 s. (Mozufferpore) On left bank, 0·4 of a mile S.E. of Jalálpur and 0·7 of a mile W. of Mathurápur village; thána Lalganj, pargana Ratti. λ 25 51 46·87 L 85 11 52·61	Gunduk River No. 119 s. (Mozufferpore) On left bank, 0·8 of a mile N.W. of Dhanki village; thána Lalganj. λ 25 47 59·48 L 85 13 14·28	Gunduk River No. 128 s. (Mozufferpore) On left bank, 0·3 of a mile N. of Thaugaul village; thána Hajeeopore, pargana Jarua. λ 25 41 59·85 L 85 14 27·02
Gunduk River No. 112 s. (Sarun) On right bank, 0·2 of a mile N.E. of Malai and 0·7 of a mile S.E. of Janki village; thána Parsa, pargana Maker. λ 25 50 46·96 L 85 11 45·66	Gunduk River No. 120 s. (Mozufferpore) On left bank, 0·7 of a mile N.W. of Mal village; thána Hajeeopore, pargana Jarua. λ 25 46 48·01 L 85 13 43·66	Gunduk River No. 129 s. (Sarun) On right bank; thána Digwára, pargana Kasmar. λ 25 41 48·34 L 85 13 59·87
Gunduk River No. 113 s. (Mozufferpore) On left bank, 0·4 of a mile N. of Basanta paka house; thána Lalganj, pargana Ratti. λ 25 50 56·04 L 85 12 40·49	Gunduk River No. 121 s. (Sarun) On right bank, 0·2 of a mile N.E. of Daria-pur and 0·5 of a mile S. of Akilpur village; thána Digwára, pargana Kasmar. λ 25 45 55·82 L 85 12 57·09	Gunduk River No. 130 s. (Mozufferpore) On left bank, 0·2 of a mile N.W. of Indarpur village and 0·3 of a mile N. of the mosque in the fort of Indarpur; thána Hajeeopore, pargana Jarua. λ 25 41 23·45 L 85 14 24·15
Gunduk River No. 114 s. (Mozufferpore) On left bank, 0·4 of a mile N. of Basanta paka house; thána Lalganj, pargana Ratti. λ 25 50 56·04 L 85 12 40·49	Gunduk River No. 122 s. (Mozufferpore) On left bank, 0·7 of a mile W. of Sajathpur and 0·8 of a mile N.W. of Manua village; thána Hajeeopore, pargana Jarua. λ 25 45 33·49 L 85 13 48·94	Gunduk River No. 131 s. (Sarun) On right bank; thána Digwára, pargana Kasmar. λ 25 41 9·73 L 85 14 1·60

