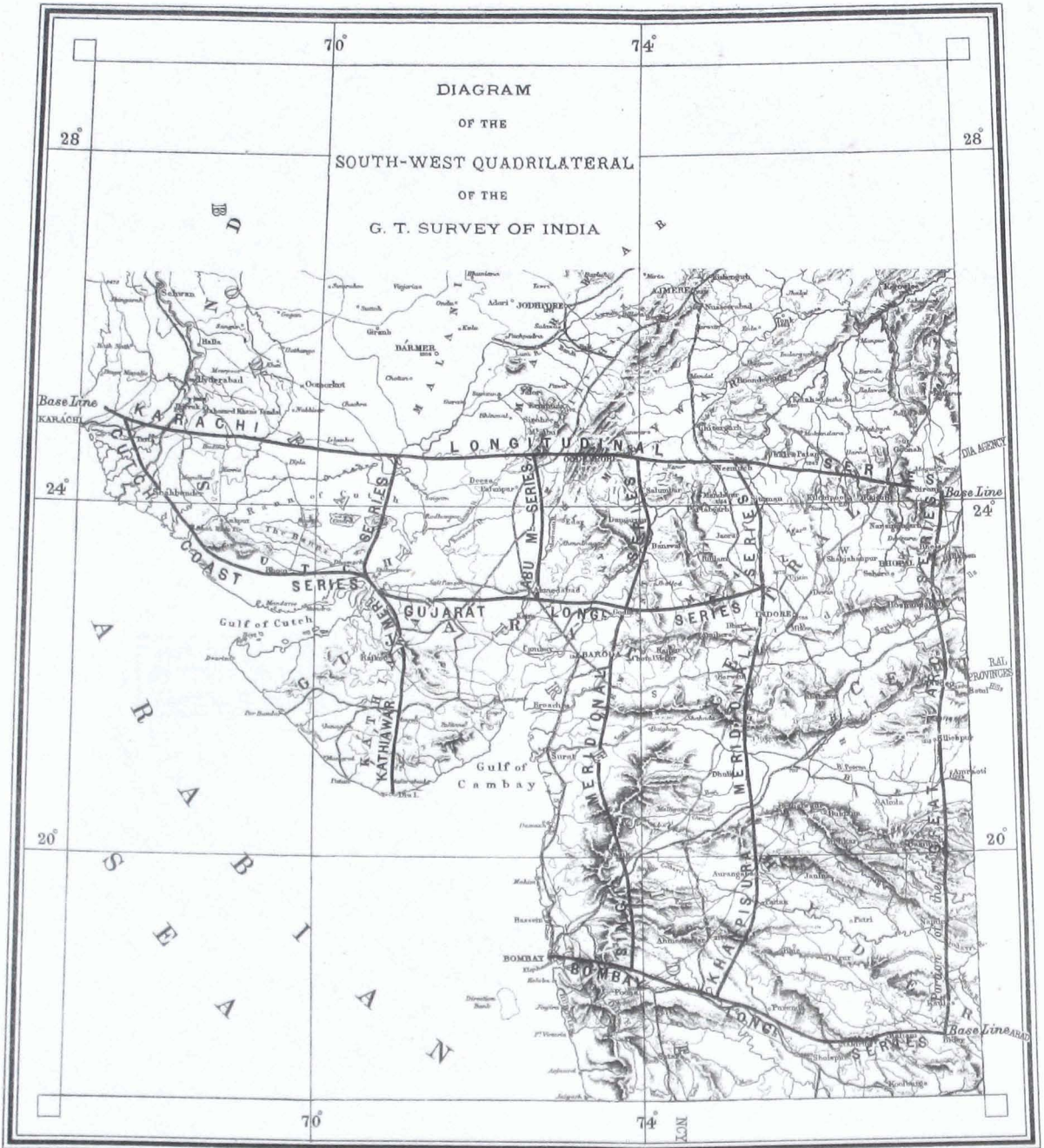


174

SYNOPTICAL VOLUME XXXIII ✓
G. T. SURVEY OF INDIA.
—
THE CUTCH COAST SERIES
APPERTAINING TO THE
SOUTH-WEST QUADRILATERAL.
—



Photostereographed at the Office of the Trigonometrical Branch, Survey of India, Dacca Dén, January 1893.

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

DESCRIPTIONS AND CO-ORDINATES
OF THE
PRINCIPAL AND SECONDARY STATIONS AND OTHER FIXED POINTS OF
THE CUTCH COAST SERIES
OR SERIES L
OF THE
SOUTH-WEST QUADRILATERAL.

PREPARED IN THE OFFICE OF THE TRIGONOMETRICAL BRANCH, SURVEY OF INDIA,
COLONEL G. STRAHAN, R.E., DEPUTY SURVEYOR GENERAL, IN CHARGE.

PUBLISHED UNDER THE ORDERS OF
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CONTENTS.



DIAGRAM OF THE SOUTH-WEST QUADRILATERAL	Facing title page.
REFERENCES	iv
PREFACE	v
Introduction	iii—L.
Alphabetical List of Principal Stations	1—L.
Numerical do. do.	3—L.
Description of Principal Stations	5—L.
Principal Triangles	13—L.
Secondary Triangles, Coast Line Secondary Series	18—L.
Secondary Triangles connecting Principal-Auxiliary and Secondary Stations, and Intersected Points	20—L.
Do. Secondary Stations and Intersected Points, Coast Line Secondary Series ..	32—L.
Do. Boládi-Jhuran and Khadir Secondary Series	39—L.
Azimuths of Surrounding Stations and Points at Principal, Principal-Auxiliary and Secondary Stations	41—L.
Co-ordinates and Descriptions of all Stations and Points	55—L.
CHARTS Nos. 1 and 2	



REFERENCES.



The abbreviations employed in the text are as follows:—

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

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 Charts at the end of the volume 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. For other points difficult to identify or of comparatively less accuracy, numerical values of triangles and azimuths are not given.

July, 1893.

J. ECCLES,
In charge Computing Office.



P R E F A C E .



The Cutch Coast Series, the details of which are given in this volume, forms part of the western boundary of the South-West Quadrilateral, or that section of the triangulation of India which lies between the parallels of 18° and 25° and between the meridian of 78° and the Arabian Sea. Nearly two-thirds of the Series is situated along the northern coast line of the Gulf of Cutch and the remainder, crossing the western end of the Rann, runs through the province of Cutch. The general principles of the simultaneous reduction, and the procedure followed in carrying it out, are explained in Volume II of the *Account of the Operations, &c.*; and full details of the whole of the principal triangulation appertaining to the Quadrilateral will be found in Volume XIV 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 triangulation, 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. Gurlúgarh Meridional Series.
- V. Rahún Meridional Series.
- VI. Jogi-Tila and Sutlej Series.
- VII. North-West Himalaya Series.
- VII A. Jodhpore and Eastern Sind Meridional 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.
- XIII A. South Párasnáth and South Malúchna Series.

} Already published.

For those forming the North-East Quadrilateral,

- XIV. Budhon Meridional Series.
- XV. Rangir Meridional Series.
- XVI. Amua and Karára Meridional Series.
- XVII. Gurwáni and Gora Meridional Series.
- XVIII. Huriláong and Chendwár Meridional Series.
- XIX. North Páraswáth and North Malúncha Meridional Series.
- XX. Calcutta and Brahmaputra Meridional Series.
- XXI. East Calcutta Longitudinal and Eastern Frontier Series, Section 23° to 26°.
- XXII. *Assam Valley Triangulation, E. of Meridian 92°.

} Already published.

For those forming the Southern Trigon,

- XXIII. South Konkan Coast Series.
- XXIV. Mangalore Meridional Series.
- XXV. South-East Coast Series.
- XXVI. Bombay Longitudinal Series.
- XXVII. Madras Longitudinal Series.
- XXVIII. Madras Meridional and Coast Series.
- XXIX. Great Arc, Section 8° to 18°. (*In press*).

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

- XXX. Abu Meridional and Gujarát Longitudinal Series.
- XXXI. Khánpisura Meridional Series.
- XXXII. Singi Meridional Series.

} Already published.

The present is the 34th Synoptical Volume in order of publication, and the fourth of those appertaining to the South-West Quadrilateral; it gives the results both of the principal triangulation executed exclusively with a theodolite having an azimuthal circle 18 inches in diameter, read by three micrometer microscopes, and of the secondary triangulation in which besides this instrument a 12-inch theodolite read by verniers was used.

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

As regards the general arrangement of this volume, it may be pointed out that the Introduction to the Series was originally prepared for Volume XIV 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 this volume. The Introduction gives a historical and descriptive sketch of the progress of the whole operations in the field—both principal and secondary—from year to year, mentions the Officers by whom they were conducted, the theodolite with which principal angles were measured, and indicates the work done by each of the Assistants. The adjustment of the secondary triangulation was taken in hand in the year 1892, and completed in the same year when the printing of the volume was resumed.

The data given in this volume are the following:—

First (page 1—L.), an alphabetical list of the names of the principal stations, showing the numbers assigned to them.

Second (page 3—L.), a numerical list giving the names corresponding to the numbers.

* This is an off-shoot of the Assam Longitudinal Series, and falls entirely outside of the limits of the North-East Quadrilateral. The volume is issued in a preliminary form, and therefore only a limited number of copies are available to meet any immediate demand for data: the final publication will be hereafter made on the completion of the triangulation in Burma, into the general reduction of which this Series will enter.

Third (page 5—*L*), descriptions of the structure and positions of the principal stations.

Fourth (page 13—*L*), the angles and sides of the principal triangles.

Fifth (page 18—*L*), the angles and sides of certain secondary triangles. The numbering is here made consecutive to that of the principal triangles, in order to facilitate references which are made in other sections to the place where the length of a side is to be found.

Sixth (page 41—*L*), the azimuths of surrounding stations and points at principal, principal-auxiliary and secondary stations, the latter arranged in alphabetical order.

Seventh (page 55—*L*), the co-ordinates and descriptions of all stations and points arranged in alphabetical order.

It has not been considered necessary to publish the whole of the details of the secondary triangulation; the sides and angles of 516 triangles, 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 Tables Nos. XXVI, XXVII, XXVIII, XXIX and XXX of the *Auxiliary Tables to facilitate the calculations of the Survey of India*, Dehra Dún, 1887, surveyors, working on a system of rectangular co-ordinates, can readily transform the spheroidal co-ordinates here given to suit their requirements.

The heights above mean sea level of the stations depend on the final trigonometrically determined values of Gángta and Chitrod and the spirit-levelled value of Vándhia, stations of the Káthiáwár Meridional Series, and also on the trigonometrical values of Károthol station of the Karáchi Longitudinal Series of the North-West Quadrilateral, and are further controlled by lines of spirit-levelling extending along the entire length of the Series. All particulars regarding the heights will be found detailed on page 55—*L*, as well as in the footnotes to the subsequent pages.

The longitudes depend on an astronomically determined value of the longitude of the Madras Observatory, deduced about the year 1815. The longitude of the Madras Observatory has however been re-determined by the Electro-Telegraphic method, from observations made at Greenwich, Mokattam (in Egypt), Suez, Aden, Bombay and at certain stations of the triangulation in India.

This value of the longitude of the Madras Observatory is equivalent to $80^{\circ} 14' 51''$ E.; and as the originally adopted value, on which the longitudes of the whole of the stations of this Survey are based, is $80^{\circ} 17' 21''$ E.—see page 135 of Volume II of the *Account of the Operations, &c.*—the following precept may be accepted with considerable confidence:—

**All the values of longitude in this volume require a constant correction,
probably of $-2' 30''$.**

The orthography of Indian names in the present volume is in accordance with the provincial lists of spellings constructed under the immediate orders of the Government of India. 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 List for the Bombay Presidency*. 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*; *i* as in *bit*; *í* 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*. Final vowels and those in well-known terminals are unaccented. When the popular spelling of a name has been accepted by Government, its correct orthography is generally given in parenthesis where the name occurs for the first time.

The charts accompanying this volume show all the principal stations and triangulation, the positions of all 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 and points are in some cases not as full and clear as might 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, and all the information which is forthcoming has now been given.

The general arrangement of the volume is in accordance with that adopted in previous Synoptical Volumes. The data which it contains have been prepared chiefly under the superintendence of Mr. J. Eccles, M.A., Deputy Superintendent, the Officer in charge of the Computing Office. The Introduction to the Series was written by Captain S. G. Burrard, Deputy Superintendent. The volume like its predecessors has been printed at the Trigonometrical Branch Office at Dehra; Mr. Peychers has rendered valuable service in the examination of the press proofs generally, and more particularly in regard to the preparation and final revision of the letter-press and numerical details which require the utmost care, and in this respect from his natural aptitude and experience his assistance has been most valuable.

DEBRA DUN, }
July, 1893.

G. STRAHAN, COLONEL, R.E.,
Dy. Surveyor General,
In charge Trigonometrical Surveys.

CUTCH COAST SERIES.

CUTCH COAST SERIES.

INTRODUCTION.

The Cutch (Kachh) Coast Series of the South-West Quadrilateral is the chain of principal triangles, that commences at the head of the Gulf of Cutch, trends first south-westwards and then north-westwards through the province of Cutch, crosses the western end of the Ran and the southern mouths of the Indus, and terminates near Tatta, 50 miles east of Karáchi. It emanates from Chitror-Wándia, a side of the Kattywar (Káthiávád) Meridional Series, and closes, after a run of 235 miles, on the side Káraphol-Sáhiji of the Karáchi Longitudinal Series. It is double throughout and consists of one compound figure, one double hexagon, six pentagons and five quadrilaterals.

During the field season of 1853-54 the Bombay Triangulation Party was employed under Lieutenant Nasmyth on trigonometrical work in the Kattywar Peninsula; one of the assistants, however, Mr.

Season 1853-54.

T. Sanger, was deputed to take up the approximate work of the Cutch Coast Principal Series, and this he carried from Wándia to Dinoda. By May, 1853, the Kattywar Meridional Series had been completed from the parallel of 23° to its southern extremity near Diu; and in April and May, 1854, Lieutenant Nasmyth succeeded in carrying the final observations northwards across the Ran of Cutch to Chitror. He was precluded, however, from observing at any of the stations of the Cutch Coast Series by the weakness of Mr. Sanger's approximate work, which had made the Cutch triangulation at its junction with the Kattywar principal chain depend on one single triangle and one quadrilateral, in the latter of which were two angles less than 30° .

During the early part of the field season of 1854-55, Lieutenant Nasmyth and Mr. McGill were at Karáchi, taking part in the measurement of the Base-line that was being carried out with Colby's apparatus under Colonel A. Strange. Messrs. Sanger and

Season 1854-55.

DaCosta, the only other assistants with the party, were both placed on the duty of improving the approximate work at the junction of the Cutch and Kattywar Principal Series.

The district of Wagan in which they were operating was bounded on the one side by the sea and on the other by the Ran, and was not sufficiently broad to admit of symmetrical triangles. The surveyors, therefore, found their task no easy one; but at length they submitted a design that was approved by Nasmyth. Mr. Sanger then took up the approximate work of the Guzerat Longitudinal Series east of Ahmedabad (Amdávád), and Mr. DaCosta continued his observations of the angles of the Kattywar Coast Minor Series which he had been unable to finish the previous year. Towards the end of the measurement of the Karáchi Base-line Lieutenant Nasmyth fell ill, and was on this account detained some weeks at Karáchi. When sufficiently recovered for the journey he had to be moved to Mahábaleshvar. The final work of the Cutch Coast Principal Series was in consequence not taken up during the season 1854-55.

The climate of Cutch in the Autumn is so bad and fever is so prevalent that it is injudicious to undertake the general duties of a survey there before November. As, however, the town of Naithra was

Season 1855-56.

PERSONNEL.

Lieutenant D. J. Nasmyth, Bombay Engineers,
2nd Assistant.

Mr. J. DaCosta, Sub-Assistant.

" T. Sanger, "

" J. McGill, "

" C. McGill, "

situated in the western part of Cutch and at a comparatively high altitude, Nasmyth decided to move there early in October, and observe Polaris at both elongations for azimuth, and then to return to the sea coast and to remain

till the unhealthy season had passed. Mr. Sanger's approximate work of 1853-54 had not been carried westward of Dinoda and Roha, but as the town of Naithra formed an equilateral triangle with these two stations it was evident that a station would eventually have to be built in its vicinity.

The party's departure was constantly delayed owing to the unsettled state of the weather, and it was not till October 15th that they set out from Poona (Puna). On arrival at Bombay the large theodolite, heliotropes, lamps and all other apparatus were embarked in a Government boat, whilst a sailing ship from Cutch was chartered to carry the native establishment, horses and baggage. About this time scarcity of water was anticipated in Bombay and boats had already been interdicted from drawing their supplies from the island except on payment. That the establishment might not be delayed Nasmyth agreed to a heavy charge; but hardly had the vessel left Bombay when it was found that the alleged supply of water had not been shipped: a day had to be spent in filling the spare tanks before the vessel weighed again for Cutch. The voyagers, however, seemed doomed to misfortune; the wind was against them and the tindal of the ship got out of his reckoning. With but little water left on board, he found himself at the mouth of the Persian gulf within a short distance

of Muscat. Changing his course he sought to make some port on the Kattywar Coast, but was again unfortunate; for the wind died away and there was no land in sight. Scarcity of water now began to press inconveniently on all, and a Brahmin of the party was deputed to pray for better things: he accordingly spent the night invoking the protecting aid of Wiloda, and, as morning broke, concluded his devotions and predicted a coming breeze: the breeze indeed came, but it blew the wrong way. The Kattywar Coast was passed unseen, and before the Konkan shore was gained, the horses had been three days without water. In these extremities a steamer hove in sight; a signal of distress was run to the masthead and great was the joy of the voyagers when the steamer was seen to steer towards them: greater still, however, was their mortification, when the Captain of the steamer, having learnt that it was merely for water that he had been summoned out of his course, abused them roundly and steamed away out of sight. Having replenished their water supply from the Konkan Coast, the party was at length landed safely at Mándvi on November 11th and began their march the following evening.

The country through which the triangulation was to be carried was rocky and unfavorable for carts, and camels could not be procured; for although there were many of these animals in every village, the natives refused to lend them. The camelmen from Gujarát objected to serve in Cutch, and the Rao declined to assist the survey party; Nasmyth had therefore to employ carts, which were very slow and generally broke down. Much inconvenience was next caused by the sudden withdrawal of the native guard by order of the Bombay Government; and as his establishment had been divided and distributed all over the country, Nasmyth's arrangements were quite upset. He submitted the matter to Colonel A. S. Waugh, Surveyor General of India and Superintendent of the Trigonometrical Survey, and by order of the Supreme Government the guard was eventually restored. The party reached Naithra on November 15th and the station of Háthria was immediately selected in the vicinity. Whilst the platform was being built the establishment moved to Roha, Nasmyth himself visiting the country to the north to decide on the best way of completing the figure. On November 19th he followed the establishment to Roha and set up the instrument, intending to take observations of the final angles, but an unforeseen impediment occurred: Mr. Sanger, who had been sent on in advance to visit the selected stations and assure himself that the preliminary arrangements were perfect, had allowed the ray from a station named Jhuria to Roha to escape his notice: and when Nasmyth arrived he found it hopelessly obstructed by an intervening hill. Nasmyth at once proceeded to Jhuria and after a week's work decided to transfer Mr. Sanger's station to Wára.

He began the final work at Sámethra, and then visited the stations of Bolári and Katror; and before the year 1855 had closed he had completed the observations at Wára and Roha and had observed as many of the angles at Dinoda, Naliya and Háthria as the unfinished state of the approximate series would allow. He then took up the work of the Kattywar Meridional Series and remained employed on it till the close of the field-work in May 1856.

In the meantime Mr. DaCosta had been carrying on the approximate work of a

Principal Series that was to connect the Cutch Coast Series with the Karáchi Longitudinal. He first selected the stations of Saind, Sura Gandára and Manjal and thus formed a somewhat symmetrical hexagon round Háthria: then with the side Manjal-Sura Gandára as his base he carried the approximate series due north up the meridian of 69° , till he joined on to the side Sha Turel-Adúri of the Karáchi Longitudinal Series. As the season advanced he suffered much from the heat of the desert, whilst his marches backwards and forwards over the Ran and across the low swampy land that lies between the Kori and Indus were very trying. He rejoined the head-quarters of the party in May.

It had now become evident that Cutch was a very difficult country to triangulate: the hills were steep and difficult of ascent, and the valleys were obstructed by loose sand and quicksands: the scantiness of the population too in the wild places visited, greatly augmented the troubles of moving about. But of all the parts of the country, that lately traversed by DaCosta seemed the least favorable for trigonometrical work: many of his stations had of necessity been placed on the very border of the Ran; and from experience gained on the Kattywar Meridional Series it was known that such positions would never yield good results. Nasmyth therefore determined to throw over DaCosta's work on the meridian of 69° , and to carry the Cutch Principal Series across the mouths of the Indus parallel to the Coast, and make it join the Karáchi Longitudinal Series north of Tatta.

The party took the field again on August 31st, 1856, but were forced by unfavorable

Season 1856-57.

PERSONNEL.

Lieutenant D. J. Nasmyth, Bombay Engineers,
2nd Assistant.
Mr. J. DaCosta, Sub-Assistant.
" T. Sanger, "
" J. McGill, "
" C. McGill, "

weather to seek shelter in the town of Anjár. On September 8th Nasmyth commenced laying out supplementary triangles to connect the principal triangulation with the sea; and on October 1st he proceeded to Háthria, where he observed Polaris at both elongations for azimuth. He then returned eastwards and continued his work on the

Kattywar Meridional Series.

Early in October Mr. DaCosta, who was now assisted by Mr. Sanger, began the extension of the Cutch Coast Series through Sind from the Ran to Tatta. The side Saind-Sura Gandára proved unsuitable to start from, a station at Suri Muri had to be selected. On the side Suri Muri-Sura Gandára a pentagon was then constructed round Bábia as a centre, which brought the Series to the northern border of Cutch. Beyond, however, the mere selection of the sites of the stations nothing could be done, for no means of building the towers existed, no masons were to be found within miles, and neither bricks nor lime were known.

The country for 40 miles north of the Ran is always inundated in November and December and does not become thoroughly drained till April; so after selecting Lakhpat and Pinjor Pir the two Surveyors proceeded by boat to Karáchi to recommence their work from its northern extremity. The new series started from the side Sáhiji-Károthol of the Karáchi

Longitudinal Series, and after passing Tatta crossed a flat, damp country, thickly overgrown with bastard cypress and bantle: at first water was good and plentiful, but as the Ran was approached it became scarce and bad. Having selected all the stations DaCosta commenced building the towers near the Ran. During his stay in Karáchi he had made arrangements for their construction and had despatched material by boat to the north-west of Cutch; but statute labor had lately been abolished in Sind, and no workmen could be procured; the inhabitants, as long as fish were in the canals, had no care for their livelihood, and those in the Ran were especially averse to work: at times it seemed as if the operations would fall through, and they probably would have done so if assistance had not arrived from Mándvi. The towers themselves were not easy to build: the foundations could not be dug two feet without water rushing in and rendering the sand loose and yielding. A large supply of bricks had been prepared at Guni and other places, but an unexpected fall of rain in February converted them into mud and threw the builders out of employment. Towards the beginning of June the Indus overflowed its banks and flooded the whole country round, obliging DaCosta to return to recess quarters at Bhúj.

On December 21st Nasmyth completed the Kattywar Meridional Series at Wánkáner, and again resumed work on the Cutch Coast Series first visiting the stations at the junction of the two principal series and then working westwards till he joined on to his side Bolári-Katror of the previous season. He utilised Gángta, one of the principal stations of the Kattywar Meridional Series, as the northern point of the Kakarwa pentagon, but left the interior angles of the Gángta-Chitror quadrilateral unobserved. The employment in the two series of the same station rendered the figure at their junction one of great complexity. If the reduction had been carried out rigorously all the triangles within the periphery Gángta-Bela-Iwália-Pata-i-Sháh-Khánmír-Kesmára-Kákraji-Mália-Wándia-Sakpur-Ráhida-Ran-Gángta would have had to be regarded as belonging to one compound geometrical figure: the fact too that the interior angles of the quadrilateral Gángta-Chitror had not been observed would not have lessened the complication. The reduction however was not carried out rigorously: the Dájka pentagon was first reduced independently of any exterior observations and then in the following order the Kanduka-Khánmír quadrilateral, the Monába hexagon and the Nara-Wándia quadrilateral were taken in hand. When, therefore, it came to the turn of the Kakarwa pentagon to be reduced, three of its angular points—Gángta, Nara and Sakpur—had already been fixed in position. In addition thus to the seven geometrical conditions that have to be satisfied in the case of every complete simple pentagon, two others entered into this figure: the sum of the two angles at Nara had a fixed value, and the side Sakpur-Nara had to bear a fixed ratio in length to the side Nara-Gángta.

In January an earthquake occurred which nearly brought down the tower of Karárho, on which the instrument happened to be standing. In March Nasmyth exhausted all the approximate work that was ready for him and then occupied himself in carrying out several repetitions of supposed bad work. Triangular errors of 3" were common in the neighbourhood of Lakhpat and Pinjor Pir; but though the faulty angles were repeated many times their

values always remained the same and the errors were not decreased. The only explanation of the difficulty offered by Nasmyth was, that signals were not only rendered unsteady by haze but were also distorted in a constant direction by currents from the Ran, leaving unequal densities in the air: where the country was *all* Ran, increased triangular errors did not present themselves. The field work was brought to a close on April 17th, 1857, and the party returned to their recess quarters at Bhúj.

In October, 1857, with a view to relieve General Lawrence, a column was being organised at Deesa (Disa) in all haste to attack Áuwa a walled town situated half way between Abu and Nusseerabad (Nasirabad) which was held by mutineers of the Jodhpore (Jodhpur) legion. As General Lawrence was urgently in want of the services of an Engineer Officer and there was no other available, Lieutenant Nasmyth was requested to accompany the force and remain with it for three months: this he consented to do anticipating Colonel Waugh's approval. Nasmyth reached Deesa on October 16th, a week after the force had left, and at once made arrangements to follow; but on the eve of marching, he was officially informed that the delay in his arrival had been attributed to his inability to leave his work in Cutch, and that consequently other arrangements had been made and his services were no longer required: on hearing this he had no alternative but to retrace his steps.

The party took the field on October 16th and moved towards the narrow strip of the

Season 1857-58.

PERSONNEL.

Lieutenant D. J. Nasmyth, Bombay Engineers,

1st Assistant.

Mr. J. DaCosta, Sub-Assistant.

" T. Sanger, "

" J. McGill, "

" C. McGill, "

Ran near the stations of Lakhpat and Pinjor Pir. As the northern section of the Cutch Coast Series had presented in its approximate work so many difficulties, the whole *personnel* were to be concentrated on it, until all the stations had been selected, towers built and rays cleared. Mr. DaCosta took upon himself the task of building the towers at the Ran stations, and deputed Mr. Sanger to clear the rays. Mr. McGill was detached to the vicinity of Mugalbhin where he found the country flooded, one of his rays in fact, the clearance of which required much tree-cutting, running entirely over water: as was to be expected his detachment suffered considerably from fever. Nasmyth joined the party at the end of November and resumed the observations of the final angles on December 10th. He decided to work from north to south and so visited the stations of the Karáchi Longitudinal Series, Káráthol and Sáhiji, first. The upper mark-stone at Káráthol was found destroyed, and a new one had to be placed by cutting into the centre of the pillar and plumbing from the lowest mark: its correctness was however even then open to doubt, and the stations of Kára and Ghatána had to be revisited and the position of Káráthol re-determined from them. By the end of January the first pentagon round Dománi had been completed, and by March 10th the final work had been brought down as far as the side Patla-ka-berí-Mod. Early in April the northern section of the series closed on the side Lakhpat-Pinjor Pir, where the operations of the previous year had been brought to an end: the stations of Jim and Mugalbhin had to be then revisited and an angle at each re-observed. The principal work of the Cutch Coast Series was completed on May 7th, 1858, when the party returned to their recess quarters at Bhúj.

On the Sind section of the Series it was found impossible to take the vertical angles in the usual way: many of the signals were not visible at the time of minimum refraction, and on approaching the Ran there were only a few that were so, and these were unsatisfactory and unsteady. Under these circumstances the method was resorted to of placing an observer at each extremity of a ray to observe the vertical angles simultaneously at any time of the day or night that the signals might happen to be visible and steady. Nasmyth always observed at one extremity of every ray himself while either DaCosta or McGill—who were each equipped with a 12-inch theodolite—was at the other. By placing two assistants on this work Nasmyth was enabled to observe the vertical angles on two rays himself every day. The effects of refraction were very uncertain and could not be relied on: on the ray Patha-ki-beri-Sugandia the signals one day were not seen till 9 P.M., while another day they were visible at 7 o'clock in the morning.

In April, 1858, Mr. Thomas Sanger, who for some years had suffered from ill health, resigned his appointment and retired to the Deccan on a pension: he had entered the Bombay Survey Department in 1825 and had been employed from 1828 to 1834 on the Trigonometrical Survey of the Bombay Presidency, which was being carried out by Lieutenant R. Shortrede under the orders of Captain Jopp. On the amalgamation of this Survey in 1834 with the Great Trigonometrical Survey of India, he had been transferred to the latter and had worked for the last twenty-four years of his service under Lieutenants Jacob, Rivers and Nasmyth.

All the angles of the Cutch Coast Series were observed with Troughton and Simms' 18-inch Theodolite No. 2*, and were taken on six pairs of zeros. The method adopted of changing zeros was one that had been introduced by Lieutenant Rivers and first employed on the Abu Meridional Series. By it each change of zero was made to fulfil the following conditions:—(1) Each zero was 10° in excess of the preceding one. (2) At each zero a different 10' graduation in the degree was employed. (3) Each micrometer zero was a different number of minutes from the division to be intersected, being in three cases to the right of that division and in three to the left. The method is fully described in the Introduction to the Guzerat Longitudinal Series.

The accuracy of the triangulation of the Cutch Coast Series may be tested as follows:—The Kattywar Meridional Series originates from a finally fixed side, Bhilgaon-Akoria, of the Karáchi Longitudinal Series, and runs south to the parallel of $23\frac{1}{2}^{\circ}$: at this point the Cutch Coast Series branches off from it to the west, moves round the Coast line and closes on another finally fixed side Károthol-Sáhiji of the Karáchi Longitudinal Series. The latitude and longitude of Károthol and the length and azimuth of the side Károthol-Sáhiji could thus be computed from Bhilgaon-Akoria through these 350 miles of triangulation, and a comparison of the computed and correct values afford a test of the accuracy of the work.

For a full description of this instrument and its performances see Appendix No. 2 of Volume II of the *Account of the Operations of the Great Trigonometrical Survey of India*.

The closing errors that exist may be exhibited as follows:—

VALUES.	Károthol.		Károthol-Sáhiji.	
	Latitude.	Longitude.	Azimuth.	Side in feet.
Calculated from the side Bhilgaon-Akoria of the Karáchi Longitudinal Series, <i>via</i> the Kattywar Meridional and Cutch Coast Series.	24° 53' 46"·752	67° 55' 59"·395	80° 16' 11"·140	98418·2
Accepted as correct from the Simultaneous Reduction of the North-West Quadrilateral.	24° 53' 46"·692	67° 55' 59"·651	80° 16' 15"·052	98412·3
Closing errors ...	+ 0"·060	- 0"·256	- 3"·912	+ 5·9

On the completion of the simultaneous reduction of the South-West Quadrilateral it was found that the portions of the corrections which had actually fallen to the Cutch Coast Series were as follows:—

In Latitude of Károthol (civ)	- 0"·014
„ Longitude of „	+ 0·285
„ Azimuth of Károthol (civ)—Sáhiji (cvii) ...	+ 1·222
In Side {	Logarithm of feet - 0·000,0313,4
	giving a ratio of about 4·58 inches per mile.

Astronomical observations for azimuth have been taken at but one station of the Cutch Coast Series, *viz.*, Háthria.

The heights of the principal stations of this Series at the present time depend in the first instance on the values of the stations of Gángta, Chitror and Wándia of the Kattywar Meridional Series; next on those of the stations Bhacháo, Saktur and Charakra, of which the values were determined by spirit-levelling operations in season 1874-75; and thirdly on those of the stations of Károthol and Sáhiji of the Karáchi Longitudinal Series, which were finally fixed in the reduction of the North-West Quadrilateral: but as the trigonometrical differences of height westward of the meridian of 70° are in several parts of the Series very unsatisfactory, owing to the abnormal refraction along the coast, it is intended, if possible, to defer their final adjustment pending the execution of a contemplated line of levels from the station of Charakra along the Series to Tatta.

Secondary Triangulation.

A network of secondary triangulation has been thrown over the whole country of Cutch between the principal series and the sea-coast, the area covered being 100 miles long and 20 broad. The triangulation though in the end it practically became a network, was not originally intended to be so. It consisted of two contiguous minor series, one following the coast exactly and the other running between it and the principal chain: as the southern stations of the latter were always used as stations of the intermediary series, and the stations of the two minor series along their contiguous flank were almost in every case identical; the series are no longer to be distinguished but are lost in a network.

In September, 1856, Nasmyth starting from the principal side Charakra-Karárho and working westward laid out some six or seven small triangles along the coast line, but was unable to continue further as he had so much principal work then on hand. In March and April, 1858, Mr. Sanger widened the principal series by carrying the approximate work of a minor series along the southern flank of the former: he commenced at Katror and ended at Jamanwála, having succeeded also in breaking up the southern triangles of the principal heptagon round Háthria.

In January, 1859, owing to the disturbed state of the country and to a rising amongst the Bhils, the Bombay Party were compelled to withdraw from Gujarát where they were working on the principal Longitudinal Series; they retired to Cutch, where Lieutenant Nasmyth on February 5th commenced observing the angles of the minor series that had been chosen by Mr. Sanger on the southern flank of the principal chain. Mr. J. McGill at the same time was directed to select the stations of another minor series, the southern flank of which was to run along the sea-shore, the northern coinciding with the southern flank of Mr. Sanger's.

By March 21st Nasmyth had observed almost all the angles of the upper minor series from Katror to Naliya, taking them with the 18-inch theodolite on two pairs of zeros: the eight stations that remained to the westwards, on the coast, were difficult of access and the observations from them were taken by Mr. McGill with a 12-inch theodolite. As the stations of the lower secondary series lately chosen along the coast by Mr. McGill were not ready, the party crossed over to Káthiáwár to take up some minor triangulation there.

The field season of 1859-60 opened late, owing to the absence of Captain Nasmyth and of Lieutenant C. T. Haig, who had joined the party in October, 1859, on active service with the Okhámandal Field Force. The first work taken up on their return was the final observation of the angles of the minor series on the coast: these were begun on December 5th, 1859, and finished on January 12th, 1860, an astronomical azimuth of verification having been also observed on three pairs of zeros in the meantime at the secondary station of Mándvi.

In addition to the network of minor triangulation that was thrown over the whole

province of Cutch, a great deal of additional secondary work was executed. All the large principal triangles were broken up into smaller ones, and numerous temples, trees and peaks were intersected from two or more stations in every part of the country. The positions of the important cities of Bhúj and Mándvi were determined, as also of the towns of Fatia-gad, Rahpur, Bhamaka, Túna, Kera and Tera. Sufficient points were fixed to enable the line of the coast and the borders of the Ran to be accurately delineated, and there exists no spot in Cutch that is not within two miles of some point whose geodetic elements are known.

Beyond the Ran of Cutch on the north-western portion of the principal series barely any secondary work was executed. The country was a sandy desert, and being situated in the delta of the Indus was frequently under water: the difficulties of carrying the principal series were great, and enormous additional expense would have been entailed, if the party had delayed their progress with secondary work.

Four principal figures exist north of the Ran: in two of them, the Guni and Randa pentagons, no secondary station was established and no natural object or building intersected at all. In the Koti-Jim double hexagon four domes over the tombs of Muhammadan saints were intersected from two or more principal stations, and in the Dománi pentagon the highest dome of the city of Tatta and three minarets of the large town of Pir Patho were laid down.

September, 1889.

S. C. BURRARD.

CUTCH COAST SERIES.

PRINCIPAL TRIANGULATION. ALPHABETICAL LIST OF STATIONS.



The orthography of the names in columns 1 and 4 is based, as far as practicable, on the pamphlet of names entitled *Bombay Places and Common Official Words* (1879). As some of the names have thus been considerably altered, it has been thought advisable for easy reference and identification to give in columns 2 and 5 the spellings employed in the original angle books. The orthography in columns 1 and 4 is hereafter only employed in this volume.

ORTHOGRAPHY		Number	ORTHOGRAPHY		Number
Adopted	From Original Angle Books		Adopted	From Original Angle Books	
Abansháh	Abansháh	XXXVIII	Jamanvála	Jamanwála	XXIII
Bábia	Bábia	XXII	Jhim	Jim	XXXII
Bhacháu	Bhacháo	I	Jhuran	Joran	IX
Bíbi Mariam	Bíbi Mariam	XLII	Kákarva	Kakarwa	III
Boládi	Bolári	XI	Károthol	Károthol	CIV†
Charakda	Charakra	VIII	Khar	Khar	XLI
Chitrod	Chitror	XI*	Khári Rohar	Karárho	VII
Dhinodhar	Dinoda	XV	Khátrod	Katror	X
Dhui	Dhui	XXXIV	Koti	Koti	XXXV
Dománi	Dománi	XLIV	Lakhpat	Lakhpat	XXV
Gada	Gada	XXXIX	Manjal	Manjal	XVIII
Gángta	Gángta	VII*	Mod	Mod	XXXI
Guni	Guni	XXVIII	Moghul Bhin	Mugalbhin	XXXVII
Hakra	Hakra	XXIX	Naliya	Naliya	XVII
Háthria	Háthria	XVI	Nara	Nara	II

* Of the Káthiawár Meridional Series. † Of the Karáchi Longitudinal Series.

PRINCIPAL TRIANGULATION. ALPHABETICAL LIST OF STATIONS—(Continued).

ORTHOGRAPHY		Number	ORTHOGRAPHY		Number
Adopted	From Original Anglo Books		Adopted	From Original Anglo Books	
Nindamani	Nindámani	XXXVI	Saiyid Ali	Said Ali	XXVII
Nurlisháh	Nurlisháh	XXXIII	Sámatra	Sámethra	XII
Patta-ka-Bedhi	Patha-ki-beri	XXX	Sugandia	Sugandia	XXVI
Pinjor Pir	Pinjor Pir	XXIV	Sukhpur	Sakpur	VI
Rahiáda	Ráhida	IV	Sukhpur	Sukpur	XLV
Ran	Ran	V	Sura Gandhára	Sura Gandára	XXI
Randah	Randa	XL	Suri Muri	Suri Muri	XX
Roha	Roha	XIV	Vándhia	Wándia	XIV†
Sahiji	Sáhiji	CVII*	Várár	Wára	XIII
Sáhind	Saind	XIX	Vikia	Vikia	XLIII

* Of the Karúchi Longitudinal Series.

† Of the Káthiáwár Meridional Series.

CUTCH COAST SERIES.

PRINCIPAL TRIANGULATION. NUMERICAL LIST OF STATIONS.



VII (Of the Káthiáwár Meridional Series).	Gángta.	XIII	Várár.
XI (Of the Káthiáwár Meridional Series).	Chitrod.	XIV	Roha.
XIV (Of the Káthiáwár Meridional Series).	Vándhia.	XV	Dhinodhar.
I	Bhacháu.	XVI	Háthria.
II	Nara.	XVII	Naliya.
III	Kákarva.	XVIII	Manjal.
IV	Rahiáda.	XIX	Sáhind.
V	Ran.	XX	Suri Muri.
VI	Sukhpur.	XXI	Sura Gandhára.
VII	Khári Rohar.	XXII	Bábia.
VIII	Charakda.	XXIII	Jamanvála.
IX	Jhuran.	XXIV	Pinjor Pir.
X	Khátrod.	XXV	Lakhpat.
XI	Boládi.	XXVI	Sugandia.
XII	Sámatra.	XXVII	Saiyid Ali.

CUTCH COAST SERIES.

PRINCIPAL TRIANGULATION. NUMERICAL LIST OF STATIONS—(Continued).

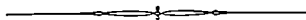


XXVIII	Guni.	XXXVIII	Abansháh.
XXIX	Hakra.	XXXIX	Gada.
XXX	Patta-ka-Bedhi.	XL	Randah.
XXXI	Mod.	XLI	Khar.
XXXII	Jhim.	XLII	Bíbi Mariam.
XXXIII	Nurlisháh.	XLIII	Vikia.
XXXIV	Dhui.	XLIV	Dománi.
XXXV	Koti.	XLV	Sukhpur.
XXXVI	Nindamani.	CIV	Károthol.
		(Of the Karáchi Longitudinal Series).	
XXXVII	Moghul Bhin.	CVII	Sahiji.
		(Of the Karáchi Longitudinal Series).	



CUTCH COAST SERIES.

DESCRIPTION OF PRINCIPAL STATIONS.



The stations of this Series numbered I to XXV, XXXVIII, XLII, XLIV, XLV as well as stations VII, XI and XIV of the Káthiáwár (Káthiávád) Meridional Series and CIV and CVII of the Karáchi (Kurrachee) Longitudinal Series, are situated on hills or rising ground, and consist of circular, isolated pillars of masonry, either solid or perforated, 3 to 13 feet high, having a mark engraved on the rock *in situ* or on a stone embedded at about the ground level. The solid pillars have a mark at the summit and sometimes one or more other marks engraved on stones inserted in them in the normal of the lower mark. Round these pillars and level with their summits, platforms of earth and rubble, earth and wood, or other materials, have been constructed for the observatory tent to rest on. At those stations where the pillars are perforated, access to the ground level mark is obtained through an aperture left for the purpose. At all the remaining stations situated in the plains, it was found necessary on account of the curvature of the earth to construct towers. These range from 20 to 27 feet in height, and are built in a similar manner to those already described which have perforated pillars.