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Gunduk River No. 132 s. (Mozufferpore) On left bank, 0·4 of a mile S. W. of Indarkila village and 0·5 of a mile W. of the large white house in Hajeeepore town; thána Hajeeepore, pargana Jarua.</p> <p>λ 25 40 51·51 L 85 14 21·68</p>	<p>Harauli Temple, (Mozufferpore) Kalaa.</p> <p>λ 25 45 47·1 L 85 13 27·3</p>	<p>Job Makanpur, IX.</p> <p>λ 24 59 38·10 L 85 40 2·96 H 276 h 10 No. 10</p>
<p>Gunduk River No. 133 s. (Sarun) On Sabalpur Char.</p> <p>λ 25 40 21·83 L 85 13 27·36</p>	<p>Harihar Chhatra, E. Temple. (Sarun)</p> <p>λ 25 40 48·5 L 85 13 51·1</p>	<p>Juráwanpur No. 1 s. (Mozufferpore) On N. bank of the Ganges, about ½ mile S. W. of Juráwanpur Tola: marked by a circular mud platform 2 feet high and 3 feet in diameter having a peg in its centre with a circle and dot engraved.</p> <p>λ 25 30 50·98 L 85 26 35·27</p>
<p>Gunduk River No. 134 s. (Patna) On Sabalpur Char.</p> <p>λ 25 40 23·54 L 85 14 9·15</p>	<p>Hariharnáth Temple, (Sarun) Kalaa.</p> <p>λ 25 41 1·9 L 85 13 50·9</p>	<p>Juráwanpur No. 2 s. (Mozufferpore) In the Khádar or low ground between the rivers Ganges and Gunduk, 1½ miles S.E. of the village of Juráwanpur Tola: marked by a circular mud platform 2 feet high and 3 feet in diameter having a peg in its centre with a circle and dot engraved.</p> <p>λ 25 32 32·11 L 85 26 41·15</p>
<p>Gunduk River No. 135 s. (Patna) On Sabalpur Char.</p> <p>λ 25 39 38·89 L 85 13 45·04</p>	<p>Harpur, XXII.</p> <p>λ 26 8 0·53 L 85 20 21·19 H 177·30* h 30 No. 25</p>	<p>Juráwanpur No. 3 s. (Mozufferpore) On the verge of N. bank of the Gunduk river, about 200 yards E. of the village of Dí Juráwanpur: marked by a circular mud platform 2 feet high and 3 feet in diameter having a peg in its centre with a circle and dot engraved.</p> <p>λ 25 33 22·34 L 85 28 20·57</p>
<p>Gunduk River No. 136 s. (Patna) On Sabalpur Char.</p> <p>λ 25 39 40·53 L 85 12 29·62</p>	<p>Hazáribágh Church, (Hazáribágh) Spire.</p> <p>λ 23 59 19·0 L 85 24 33·1</p>	<p>Juráwanpur No. 4 s. (Mozufferpore) In centre of a field belonging to village of that name; thána Hajeeepore.</p> <p>λ 25 31 1·14 L 85 26 11·81</p>
<p>Gunduk River No. 137 s. (Patna) On Sabalpur Char.</p> <p>λ 25 38 55·57 L 85 13 9·41</p>	<p>Ichák Palace No. 1, (Hazáribágh) S. W. corner of Staircase.</p> <p>λ 24 5 23·7 L 85 28 6·5</p> <p>See Synoptical Volume of the Calcutta Longitudinal Series of the South-East Quadrilateral.</p>	<p>Káládehr s. (Mozufferpore) On N. side of the Ganges and N. of village of the same name; thána Hajeeepore, pargana Bhímpur.</p> <p>λ 25 31 2·92 L 85 28 53·65</p>
<p>Gurpa Rock, (Gya) Point.</p> <p>λ 24 32 47·1 L 85 20 35·9</p>	<p>Ichák Palace No. 2. (Hazáribágh)</p> <p>λ 24 5 39 L 85 28 6</p>	<p>Jáfarabad s. (Mozufferpore) On N. bank of the Ganges, about 200 yards S. of village of the same name: marked by a circular mud platform 2 feet high and 3 feet in diameter having a peg in its centre with a circle and dot engraved.</p> <p>λ 25 35 15·55 L 85 18 57·76</p>
<p>Hajeeepore Bungalow, (Mozufferpore) Chimney.</p> <p>λ 25 40 49·3 L 85 14 24·9</p>	<p>Jetúli s. (Patna) On a char towards the S. bank of the Ganges, about 200 yards N. of village of that name; thána Futwah: marked by a peg 3 feet long with a circle and dot engraved and driven into the earth.</p> <p>λ 25 32 17·35 L 85 19 46·78</p>	<p>Kalúa Rock, (Hazáribágh) Point.</p> <p>λ 24 22 36·1 L 84 54 33·4</p>
<p>Handia, VII.</p> <p>λ 24 57 46·74 L 85 25 31·92 H 1462 h † No. 9</p>		

* This height refers to the mark-stone let into the ground floor of the tower. † Mark on summit of a high rock.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
Kamtaul, XX. λ 25 59 11.38 L 85 21 27.87 H 198 h 35 No. 28	Loháwar, IV. λ 24 28 15.47 L 85 13 28.07 H 1787 h † Nos. 3, 5	Mozufferpore Temple No. 1. <i>(Mozufferpore)</i> Kalas of Kaula Path's temple. λ 26 7 34.7 L 85 26 4.5
Karamchak s. <i>(Sarun)</i> On N. bank of the Ganges, about 300 yards W. of village of that name: marked by a circular mud platform 2 feet high and 3 feet in diameter having a peg in its centre with a circle and dot engraved. λ 25 40 42.05 L 85 9 12.34	Madanpur, LXXXV‡. λ 26 31 5.45 L 85 28 48.20 H 226 h 25 No. 30	Mozufferpore Temple No. 2. <i>(Mozufferpore)</i> Golden Kalas of Fateh Chand's temple. λ 26 7 32.6 L 85 25 45.4
Kasiátu, XLIV*. λ 23 58 29.68 L 84 56 46.76 H 2650 h 3 No. 1	Mahar, V. λ 24 44 20.88 L 85 12 22.31 H 1606 h Not forthcoming Nos. 7, 8	Mukhtiárpur, XV. λ 25 36 0.09 L 85 32 56.84 H 195 h 36 No. 18
Katra Bungalow, <i>(Mozufferpore)</i> Chimney. λ 25 42 10.4 L 85 14 31.9	Mahúda Hill Mark. <i>(Hazáribágh)</i> Denoted by kacha platform. λ 24 11 30.64 L 85 14 18.71	Musahri Indigo Factory, <i>(Mozufferpore)</i> Large chimney of the boiling room. λ 26 6 56.5 L 85 29 19.7
Kawadag Hill <i>(Hazáribágh)</i> Tree on top. λ 24 13 23 L 85 25 36	Mahúda Hill Mark. <i>(Hazáribágh)</i> Denoted by kacha platform. λ 24 11 30.64 L 85 14 18.71	Naraina Bungalow, <i>(Hazáribágh)</i> S. chimney. λ 24 20 46.1 L 85 21 51.9 No. 33
Kawa Dol Rock, <i>(Gya)</i> Point. λ 24 59 40.2 L 85 4 5.4	Maksúdpur s. <i>(Patna)</i> On right bank of the Ganges, about 150 yards N. of village of that name: denoted by a kacha platform; thána Futwah, pargana Ghiásipur. λ 25 29 36.89 L 85 26 17.55	Narári Building, <i>(Patna)</i> Staircase. λ 25 15 39.3 L 85 27 29.9
Khálampur Mosque, <i>(Mozufferpore)</i> Dome. λ 26 10 54.8 L 85 28 29.9	Mohanpur s. <i>(Mozufferpore)</i> On N. bank of the Ganges, about 300 yards S. of village of that name: marked by a circular mud platform 2 feet high and 3 feet in diameter having a peg in its centre with a circle and dot engraved. λ 25 32 15.71 L 85 22 15.60	Pachamba s. <i>(Gya)</i> On the verge of W. bank of the Sakri nadi, about 1 mile E. of village of that name and 6 miles N.E. of the city of Gya. It is identical with the tri-junction station of the parganas Narhat, Mahar and Saunat and was found marked by a small quantity of charcoal buried in earth with usual marks of pits around it. λ 24 51 29.13 L 85 9 52.40
Latái Paka House. <i>(Mozufferpore)</i> In village. λ 25 40 11 L 85 16 21	Mozufferpore House. <i>(Mozufferpore)</i> Large yellow house, S.E. corner of portico. λ 26 7 54.5 L 85 25 44.7	Paládpur, XXI. λ 26 4 21.01 L 85 29 40.34 H 175.01§ h 32 No. 24
Latái s. <i>(Mozufferpore)</i> On E. extremity of Sabalpur Char, about ¼ mile S.E. of the village of Latái: marked by a circular mud platform 2 feet high and 3 feet in diameter having a peg in its centre with a circle and dot engraved. λ 25 37 14.26 L 85 17 2.84	Mozufferpore Kachahri. <i>(Mozufferpore)</i> Flag on roof of Collector's Kachahri. λ 26 7 23.8 L 85 26 52.6	Panahpur s. <i>(Sarun)</i> On N. bank of the Ganges: marked by a circular mud platform 2 feet high and 3 feet in diameter having a peg in its centre with a circle and dot engraved. λ 25 39 55.17 L 85 6 34.53