The following descriptions have been compiled from those given by the officers who executed the series, from the records in the Levelling Operations in 1874-75 and 1889-90, supplemented as regards adjacent villages and places from the Topographical Survey maps (where available) of the country traversed, and corrected, so far as the local sub-divisions in which the several stations are situated, from the latest annual reports furnished by the district officers to whose charge the stations are committed.

VII.—(*Of the Káthiáwár Meridional Series*). Gángta Hill Station, lat. $23^{\circ} 44'$, long. $70^{\circ} 32'$ —observed at in 1856—is situated on the highest part of a hill in the Ran of Cutch (Kachh). The ruins of a tower and walls are to be seen here, the place having once been the stronghold of freebooters. The road from Rav to Gadhada across the Ran passes by the south-western foot of the hill about $7\frac{3}{4}$ miles N.W. of the village of Rav, and the same distance N. by W. of that of Jesada. It is in the lands of the village of Rav, pargana Vágad, Cutch State.

The station consists of a platform, enclosing a solid, circular and isolated pillar of masonry about 5 feet in height.

XI.—(*Of the Káthiáwár Meridional Series*). Chitrod Hill Station, lat. $23^{\circ} 24'$, long. $70^{\circ} 44'$ —observed at in 1854 and 1856—is situated on the highest point of the hill called Dbia, about $1\frac{1}{4}$ miles S.S.E. of the large village of Chitrod on the road from Lákadiya to Gágodar, and $7\frac{1}{4}$ miles E.N.E. of the former place. It is in the lands of the village of Chitrod, pargana Vágad, Cutch State.

The station consists of a platform enclosing a circular, isolated pillar of masonry, but as it was not sufficiently large for the stand of the instrument, it had to be enlarged, in effecting which the height of the pillar was increased a little. This addition of about 6 to 7 inches was made after the 30th March 1854. It was visited in 1856, but no statement of any alteration in the construction of the station is forthcoming. The directions and distances of the circumjacent villages are:—Mevása E.N.E., miles $2\frac{3}{4}$; Khánpur S.S.E., mile 1; Kumbhária S.E. by S., miles 4; Khodásar S.S.W., miles $3\frac{1}{2}$; and Shivilakha W., miles 5.

XIV.—(*Of the Káthiáwár Meridional Series*). Vándhia Station, lat. $23^{\circ} 15'$, long. $70^{\circ} 39'$ —observed at in 1856—is situated in the centre of the middle tower or bastion at the re-entering angle on the western face of the town wall, about 5 miles N.N.E. of the dák station on the postal route from Jaughi to Vaványa in Káthiáwár. It is in the lands of the village of Vándhia, pargana Vágad, Cutch State.

The station consists of a mud platform built on the centre of the solid bastion, enclosing a circular, isolated pillar of masonry about 5 feet in height, having a mark-stone in its upper surface. When visited by the Levelling Party in 1874-75, the station was found in good preservation. The directions and distances of the circumjacent villages are:—Jaughi S.W. by W., miles $3\frac{1}{2}$; Laliána W.N.W., miles $4\frac{1}{2}$; Katária N. by E., miles $3\frac{1}{2}$; Nárausari N.E. by E., miles $3\frac{1}{2}$; and Shikárpur E.N.E., miles $3\frac{1}{2}$.

I. Bhacháu Hill Station, lat. $23^{\circ} 18'$, long. $70^{\circ} 23'$ —observed at in 1857—is situated at the centre of the highest, round bastion or tower at the northern corner of a fort on the summit of the hill at the western foot of which lies the large village after which the station has been named. It is in the lands of the village of Bhacháu, pargana Vágad, Cutch State.

The station consists of a mud platform, enclosing a solid, circular and isolated pillar of masonry about 5 feet in height, which has a mark-stone in its upper surface. When visited by the Levelling Party in 1874-75, the station was found in good preservation. The directions and distances of the circumjacent villages are:—Sikra N.W., miles 4; Kunjhisar N., miles 5; Karmaria N.E. by N., miles $3\frac{1}{2}$; Vondh E., miles $3\frac{1}{2}$; and Chopadáu W.S.W., miles 4.

II. Nara Hill Station, lat. $23^{\circ} 26'$, long. $70^{\circ} 36'$ —observed at in 1856—is situated on one of the hills, about 4 miles N.E. by N. of the town of Adhoi, and $1\frac{1}{2}$ miles E.N.E. of the small village after which the station has been named. It is in the lands of the village of Nara, pargana Vágad, Cutch State.

The station consists of a platform of rubble enclosing a circular, isolated pillar of masonry 5 feet in height. The directions and distances of the circumjacent villages are:—Sarasia N.W. by N., miles $2\frac{1}{2}$; Bádargad E.N.E., miles $4\frac{1}{2}$; Vashtava S.E., miles $2\frac{1}{2}$; and Gamdáu S.W. by W., miles 3.

III. Kákarva Hill Station, lat. $23^{\circ} 30'$, long. $70^{\circ} 26'$ —observed at in 1857—is situated on a hill, about $3\frac{3}{4}$ miles E.S.E. of the large village of Chobári on the right bank of the Chang river flowing into the Ran, and $4\frac{1}{2}$ miles S. by W. of that of Bharodia. It is in the lands of the village of Lakhávát, pargana Vágad, Cutch State.

The station consists of a platform of rubble, enclosing a circular, isolated pillar of masonry about 5 feet in height. The directions and distances of the circumjacent villages are:—Kákarva S. by E., mile 1; Manfara W. by S., miles $3\frac{1}{2}$; Devpur or Kharoi Taláv S.W., miles 4; Mái S.S.W., miles $4\frac{1}{2}$; and Lápúr S.E. by S., miles 3.

IV. Rahiáda Station, lat. $23^{\circ} 28'$, long. $70^{\circ} 12'$ —observed at in 1857—is on the S.E. bank of a tank so called which is in the Bani, the name of a tract of pasture land on the borders of and extending into the Ran. The station is on the road from Pacliham to Kadol, and about $\frac{1}{2}$ a mile N.N.E. of the small village of Rahiáda: pargana Banni, Cutch State.

The station consists of a platform of wood and clay enclosing a circular, isolated pillar of masonry. The directions and distances of the circumjacent villages are:—Kadol E., miles $8\frac{1}{2}$; and Baniári S. by E., miles $5\frac{1}{2}$.

V. Ran Station, lat. $23^{\circ} 37'$, long. $70^{\circ} 19'$ —observed at in 1857—is situated in that part of the Ran or salt desert which at the time that the station was built was encrusted with salt all round as far as the eye could reach. It is about 8 miles N.W. by N. of the large village of Chobári, and 10 miles W.N.W. of that of Bharodia. The nearest bit of land is the small island of Rájábíd opposite the mouth of the Chang river, and lies to S.S.E. of the station at a distance of $3\frac{3}{4}$ miles. It is in the lands of the village of Chobári, pargana Vágad, Cutch State.

The station consists of a platform of wood and clay enclosing a circular, isolated pillar of masonry 4.75 feet in height above the general surface of the Ran.

VI. Sukhpur, locally called Lathara, Hill Station, lat. $23^{\circ} 17'$, long. $70^{\circ} 12'$ —observed at in 1857—is situated on a hill, about $1\frac{3}{4}$ miles W. of the village of Sukhpur, and $3\frac{3}{4}$ miles S.E. of the large village of Dudhai. It is in the lands of the village of Sukhpur, pargana Vágad, Cutch State.

The station consists of a platform of rubble, enclosing a circular, isolated pillar of masonry 5 feet in height. When visited by the Levelling Party in 1874-75, the station was found in good preservation. The directions and distances of the circumjacent villages are:—Kotada W., miles $5\frac{1}{2}$; Bhújpur N., miles $2\frac{1}{2}$; Dhamadka N., miles $3\frac{1}{2}$; Lunva E. by S., miles $4\frac{1}{2}$; Pasuda S.E. by S., miles $3\frac{1}{2}$; and Tapar S.W. by S., miles 3.

VII. Khári Rohar Station, lat. $23^{\circ} 5'$, long. $70^{\circ} 13'$ —observed at in 1857—is situated on a round tower at the N.E. corner of the village of this name on the road from the ferry at Jáfarvali Bandar to the town of Anjár, about 10 miles by the road E. by S. of the latter place. It is in the lands of the village of Khári Rohar, pargana Anjár, Cutch State.

The station consists of a platform, enclosing an isolated pillar of masonry about 13 feet in height. The directions and distances of the circumjacent villages are:—Galpádar W.N.W., miles $3\frac{1}{2}$; Miti Rohar N., miles 2; Antarjál W. by S., miles $5\frac{1}{2}$; and Kidána S.W. by W., miles 5.

VIII. Charakda Hill Station, lat. $23^{\circ} 9'$, long. $70^{\circ} 2'$ —observed at in 1857—is situated on a hill locally so called, about $1\frac{1}{2}$ miles E. by S. of the village of Sámpana on the road from Padar to the town of Anjár, and $3\frac{1}{2}$ miles N.W. of the latter place. It is in the lands of the town of Anjár, pargana Anjár, Cutch State.

The station consists of a platform of rubble, enclosing a circular, isolated pillar of masonry about 5 feet in height having a mark-stone in its upper surface hollowed out to a depth of nearly 2 inches. When visited by the Levelling Party in 1874-75, the station was found in good preservation. The directions and distances of the circumjacent villages are:—Nágapur Mota S., miles 3; Modsar N.N.W., miles $3\frac{1}{2}$; Jhalu N. by E., miles $2\frac{1}{2}$; and Satápur E. by N., miles $3\frac{1}{2}$.

IX. Jhuran, locally called Roha, Hill Station, lat. $23^{\circ} 22'$, long. $70^{\circ} 1'$ —observed at in 1857—is situated on a point of the Kás Hills close to the southern border of the Great Ran, running E. and W., about 6 miles E.S.E. of the large village of Lodai on the left bank of the Kásváli river flowing into the Great Ran. It is in the lands of the village of Jhuran, pargana Míáni, Cutch State.

The station consists of a platform of rubble, enclosing a circular, isolated pillar of masonry about 5 feet in height, with mark-stones at top and bottom. The directions and distances of the circumjacent villages are:—Modsar S.E. by S., miles 2; Dagála S. by W., miles $4\frac{1}{2}$; Jhuran E.N.E., miles $1\frac{1}{2}$; Nárapa S.W. by W., miles $5\frac{1}{2}$; and Vántra W.N.W., miles $2\frac{1}{2}$.

X. Khátrod Hill Station, lat. $23^{\circ} 11'$, long. $69^{\circ} 51'$ —observed at in 1855 and 1857—is situated on the highest part of a hill of this name, about 100 yards W. of a pile of stones which bears the name of Asapura Mátá, $9\frac{1}{2}$ miles S.E. by E. of the town of Bhúj, and $4\frac{1}{2}$ miles S.S.W. of the large village of Padar. It is in the lands of the village of Vauri, pargana Banni, Cutch State.

The station consists of a platform, enclosing a circular, isolated pillar of masonry 5 feet in height. In the records of 1857, there is no mention of any alteration made in the construction of the station. The directions and distances of the circumjacent villages are:—Vauri E. by S., miles $1\frac{1}{2}$; Vadva S.W., miles $1\frac{1}{2}$; Kukma N.W. by N., miles 3; Harudi S.W. by S., miles 3; and Reladi Mota N.N.E., miles $2\frac{1}{2}$.

XI. Boládi Hill Station, lat. $23^{\circ} 22'$, long. $69^{\circ} 51'$ —observed at in 1855 and 1857—is situated on one of the high knolls of the group known as the Haba Hills. The station is named after the small village of Boládi, and is about a mile W. of an old hill fort. It is in the lands of the village of Boládi, pargana Bhúj, Cutch State.

The station consists of a platform, enclosing a circular, isolated pillar of masonry about 5 feet in height, with mark-stones at top and bottom. When visited in 1857 "the upper mark-stone had been removed, and in placing a new one due attention was not paid to its being plumbed over the lower mark at the level of the ground; the top of the pillar was therefore scored with four cuts, the intersection of which will determine the position of the present mark should it ever be effaced." The directions and distances of the circumjacent villages are:—Boládi S.E., miles $1\frac{1}{2}$; Jhikádi S. by W., miles 2; Dhrang N.E., miles $2\frac{1}{2}$; Fulái N., miles $1\frac{1}{2}$; and Kotái N.W., miles $2\frac{1}{2}$.

XII. Sámatra Hill Station, lat. $23^{\circ} 10'$, long. $69^{\circ} 33'$ —observed at in 1855—is situated on a range of hills, about $2\frac{1}{2}$ miles S.S.E. of the village of this name, and $4\frac{2}{3}$ miles S.W. of the large village of Mánkua. It is in the lands of the village of Sámatra, pargana Bhúj, Cutch State.

The station consists of a platform of rubble, enclosing a circular, isolated pillar of masonry 5 feet in height. The directions and distances of the circumjacent villages are:—Nangiádi N. by W., miles $2\frac{1}{2}$; Bhárásar N.E. by E., miles $3\frac{1}{2}$; Godpur S.E. by S., miles $3\frac{1}{2}$; and Potadi N.N.W., miles 4.

XIII. Várár Hill Station, lat. $23^{\circ} 21'$, long. $69^{\circ} 36'$ —observed at in 1855—is situated on the highest part at the southern extremity of a high bluff hill, close to a fakír's tomb surmounted by a lofty flag-staff, and about 9 miles N.W. of the town of Bhúj. It is in the lands of the village of Tánkanásar, pargana Bhúj, Cutch State.

The station consists of a platform, enclosing a circular, isolated and perforated pillar of masonry about 5 feet in height with an aperture on the S. side giving access to the lower mark. The directions and distances of the circumjacent villages are:—Sumrásar S.W., miles $1\frac{1}{2}$; Kamághuna N., miles 2; Bhakhri E.N.E., miles $3\frac{1}{2}$; Makanpur E. by S., miles $4\frac{1}{2}$; and Baukha Mota S.E., miles 3.

XIV. Roha Hill Station, lat. $23^{\circ} 12'$, long. $69^{\circ} 19'$ —observed at in 1855—is situated at the eastern side of the hill fort of this name, and within a few yards of the easternmost bastion. The large village of Roha lies at the foot of the hill about $\frac{1}{2}$ a mile to S.S.W., and that of Magvána 6 miles to E. by N. It is in the lands of the village of Roha, pargana Abdása, Cutch State.

The station consists of a platform, enclosing a circular, isolated pillar of masonry about 4 feet in height. "The upper mark-stone is supposed to be plumbed over the lower one, but five scores have been made on the top of the pillar, the inter-section of which will determine the position of the present station-mark should it ever be effaced." The directions and distances of the circumjacent villages are:—Sanosda W. by N., miles $2\frac{1}{2}$; Gaugon N. by W., miles $2\frac{1}{2}$; Danána S. by E., miles $3\frac{1}{2}$; and Kotáda S.W. by S., miles $4\frac{1}{2}$.

XV. Dhinodhar Hill Station, lat. $23^{\circ} 27'$, long. $69^{\circ} 23'$ —observed at in 1855 and 1857—is situated on the western part of the high hill of this name having the Thán temples at its eastern foot. The station is about $6\frac{1}{4}$ miles N.E. of the large village of Viráni. It is in the lands of the village of Dhinodhar, pargana Abdása, Cutch State.

The station consists of a platform of rubble, enclosing a circular, isolated pillar of masonry 5 feet in height. In the records of 1857, there is no mention of any alteration made in the construction of the station. The directions and distances of the circumjacent villages are:—Dádor N.E. by N., miles $3\frac{1}{2}$; Bhimsar E.S.E., miles 3; Devpur S. by W., miles $3\frac{1}{2}$; Aral Nana S.W. by W., miles $3\frac{1}{2}$; and Aral Mota W. by S., miles $3\frac{1}{2}$.

XVI. Háthria Hill Station, lat. $23^{\circ} 27'$, long. $69^{\circ} 5'$ —observed at in 1855 and 1857—is situated on the highest part of a range of hills running N.N.W. and S.S.E., about $5\frac{1}{2}$ miles N.W. by W. of the large village of Khambhadi Mota, and $4\frac{1}{2}$ miles N.N.E. from that of Bándia. It is in the lands of the village of Netra, pargana Abdása, Cutch State.

The station consists of a platform of rubble, enclosing a circular, isolated and perforated pillar of masonry 5 feet in height, with an aperture giving access to the lower mark. In the records of 1857, there is no mention of any alteration made in the construction of the station. When visited by the Levelling Party in 1889-90, the station was found in good preservation. The upper mark is protected by a rectangular pillar. The directions and distances of the circumjacent villages are:—Khirasra E. by miles $1\frac{1}{2}$; N., Sarva E.S.E., miles $1\frac{1}{2}$; Rámpur S.E. by E., miles $1\frac{1}{2}$; Netra S. by E., miles 3; and Lakshnipur W., miles $1\frac{1}{2}$.

XVII. Naliya Station, lat. $23^{\circ} 14'$, long. $68^{\circ} 52'$ —observed at in 1855 and 1857—is situated on rising ground, about $2\frac{1}{2}$ miles S. by W. of the town of this name, and $6\frac{1}{4}$ miles E. of the town of Jakháu. It is in the lands of the town of Naliya, pargana Abdása, Cutch State.

The station consists of the usual platform of rubble, enclosing a circular, isolated pillar of masonry about 5 feet in height. In the records of 1857, there is no mention of any alteration made in the construction of the station. The directions and distances of the circumjacent villages are:—Jasápur W., miles $1\frac{1}{2}$; Vingábe W.S.W., miles 2; Parjáu S. by E., miles $4\frac{1}{2}$; and Bhánáedo S.E. by E., miles $5\frac{1}{2}$.

XVIII. Manjal, locally called Shershá, Hill Station, lat. $23^{\circ} 38'$, long. $69^{\circ} 11'$ —observed at in 1857—is situated on the highest part of a hill from which it takes its name, and about $1\frac{2}{3}$ miles S.E. by S. of the village of Nára on the left bank of the Nára river. It is in the lands of the village of Táro, pargana Abdása, Cutch State.

The station consists of a platform, enclosing a circular, isolated pillar of masonry about 5 feet in height. The directions and distances of the following villages are:—Gajansar S.S.W., miles $2\frac{1}{2}$; and Ludbe S.E. by E., miles $3\frac{1}{2}$.

XIX. Sáhind Hill Station, lat. $23^{\circ} 25'$, long. $68^{\circ} 49'$ —observed at in 1857—is situated towards the eastern edge of a hill so called, about $\frac{1}{2}$ a mile W. of the road between the villages of Laiyari and Válasara, and 4 miles S.W. by W. of Gohela village. It is in the lands of the village of Aida, pargana Jakháu, Cutch State.

The station consists of a platform of loose rubble, enclosing a circular, isolated and perforated pillar of masonry 4 feet in height: an aperture on the S. side gives access to the lower mark. The directions and distances of the circumjacent villages are:—Válasara N.N.E., mile 1; Aida E., miles $2\frac{1}{2}$; Laiyari S.E. by S., miles $1\frac{1}{2}$; Sukhpur S.S.W., miles $2\frac{1}{2}$; Chadopadi Mota S.W. by W., miles 5; Uker W. by S., miles $3\frac{1}{2}$; and Bhua N.W., miles $2\frac{1}{2}$.

XX. Suri Muri, locally known as Sura Bhit, Hill Station, lat. $23^{\circ} 33'$, long. $68^{\circ} 47'$ —observed at in 1857—is situated on a hill about $1\frac{1}{4}$ miles S.E. by E. of the village of Chakrai, and $4\frac{1}{2}$ miles E. of the large village of Baranda. It is in the lands of the village of Chakrai, pargana Gardo, Cutch State.

The station consists of a platform of earth and stone, enclosing a perforated pillar of masonry 12 feet in height of which the upper 5 feet is circular and isolated: an aperture 3 feet by 2 feet on the S. side, gives access to the lower mark. The directions and distances of the following villages are:—Khadak E.N.E., miles $2\frac{1}{2}$; Midiáli N. by E., miles 6; and Saran S.E., miles 3.

XXI. Sura Gandhára Hill Station, lat. $23^{\circ} 40'$, long. $68^{\circ} 59'$ —observed at in 1857—is situated on the highest of the Gandhára hills, about $2\frac{1}{2}$ miles S.W. of the village of Khatiu, 2 miles S.S.W. of Lakhápur, $3\frac{1}{2}$ miles N.E. by E. of Kora, and the same distance S.E. by E. of Ghaduli. It is in the lands of the village of Valsara, pargana Gardo, Cutch State.

The station consists of a platform of rubble, enclosing a circular, isolated pillar of masonry about 5 feet in height. The directions and distances of the circumjacent villages are:—Dayápur S.W., miles $3\frac{1}{2}$; and Amiu E. by S., miles $3\frac{1}{2}$.

XXII. Bábia Hill Station, lat. $23^{\circ} 42'$, long. $68^{\circ} 49'$ —observed at in 1857—is situated on a low rocky hill, about a mile N. of the hamlet of Bábia, $1\frac{3}{4}$ miles N.E. of Pánadra village, and 4 miles S.W. of Umarsar. It is in the lands of the village of Bábia, pargana Gardo, Cutch State.

The station consists of a platform of rubble, enclosing a pillar of masonry about 10 feet in height of which the upper 5 feet is circular and isolated. The directions and distances of the circumjacent villages are:—Fulra E.N.E., mile 1; Khánót S.E. by S., miles $2\frac{1}{2}$; and Sálár Pir N.N.W., miles $2\frac{1}{2}$.

XXIII. Jamanvála Station, lat. $23^{\circ} 35'$, long. $68^{\circ} 39'$ —observed at in 1857—stands at a distance of about $\frac{2}{3}$ of a mile N.E. of the village of Lakhmi Ráni, and 5 miles W.N.W. of the large village of Badanda. It is in the lands of the village of Lakhmi Ráni, pargana Gardo, Cutch State.

The station consists of a platform of loose rubble, enclosing a perforated pillar of masonry 12 feet in height of which the upper 5 feet is circular and isolated: an aperture 3 feet by 2 feet on the S. side gives access to the lower mark. The directions and distances of the following villages are:—Nareda E., miles 3; Ratipál S.W. by S., miles $4\frac{1}{2}$; and Modi S.W. by W., miles 4.

XXIV. Pinjor Pir Hill Station, lat. $23^{\circ} 43'$, long. $68^{\circ} 36'$ —observed at in 1857 and 1858—is situated on a sand hillock locally called Bharda Bhit on the bank of the Kori river, and $2\frac{1}{2}$ miles N.E. of Koteshtar a well known place of Hindu pilgrimage. It is in the lands of the village of Koteshtar, pargana Gardo, Cutch State.

The station consists of a platform of loose rubble, enclosing a perforated pillar of masonry 12 feet in height of which the upper portion is circular and isolated: an aperture on the S. side gives access to the lower mark. In the records of 1858, there is no mention of any alteration made in the construction of the station. The directions and distances of the following villages are:—Náráyan Sarovar S.S.W., miles $2\frac{1}{2}$; Dhunác S.E. by S., miles 2; and Kaiáli E.S.E., miles 5.

XXV. Lakhpat Station, lat. $23^{\circ} 49'$, long. $68^{\circ} 50'$ —observed at in 1857 and 1858—is situated upon the south-eastern and highest tower of the town of Lakhpat on the left bank of the Kori mouth of the Indus river. It is in the lands of the town of Lakhpat, pargana Lakhpat, Cutch State.

The station consists of the usual platform of rubble, enclosing a solid, circular and isolated pillar of masonry 5 feet in height. In the records of 1858, there is no mention of any alteration made in the construction of the station. When visited by the Levelling Party in 1889-90, the station was found in good order. The directions and distances of the following villages are:—Káncr W., miles $1\frac{1}{2}$; Dhedhadi S.W. by S., miles 5; and Karanpur (on the road from Lakhpat to Sahera) S.E. by E., miles $3\frac{1}{2}$.

XXVI. Sugandia Tower Station, lat. $23^{\circ} 52'$, long. $68^{\circ} 32'$ —observed at in 1858—is situated about 8 miles W. of Kot Basti Bandar on the Kori creek, and 11 miles N.E. by E. of Bulji Chauki on the main road between Sind and Cutch. It is in táluca Játí, sub-division Sháhbandar, district Karáchi.

The station consists of a tower of sun-dried bricks, enclosing a perforated pillar of masonry 24 feet in height of which the upper 5 feet is circular and isolated: an arched aperture gives access to the lower mark. When visited by the Levelling Party in 1889-90, the tower of sun-dried bricks had crumbled away, forming a mound of earth encircling the pillar to the height of 10 feet; about $\frac{3}{4}$ of the circular portion of the pillar had been destroyed by *kallar*, but two or three courses forming the top still adhered together, enabling a connection to be made with the mark engraved on a brick embedded flush with the upper surface of the pillar.

XXVII. Saiyid Ali Tower Station, lat. $23^{\circ} 56'$, long. $68^{\circ} 43'$ —observed at in 1858—stands about $4\frac{1}{2}$ miles N.W. by W. of the Dharmshála (Rest-house) and beacon for travellers at Kotri on the road between Sind and Cutch, and $1\frac{3}{4}$ miles S.E. of Bulji Chauki. It is in the lands of the village of Kotri, táluca Játí, sub-division Sháhbandar, district Karáchi.

The station consists of a tower of sun-dried bricks, enclosing a perforated pillar of masonry 24 feet in height of which the upper 5 feet is circular and isolated: an arched aperture gives access to the lower mark. When visited by the Levelling Party in 1889-90, the tower of sun-dried bricks had crumbled away forming a mound of earth encircling the pillar to about half its height, the exposed portion of the masonry is being gradually eaten away by *kallar*, but the mark-stone in the upper surface of the pillar was found intact.

XXVIII. Guni Tower Station, lat. $24^{\circ} 2'$, long. $68^{\circ} 35'$ —observed at in 1858—stands in the Ran, about 2 miles E. by N. of the Dharmshála at Guni village, $1\frac{1}{2}$ miles W. of the road between Sind and Cutch, 7 miles S.S.E. of the Police post or Chauki and Dharmshála at Vehr, and 8 miles N.W. of Bulji Chauki. It is in táluka Játi, sub-division Sháhbandar, district Karáchi.

The station consists of a tower of sun-dried bricks, enclosing a perforated pillar of masonry about 24 feet in height of which the upper 5 feet is circular and isolated: an arched aperture on the S. side gives access to the lower mark. When visited by the Levelling Party in 1889-90, the tower of sun-dried bricks had crumbled away, forming a mound of earth encircling the pillar to about half its height, the exposed portion of masonry was slightly eaten away by *kallar*, but the mark-stone in the upper surface of the pillar was found intact.

XXIX. Hakra Tower Station, lat. $24^{\circ} 7'$, long. $68^{\circ} 44'$ —observed at in 1858—stands in the Ran, about 2 miles from the southernmost edge of the Hakriwáro Kur, 12 miles E. of the Dharmshála and Police Chauki at Vehr on the road between Sind and Cutch, and 11 miles N.N.E. of Bulji Chauki on the same road. It is in táluka Játi, sub-division Sháhbandar, district Karáchi.

The station consists of a tower of sun-dried bricks, enclosing a perforated pillar of masonry 24 feet in height of which the upper 5 feet is circular and isolated: an arched aperture gives access to the lower mark.

XXX. Patta-ka-Bedhi, locally known as Sírkap, Tower Station, lat. $24^{\circ} 3'$, long. $68^{\circ} 25'$ —observed at in 1858—stands on a small mound close E. of the Sugandia creek on which there is a small shrine, about $4\frac{3}{4}$ miles S.W. by W. of Sháh Samábo, and $10\frac{1}{2}$ miles E.N.E. of Kuba Sháh Kásim. It is in táluka Játi, sub-division Sháhbandar, district Karáchi.

The station consists of a tower of sun-dried bricks, enclosing a perforated pillar of masonry 25 feet in height of which the upper 5 feet is circular and isolated: an aperture gives access to the lower mark.

XXXI. Mod Tower Station, lat. $24^{\circ} 12'$, long. $68^{\circ} 34'$ —observed at in 1858—stands in a patch of land which had been under cultivation in the Ran, about $4\frac{1}{2}$ miles N. by E. of the Police Chauki and Dharmshála at Vehr on the road between Sind and Cutch. It is in táluka Játi, sub-division Sháhbandar, district Karáchi.

The station consists of a tower of sun-dried bricks, enclosing a perforated pillar of masonry 25 feet in height of which the upper 5 feet is circular and isolated: an arched aperture gives access to the lower mark. When visited by the Levelling Party in 1889-90, the tower of sun-dried bricks had crumbled away forming a mound of earth about 10 feet in height encircling the pillar.

XXXII. Jhím Tower Station, lat. $24^{\circ} 13'$, long. $68^{\circ} 22'$ —observed at in 1858—stands in the Ran, about $3\frac{1}{4}$ miles S.W. of the village of Jahán Khán, 10 miles S.S.E. of the large village of Moghul Bhin, and $4\frac{3}{4}$ miles of a Musafarkhána on the road from the head of the Kori creek to Moghul Bhin. It is in táluka Játi, sub-division Sháhbandar, district Karáchi.

The station consists of a tower, enclosing a perforated pillar of masonry of which the upper 5 feet is circular and isolated: an arched aperture on the S. side, gives access to the lower mark. The directions and distances of the circumjacent villages are:—Alabbaksh Rind E. by N., miles 5; Kunwáro Got E. by S., miles $4\frac{1}{4}$; Bhádi N. by W., miles $4\frac{1}{2}$; and Chutta W.N.W., miles 4.

XXXIII. Nurlisháh, or Nursháh, Tower Station, lat. $24^{\circ} 7'$, long. $68^{\circ} 16'$ —observed at in 1858—stands about 3 miles N.N.E. of Alláh Meman's old tomb, and $3\frac{3}{8}$ miles S.S.E. of the village of Jatan, the country in the neighbourhood being a waste. It is in the lands of the village of Nursháh, táluka Játi, sub-division Sháhbandar, district Karáchi.

The station consists of a tower, but no particulars of its construction are forthcoming; it may however be presumed that it is similar to those at the adjacent stations.

XXXIV. Dhui Tower Station, lat. $24^{\circ} 20'$, long. $68^{\circ} 29'$ —observed at in 1858—stands in a patch of arable land in the Ran subject to inundation, about $11\frac{3}{4}$ miles E. by S. of the town of Moghul Bhin. It is in táluka Játi, sub-division Sháhbandar, district Karáchi.

The station consists of a tower, enclosing a perforated pillar of masonry of which the upper 5 feet is circular and isolated: an arched aperture on the S. side gives access to the lower mark. The directions and distances of the circumjacent villages are:—Nazar Ali Lund S.W. by S., miles 6; Yusuf Thaim E. by S., miles $2\frac{1}{4}$; Pindi Ráj S.E. by E., miles 2; and Hassan Lund S.E. by S., miles $2\frac{1}{4}$.

XXXV. Koti Tower Station, lat. $24^{\circ} 16'$, long. $68^{\circ} 12'$ —observed at in 1858—stands about a mile E.S.E. of the village of that name on the road from Moghul Bhin to Sháhbandar. It is in the lands of the village of Koti, táluka Játí, sub-division Sháhbandar, district Karáchi.

The station consists of a tower, enclosing a perforated pillar of masonry 27 feet in height of which the upper 5 feet is circular and isolated: an arched aperture gives access to the lower mark. The directions and distances of the circumjacent villages are:—Hassan Ját W.S.W., mile $\frac{3}{4}$; Chach W., miles 4; and Buleh S.W., miles $1\frac{1}{4}$.

XXXVI. Nindamani, locally called Sháh Miro, Tower Station, lat. $24^{\circ} 11'$, long. $68^{\circ} 3'$ —observed at in 1858—is situated about $1\frac{1}{4}$ miles N.W. by N. of Doli Miráni village, 7 miles S.W. of Chach at the crossing of the main roads from Bahádipur to Kuba Mian Usmán and that from Moghul Bhin to Sháhbandar, and $7\frac{1}{2}$ miles E. by N. of the town of Sháhbandar. It is in the lands of the village of Jhálun, táluka Sháhbandar, district Karáchi.

The station consists of a tower of bricks set in mud cement, enclosing a perforated pillar of masonry of which the upper 5 feet is circular and isolated: an aperture gives access to the lower mark. The directions and distances of the circumjacent villages are:—Musi-jo-goth W. by N., miles $3\frac{1}{4}$; Yusuf E.S.E., miles 2; Ali Murád Jalbáni N.W. by N., miles $3\frac{1}{4}$; and Ahmad Laghare N.E., miles 5.

XXXVII. Moghul Bhin, locally called Jharára, Tower Station, lat. $24^{\circ} 21'$, long. $68^{\circ} 20'$ —observed at in 1858—is about a mile E. of the town from which it takes its name, and a few hundred yards from the huts known as Khera-ka-wála. It is in the lands of the village of Jharára, táluka Játí, sub-division Sháhbandar, district Karáchi.

The station consists of a tower, enclosing a perforated pillar of masonry 20 feet in height of which the upper 5 feet is circular and isolated: an arched aperture gives access to the lower mark. When visited by the Levelling Party in 1889-90, the station was found in good order. The directions and distances of the circumjacent villages are:—Khamisa Kheru E.N.E., mile $\frac{3}{4}$; Achar Mohana W.S.W., miles $1\frac{1}{2}$; and Muhammad Ját N.E., mile 1.

XXXVIII. Abansháh, locally called Abansháh Váro Thul, Hill Station, lat. $24^{\circ} 22'$, long. $68^{\circ} 1'$ —observed at in 1858—is situated on the southern extremity of a hill on the road from Sujáwal to Sháhbandar; the hill is used as a burial place for the chief people of the surrounding towns. It is in the lands of the village of the Khámiso Meman, sub-division Sháhbandar, district Karáchi.

The station consists of a platform of stones and clay, enclosing an isolated and perforated pillar of masonry 10 feet in height of which the upper portion is circular and isolated: an arched aperture on the E. side gives access to the lower mark. The directions and distances of the circumjacent villages are:—Shekh Husainsháh N.N.E., mile $\frac{1}{2}$; Ibrahim Odajo S.E., mile 1; Sháh Yakik E.S.E., miles 4; Juma Machi S.S.E., miles $1\frac{1}{2}$; and Sajan Otha N.W., mile 1.

XXXIX. Gada, locally called Bakhi, Tower Station, lat. $24^{\circ} 26'$, long. $68^{\circ} 13'$ —observed at in 1858—is about $1\frac{1}{2}$ miles E.S.E. of the village of Kásim Gada, and 8 miles N.W. of the town of Moghul Bhin. It is in the lands of the village of Makán Bakhi, táluka Játí, sub-division Sháhbandar, district Karáchi.

The station consists of a tower of sun-dried bricks, enclosing a perforated pillar of masonry 25 feet in height of which the upper 5 feet is circular and isolated: an arched aperture gives access to the lower mark. When visited by the Levelling Party in 1889-90, the tower of sun-dried bricks had crumbled away, forming a mound of earth encircling the pillar to half its height: the pillar with its mark on brick let into the perforation flush with its upper surface, was found intact. The directions and distances of the circumjacent villages are:—Husain Bakhi S. by E., miles $2\frac{1}{4}$; Muhammad Hingorja S., miles $2\frac{1}{2}$; and Kadu Hingorja S.W., miles $2\frac{1}{2}$.

XL. Randah (also called as Rakhal) Tower Station, lat. $24^{\circ} 32'$, long. $68^{\circ} 5'$ —observed at in 1858—stands at a distance of about $\frac{1}{3}$ of a mile N. of the village from which it takes its name, $5\frac{1}{4}$ miles S.W. by S. of the táluka town of Sujáwal, and 1 mile W. of the high road from Sujáwal to Bahádipur. It is in the lands of the village of Abád Pancho, táluka Sujáwal, sub-division Sháhbandar, district Karáchi.

The station consists of a tower, enclosing a perforated pillar of masonry 25 feet in height of which the upper 5 feet is circular and isolated: an arched aperture on the S. side gives access to the ground level mark. The directions and distances of the circumjacent villages are:—Karam Ali Khosa W.S.W., miles 2; Umaid Ali Laghari N., miles $2\frac{1}{2}$; Alam Khán E.N.E., miles $2\frac{1}{2}$; and Allah Baksh S.S.W., mile 1.

XLI. Khar Tower Station, lat. $24^{\circ} 36'$, long. $68^{\circ} 13'$ —observed at in 1858—stands adjoining the small village of Khar, about 6 miles E. of the táluka town of Sujáwal, and $4\frac{1}{2}$ miles N.N.E. of Mirza Laghari. It is in the lands of the village of Abád Rao, táluka Sujáwal, sub-division Sháhbandar, district Karáchi.

The station consists of a tower of brick and mud, enclosing a perforated pillar of masonry 25.08 feet in height of which the upper 5 feet is circular and isolated: an arched aperture on the S. side gives access to the lower mark. The directions and distances of the circumjacent villages are:—Nindo Baran S.W., mile $\frac{1}{2}$; and Rajo Mián N.E., miles $1\frac{1}{4}$.

XLII. *Bibi Mariam*, locally called *Bibi Mariam-jo-thul*, Hill Station, lat. $24^{\circ} 33'$, long. $67^{\circ} 56'$ —observed at in 1858—is situated on a hill so called, about $\frac{1}{2}$ a mile S. of the road from Tatta to Kotri, and 1 mile S.E. of the well known village of Pir Patho. It is in the lands of the village of Deh Pirár, *táluka* Tatta, sub-division Jerruck (Jharrak), district Karáchi.

The station consists of a platform, enclosing a circular, isolated and perforated pillar of masonry 5 feet in height, having an arched aperture on the S. side for access to the lower mark. The directions and distances of the circumjacent villages are:—Usmán S.S.W., miles $1\frac{3}{4}$; Karolu S.W., miles 2; Nagín N. by W., miles $1\frac{3}{4}$; and Lakhtio E.S.E., miles 2.

XLIII. *Vikia Tower Station*, lat. $24^{\circ} 42'$, long. $68^{\circ} 6'$ —observed at in 1858—stands a few hundred yards N.N.E. of *Vikia* village, about $\frac{2}{3}$ of a mile off the high road from Moghul Bhin to Belo, and $3\frac{1}{2}$ miles S.E. of the latter. It is in the lands of the village of *Vikia*, *táluka* Sujáwal, sub-division Sháhbandar, district Karáchi.

The station consists of a tower of sun-dried bricks enclosing a perforated pillar of masonry 20 feet in height of which the upper 5 feet is circular and isolated: an arched aperture on the S. side gives access to the lower mark. When visited by the Levelling Party in 1889-90, the tower of sun-dried bricks had crumbled away, forming a mound of earth encircling the pillar to half its height: the upper mark was missing but the pillar was found in good order. The directions and distances of the circumjacent villages are:—Kadu Mulla N. by W., mile 1; Morádpur E., miles $3\frac{1}{2}$; and Isa Mohana S.E., mile $\frac{1}{4}$.

XLIV. *Dománi*, locally called *Domán-jo-thul*, Hill Station, lat. $24^{\circ} 40'$, long. $67^{\circ} 54'$ —observed at in 1858—is situated on a hill, about $2\frac{1}{3}$ miles N.W. of the village of *Dománi*, and $\frac{1}{2}$ a mile off the high road from Tatta to the village of Ghulám Muhammad. It is in the lands of the village of *Dománi*, *táluka* Tatta, sub-division Jerruck, district Karáchi.

The station consists of a platform of masonry, enclosing a circular, isolated and perforated pillar of masonry 5 feet in height: an arched aperture on the S. side gives access to the lower mark. When visited by the Levelling Party in 1889-90, the station was found in good order. The directions and distances of the circumjacent villages are:—Muhano E.S.E., miles $1\frac{1}{4}$; Ghulám Alah S.W. by S., miles $4\frac{3}{4}$; Hamur W. by S. miles $1\frac{1}{4}$; and Dinno Bakrár N., miles 3.

XLV. *Sukhpur*, locally known as *Sukhpur Váro Thul*, Station, lat. $24^{\circ} 33'$, long. $67^{\circ} 45'$ —observed at in 1857—is situated about $1\frac{1}{2}$ miles S. of the village of that name, and $4\frac{3}{4}$ miles E. of the *táluka* town of Mirpur Sákro. It is in the lands of the village of *Sukhpur*, *táluka* Mirpur Sákro, sub-division Jerruck, district Karáchi.

The station consists of a platform enclosing a perforated pillar of masonry 10 feet in height of which the upper 5 feet is circular and isolated: an arched aperture on the S. side gives access to the lower mark. The directions and distances of the circumjacent villages are:—Umaid Ali S.E., miles 2; Sulemán Gudra S.S.W., miles 2; and Gházi Beloch N.W., miles $1\frac{1}{4}$.

CIV.—(Of the *Karáchi Longitudinal Series*). *Károthol*, locally known as *Káro Thul*, Hill Station, lat. $24^{\circ} 54'$, long. $67^{\circ} 56'$ —observed at in 1853 and 1857—is situated on the highest part of a hill so called, about 4 miles E.N.E. of the Sadhoro Railway Bungalow on the North-Western Railway line, and $4\frac{1}{2}$ miles S.W. of Darhu Khán Brohi village. It is in the lands of the village of Deh Kohistán, *táluka* Tatta, sub-division Jerruck, district Karáchi.