* Appertains to the Calcutta Longitudinal Series of the South-East Quadrilateral. † Mark on the rock is *sidá*. ‡ Appertains to the North-East Longitudinal Series. § This height refers to the mark-stone let into the ground floor of the tower.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Paraia, III.</p> <p style="text-align: center;">o ' "</p> <p>λ 24 19 57.35 L 85 28 15.79 H 1566 h 2 No. 2</p>	<p>Patna, Jáfar Khán's Garden Cupola s. (Patna) On S. bank of the Ganges at the N.W. corner of the decayed and neglected garden so called, about 3½ miles E. of city and ¼ of a mile W. of the large and populous village of Sabalpur: marked on the buttress on which the cupola stands and N. of it.</p> <p>λ 25 33 59.56 L 85 18 38.86</p>	<p>Phulwaria House. (Patna) Tiled house in centre of village.</p> <p>λ 25 30 28.3 L 85 23 40.7</p>
<p>Párbati Hill, (Patna) Knob on top.</p> <p>λ 25 5 4.7 L 85 41 34.7</p>	<p>Patna, Mehndíbagh s. (Patna) On S. bank of the Ganges, about 1 mile W. of the station of Jáfar Khán's Garden, marked in the centre of the Cupola.</p> <p>λ 25 34 45.21 L 85 17 55.50</p>	<p>Pota, XXV.</p> <p>λ 26 22 40.13 L 85 28 47.51 H 222 h 26 No. 28</p>
<p>Patna Chak, Highest House. (Patna)</p> <p>λ 25 35 55.7 L 85 16 18.5</p>	<p>Patna, Nún-gola House. (Patna) Manarám's paka house.</p> <p>λ 25 35 6.2 L 85 17 33.5</p>	<p>Raghupur s. (Mozufferpore) On N. bank of the Ganges, towards S. end of the Dí Raghupur village; thána Hajepore: marked by a circular mud platform 2 feet high and 3 feet in diameter having a peg in its centre with circle and dot engraved thereon.</p> <p>λ 25 31 45.63 L 85 24 20.90</p>
<p>Patna, Chini Tonk Bungalow, (Patna) Chimney.</p> <p>λ 25 37 15.6 L 85 12 59.2</p>	<p>Patna Opium Godown, (Patna) Turret staircase.</p> <p>λ 25 36 34.3 L 85 15 7.0</p>	<p>Rámchaura Math, (Mozufferpore) Top of dome.</p> <p>λ 25 40 41.8 L 85 14 42.0</p>
<p>Patna Collectorate, (Patna) Centre chimney.</p> <p>λ 25 37 14.7 L 85 12 31.6</p>	<p>Patna, Pírdamaria House, (Patna) White, at E. end of city.</p> <p>λ 25 35 47.6 L 85 16 38.9</p>	<p>Rámpur, XXVI.</p> <p>λ 26 27 0.92 L 85 18 57.14 H 225 h 30 No. 29</p>
<p>Patna, Colonelganj Tonk House, (Patna) Chimney.</p> <p>λ 25 36 46.8 L 85 14 42.5</p>	<p>Patna, Temple No. 1. (Patna) On Mahendraghát.</p> <p>λ 25 37 13.3 L 85 13 14.1</p>	<p>Rámpur Palace, (Hazáribágh) S. E. corner.</p> <p>λ 24 25 11.6 L 85 24 56.9 No. 34</p>
<p>Patna, Didárganj Mosque. (Patna)</p> <p>λ 25 34 16.1 L 85 18 19.4</p>	<p>Patna, Temple No. 2. (Patna) On Pathrighát.</p> <p>λ 25 37 0.3 L 85 14 3.1</p>	<p>Ranjíta Semaphore. (Hazáribágh)</p> <p>λ 24 4 34.1 L 85 23 36.0</p>
<p>Patna, Díwáni Kachahri, (Patna) Chimney.</p> <p>λ 25 37 16.6 L 85 11 29.4</p>	<p>Patna, Temple No. 3. (Patna) In Rakábganj.</p> <p>λ 25 34 38.0 L 85 18 0.5</p>	<p>Rasimchak s. (Sarun) On a sand mound on N. bank of the Ganges, about 600 yards nearly E. of a small village of that name: marked by a circle and dot engraved on a stone about 8 inches square and buried in the ground.</p> <p>λ 25 40 13.95 L 85 4 58.08</p>
<p>Patna, Faujdári Kachahri, (Patna) Chimney.</p> <p>λ 25 37 22.2 L 85 12 12.5</p>	<p>Patna, Yellow House. (Patna) Chimney of a large house on river bank.</p> <p>λ 25 37 5.1 L 85 13 49.9</p>	<p>Rúkha Square Building, (Patna) S. W. corner.</p> <p>λ 25 19 36.0 L 85 24 54.9</p>
<p>Patna Gola s. (Patna) On top of Gola or public granary at Bankipore.</p> <p>λ 25 37 11.38 L 85 10 57.40</p>	<p>Phulwaria, XIV.</p> <p>λ 25 30 26.20 L 85 23 51.96 H_s 188.03* h 30 No. 17</p>	

* This height refers to the mark-stone let into the upper surface of the pillar.

Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.	Name of station, district, description, co-ordinates &c.
<p>Rukunpura Indigo Factory, (Patna) Chimney of the dwelling house.</p> <p>λ 25 29 7⁸ L 85 27 36²</p>	<p>Salempur Temple, (Mozufferpore) Kalas.</p> <p>λ 25 54 59⁸ L 85 9 36¹</p>	<p>Sindwar Semaphore. (Hazáribágh)</p> <p>λ 24 13 54⁵ L 85 5 24⁷</p> <p>See Synoptical Volume of the Calcutta Longitudinal Series of the South-East Quadrilateral.</p>
<p>Rustampur s. (Mozufferpore) On N. bank of the Ganges, about 300 yards S. of village of the same name: marked by a circular mud platform 2 feet high and 3 feet in diameter having a peg in its centre with a circle and dot engraved thereon.</p> <p>λ 25 34 16⁸⁵ L 85 20 8¹⁰</p>	<p>Samáspur s. (Patna) On S. bank of the Ganges adjoining the village of the same name; thána Futwah: marked by a circular mud platform 2 feet high and 3 feet in diameter having a peg in its centre with a circle and dot engraved thereon.</p> <p>λ 25 30 54⁰¹ L 85 20 41⁷²</p>	<p>Singer Hill Tree. (Gya)</p> <p>λ 24 35 27 L 85 33 7</p>
<p>Sabalpur No. 1 s. (Patna) On Sabalpur char and adjoining a few scattered huts called Sabalpur Tola: marked by a circular mud platform 2 feet high and 3 feet in diameter having a peg in its centre with a circle and dot engraved thereon.</p> <p>λ 25 36 57⁸⁸ L 85 15 21⁷⁹</p>	<p>Sarhad, II. λ 24 19 57⁴² L 85 0 13⁰² H 15¹² h Not forthcoming No. 4</p>	<p>Singia Indigo Factory, (Mozufferpore) Chimney.</p> <p>λ 25 51 8⁵ L 85 12 38⁷</p>
<p>Sabalpur No. 2 s. (Patna) On Sabalpur char and about $\frac{1}{4}$ a mile N.E. of Sabalpur village: marked by a circular mud platform 2 feet high and 3 feet in diameter having a peg in its centre with a circle and dot engraved thereon.</p> <p>λ 25 38 27⁶² L 85 15 22²⁵</p>	<p>Sarhad Semaphore. (Hazáribágh)</p> <p>λ 24 19 57⁷ L 85 0 12⁹ No. 32</p>	<p>Singia Sugar Factory, (Mozufferpore) W. chimney of the steam engine.</p> <p>λ 25 51 1³ L 85 12 58³</p>
<p>Sabalpur No. 3 s. (Patna) On Sabalpur char: marked by a circular mud platform 2 feet high and 3 feet in diameter having a peg in its centre with a circle and dot engraved thereon.</p> <p>λ 25 37 43⁹⁴ L 85 12 54⁹⁴</p>	<p>Sáwajpur, XXIII. λ 26 13 34¹³ L 85 29 39⁴⁸ H₁ 176^{29*} h 32 No. 26</p>	<p>Singia Temple, (Mozufferpore) Kalas.</p> <p>λ 25 51 15⁵ L 85 12 50⁷</p>
<p>Sabalpur No. 4 s. (Patna) On Sabalpur char: marked by a circular mud platform 2 feet high and 3 feet in diameter having a peg in its centre with a circle and dot engraved thereon.</p> <p>λ 25 39 8⁹⁴ L 85 13 34⁰⁰</p>	<p>Shibnagar Flag. (Mozufferpore) On left bank of the Gunduk river.</p> <p>λ 25 31 58 L 85 28 50</p>	<p>Sonepore Temple, (Sarua) Kalas.</p> <p>λ 25 41 6² L 85 13 39⁵</p>
<p>Sabalpur No. 5 s. (Patna) On Sabalpur char: marked by a circular mud platform 2 feet high and 3 feet in diameter having a peg in its centre with a circle and dot engraved thereon.</p> <p>λ 25 39 27⁵⁸ L 85 11 23⁸⁸</p>	<p>Shilwári Semaphore. (Hazáribágh)</p> <p>λ 23 59 38⁹ L 85 28 55⁰</p> <p>See Synoptical Volume of the Calcutta Longitudinal Series of the South-East Quadrilateral.</p>	<p>So Sarai, S. Temple, (Patna) Kalas.</p> <p>λ 25 13 23³ L 85 33 29²</p>
	<p>Sindraili, I. λ 24 11 48⁶² L 85 15 43⁷⁵ H 2218 h 4 No. 1</p>	<p>Sukwarpur s. (Mozufferpore) On N. bank of the Ganges, about 100 yards W. of village of the same name: marked by a circular mud platform 2 feet high and 3 feet in diameter having a peg in its centre with a circle and dot engraved thereon.</p> <p>λ 25 36 26³³ L 85 17 52⁸⁶</p>
		<p>Turki, XVIII. λ 25 49 36²⁶ L 85 21 47²³ H 198 h 31 No. 21</p>