The station consists of a platform enclosing a solid, circular and isolated pillar of masonry 3 feet in height, having a mark-stone at top, another at bottom, and a third 1 foot below the former. It was visited in 1857 in the course of the Cutch Coast Series Operations when the upper mark-stone having been destroyed the station was rebuilt with a perforated pillar and with an aperture to admit of access to the lower mark. In cutting down the pillar intermediate marks were found but these were engraved on such small stones that, from the pillar being built solid over them, they were displaced before they were detected. The Railway Station of Jungsháhi is about $8\frac{1}{2}$ miles to W.S.W. There is no village in the neighbourhood, excepting a few huts on the verge of a pool of water to S. of the station, generally occupied by herdsmen.

CVII.—(Of the *Karáchi Longitudinal Series*). *Sahiji*, or *Sahij*, Hill Station, lat. $24^{\circ} 51'$, long. $67^{\circ} 38'$ —observed at in 1853 and 1857—is situated on a small mound so called, adjoining a tomb on the northern edge of a long flat range of hills forming the southern bank of a stream or dry watercourse, and about 2 miles S. by E. of the well known temple of Runputáni close to the hill road from Karáchi to Kotri. It is in the lands of the village of *Sahiji*, *táluka* Tatta, sub-division Jerruck, district Karáchi.

The station consists of a platform enclosing a solid, circular and isolated pillar of masonry 3 feet in height having three mark-stones, one at the foundation, another 2 feet above it and the third at the upper surface of the pillar. In the records of 1857, there is no mention of any alteration made in the construction of the station.

March, 1892.

J. ECCLES,

In charge Computing Office.

CUTCH COAST SERIES.

PRINCIPAL TRIANGULATION. TRIANGLES.

No of Triangle	Station	Spherical Excess	Corrected Plane Angle				Distance		
			Log. feet	Feet	Miles				
1	Chitrod, XI	.41	°	'	"				
	Vándhia, XIV	.42	49	40	27.66	4.9634788	91934.6	17.412	
	Bhacháu, I	.41	101	30	45.00	5.0724814	118163.0	22.379	
2	Chitrod, XI	.22	28	48	47.34	4.7643143	58118.5	11.007	
	Vándhia, XIV	.22	88	2	24.57	4.8695487	74054.0	14.025	
	Nara, II	.22	40	17	56.34	4.6805569	47924.4	9.077	
3	Vándhia, XIV	.47	51	39	39.09	4.7643143	58118.5	11.007	
	Bhacháu, I	.47	61	12	48.39	4.9340013	85901.6	16.269	
	Nara, II	.47	49	4	22.45	4.8695487	74054.0	14.025	
4	Bhacháu, I	.31	69	42	49.16	4.9634788	91934.6	17.412	
	Nara, II	.31	39	6	28.79	4.7374068	54626.9	10.346	
	Kákarva, III	.32	58	10	54.94	4.8668051	73587.7	13.937	
5	Bhacháu, I	.45	82	42	36.27	4.9340013	85901.6	16.269	
	Kákarva, III	.45	60	33	26.64	4.9192606	83034.9	15.726	
	Rahiáda, IV	.45	68	55	46.61	4.0492645	88974.3	16.851	
		.45	50	30	46.75	4.8668051	73587.7	13.937	

NOTE.—1. The value of the side is given in the same line with the opposite angle.

2. Stations Chitrod, XI and Vándhia, XIV appertain to the Káthiáwár Meridional Series.

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle	Distances		
				Log. feet	Feet	Miles
6	Nara, II	°40	59 7 53'38	4'9679267	92881'0	17'591
	Kákarva, III	°40	90 32 54'99	5'0342439	108204'1	20'493
	Gángta, VII	°40	30 19 11'63	4'7374068	54626'9	10'346
7	Gángta, VII	°41	39 37 36'14	4'7890814	61529'2	11'653
	Kákarva, III	°41	66 3 31'46	4'9453365	88173'2	16'699
	Ran, V	°42	74 18 52'40	4'9679267	92881'0	17'591
8	Kákarva, III	°32	51 45 8'77	4'8194935	65992'3	12'499
	Rahiáda, IV	°31	47 4 25'15	4'7890814	61529'2	11'653
	Ran, V	°32	81 10 26'08	4'9192606	83034'9	15'726
9	Bhacháu, I	°33	49 54 14'08	4'8337432	68193'5	12'915
	Rahiáda, IV	°33	43 39 7'03	4'7891241	61535'3	11'654
	Sukhpur, VI	°33	86 26 38'89	4'9492645	88974'3	16'851
10	Bhacháu, I	°36	47 41 14'12	4'8722262	74512'0	14'112
	Sukhpur, VI	°36	94 40 22'41	5'0018530	100427'6	19'020
	Khári Rohar, VII	°36	37 38 23'47	4'7891241	61535'3	11'654
11	Sukhpur, VI	°35	52 53 8'65	4'8227504	66489'1	12'593
	Khári Rohar, VII	°35	63 46 40'57	4'8738909	74798'2	14'166
	Charakda, VIII	°35	63 20 10'78	4'8722262	74512'0	14'112
12	Rahiáda, IV	°31	58 38 36'65	4'8282082	67329'9	12'752
	Sukhpur, VI	°32	61 29 7'01	4'8406156	69281'2	13'121
	Jhuran, IX	°32	59 52 16'34	4'8337432	68193'5	12'915
13	Sukhpur, VI	°36	64 30 41'32	4'8814767	76116'1	14'416
	Charakda, VIII	°36	52 59 5'00	4'8282082	67329'9	12'752
	Jhuran, IX	°36	62 30 13'68	4'8738909	74798'2	14'166
14	Charakda, VIII	°38	78 31 47'31	4'9507691	89283'1	16'910
	Jhuran, IX	°37	44 48 8'34	4'8075119	64196'6	12'158
	Khátrod, X	°38	56 40 4'35	4'8814767	76116'1	14'416
15	Charakda, VIII	°34	35 50 21'96	4'7606648	57632'2	10'915
	Jhuran, IX	°35	93 30 32'48	4'9923112	98245'2	18'607
	Boládi, XI	°35	50 39 5'56	4'8814767	76116'1	14'416
16	Jhuran, IX	°31	48 42 23'81	4'8266857	67094'3	12'707
	Khátrod, X	°30	40 11 39'17	4'7606648	57632'2	10'915
	Boládi, XI	°31	91 5 57'02	4'9507691	89283'1	16'910
17	Khátrod, X	°52	96 2 53'68	5'0933363	123975'6	23'480
	Boládi, XI	°51	51 23 31'67	4'9886533	97421'2	18'451
	Sámatra, XII	°51	32 33 34'65	4'8266857	67094'3	12'707
18	Khátrod, X	°44	56 35 46'67	4'9284509	84810'7	16'063
	Boládi, XI	°45	82 4 17'02	5'0026905	100621'4	19'057
	Várar, XIII	°44	41 19 56'31	4'8266857	67094'3	12'707
19	Khátrod, X	°49	39 27 6'60	4'8255001	66911'4	12'673
	Sámatra, XII	°49	72 51 16'28	5'0026905	100621'4	19'057
	Várar, XIII	°49	67 41 37'12	4'9886533	97421'2	18'451
20	Sámatra, XII	°43	93 50 51'22	5'0369664	108884'6	20'622
	Várar, XIII	°43	48 20 10'11	4'9113004	81526'8	15'441
	Roha, XIV	°43	37 48 58'67	4'8255001	66911'4	12'673

NOTE.—Station Gángta, VII appertains to the Káthiáwár Meridional Series.

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle	Distance		
				Log. feet	Feet	Miles
21	Sámatra, XII	˙61	51 47 54˙90	4˙9761744	94661˙7	17˙928
	Roha, XIV	˙61	85 36 26˙08	5˙0795617	120105˙2	22˙747
	Dhinodhar, XV	˙60	42 35 39˙02	4˙9115004	81526˙8	15˙441
22	Várár, XIII	˙60	57 8 30˙91	4˙9761744	94661˙7	17˙928
	Roha, XIV	˙60	47 47 26˙99	4˙9215270	83469˙4	15˙809
	Dhinodhar, XV	˙60	75 4 2˙10	5˙0369664	108884˙6	20˙622
23	Roha, XIV	˙72	53 42 14˙88	4˙9967840	99262˙2	18˙800
	Dhinodhar, XV	˙72	76 3 57˙73	5˙0774933	119534˙5	22˙639
	Háthria, XVI	˙72	50 13 47˙39	4˙9761744	94661˙7	17˙928
24	Roha, XIV	1˙04	46 47 53˙88	5˙0496167	112102˙9	21˙232
	Háthria, XVI	1˙05	82 11 24˙63	5˙1828728	152360˙6	28˙856
	Naliya, XVII	1˙05	51 0 41˙49	5˙0774933	119534˙5	22˙639
25	Dhinodhar, XV	˙49	43 14 8˙26	4˙8510658	70968˙5	13˙441
	Háthria, XVI	˙50	63 24 35˙23	4˙9668246	92645˙6	17˙547
	Manjal, XVIII	˙50	73 21 16˙51	4˙9967840	99262˙2	18˙800
26	Háthria, XVI	˙51	37 43 3˙69	4˙8374909	68784˙6	13˙027
	Naliya, XVII	˙51	56 41 16˙28	4˙9729475	93961˙0	17˙796
	Sáhind, XIX	˙51	85 35 40˙03	5˙0496167	112102˙9	21˙232
27	Háthria, XVI	˙38	29 47 57˙97	4˙7194803	52418˙0	9˙928
	Sáhind, XIX	˙39	87 13 23˙58	5˙0226439	105352˙3	19˙953
	Suri Muri, XX	˙39	62 58 38˙45	4˙9729475	93961˙0	17˙796
28	Háthria, XVI	˙38	51 37 8˙39	4˙8473097	70357˙4	13˙325
	Manjal, XVIII	˙39	76 7 45˙18	4˙9401965	87135˙8	16˙503
	Sura Gandhára, XXI	˙38	52 15 6˙43	4˙8510658	70968˙5	13˙441
29	Háthria, XVI	˙63	74 49 56˙88	5˙0420554	110168˙0	20˙865
	Sáhind, XIX	˙62	49 45 48˙14	4˙9401965	87135˙8	16˙503
	Sura Gandhára, XXI	˙62	55 24 14˙98	4˙9729475	93961˙0	17˙796
30	Háthria, XVI	˙51	45 1 58˙65	4˙8785766	75609˙5	14˙320
	Sura Gandhára, XXI	˙52	80 20 35˙12	5˙0226439	105352˙3	19˙953
	Suri Muri, XX	˙51	54 37 26˙23	4˙9401965	87135˙8	16˙503
31	Suri Muri, XX	˙24	47 57 57˙49	4˙7507776	56334˙9	10˙669
	Sura Gandhára, XXI	˙24	46 33 57˙42	4˙7409726	55077˙3	10˙431
	Bábia, XXII	˙25	85 28 5˙09	4˙8785766	75609˙5	14˙320
32	Suri Muri, XX	˙22	87 39 56˙16	4˙8611946	72643˙1	13˙758
	Bábia, XXII	˙21	43 5 5˙25	4˙6960268	49662˙3	9˙406
	Jamanvála, XXIII	˙22	49 14 58˙59	4˙7409726	55077˙3	10˙431
33	Bábia, XXII	˙28	42 38 8˙55	4˙7217439	52691˙9	9˙930
	Jamanvála, XXIII	˙28	68 19 44˙85	4˙8591061	72294˙6	13˙692
	Pinjor Pir, XXIV	˙28	69 2 6˙60	4˙8611946	72643˙1	13˙758
34	Sura Gandhára, XXI	˙19	35 36 37˙96	4˙6391575	43567˙0	8˙251
	Bábia, XXII	˙20	95 32 45˙14	4˙8719935	74472˙1	14˙505
	Lakhpat, XXV	˙19	48 50 36˙90	4˙7507776	56334˙9	10˙669
35	Bábia, XXII	˙25	93 15 54˙78	4˙9370494	86506˙6	16˙384
	Pinjor Pir, XXIV	˙24	30 11 9˙52	4˙6391575	43567˙0	8˙251
	Lakhpat, XXV	˙25	56 32 55˙70	4˙8591061	72294˙6	13˙692

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle	Distance		
				Log. feet	Feet	Miles
36	Pinjor Pir, XXIV	°42	81 29 20.16	4°9944548	98731.3	18.699
	Lakhpat, XXV	°42	38 27 10.03	4°7929633	62081.7	11.758
	Sugandia, XXVI	°42	60 3 29.81	4°9370494	86506.6	16.384
37	Pinjor Pir, XXIV	°38	37 35 54.40	4°7593800	57461.9	10.883
	Lakhpat, XXV	°38	75 41 28.68	4°9602761	91259.1	17.284
	Saiyid Ali, XXVII	°38	66 42 36.92	4°9370494	86506.6	16.384
38	Pinjor Pir, XXIV	°31	43 53 25.49	4°8019212	63375.5	12.003
	Sugandia, XXVI	°31	93 20 2.61	4°9602761	91259.1	17.284
	Saiyid Ali, XXVII	°31	42 46 31.90	4°7929633	62081.7	11.758
39	Sugandia, XXVI	°23	50 13 33.87	4°7243069	53003.8	10.039
	Saiyid Ali, XXVII	°24	62 59 53.72	4°7884950	61446.2	11.638
	Guni, XXVIII	°24	66 46 32.41	4°8019212	63375.5	12.003
40	Saiyid Ali, XXVII	°22	56 43 12.10	4°7488786	56089.1	10.623
	Guni, XXVIII	°23	71 5 35.73	4°8025856	63172.5	12.021
	Hakra, XXIX	°22	52 11 12.17	4°7243069	53003.8	10.039
41	Sugandia, XXVI	°27	46 43 13.40	4°7507421	56330.3	10.669
	Guni, XXVIII	°27	80 42 21.57	4°8828618	76359.3	14.462
	Patta-ka-Bedhi, XXX	°27	52 34 25.03	4°7884950	61446.2	11.638
42	Guni, XXVIII	°25	71 39 36.13	4°8304117	67672.4	12.817
	Patta-ka-Bedhi, XXX	°25	56 8 36.92	4°7723575	59204.9	11.213
	Mod, XXXI	°25	52 11 46.95	4°7507421	56330.3	10.669
43	Guni, XXVIII	°25	69 45 52.92	4°8194477	65985.4	12.497
	Hakra, XXXI	°25	57 20 15.24	4°7723575	59204.9	11.213
	Mod, XXXI	°24	52 53 51.84	4°7488786	56089.1	10.623
44	Patta-ka-Bedhi, XXX	°29	63 18 4.19	4°8278122	67268.6	12.740
	Mod, XXXI	°28	52 42 19.34	4°7774324	59900.8	11.345
	Jhim, XXXII	°29	63 59 36.47	4°8304117	67672.4	12.817
45	Patta-ka-Bedhi, XXX	°19	48 28 10.14	4°6777027	47610.5	9.017
	Jhim, XXXII	°20	61 9 58.12	4°7459662	55714.3	10.552
	Nurlishah, XXXIII	°20	70 21 51.74	4°7774324	59900.8	11.345
46	Mod, XXXI	°24	58 17 24.01	4°7783387	60025.9	11.369
	Jhim, XXXII	°24	49 16 36.15	4°7281467	53474.5	10.128
	Dhui, XXXIV	°24	72 25 59.84	4°8278122	67268.6	12.740
47	Jhim, XXXII	°21	70 43 44.29	4°7955569	62453.5	11.828
	Nurlishah, XXXIII	°21	63 14 52.62	4°7714331	59079.0	11.189
	Koti, XXXV	°21	46 1 23.09	4°6777027	47610.5	9.017
48	Nurlishah, XXXIII	°26	44 34 2.07	4°7396585	54910.9	10.400
	Koti, XXXV	°27	82 28 48.20	4°8897273	77576.0	14.692
	Nindamani, XXXVI	°27	52 57 9.73	4°7955569	62453.5	11.828
49	Jhim, XXXII	°21	57 46 51.35	4°7374191	54628.5	10.346
	Dhui, XXXIV	°21	53 50 45.17	4°7171471	52137.1	9.874
	Moghul Bhin, XXXVII	°21	68 22 23.48	4°7783387	60025.9	11.369
50	Jhim, XXXII	°20	57 3 12.27	4°7280479	53462.3	10.125
	Koti, XXXV	°20	54 55 21.45	4°7171471	52137.1	9.874
	Moghul Bhin, XXXVII	°21	68 1 26.28	4°7714331	59079.0	11.189

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle			Distance		
						Log. feet	Fect	Miles
51	Koti, XXXV	27	62	23	24.25	4.8161606	65487.8	12.403
	Nindamani, XXXVI	27	69	37	18.67	4.8405983	69278.5	13.121
	Abanshá, XXXVIII	26	47	59	17.08	4.7396585	54910.9	10.400
52	Koti, XXXV	19	46	42	37.47	4.6696542	46736.3	8.852
	Moghul Bhin, XXXVII	20	76	55	2.62	4.7961630	62540.7	11.845
	Gada, XXXIX	19	56	22	19.91	4.7280479	53462.3	10.125
53	Koti, XXXV	32	67	28	24.08	4.8658347	73423.5	13.906
	Abanshá, XXXVIII	31	51	53	12.16	4.7961630	62540.7	11.845
	Gada, XXXIX	32	60	38	23.76	4.8405983	69278.5	13.121
54	Abanshá, XXXVIII	29	51	53	2.27	4.7852872	60994.0	11.552
	Gada, XXXIX	30	56	50	15.39	4.8122333	64898.3	12.291
	Randah, XL	30	71	16	42.34	4.8658347	73423.5	13.906
55	Gada, XXXIX	21	50	23	17.77	4.7078527	51033.2	9.665
	Randah, XL	22	62	34	33.46	4.7693744	58799.6	11.136
	Khar, XLI	22	67	2	8.77	4.7852872	60994.0	11.552
56	Abanshá, XXXVIII	23	41	22	33.30	4.6760501	47429.7	8.983
	Randah, XL	24	73	52	31.55	4.8384207	68932.0	13.055
	Bibi Mariam, XLII	23	64	44	55.15	4.8122333	64898.3	12.291
57	Randah, XL	22	97	5	56.09	4.9014469	79697.9	15.094
	Bibi Mariam, XLII	22	46	42	16.58	4.7668176	58454.5	11.071
	Vikia, XLIII	21	36	11	47.33	4.6760501	47429.7	8.983
58	Randah, XL	19	55	10	15.39	4.7086373	51125.5	9.683
	Khar, XLI	20	69	48	23.40	4.7668176	58454.5	11.071
	Vikia, XLIII	19	55	1	21.21	4.7078527	51033.2	9.665
59	Bibi Mariam, XLII	25	60	10	7.44	4.8412908	69389.0	13.142
	Vikia, XLIII	25	34	42	41.55	4.6584761	45548.7	8.627
	Dománi, XLIV	25	85	7	11.01	4.9014469	79697.9	15.094
60	Bibi Mariam, XLII	22	70	45	3.40	4.8106581	64663.3	12.247
	Dománi, XLIV	21	67	33	55.22	4.8014628	63308.6	11.990
	Sutlhpur, XLV	21	41	41	1.38	4.6584761	45548.7	8.627
61	Vikia, XLIII	44	62	39	27.87	4.9323512	85575.8	16.208
	Dománi, XLIV	45	71	15	58.91	4.9601620	91235.1	17.279
	Károthol, CIV	44	46	4	33.22	4.8412908	69389.0	13.142
62	Dománi, XLIV	54	76	35	9.35	5.0524895	112846.9	21.373
	Sutlhpur, XLV	54	69	32	19.91	5.0361997	108692.5	20.586
	Sahiji, CVII	54	33	52	30.74	4.8106581	64663.3	12.247
63	Dománi, XLIV	63	59	27	43.43	4.9930496	98412.3	18.639
	Károthol, CIV	64	72	2	18.55	5.0361997	108692.5	20.586
	Sahiji, CVII	63	48	29	58.02	4.9323512	85575.8	16.208

NOTE.—Stations Károthol CIV and Sahiji CVII appertain to the Karachi Longitudinal Series of the North-West Quadrilateral.

October, 1892.

J. ECCLES,

In charge Computing Office.

CUTCH COAST SERIES.
SECONDARY TRIANGULATION. TRIANGLES.

COAST LINE SECONDARY SERIES.

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle		Distance		No. of Triangle	Station	Spherical Excess	Corrected Plane Angle		Distance				
			o	'	''	Log. feet				Feet	Miles	Log. feet	Feet	Miles		
64	Khari Rohar, VII	.1	39	40	43.2	4 6288354	42544	8.058	Bhadresar	s.	61	28	17.3	4 8284531	67368	12.759
	Charakda, VIII	.2	46	33	33.5	4 6846756	48381	9.163	Lifra	h.s.	59	4	54.6	4 8181098	65782	12.459
	Shinaya No. I h.s.	.2	93	35	43.3	4 8227504	66489	12.593	Mundra	t.s.	59	26	48.1	4 8197542	66032	12.506
65	Charakda, VIII	.2	60	49	11.9	4 6846259	48375	9.162	Lifra	h.s.	49	3	57.8	4 7543340	56798	10.757
	Shinaya	.2	69	1	11.6	4 7137754	51734	9.798	Mundra	t.s.	67	17	23.8	4 8410718	69354	13.135
	Tengo	.1	50	9	36.5	4 6288354	42544	8.058	Madi	h.s.	63	38	38.4	4 8284531	67368	12.759
66	Charakda, VIII	.2	57	46	10.0	4 7562814	57053	10.806	Lifra	h.s.	32	23	51.3	4 6204430	41729	7.903
	Khetrod, X	.2	50	5	19.6	4 7137754	51734	9.798	Madi	"	82	40	7.4	4 8895646	77547	14.687
	Tengo	.3	72	8	30.4	4 8075119	64197	12.158	Punadi	"	62	56	1.3	4 8410718	69354	13.135
67	Shinaya	.2	49	21	48.2	4 6893831	48908	9.263	Lifra	h.s.	55	11	19.9	4 8072712	64161	12.152
	Tengo	.2	81	59	42.9	4 8049718	63822	12.088	Punadi	"	41	54	40.7	4 7170709	52200	9.886
	Bhadresar	.2	48	38	28.9	4 6846259	48375	9.162	Kingiria	"	82	53	59.4	4 8895646	77547	14.687
68	Tengo	.2	87	37	37.8	4 8197542	66032	12.506	Punadi	h.s.	50	53	20.0	4 7059051	50805	9.622
	Bhadresar	s.	44	38	16.2	4 6668491	46435	8.795	Kingiria	"	59	36	57.2	4 7042146	50607	9.585
	Lifra	h.s.	47	44	6.0	4 6893831	48908	9.263	Samantra, XII	"	78	29	42.8	4 8072712	64161	12.152

Notes.—1. Names followed by Roman numerals are those of the Principal Stations.
2. The value of the side is given in the same line with the opposite angle.

The observations of triangles Nos. 64 to 96 were taken with an 18-inch Theodolite to luminous signals.

SECONDARY TRIANGULATION. TRIANGLES.

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle	Distance			No. of Triangle	Station	Spherical Excess	Corrected Plane Angle	Distance																
				Log. feet	Feet	Miles					Log. feet	Feet	Miles														
74	Sámátra, XII Punadi Dholbet	h.s. " "	55 40 2.9 74 34 35.5 49 45 21.6	4 7383828 4 8055993 4 7042146	54750 63913 50607	10.369 12.105 9.585	86	Dholbet Chitráni Rohá, XIV	h.s. " "	44 27 15.6 46 9 33.8 89 23 10.6	4 7686062 4 7813944 4 9242720	58606 60450 83805	11.117 11.449 15.872														
														75	Sámátra, XII Rohá, XIV Dholbet	h.s. " "	50 54 29.6 81 52 20.3	4 7813944 4 8055994 4 9113004	60450 63913 81527	11.449 12.105 15.441	87	Rohá, XIV Chitráni Yanoti	h.s. " "	59 36 23.2 65 26 30.4 54 57 6.4	4 7912924 4 8143193 4 7686062	61843 65211 58696	11.713 12.351 11.117
77	Mádi Barári Mátá Traghari	h.s. " "	52 16 0.0 76 39 21.0 51 4 39.0	4 7245128 4 8145224 4 7173866	53029 65241 52166	10.043 12.356 9.880	89	Yanoti Dhufl Háthra, XVI	h.s. " "	92 43 0.0 58 30 44.2 28 46 15.8	4 8678810 4 7991922 4 5507951	73770 62978 35540	13.972 11.928 6.732														
														78	Mádi Traghari Bidada	h.s. " "	51 9 16.3 34 16 21.1 94 34 22.6	4 7073356 4 5665157 4 8145224	50975 36857 63241	9.654 6.980 12.356	90	Dhufl Háthra, XVI Nalyá, XVII	h.s. " "	109 55 44.8 31 51 11.7 38 13 3.5	5 0496167 4 7688602 4 8678810	112103 62930 73770	21.232 11.919 13.972
79	Traghari Bidada Mándri	h.s. " s.	64 50 42.0 50 46 36.0 64 22 42.0	4 7090343 4 6414347 4 7073356	51172 43796 50975	9.602 8.295 9.654	91	Chitráni Dhufl Kothára	h.s. " t.s.	46 10 40.0 67 32 35.0 66 16 45.0	4 6936077 4 8011467 4 7970424	49386 63260 62668	9.353 11.981 11.869														
														80	Bidada Mándri Don	h.s. s. h.s.	57 48 53.1 54 33 12.9 67 37 54.0	4 6705468 4 6539824 4 7090343	46832 45080 51172	8.870 8.538 9.692	92	Chitráni Kothára Mor Dho	h.s. t.s. h.s.	44 23 14.2 82 24 53.8 53 11 52.0	4 7424431 4 8938557 4 8011267	53264 78313 63260	10.467 14.822 11.981
81	Mándri Don Ásar Mátá	s. h.s. "	81 52 0.7 48 39 6.6 49 28 52.7	4 7852320 4 6650030 4 6705468	60986 46248 46832	11.550 8.759 8.870	93	Kothára Mor Dho Rápur	t.s. h.s. t.s.	73 0 28.8 44 5 31.0 62 54 0.2	4 7735640 4 6354409 4 7424431	59370 43196 53264	11.244 8.181 10.467														
														82	Don Ásar Mátá Undot	h.s. " "	50 0 59.0 38 29 58.2 82 29 2.8	4 7221195 4 5831241 4 7852320	52738 38293 60986	9.988 7.253 11.550	94	Nalyá, XVII Sáhdri, XIX Mokádi	h.s. " h.s.	42 53 55.5 67 57 57.5 69 8 7.0	4 6990959 4 8340086 4 8374909	50108 68235 68785	9.490 12.953 13.027
83	Ásar Mátá Undot Bámhanai	h.s. " "	67 53 34.6 52 15 54.0 59 50 31.4	4 7521194 4 6833763 4 7221195	56509 48237 52738	10.702 9.136 9.988	95	Sáhdri, XIX Mokádi Ber	h.s. " "	58 18 0.3 69 14 2.9 62 57 56.8	4 7304720 4 7714672 4 6990959	53762 59084 50108	10.182 11.100 9.490														
														84	Undot Bámhanai Chitráni	h.s. " "	83 50 16.6 50 56 40.5 45 13 2.9	4 8984757 4 7911544 4 7521194	79154 61824 56509	14.991 11.709 10.702	96	Sáhdri, XIX Suri Muri, XX Ber	h.s. " h.s.	60 54 57.0 65 20 48.3 53 44 14.7	4 7754405 4 7714672 4 7194803	58812 59084 54418	10.760 11.190 9.958
85	Undot Chitráni Dholbet	h.s. " "	95 34 55.9 37 10 39.5 47 14 24.6	4 9232720 4 7065806 4 7911544	83805 50884 61824	15.872 9.637 11.709	85	Undot Chitráni Dholbet	h.s. " "																		

CUTCH COAST SERIES.
SECONDARY TRIANGULATION. TRIANGLES.

PRINCIPAL-AUXILIARY AND SECONDARY STATIONS, AND INTERSECTED POINTS.

Differences between the common sides of two triangles are shown by the small figures in the 5th and 12th columns between the data of the triangles, the first in order having supplied the greater value.

No. of Triangle	Station	Corrected Plane Angle	Distance			No. of Triangle	Station	Corrected Plane Angle	Distance			No. of Triangle
			Log. feet	Feet	Miles				Log. feet	Feet	Miles	
97	Gáungta, VII	91 19 22	5° 01' 16.35	102715	19.454	102	Gáungta, VII	57 35 7	4° 87' 21.09	74492	14.108	
	Kákarva, III	23 59 10	4° 02' 08.27	41766	7.910		Ran, V	30 10 21	4° 64' 68.96	44350	8.400	
	Kákúnda Bet Hill (helio.)		4° 96' 7.927	92881	17.591		Suvi		4° 94' 33.37	88173	16.699	
98	Gáungta, VII	65 59 52	4° 93' 32.09	85745	16.240	103	Gáungta, VII	23 9 59	4° 57' 56.43	37639	7.129	
	Kákarva, III	15 42 52	4° 40' 52.04	25422	4.815		Kákarva, III	52 56 55	4° 88' 88.61	76359	14.462	
	Kárábid Hill No. 1 (helio.)		4° 96' 7.927	92881	17.591		Rámváo		4° 96' 7.927	92881	17.591	
99	Gáungta, VII	67 32 25	4° 93' 50.70	86113	16.309	104*	Nara, II	42 47 39	4° 57' 56.43	37639	7.129	
	Kákarva, III	19 46 30	4° 49' 76.30	31451	5.957		Kákarva, III	37 36 0	4° 52' 89.72	33864	6.402	
	Kárábid Hill No. 2 (helio.)		4° 96' 7.927	92881	17.591		Rámváo		4° 73' 74.07	54627	10.346	
100	Gáungta, VII	68 17 12	4° 93' 22.58	86548	16.392	105	Suvi	58 3 42	4° 47' 42.65	29803	5.645	
	Kákarva, III	26 8 1	4° 01' 31.33	41033	7.771		Rámváo	54 27 12	4° 45' 59.86	28575	5.412	
	Górábid Hill Mark (helio.)		4° 96' 7.927	92881	17.591		Tramáu	67 29 6	4° 51' 11.21	32443	6.145	
101	Kákarva, III	81 9 19	4° 87' 21.09	74492	14.108	106	Gáungta, VII	109 36 10	4° 45' 59.86	28575	5.412	
	Ran, V	44 8 32	4° 72' 01.89	52504	9.944		Suvi	43 52 28	4° 78' 01.82	60281	11.417	
	Suvi		4° 78' 90.81	61529	11.653		Tramáu		4° 64' 68.96	44350	8.400	

Notes.—1. Station Gáungta VII appertains to the Káthiávar Meridional Series.

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

* For another triangle to this point, see the Synoptical Volume of the Káthiávar Meridional Series, by which the value of the common side was less by 28 feet.

† Deduced base.

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	Inch	°	'	"		Log. feet	Feet	Miles
107	Suvi	h.s.	59	11	7	4° 48' 15.83	30310	Rámavó	h.s.	54	20	1	4° 45' 51.95	28523	5.402		
	Tramáu	"	66	45	3	4° 51' 08.96	32426	Tramáu	"	67	34	29	4° 51' 12.60	32453	6.146		
	Rav Temple	"				4° 45' 59.86	28575	Suvi Hill Temple	"				4° 47' 42.65	29803	5.645		
108	Suvi	h.s.	117	14	49	4° 74' 33.77	55383	Tramáu	h.s.	101	36	36	4° 61' 10.96	40841	7.735		
	Rámavó	"	31	22	3	4° 51' 08.96	32426	Khárákua Vándh	No. 1	43	9	54	4° 45' 19.95	28523	5.402		
	Rav Temple	"				4° 51' 11.21	32443	Suvi Hill Temple	"				4° 38' 10.91	24049	4.555		
109	Suvi	h.s.	29	38	34	4° 32' 05.63	20920	Suvi	h.s.	5	40	40	3° 45' 45.35	2848	0.539		
	Tramáu	"	12	51	20	3° 97' 30.35	9411	Tramáu	"	77	22	17	4° 44' 55.34	28090	5.320		
	Jesada Hill Platform	"				4° 45' 59.86	28575	Tramáu Hill Temple	"				4° 45' 59.86	28575	5.412		
110	Suvi	h.s.	87	42	16	4° 52' 39.00	33416	Suvi	h.s.	65	9	59	4° 52' 47.86	33480	6.341		
	Rámavó	"	16	20	38	3° 97' 36.35	9411	Rámavó	"	53	15	40	4° 47' 07.57	29504	5.599		
	Jesada Hill Platform	"				4° 51' 11.21	32443	Bharodia	"	61	34	21	4° 51' 11.21	32443	6.145		
111	Kákarya, III	h.s.	29	46	28	4° 31' 88.60	20838	Kákarya, III	h.s.	59	54	41	4° 52' 47.86	33480	6.341		
	Rámavó	"	86	27	46	4° 62' 20.37	41883	Rámavó	"	43	29	45	4° 42' 54.23	26933	5.044		
	Khengárpur Rock	"				4° 57' 56.43	37639	Bharodia	"	76	35	34	4° 57' 56.43	37639	7.129		
112	Suvi	h.s.	75	23	14	4° 44' 95.37	28154	Chitrod, XI	h.s.	30	57	1	4° 39' 40.93	24780	4.693		
	Tramáu	"	25	27	40	4° 07' 18.32	12508	Nara, II	"	64	58	21	4° 64' 00.60	43658	8.269		
	Khengárpur Rock	"				4° 45' 59.86	28575	Bádargad Hill	"				4° 68' 05.57	47924	9.077		
113	Suvi	h.s.	35	13	17	4° 38' 10.91	24049	Chitrod, XI	h.s.	40	15	38	4° 49' 22.37	31063	5.883		
	Tramáu	"	101	31	13	4° 61' 12.74	40858	Nara, II	"	54	7	4	4° 59' 04.31	38943	7.376		
	Khárákua Vándh	No. 1				4° 45' 59.86	28575	Vitro Hill Temple	"				4° 68' 05.57	47924	9.077		
114	Rámavó	h.s.	53	44	10	4° 38' 10.91	24049	Chitrod, XI	h.s.	57	13	39	4° 61' 03.41	41624	7.883		
	Tramáu	"	34	2	7	4° 22' 25.51	16694	Nara, II	"	18	15	46	4° 19' 07.00	15513	2.938		
	Khárákua Vándh	No. 1				4° 47' 42.65	29803	Jethásari Vándh Hill Mark (helio.)	"				4° 68' 05.57	47924	9.077		
115	Rámavó	h.s.	62	29	23	4° 45' 47.04	28491	Chitrod, XI	h.s.	78	58	18	4° 78' 42.68	60851	11.525		
	Tramáu	"	49	25	3	4° 38' 7.326	24306	Vándhia, XIV	"	31	23	59	4° 50' 20.60	32300	6.117		
	Khárákua Vándh	No. 2				4° 47' 42.65	29803	Vashtava Hill Temple	"				4° 76' 43.14	58118	11.007		
116	Tramáu	h.s.	15	22	56	3° 91' 88.59	8206	Vándhia, XIV	h.s.	8	53	58	4° 22' 37.53	16817	3.185		
	Khárákua Vándh	No. 1				4° 45' 47.04	28491	Nara, II	"	34	2	23	4° 78' 42.68	60851	11.525		
	Khárákua Vándh	No. 2				4° 38' 10.91	24049	Vashtava Hill Temple	"				4° 86' 95.49	74054	14.025		
117	Tramáu	h.s.	90	39	11	4° 54' 44.00	35027	Chitrod, XI	h.s.	12	18	9	4° 56' 77.94	36965	7.001		
	Khárákua Vándh	No. 1				4° 40' 12.93	25194	Nara, II	"	3	44	1	4° 05' 29.64	11297	2.140		
	Rápur Temple	"				4° 38' 10.91	24049	Chitrod Hill Mark (helio.)	"				4° 68' 05.57	47924	9.077		
118	Tramáu	h.s.	75	16	15	4° 51' 70.04	32885	Chitrod, XI	h.s.	40	10	58	4° 57' 10.22	37942	7.186		
	Khárákua Vándh	No. 2				4° 40' 12.93	25194	Vándhia, XIV	"	41	3	31	4° 58' 68.62	38625	7.315		
	Rápur Temple	"				4° 45' 47.04	28491	Lakndiya Temple No. 1	"				4° 76' 43.14	58118	11.007		

NOTE.—Stations Chitrod XI and Vándhia XIV appertain to the Káthiáwar Meridional Series.
 † Deduced base.
 ‡ For another triangle to this point, see the Synoptical Volume of the Káthiáwar Meridional Series, by which the value of the common side was greater by 1 foot.
 § For another triangle to this point, see the Synoptical Volume of the Káthiáwar Meridional Series, by which the value of the common side was less by 1 foot.

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	
131	Chitrod, XI Vandhin, XIV Lakadiya Temple No. 2	40 46 10 41 33 58 4 58 31 55 4 59 00 39 4 76 43 14	38296 38908 58118	7 253 7 369 11 007	18 "	148	Bhacháu, I Nara, II Vamka Hill Mark (helio.)	21 55 26 36 32 13 4 934001	37632 60004 85902	7 127 11 364 16 269	Inch "	
132	Chitrod, XI Vandhin, XIV Lakadiya Fort (helio.)	40 12 24 41 54 8 4 57 93 74 4 59 31 33 4 76 43 14	37877 39186 58118	7 174 7 422 11 007	"	144	Nara, II Kakarva, III Vamka Hill Mark (helio.)	21 38 42 35 14 25 4 737407	24037 37632 54627	4 556 7 127 10 346	"	
133	Chitrod, XI Vandhin, XIV Katariya Temple No. 1	6 23 17 15 20 31 4 24 21 85 4 61 83 95 4 76 43 14	17466 41533 58118	3 308 7 866 11 007	"	145	Bhacháu, I Nara, II Vamka Hill Temple	23 10 55 36 36 2 4 934001	39133 59271 85902	7 412 11 226 16 269	"	
134	Chitrod, XI Nara, II Katariya Temple No. 1	81 39 8 44 26 48 4 68 51 19 4 76 43 14 4 68 05 57	58684 41533 47924	11 114 7 866 9 077	"	146	Bhacháu, I Mái Hill Peak (helio.)	33 10 11 33 3 20 4 710598 4 709272 4 934001	51357 51200 85902	9 727 9 697 16 269	"	
135	Chitrod, XI Vandhin, XIV Katariya Temple No. 2	9 3 49 28 21 17 4 17 80 41 4 65 73 04 4 76 43 14	15068 45426 58118	2 854 8 603 11 007	"	147	Bhacháu, I Kakarva, III Mái Hill Peak (helio.)	5 56 18 13 9 22 4 366854 4 709272 4 868805	23273 51200 73588	4 408 9 697 13 937	"	
136	Vandhin, XIV Nara, II Amliyara Mark (helio.)	72 29 19 32 30 37 4 86 39 95 4 61 49 42 4 86 95 49	73113 41204 74054	13 847 7 864 14 085	"	148	Gangta, VII Nara, II Kanthkot Hill Temple	17 11 53 52 56 57 4 531669 4 985912 5 034244	34015 91815 85902	6 442 17 389 20 493	"	
137	Bhacháu, I Nara, II Amliyara Mark (helio.)	57 57 34 37 12 13 4 86 39 95 4 71 72 71 4 934001	73113 52152 85902	13 847 9 877 16 269	"	149	Bhacháu, I Nara, II Kanthkot Hill Temple	23 18 23 64 21 52 4 581669 4 889357 4 934001	34015 77510 85902	6 442 14 680 16 269	"	
138	Nara, II Kakarva, III Adhoi Hill Mark (helio.)	78 6 17 21 5 26 4 73 35 96 4 29 13 57 4 73 74 07	54150 19913 54027	10 236 3 771 10 346	"	150	Kakarva, III Rahiada, IV Bandhadi	36 29 18 33 6 27 4 721670 4 684763 4 919261	52693 48391 83035	9 978 0 165 15 720	"	
139	Bhacháu, I Amliyara Mark (helio.) Halraí	69 22 24 11 24 50 19 45 20 4 70 02 15 4 74 89 59 4 71 72 71	61690 56099 52152	11 684 10 625 9 877	12	151	Rahiada, IV Suktipur, VI Bandhadi	61 3 27 47 11 44 4 798225 4 721670 4 833743	62838 52683 68194	11 901 9 978 12 915	"	
140	Bhacháu, I Nara, II Halraí	11 24 50 19 45 20 4 51 64 66 4 74 89 59 4 934001	32845 56099 85902	6 221 10 625 16 269	18	152	Rahiada, IV Suktipur, VI Kadol	88 44 9 36 3 9 4 910154 4 689026 4 833743	83015 48868 68194	15 722 9 255 12 915	"	
141	Bhacháu, I Nara, II Halraí Hill Mark (helio.)	12 23 56 26 13 3 4 47 06 10 4 73 39 51 4 934001	29554 66807 85902	5 597 11 516 16 269	"	153	Kakarva, III Rahiada, IV Kadol	7 39 30 5 25 45 4 689026 4 540271 4 919261	48868 34695 83035	9 255 6 571 15 726	"	
142	Nara, II Kakarva, III Halraí Hill Mark (helio.)	31 57 52 27 53 45 4 52 42 67 4 47 06 10 4 73 74 07	33440 20954 54627	6 333 5 597 10 346	"	154	Kakarva, III Kadol Chobari Temple	39 55 55 33 48 25 4 365453 4 303385 4 540271	23198 20109 34695	4 394 3 808 6 571	12	

NOTE.—Stations Gangta VII, Chitrod XI and Vandhin XIV appertain to the Káshíawár Meridional Series.