* This height refers to the mark-stone let into the ground floor of the tower.

May 1879.

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

MERIDIONAL SERIES

OR

SERIES Q

OF THE

EAST QUADRILATERAL

and photozincographed under the orders of

GENERAL J. T. WALKER, C.E., R.E., F.R.S., &C.,

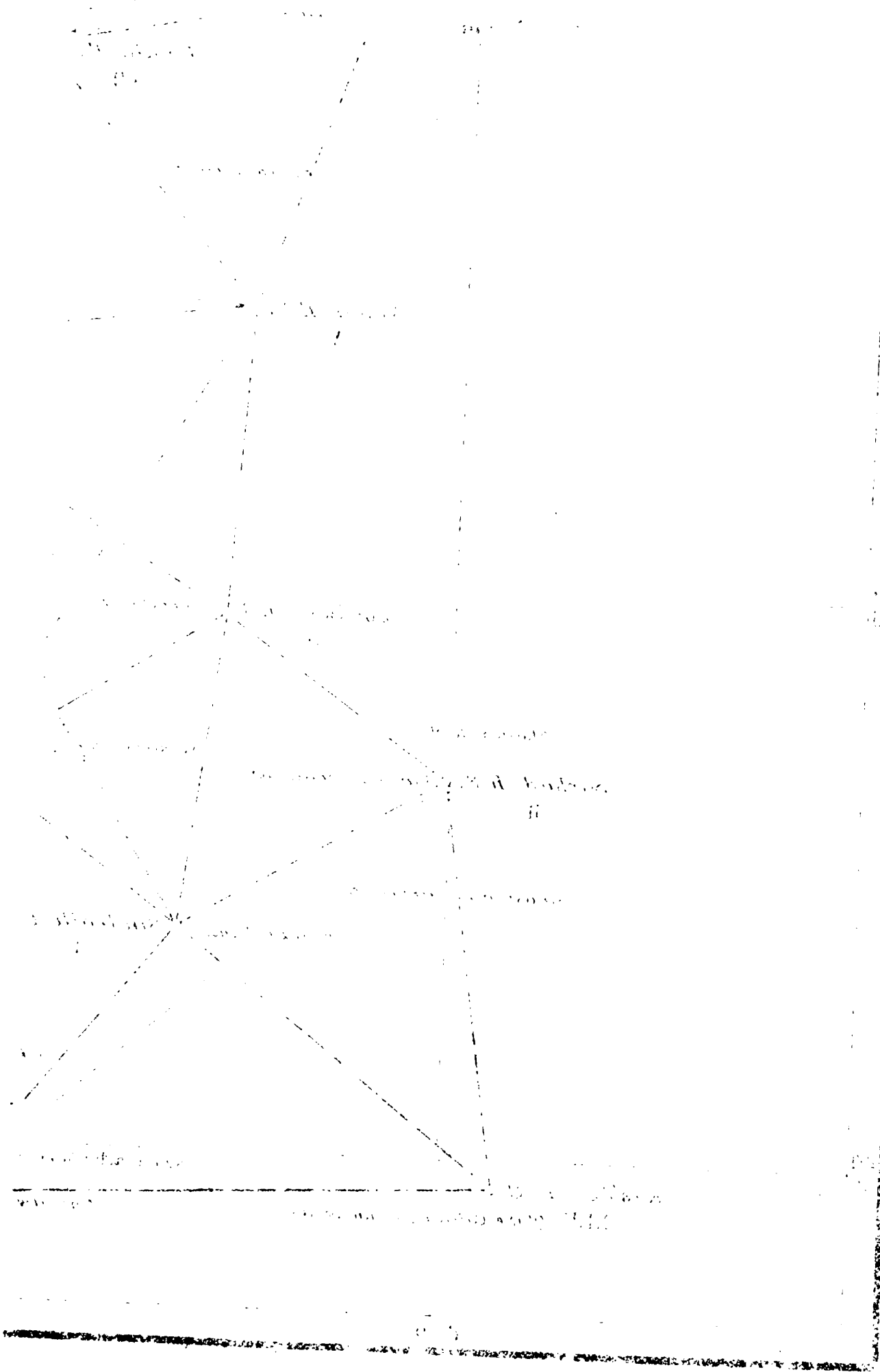
Surveyor General of India

Commandant of the Great Trigonometrical Survey

Office of the Survey, Dehra Dun. April 1882.

Scale 1 Inch = 8 Miles or $\frac{1}{506880}$

0 8 16 24 Miles