SECONDARY TRIANGULATION. TRIANGLES.

No. of Triangle	Station	Corrected Plane Angle			Distance			Theodolite used		
		°	'	"	Log. feet	Feet	Miles			
155	Kākārya, III	78 34 30	4° 47' 48"	5	30025	4 47786	3	21376	4° 049	Inch 12
	Bharodia	41 1 49	4° 30' 33"	20109	3° 808	4° 560418	36343	6° 883	8° 074	"
	Chobāri Temple		4° 42' 34"	26633	5° 044	4° 629713	42630	8° 074	"	"
156	Kākārya, III	29 52 32	4° 61' 68"	41383	7° 838	3° 594149	3928	0° 744	"	"
	Rahādā, IV	62 0 10	4° 85' 44"	73357	13° 893	3° 772853	5927	1° 123	"	"
157	Desānpur		4° 91' 26"	83035	15° 726	3° 822472	6645	1° 258	"	"
	Rahādā, IV	32 9 44	4° 60' 00"	39811	7° 540	3° 594149	3928	0° 744	"	"
158	Sukhpur, VI	33 35 46	4° 61' 08"	41383	7° 838	4° 603969	40176	7° 609	"	"
	Desānpur		4° 83' 37"	68194	12° 915	4° 560418	36343	6° 883	"	"
159	Bhachāu, I	34 49 18	4° 59' 29"	39382	7° 459	3° 849466	7071	1° 339	"	"
	Sukhpur, VI	28 20 3	4° 51' 49"	32733	6° 199	4° 074776	11879	2° 250	"	"
	Kumbhārdi Temple		4° 78' 91"	61535	11° 654	3° 822472	6645	1° 258	"	"
160	Bhachāu, I	37 14 14	4° 40' 30"	25293	4° 790	3° 849466	7071	1° 339	"	"
	Bāndhadi	51 32 46	4° 51' 49"	32733	6° 199	4° 074776	11879	2° 250	"	"
	Kumbhārdi Temple		4° 82' 10"	41789	7° 915	3° 822472	6645	1° 258	"	"
161	Sukhpur, VI	34 50 1	4° 58' 18"	38179	7° 231	3° 849466	7071	1° 339	"	"
	Bāndhadi	35 14 22	4° 56' 21"	38566	6° 109	4° 471021	29582	5° 603	"	"
	Chopadvu	109 55 37	4° 78' 22"	62838	11° 901	4° 560418	36343	6° 883	"	"
162	Bhachāu, I	33 27 11	4° 36' 68"	23273	4° 468	3° 849466	7071	1° 339	"	"
	Bāndhadi	81 49 1	4° 62' 10"	41789	7° 915	4° 074776	11879	2° 250	"	"
	Chopadvu		4° 78' 22"	62838	11° 901	3° 822472	6645	1° 258	"	"
163	Bhachāu, I	34 29 18	4° 66' 02"	45736	8° 662	4° 422679	26465	5° 012	"	"
	Sukhpur, VI	15 8 20	4° 32' 41"	21094	3° 995	4° 327028	21234	4° 022	"	"
	Sikra Hill Mark (helio.)		4° 78' 22"	61535	11° 654	4° 629713	42630	8° 074	"	"
164	Bhachāu, I	6 17 31	4° 02' 65"	10630	2° 013	4° 422679	26465	5° 012	"	"
	Chopadvu	16 53 18	4° 44' 89"	28177	5° 337	4° 471021	29582	5° 603	"	"
	Sikra Hill Mark (helio.)		4° 58' 18"	38179	7° 231	4° 560418	36343	6° 883	"	"
165	Bhachāu, I	42 38 23	4° 62' 91"	42630	8° 074	4° 389508	24519	4° 644	"	"
	Sukhpur, VI	35 15 48	4° 50' 30"	36333	6° 881	4° 583074	38289	7° 252	"	"
	Chirai		4° 78' 22"	61535	11° 654	4° 560418	36343	6° 883	"	"
166	Sukhpur, VI	59 24 35	4° 80' 31"	64315	12° 181	4° 457520	28676	5° 431	"	"
	Khāri Rohar, VII	34 47 27	4° 62' 91"	42630	8° 074	4° 457520	28676	5° 431	"	"
	Chirai		4° 87' 22"	74512	14° 112	4° 629713	42630	8° 074	"	"
166	Sukhpur, VI	9 35 38	3° 82' 24"	6645	1° 258	4° 755308	56926	10° 781	"	"
	Chopadvu	65 43 20	4° 56' 04"	36343	6° 883	4° 448227	28069	5° 316	"	"
	Chopadvu		4° 56' 21"	38566	7° 304	4° 448227	28069	5° 316	"	"

* Deduced base.

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	
179	Sukhpur, VI Charakda, VIII Tapar Temple	14 54 11 2 54 25	4 798611 4 703494 4 873891	62894 12402 74798	11 912 2 349 14 166	191	Rahiada, IV Sukhpur, VI Kas Hill (helio.)	27 8 59 51 7 19	4 502173 4 734156 4 833743	31781 54220 68194	6 019 10 269 12 915	Inch 18 "	
180	Rahiada, IV Desalpur Kas	t.s. h.s.	4 632263 4 708661 4 616826	42881 51128 41383	8 121 9 683 7 838	192	Sukhpur, VI Rapur Kas Hill (helio.)	49 36 2 40 10 28	4 574230 4 502173 4 692531	37517 31781 49264	7 106 9 330 4	12 "	
181	Sukhpur, VI Desalpur Kas	t.s. h.s.	4 632263 4 449137 4 600003	42881 28128 39811	8 121 5 327 7 540	193	Sukhpur, VI Khari Rohar, VII Fusalia	38 47 33 48 55 15	4 669495 4 749830 4 872226	46719 56212 74512	8 848 10 640 14 112	18 "	
182	Sukhpur, VI Desalpur Dhamadka Hill Mark	t.s.	4 412981 4 151431 4 600003	25881 14172 39811	4 902 2 684 7 540	194	Sukhpur, VI Jhuran, IX Pasalia	78 36 18 44 25 25	4 896112 4 749830 4 882208	78725 56212 67330	14 910 10 646 12 752	"	
183	Sukhpur, VI Kas Dhamadka Hill Mark	h.s.	4 418829 4 151431 4 449137	26232 14172 28128	4 968 2 684 5 327	195	Jhuran, IX Boliadi, XI Dhaneti	61 59 38 52 52 38	4 748845 4 704581 4 700665	56085 50650 57632	10 622 9 593 10 915	"	
184	Sukhpur, VI Jhuran, IX Dhamadka Temple	15 26 57	4 784627 4 264234 4 828208	60901 18375 67330	11 535 3 480 12 752	196	Khatrod, X Boliadi, XI Dhaneti	56 25 30 38 13 19	4 748845 4 619602 4 826686	56085 41649 67094	10 622 7 888 12 707	"	
185	Sukhpur, VI Kas Dhamadka Temple	h.s.	4 285945 4 264234 4 449137	19317 18375 28128	3 659 3 480 5 327	197	Jhuran, IX Rapur Dhaneti	77 30 10 55 21 55	4 580533 4 704581 4 630285	38024 50650 42686	7 201 9 593 8 084	12 "	
186	Sukhpur, VI Kas Dhamadka Hill Math	h.s.	4 104196 4 266243 4 449137	12711 19781 28128	2 407 3 746 5 327	198	Rapur Dhaneti Sugalia	38 10 45 80 50 1 60 59 14	4 429362 4 632705 4 580533	26876 43024 38024	5 000 8 130 7 201	"	
187	Sukhpur, VI Desalpur Dhamadka Hill Math	t.s.	4 504528 4 296243 4 600003	31954 19781 39811	6 052 3 746 7 540	199	Khatrod, X Dhaneti Sugalia	73 19 9 69 29 40	4 429362 4 629359 4 619602	26876 42595 41649	5 000 8 007 7 888	"	
188	Sukhpur, VI Kas Dudhai Temple	h.s.	3 952154 4 284682 4 449137	8957 19261 28128	1 696 3 648 5 327	200	Rapur Dhaneti Kokra Temple	43 25 15 17 35 48	4 475339 4 118619 4 580533	29877 13141 38024	5 659 2 489 7 201	"	
189	Sukhpur, VI Jhuran, IX Rapur	h.s.	4 630285 4 692531 4 882208	42686 49264 67330	8 084 9 330 12 752	201	Dhaneti Sugalia Dagalia Hill Peak	139 59 1 21 48 42	4 742848 4 504658 4 429362	55316 31964 26876	10 476 6 054 5 090	"	
190	Sukhpur, VI Charakda, VIII Rapur	h.s.	4 566365 4 692531 4 873891	36844 49264 74798	6 978 9 330 14 166	202	Rapur Dhaneti Dagalia Hill Peak	51 45 1 59 9 0	4 504658 4 533358 4 580533	31964 34943 38024	6 054 6 618 7 201	"	

No. of Triangle	Station	Corrected Plane Angle			Distance			No. of Triangle	Station	Corrected Plane Angle			Distance			Theodolite			
		°	'	"	Log. feet.	Feet	Miles			Log. feet.	Feet	Miles	Theodolite						
203	Sukhpur, VI Charakda, VIII Kas Hill Mark No. 1 (helio.)	60	48	38	4	873475	74727	14	153	18	5	007614	101769	19	274	Inch			
		58	16	50	4	862197	72811	13	790	"	3	2140	6045	1	145	"			
					4	873891	74798	14	166	"	3	202691	100621	19	057	"			
204	Khátród, X Bolíadí, XI Kas Hill Mark No. 2 (helio.)	41	11	27	4	710600	51357	9	727	"	23	422	85902	16	269	"			
		79	27	2	4	884595	76665	14	520	"	4	1512	16257	3	079	"			
					4	826686	67094	12	707	"	5	002691	100621	19	057	"			
205	Jhuran, IX Bolíadí, XI Kas Hill Mark No. 3 (helio.)	4	55	25	4	544830	35061	6	640	"	23	1730	86542	16	390	"			
		3	11	12	4	356193	22709	4	301	"	4	44	192227	15568	2	948	"		
					4	706065	57932	10	915	"	5	002691	100621	19	057	"			
206	Khátród, X Bolíadí, XI Kas Hill Mark No. 3 (helio.)	28	1	44	4	544830	35061	6	640	"	33	34	7	465095	44099	8	466	"	
		87	54	45	4	872521	74563	14	122	"	22	3139	449094	30972	5	866	"		
					4	826686	67094	12	707	"	4	44	192227	15568	2	948	"		
207	Charakda, VIII Khátród, X Haba, Ráya Hill Math	49	57	3	4	852064	71132	13	472	"	110	341	4	994578	98759	18	704	"	
		86	21	4	4	967242	92735	17	563	"	16	10	5	466518	20276	5	545	"	
					4	807512	64197	12	158	"	4	928451	84811	16	003	"			
208	Charakda, VIII Jhuran, IX Haba, Ráya Hill Math	28	34	45	4	650109	44680	8	462	"	20	18	59	4	443494	27765	5	258	12
		96	50	16	4	967242	92735	17	563	"	131	17	32	4	778754	60083	11	379	"
					4	881477	76116	14	410	"	4	580053	38024	7	201	"			
209	Khátród, X Bolíadí, XI Jandia Hill Mark (helio.)	120	44	52	4	909976	81279	15	394	"	41	47	33	4	720046	52486	9	941	18
		14	3	45	4	361338	22979	4	352	"	63	5	11	4	840502	70227	13	300	"
					4	826686	67094	12	707	"	4	881477	76116	14	416	"			
210	Khátród, X Pengo Jandia Hill Mark (helio.)	26	12	12	4	577745	37822	7	163	"	30	25	22	4	467113	29317	5	552	"
		15	33	42	4	361338	22979	4	352	"	65	2	13	4	720046	52486	9	941	"
					4	756231	57953	10	806	"	4	760665	57632	10	915	"			
211	Khátród, X Bolíadí, XI Gandher Hill Peak (helio.)	133	10	27	4	887484	77176	14	617	"	12	27	3	4	442086	27732	5	252	"
		7	28	46	4	139104	13775	2	609	"	18	59	24	4	621755	41856	7	927	"
					4	826686	67094	12	707	"	4	826686	67094	12	707	"			
212	Charakda, VIII Khátród, X Gandher Hill Peak (helio.)	8	44	4	4	139104	13775	2	609	"	101	3	41	4	973826	94151	17	832	"
		36	18	43	4	730130	53719	10	174	"	16	48	10	4	442986	27732	5	252	"
					4	807512	64197	12	158	"	4	928451	84811	16	003	"			
213	Khátród, X Sámátra, XII Khátród Hill Mark (helio.)	10	31	42	4	978303	95127	18	016	"	94	28	11	4	962980	91829	17	392	"
		0	15	25	3	368228	2335	0	442	"	18	29	32	4	465603	29215	5	533	"
					4	988653	97421	18	451	"	4	928451	84811	16	003	"			
214	Khátród, X Bolíadí, XI Khátród Hill Mark (helio.)	106	34	36	4	831213	67797	12	840	"	74	3	48	4	915264	82274	15	582	"
		1	53	29	3	368228	2335	0	442	"	23	32	18	4	533632	34171	6	472	"
					4	826686	67094	12	707	"	4	928451	84811	16	003	"			

No. of Triangle	Station	Corrected Plane Angle			Distance			Theodolite used							
		°	'	"	Log. feet	Feet	Miles								
227	Khátród, X Várúr, XIII Jandharia	39 55 11 18 20 55	4° 58' 03.47"	75018	14 378	18	Inch.	18							
									h.s.	4° 57' 10.38"	37242	7° 033	"	"	"
228	Boládi, XI Várúr, XIII Jandharia	63 17 6 22 59 2	4° 58' 03.47"	75018	14 378	"	"	"							
									h.s.	4° 52' 09.03"	33187	6° 285	"	"	"
229	Khátród, X Boládi, XI Haba Hill Peak (helio.)	11 26 29 105 54 57	4° 17' 56.61"	14085	2 838	"	"	"							
									h.s.	4° 86' 12.19"	72647	13 759	"	"	"
230	Boládi, XI Jandharia Nokhánia	75 27 4 38 44 53	4° 68' 45.15"	48363	9 160	12	"	"							
									h.s.	4° 71' 03.95"	51322	9 720	"	"	"
231	Samátra, XII Dhinothar, XV Jhura Hill Mark (helio.)	39 55 11 51 26 7	4° 58' 70.25"	77095	14 601	18	"	"							
									h.s.	4° 92' 28.37"	93937	17 791	"	"	"
232	Boládi, XI Samátra, XII Jhura Hill Mark (helio.)	49 14 4 42 25 27	4° 59' 28.37"	93937	17 791	"	"	"							
									h.s.	4° 92' 25.74"	83971	15 847	"	"	"
233	Boládi, XI Nokhánia Sumrásar	63 20 53 67 43 54	4° 62' 12.21"	41804	7 917	12	"	"							
									h.s.	4° 69' 51.82"	49566	9 387	"	"	"
234	Nokhánia Jhura Hill Mark (helio.) Sumrásar	78 10 43 46 46 6	4° 69' 26.65"	49019	9 454	"	"	"							
									h.s.	4° 62' 12.21"	41804	7 917	"	"	"
235	Nokhánia Sumrásar Nokhánia Hill Peak	59 34 43 8 19 53	4° 52' 61.44"	33585	6 361	"	"	"							
									h.s.	3° 59' 33.17"	9859	1 867	"	"	"
236	Nokhánia Sumrásar Sánadra Hill Mark	61 31 39 41 58 37	4° 57' 74.09"	37793	7 158	"	"	"							
									h.s.	4° 45' 87.14"	28755	5 446	"	"	"
237	Jandharia Nokhánia Sánadra Hill Mark	35 11 25 40 34 7	4° 45' 87.14"	28755	5 446	"	"	"							
									h.s.	4° 51' 12.23"	32451	6 116	"	"	"
238	Samátra, XII Várúr, XIII Bhúj, Sural Hill Temple	47 16 36 73 15 25	4° 75' 64.04"	57069	10 809	18	"	"							
									h.s.	4° 87' 15.17"	74390	14 089	"	"	"

* Deduced base.

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	
251	Sāmātra, XII Dholbet Vadva Hill No. 1	h.s.	39 19 21	4° 62' 98.2	42460	8° 042	263	Vārār, XIII Dhinothar, XV Kandhvingo Hill Peak (helio.)	80 18 19	4° 92' 93.22	54981	16° 095	Inch 18	
			68 9 5	4° 79' 37.36	62192	11° 779			24 11 11	4° 54' 80.42	35322	6° 690		
				4° 80' 55.90	63913	12° 105				4° 92' 15.27	83469	15° 809		
252	Sāmātra, XII Dhinothar, XV Vadva Hill No. 1	h.s.	59 42 4	5° 01' 58.28	103712	19° 642	264	Sāmātra, XII Dhinothar, XV Kandhvingo Hill Peak (helio.)	18 47 2	4° 92' 93.22	84931	16° 095	"	
			31 10 54	4° 79' 37.36	62192	11° 779			8 17 12	4° 58' 02.09	38037	7° 204		
				5° 07' 56.82	120105	22° 747				5° 07' 56.82	120105	22° 747		
253	Sāmātra, XII Dholbet Vadva Hill No. 2 (helio.)	h.s.	35 53 50	4° 60' 09.11	39594	7° 556	265	Vārār, XIII Dhinothar, XV Lākria Hill (helio.)	46 27 36	4° 81' 49.62	65397	12° 369	"	
			74 9 41	4° 81' 59.57	65457	12° 397			65 38 47	4° 91' 42.15	82076	15° 545		
				4° 80' 55.90	63913	12° 105				4° 92' 15.27	83469	15° 809		
254	Rohā, XIV Vadva Hill No. 2 (helio.)	h.s.	11 19 39	4° 33' 42.57	21590	4° 089	266	Vārār, XIII Rohā, XIV Lākria Hill (helio.)	10 40 56	4° 50' 60.94	32070	6° 074	"	
			36 32 53	4° 81' 59.57	65457	12° 397			28 19 12	4° 91' 42.15	82076	15° 545		
				4° 91' 13.00	81527	15° 441				5° 03' 06.66	108885	20° 622		
255	Sāmātra, XII Vārār, XIII Nauāma Hill (helio.)	h.s.	90 52 45	4° 94' 06.20	88434	16° 749	267	Vārār, XIII Dhinothar, XV Vethon Hill Mark (helio.)	34 3 31	4° 07' 12.74	46911	8° 885	"	
			39 57 40	4° 75' 43.87	56805	10° 759			60 44 37	4° 86' 37.91	73079	13° 841		
				4° 83' 55.00	66911	12° 673				4° 92' 15.27	83469	15° 809		
256	Vārār, XIII Dhinothar, XV Nauāma Hill (helio.)	h.s.	65 31 2	4° 96' 00.00	93111	17° 635	268	Sāmātra, XII Vārār, XIII Vethon Hill Mark (helio.)	57 47 50	4° 86' 37.91	73079	13° 841	"	
			59 48 41	4° 94' 66.20	88434	16° 749			71 25 11	4° 91' 30.87	81863	15° 504		
				4° 92' 15.27	83469	15° 809				4° 82' 55.00	66911	12° 673		
257	Sāmātra, XII Vārār, XIII Dhrabva Hill Mark (helio.)	h.s.	83 6 35	4° 87' 85.22	75600	14° 318	269	Vārār, XIII Dhinothar, XV Vichhā Hill Peak (helio.)	40 26 48	4° 84' 35.36	69749	13° 210	"	
			35 24 0	4° 64' 55.4	44112	8° 354			10 28 54	4° 59' 13.48	19559	3° 704		
				4° 82' 55.00	66911	12° 673				4° 92' 15.27	83469	15° 809		
258	Sāmātra, XII Dholbet Dhrabva Hill Mark (helio.)	h.s.	57 57 26	4° 74' 13.76	55128	10° 441	270	Sāmātra, XII Vārār, XIII Vichhā Hill Peak (helio.)	16 49 11	4° 49' 13.48	19559	3° 704	"	
			42 42 28	4° 64' 55.4	44112	8° 354			65 1 54	4° 78' 72.95	61277	11° 605		
				4° 80' 55.90	63913	12° 105				4° 82' 55.00	66911	12° 673		
259	Sāmātra, XII Vārār, XIII Rojhla Hill Peak (helio.)	h.s.	78 13 30	4° 89' 49.48	78514	14° 870	271	Sāmātra, XII Vārār, XIII Vichhā Hill Peak (helio.)	9 46 30	4° 06' 53.71	11624	2° 202	"	
			45 14 0	4° 75' 43.1	56942	10° 784			67 59 8	4° 80' 26.07	63476	12° 022		
				4° 82' 55.00	66911	12° 673				4° 82' 55.00	66911	12° 673		
260	Vārār, XIII Dhinothar, XV Rojhla Hill Peak (helio.)	h.s.	60 14 42	4° 91' 06.48	81404	15° 418	272	Vārār, XIII Dhinothar, XV Arada Hill Mark (helio.)	16 15 12	4° 51' 52.95	32756	6° 204	"	
			56 51 34	4° 89' 49.48	78514	14° 870			29 14 33	4° 75' 71.87	57122	10° 828		
				4° 92' 15.27	83469	15° 809				4° 92' 15.27	83469	15° 809		
261	Rohā, XIV Hāthra, XVI Rojhla Hill Mark (helio.)	h.s.	94 8 27	5° 08' 84.64	122592	23° 218	278	Sāmātra, XII Vārār, XIII Arada Hill Mark (helio.)	40 50 20	4° 75' 71.87	57122	10° 828	"	
			9 19 28	4° 29' 91.80	19915	3° 772			89 43 30	4° 04' 16.13	87420	16° 557		
				5° 07' 74.93	119534	22° 639				4° 82' 55.00	66911	12° 673		
262	Rohā, XIV Dholbet Rojhla Hill Mark (helio.)	h.s.	96 4 26	4° 81' 70.14	65617	12° 427	274	Rohā, XIV Dhinothar, XV Akādanu Hill Peak (helio.)	25 53 44	4° 61' 65.83	41360	7° 833	"	
			17 33 57	4° 29' 91.80	19915	3° 772			65 48 49	4° 93' 6.06	86391	16° 362		
				4° 78' 13.94	60450	11° 449				4° 97' 01.74	94002	17° 928		

No. of Triangle	Station	Corrected Plane Angle	Distance			Theodolite	No. of Triangle	Station	Corrected Plane Angle	Distance			Theodolite
			Log. feet	Feet	Miles					Log. feet	Feet	Miles	
275	Várár, XIII	48 16 41	4 936466	86391	16.362	Inch	Sámara, XII	79 9 15	5 002228	100514	19.037	Inch	
	Roha, XIV	21 53 44	4 635115	43163	8.175	18	Várar, XIII	60 1 2	4 947662	88647	16.789	"	
	Akúdu Hill Peak (helio.)	5 036966	103885	20.622	"	"	Mosuna Hill Mark (helio.)	11 35 38	4 825500	66911	12.673	"	
276	Várár, XIII	10 36 35	4 397225	24959	4.727	"	Háthria, XVI	17 54 51	4 660309	45741	8.663	"	
	Dhinodhar, XV	27 23 46	4 795018	62376	11.814	"	Naliya, XVII	17 54 51	4 845145	70008	13.259	"	
	Karbuva Hill Peak	4 921527	83469	15.809	"	Tera Fort (helio.)	5 049617	112103	21.232	"			
277	Dhinodhar, XV	37 33 53	4 873752	74774	14.162	"	Háthria, XVI	49 18 42	4 856021	71783	13.595	"	
	Háthria, XVI	16 27 52	4 541097	34761	6.584	"	Sáhnad, XIX	47 41 24	4 845145	70008	13.259	"	
	Pakhdó Hill Mark No. 1 (helio.)	4 996784	99262	18.800	"	Tera Fort (helio.)	4 972947	93901	17.796	"			
278	Várár, XIII	18 7 10	4 541097	34761	6.584	"	Naliya, XVII	21 23 43	4 756566	57991	10.813	"	
	Dhinodhar, XV	113 34 8	5 010568	102449	19.403	"	Sáhnad, XIX	4 40 41	4 105971	12764	2.417	"	
	Pakhdó Hill Mark No. 1 (helio.)	4 921527	83469	15.809	"	Naliya Temple No. 1	4 837491	68785	13.027	"			
279	Dhinodhar, XV	34 47 54	4 840212	69217	13.109	"	Naliya, XVII	21 8 17	4 756322	57959	10.807	"	
	Háthria, XVI	20 7 40	4 620516	41736	7.905	"	Sáhnad, XIX	4 37 47	4 106236	12771	2.419	"	
	Pakhdó Hill Mark No. 2 (helio.)	4 996784	99262	18.800	"	Naliya Temple No. 2	4 837491	68785	13.027	"			
280	Sámara, XII	19 44 24	4 620516	41736	7.905	"	Dhinodhar, XV	27 32 50	4 722331	52763	9.993	"	
	Dhinodhar, XV	83 51 44	5 089420	122863	23.269	"	Háthria, XVI	32 55 3	4 792383	61999	11.742	"	
	Pakhdó Hill Mark No. 2 (helio.)	5 079502	120105	22.747	"	Mulu Hill Mark (helio.)	4 996784	99262	18.800	"			
281	Vamoti	91 55 36	4 750114	56249	10.633	"	Háthria, XVI	30 29 33	4 567916	36976	7.003	"	
	Dhuñi	48 54 21	4 627519	42415	8.033	"	Manjal, XVII	46 23 33	4 722331	52763	9.993	"	
	Netra Hill Mark (helio.)	4 559795	35546	6.732	"	Mulu Hill Mark (helio.)	4 851066	70969	13.441	"			
282	Háthria, XVI	27 8 32	4 750114	56249	10.633	"	Háthria, XVI	38 4 26	4 674450	47255	8.950	"	
	Dhuñi	9 36 23	4 313359	20376	3.897	"	Manjal, XVII	74 5 10	4 867420	73692	13.957	"	
	Netra Hill Mark (helio.)	h. s.	4 867881	73770	13.972	"	Chhári Hill Mark (helio.)	43 59 50	4 867420	73692	13.957	"	
283	Roha, XIV	91 20 1	4 852535	71209	13.487	"	Dhinodhar, XV	25 20 10	4 657041	45398	8.598	"	
	Chitráni	33 10 27	4 596788	38975	7.382	"	Háthria, XVI	13 7 20	4 361975	23013	4.359	"	
	Máñki Hill Mark (helio.)	h. s.	4 768606	58966	11.117	"	Manjal, XVII	31 18 52	4 721675	52684	9.978	"	
284	Chitráni	32 16 4	4 580376	38952	7.207	"	Amara Hill Mark (helio.)	31 42 26	4 721675	52684	9.978	"	
	Vamoti	87 32 33	4 852535	71209	13.487	"	Háthria, XVI	50 17 16	4 887112	77110	14.604	"	
	Máñki Hill Mark (helio.)	4 791292	61843	11.713	"	Amara Hill Mark (helio.)	4 996784	99262	18.800	"			
285	Várár, XIII	13 22 15	4 426926	26726	5.062	"	Dhinodhar, XV	31 42 26	4 721675	52684	9.978	"	
	Roha, XIV	57 2 51	4 986665	96976	18.367	"	Háthria, XVI	50 17 16	4 887112	77110	14.604	"	
	Mosuna Hill Tree	5 036966	108885	20.622	"	Amara Hill Mark (helio.)	4 996784	99262	18.800	"			
286	Várár, XIII	43 46 17	4 835182	68420	12.958	"	Dhinodhar, XV	54 28 34	4 907438	80805	15.304	"	
	Dhinodhar, XV	78 40 10	4 986665	96976	18.367	"	Háthria, XVI	36 43 56	4 773637	53880	11.246	"	
	Mosuna Hill Tree	4 921527	83469	15.809	"	Fulái Hill Mark (helio.)	4 996784	99262	18.800	"			

SECONDARY TRIANGULATION. TRIANGLES.

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	
299	Háthria, XVI	26 40 40	4° 55' 99.99	36300	6.875	311	Háthria, XVI	28 6 40	4° 54' 138	43066	8.156	Inch 18
	Manjal, XVIII	91 56 55	4° 907' 433	86805	15.304		Juna Gandhára, XXI	44 19 3	4° 805' 198	63855	12.094	"
	Fulá Hill Mark (helio.)	4° 85' 1066	70969	13.441	Juna Chá Hill Mark (helio.)		4° 940' 197	87136	16.503	"	"	
300	Háthria, XVI	10 54 30	4° 173' 802	14921	2.826	312	Háthria, XVI	12 45 21	4° 291' 232	19554	3.703	"
	Manjal, XVIII	104 55 31	4° 881' 888	76188	14.430		Manjal, XVIII	40 30 15	4° 759' 821	57520	10.894	"
	Nara Hill Mark (helio.)	4° 85' 1066	70969	13.441	Gajansar Hill Mark (helio.)		4° 85' 1066	70969	13.441	"	"	
301	Manjal, XVIII	16 10 35	4° 47' 837	30087	5.608	313	Sáhind, XIX	14 29 31	4° 543' 532	34957	6.621	"
	Sura Gandhára, XXI	24 28 39	4° 650' 756	44746	8.475		Sura Gandhára, XXI	37 34 5	4° 930' 287	85170	16.131	"
	Dhodatambo Hill Mark (helio.)	4° 847' 310	70357	13.325	Jhágora Hill Mark (helio.)		5° 042' 055	110168	20.865	"	"	
302	Háthria, XVI	20 3 7	4° 47' 837	30087	5.608	314	Háthria, XVI	63 35 19	4° 930' 287	85170	16.131	"
	Sura Gandhára, XXI	76 43 46	4° 931' 491	85406	16.175		Sáhind, XIX	35 16 18	4° 739' 079	54913	10.400	"
	Dhodatambo Hill Mark (helio.)	4° 940' 197	87136	16.503	Jhágora Hill Mark (helio.)		4° 972' 947	93961	17.796	"	"	
303	Manjal, XVIII	7 48 27	4° 321' 161	20949	3.968	315	Sáhind, XIX	19 9 21	4° 662' 518	45975	8.707	"
	Sura Gandhára, XXI	19 20 14	4° 708' 112	51064	9.671		Sura Gandhára, XXI	32 41 11	4° 878' 887	75664	14.330	"
	Huroda Hill Mark (helio.)	4° 847' 310	70357	13.325	Mátánomadh Hill Temple		5° 042' 055	110168	20.865	"	"	
304	Háthria, XVI	48 4 1	4° 797' 482	62731	11.881	316	Manjal, XVIII	37 13 46	4° 662' 518	45975	8.707	"
	Manjal, XVIII	74 37 19	4° 910' 118	81305	15.399		Sura Gandhára, XXI	74 58 11	4° 805' 959	73390	13.900	"
	Gaudhára Hill Mark (helio.)	4° 851' 066	70969	13.441	Mátánomadh Hill Temple		4° 847' 310	70357	13.325	"	"	
305	Háthria, XVI	48 35 7	4° 902' 213	79857	15.124	317	Manjal, XVIII	45 23 28	4° 708' 785	51143	9.686	"
	Suri Muri, XX	49 46 38	4° 910' 118	81305	15.399		Sura Gandhára, XXI	56 15 46	4° 776' 267	50740	11.314	"
	Gandhára Hill Mark (helio.)	5° 022' 644	105352	19.953	Mátánomadh Hill Mark (helio.)		4° 847' 310	70357	13.325	"	"	
306	Suri Muri, XX	9 14 16	4° 086' 159	12194	2.310	318	Suri Muri, XX	38 2 8	4° 708' 785	51143	9.686	"
	Sura Gandhára, XXI	86 17 8	4° 879' 684	78803	14.537		Sura Gandhára, XXI	76 19 56	4° 906' 623	80653	15.275	"
	Vadi Hill Mark (helio.)	4° 878' 577	75610	14.320	Mátánomadh Hill Mark (helio.)		4° 878' 577	75610	14.320	"	"	
307	Háthria, XVI	45 59 50	4° 879' 684	78803	14.537	319	Háthria, XVI	23 25 19	4° 956' 694	90566	17.153	"
	Suri Muri, XX	45 23 11	4° 875' 165	75018	14.268		Suri Muri, XX	4 7 12	4° 214' 028	16369	3.100	"
	Vadi Hill Mark (helio.)	5° 022' 644	105352	19.953	Bhunjái Hill Mark No. 1 (helio.)		5° 022' 644	105352	19.953	"	"	
308	Suri Muri, XX	13 27 25	4° 231' 70	17913	3.393	320	Sáhind, XIX	78 22 6	4° 956' 694	90566	17.153	"
	Sura Gandhára, XXI	87 20 55	4° 885' 881	76892	14.563		Suri Muri, XX	67 5 51	4° 930' 315	85176	16.132	"
	Goda Hill Mark (helio.)	4° 878' 577	75610	14.320	Bhunjái Hill Mark No. 1 (helio.)		4° 719' 480	52418	9.948	"	"	
309	Háthria, XVI	46 50 14	4° 885' 881	76892	14.563	321	Háthria, XVI	30 33 40	4° 880' 120	75879	14.371	"
	Suri Muri, XX	41 10 2	4° 841' 394	69591	13.142		Sáhind, XIX	8 27 41	4° 341' 695	21059	4.159	"
	Goda Hill Mark (helio.)	5° 022' 644	105352	19.953	Bhunjái Hill Mark No. 2 (helio.)		4° 972' 947	93961	17.796	"	"	
310	Háthria, XVI	23 30 29	4° 452' 311	28334	5.366	322	Háthria, XVI	5 35 35	4° 571' 921	37318	7.068	"
	Manjal, XVIII	64 1 5	4° 805' 168	63855	12.094		Suri Muri, XX	10 22 39	4° 836' 678	68973	13.063	"
	Juna Chá Hill Mark (helio.)	4° 851' 066	70969	13.441	Eklia Hill Mark (helio.)		5° 022' 644	105352	19.953	"	"	

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		
323	Sāhūd, XIX	44 53 53	4 571921	37318	7 068	335	Sura Gandhāra, XXI	98 16 55	4 906939	80712	15 286	Inch 18	
	Suri Muri, XX	52 36 0	4 623257	42001	7 955		Lakhpāt, XXV	15 47 8	4 346121	22188	4 202		"
	Ekliā Hill Mark (helio.)	4 719480	52418	9 928	Suarka Hill Mark (helio.)		4 871994	74472	14 105	74472	14 105		"
324	Suri Muri, XX	100 58 10	4 920001	83177	15 753	336	Bābā, XXII	82 58 38	4 906939	80712	15 286	"	
	Sura Gandhāra, XXI	15 51 8	4 364422	23143	4 385		Lakhpāt, XXV	64 37 45	4 866163	73479	13 916		"
325	Bābā Hill Mark (helio.)	4 878577	75010	14 320	Bābā Hill Mark (helio.)	4 878577	75010	14 320	4 639158	43567	8 251	"	
	Sāhūd, XIX	25 6 20	4 920001	83177	15 753	Sura Gandhāra, XXI	43 17 37	4 783036	60679	11 402	"		
326	Sura Gandhāra, XXI	9 5 12	4 490801	30960	5 864	338	Lakhpāt, XXV	14 1 4	4 331094	21434	4 059	"	
	Bābā Hill Mark (helio.)	5 042055	110168	20 865	Koā Hill Mark (helio.)		4 871994	74472	14 105	74472	14 105		
	Jamanvāla, XXIII	74 30 58	4 710243	51315	9 719		Sura Gandhāra, XXI	43 10 8	4 621472	41828	7 922		"
327	Pinjor Pir, XXIV	23 46 3	4 331632	21460	4 064	339	Bābā, XXII	23 57 57	4 395051	24834	4 793	"	
	Mudhā Hill Mark (helio.)	4 721744	52692	9 980	Līk Hill Mark (helio.)		4 878577	75010	14 320	56335	10 669		
328	Bābā, XXII	45 13 0	4 710243	51315	9 719	340	Suri Muri, XX	18 12 31	4 395051	24834	4 793	"	
	Mudhā Hill Mark (helio.)	45 16 4	4 710627	51360	9 727		Sura Gandhāra, XXI	89 44 6	4 900227	79474	15 052		
329	Bābā, XXII	11 58 46	4 492723	31097	5 800	341	Līk Hill Mark (helio.)	25 42 31	4 642228	43876	8 310	"	
	Jamanvāla, XXIII	17 1 26	4 642105	43864	8 308		Lakhpāt, XXV	21 42 28	4 572997	37411	7 085		
330	Mudhā Hill Platform (helio.)	4 861195	72643	13 758	Sāhera Hill Mark No. 1 (helio.)	4 871994	74472	14 105	74472	14 105	"		
	Suri Muri, XX	52 17 24	4 642105	43864	8 308	Sura Gandhāra, XXI	39 13 20	4 553737	35788	6 778			
331	Bābā, XXII	31 6 19	4 457029	28644	5 445	342	Bābā, XXII	45 15 42	4 604253	40202	7 614	"	
	Mudhā Hill Platform (helio.)	4 740973	55977	10 431	Artara Hill Mark (helio.)		50 17 3	4 537097	34443	6 523			
332	Suri Muri, XX	10 52 52	4 608544	40602	7 600	343	Lakhpāt, XXV	53 3 37	4 533737	35788	6 778	"	
	Bābā, XXII	3 57 22	4 171408	14839	2 810		Artara Hill Mark (helio.)	16 27 48	4 207995	16140	3 057		
333	Chāmda Hill (helio.)	36 52 43	4 520177	33127	6 274	344	Sura Gandhāra, XXI	65 6 1	4 713132	51657	9 784	"	
	Suri Muri, XX	56 56 20	4 665228	46262	8 762		Bābā, XXII	19 8 50	4 487982	30760	5 826		
334	Manjāl Hill Mark (helio.)	4 740973	55977	10 431	Manjāl Hill Mark (helio.)	4 740973	55977	10 431	50335	10 669	"		
	Sura Gandhāra, XXI	30 9 26	4 520177	33127	6 274	Sura Gandhāra, XXI	33 25 27	4 713132	51657	9 784			
335	Bābā, XXII	28 31 45	4 498219	31493	5 965	345	Lakhpāt, XXV	28 59 5	4 672088	46999	8 901	"	
	Manjāl Hill Mark (helio.)	4 750778	56335	10 669	Umarsar Hill Mark (helio.)		34 7 49	4 735748	54419	10 307			
336	Sura Gandhāra, XXI	46 39 0	4 780255	62691	11 419	346	Pinjor Pir, XXIV	89 36 57	4 672088	46999	8 901	"	
	Bābā, XXII	17 16 25	4 391278	20911	4 663		Lakhpāt, XXV	22 25 7	4 253445	17924	3 595		
337	Dhāresi Hill Mark (helio.)	4 871994	74472	14 105	Mudhā Hill Mark No. 1 (helio.)	4 871994	74472	14 105	86507	16 384	"		
	Sura Gandhāra, XXI	103 52 57	4 780255	60291	11 419	Sura Gandhāra, XXI	43 10 8	4 621472	41828	7 922			
338	Lakhpāt, XXV	31 34 12	4 512079	32515	6 158	339	Lakhpāt, XXV	89 36 57	4 672088	46999	8 901	"	
	Dhāresi Hill Mark (helio.)	4 639158	43567	8 251	Mudhā Hill Mark No. 1 (helio.)		4 871994	74472	14 105	86507	16 384		

SECONDARY TRIANGULATION. TRIANGLES.

No. of Triangle	Station	Corrected Plane Angle			Distance			Theodolite used
		°	'	"	Log. feet	Feet	Miles	
347	Punjor Pir, XXIV	17 51 34	4° 68'00.4	47863	9° 065	47863	9° 065	Inch
	Lakhpur, XXV	15 48 8	4° 62'30.0	42500	8° 049	42500	8° 049	18
	Mudhrat Hill Mark No. 2 (helio.)		4° 93'70.9	86507	16° 38.4	86507	16° 38.4	"
348	Bābia, XXII	76 50 18	4° 68'00.4	47863	9° 065	47863	9° 065	"
	Lakhpur, XXV	40 44 48	4° 56'28.0	32084	6° 077	32084	6° 077	"
	Mudhrat Hill Mark No. 2 (helio.)		4° 63'91.3	43567	8° 251	43567	8° 251	"
349	Bābia, XXII	2 16 24	4° 01'29.8	10303	1° 951	10303	1° 951	"
	Punjor Pir, XXIV	13 53 16	4° 79'47.8	62344	11° 807	62344	11° 807	"
	Punjor Pir Hill No. 1 (helio.)		4° 85'91.6	72295	13° 692	72295	13° 692	"
350	Bābia, XXII	4 14 4	3° 96'89.6	9310	1° 783	9310	1° 783	"
	Punjor Pir, XXIV	30 44 58	4° 80'35.2	64469	12° 210	64469	12° 210	"
	Punjor Pir Hill No. 2 (helio.)		4° 85'91.6	72295	13° 692	72295	13° 692	"
351	Bābia, XXII	27 34 9	4° 59'32.0	39192	7° 423	39192	7° 423	"
	Punjor Pir, XXIV	31 2 58	4° 64'02.3	43677	8° 272	43677	8° 272	"
	Chher Hill Mark (helio.)		4° 85'91.6	72295	13° 692	72295	13° 692	"
352	Bābia, XXII	65 41 46	4° 67'50.7	47322	8° 963	47322	8° 963	"
	Lakhpur, XXV	57 15 50	4° 64'02.3	43677	8° 272	43677	8° 272	"
	Chher Hill Mark (helio.)		4° 63'91.3	43567	8° 251	43567	8° 251	"
353	Punjor Pir, XXIV	14 26 33	4° 65'76.1	45459	8° 610	45459	8° 610	"
	Lakhpur, XXV	13 53 31	4° 64'10.8	43761	8° 288	43761	8° 288	"
	Lālchatha Hill Temple		4° 93'70.9	86507	16° 38.4	86507	16° 38.4	"
354	Bābia, XXII	56 30 13	4° 65'76.1	45459	8° 610	45459	8° 610	"
	Lakhpur, XXV	70 26 27	4° 71'06.7	51366	9° 728	51366	9° 728	"
	Lālchatha Hill Temple		4° 63'91.3	43567	8° 251	43567	8° 251	"
355	Punjor Pir, XXIV	40 40 13	4° 75'45.3	56827	10° 763	56827	10° 763	"
	Lakhpur, XXV	42 6 56	4° 76'69.3	58477	11° 075	58477	11° 075	"
	Vāstū Bandar Fort (helio.)		4° 93'70.9	86507	16° 38.4	86507	16° 38.4	"
356	Lakhpur, XXV	33 34 33	4° 51'87.9	33016	6° 253	33016	6° 253	"
	Sayid Ali, XXVII	72 9 24	4° 75'45.3	56827	10° 763	56827	10° 763	"
	Vāstū Bandar Fort (helio.)		4° 75'93.0	57462	10° 883	57462	10° 883	"
357	Pattu-ka-Bedhi, XXX	14 37 9	4° 18'39.6	15773	2° 893	15773	2° 893	"
	Nurlishāh, XXXIII	98 21 8	4° 77'21.7	59871	11° 339	59871	11° 339	"
	Allah Memān's Mosque		4° 74'59.6	55714	10° 552	55714	10° 552	"
358	Nurlishāh, XXXIII	34 19 51	4° 54'68.3	35224	6° 671	35224	6° 671	"
	Koti, XXXV	56 13 16	4° 71'52.7	51013	9° 832	51013	9° 832	"
	Memān's Mosque		4° 79'55.7	62454	11° 828	62454	11° 828	"

Note.—Station Kūrothol CIV appertains to the Karachi Longitudinal Series.

No. of Triangle	Station	Corrected Plane Angle	Distance			Inch	No. of Triangle	Station	Corrected Plane Angle	Distance			Inch
			Log. feet	Feet	Miles					Log. feet	Feet	Miles	
COAST LINE SECONDARY SERIES.													
SECONDARY STATIONS AND INTERSECTED POINTS.													
371	Sukhpur, VI Jhuran, IX Anjar Fort	77 32 29 55 30 16	4° 95' 40.56 4° 88' 04.22	89961 75932	17° 03' 18 14° 38' 11	18	381	Pasvália Sagália Sidungra Hill Mark	38 13 15 69 1 3	4° 46' 55.2 4° 64' 27.9	29482 44492	12	
372	Sukhpur, VI Kháiri Rohar, VII Anjar Fort	39 51 22 71 33 46	4° 71' 00.71 4° 87' 22.26	51295 75932	9° 7' 15 14° 38' 11	"	382	Sukhpur, VI Kháiri Rohar, VII Shinaya	23 57 46 104 9 54	4° 58' 51.32 4° 06' 30.43	38474 91842	18	
373	Charakda, VIII Tengo Sidungra	34 40 23 19 29 20	4° 55' 09.50 4° 32' 02.12	36304 21292	6° 8' 76 4° 03' 3	"	383	Kháiri Rohar, VII Charakda, VIII Shinaya	40 23 13 33 50 6	4° 65' 09.69 4° 58' 51.32	44768 38471	"	
374	Shinaya Tengo Sidungra	47 11 47 30 40 10	4° 55' 09.50 4° 40' 20.81	36304 25240	6° 8' 76 4° 03' 3	"	384	Kháiri Rohar, VII Pasvália Shinaya	51 53 42 72 51 39	4° 58' 51.32 4° 60' 49.95	38471 46719	12	
375	Charakda, VIII Sagália Sidungra	08 48 11 40 0 50	4° 51' 48.73 4° 32' 28.12	32725 21292	6° 19' 8 4° 03' 3	"	385	Sidungra Shinaya Virí	43 19 35 14 17 52	4° 40' 39.16 3° 06' 01.24	25346 9123	"	
376	Charakda, VIII Sagália Sidungra Temple	86 53 16 46 8 18	4° 47' 39.70 4° 33' 25.55	29783 21506	5° 64' 1 4° 07' 3	"	386	Pasvália Shinaya Virí	36 35 15 72 34 31	4° 40' 39.16 4° 60' 82.33	25346 40573	"	
377	Pasvália Sagália Sidungra Temple	40 26 29 57 9 25	4° 47' 39.70 4° 58' 30.68	29783 38575	5° 64' 1 7° 30' 6	"	387	Shinaya Virí Midhála Hill Temple	10 23 50 147 34 27	4° 08' 62.13 4° 59' 13.7	12196 36236	"	
378	Charakda, VIII Sagália Sidungra Hill Tomb	86 15 45 46 44 56	4° 47' 35.82 4° 33' 58.51	29756 21720	5° 63' 6 4° 11' 4	"	388	Sidungra Virí Midhála Hill Temple	53 10 15 90 3 0	4° 08' 62.13 4° 18' 28.91	12196 15237	"	
379	Pasvália Sagália Sidungra Hill Tomb	40 20 18 57 46 3	4° 47' 35.82 4° 58' 07.91	29756 38886	5° 63' 6 7° 30' 5	"	389	Shinaya Virí Túna	127 11 31 26 58 47	4° 66' 60.00 4° 42' 14.97	46345 26394	"	
380	Charakda, VIII Sagália Sidungra Hill Mark	76 6 45 57 59 56	4° 46' 05.52 4° 41' 08.51	29482 25754	5° 58' 4 4° 8' 8	"	390	Tengo Virí Túna	120 16 1 25 19 25	4° 8' 02.29 4° 54' 50.43	70832 35079	"	

* Deducted base.

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	
393	Shinaya No. 1	h.s.		69 54 3	4.708597	51121	9.682	18	h.s.		24 18 6	4.419429	26268	Inch
	Tengo	"		47 23 33	4.602768	40065	7.588	"	"		39 3 35	4.604446	40220	"
	Vira Fort (helio.)	"			4.684626	48375	9.162	"	"			4.756281	57053	"
394	Tengo	h.s.		34 36 10	4.474556	29823	5.648	"	h.s.		32 1 5	4.604446	40220	"
	Bhadresar	s.		70 45 36	4.708597	51121	9.682	"	"		25 47 14	4.518537	33002	"
	Vira Fort (helio.)	"			4.689333	48908	9.263	"	"		4.867512	64197	12.158	"
395	Shinaya No. 1	h.s.		41 55 48	4.514673	32709	6.195	"	h.s.		34 47 56	4.550741	35542	"
	Tengo	"		56 51 22	4.612634	40986	7.762	"	"		31 33 53	4.513219	32600	"
	Hatadi Hill Mark No. 1 (helio.)	"			4.684626	48375	9.162	"	"		4.756281	57053	10.866	"
396	Tengo	h.s.		25 8 21	4.376205	23780	4.504	"	h.s.		36 30 39	4.442247	27685	"
	Bhadresar	s.		35 45 25	4.514673	32709	6.195	"	"		49 48 8	4.550741	35542	"
	Hatadi Hill Mark No. 1 (helio.)	"			4.689333	48908	9.263	"	"		4.666849	46435	8.795	"
397	Shinaya No. 1	h.s.		36 59 7	4.471734	29630	5.612	"	h.s.		30 34 4	4.400932	25173	"
	Tengo	"		63 50 11	4.645472	44205	8.372	"	"		50 8 14	4.570716	37994	"
	Hatadi Hill Mark No. 2 (helio.)	"			4.684626	48375	9.162	"	"		4.688651	48849	9.252	"
398	Tengo	h.s.		18 9 32	4.356324	22716	4.302	"	h.s.		26 42 38	4.476962	29899	"
	Bhadresar	s.		23 59 11	4.471734	29630	5.612	"	"		34 42 47	4.579716	37994	"
	Hatadi Hill Mark No. 2 (helio.)	"			4.689333	48908	9.263	"	"		4.767832	58591	11.097	"
399	Shinaya No. 1	h.s.		22 43 14	4.393310	24735	4.685	"	s.		75 22 15	4.807384	64178	"
	Bhadresar	s.		62 32 45	4.754565	56828	10.763	"	h.s.		20 2 38	4.356661	22733	"
	Vovár Hill Mark (helio.)	"			4.804972	63822	12.088	"	"		4.819754	66032	12.506	"
400	Shinaya No. 1	h.s.		26 38 34	4.408204	25598	4.848	"	h.s.		39 2 17	4.643993	44055	"
	Tengo	"		95 25 19	4.754565	56828	10.763	"	t.s.		66 34 2	4.807384	64178	"
	Vovár Hill Mark (helio.)	"			4.684626	48375	9.162	"	"		4.828453	67368	12.759	"
401	Tengo	h.s.		42 49 36	4.327050	33635	6.374	"	s.		64 15 40	4.776459	59767	"
	Lifra	s.		26 52 47	4.349932	22384	4.239	"	h.s.		31 20 56	4.538050	34518	"
	Chandroda Hill Mark (helio.)	"			4.666849	46435	8.795	"	"		4.819754	66032	12.506	"
402	Tengo	h.s.		44 48 2	4.563466	36599	6.932	"	h.s.		27 43 59	4.496240	31350	"
	Bhadresar	s.		25 31 42	4.349932	22384	4.239	"	t.s.		62 31 7	4.776459	59767	"
	Chandroda Hill Mark (helio.)	"			4.689333	48908	9.263	"	"		4.828453	67368	12.759	"
403	Charakda, VIII	h.s.		64 53 1	4.627646	42427	8.035	12	t.s.		58 40 23	4.528147	33740	"
	Sagália	h.s.		87 23 3	4.670330	46809	8.865	"	h.s.		25 22 46	4.228643	16920	"
	Kbedoi Hill Temple	"			4.338553	21805	4.130	"	"		4.594230	39286	7.440	"
404	Sagália	h.s.		47 22 13	4.497894	31470	5.960	"	t.s.		11 33 40	4.247789	17602	"
	Sidungra	"		82 42 56	4.627646	42427	8.035	"	h.s.		14 51 47	4.354967	22645	"
	Khedoi Hill Temple	"			4.514873	32725	6.198	"	"		4.594236	39286	7.440	"

* Deduced base.

No. of Triangle	Station	Corrected Plane Angle		Distance			Theodolite used
		°	'	Log. feet	Feet	Miles	
417	Mādi	52 51 31	h.s.	4 621486	41830	7 922	Inch
	Barāri Māta	43 21 25	"	4 556614	36026	6 823	18
	Sanāghoghna Mosque	4 717387		52166	9 880	"	"
418	Mādi	26 54 57	h.s.	4 512042	32512	6 158	"
	Barāri Māta	19 39 51	"	4 383243	24168	4 577	"
	Bhujpur Temple	4 717387		52166	9 880	"	"
419	Mundra	52 2 17	t.s.	4 512042	32512	6 158	"
	Barāri Māta	55 39 25	h.s.	4 532094	34018	6 449	"
	Bhujpur Temple	4 594236		39286	7 440	"	"
420	Lifra	35 17 52	h.s.	4 654486	45132	8 548	"
	Mādi	27 19 3	"	4 554427	35845	6 789	"
	Lākhpur Hill Mark (helio.)	4 841072		69354	13 135	"	"
421	Mundra	52 36 18	t.s.	4 654486	45132	8 548	"
	Mādi	36 19 36	h.s.	4 572016	3652	6 374	"
	Lākhpur Hill Mark (helio.)	4 754334		59798	10 757	"	"
422	Mādi	112 45 25	h.s.	4 802014	62535	12 033	"
	Barāri Māta	18 1 49	"	4 328698	21325	4 039	"
	Berāja Hill Mark (helio.)	4 717387		52166	9 880	"	"
423	Bhadresar	14 56 37	s.	4 538653	34566	6 547	"
	Lifra	135 32 40	h.s.	4 972574	93880	17 780	"
	Tapar Hill Mark (helio.)	4 819754		66032	12 506	"	"
424	Lifra	27 23 47	h.s.	4 621262	41808	7 918	"
	Mādi	22 21 39	"	4 538653	34566	6 547	"
	Tapar Hill Mark (helio.)	4 841072		69354	13 135	"	"
425	Lifra	48 42 30	h.s.	4 724175	52988	10 036	"
	Mādi	30 50 53	"	4 558244	36161	6 849	"
	Varjhar Hill Mark (helio.)	4 841072		69354	13 135	"	"
426	Mādi	53 49 15	h.s.	4 643734	44029	8 339	"
	Punadi	76 16 11	"	4 724175	52988	10 036	"
	Varjhar Hill Mark (helio.)	4 620443		41729	7 903	"	"
427	Khatrod, X	62 45 23	h.s.	4 955554	90272	17 097	"
	Varār, XIII	34 56 19	"	4 764545	58149	11 013	"
	Bhārapur Hill Mark (helio.)	5 002691		100621	19 057	"	"
428	Bolādi, XI	54 8 23	h.s.	4 955554	90272	17 097	"
	Varār, XIII	76 16 16	"	5 034240	108203	20 493	"
	Bhārapur Hill Mark (helio.)	4 928451		84811	16 003	"	"
429	Sāmātra, XII	28 32 49	h.s.	4 386610	24356	4 613	"
	Kirgira	56 52 35	"	4 630274	42685	8 084	"
	Bālādi Hill Tomb	4 705905		50805	9 622	"	"
430	Sāmātra, XII	49 56 54	h.s.	4 602476	40038	7 083	"
	Punadi	54 41 33	"	4 630274	42685	8 084	"
	Bālādi Hill Tomb	4 704215		50607	9 585	"	"
431	Sāmātra, XII	37 36 7	h.s.	4 489785	30888	5 850	"
	Punadi	53 44 3	"	4 610819	40815	7 730	"
	Kera Mosque	4 704215		50607	9 585	"	"
432	Sāmātra, XII	40 53 36	h.s.	4 523053	33347	6 316	"
	Kirgira	53 15 4	"	4 610819	40815	7 730	"
	Kera Mosque	4 705905		50805	9 622	"	"
433	Sāmātra, XII	48 26 12	h.s.	4 580152	38032	7 203	"
	Kirgira	43 22 7	"	4 542881	34904	6 611	"
	Kera Hill Mark (helio.)	4 705905		50805	9 622	"	"
434	Sāmātra, XII	30 3 31	h.s.	4 420180	26865	5 088	"
	Punadi	40 30 4	"	4 542881	34904	6 611	"
	Kera Hill Mark (helio.)	4 704215		50607	9 585	"	"
435	Mādi	62 20 7	h.s.	4 517895	32953	6 241	"
	Bidāda	35 31 41	"	4 334871	21621	4 095	"
	Tumbadi Hill Mark (helio.)	4 566516		36857	6 980	"	"
436	Mādi	3 55 59	h.s.	4 305655	20214	3 828	"
	Punadi	4 12 26	"	4 334871	21621	4 095	"
	Tumbadi Hill Mark (helio.)	4 620443		41729	7 903	"	"
437	Mundra	29 16 11	t.s.	4 300714	19085	3 785	"
	Barāri Māta	76 46 2	h.s.	4 599787	39791	7 536	"
	Navinal Tree	4 594236		39286	7 440	"	"
438	Mādi	30 11 15	h.s.	4 436337	27311	5 173	"
	Barāri Māta	43 38 36	"	4 573869	37486	7 100	"
	Sirācha Hill Mark (helio.)	4 717387		52166	9 880	"	"
439	Barāri Māta	33 0 45	h.s.	4 526357	33601	6 364	"
	Traghari	26 17 4	"	4 436337	27311	5 173	"
	Sirācha Hill Mark (helio.)	4 724513		53029	10 043	"	"
440	Barāri Māta	3 24 26	h.s.	4 493143	31127	5 895	"
	Traghari	2 24 14	"	4 341785	21968	4 161	"
	Rangan Hill Mark (helio.)	4 724513		53029	10 043	"	"

No. of Triangle	Station	Corrected Plane Angle	Distance			Theodolite	No. of Triangle	Station	Corrected Plane Angle	Distance			Theodolite
			Log. feet	Feet	Miles					Log. feet	Feet	Miles	
441	Mádi	h.s.	4.623570	42031	7.960	458	Mádi	h.s.	4.359106	22862	4.330	Inch 18	
	Barári Mátá	"	4.254692	17976	3.405		Bidada	"	4.562039	36479	6.909		
	Khakhar Temple	"	4.717387	52166	9.880		Aasambia Hill Mark (helio.)	"	4.566516	36857	6.980		
442	Mádi	h.s.	4.488329	30784	5.830	454	Bidada	h.s.	4.567317	36925	6.993	"	
	Bidada	"	4.254692	17976	3.405		Don	"	4.297087	19819	3.754		
	Khakhar Temple	"	4.566516	36857	6.980		Aasambia Tower (helio.)	"	4.653982	45080	8.538		
443	Traghari	h.s.	4.323329	21054	3.987	455	Don	h.s.	4.785403	61010	11.555	"	
	Mándvi	"	4.374401	23681	4.485		Undant	"	4.479852	30180	5.718		
	Dhrábudí Mátá Building	"	4.641435	43796	8.295		Vándh Hill Mark No. 1 (helio.)	"	4.583124	38293	7.253		
444	Traghari	h.s.	4.162429	14535	2.753	456	Bidada	h.s.	4.479852	30180	5.718	"	
	Mándvi	"	4.467492	29342	5.557		Don	"	4.594828	39339	7.451		
	Rával Pir Dome	"	4.641435	43796	8.295		Vándh Hill Mark No. 1 (helio.)	"	4.653982	45080	8.538		
445	Mándvi	h.s.	4.735467	54383	10.300	457	Sámotra, XII	h.s.	4.631075	42764	8.099	"	
	Don	"	4.162429	14535	2.753		Dholbet	"	4.509800	32344	6.126		
	Rával Pir Dome	"	4.670547	46832	8.870		Dhanoi Hill Mark (helio.)	"	4.805590	63913	12.105		
446	Bidada	h.s.	4.433567	27137	5.140	458	Punadi	h.s.	4.631075	42764	8.099	"	
	Don	"	4.442356	27692	5.245		Dholbet	"	4.332044	22493	4.260		
	Kodái Temple	"	4.653982	45080	8.538		Dhanoi Hill Mark (helio.)	"	4.738383	54750	10.369		
447	Mándvi	h.s.	4.433567	27137	5.140	459	Sámotra, XII	h.s.	4.280546	19079	3.613	"	
	Don	"	4.442356	27692	5.245		Dholbet	"	4.781129	60413	11.442		
	Kodái Temple	"	4.670547	46832	8.870		Siságad Hill Fort	"	4.805590	63913	12.105		
448	Traghari	h.s.	4.712722	51609	9.774	460	Sámotra, XII	h.s.	4.622010	41880	7.932	"	
	Mándvi	"	4.674330	47242	8.947		Roha, XIV	"	4.781129	60413	11.442		
	Bidada Mark (helio.)	"	4.641435	43796	8.295		Siságad Hill Fort	"	4.911300	81527	15.441		
449	Traghari	h.s.	3.700757	5126	0.971	461	Sámotra, XII	h.s.	4.094470	12430	2.354	"	
	Bidada	"	4.674330	47242	8.947		Dholbet	"	4.879234	75722	14.341		
	Bidada Mark (helio.)	"	4.707356	50975	9.654		Serdi Hill Temple	"	4.805590	63913	12.105		
450	Traghari	h.s.	4.839651	69127	13.092	462	Dholbet	h.s.	4.909342	81160	15.371	"	
	Mándvi	"	4.786201	61123	11.576		Chitráni	"	4.094470	12430	2.354		
	Farádi Hill Muth	"	4.641435	43796	8.295		Serdi Hill Temple	"	4.923272	83805	15.872		
451	Traghari	h.s.	4.263656	18351	3.476	463	Dholbet	h.s.	4.277728	18955	3.590	"	
	Bidada	"	4.786201	61123	11.576		Don	"	4.249500	17762	3.364		
	Farádi Hill Muth	"	4.707356	50975	9.654		Serdi Hill	"	4.583712	36619	6.936		
452	Mádi	h.s.	4.318738	20832	3.946	464	Roha, XIV	h.s.	4.636375	43289	8.199	"	
	Punadi	"	4.562039	36479	6.909		Dholbet	"	4.409354	25066	4.861		
	Aasambia Hill Mark (helio.)	"	4.620443	41729	7.903		Devpur Hill Mark (helio.)	"	4.781394	60450	11.449		

* Deduced base.

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	
465	Roha, XIV Chitrani Derpur Hill Mark (helio.)	51 12 4 25 8 42	4 672789 4 409354 4 768606	47075 25666 58696	8 916 4 861 11 117	Inch 18 "	Mándvi Asár Mátá Godra Tower (helio.)	44 41 59 65 30 35	4 539886 4 651746 4 665094	34665 44848 46248	6 595 8 404 8 759	Inch 18 "	
466	Roha, XIV Dholbet Kotada Hill Temple	42 26 3 18 19 56	4 669700 4 338218 4 781394	46741 21788 60450	8 852 4 127 11 449	" " "	Mándvi Don Godra Tower (helio.)	37 10 2 67 44 0	4 466542 4 651746 4 670547	29278 44848 46832	5 545 8 494 8 870	" " "	
467	Roha, XIV Chitrani Kotada Hill Temple	46 57 8 19 58 4	4 668628 4 338218 4 768606	46626 21788 58696	8 831 4 127 11 117	" " "	Mándvi Don Durgapur Building (helio.)	8 32 15 10 45 14	4 323143 4 422433 4 670547	21045 26150 46832	3 986 5 010 8 870	" " "	
468	Roha, XIV Chitrani Baláchor Hill Mark No. 1	40 22 17 22 5 37	4 632216 4 396143 4 768606	42876 24897 58696	8 120 4 715 11 117	" " "	Mándvi Don Mándvi Light-house	98 37 38 0 54 53	4 671655 2 879746 4 670547	46952 758 46832	8 892 0 144 8 870	" " "	
469	Roha, XIV Chitrani Baláchor Hill Mark No. 2 (helio.)	53 42 56 44 47 22	4 679792 4 621202 4 768606	47840 41811 58696	9 061 7 919 11 117	" " "	Mándvi Don Tamachi Pir Hill Tomb	86 17 32 25 57 33	4 703246 4 345363 4 670547	59495 22149 46832	9 563 4 195 8 870	" " "	
470	Chitrani Yanoti Baláchor Hill Mark No. 2 (helio.)	20 39 9 44 39 18	4 380342 4 679792 4 791292	24007 47840 61843	4 547 9 001 11 713	" " "	Don Asár Mátá Tamachi Pir Hill Tomb	22 41 34 53 31 37	4 384267 4 703246 4 785232	24225 50495 60986	4 588 9 563 11 550	" " "	
471	Dholbet Chitrani Poldia Hill Mark (helio.)	9 10 52 12 24 21	4 560440 4 689632 4 923272	36345 48936 33805	6 883 9 268 15 872	" " "	Don Undot Asár Mátá Temple	60 17 54 80 23 38	4 720216 4 775955 4 583124	52507 59601 38293	9 944 11 288 7 253	" " "	
472	Dholbet Undot Poldia Hill Mark (helio.)	38 3 33 67 43 58	4 513205 4 689632 4 760581	32599 48936 50884	6 174 9 268 9 637	" " "	Mándvi Don Asár Mátá Temple	81 36 39 47 22 12	4 775955 4 646653 4 670547	59601 44325 46832	11 288 8 395 8 870	" " "	
473	Don Undot Peaka Hill Mark (helio.)	28 57 36 84 20 58	4 305125 4 617986 4 583124	20189 41494 38293	3 824 7 859 7 253	" " "	Don Undot Lajja Tower (helio.)	45 14 34 81 15 5	4 529330 4 672830 4 583124	33824 47079 38293	6 406 8 917 7 253	" " "	
474	Undot Bimbhannai Peaka Hill Mark (helio.)	14 0 54 5 10 0 16	4 865056 4 305125 4 752119	73592 20189 56509	13 881 3 824 10 702	" " "	Undot Bimbhannai Lajja Tower (helio.)	53 29 52 36 46 0	4 657290 4 529230 4 752119	45425 33824 56509	8 603 6 406 10 702	" " "	
475	Don Asár Mátá Godra Hill Mark (helio.)	44 39 58 35 12 14	4 658995 4 552846 4 785232	43551 35715 60986	8 248 6 764 11 550	" " "	Asár Mátá Undot Báet Tower (helio.)	40 52 43 46 52 44	4 538334 4 555722 4 722120	34541 38523 57738	6 542 7 206 9 988	" " "	
476	Asár Mátá Bimbhannai Godra Hill Mark (helio.)	71 11 19 50 19 34	4 728839 4 638995 4 683376	53560 43551 48237	10 144 8 248 9 136	" " "	Asár Mátá Bimbhannai Báet Tower (helio.)	27 0 52 51 30 13	4 340417 4 585722 4 683376	23357 38523 48237	4 234 7 296 9 136	" " "	

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	
489	Undot	h.s.	4.821077	66233	12.544	501	Undot	h.s.	4.779498	60186	11.399	Inch 18
	Chitrāni	"	4.706226	50542	9.629		Bāmbhanai	"	4.461451	28937	5.480	
	Bāmbhanai Tower (helio.)	"	4.791154	61824	11.709		Kotadi Temple	"	4.752119	56509	10.702	
490	Chitrāni	h.s.	4.713579	51710	9.794	502	Bāmbhanai	h.s.	4.517134	32895	6.230	"
	Mor Dho	"	4.821077	66233	12.544		Chitrāni	"	4.779498	60186	11.399	
	Bāmbhanai Tower (helio.)	"	4.893836	78313	14.832		Kotadi Temple	"	4.898476	79154	14.991	
491	Bāmbhanai	h.s.	4.651130	44785	8.482	503	Chitrāni	h.s.	4.486324	30642	5.804	"
	Mor Dho	"	4.368816	20362	3.856		Vamoti	"	4.534852	34255	6.490	
	Modkuba Hill Mark (helio.)	"	4.754224	56784	10.755		Berājia Hill Mark No. 1 (helio.)	"	4.791292	61843	11.713	
492	Chitrāni	h.s.	4.651130	44785	8.482	504	Hāthria, XVI	"	4.252559	17888	3.388	"
	Mor Dho	"	4.784865	60935	11.541		Dhufi	h.s.	4.897534	75983	14.959	
	Modkuba Hill Mark (helio.)	"	4.893836	78313	14.832		Berājia Hill Mark No. 2 (helio.)	"	4.867881	73770	13.972	
493	Bāmbhanai	h.s.	4.663724	46102	8.732	505	Chitrāni	h.s.	4.401084	25234	4.779	"
	Mor Dho	"	4.339772	21866	4.141		Vamoti	"	4.681866	48609	9.104	
	Modkuba Tower	"	4.754224	56784	10.755		Berājia Hill Mark No. 2 (helio.)	"	4.791292	61843	11.713	
494	Bāmbhanai	h.s.	4.722481	52781	9.996	506	Chitrāni	h.s.	4.575756	37649	7.131	"
	Chitrāni	"	4.506802	32126	6.085		Kothāra	t.s.	4.534131	34208	6.479	
	Dodhia Hill Mark (helio.)	"	4.898476	79154	14.991		Vada Mark (helio.)	"	4.801127	63260	11.981	
495	Bāmbhanai	h.s.	4.502638	39142	7.413	507	Chitrāni	h.s.	4.488270	30780	5.830	"
	Mor Dho	"	4.508309	32234	6.105		Kothāra	t.s.	4.518347	32987	6.248	
	Lathedi Hill Mark (helio.)	"	4.754224	56784	10.755		Vinājū Hill Mark (helio.)	"	4.801127	63260	11.981	
496	Chitrāni	h.s.	4.592638	39142	7.413	508	Kothāra	t.s.	4.634896	43142	8.171	"
	Mor Dho	"	4.718156	52258	9.897		Mor Dho	h.s.	4.297961	19859	3.761	
	Lathedi Hill Mark (helio.)	"	4.893836	78313	14.832		Amaruāi Vādh Hill Mark (helio.)	"	4.742443	55264	10.467	
497	Bāmbhanai	h.s.	4.769440	58810	11.138	509	Kothāra	t.s.	4.675926	47416	8.980	"
	Mor Dho	"	4.601908	39986	7.573		Rāpur	"	4.315128	20600	3.913	
	Sābura Tower (helio.)	"	4.754224	56784	10.755		Sāhara Hill Mark No. 2 (helio.)	"	4.635441	43196	8.181	
498	Chitrāni	h.s.	4.769449	58810	11.138	510	Mor Dho	h.s.	4.675926	47416	8.980	"
	Mor Dho	"	4.595607	39410	7.464		Rāpur	t.s.	4.553809	33794	6.779	
	Sābhrai Tower (helio.)	"	4.893836	78313	14.832		Sāhara Hill Mark No. 2 (helio.)	"	4.773564	59370	11.244	
499	Bāmbhanai	h.s.	4.755127	56902	10.777	511	Bāmbhanai	h.s.	3.804995	6383	1.209	"
	Chitrāni	"	4.717508	52180	9.883		Mor Dho	"	4.761544	57749	10.937	
	Sāndhan Temple	"	4.898476	79154	14.991		Khuāda Fort	"	4.754224	56784	10.755	
500	Bāmbhanai	h.s.	4.331417	21449	4.062	512	Chitrāni	h.s.	15.024	4.367811	20316	"
	Mor Dho	"	4.717508	52180	9.883		Mor Dho	"	4.885869	76890	14.502	
	Sāndhan Temple	"	4.754224	56784	10.755		Suthri Temple	"	4.893836	78313	14.832	

* Deduced base.

No. of Triangle	Station	Corrected Plane Angle ° ' "	Distance			Theodolite Inch	No. of Triangle	Station	Corrected Plane Angle ° ' "	Distance			Theodolite Inch
			Log. feet	Feet	Miles					Log. feet	Feet	Miles	
513	Chitráni Kothára Suthri Temple	h.s. t.s. 95 39 47	4 578729 4 885869 4 801127	37908 76890 63260	7 180 14 562 11 981	18 " "	525	Naliya, XVII Mohádi Yáundh Hill Mark No. 2 (helio.)	19 5 26 16 40 32	4 581871 4 525050 4 834009	38183 33500 68235	7 232 6 345 12 923	
514	Kothára Rápur Árikhánu Mark (helio.)	t.s. " "	4 394748 4 375892 4 635441	24817 23762 43196	4 700 4 500 8 181	" "	526	Mohádi Siári Lún	53 43 18 40 50 25 85 26 17	4 690284 4 599413 4 782489	49010 39757 60602	9 282 7 530 11 478	
515	Kothára Rápur Árikhánu Hill Mark (helio.)	t.s. " "	4 193179 4 463486 4 635441	15602 29073 43196	2 955 5 500 8 181	" "	527	Mohádi Lún Bara Pir	66 54 5 66 48 32 46 17 23	4 704077 4 703777 4 599413	50591 50557 39757	9 582 9 575 7 530	
516	Kothára Rápur Yáuku Temple	t.s. " "	4 162399 4 467593 4 635441	14534 29349 43196	2 753 5 559 8 181	" "	528	Mohádi Ber Bara Pir	43 12 36 63 57 32 72 49 52	4 585753 4 703777 4 730472	38226 50557 53762	7 297 9 575 10 182	
517	Naliya, XVII Dhuñ Kálatalá Hill Mark (helio.)	h.s. " "	4 311920 4 631780 4 798860	20508 22833 62930	3 884 8 112 11 919	" "	529	Mohádi Lún Akri Hill Mark (helio.)	92 14 35 35 40 7	4 702026 4 468009 4 599413	50353 29383 39757	9 537 5 565 7 530	
518	Naliya, XVII Mohádi Siári	h.s. " "	4 782489 4 796713 4 834009	60602 62620 68235	11 478 11 860 12 923	" "	530	Sáhind, XIX Suri Muri, XX Sapdái Hill Mark (helio.)	81 40 27 39 3 26	4 780506 4 584005 4 719480	60339 38224 52418	11 428 7 277 9 928	
519	Naliya, XVII Siári Rápur	h.s. t.s.	4 782008 4 677220 4 796713	60535 47558 62620	11 465 9 007 11 860	" "	531	Sáhind, XIX Mohádi Sapdái Hill Mark (helio.)	37 32 31 50 0 27	4 485164 4 584605 4 699906	30861 38224 50108	5 788 7 277 9 490	
520	Rápur Siári Budia Tank (helio.)	t.s. h.s.	4 462076 4 555451 4 782008	28979 35930 60535	5 488 6 805 11 465	" "	532	Sáhind, XIX Suri Muri, XX Maniára Hill Fort (helio.)	59 47 7 62 59 19	4 731368 4 744618 4 719480	52873 55541 52418	10 203 10 510 9 928	
521	Sáhind, XIX Mohádi Jakhau Temple	h.s.	4 649836 4 851765 4 699906	44651 71083 50108	8 457 13 463 9 490	18	533	Sáhind, XIX Ber Maniára Hill Fort (helio.)	1 7 50 17 8 30	3 570326 4 744618 4 771467	3718 55541 59084	0 704 10 519 11 190	
522	Naliya, XVII Sáhind, XIX Jakhau Temple	h.s. " "	4 851765 4 550975 4 837491	71083 35561 68785	13 463 6 735 13 027	" "	534	Ber Bara Pir Gugriána Dho	74 55 14 59 11 28 45 53 18	4 714420 4 663571 4 585753	51811 46086 38526	9 813 8 728 7 297	
523	Sáhind, XIX Mohádi Jakhau Tower (helio.)	h.s.	4 597839 4 815542 4 699906	39613 65295 50108	7 502 12 385 9 490	12	535	Jamanvála, XXIII Punjor Pir, XXIV Sakardá	50 56 31 43 21 46 85 41 43	4 613117 4 559684 4 721744	41031 36281 52692	7 771 6 871 9 980	
524	Mohádi Siári Jakhau Tower (helio.)	h.s. " "	4 551199 4 597839 4 782489	35379 39013 60602	6 739 7 502 11 478	" "	536	Jamanvála, XXIII Sakardá Gugriána Dho	39 58 53 77 38 28 62 22 39	4 420139 4 602057 4 559684	26311 46000 36281	4 983 7 576 6 871	

No. of Triangle	Station	Corrected Plane Angle ° ' "	Distance			No. of Triangle	Station	Corrected Plane Angle ° ' "	Distance			No. of Triangle	Station	Corrected Plane Angle ° ' "	Distance			Theodolite
			Log. feet	Feet	Miles				Log. feet	Feet	Miles				Log. feet	Feet	Miles	
537	Bara Pir Gugriána Dho Ghunáú Temple (helio.)	h.s. " "	4' 669968 4' 181870 4' 714420	46770 15201 51811	8' 858 2' 879 9' 813	549	Jamanvála, XXIII Pinjor Pir, XXIV Hamankhudi Platform (helio.)	48 0 29 29 37 56	4' 603057 4' 426034 4' 721744	40092 26671 52692	7' 593 5' 051 9' 980							
538	Bara Pir Gugriána Dho Ramraj Temple	h.s. " "	4' 609574 4' 202609 4' 714420	40698 15944 51811	7' 709 3' 020 9' 813	550	Pinjor Pir, XXIV Sakarda Ghuar Hill Mark (helio.)	34 3 6 36 7 59	4' 387765 4' 410227 4' 613117	24421 25717 41031	4' 625 4' 871 7' 771							
539	Ber Gugriána Dho Ramraj Temple	h.s. " "	4' 609574 4' 383472 4' 663571	40698 24181 40686	7' 709 4' 580 8' 728	551	Jamanvála, XXIII Sakarda Ghuar Hill Mark (helio.)	42 16 48 49 33 44	4' 387765 4' 441557 4' 559684	24421 27628 36281	4' 625 5' 233 6' 871							
540	Ber Bara Pir Pipar Dome	h.s. " "	4' 626966 4' 577673 4' 585753	42361 37816 38526	8' 023 7' 162 7' 297	552	Jamanvála, XXIII Pinjor Pir, XXIV Naryán Sarovar Temple	13 16 47 39 26 42	4' 182147 4' 623980 4' 721744	13111 42071 52692	2' 881 7' 968 9' 980							
541	Ber Gugriána Dho Pipar Dome	h.s. " "	3' 996489 4' 577673 4' 663571	9919 37816 46686	1' 879 7' 162 8' 728	553	Bábin, XXII Jamanvála, XXIII Naryán Sarovar Temple	32 2 23 81 36 32	4' 623980 4' 894614 4' 861195	42071 78454 72643	7' 968 14' 859 13' 758							
542	Ber Gugriána Dho Jhadava Hill Peak (helio.)	h.s. " "	4' 667940 4' 345077 4' 663571	46552 22135 40686	8' 817 4' 192 8' 728	554	Bábin, XXII Pinjor Pir, XXIV Koteshtar Temple No. 1 (helio.)	8 45 26 123 16 14	4' 170774 4' 910475 4' 859106	14817 81372 72295	2' 806 15' 411 13' 692							
543	Jamanvála, XXIII Sakarda Lakhami Ráni Hill Peak (helio.)	h.s. " "	4' 566936 4' 484140 4' 559684	36892 30489 36281	6' 987 2' 767 6' 871	555	Jamanvála, XXIII Pinjor Pir, XXIV Koteshtar Temple No. 1 (helio.)	15 16 22 54 14 7	4' 170774 4' 659381 4' 721744	14817 45044 52692	2' 806 8' 045 9' 980							
544	Gugriána Dho Sakarda Lakhami Ráni Hill Peak (helio.)	h.s. " "	4' 566936 4' 484140 4' 420139	36892 30489 26311	6' 987 5' 774 4' 983	556	Jamanvála, XXIII Pinjor Pir, XXIV Koteshtar Temple No. 2	13 59 31 62 30 24	4' 117345 4' 681870 4' 721744	13102 48070 52692	2' 481 9' 104 9' 980							
545	Gugriána Dho Sakarda Saiyid Ali Pir Hill Tomb	h.s. " "	4' 221593 4' 320579 4' 420139	16653 20221 26311	3' 154 3' 962 4' 983	557	Bábin, XXII Jamanvála, XXIII Koteshtar Temple No. 2	35 43 52 82 19 16	4' 681870 4' 911558 4' 861195	48070 81575 72643	9' 104 15' 430 13' 758							
546	Jamanvála, XXIII Gugriána Dho Saiyid Ali Pir Hill Tomb	h.s. " "	4' 320579 4' 348875 4' 602057	20221 22329 40000	3' 962 4' 229 7' 576	BOLÁDI-JHURAN AND KHADIR SECONDARY SERIES.												
547	Jamanvála, XXIII Pinjor Pir, XXIV Hamankhudi Hill Mark (helio.)	h.s. " "	4' 611022 4' 416335 4' 721744	40834 26682 52692	7' 734 6' 980 9' 980	558	Jhuran, IX Boládi, XI Gora Dongar No. 1 h.s.	83 52 34 73 47 17	5' 178356 5' 163219 4' 706665	150784 145619 57632	28' 558 27' 579 10' 915							
548	Pinjor Pir, XXIV Sakarda Hamankhudi Platform (helio.)	h.s. " "	3' 088642 4' 603057 4' 613117	9742 40092 41031	1' 845 7' 593 7' 771	559	Jhuran, IX Gora Dongar Gora Dongar No. 2 "	115 38 48 48 49 21	5' 241569 5' 163219	174409 145619	33' 032 27' 579							

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		
560	Gora Dongar	No. 1 h.s.	4° 66'05.2	45809	8.676	570	Gora Dongar	No. 2 h.s.	4° 53'41.60	34211	6.479	Inch 12	
	Gora Dongar	No. 2 "	4° 88'27.16	76334	14.457		Kála Dongar	No. 2 "	4° 17'05.17	14809	2.805		
	Kála Dongar	No. 1 "	4° 71'43.53	51803	9.811		Gora Dongar Hill Mark No. 2		4° 59'59.87	39445	7.471		
561	Gora Dongar	No. 1 h.s.	5° 21'14.20	166502	31.555	571	Gora Dongar	No. 2 h.s.	4° 7'00.59	50125	9.493	"	
	Kála Dongar	No. 1 "	5° 13'30.7	135046	25.747		Kála Dongar	No. 3 "	4° 17'05.17	14809	2.805		
	Khadr Hill Mark (helio.)		4° 88'27.16	76334	14.457		Gora Dongar Hill Mark No. 2		4° 63'59.5	45972	8.536		
562	Gora Dongar	No. 2 h.s.	4° 46'10.47	28910	5.475	572	Kála Dongar	No. 1 h.s.	4° 30'21.04	20049	3.797	"	
	Kála Dongar	No. 1 "	4° 59'59.87	39445	7.471		Gora Dongar	No. 3 "	4° 65'87.97	43582	8.633		
	Kála Dongar	No. 2 "	4° 60'09.52	45809	8.676		Khánda Mosque		4° 60'34.34	40127	7.600		
563	Gora Dongar	No. 1 h.s.	4° 59'59.87	39445	7.471	573	Gora Dongar	No. 1 h.s.	4° 64'08.66	44655	8.457	"	
	Gora Dongar	No. 2 "	4° 64'24.1	49458	9.367		Gora Dongar	No. 2 "	4° 88'29.28	77483	14.075		
	Kála Dongar	No. 2 "	4° 71'43.53	51803	9.811		Kála Dongar, Pachham Pir Tomb		4° 71'43.53	51803	9.811		
564	Gora Dongar	No. 2 h.s.	4° 49'23.39	31070	5.884	574	Kála Dongar	No. 3 h.s.	4° 94'42.83	87960	16.659	"	
	Kála Dongar	No. 2 "	4° 63'39.5	45072	8.536		Gora Dongar	No. 3 "	4° 80'48.17	63800	12.083		
	Kála Dongar	No. 3 "	4° 59'59.87	39445	7.471		Gáinda Bet Sarái		4° 59'13.01	39021	7.390		
565	Gora Dongar	No. 1 h.s.	33° 47' 51	46339.5	45.972	575	Kála Dongar	No. 1 h.s.	4° 94'42.83	87960	16.659	"	
	Gora Dongar	No. 2 "	106° 27' 38	48904.53	77.706		Gora Dongar	No. 3 "	4° 81'06.18	66011	12.302		
	Kála Dongar	No. 3 "	39° 44' 31	47143.53	51.803		Gáinda Bet Sarái		4° 60'34.34	40127	7.600		
566	Gora Dongar	No. 2 h.s.	79° 30' 25	45887.47	38.792	576	Gora Dongar	No. 1 h.s.	5° 02'37.09	105611	20.002	"	
	Kála Dongar	No. 2 "	11° 37' 14	39001.94	79.47		Kála Dongar	No. 1 "	4° 97'17.30	93698	17.746		
	Gora Dongar	No. 3 "	88° 52' 21	45959.87	39.445		Bharjuda Bet Hill Peak		4° 88'27.16	76334	14.457		
567	Kála Dongar	No. 1 h.s.	4° 58'87.47	38792	7.347	577	Gora Dongar	No. 1 h.s.	5° 08'91.73	122793	23.256	"	
	Kála Dongar	No. 2 "	4° 60'34.34	40127	7.600		Gora Dongar	No. 2 "	4° 97'17.30	93698	17.746		
	Gora Dongar	No. 3 "	4° 46'10.47	28910	5.475		Bharjuda Bet Hill Peak		4° 71'43.53	51803	9.811		
568	Gora Dongar	No. 2 h.s.	71° 13' 5	46417.01	43.23	578	Gora Dongar	No. 1 h.s.	83° 44' 7	50787.74	110888	22.706	"
	Kála Dongar	No. 2 "	50° 20' 4	45518.33	35.631		Kála Dongar	No. 1 "	5° 00'49.65	101150	19.157		
	Gora Dongar Hill Mark No. 1 (helio.)		4° 59'59.87	39445	7.471		Khadr Hill Peak		4° 88'27.16	76334	14.457		
569	Gora Dongar	No. 2 h.s.	113° 42' 23	48310.21	67.767	579	Gora Dongar	No. 1 h.s.	5° 12'86.69	134483	25.470	"	
	Kála Dongar	No. 3 "	28° 46' 42	45518.33	35.631		Kála Dongar	No. 2 "	5° 00'49.65	101150	19.157		
	Gora Dongar Hill Mark No. 1 (helio.)		4° 63'39.5	45972	8.536		Khadr Hill Peak		4° 71'43.53	51803	9.811		

* For another triangle to this point, see the Synoptical Volume of the Káshúwár Meridional Series.