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 $18^{\circ} 3'$ and $24^{\circ} 7'$, 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 $18^{\circ} 3' 5''$; $24^{\circ} 7' 11''$; and $29^{\circ} 30' 18''$. 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, 1873.
- Do. IV. The Principal Triangulation, the Great Arc (Section 24° - 30°), Rahún, Gurhágárh 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, 1876.
- 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.

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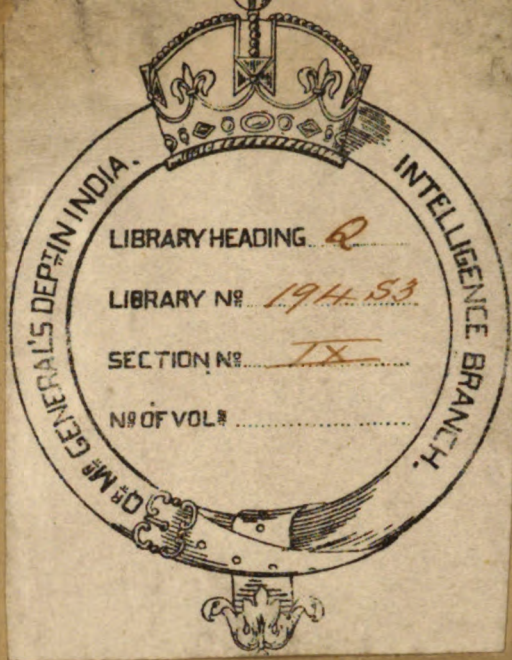
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