† Deducted base.

CUTCH COAST SERIES.

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

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

Name of Station with Azimuths of surrounding Points	No. of Triangle giving Distance	Name of Station with Azimuths of surrounding Points	No. of Triangle giving Distance		
Abansháh, XXXVIII	o ' "	Bábia, XXII—(Contd.)	o ' "		
Pir Patho Tomb No. 2	154 53 48	368	Mudhvai Hill Mark No. 1 (helio.)	96 34 52	346
Pir Patho Mosque	156 1 25	364	Pinjor Pir Hill No. 2 (helio.)	97 9 58	350
Bíbi Mariam, XLII	156 16 29'56	56	Mudhvai Hill Mark No. 2 (helio.)	109 21 31	348
Randah, XL	197 39 3'09	54	Chher Hill Mark (helio.)	120 30 3	351
Gada, XXXIX	249 32 5'65	53	Lálchatha Hill Temple	129 41 36	354
Koti, XXXV	301 25 18'12	51	Lakhpát, XXV	186 11 48'57	34
Yusuf Jat Tomb	325 59 0	360	Umarsar Hill Mark (helio.)	216 38 33	343
Nindawani, XXXVI	349 24 35'46	51	Artara Hill Mark (helio.)	236 28 52	341
Ásár Mátá h.s.			Lík Hill Mark (helio.)	257 46 37	338
Bámghanai	h.s. 119 12 41'3	83	Suarka Hill Mark (helio.)	269 10 27	336
Báet Tower (helio.)	146 13 33	487	Sura Gandhára, XXI	281 44 33'91	31
Undot	" 187 6 16'1	82	Dháresi Hill Mark (helio.)	290 4 46	334
Godra Hill Mark (helio.)	190 24 0	475	Manjal Hill Mark (helio.)	310 16 19	331
Godra Tower (helio.)	209 34 32	477			
Dou	" 225 36 14'4	81	Bámghanai h.s.		
Mándvi	s. 275 5 7'3	81	Mor Dho	h.s. 120 18 11'0	401
Tamáchi Pir Hill Tomb	279 7 51	482	Khuáda Fort	126 37 8	511
Bábia, XXII			Sándhán Temple	142 29 34	499
Suri Muri, XX	7 12 39'25	31	Lathedi Hill Mark (helio.)	162 2 49	495
Chánda Hill (helio.)	11 10 1	330	Modkuba Hill Mark (helio.)	165 21 59	491
Mudia Hill Platform (helio.)	38 18 58	328	Modkuba Tower	170 52 37	493
Mudia Hill Mark (helio.)	47 42 54	327	Chitráni	h.s. 188 22 33'9	84
Jamanvála, XXIII	50 17 44'71	32	Sábhrai Tower (helio.)	192 48 51	497
Náráyan Sarovar Temple	82 20 8	553	Kotadi Temple	210 49 46	501
Koteshtar Temple No. 1 (helio.)	84 10 28	554	Dodhia Hill Mark (helio.)	215 51 57	494
Koteshtar Temple No. 2	86 1 37	557	Peáka Hill Mark (helio.)	229 18 59	474
Pinjor Pir, XXIV	92 55 53'54	33	Undot	" 239 19 14'7	83
Pinjor Pir Hill No. 1 (helio.)	95 12 18	349	Báet Tower (helio.)	247 39 33	488
			Godra Hill Mark (helio.)	248 50 12	476
			Láija Tower (helio.)	276 5 15	486
			Ásár Mátá	" 299 9 46'3	83

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
Bandhadi s.	° ' "	Bhacháu, I—(Contd.)	° ' "
Sikra Hill Mark (helio.)	2 47 46	Halraí Hill Mark (helio.)	220 46 1
Chopadvu No. 1 h.s.	9 5 17	Halraí h.s.	221 45 7
Kumbhárdi Temple	27 10 52	Nara, II	233 9 57.49
Sukhpur, VI	44 19 39	Chitrod, XI*	253 25 32.66
Raháda, IV	116 4 28	Vándhia, XIV*	282 14 20.41
Kákarva, III	226 28 43	Amliyára Mark (helio.)	291 7 31
Bhacháu, I	335 38 6		137
		Bhadresar s.	
Bara Pir h.s.		Luni Hill Mark (helio.)	53 50 36
Gugriána Dho h.s.	168 59 49	Luni Tower (helio.)	64 57 11
Pipar Dome	172 41 11	Mundra t.s.	67 44 33.4
Rámráj Temple	208 5 34	Tapar Hill Mark (helio.)	114 16 14
Ber "	228 11 17	Lifra h.s.	129 12 51.0
Ghunáu Temple (helio.)	231 28 10	Chándroda Hill Mark (helio.)	148 19 25
Mohádi "	301 1 9	Vovár Hill Mark (helio.)	159 56 51
Lún "	347 18 32	Tengo "	173 51 7.3
		Hatadi Hill Mark No. 2 (helio.)	197 50 18
Barári Mátá h.s.		Hatadi Hill Mark No. 1 (helio.)	209 36 32
Rangan Hill Mark (helio.)	82 49 53	Shinaya No. 1 "	222 29 36.4
Traghari h.s.	86 14 19.2	Vira Fort (helio.)	250 36 43
Sirácha Hill Mark (helio.)	119 15 4		394
Khákhar Temple	144 39 4	Bharodia h.s.	
Navináal Tree	161 26 55	Kákarva, III	13 51 54
Mádi "	162 53 40.4	Chobári Temple	54 53 43
Berája Hill Mark (helio.)	180 55 29	Suvi h.s.	235 41 59
Bhujpur Temple	182 33 32	Rámváo "	297 16 20
Samághogha Mosque	206 15 5		122
Mundra t.s.	238 12 56.8		122
Jharpara Hill Mark (helio.)	253 4 44		
Mundra Bandar Building (helio.)	263 35 43		
		Bhímásar s.	
Ber h.s.		Charakda, VIII	70 10 12
Bara Pir h.s.	48 13 19	Sukhpur, VI	189 31 13
Rámráj Temple	61 18 58	Pasuda s.	259 58 32
Pipar Dome	115 37 13		177
Gugriána Dho "	123 8 33		177
Jhadava Hill Peak (helio.)	200 29 34		
Suri Muri, XX	238 3 34.6	Bibi Mariam, XLII	
Maniára Hill Fort (helio.)	274 39 20	Sukhpur, XLV	93 52 1.71
Sáhind, XIX	291 47 49.5	Pir Patho Tomb No. 1	149 4 49
Mohádi "	344 15 46.5	Dománi, XLIV	164 37 5.33
		Vikia, XLIII	224 47 13.02
		Randah, XL	271 29 29.82
		Abansháah, XXXVIII	336 14 25.20
			56
Bhacháu, I		Bidada h.s.	
Khári Rohar, VII	35 54 32.41	Traghari h.s.	0 49 42.7
Chirai h.s.	40 57 24	Mándvi s.	51 36 18.8
Pasuda s.	55 49 52	Kodái Temple	75 7 24
Lunva Hill	80 50 18	Don h.s.	109 25 12.1
Sukhpur, VI	83 35 46.89	Vándh Hill Mark No. 1 (helio.)	150 37 38
Chopadvu No. 1 h.s.	90 55 31	Ásambia Tower (helio.)	162 58 22
Sikra Hill Mark (helio.)	118 5 5	Ásambia Hill Mark (helio.)	195 19 3
Kumbhárdi Temple	118 25 5	Tumbadi Hill Mark (helio.)	230 43 39
Raháda, IV	133 30 1.30	Farádi Hill Math	245 29 10
Bandhadi s.	155 39 19	Mádi "	266 15 19.9
Kákarva, III	194 3 28.39	Khákhar Temple	295 20 47
Mái Hill Peak (helio.)	199 59 46	Bidada Mark (helio.)	319 34 37
Kanthkot Hill Temple	209 51 34		449
Vánka Hill Temple	209 59 2		
Vánka Hill Mark (helio.)	211 14 31		

* These stations appertain to the Kálhiáwár 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
Boládi, XI	o ' "	Chitráni h.s.	o ' "
Khátrod, X	2 34 1' 96	Sábhrai Tower (helio.)	3 53 11
Khátrod Hill Mark (helio.)	4 27 31	Bámghanai	h.s. 8 23 22' 1
Lákhond Hill	10 34 31	Bámghanai Tower (helio.)	9 47 59
Jandharia	h.s. 21 21 13	Modkuba Hill Mark (helio.)	15 53 41
Bhárápur Hill Mark (helio.)	30 29 56	Lathedi Hill Mark (helio.)	24 15 59
Bhúj, Sural Hill Temple	43 44 8	Sándhán Temple	49 33 50
Bhúj Hill Temple	43 44 55	Mor Dho	" 50 39 36' 3
Bhúj Palace	49 12 37	Suthri Temple	65 40 1
Bhúj Temple No. 1	49 18 17	Vinján Hill Mark (helio.)	88 3 34
Sánatra, XII	53 57 34' 14	Kothára	t.s. 95 2 50' 7
Várar, XIII	84 38 10' 43	Váda Mark (helio.)	124 52 43
Nokhána	h.s. 87 9 16	Dhuf	h.s. 141 13 30' 9
Jhura Hill Mark (helio.)	103 11 38	Berájia Hill Mark No. 2 (helio.)	152 2 0
Haba Hill Peak (helio.)	108 28 59	Berájia Hill Mark No. 1 (helio.)	157 42 34
Sumrásar	s. 136 4 29	Vamoti	h.s. 174 23 34' 5
Gora Dongar	No. 1 h.s. 197 40 48	Báláchor Hill Mark No. 2 (helio.)	195 2 43
Jhuran, IX	271 28 4' 63	Mánki Hill Mark (helio.)	206 39 38
Kas Hill Mark No. 3 (helio.)	274 39 17	Báláchor Hill Mark No. 1	217 44 28
Kas Hill Mark No. 2 (helio.)	283 7 0	Roha, XIV	239 50 5' 2
Charakda, VIII	322 7 10' 54	Kotada Hill Temple	259 48 9
Dháneti	" 324 20 43	Derpur Hill Mark (helio.)	264 58 47
Mamnára Hill Tomb	334 34 38	Dholbet	h.s. 285 59 39' 3
Mamnára Hill Mark (helio.)	336 30 18	Serdi Hill Temple	294 26 22
Padar Tree	340 2 23	Poldia Hill Mark (helio.)	298 24 0
Chapreli Hill Mark (helio.)	343 34 38	Undot	" 323 10 19' 0
Jandia Hill Mark (helio.)	348 30 17	Kotadi Temple	324 3 33
Chapreli Hill	350 10 8	Dodhia Hill Mark (helio.)	352 4 20
Gandher Hill Peak (helio.)	355 5 16		211
Charakda, VIII		Chitrod, XI*	
Sidungra	h.s. 7 3 27	Vándhia, XIV*	23 53 6' 40
Sidungra Temple	18 58 22	Katáriya Temple No. 1	30 16 23
Sidungra Hill Tomb	19 35 53	Katáriya Temple No. 2	32 56 55
Sidungra Hill Mark	29 44 53	Lákudiya Temple No. 1	64 4 4
Khedoi Hill Temple	40 58 37	Lákadiya Fort (helio.)	64 5 30
Tengo	" 41 43 50' 4	Lákadiya Temple No. 2	64 39 25
Váda Hill Mark (helio.)	67 28 55	Bhacháu, I	73 33 34' 47
Gandher Hill Peak (helio.)	90 45 56	Chitrod Hill Mark (helio.)	99 37 22
Khátrod, X	99 30 0' 41	Vashtara Hill Temple	102 51 24
Sagália	" 105 51 38	Nara, II	111 55 31' 19
Mamnára Hill Mark (helio.)	136 14 15	Bádargad Hill	142 52 32
Boládi, XI	142 11 25' 80	Vitrio Hill Temple	152 11 9
Haba, Ráya Hill Math	149 27 3	Jethásari Vándh Hill Mark (helio.)	169 9 10
Kas Hill Mark No. 1 (helio.)	172 44 3		
Jhuran, IX	178 1 48' 10	Chopadvu No. 1 h.s.	
Rápur	s. 196 12 10	Chopadvu	No. 2 h.s. 13 25 54
Sukhpur, VI	231 0 53' 46	Lunva Hill Mark	44 28 2
Tapar Temple	233 55 18	Sukhpur, VI	79 9 14
Bhimásar	" 250 6 26	Bandhadi	s. 189 4 51
Khári Rohar, VII	294 21 4' 59	Sikra Hill Mark (helio.)	205 58 9
Shinaya	No. 2 h.s. 328 11 11	Bhacháu, I	270 53 52
Shinaya	No. 1 " 340 54 38' 3	Trámábú Hill (helio.)	337 35 37
			168
Chirai h.s.		Chopadvu No. 2 h.s.	
Khári Rohar, VII	33 1 55	Chirai Temple	13 34 8
Pasuda	s. 80 42 29	Lunva Hill Mark	73 26 42
Sukhpur, VI	118 49 53	Sukhpur, VI	88 44 45
Lunva Hill	142 29 11	Chopadvu	No. 1 h.s. 193 25 47
Chopadvu	No. 2 h.s. 177 17 17	Trámábú Hill (helio.)	255 30 9
Bhacháu, I	220 55 42	Chirai	" 357 17 13
			167

* These stations appertain to the Káthiáwár 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
Desalpur t.s.	° ' "	Dholbet h.s.—(Contd.)	° ' "
Sukhpur, VI	30 42 3	Dhrabva Hill Mark (helio.)	189 42 26
Dhamadka Hill Mark	35 21 27	Nābhoi Hill Mark (helio.)	202 54 46
Dhamadka Hill Math	00 11 14	Sāmātra, XII	232 24 54·0
Kas	h.s. 70 15 15	Dhanoi Hill Mark (helio.)	259 29 9
Rahāda, IV	144 56 31	Punadi	h.s. 282 10 15·8
Kākārva, III	233 3 49		
		Dhufi h.s.	
Dhāneti h.s.		Kothāra	t.s. 28 43 20·5
Khātrod, X	59 1 51	Kālūtālāv Hill Mark (helio.)	71 8 50
Mamūāra Hill Tomb	133 35 9	Nāliya, XVII	80 35 41·4
Bokādi, XI	144 23 2	Hāthria, XVI	190 31 26·6
Dagāla Hill Peak	205 43 41	Netra Hill Mark (helio.)	200 7 50
Jhuran, IX	209 30 46	Vamoti	h.s. 249 2 11·0
Rāpur	s. 264 52 41	Berājia Hill Mark No. 2 (helio.)	290 55 18
Kokra Temple	282 28 29	Chitrāni	„ 321 10 45·2
Sagālia	h.s. 345 42 42		
		Dhui, XXXIV	
Dhinodhar, XV		Jhim, XXXII	45 33 24·56
Vadva Hill No. 1	2 36 42	Moghul Bhin, XXXVII	99 24 9·04
Lākria Hill (helio.)	4 36 12	Mod, XXXI	333 7 24·48
Roha, XIV	14 1 28·08		
Mosuna Hill Tree	17 37 35	Domāni, XLIV	
Pakhdo Hill Mark No. 1 (helio.)	52 31 33	Sukhpur, XLV	52 10 6·23
Pakhdo Hill Mark No. 2 (helio.)	55 17 33	Sahiji, CVII*	128 45 16·12
Hāthria, XVI	90 5 26·53	Kārothol, CIV*	188 13 0·18
Mulu Hill Mark (helio.)	117 38 17	Tatta Hill Mosque	201 2 12
Amāra Hill Mark (helio.)	121 47 53	Vikia, XLIII	259 28 59·54
Manjal, XVII	133 19 35·28	Bibi Mariam, XLII	344 36 10·80
Chhāri Hill Mark (helio.)	134 5 17		
Folāi Hill Mark (helio.)	144 34 1	Don h.s.	
Jhura Hill Mark (helio.)	279 59 41	Durgāpur Building (helio.)	7 45 23
Vārār, XIII	298 57 25·38	Tamāchi Pir Hill Tomb	22 57 42
Ākādnū Hill Peak (helio.)	308 12 39	Āsar Māta Temple	44 22 21
Viebhia Hill Peak (helio.)	309 26 19	Āsar Māta	h.s. 45 39 15·7
Kandhvingo Hill Peak (helio.)	323 8 36	Lājja Tower (helio.)	59 25 41
Karbua Hill Peak	326 21 11	Godra Tower (helio.)	64 44 9
Ārāda Hill Mark (helio.)	328 11 58	Godra Hill Mark (helio.)	90 19 14
Sāmātra, XII	331 25 48·46	Undot	„ 104 40 14·9
Rojhla Hill Peak (helio.)	355 48 59	Peāka Hill Mark (helio.)	133 37 51
Nanāma Hill (helio.)	358 46 6	Serdi Hill	186 9 15
Vethon Hill Mark (helio.)	359 42 2	Dholbet	„ 190 12 31·2
		Vāndh Hill Mark No. 1 (helio.)	230 13 37
Dholbet h.s.		Āsambia Tower (helio.)	263 47 29
Don	h.s. 10 13 59·1	Bidada	„ 289 22 14·8
Serdi Hill	14 33 37	Kodāi Temple	324 28 13
Serdi Hill Temple	32 33 54	Rāval Pir Dome	342 51 57
Undot	„ 58 50 52·8	Māndvi	s. 357 0 9·0
Poldia Hill Mark (helio.)	„ 96 54 26	Māndvi Light-house	357 55 2
Chitrāni	„ 106 5 17·6		
Devpur Hill Mark (helio.)	129 2 26	Gada, XXXIX	
Kotada Hill Temple	132 12 37	Koti, XXXV	8 58 49·16
Roha, XIV	150 32 33·4	Ābanshāb, XXXVIII	69 37 13·24
Vadva Hill No. 2 (helio.)	158 15 13	Randah, XL	126 27 28·93
Sisāgad Hill Fort	161 32 40	Khar, XLI	176 50 46·91
Vadva Hill No. 1	164 15 49	Moghul Bhin, XXXVII	312 36 29·06
Rojhla Hill Mark (helio.)	168 6 30	Moghul Bhin Mosque	318 11 55

* These stations appertain to the Karāchi Longitudinal 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
Gángta, VII*							
Suvi	h.s.	2 54 5	102	Guni, XXVIII			
Kanthkot Hill Temple		7 44 16	148	Sugandia, XXVI	17 36 27.98	39	
Kákarva, III		20 51 35.02	6	Patta-ka-Bedhi, XXX	98 18 49.82	41	
Ran, V		60 29 11.57	7	Mod, XXXI	169 58 26.20	42	
Kárabíd Hill No. 1 (helio.)		86 51 27	98	Hakra, XXIX	239 44 19.37	40	
Kárabíd Hill No. 2 (helio.)		88 44 0	99	Saiyid Ali, XXVII	310 49 55.33	39	
Gorábíd Hill Mark (helio.)		89 8 47	100	Hakra, XXIX			
Kákinda Bet Hill (helio.)		112 10 57	97	Saiyid Ali, XXVII	7 36 40.32	40	
Tramáu	h.s.	336 22 43	106	Guni, XXVIII	59 47 52.71	40	
Nara, II		350 32 22.99	6	Mod, XXXI	117 8 8.20	43	
Rámváo	"	357 41 36	103	Halrái h.s.			
Gora Dongar No. 1 h.s.				Bhacháu, I			
Boládi, XI		17 44 3	558	Nara, II	252 57 56	139	
Gora Dongar No. 2 h.s.	h.s.	111 2 42	559	Anliyára Mark (helio.)	349 29 56	139	
Kála Dongar, Pachham Pir Tomb		144 33 30	573	Háthria, XVI			
Kála Dongar No. 3 h.s.	h.s.	144 50 33	565	Dhuñ	h.s.	10 32 24.0	89
Kála Dongar No. 1 "	"	146 52 33	560	Tera Fort (helio.)	30 47 58	288	
Kála Dongar No. 2 "	"	156 49 23	563	Naliya, XVII	42 23 35.99	24	
Bhanjada Bet Hill Peak		222 54 34	576	Sáhind, XIX	80 6 40.19	26	
Khadir Hill Peak		230 36 40	578	Ekliá Hill Mark (helio.)	104 19 4	322	
Khadir Hill Mark (helio.)		246 20 46	561	Suri Muri, XX	109 54 38.54	27	
Jhuran, IX		355 23 54	558	Bhunjái Hill Mark No. 2 (helio.)	110 40 20	321	
Gora Dongar No. 2 h.s.				Bhunjái Hill Mark No. 1 (helio.)			
Gora Dongar No. 3 h.s.	h.s.	147 30 27	566	Jhágora Hill Mark (helio.)	143 41 59	314	
Kála Dongar, Pachham Pir Tomb		184 19 49	573	Sura Gandhára, XXI	154 56 37.70	28	
Kála Dongar No. 3 h.s.	h.s.	184 31 34	564	Vadi Hill Mark (helio.)	155 54 29	307	
Kála Dongar No. 1 "	"	188 16 9	560	Godá Hill Mark (helio.)	156 44 53	309	
Kála Dongar No. 2 "	"	227 0 52	562	Gandhára Hill Mark (helio.)	158 29 46	301	
Bhanjada Bet Hill Peak		245 54 2	577	Dhodatimbo Hill Mark (helio.)	174 59 45	302	
Khadir Hill Peak		250 7 40	579	Juna Chái Hill Mark (helio.)	183 3 18	310	
Gora Dongar Hill Mark No. 2		285 50 10	570	Gajansar Hill Mark (helio.)	193 48 25	312	
Gora Dongar No. 1 "	"	290 59 12	559	Nara Hill Mark (helio.)	195 39 16	300	
Gora Dongar Hill Mark No. 1 (helio.)		298 13 57	568	Manjal, XVIII	206 33 46.47	25	
Jhuran, IX		339 48 33	559	Amára Hill Mark (helio.)	219 41 6	296	
Gora Dongar No. 3 h.s.				Fulái Hill Mark (helio.)			
Khávda Mosque		103 21 24	572	Mulu Hill Mark (helio.)	233 14 26	298	
Gáinda Bet Sarái		150 40 16	574	Chbári Hill Mark (helio.)	237 3 19	292	
Kála Dongar No. 3 h.s.	h.s.	191 33 51	574	Dhinodhar, XV	244 38 12	294	
Kála Dongar No. 1 "	"	195 41 37	567	Pakhdo Hill Mark No. 1 (helio.)	269 58 22.20	23	
Kála Dongar No. 2 "	"	238 37 48	566	Pakhdo Hill Mark No. 2 (helio.)	286 26 14	277	
Gora Dongar No. 2 "	"	327 30 9	566	Rojhla Hill mark (helio.)	290 6 2	279	
Gugriána Dho h.s.				Rojhla Hill mark (helio.)			
Sakarda	h.s.	188 33 14	536	Roha, XIV	310 52 42	261	
Saiyid Ali Pir Hill Tomb		227 47 47	545	Vamoti	320 12 10.31	23	
Jamanvála, XXIII		250 55 53	536	Netra Hill Mark (helio.)	341 46 8.1	89	
Lakumi Ráni Hill Peak (helio.)		269 11 56	541	Berája Hill Mark No. 2 (helio.)	343 23 52	282	
Jhadlára Hill Peak (helio.)		275 27 17	542	Jamanvála, XXIII			
Bor	h.s.	303 5 48	534	Lakumi Ráni Hill Peak (helio.)	30 6 52	543	
Ghunáu Temple (helio.)		332 14 1	537	Gugriána Dho	h.s.	70 58 35	
Pápar Domo		333 2 6	541	Saiyid Ali Pir Hill Tomb	92 34 33	546	
Rámráj Temple		334 40 53	538	Sakarda	"	110 57 28	
Bura Pir	"	348 59 6	534	Hamankhudi Hill Mark (helio.)	112 30 55	547	
				Hamankhudi Platform (helio.)	113 53 30	549	
				Koteshvar Temple No. 1 (helio.)	146 37 37	555	

* This station appertains to the Káthiáwár 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
Jamanvāla, XXIII—(Contd.)		Kākarva, III—(Contd.)	
Koteshvar Temple No. 2	147 54 28	Gorābid Hill Mark (helio.)	174 41 12
Nārāyan Sarovar Temple	148 37 12	Kākinda Bet Hill (helio.)	176 50 3
Ghuar Hill Mark (helio.)	153 14 16	Kārabid Hill No. 2 (helio.)	181 2 43
Pinjor Pir, XXIV	161 53 58.67	Kārabid Hill No. 1 (helio.)	185 6 21
Bābia, XXII	230 13 43.80	Bharodia	h.s. 193 51 27
Mudia Hill Mark (helio.)	236 24 57	Gāngta, VII*	200 49 12.66
Mudia Hill Platform (helio.)	247 15 10	Suvi	" 215 55 0
Suri Muri, XX	279 28 42.61	Khengārpur Rock	" 223 59 40
		Rāmvāo	" 253 46 8
		Nara, II	291 22 8.05
Jandharia h.s.		Adhoi Hill Mark (helio.)	312 27 34
Bhūj Temple No. 2	70 14 4	Halraī Hill Mark (helio.)	319 15 53
Vārār, XIII	107 36 29	Vāmka Hill Mark (helio.)	326 36 33
Nokhānia	h.s. 125 53 17		
Sānādra Hill Mark	161 4 42		
Bolādi, XI	201 20 21		
Khātrod, X	345 52 35		
		Kāla Dongar No. 1 h.s.	
Jhim, XXXII		Gora Dongar No. 2 h.s.	8 16 38
Nurlishāh, XXXIII	39 56 25.74	Gora Dongar No. 3 "	15 42 24
Koti, XXXV	110 40 10.24	Khāvda Mosque	41 46 40
Moghul Bhin, XXXVII	167 43 22.71	Gāinda Bet Sarāī	125 12 59
Dhui, XXXIV	225 30 14.27	Bhanjāda Bet Hill Peak	267 23 59
Mod, XXXI	274 46 50.66	Khadir Hill Peak	269 49 33
Patta-ka-Bedhi, XXX	338 46 27.42	Khadir Hill Mark (helio.)	273 10 52
		Kāla Dongar No. 2 "	304 38 12
		Gora Dongar No. 1 "	326 49 32
Jhuran, IX		Kāla Dongar No. 2 h.s.	
Dhāneti	h.s. 29 32 32	Gora Dongar Hill Mark No. 2	25 18 45
Khātrod, X	42 49 45.72	Gora Dongar No. 2 h.s.	47 2 58
Mamuāra Hill Mark (helio.)	61 6 48	Gora Dongar No. 3 "	58 40 12
Kas Hill Mark No. 3 (helio.)	86 36 45	Kāla Dongar No. 3 "	125 31 26
Bolādi, XI	91 32 9.84	Kāla Dongar No. 1 "	129 39 49
Haba, Rāya Hill Math	94 51 53	Gora Dongar No. 1 "	336 47 59
Gora Dongar No. 2 "	159 52 53	Gora Dongar Hill Mark No. 1 (helio.)	356 42 54
Gora Dongar No. 1 "	175 24 44		
Rahiāda, IV	235 39 6.31		
Dhamadka Temple	280 4 26	Kāla Dongar No. 3 h.s.	
Sukhpur, VI	295 31 22.97	Gora Dongar No. 2 h.s.	4 31 50
Pasvālia	" 339 56 48	Gora Dongar No. 3 "	11 34 25
Rāpur	h.s. 342 24 37	Gāinda Bet Sarāī	127 4 39
Anjār Fort	351 1 39	Kāla Dongar No. 2 "	305 23 36
Charakda, VIII	358 1 37.01	Gora Dongar No. 1 "	324 47 19
		Gora Dongar Hill Mark No. 1 (helio.)	335 45 8
		Gora Dongar Hill Mark No. 2	347 41 27
Kadol h.s.		Kārothol, CIV†	
Sukhpur, VI	33 11 12	Domāni, XLIV	8 13 55.86
Rahiāda, IV	88 23 54	Sahiji, CVII†	80 16 15.05
Chobāri Temple	221 30 14	Vikia, XLIII	322 9 22.20
Kākarva, III	255 18 39	Tatta Hill Mosque	357 12 39
Kākarva, III		Kas h.s.	
Māi Hill Peak (helio.)	0 55 23	Rahiāda, IV	198 53 4
Bhachāu, I	14 4 44.64	Desalpur	t.s. 250 12 23
Bandhadi	h.s. 46 31 14	Dhamadka Temple	274 3 47
Desalpur	t.s. 53 8 0	Dhamadka Hill Math	276 16 22
Kadol	h.s. 75 21 2	Dhamadka Hill Mark	284 34 13
Rahiāda, IV	83 0 31.70	Dudhai Temple	307 48 53
Chobāri Temple	115 16 57	Sukhpur, VI	314 32 6
Ran, V	134 45 40.79		

* This station appertains to the Kāthiāwār Meridional Series.

† These stations appertain to the Karāchi Longitudinal 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
Khar, XLI	o ' "	Kirgiria h.s.	o ' "
Randah, XL	63 52 41' 35	Baladia Hill Tomb	41 29 38
Vikin, XLIII	133 41 4' 95	Kera Mosque	45 7 9
Gada, XXXIX	356 50 32' 36	Punadi	h.s. 47 45 15' 4
		Kera Hill Mark (helio.)	55 0 6
Khárákua Vándh No. 1 h.s.		Sámatra, XII	98 22 12' 8
Rámváo	h.s. 98 46 42	Khátrod, X	254 3 56' 7
Suvi	" 147 44 55	Chakár Hill Mark (helio.)	304 12 11
Suvi Hill Temple	" 147 50 31	Lifra	" 324 51 15' 7
Tramáu	" 191 0 25		
Rápúr Temple	" 236 59 51	Kothára t.s.	
Khárákua Vándh No. 2 "	" 305 21 54	Suthri Temple	10 38 13
		Árikhánu Mark (helio)	42 31 12
Khárákua Vándh No. 2 h.s.		Árikhánu Hill Mark (helio.)	59 39 40
Rámváo	h.s. 107 32 24	Rápúr	t.s. 70 23 48' 6
Khárákua Vándh No. 1 "	" 125 22 23	Vánku Temple	77 30 39
Tramáu	" 175 37 58	Dhufi	h.s. 208 41 40' 3
Rápúr Temple	" 223 26 37	Váda Mark (helio.)	248 6 11
		Chitráni	" 274 58 25' 5
Khári Rohar, VII		Vinján Hill Mark (helio.)	282 27 57
Shinaya No. 2 h.s.	74 2 6	Amarváli Vándh Hill Mark (helio.)	313 42 14
Shinaya No. 1 "	" 74 44 36' 0	Sáhera Hill Mark No. 2 (helio.)	341 49 23
Anjár Fort	106 38 14	Mor Dho	h.s. 357 23 19' 6
Charakda, VIII	114 25 19' 27		
Pasvália	" 129 16 45	Koti, XXXV	
Sukhpur, VI	" 178 12 0' 19	Memán's Mosque	32 50 44
Chirai	" 212 59 27	Yusuf Jat Tomb	41 29 48
Bhacháu, I	215 50 24' 02	Nindamani, XXXVI	59 6 16' 73
		Abansháh, XXXVIII	121 29 41' 25
Khátrod, X		Gada, XXXIX	188 58 5' 65
Vadli Hill Mark (helio.)	4 18 49	Moghul Bhin Mosque	229 18 37
Lifra	h.s. 16 50 32' 9	Moghul Bhin, XXXVII	235 40 43' 31
Chakár Hill Mark (helio.)	43 33 11	Jhim, XXXII	290 36 4' 96
Bhárápúr Hill Mark (helio.)	63 12 39	Nurlisháh, XXXIII	336 37 28' 26
Kirgiria	" 74 7 15' 1		
Khátrod Hill Mark (helio.)	75 59 13	Laklpat, XXV	
Sámatra, XII	86 30 55' 03	Bábia, XXII	6 12 8' 98
Bháj Hill Fort Point No. 2	119 9 18	Mudhvai Hill Mark No. 1 (helio.)	28 37 16
Bháj Hill Fort Point No. 1	123 42 38	Mudhvai Hill Mark No. 2 (helio.)	46 56 57
Várar, XIII	125 58 2' 12	Pinjor Pir, XXIV	62 45 4' 93
Kukma Temple No. 1	149 2 24	Chher Hill Mark (helio.)	63 27 59
Kukma Temple No. 2	149 15 32	Lálchatha Hill Temple	76 38 36
Jandharia	h.s. 165 53 13	Sugaudia, XXVI	101 12 15' 38
Haba Hill Peak (helio.)	171 7 20	Vásta Bandar Fort (helio.)	104 52 1
Boládi, XI	182 33 49' 23	Saiyid Ali, XXVII	138 26 33' 99
Haba, Ráya Hill Math	193 4 29	Sáhera Hill Mark No. 1 (helio.)	295 39 4
Chaprelí Hill Mark (helio.)	195 0 52	Suarka Hill Mark (helio.)	301 34 24
Kas Hill Mark No. 3 (helio.)	210 35 33	Roha Hill Mark (helio.)	303 20 28
Padar Tree	216 7 56	Artara Hill Mark (helio.)	313 8 32
Jhuran, IX	222 45 28' 70	Sura Gandhára, XXI	317 21 31' 89
Kas Hill Mark No. 2 (helio.)	223 45 16	Dháresi Hill Mark (helio.)	334 37 57
Reladi Hill	225 13 20	Úmarsar Hill Mark (helio.)	350 46 59
Dháneti	h.s. 238 59 19		
Sagália	" 276 10 30	Lifra h.s.	
Charakda, VIII	279 25 33' 43	Mundra	t.s. 8 14 12' 1
Jandha Hill Mark (helio.)	303 18 41	Lákhápúr Hill Mark (helio.)	22 0 18
Váda Hill Mark (helio.)	305 12 47	Mádi	h.s. 57 18 10' 1
Gandher Hill Peak (helio.)	315 44 16		
Tengo	" 329 30 53' 2		

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
Lifra h.s.—(Contd.)		Manjal, XVIII—(Contd.)	
Tapar Hill Mark (helio.)	84 41 57	Mātānomadh Hill Temple	65 30 2
Punadi	h.s. 89 42 1'6	Gajansar Hill Mark (helio.)	67 6 18
Varjhar Hill Mark (helio.)	106 0 40	Juna Chái Hill Mark (helio.)	90 37 8
Kirgiriā	" 144 53 21'8	Gandhāra Hill Mark (helio.)	101 13 22
Chakār Hill Mark (helio.)	162 6 34	Sura Gandhāra, XXI	102 43 48'36
Khātrod, X	196 49 20'6	Haroda Hill Mark (helio.)	110 32 15
Vadli Hill Mark (helio.)	211 37 3	Dhodatimbo Hill Mark (helio.)	118 54 23
Tengo	" 261 25 11'0	Nara Hill Mark (helio.)	131 31 34
Chāndroda Hill Mark (helio.)	288 17 58	Fulāi Hill Mark (helio.)	294 39 8
Bhadresar	s. 309 9 17'2	Chhāri Hill Mark (helio.)	312 30 53
Luni Hill Mark (helio.)	329 11 55	Dhinodhar, XV	313 14 45'78
Luni Tower (helio.)	340 30 13	Mulu Hill Mark (helio.)	340 12 30
		Amāra Hill Mark (helio.)	355 17 11
Lún h.s.		Mod, XXXI	
Bara Pir	h.s. 167 19 19	Patta-ka-Bedhi, XXX	42 9 27'91
Ākri Hill Mark (helio.)	198 27 44	Jhim, XXXII	94 51 47'53
Mohādi	" 234 7 51	Dhui, XXXIV	153 9 11'78
Siāri	" 319 34 8	Hakra, XXXIX	297 3 48'63
		Guni, XXVIII	349 57 40'71
Mādi h.s.		Moghul Bhin, XXXVII	
Sirācha Hill Mark (helio.)	13 3 52	Koti, XXXV	55 43 59'89
Khākhar Temple	29 55 44	Moghul Bhin Mosque	101 8 35
Traghari	h.s. 35 8 36'7	Gada, XXXIX	132 39 2'71
Bidada	" 86 17 53'1	Dhui, XXXIV	279 20 9'71
Āsambā Hill Mark (helio.)	122 37 18	Jhim, XXXII	347 42 33'40
Tumbadi Hill Mark (helio.)	148 38 0		
Punadi	" 152 33 58'7	Mohādi h.s.	
Varjhar Hill Mark (helio.)	206 23 14	Siāri	h.s. 0 26 50
Tapar Hill Mark (helio.)	214 52 27	Lún	" 54 10 8
Berāja Hill Mark (helio.)	230 7 11	Bara Pir	" 121 4 13
Lifra	" 237 14 6'4	Ākri Hill Mark (helio.)	146 24 43
Lākhāpur Hill Mark (helio.)	264 33 9	Ber	" 164 16 48'6
Samāghogha Mosque	290 1 5	Sopdāi Hill Mark (helio.)	183 30 25
Mundra	t.s. 300 52 45'1	Sāhind, XIX	233 30 51'7
Bhujpur Temple	315 57 40	Vāndh Hill Mark No. 2 (helio.)	285 58 27
Barārī Māta	h.s. 342 52 36'5	Naliya, XVII	302 38 59'0
		Jakhāu Tower (helio.)	326 21 4
		Jakhāu Temple	330 33 6
Māndvi s.		Mor Dho h.s.	
Māndvi Light-house	78 22 41	Rāpur	t.s. 133 17 59'1
Tamāchi Pir Hill Tomb	90 42 47	Suthri Temple	152 4 35
Āsar Māta	h.s. 95 8 18'4	Kothūra	" 177 23 30'2
Āsar Māta Temple	95 23 40	Sābera Hill Mark No. 2 (helio.)	186 18 7
Godra Tower (helio.)	139 50 17	Amarvāli Vāndh Hill Mark (helio.)	195 55 49
Durgāpur Building (helio.)	168 28 4	Khūāda Fort	204 43 13
Don	" 177 0 19'3	Chitrāni	h.s. 230 35 22'5
Kodāi Temple	208 21 27	Sāndhān Temple	233 29 55
Bidada	" 231 33 32'3	Sābhrai Tower (helio.)	259 49 5
Farādi Hill Math	235 12 38	Latbedi Hill Mark (helio.)	266 59 45
Bidada Mark (helio.)	237 15 20	Modkuba Tower	278 45 16
Dhrābudi Māta Building	283 27 25	Modkuba Hill Mark (helio.)	281 28 17
Rāval Pir Dome	290 58 15	Bāmbhāni Tower (helio.)	287 30 52
Traghari	" 295 56 14'5	Bāmbhāni	" 300 14 45'6
Manjal, XVIII			
Hāthrin, XVI	26 36 2'79		
Mātānomadh Hill Mark (helio.)	57 20 20		

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
Mundra t.s.	° ' "	Nokhánia h.s.—(Contd.)	° ' "
Jharpara Hill Mark (helio.)	h.s. 46 41 35	Sunrásar	s. 203 44 44
Barári Mátá	87 31 26	Sánadra Hill Mark	265 16 23
Navínál Treo	110 17 32	Boládi, XI	267 5 37
Bhujpur Temple	120 56 7.9	Jandharia	h.s. 305 50 30
Mádi	173 32 26	Bhúj Temple No. 2	358 35 51
Lákhápur Hill Mark (helio.)	188 13 32.0		
Lifra	s. 247 40 20.4	Nurlisháh, XXXIII	
Bhadresar	250 44 39	Allah Memán's Mosque	28 37 11
Luni Tower (helio.)	254 47 34	Nindamani, XXXVI	112 5 15.53
Luni Hill Mark (helio.)	359 34 52	Memán's Mosque	122 19 27
Mundra Bandar Building (helio.)		Yusuf Jat Tomb	128 15 19
		Koti, XXXV	156 39 17.86
		Jhim, XXXII	219 54 10.69
		Patta-ka-Bedhi, XXX	290 16 2.63
Naliya, XVII		Pasuda s.	
Rápur	t.s. 2 45 21	Bhímásar	s. 79 59 58
Siári	h.s. 67 44 31	Sukhpur, VI	147 16 59
Jakháu Temple	86 43 53	Bhacháu, I	235 46 38
Mohádi	122 43 2.4	Chirai	h.s. 260 40 57
Vándh Hill Mark No. 2 (helio.)	141 48 28		
Sáhind, XIX	165 36 58.13	Pasvália h.s.	
Naliya Temple No. 2	186 45 15	Shinaya	No. 2 h.s. 1 7 54
Naliya Temple No. 1	187 0 41	Viri	37 43 9
Háthria, XVI	222 18 14.92	Sidungra Temple	54 25 46
Tera Fort (helio.)	240 13 6	Sidungra Hill Tomb	54 31 57
Dhuff	h.s. 260 31 18.7	Sidungra Hill Mark	56 39 0
Kálatákv Hill Mark (helio.)	265 1 46	Sagália	94 52 15
Roha, XIV	273 18 57.46	Jhuran, IX	159 53 43
		Sukhpur, VI	216 57 0
		Khári Rohar, VII	309 14 12
Nara, II		Patta-ka-Bedhi, XXX	
Ámliyára Mark (helio.)	16 2 38	Allah Memán's Mosque	95 42 44
Adhoi Hill Mark (helio.)	33 19 29	Nurlisháh, XXXIII	110 19 52.77
Bhacháu, I	53 14 50.38	Jhim, XXXII	158 48 3.10
Halrái	h.s. 73 0 10	Mod, XXXI	222 6 7.58
Halrái Hill Mark (helio.)	79 27 54	Guni, XXVIII	278 14 44.75
Mái Hill Peak (helio.)	86 18 10	Sugandia, XXVI	330 49 10.05
Vánka Hill Mark (helio.)	89 47 4		
Vánka Hill Temple	89 50 52	Pinjor Pir, XXIV	
Kákarva, III	111 25 45.63	Hamankhudi Hill Mark (helio.)	10 52 58
Kanthkot Hill Temple	117 36 42	Hamankhudi Platform (helio.)	11 30 44
Rámváo	154 13 25	Nárayan Sarovar Temple	21 19 30
Gángta, VII*	170 33 39.41	Sukarda	h.s. 25 14 34
Bálagad Hill	226 54 0	Koteshvar Temple No. 1 (helio.)	36 6 55
Vitrio Hill Temple	237 45 17	Koteshvar Temple No. 2	44 23 12
Jethásari Vándh Hill Mark (helio.)	273 36 35	Sugandia, XXVI	161 10 10.79
Chitrod, XI*	291 52 21.44	Vásta Bandar Fort (helio.)	201 59 18
Chitrod Hill Mark (helio.)	295 36 22	Saiyid Ali, XXVII	205 3 36.59
Váshraya Hill Temple	309 29 38	Lálehatha Hill Temple	228 12 58
Katáriya Temple No. 1	336 19 9	Cbher Hill Mark (helio.)	241 47 43
Vándhia, XIV*	343 32 0.75	Pinjor Pir Hill No. 2 (helio.)	242 5 43
		Lakhpat, XXV	242 39 31.37
		Pinjor Pir Hill No. 1 (helio.)	258 57 25
		Mudhvai Hill Mark No. 2 (helio.)	260 31 5
		Mudhvai Hill Mark No. 1 (helio.)	271 38 36
Nindamani, XXXVI			
Abausháh, XXXVIII	169 25 28.91		
Koti, XXXV	239 2 47.85		
Memán's Mosque	272 47 51		
Nurlisháh, XXXIII	291 59 57.85		
Nokhánia h.s.			
Jhura Hill Mark (helio.)	125 34 1		
Nokhánia Hill Peak	174 10 1		

* These stations appertain to the Káthiáwár 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
Pinjor Pir, XXIV—(Contd.)		Randah, XL—(Contd.)	
Bābia, XXII	272 50 41' 13"	Vikia, XLIII	188 38 59' 42"
Mudia Hill Mark (helio.)	318 6 45	Khar, XLI	243 49 15' 00"
Jamanvāla, XXIII	341 52 48' 01"	Gada, XXXIX	306 23 48' 68"
Ghuar Hill Mark (helio.)	351 11 28		
		Rāpur s.	
Punadi h.s.		Charakda, VIII	16 12 53
Asambia Hill Mark (helio.)	h.s. 33 28 43	Kokra Temple	41 30 7
Dholbet	74	Sagālia	h.s. 46 44 37
Dhanoi Hill Mark (helio.)	149 23 31	Dhāneti	" 84 55 22
Sāmātra, XII	176 48 35' 8"	Mamūāra Hill Tomb	" 105 14 21
Kera Hill Mark (helio.)	217 24 40	Dagāla Hill Peak	136 40 23
Kirgiria	h.s. 227 41 56' 0"	Jhuran, IX	162 25 32
Kera Mosque	230 32 39	Kas Hill (helio.)	216 7 36
Bālādīa Hill Tomb	231 30 9	Sukhpur, VI	256 18 4
Varjhar Hill Mark (helio.)	256 16 27		
Lifra	" 269 36 36' 9"	Rāpur t.s.	
Mādi	" 332 32 38' 4"	Sāri	h.s. 113 7 53
Tumbadi Hill Mark (helio.)	336 45 4	Budia Tank (helio.)	132 1 21
		Naliya, XVII	182 45 11
Rabiāda, IV		Vānku Temple	235 52 4
Kas	h.s. 18 54 14	Kothāra	t.s. 250 20 57' 5"
Kas Hill (helio.)	24 13 33	Ārikhānu Hill Mark (helio.)	270 39 38
Jhuran, IX	55 43 10' 47"	Sāhera Hill Mark No. 2 (helio.)	276 10 18
Ran, V	215 50 13' 49"	Ārikhānu Mark (helio.)	276 56 46
Kākāra, III	262 54 38' 95"	Mor Dho	h.s. 313 14 57' 9"
Kadol	" 268 20 25		
Bandhadi	s. 296 1 6	Roha, XIV	
Bhachāu, I	313 25 26' 15"	Devpur Hill Mark (helio.)	8 41 35
Desalpur	t.s. 324 54 49	Kotada Hill Temple	12 56 31
Sukhpur, VI	357 4 33' 51"	Chitrāni	h.s. 59 53 39' 2"
		Naliya, XVII	93 29 40' 18"
Rāmvaō h.s.		Bālāchor Hill Mark No. 1	100 15 56
Kākāra, III	h.s. 73 48 43	Bālāchor Hill Mark No. 2 (helio.)	113 36 35
Bharodia	117 18 28	Vamoti	h.s. 119 30 2' 7"
Khengārpur Rock	160 16 29	Hāthria, XVI	140 17 35' 10"
Suvi	" 170 34 8	Mānki Hill Mark (helio.)	151 13 40
Suvi Hill Temple	170 41 19	Mosuna Hill Tree	184 44 27
Gāngta, VII*	177 41 49	Dhinodhar, XV	193 59 50' 70"
Jesada Hill Platform	186 54 46	Lākria Hill (helio.)	213 28 6
Rav Temple	201 56 11	Ākādnū Hill Peak (helio.)	219 53 35
Tramāu	" 225 1 20	Rojhla Hill Mark (helio.)	234 26 2
Khārākua Vāndh No. 1	" 278 45 30	Vārār, XIII	241 47 18' 29"
Khārākua Vāndh No. 2	" 287 30 43	Sāmātra, XII	279 36 17' 39"
Nara, II	334 12 22	Nābhoi Hill Mark (helio.)	294 36 24
		Vadva Hill No. 2 (helio.)	316 9 10
Ran, V		Sisāgad Hill Fort	325 31 13
Rabiāda, IV	h.s. 35 52 59' 44"	Dholbet	h.s. 330 30 28' 3"
Gāngta, VII*	240 23 40' 22"		
Suvi	h.s. 270 34 1	Sagālia h.s.	
Kākāra, III	314 42 33' 04"	Khedoi Hill Temple	13 13 11
		Khātrod, X	96 13 30
Randah, XL		Dhāneti	h.s. 165 43 10
Abanshāh, XXXVIII	17 40 31' 32"	Dagāla Hill Peak	187 31 52
Bibi Mariam, XLII	91 33 3' 11"	Rāpur	s. 226 42 24
Pir Patho Mosque	96 41 15	Pasvālia	h.s. 274 49 1
Pir Patho Tomb No. 2	98 21 42	Charakda, VIII	285 50 8
Pir Patho Tomb No. 1	99 9 20	Sidungra	" 325 50 58
		Sidungra Temple	331 58 26
		Sidungra Hill Tomb	332 35 4
		Sidungra Hill Mark	343 50 4

* This station appertains to the Kāthiāvār 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
Sahiji, CVII*		Sámatra, XII—(Contd.)	
Károthol, CIV*	260 8 52.07	Dhinodhar, XV	151 29 52.04 21
Dománi, XLIV	308 38 50.72	Áráda Hill Mark (helio.)	152 42 28 273
Sukhpur, XLV	342 31 22.00	Kandhvingo Hill Peak (helio.)	170 16 54 264
		Vichhia Hill Peak (helio.)	176 43 37 270
		Vichhia Hill Mark (helio.)	183 46 18 271
Sáhind, XIX		Jhura Hill Mark (helio.)	191 25 3 231
Jakháu Temple	14 59 42	Várár, XIII	193 32 48.18 19
Jakháu Tower (helio.)	16 19 56	Boládi, XI	233 50 29.79 17
Mohádi	h.s. 53 33 43.3	Bhúj Temple No. 1	238 56 31 245
Sapdáí Hill Mark (helio.)	91 6 14	Bhúj, Sural Hill Temple	240 49 24 238
Ber	111 51 43.8	Bhúj Hill Fort Point No. 1	242 35 12 240
Maniára Hill Fort (helio.)	112 59 34	Bhúj Hill Temple	243 18 8 243
Suri Muri, XX	172 46 41.00	Bhúj Hill Fort Point No. 2	244 55 23 242
Bábia Hill Mark (helio.)	185 7 56	Khátrod, X	266 24 4.95 17
Sura Gandhára, XXI	210 14 16.21	Khátrod Hill Mark (helio.)	266 39 30 213
Eklia Hill Mark (helio.)	217 40 34	Kirgíria	h.s. 278 18 41.0 73
Jhágora Hill Mark (helio.)	224 43 47	Baládia Hill Tomb	306 51 30 429
Mátanomadh Hill Temple	229 23 37	Kera Mosque	319 12 17 431
Bhunjáí Hill Mark No. 1 (helio.)	251 8 47	Kera Hill Mark (helio.)	326 44 53 433
Bhunjáí Hill Mark No. 2 (helio.)	251 32 24	Punadi	356 48 24.0 73
Háthria, XVI	260 0 4.97		
Tera Fort (helio.)	307 41 29	Shinaya No. 1 h.s.	
Naliya Temple No. 1	340 55 5	Vira Fort (helio.)	22 0 22 393
Naliya Temple No. 2	340 57 59	Bhadresar	h.s. 42 32 36.5 67
Naliya, XVII	345 35 45.51	Hatadi Hill Mark No. 1 (helio.)	49 58 37 395
		Hatadi Hill Mark No. 2 (helio.)	54 55 18 397
		Vovár Hill Mark (helio.)	65 15 51 399
		Tengo	h.s. 91 54 24.9 65
		Sidungra	139 6 12 374
		Charakda, VIII	160 55 36.7 64
		Khári Rohar, VII	254 41 20.2 64
Saiyid Ali, XXVII		Shinaya No. 2 h.s.	
Pinjor Pir, XXIV	25 6 24.93	Naga Valéria Tower	46 31 57 392
Vásta Bandar Fort (helio.)	30 33 12	Midiála Hill Temple	98 9 31 387
Sugandia, XXVI	67 52 57.14	Viri	h.s. 108 33 21 385
Guni, XXVIII	130 52 51.00	Sidungra	122 51 13 385
Hakra, XXIX	187 36 3.42	Charakda, VIII	148 12 50 383
Lakhpat, XXV	318 23 47.63	Pasvália	181 7 52 384
		Sukhpur, VI	202 7 11 382
		Khári Rohar, VII	253 59 31 382
		Tána	h.s. 341 21 50 389
Sakarda h.s.		Siári h.s.	
Gugriána Dho	h.s. 8 33 30	Lún	h.s. 139 36 23 526
Pinjor Pir, XXIV	205 13 19	Mohádi	180 26 48 518
Ghuar Hill Mark (helio.)	241 21 18	Jakháu Tower (helio.)	219 3 56 524
Hamankhudi Platform (helio.)	282 51 44	Naliya, XVII	247 40 26 518
Jamanvála, XXIII	290 55 2	Budía Tank (helio.)	269 23 54 520
Lakhmi Ráni Hill Peak (helio.)	313 55 41	Rápur	t.s. 293 3 58 519
Saiyid Ali Pir Hill Tomb	315 55 50		
		Sidungra h.s.	
		Midiála Hill Temple	39 19 13 388
Sámatra, XII		Tengo	h.s. 61 13 6 373
Dhanói Hill Mark (helio.)	15 28 59	Khedoi Hill Temple	63 9 22 404
Sámatra Hill	47 41 11	Sagália	145 52 18 375
Serdi Hill Temple	49 16 44	Charakda, VIII	187 3 17 373
Dholbet	h.s. 52 28 27.1	Shinaya No. 2	302 49 23 385
Siságad Hill Fort	69 50 1	Shinaya No. 1	319 5 3 374
Nábhoi Hill Mark (helio.)	80 19 41	Viri	346 8 58 385
Vadva Hill No. 2 (helio.)	88 22 17		
Vadva Hill No. 1	91 47 48		
Rohn, XIV	99 41 56.53		
Nanáma Hill (helio.)	102 40 3		
Dhrabva Hill Mark (helio.)	110 25 53		
Mosuna Hill Mark (helio.)	114 23 53		
Rojhla Hill Peak (helio.)	115 19 18		
Pakhdo Hill Mark No. 2 (helio.)	131 45 28		
Vethon Hill Mark (helio.)	135 44 58		

* These stations appertain to the Karáohi Longitudinal 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
Sugandia, XXVI	° ' "		Sura Gandhára, XXI—(Contd.)	° ' "	
Patta-ka-Bedhi, XXX	150 51 52.99	41	Úmarsar Hill Mark (helio.)	118 16 20.	313
Guni, XXVIII	197 35 6.66	39	Lakhpát, XXV	137 25 10.45	314
Saiyid Ali, XXVII	247 48 40.76	38	Artara Hill Mark (helio.)	141 1 52	311
Lakhpát, XXV	281 5 13.45	36	Lík Hill Mark (helio.)	144 58 40	338
Pinjor Pir, XXIV	341 8 43.68	36	Sáhera Hill Mark No. 1 (helio.)	163 7 41	310
			Roha Hill Mark (helio.)	180 42 47	337
Sukhpur, VI			Suarka Hill Mark (helio.)	235 42 5	335
Bhimásar	s. 9 31 33	177	Dhodatimbo Hill Mark (helio.)	258 10 13	301
Shinaya	No. 2 h.s. 22 9 36	382	Haroda Hill Mark (helio.)	263 18 38	303
Tapar Temple	36 10 48	179	Manjal, XVIII	282 38 52.19	28
Pasvála	" 36 59 23	193	Juna Chái Hill Mark (helio.)	290 34 56	311
Anjár Fort	38 3 12	371	Goda Hill Mark (helio.)	327 53 40	308
Charakda, VIII	51 4 59.30	11	Vadi Hill Mark (helio.)	328 57 27	306
Rápur	s. 76 21 27	189	Háthria, XVI	334 53 59.00	28
Kas Hill Mark No. 1 (helio.)	111 53 37	208	Mátánomadh Hill Mark (helio.)	338 54 38	317
Jhurán, IX	115 35 40.98	12	Jhágora Hill Mark (helio.)	352 44 10	313
Kas Hill (helio.)	125 57 29	191	Mátánomadh Hill Temple	357 37 3	315
Kas	h.s. 134 33 31	181			
Dudhai Temple	137 40 41	188	Suri Muri, XX		
Dhamadka Hill Math	158 0 31	186	Sapdáí Hill Mark (helio.)	31 49 39	530
Rabíáda, IV	177 4 48.31	9	Maniára Hill Fort (helio.)	h.s. 55 45 32	532
Dhamadka Temple	177 35 10	184	Ber	58 7 1.3	96
Dhamadka Hill Mark	202 9 2	182	Jamanvála, XXIII	99 32 13.09	32
Desalpur	t.s. 210 40 36	157	Mudia Hill Platform (helio.)	134 54 45	329
Kadol	h.s. 213 7 57	152	Chánda Hill (helio.)	176 19 17	330
Bandhadi	s. 224 16 32	151	Bábia, XXII	187 12 9.47	31
Kumbhárdi Temple	235 11 25	158	Lík Hill Mark (helio.)	216 57 36	339
Sikra Hill Mark (helio.)	248 23 8	162	Manjal Hill Mark (helio.)	224 4 52	331
Chopadvu	No. 1 h.s. 259 6 33	160	Sura Gandhára, XXI	235 10 7.20	30
Bhacháu, I	263 31 27.53	9	Gandhára Hill Mark (helio.)	240 0 56	305
Trámáu Hill (helio.)	267 25 11	169	Vadi Hill Mark (helio.)	244 24 23	306
Chopadvu	No. 2 " 268 42 11	166	Goda Hill Mark (helio.)	248 37 32	308
Lunva Hill	268 46 55	172	Mátánomadh Hill Mark (helio.)	273 12 15	318
Lunva Hill Mark	272 19 10	171	Bhunjáí Hill Mark No. 1 (helio.)	285 40 22	319
Chirai	" 298 47 15	164	Háthria, XVI	289 47 33.94	27
Chirai Temple	306 57 3	174	Ekliá Hill Mark (helio.)	300 10 13	322
Pasuda	s. 327 15 53	175	Bábia Hill Mark (helio.)	336 8 17	324
Kbári Rohar, VII	358 11 50.30	10	Sáhind, XIX	352 46 12.78	27
Sukhpur, XLV			Suvi h.s.		
Sahjí, CVII*	162 33 55.41	62	Khengárpur Rock	7 53 18	112
Dománi, XLIV	232 6 15.86	60	Kákarva, III	35 57 13	101
Bibi Mariam, XLII	273 47 17.45	60	Bharodia	h.s. 55 43 45	122
			Ran, V	90 39 22	101
Sumrásar s.			Gángta, VII†	182 53 54	102
Nokhána	h.s. 23 45 56	233	Rav Temple	233 18 57	107
Nokhána Hill Peak	32 5 49	235	Jesada Hill Platform	262 51 30	109
Jhura Hill Mark (helio.)	70 32 2	234	Tramáu	" 292 30 4	105
Boládi, XI	316 2 2	233	Tramáu Hill Temple	298 10 44	121
Sánadra Hill Mark	341 47 19	236	Khárákua Vándh	No. 1 " 327 43 21	113
			Ráunáo	" 350 33 46	105
Sura Gandhára, XXI			Tengo h.s.		
Sáhind, XIX	30 18 14.60	29	Vovár Hill Mark (helio.)	7 16 21	400
Bábia Hill Mark (helio.)	39 23 27	324	Chándroda Hill Mark (helio.)	38 38 47	401
Suri Muri, XX	55 14 34.64	30	Lifra	h.s. 81 28 23.4	68
Manjal Hill Mark (helio.)	71 39 6	332	Vadli Hill Mark (helio.)	117 59 2	407
Dhárési Hill Mark (helio.)	90 46 10	333	Khátrod, X	149 32 55.0	66
Bábia, XXII	101 48 32.30	31	Jandia Hill Mark (helio.)	165 6 37	210

* This station appertains to the Karachi Longitudinal Series.

† This station appertains to the Káthiáwár 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
Tengo h.s.—(Contd.)	° ' "	Vamoti h.s.	° ' "
Váda Hill Mark (helio.)	188 36 30	Berájia Hill Mark No. 1 (helio.)	13 6 39
Charakda, VIII	221 41 25·7	Berájia Hill Mark No. 2 (helio.)	40 49 41
Sidungra	h.s. 241 10 52	Dhuñ	h.s. 69 4 31·7
Viri	" 255 44 5	Netra Hill Mark (helio.)	161 0 8
Shinaya	No. 1 " 271 51 2·3	Háthria, XVI	161 47 31·9
Tána	s. 290 8 39	Mánki Hill Mark (helio.)	266 50 36
Vira Fort (helio.)	319 14 35	Roha, XIV	299 26 2·4
Hatadi Hill Mark No. 1 (helio.)	328 42 24	Báláchor Hill Mark No. 2 (helio.)	309 43 51
Hatadi Hill Mark No. 2 (helio.)	335 41 13	Chitráni	h.s. 354 23 9·0
Bhadresar	s. 353 50 45·4		67
Traghari h.s.		Vándhia, XIV*	
Mándvi	s. 115 58 57·6	Anlýára Mark (helio.)	91 4 11
Rával Pir Dome	118 26 27	Bhacháu, I	102 20 41·08
Dhrábudi Mátá Building	127 3 36	Lákadiya Fort (helio.)	161 57 19
Bidada	h.s. 180 49 39·8	Lákadiya Temple No. 2	162 17 29
Bidada Mark (helio.)	184 55 49	Lákadiya Temple No. 1	162 47 56
Farádi Hill Math	196 34 18	Nara, II	163 33 29·94
Mádi	" 215 6 1·0	Vashtava Hill Temple	172 27 28
Sirácha Hill Mark (helio.)	239 53 36	Katáriya Temple No. 2	175 30 10
Barári Mátá	" 266 10 40·2	Katáriya Temple No. 1	188 30 56
Rangan Hill Mark (helio.)	268 34 54	Chitrod, XI*	203 51 26·50
			1
Tramáu h.s.		Várar, XIII	
Khárakua Vándh	No. 1 h.s. 11 0 45	Sámatra, XII	13 33 54·58
Tramáu Hill Temple	" 35 9 41	Sámatra Hill	18 0 38
Rámváo	" 45 2 52	Kandhvingo Hill Peak (helio.)	38 44 18
Khengárpur Rock	" 87 4 18	Dhrabva Hill Mark (helio.)	48 57 55
Suvi	" 112 31 58	Nanáma Hill (helio.)	53 31 35
Suvi Hill Temple	" 112 37 21	Rojhla Hill Peak (helio.)	58 47 55
Jesada Hill Platform	125 23 18	Roha, XIV	61 54 5·12
Gángta, VII*	156 24 26	Lákria Hill (helio.)	72 35 1
Rav Temple	179 17 1	Mosuna Hill Mark (helio.)	73 34 57
Rápur Temple	280 21 34	Mosuna Hill Tree	75 16 20
Khárakua Vándh	No. 2 " 355 37 49	Vichhia Hill Peak (helio.)	78 35 49
		Vichhia Hill Mark (helio.)	81 33 3
		Vethon Hill Mark (helio.)	84 59 6
		Pakhdo Hill Mark No. 1 (helio.)	100 55 27
		Árída Hill Mark (helio.)	102 47 25
		Karbua Hill Peak	108 26 2
		Ákádnu Hill Peak (helio.)	110 10 46
		Dhinodhar, XV	119 2 36·63
		Boládi, XI	264 32 20·22
		Manuára Hill Tomb	280 42 25
		Chaprelí Hill Mark (helio.)	281 20 30
		Chaprelí Hill	283 1 52
		Jandharia	h.s. 287 31 22
		Lákhond Hill	288 4 38
		Bhúj, Sural Hill Temple	300 18 30
		Kukma Temple No. 1	301 37 5
		Kukma Temple No. 2	301 47 33
		Reladi Hill	302 30 37
		Khátrod, X	305 52 16·97
		Bhúj Hill Fort Point No. 1	307 41 34
		Bhúj Hill Temple	309 57 41
		Bhúj Palace	313 26 43
		Bhárápur Hill Mark (helio.)	340 48 36
			127
Undot h.s.			
Ásár Mátá Temple	5 1 18		483
Láija Tower (helio.)	5 52 45		485
Ásár Mátá	h.s. 7 6 43·2		82
Báet Tower (helio.)	53 59 27		487
Bámghanai	" 59 22 37·4		83
Bámghanai Tower (helio.)	" 71 57 37		489
Kotadi Temple	142 12 22		501
Chitráni	" 143 12 54·3		84
Pohla Hill Mark (helio.)	171 3 53		472
Peáka Hill Mark (helio.)	200 16 42		473
Dholbet	" 238 47 50·5		85
Vándh Hill Mark No. 1 (helio.)	260 53 22		455
Don	" 284 37 40·2		82

* These stations appertain to the Káthiáwár 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
Vikia, XLIII		Viri h.s.	
Randah, XL	8 39 39.14	Naga Valária Tower	8 56 2
Bibi Marian, XLII	44 51 26.68	Tengo	h.s. 75 46 28
Pir Patho Mosque	48 25 47	Midiála Hill Temple	76 6 7
Pir Patho Tomb No. 2	50 37 12	Sidungra	" 166 9 7
Pir Patho Tomb No. 1	50 41 43	Pasvália	" 217 41 26
Dománi, XLIV	79 34 8.48	Shinnya	No. 2 " 288 31 40
Károthol, CIV*	142 13 36.79	Tána	B. 315 30 27
Khar, XLI	313 38 17.74		

* This station appertains to the Karáchi Longitudinal Series.

November, 1892.

J. ECCLES,
In charge Computing Office.

CUTCH COAST SERIES.

CO-ORDINATES AND DESCRIPTIONS OF ALL STATIONS AND POINTS.

The following table gives the co-ordinates of all 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.

NOTE.—Principal stations are followed by the Roman numerals I, II, &c., secondary stations by the letters h.s., s. and t.s. Wherever the spelling and designation of stations and points have been altered from the old nomenclature, the latter is given in italics where necessary, immediately below the former. The year in which a station or point was originally fixed is usually given after its description.

For visited stations and points of superior accuracy, the values of latitude and longitude are given to two places of decimals, for well determined objects to one place, and for the remaining points to the nearest second.

The trigonometrical heights are given to the nearest foot, and the spirit-levelled heights to two places of decimals; the surfaces to which they refer, when forthcoming in the field books, are specified in footnotes, otherwise they may be assumed to refer to the upper surface of the pillar or platform, or to the mark engraved on buildings, &c. Where trigonometrical heights were not forthcoming, but values were found on the Topographical Survey maps, these values have been reduced to the same terms as the trigonometrical heights and enclosed in brackets, thus [440]; the surface to which they refer may be assumed to be the ground level. In the column of heights, the upper numeral gives the height of the station above mean sea-level and the lower that of the structure itself above ground level, but in the case of principal stations protected by rectangular pillars, it is the height of the circular pillar above ground level.

The numerals in the last column indicate the triangles given on pages 13—L. to 40—L., by which the station or point has been fixed; when these numerals are omitted it is to be understood that no triangles are given.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Abausháh, XXXVIII	Karáchi	<i>Vide page 11—L.</i>	24 22 7' 43	68 058' 19	<i>feet</i> 86 10	51
Adhoi Hill Mark (helio.) <i>Mombahi H.</i>	Hálár	On a knoll of the same hill on which the town of Adhoi is built and about $\frac{1}{4}$ of a mile E. of it; the survey point, marked by a circle and dot, is between the town and a Pir's flag: Morvi State, Káthiáwár (Káthiávád) Agency. 1856.	23 23 43' 07	70 33 36' 04	...	138
Ákádnu Hill Peak (helio.) <i>Surij H. Peak</i>	Cutch (Kachhi) State	About 3 miles N. by W. of Vcháro village, the same distance N.N.E. of Kotada, and 4 miles N.E. by N. of Thráda. 1855.	23 23 0' 70	69 28 48' 00	...	274 275
Ákri Hill Mark (helio.)	"	About $\frac{1}{4}$ a mile N.W. of Ákri Mota village, 24 miles S. by E. of Nrává, and $\frac{1}{2}$ of a mile off the road from Ákri to Ránvára. 1859.	23 23 41' 53	68 38 32' 07	96	529
Allah Memán's Mosque <i>Mosque near Nurshah T.S.</i>	Karáchi	Spire of the conspicuous, domed mosque about 6 miles S. of Jatan village, and 3 miles S.S.W. of the principal station of Nursháh: táluca Játi, sub-division Shahbandar. 1858.	24 4 28' 3	68 14 45' 7	...	357

* To upper surface of perforated, circular pillar.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangles
Ámirá Hill Mark (helio.) <i>Kaniri Hill</i>	Cutch State	About 2½ miles N.E. of the village of that name, the same distance S.E. by S. of Gajansar, and 3½ miles N. of Aiar. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 33 56.46	69 11 14.65	feet [440]	296 297
Amarváli Vándh Hill Mark (helio.) <i>Wand Talao H.S.</i>	"	Close to a tank which is a few yards N.W. of the village of that name, about 1¼ miles S.E. by S. of the large village of Varádia, and 3 miles W. by S. of the town of Viuján. 1859.	23 5 51.00	69 1 7.80	...	508
Ámliyárn Mark (helio.) <i>Amliara S.</i>	"	On the embankment of a tank close N. of the large village of that name on the roads from Chirai to Luliána and Sadivála to Vándhia. 1856.	23 14 51.68	70 31 56.80	...	136 137
Anjár Fort <i>Anjar Highest Bastion</i>	"	N.W. and highest bastion on the N. side of the fort. 1857.	23 6 57.1	70 3 57.7	[286]	371 372
Árúda Hill Mark (helio.) <i>Arara H. Peak</i>	"	On the highest peak of the hills known by that name, about 3 miles E. of Lakhiárrira village, the same distance N. by W. of Thrúda, and 3½ miles N.E. of Chávadka. 1855.	23 22 38.43	69 26 4.43	[805]	272 273
Árikhánu Hill Mark (helio.) <i>Assarpur Matha H.S.</i>	"	On a small sand height, about 3 miles E. of Rápur on the right bank of the Naera river, close to the road from Vánu to Árikhánu and midway between these villages. 1859.	23 5 41.40	68 54 5.23	[57]	515
Árikhánu Mark (helio.) <i>Nagrai Tank</i>	"	Close N. of a small tank about ¼ of a mile N.W. of the road from Árikhánu to Súhera, 1¼ miles N.E. of the former village, and 2 miles S.W. of the latter. 1859.	23 5 13.41	68 55 41.99	64	514
Artara Hill Mark (helio.) <i>Ukra H.M.</i>	"	On the highest point of a hill, about 2 miles S.S.E. of Ghunerí, 1¼ miles W. by N. of Artara, and 2½ miles S.W. of Súhera. The point is denoted by a circle and dot in the centre of a platform. 1857.	23 45 26.47	68 54 3.82	[407]	341 342
Ásambia Hill Mark (helio.) <i>Assumbia H.S.</i>	"	About 2 miles E. of Ásambia Mota village, close to the road from Farádi to Khojáchorn, and 3 miles N.W. by N. of the former village. 1859.	22 58 35.90	69 31 41.92	291	452 453
Ásambia Tower (helio.) <i>Assumbia T.S.</i>	"	In the centre of the village of Ásambia Mota about a mile E. of the metalled road from Mándri to Bhúj, and 6 miles N.E. by N. of the large village of Kodái. The point is denoted by a mark on the tower. 1859.	22 58 5.19	69 29 35.17	[244]	454
Ásúr Mátá h.s. <i>Asarnatha H.S.</i>	"	On a sand ridge, about ¼ of a mile W. of the temple of that name, 1¼ miles S.W. by S. of Láija Nána, 3¼ miles S. of Láija Mota, 1 mile S.E. by S. of Bháda, and 3 miles S.E. of Pánchata: sub-division Kánthi. The station consists of a platform enclosing a perforated and isolated pillar of masonry 2 feet in height: an aperture gives access to the lower mark. 1859.	22 50 23.16	69 15 16.05	• 87 2	81

* To upper surface of perforated pillar.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Āsār Māta Temple ... <i>Asarmatha Temple Dome</i>	Cutch State	Dome of a well-known temple about 1½ miles S.S.W. of Lājja Nāna, 3½ miles S. of Lājja Mota on the right bank of the Kharod river, 1½ miles S.E. of Bhāda, 3 miles in the same direction of Pānchatia, and 3½ miles W. of Kātada. 1859.	22 50 23'4	69 15 36'7	feet [90]	483 484
Bābia, XXII ...	"	<i>vide page 9—L.</i> ...	23 42 10'75	68 48 42'62	* 299 10	31
Bābia Hill Mark (helio.) ...	"	On the highest part of a hill, about a mile E. by S. of the village of Jhulrai, 2 miles S. of Saran, the same distance N.E. by E. of Vāghāpādar, and ¼ of a mile from the footpath from Jhulrai to Junāgia. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 29 39'62	68 49 8'90	† 409	324 325
Bādargnd Hill ... <i>Utwa H. Pile</i>	"	A conical pile of stones on a hill, about 1½ miles N.N.W. of the village of that name, 6 miles S.S.W. of the large village of Rāpur, and 2 miles S.W. by S. of Lilpur. 1856.	23 29 16	70 38 48	[564]	§ 124
Bāet Tower (helio.) ... <i>Bahit Tower S.</i>	"	Close to a small tank about 2 miles S.W. by W. of the village of that name, the same distance N. of Bāda, 1½ miles E.S.E. of Mahāpur, and 4 miles E. by S. of Bāmbhanai. The point is denoted by a circle and dot on the tower. 1859.	22 55 40'43	69 11 26'93	† 72	487 488
Bālāchor Hill Mark No. 1 ... <i>Naradi H. Platform</i>	"	On a low hill, about 1½ miles S.E. by S. of Bālāchor Mota, and 4 miles E. of the large village of Mothāla. The point is denoted by a mark in the centre of a platform. 1859.	23 12 48'13	69 14 30'57	...	468
Bālāchor Hill Mark No. 2 (helio.) ... <i>Katla Bara Chori H.M.</i>	"	On the highest point of a low, flat hill, about 2 miles N.W. of the village of Bālāchor Mota, 3 miles N.N.E. of the large village of Mothāla, and close to the road from Mothāla to Peoni village. 1859.	23 14 50'01	69 12 2'38	502	469 470
Bālādia Hill Tomb ... <i>Jamal Shah H. Tomb</i>	"	Platform of a Fakir's tomb on a hill close S. of the large village of that name, about 1½ miles N.E. of Kera, and 2½ miles S.S.W. of Bhārāpur. 1859.	23 5 35'0	69 39 20'5	...	429 430
Bāmbhanai h.s. ... <i>Dowla Dho H.S.</i>	"	On a sand hill on the sea beach, about 2½ miles S. of the village of that name, 4 miles W. of Bāda, the same distance S.W. of Mahāpur, and the same distance S.S.E. of Modkuba: sub-division Kān̄thi. The station consists of a platform enclosing a perforated and isolated pillar of masonry 5 feet in height: an aperture gives access to the lower mark. 1859.	22 54 16'26	69 7 45'70	‡ 48 5	83
Bāmbhanai Tower (helio.) ... <i>Bamrahi T.S.</i>	"	Close to the village of that name, about 1½ miles S.W. by S. of Chāngdāi, the same distance S.S.E. of Modkuba on the right bank of the Sai river, 2½ miles W. of Mahāpur on the left bank of the Vengdi river, and 2½ miles S. by W. of Kokalia. The point is denoted by a circle and dot on the tower. 1859.	22 56 25'49	69 7 48'59	† 66	489 490

* To upper surface of circular pillar. † To circle and dot. ‡ To upper surface of perforated pillar.
§ For another triangle fixing this point, see the Synoptical Volume of the Kāthiāwār Meridional Series.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Bandhadi s. ... <i>Bandri H.S.</i>	Cutch Stato	On a high piece of ground, about a mile W. by N. of the village of that name, $\frac{1}{2}$ a mile S.E. of Amrasar, and 5 miles S.W. by S. of Deypur. The station is marked by a circle and dot engraved on the stump of a babúl tree cut flush with the ground. 1857.	23 24 15' 39"	70 20 10' 17"	feet [53]	150 151
Bara Pir h.s. ...	"	On a sand hill on an island in the Ran, about 2 $\frac{1}{2}$ miles W.S.W. of Ghunáu village, and 200 yards S. by E. of the grave of a Muhammadan saint called Bara Pir: sub-division Abdás. The station is denoted by a mark-stone on the top of a masonry pillar 1 foot high. 1859.	23 23 57' 36"	68 33 41' 67"	* $\frac{46}{1}$	527 528
Barári Mâta h.s. ... <i>Beraria Mâtha H.S.</i>	"	On a sand hill so named from a tomb close by, about 3 $\frac{1}{2}$ miles S.E. by S. of Narínál, and 4 miles S.S.W. of Jhorpara: sub-division Mundra. The station consists of a perforated and isolated pillar of masonry about 2 feet in height: an aperture gives access to the lower mark. 1859.	22 47 7' 10"	69 39 54' 90"	* $\frac{74}{2}$	76
Ber h.s. ... <i>Sura Bhat H.S.</i>	"	On a hillock about a mile W. of the deserted hill fort called Maniára, $\frac{1}{2}$ a mile N.E. by E. of Der Mota, and 2 miles N.N.W. of Ber Nána: sub-division Gardo. The station consists of a platform of rubble, enclosing a perforated pillar of masonry 1 foot in height. 1859.	23 28 11' 77"	68 38 50' 12"	* $\frac{189}{1}$	95, 96
Berája Hill Mark (helio.) ... <i>Beraja H.S.</i>	"	On a small hill, about 2 miles S.E. by S. of the village of that name, $\frac{1}{2}$ miles W. of Bocha, 2 miles N.W. by W. of Kálághogha, 3 $\frac{1}{2}$ miles N.N.E. of Ghelada, and close N.E. of the road from Berája to Samághogha. 1859.	22 57 36' 60"	69 40 5' 86"	238	422
Berájia Hill Mark No. 1 (helio.) ... <i>Sakera Bet Hill</i>	"	On a small knoll about 1 $\frac{1}{2}$ miles S.E. by E. of the village of that name, 4 miles N. of Nundhatar, and immediately N. of the road from Mothála to Rava. 1859.	23 12 26' 38"	69 7 29' 86"	287	503
Berájia Hill Mark No. 2 (helio.) ... <i>Kunda Bet Hill Mark</i>	"	On a small height about 1 $\frac{1}{2}$ miles N.N.W. of the village of that name, and 2 $\frac{1}{2}$ miles N.N.E. of Rava on the right bank of the Naera river. 1859.	23 14 12' 88"	69 5 47' 47"	282	504 505
Bbacháu, I ...	"	<i>Vide page 6—L.</i> ...	23 17 58' 16"	70 23 15' 11"	† $\frac{303 \cdot 69}{5}$	1
Bhadresar s. ... <i>Wasahi T.S.</i>	"	On the western of two small domes of Vaesahi temple, close E. of the large village of Bhadresar, 3 miles E. by S. of Vadála, 2 $\frac{1}{2}$ miles S.E. of Hatadi, and 2 miles W. of Kukadsar: sub-division Mundra. The station is denoted by a mark-stone let into a cavity in the apex of the dome, having a masonry pillar built over it. 1860.	22 54 39' 31"	69 56 42' 88"	* 85	67
Bhanjada Bet Hill Peak <i>Banjra Hill</i>	"	Peak of an isolated, conspicuous hill in the Ran of Cutch, about 3 miles W.N.W. of the N.W. extremity of the large island of Khadir. 1857.	23 56 55"	70 10 50"	[397]	576 577

* To upper surface of pillar.

† To mark-stone on top of circular pillar.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Bhárápúr Hill Mark (helio.) ... <i>Sapunahi H. Pole</i>	Cutch State	On a conspicuous hill, about 1½ miles S.E. by S. of the village of that name, 4 miles N.E. of Kera, and 2½ miles E.N.E. of Baladia. 1855.	23 6 28.46	69 41 20.78	feet 946	427 428
Bharodia h.s. ... <i>Baruria H.S.</i>	"	On a small rocky hill, about ¼ a mile N.E. of the large village of that name, 5½ miles in the same direction of Chobári, and 2½ miles E.N.E. of Kankhol. 1856.	23 34 1.65	70 27 35.73	[118]	122 123
Bhímásar s. ... <i>Bhimasir S.</i>	"	On the S. embankment of a tank about 1½ miles N.W. by N. of the village of that name, 3 miles S.S.E. of Tapar, 4½ miles E. of Lakhápúr, and ¼ of a mile W. of the road from Tapar to Bhiwásar. 1856.	23 12 15.47	70 11 29.37	[135]	177 178
Bhúj Hill Fort Point No. 1 ... <i>Bhoj H. Fort N.E. Bastion</i>	"	Little archway in the centre of the N.E. and conspicuous bastion of the fort and about a mile S.E. of the town. 1855.	23 14 55.6	69 43 55.7	...	240 241
Bhúj Hill Fort Point No. 2 ... <i>Bhoj S.W. Bastion</i>	"	Centre of the S.W. bastion of the fort and about a mile S.E. of the town. 1855.	23 14 20.8	69 43 44.6	...	242
Bhúj Hill Temple ... <i>Bhoj H. Fort Snake Temple</i>	"	Spire of the snake temple on the highest tower in the fort on a hill and about a mile S.E. of the town. 1855.	23 14 39.1	69 43 40.2	* 805	243 244
Bhúj Palace ... <i>Bhoj Palace Minar</i>	"	Highest and N. minaret of the palace. 1855. ...	23 14 56.6	69 42 27.6	...	246
Bhúj, Sural Hill Temple ... <i>Bhoj Conical H. Temple</i>	"	W. temple on the northern and highest part of the conical and isolated hill called Sural and about 2 miles E.N.E. of the town. 1855.	23 15 47.7	69 44 51.3	...	238 239
Bhúj Temple No. 1 ... <i>Bhoj Temple in Town</i>	"	Highest spire of the conspicuous temple N. of the palace and in the S.W. corner of the town. 1855.	23 14 52.1	69 42 20.2	...	245
Bhúj Temple No. 2 ... <i>Bhoj Residency Temple</i>	"	W. spire of the lofty temple close S.W. of the Residency, about ¼ a mile in the same direction of the town, and close to the metalled road from Bhúj to Mándvi. 1857.	23 14 30.2	69 42 10.0	...	247
Bhujpur Temple ... <i>Bhojpur T. Spire</i>	"	Spire. In the centre of the village of Bhujpur Mota on the left bank of the Nág river. 1859.	22 52 29.0	69 40 10.4	...	418 419
Bhunjái Hill Mark No. 1 (helio.)... <i>Bhimata H.</i>	"	About 1½ miles N. by E. of Bhunjái Mota, 5 miles N.N.W. of Netra, 6 miles N. of Bándia, and 2½ miles N.N.W. of Lakshujpur. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 29 6.14	69 3 5.09	[596]	319 320
Bhunjái Hill Mark No. 2 (helio.)... <i>Cherekket H.</i>	"	On the larger and southern of two hills, about 1½ miles N.W. of Bhunjái Mota, 2½ miles N.N.W. of Bhunjái Nána, 6 miles N.W. of the large village of Netra, and the same distance N.N.W. of Bándia. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 28 31.62	69 1 32.31	[484]	321

* To top of spire.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Bibi Mariam, XLII	Karáchi	<i>Vide</i> page 12—L.	24 32 32.55	67 55 57.79	$\frac{\text{feet} * 84}{5}$	56
Bidada h.s. <i>Bidra H.S.</i>	Cutch State	On a small mound about 1½ miles N.W. by N. of the village of that name, and close to the road from that village to Ásamáin Mota: sub-division Mándvi. The station consists of a platform, surrounded by earth and bushes, enclosing a perforated and isolated pillar of masonry about 2 feet in height; an aperture gives access to the lower mark. 1859.	22 54 57.41	69 30 37.28	$\frac{\dagger 148}{2}$	78
Bidada Mark (helio.) <i>Bidra Temple S.</i>	"	Close to a temple about ¼ a mile N. of the large and postal village of that name, and ¼ miles S.W. by S. of Farádi. 1859.	22 54 18.76	69 31 12.85	145	448 449
Boládi, XI	"	<i>Vide</i> page 7—L.	23 21 52.58	69 51 9.07	$\frac{* 978}{5}$	15, 16
Budá Tank (helio.) <i>Buria Tank</i>	"	On the bank of a tank close S. of the village of that name, about 2 miles S.W. of Lála village, 1 mile W. of Ránpur, and 4 miles S.S.E. of the town of Jakháú. 1859.	23 9 41.47	68 46 32.07	[30]	520
Chakár Hill Mark (helio.) <i>Chakkar H.</i>	"	About 1½ miles N.W. by W. of the village of that name and 3 miles S.W. by S. of Beha Mota. 1859.	23 6 15.50	69 45 56.42	759	409 410
Chámáda Hill (helio.) <i>Chambra H.</i>	"	On a point of the hill, about 5½ miles N.E. by E. of Baranda village, 3½ miles S. by W. of Midiáli, and 2½ miles N.N.E. of Chakrai. 1857.	23 35 36.07	68 47 18.07	[383]	330
Chándroda Hill Mark (helio.) <i>Chandrara H.</i>	"	About 1½ miles S.W. of the village of that name, 4 miles W.S.W. of Bhuad, 3 miles E.S.E. of Vághora, 3½ miles N.E. of Chhasra, and close to the road from Chándroda to Chhasra. 1859.	22 59 47.91	69 53 17.16	257	401 402
Chaprelí Hill <i>Gartora H. Pole</i>	"	On the western and highest point of a detached hill, about 1½ miles S. by E. of the village of that name, 3½ miles N.E. of Lákhond, and 1½ miles E. by N. of Kálitalaori. 1855.	23 17 7	69 52 3	[755]	225
Chaprelí Hill Mark (helio.) <i>Charakra H.S.</i>	"	On the highest point and towards the N.E. end of a detached hill, about 1½ miles S.E. by S. of the village of that name, 5 miles W.S.W. of Nádápa, and 2½ miles W.N.W. of Mamúára. The point is denoted by a mark-stone covered over by a pile of stones. 1855.	23 17 28.99	69 52 33.18	...	223 224
Charakda, VIII	"	<i>Vide</i> page 7—L.	23 9 3.84	70 1 55.52	$\frac{* 418.52}{5}$	11
Chhári Hill Mark (helio.) <i>Palkiari Hill Mark</i>	"	About 1½ miles W. of Chhári Mota village on the E. bank of the Chárad river, and 5 miles N.E. by E. of Mulu village. The point is marked by a circle and dot covered over by a pile of stones. 1856.	23 32 27.17	69 17 8.68	[300]	294 295

* To upper surface of circular pillar.

† To upper surface of perforated pillar.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Chher Hill Mark (helio.) <i>Chardahi H. Mark</i>	Cutch State	On a conspicuous hill, about $\frac{1}{4}$ a mile S. by E. of the village of Chher Mota, and $1\frac{1}{2}$ miles W.S.W. of Khen-gárpur. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 45 50' 25"	68 41 57' 47"	feet [69]	851 352
Chirai h.s. <i>Cheri H.S.</i>	"	On the higher of two small isolated hillocks, about $1\frac{1}{2}$ miles E.N.E. of Chirai Mota, and $2\frac{1}{2}$ miles N.E. of Chirai Nána. The station is marked by a circle and dot cut on a tomb-stone embedded perpendicularly in the ground. 1857.	23 13 26' 21"	70 18 59' 76"	[52]	164 165
Chirai Temple <i>Cheri Village Domed Temple</i>	"	Domed temple in the village of Chirai Mota, about 4 miles E.S.E. of Pasuda, and $1\frac{1}{2}$ miles N.N.E. of Chirai Nána. 1856.	23 13 1' 6"	70 17 47' 2"	...	174
Chitráni h.s. <i>Chitrani H.S.</i>	"	On the highest part of the range of hills known by that name, about $1\frac{1}{2}$ miles N.E. by N. of Itáidhanjhar village, and 2 miles S.W. by W. of Cháisar; sub-division Abdáa. The station consists of a platform of rubble enclosing a solid, isolated pillar of masonry 2 feet in height. 1859.	23 7 12' 23"	69 9 49' 21"	$\frac{617}{2}$	8 $\frac{1}{2}$
Chitrod, XI†	"	<i>Fide page 5—L.</i>	23 23 30' 84"	70 43 30' 95"	$\frac{490}{5}$	
Chitrod Hill Fort (helio.) <i>Chitrore H. Fort</i>	"	On the conspicuous and highest tower on the bastion of the fort, about 5 miles S.E. of Bádargad, and 7 miles N.E. of Lákadiya. 1854.	23 24 23' 41"	70 43 5' 67"	[456]	
Chitrod Hill Mark (helio.) <i>Katla H.</i>	"	On a low, flat hill, about $1\frac{1}{2}$ miles S.W. by W. of the large village so called on the road from Lákadiya to Gágodar, and 3 miles E.N.E. of Shirjakha. 1856.	23 23 49' 54"	70 41 31' 37"	[447]	¶ 129
Chobári Temple <i>Chowbari Temple</i>	"	Highest and western temple known as Hingláj Mátá, immediately N. of the large village of that name on the right bank of the Chang river. 1856.	23 31 10' 5"	70 23 11' 8"	...	154 155
Chopadru No. 1 h.s. <i>Sangar Bet H.S.</i>	"	On a small, isolated peak known as Sangar Bet, about 2 miles N.W. by N. of the village of Chopadru, and $\frac{1}{2}$ a mile E. of the junction of the roads from Sikra, Páukadsar, Sukhpur and Chopadru. 1856.	23 18 1' 84"	70 19 5' 47"	[264]	160 161
Chopadru No. 2 h.s. <i>Choperwa H.S.</i>	"	On a small range of hills, about $1\frac{1}{2}$ miles W.N.W. of the village of that name, 2 $\frac{1}{2}$ miles E.N.E. of Lunva, and $4\frac{1}{2}$ miles W.S.W. of Bbacháa. 1856.	23 16 57' 79"	70 18 48' 91"	[275]	166 167
Dagála Hill Peak <i>Katla H. Peak</i>	"	About $1\frac{1}{2}$ miles N.N.W. of the village of that name, 2 $\frac{1}{2}$ miles E. of Náclápa, and close to the foot-path from Dagála to Yántra. 1857.	23 19 6"	69 59 29"	...	201 202
Daras Gorya Hill Tomb <i>Dome D.</i>	Karáchi	Known as Bhuti Sumra. On the top of a small isolated hill, about $1\frac{1}{2}$ miles S.E. of Alahyár village, the same distance N. of the main road from Tatla to Gháro, and 6 miles W. of the former: taluka Tatla. 1853. Note.—This point is identical with Dome No. 1 of the Karáchi Longitudinal Series.	24 45 30' 6"	67 51 54' 8"	...	**

* To upper surface of pillar. † This station appertains to the Káthiáwár Meridional Series. ‡ To upper surface of circular pillar.
 § Not forthcoming. || For triangles fixing these points, see the Synoptical Volume of the Káthiáwár Meridional Series.
 ¶ For another triangle fixing this point, see the Synoptical Volume of the Káthiáwár Meridional Series.
 ** For triangle fixing this point, see the Synoptical Volume of the Karáchi Longitudinal Series.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Desalpur t.s. ... <i>Laka Tower S.</i>	Cutch State	In a field close S. of the village of that name, about 3½ miles N.W. of Kumbhārdi, 6 miles N.E. of Dhamadka, and 2½ miles N.N.E. of Morgar village. The station is denoted by a tower of masonry 12 feet high. 1857.	23 22 29'00	70 15 57'20	feet [57]	156 157
Devpur Hill Mark (helio.) <i>Deopur H. Mark</i>	"	On a high hill, about 2½ miles W. of the village of that name, 1½ miles S.E. of Kotada, close S. of the road between these villages, and 4½ miles S. by W. of the large village of Roha. 1856.	23 7 52'83	69 18 11'66	849	464 465
Dhamadka Hill Mark <i>Dhamarka H. Mark</i>	"	On the highest part of a small hill, about 1½ miles S.E. of the large village of that name, 3½ miles E. of Dudhai, 2½ miles N.N.E. of Sukhpur, and ¼ of a mile W. of the road from Dhamadka to Lunva. 1856.	23 18 59'83	70 13 16'50	[236]	182 183
Dhamadka Hill Math <i>Dhamarka H. Matha</i>	"	Small temple on a small, isolated hill, about 1½ miles W. of the village so called, the same distance N.E. of the large village of Dudhai, and ¼ of a mile S. of the road from Dhamadka to Devisar. 1856.	23 19 51'5	70 10 59'7	[189]	186 187
Dhamadka Temple <i>Dhamarka Temple</i>	"	Conspicuous temple in the large village of that name, about 2½ miles E.N.E. of Dudhai, 1½ miles W. by S. of Budharmora, and 3½ miles N.N.W. of Sukhpur. 1856.	23 19 51'7	70 12 10'9	...	184 185
Dhāneti h.s. ... <i>Dhanati H.S.</i>	"	On a small, isolated hill, about 1½ miles S.W. of the village of that name, and close W. of the road from Dhāneti to Ratnāl. The station is denoted by a mark-stone covered over by a pile of stones. 1857.	23 14 20'92	69 56 59'63	[474]	195 196 197
Dhanoi Hill Mark (helio.) <i>Duni H. Mark</i>	"	About 1½ miles N.N.W. of the village of that name, the same distance S.S.E. of Sarli village, and close E. of the foot-path from Dhanoi to Sarli. 1859.	23 4 39'91	69 31 42'24	660	457 458
Dhāresi Hill Mark (helio.) <i>Kotara H.M.</i>	"	About 1½ miles S. of the village so called, 2½ miles S.W. of Ghaduli, and the same distance N.W. by N. of Kora. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 40 20'05	68 54 11'16	[461]	333 334
Dhinothar, XV ...	"	<i>Vide page 8—L.</i> ...	23 27 14'30	69 22 59'14	* $\frac{1272}{5}$	21, 22
Dhodatimbo Hill Mark (helio.) <i>Jharra H.M.</i>	"	On the highest part of the hill known by that name, about 4 miles E. of Khuti village, and 2½ miles W. by N. of Jumāra. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 41 17'85	69 3 52'85	[670]	301 302
Dholbet h.s. ... <i>Dolbet H.S.</i>	"	On the highest point of a low range of hills, about a mile S.S.W. of Asrāni village, 2½ miles N.E. by N. of Serdi on the right bank of the Kharod river, and 3½ miles S. by E. of the large village of Sisāgd: subdivision Abdūsa. The station consists of a platform of rubble enclosing a solid pillar of masonry 2 feet high, having two mark-stones, the upper 1'4 feet above the lower. 1859.	23 3 22'76	69 24 11'91	† $\frac{461}{2}$	74, 75

* To upper surface of circular pillar.

† To upper surface of pillar.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Dhrábudi Māta Building <i>White Building</i>	Cutch State	White building about 1½ miles S.S.W. of the large village of Gundiyābi, 2½ miles S.E. of Mashka village, and 4 miles E. by S. of the town of Māndvi. 1859.	22 48 54	69 27 7	...	443
Dhrabva Hill Mark (helio.) <i>Drabva H.</i>	"	On a conspicuous, steep and flat-topped hill known by that name, about 2 miles S.S.W. of the large village of Mujal, and 1½ miles S.E. of that of Mugvana. 1855.	23 12 21'20	69 25 51'56	1139	257 258
Dhufi h.s. <i>Dhupi H.S.</i>	"	On a swell, about a mile S.S.E. of the village of Dhufi Nāna, 2½ miles E.N.E. of Kodātia, and 2½ miles S.S.W. of Beta: sub-division Abdūsa. The station is denoted by a platform of masonry. 1859.	23 15 16'20	69 2 48'30	260	88
Dhui, XXXIV	Karāchi	<i>Vide page 10—L.</i>	24 19 39'55	68 29 17'54	† 37 ‡	46
Dodhia Hill Mark (helio.) <i>Bojahi H.S.</i>	Cutch State	About 1½ miles E. by S. of the village of that name, 3 miles N.W. by N. of Bāit, 2½ miles N.N.E. of Muhāpur, and 4 miles W.S.W. of Undot. 1859.	22 58 34'21	69 11 7'15	...	494
Domāni, XLIV	Karāchi	<i>Vide page 12—L.</i>	24 39 47'63	67 53 46'80	§ 191'12 5	59
Don h.s. <i>Dhon H.S.</i>	Cutch State	About 1½ miles E.N.E. of the village of that name, 1½ miles S. by E. of Dhādāi Mota on the left bank of the Kharod river, 2 miles S.W. of Dhokra, and 5 miles N.W. by N. of the large village of Kodāi: sub-division Kānthi. The station consists of a platform of earth enclosing a perforated and isolated pillar of masonry having an aperture for access to the lower mark. 1859.	22 57 25'76	69 23 2'33	 206	80
Dudhai Temple <i>Dhudi Temple</i>	"	In the large and postal village of that name, about 2½ miles W.S.W. of Dhamadka, and 3½ miles N.E. of Kotada. 1856.	23 19 10'9	70 10 0'0	...	188
Durgāpur Building (helio.) <i>Bodla Kua Building S.</i>	"	On a building (rest-house) about 1½ miles N. by E. of the village of that name, 2 miles N.W. of Rān Mota on the right bank of the Rukhmāvatī river, 3½ miles W. of the large village of Kodāi, and 4½ miles N. by W. of the seaport town of Māndvi. The point is denoted by a mark on the building. 1859.	22 53 59'13	69 22 31'95	¶ 98	479
Eklia Hill Mark (helio.) <i>Hakria H. Mark</i>	"	On the highest part of the hill known by that name, about 1½ miles N.E. by N. of Junagia, 2½ miles S.S.E. of Sāmjiāra or Kālānāging, and 4½ miles E.S.E. of Saran. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 30 3'40	68 53 14'95	[377]	322 323
Farādi Hill Math <i>Pharadi Hill Matha</i>	"	On a small hill, about ¼ a mile S.E. of the large village of that name, and close N. of the road from Farādi to Sukhpur. 1859.	22 56 12'9	69 33 35'9	[217]	450 451
Fulāi Hill Mark (helio.) <i>Khera Hill Peak</i>	"	On a peak of an isolated, conical hill, about 3½ miles N.W. of the village of that name, 4 miles N.S.W. of Chhāri Mota, 6½ miles N.E. by N. of Mulu, and close W. of the road from Fulāi to Hājī Pir. The point is marked by a circle and dot covered over by a pile of stones. 1856.	23 35 13'58	69 16 49'02	...	298 299

* To upper surface of platform. † To upper surface of perforated, circular pillar. ‡ Not forthcoming. § To mark-stone at ground level.
 || To upper surface of perforated pillar. ¶ To mark on building.

CUTCH COAST SERIES.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Gadu, XXXIX	Karáchi	<i>Vide page 11—L.</i>	24 26 21' 25"	68 13 22' 66"	<i>feet</i> * 45' 25" 25	52, 53
Gáinda Bet Sarái <i>Gainda Beyt</i>	Cutch State	On a small island in the Great Ran, well-known for its Dharmshála; roads from Vingur, Dipla and Dhrobánu lead to it. 1857.	24 2 26	69 42 11	[64]	574 575
Gajansar Hill Mark (helio.) <i>Chapar Hill Mark</i>	"	On the western edge of a low range of hills, about 2½ miles W.N.W. of the village of that name, 2 miles E. of Rájada, and 5½ miles N.N.E. of the large village of Ghadáni. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 36 28' 29"	69 7 40' 62"	[455]	312
Gandhára Hill Mark (helio.) <i>Mahl Gandara Hill</i>	"	About 4½ miles E.N.E. of Kora, 2 miles W. by N. of Amiu, and 4 miles N.E. by E. of Dayápur. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 39 44' 30"	68 59 52' 40"	...	304 305
Gandher Hill Peak (helio.) <i>Arvi Hill</i>	"	About 2 miles S.W. by W. of the village of that name, 1½ miles due S. of Vaori village, and close to the road from Thráuda to Vaori. 1855.	23 9 10' 66"	69 52 19' 89"	[891]	211 212
Gángta, VII†	"	<i>Vide page 5—L.</i>	23 44 5' 53"	70 32 22' 49"	‡ 211 5	6
Ghuar Hill Mark (helio.) <i>Gowri Hill</i>	"	About 2½ miles S.E. of Náráyan Sarovar, 1½ miles E. by N. of the village of Ghuar Mota, and 3 miles N.N.E. of Hamankhudi. 1859.	23 38 35' 03"	68 36 27' 99"	[113]	550 551
Ghunáu Temple (helio.) <i>Deysar Jujan H. Dome</i>	"	Ruined, domed temple about ¼ of a mile N. by W. of the village of that name, 4 miles S.W. of Ber Mota, and close W. of the road from Ghunáu to Gholáy. 1859.	23 25 31' 17"	68 35 49' 36"	[92]	537
Goda Hill Mark (helio.) <i>Gota Hill</i>	"	On a well-known hill of that name, about 2½ miles S.S.W. of Amiu village, 4 miles S. of Khatiu, and 3½ miles N.W. by N. of Válka Mota. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 37 46' 49"	69 0 18' 39"	[721]	308 309
Godra Hill Mark (helio.) <i>Godra H.S.</i>	"	About 3 miles N.W. by N. of the large village of that name on the left bank of the Kharod river, the same distance S.W. and S.E. of Ratadia Mota and Undot respectively, 3½ miles E.N.E. of Búit, and 4½ miles N. by E. of Láija Mota on the right bank of the Kharod river. 1859.	22 57 27' 62"	69 16 40' 18"	175	475 476
Godra Tower (helio.) <i>Godra Tower S.</i>	"	Close N. of the village of that name, about 3½ miles N.E. of Láija Mota, the same distance N.N.W. of Merau, and 4½ miles S. by W. of Ratadia Mota. The point is denoted by a mark on the tower. 1859.	22 55 21' 88"	69 18 19' 09"	§ 131	477 478
Gorábid Hill Mark (helio.) <i>Rann Beyt No. 4</i>	"	On a well-known island in the Ran, about 11 miles N.N.W. of Bharodia village. 1856.	23 43 59' 30"	70 25 0' 89"	[45]	100
Gora Dongar Hill Mark No. 1 (helio.) <i>Sadara H. Pole</i>	"	On the point called Kank of the Gora range of hills stretching from E. to W. and lying along the S. coast of the island called Pachham in the Great Ran, about 1½ miles S. of Juna village, and 3½ miles E. of Andhau. 1857.	23 45 52' 83"	69 56 19' 32"	[629]	568 569

* To upper surface of perforated, circular pillar.

† This station appertains to the Káthiawár Meridional Series.

‡ To upper surface of circular pillar.

§ To mark on tower.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Gora Dongar Hill Mark No. 2 ... <i>Undu H. Pole</i>	Cutch State	On the Gora range of hills in the south of the island of Pachham, about 2 miles N. of the village of Andhau, 2½ miles E. by N. of Khári, and 3½ miles S.W. of Kuuria. 1857.	23 47 59.88	69 53 14.77	feet [562]	570 571
Gora Dongar No. 1 h.s. ... <i>Sadara H.S.</i>	"	On the point called Modar of the range of hills above mentioned in the Pachham, about 3 miles E.N.E. of Sándhára village. 1857.	23 45 35.87	69 59 22.04	[619]	558
Gora Dongar No. 2 h.s. ... <i>Gadapota H.S.</i>	"	On the range of hills mentioned above, about a mile N. of the village of Khári, 3½ miles N.W. by N. of Andhau, and 4 miles E.S.E. of Ludia. 1857.	23 48 39.94	69 50 41.35	[591]	559
Gora Dongar No. 3 h.s. ... <i>Bakrikote H.S.</i>	"	On the point known as Gadaputa of the range of hills mentioned above, about 3 miles N.N.W. of Khári village, 1½ miles W. by S. of Dhorávar, and 3½ miles E.S.E. of the large village of Khánda. 1857.	23 49 46.35	69 49 55.37	...	566 567
Gugriána Dho h.s. ... <i>Kagrani Dho H.S.</i>	"	On the highest part of the Dho or sand ridge, about 2½ miles N.W. by W. of Pipar, and 4 miles W. of Modi village: sub-division Gardo. The station is denoted by a mark-stone on the top of a solid pillar of masonry 1 foot in height. 1859.	23 32 21.28	68 31 55.39	$\frac{80}{1}$	534 536
Guni, XXVIII ...	Karáchi	<i>Vide page 10—L,</i> ...	24 2 9.30	68 35 30.00	$\frac{30.27}{24}$	39
Haba Hill Peak (helio.) <i>Haba H.</i>	Cutch State	On a point of the hill so called, about a mile S.W. of Kotái village, 3 miles S.E. of Kuuria, and 4 miles N.W. of Jhikádi. 1855.	23 22 39.63	69 48 36.51	[638]	229
Haba, Ráya Hill Math <i>Rayah Matha</i>	"	Platform of the Math on the highest peak of the hill, about 14 miles N. by W. of Haba village, and 1½ miles S. by E. of Dhrang. 1857.	23 22 15.0	69 53 29.6	[979]	207 208
Hakra, XXIX ...	Karáchi	<i>Vide page 10—L,</i> ...	24 6 49.11	68 44 12.97	$\frac{26}{24}$	40
Halrái Hill Mark (helio.) <i>Morpat H.S.</i>	Cutch State	About 1½ miles N.E. of the village of that name, 1½ miles S.S.W. of Torania, and 4 miles S. of the well-known and ancient hill fort of Kanthkot. The point is denoted by a mark-stone at ground level, covered over by a pile of stones. 1856.	23 25 34.32	70 30 21.48	[477]	141 142
Halrái h.s. ... <i>Alari H.S.</i>	"	On a small hill about ¼ a mile N.E. of the village of that name, 4 miles N.W. by W. of the large village of Adhoi, and 2 miles S.W. by S. of Torania. The station is denoted by a mark-stone. 1856.	23 24 52.72	70 29 56.22	[443]	139 140
Hamankhudi Hill Mark (helio.) ... <i>Gadepatar H.M.</i>	"	On the southern of two peaks, about a mile W. of Hamankhudi, and 2½ miles S. by W. of the village of Ghuar Mota. 1857.	23 36 9.52	68 34 22.73	131	547
Hamankhudi Platform (helio.) ... <i>Kudi Bet H. Platform</i>	"	On a hill, about 290 yards N.N.W. of the preceding point. 1859.	23 36 17.59	68 34 19.59	...	548 549

* To upper surface of pillar. † To upper surface of perforated, circular pillar.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangl
Haroda Hill Mark (helio.) ... <i>Choleysar H.M.</i>	Cutch Stato	On the highest part of a hill, about 1½ miles N.W. of the village of that name, and 1½ miles N. by E. of that of Amiu. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 40 40.96	69 2 19.85	feet [711]	308
Hatadi Hill Mark No. 1 (helio.) <i>Bhut Mori H.S.</i>	"	On a small hill about 2 miles N. of the village of that name, 3½ miles S.S.W. of Kumbhúria, 4½ miles S.S.E. of Bhud, and 4½ miles N.E. by N. of Bhadresar. 1860.	22 58 4.16	69 58 48.61	149	395 396
Hatadi Hill Mark No. 2 (helio.)... <i>Pirpatta H.S.</i>	"	On a small hill about 2½ miles N.N.W. of the village of that name, 3½ miles S.W. of Kumbhúria, 4 miles S.S.E. of Bhud, and the same distance N.N.E. of Bhadresar. 1860.	22 58 13.58	69 57 57.35	177	397 398
Háthria, XVI ...	"	<i>Vide page 8—L.</i>	23 27 14.85	69 5 13.01	696.45 5	28
Jakhán Temple ... <i>Jakow Temple</i>	"	Spire of the conspicuous and three-spired temple in the centre of the town. 1855.	23 13 13.7	68 45 22.0	[90]	521 522
Jakhán Tower (helio.) ... <i>Jakow Platform</i>	"	About a mile N. of the town, and ¼ of a mile W. of the road from it to Kosa. The point is denoted by a mark on the tower having a platform. 1859.	23 14 12.22	68 45 21.95	† 48	523 524
Jamanvála, XXIII ...	"	<i>Vide page 9—L.</i>	23 34 30.62	68 38 41.80	‡ 237 12	32
Jandharía h.s. ... <i>Chenderwa H.S.</i>	"	On the highest part of a conspicuous and isolated hill so called, about a mile S.E. of Galpádar, and 1½ miles N. of Lákhond. 1855.	23 16 46.30	69 48 59.46	[854]	227 228
Jandía Hill Mark (helio.) ... <i>Jendia H. Platform</i>	"	On the highest part of the isolated hill so called, about 1½ miles S. of Gandher, 2½ miles N.N.W. of Váda village. The point is denoted by a mark in the centre of a platform. 1855.	23 8 43.33	69 54 2.64	§ 772	209 210
Jesada Hill Platform ... <i>Jisra H. Pile</i>	"	About ¼ a mile E.S.E. of the village of that name, 1½ miles E.N.E. of Suri, 3 miles N.W. by W. of Tramásu, and close N. of the road from Jesada to Tramásu. 1856.	23 36 58.2	70 33 38.8	...	109 110
Jethásari Vándh Hill Mark (helio.)... <i>Gartora H.</i>	"	About ¾ of a mile N.N.W. of the small village or hamlet of this name, and 1½ miles N. by W. of the village of Chitrod on the road from Lákadíya to Gágodar. 1856.	23 26 1.81	70 42 59.60	[521]	126
Jhadava Hill Peak (helio.) ... <i>Dharmia Bet H.</i>	"	About 2 miles N.N.E. of the small village of this name, and 3½ miles S.W. of Badanda village. 1859.	23 31 37.21	68 40 13.40	288	542
Jhágora Hill Mark (helio.) ... <i>Jugora Hill Mark</i>	"	On a hill known by that name, about 2½ miles N. of Mátanómudh, a well-known place of Hindu pilgrimago and fair. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 34 33.26	68 59 23.51	...	313 314

* To upper surface of perforated, circular pillar surmounted by a rectangular protecting pillar 3 feet high.
 † To upper surface of perforated, circular pillar.

‡ To mark on tower.

§ To upper surface of platform.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Jharpara Hill Mark (helio.) <i>Kaji Pir H.S.</i>	Cutch State	On a small hill about 3 miles S.E. by S. of the village of that name, 2½ miles S. of Dhrab, 3 miles W. of Mundra Bandar, and 4 miles S.W. of the town of Mundra. 1860.	22 47 58.10	69 42 55.82	feet 25	416
Jhim, XXXII	Karachi	<i>Vide page 10—L.</i>	24 12 42.94	68 21 34.57	37 †	44
Jhura Hill Mark (helio.) <i>Juria H. Platform</i>	Cutch State	On one of the highest points of the hill known by that name, about 4 miles S.E. by S. of the large village of Niruna, and 3 miles S.W. by W. of Jhura on the left bank of the Kaila river. The point is denoted by a mark in the centre of a platform. 1856.	23 25 1.15	69 36 34.38	[1037]	231 232
Jhuran, IX	"	<i>Vide page 7—L.</i>	23 21 37.61	70 1 27.43	626 5	12, 13
Juna Chai Hill Mark (helio.) <i>Acklia Hill M.</i>	"	On a small hill about 2 miles E. of the village of that name, 1½ miles N. of Rajada, and close to the left bank of the Nura river. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 37 46.66	69 5 49.61	[358]	310 311
Jungshahi Hill Pillar <i>Jungshae Pillar</i>	Karachi	White pillar on a small isolated hill about 2½ miles W.N.W. of the Railway station of this name on the North-West Line: taluka Tatta, sub-division Jerruck (Jhurruk). 1853. Note.—This point is identical with Jungshahi Hill of the Karachi Longitudinal Series.	24 51 38.2	67 46 27.3	...	§
Kadol h.s. <i>Karole H.S.</i>	Cutch State	On a sand ridge, about a mile N.E. of the village of that name, 3½ miles W.S.W. of Manfara, the same distance W.N.W. of Detpur, and close to the road from Kadol to Manfara. 1857.	23 28 18.38	70 20 26.58	[80]	152 153
Kakarva, III	"	<i>Vide page 6—L.</i>	23 29 45.44	70 26 27.16	465 5	4
Kakinda Bet Hill (helio.) <i>Kakindia Beyt H.</i>	"	On a conspicuous, isolated hill in the Ran of Cutch, close S. of the island of Khudir. 1856.	23 46 41.62	70 25 26.08	[145]	 97
Kala Dongar No. 1 h.s. <i>Babia H.S.</i>	"	On the highest peak called Babia of the Kala range of hills along the N. coast of the island of Pachham in the Great Ran. 1857.	23 56 9.10	69 51 52.37	[1525]	560
Kala Dongar No. 2 h.s. <i>Kunria H.S.</i>	"	On a flat-topped hill of a lower ridge of the Kala hills, about 4 miles N. of Kunria village. 1857.	23 53 6.32	69 55 52.28	[786]	562 563
Kala Dongar No. 3 h.s. <i>Kala Donger H.S.</i>	"	On the W. extremity of the range of hills mentioned above, and 150 yards N.N.E. of the shrine of a Muhammadan saint. 1857.	23 56 5.12	69 51 19.69	[1487]	564 565
Kala Dongar, Pachham Pir Tomb <i>Pacham Pir Shrine</i>	"	Tomb of a Muhammadan saint on the range of hills mentioned above. 1857.	23 56 1.1	69 51 17.7	...	573

* To upper surface of perforated, circular pillar.
Synoptical Volume of the Karachi Longitudinal Series.

† Not forthcoming. ‡ To upper surface of circular pillar.

§ For triangles fixing this point, see the Synoptical Volume of the Kathiawar Meridional Series.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich
Kálutaláv Hill Mark (helio.) ... <i>Kara Tulao H. Mark</i>	Cutch State	On a small sand hill about 1½ miles E. of the village of that name, and immediately N. of the road from Bhánáedo to Kodátia. 1859.	23 14 10.50	68 59 20.18
Kandhvingo Hill Peak (helio.)... <i>Kanvinga H. Peak</i>	"	On the highest peak of the higher of the two conical hills known by that name, close E. of Payárka village, about 3 miles W. of Makhana, and 3 miles S.E. by S. of Matharkhulí. 1855.	23 16 0.29	69 32 5.84
Kanthkot Hill Temple ... <i>Kathkote Hill Temple</i>	"	Conical dome of the grey temple in the well-known and ancient hill fort of this name, about 3½ miles E. of Kákarva, and 3 miles N.N.W. of Torania. 1856.	23 29 4.1	70 30 9.7
Kárabid Hill No. 1 (helio.) ... <i>Rann Beyt No. 2</i>	"	On the well-known island of that name in the Ran of Cutch, and about 11 miles N. of Bharodia. 1856.	23 43 51.65	70 27 49.29
Kárabid Hill No. 2 (helio.) ... <i>Rann Beyt No. 3</i>	"	On a smaller island in the Ran of Cutch, close W. of the well-known and larger one of that name, and about 11 miles N. of Bharodia. 1856.	23 43 58.54	70 26 44.06
Karbua Hill Peak ... <i>Dharmia H. Peak</i>	"	The highest peak of the conical hills known by that name, about 2½ miles E.N.E. of Lakhíarrira village, and 3½ miles E. by S. of Doypur. 1855.	23 23 48	69 25 28
Károthol, CIV* ...	Karáchi	<i>vide</i> page 12—L. ...	24 53 46.69	67 55 59.65
Kas Hill (helio.) ... <i>Kira Sira H.</i>	Cutch State	Towards the eastern extremity of the range of hills so called, running E. and W., about 2½ miles E.S.E. of the village of Khiraara, 1½ miles N.E. by N. of Navágám, 2½ miles W.N.W. of the large village of Dudhai, and close N. of the road from Khiraara to Dudhai. 1856.	23 19 54.62	70 7 43.12
Kas Hill Mark No. 1 (helio.) ... <i>Katla H.</i>	"	On the "E. peak of the lesser of two hills". 1857. ... Note.—The position of this point is doubtful.	23 21 18.33	70 0 14.08
Kas Hill Mark No. 2 (helio.) ... <i>Katla H.</i>	"	On the "W. point of the greater of two hills". 1857. ... Note.—The position of this point is doubtful.	23 19 56.84	70 0 5.79
Kas Hill Mark No. 3 (helio.) ... <i>Kali Kouse Hill</i>	"	On the highest peak of the range of hills above mentioned, about 2½ miles N.N.E. of Nádápa, and the same distance S.S.E. of Lodái. The point is denoted by a mark-stone covered over by a small pile of stones. 1855.	23 21 24.26	69 57 24.13
Kas h.s. <i>Hasalpur H.S.</i>	"	On a high peak towards the eastern extremity of the range of hills mentioned above, about a mile S.W. of the village of Devisar, 1½ miles N.W. of the village of Dudhai, and close to the foot-path from Devisar to Khengárpur. 1856.	23 20 5.28	70 8 44.11

* This station appertains to the Karáchi Longitudinal Series.

† To upper surface of perforated pillar.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Katáriya Temple No. 1 <i>Kattaria Village Temple</i>	Cutch State	Long-spired, grey temple in the centre of the large village of that name on the road from Bhacháu to Máliu and on the right bank of a large stream, about 4½ miles S.E. by S. of the large village of Lákadiya. 1856.	23 17 35·4	70 39 46·3	feet [161]	133 134
Katáriya Temple No. 2 <i>Kattaria D. Temple</i>	"	Short-spired temple having small dome about ½ of a mile S.W. of the village of that name, and close S. of the road from Katáriya to Lalána. 1856.	23 17 13·1	70 39 5·9	...	135
Katáriya Tree <i>Kattaria P. Tree</i>	"	Solitary palm tree about ¼ a mile N.E. of the village so called on the right bank of a stream. 1854.	23 17 52	70 40 16	...	*
Kera Hill Mark (helio.) <i>Ramal Bet H. Mark</i>	"	About 1½ miles W. of the large village of that name, 3 miles W.S.W. of Baladia, and 2 miles S. by E. of Meghpur. 1859.	23 4 59·52	69 36 39·70	678	433 434
Kera Mosque <i>Kaira Mosque</i>	"	Spire of the western cupola of Ghulam Ali's mosque close W. of the large village of that name near to the E. bank of the Nág river, about 2 miles S.W. by S. of Baladia, and 4 miles in the same direction of Bhárápur. 1859.	23 4 42·5	69 38 0·3	...	431 432
Khadir Hill Mark (helio.) <i>Karir H. Platform</i>	"	On the highest part, known as Hadibhadang, of the range of hills running E. and W. and along the N. coast of the island of Khadir in the Ran. The point is denoted by a mark in the centre of a platform. 1856.	23 54 34·68	70 21 44·15	[932]	† 561
Khadir Hill Peak <i>Karir Peak</i>	"	At the N.W. extremity of the island of Khadir, about 1½ miles N.W. of the village of Jhandisar, and 3 miles E.S.E. of the small island of Bhanjuda. 1857.	23 56 11	70 13 25	[290]	578 579
Khákhar Temple <i>Kakri V. Temple Spire</i>	"	Spire. In Khákhar Mota village, about 2 miles W. of Desalpur, and 3 miles N.N.E. of Kándágara Mota. 1859.	22 52 46·8	69 35 34·8	...	441 442
Khánpur Hill Math <i>Kathradar H. Matha</i>	"	On the centre of a rock on a hill, about a mile E. of the small village so called, 2½ miles S.E. by S. of the large village of Chitrod on the road from Lákadiya to Gágodar, and 3 miles N.W. by N. of Kumbhária. 1854.	23 22 52·2	70 44 31·9	[427]	*
Khar, XLI	Karáchi	<i>Fide page 11—L.</i>	24 36 2·91	68 12 47·60	‡ 51 25·1	55
Khárákua Vándh <i>Arua H.S.</i>	No. 1 h.s. Cutch State	On a hill known as Arua, about 2½ miles S.S.W. of the village of Khárákua Vándh, 4½ miles S. of the large village of Tramáu, and 5 miles E.S.E. of Rámrao. 1856.	23 31 4·33	70 35 52·82	[580]	113 114
Khárákua Vándh <i>Arui H.S.</i>	No. 2 h.s. "	On a hill, about 3 miles S. of the village of that name, 5 miles S.S.E. of the large village of Tramáu, and 3½ miles W.N.W. of Vitrio hill. 1856.	23 30 16·75	70 37 5·50	[662]	115 116
Khári Rohar, VII	"	<i>Fide page 7—L.</i>	23 4 31·81	70 12 44·28	§ 41 13	10

* For triangles fixing this point, see the Synoptical Volume of the Káthiáwár Meridional Series. † For another triangle fixing this point, see the Synoptical Volume of the Káthiáwár Meridional Series. ‡ To upper surface of perforated, circular pillar. § To upper surface of pillar.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Khátrod, X	Cutch State	<i>Vide page 7—L.</i>	23 10 48·42	69 50 36·86	<i>feet</i> 1145 5	14
Khátrod Hill Mark (helio.) <i>Katrore Hill Mark</i>	"	On the conspicuous peak of a hill so called, about 1½ miles N.E. of Vadva village, 4 miles in the same direction of Reha Mota, and 9½ miles S.E. of the town of Bhúj. 1855.	23 10 42·82	69 50 12·58	...	213 214
Khánda Mosque <i>Kaora Mosque</i>	"	Close N.E. of the large village of that name, about 3½ miles S. by W. of Danárn, 2½ miles S.W. of Rataria, and 2 miles N.N.W. of Ludia. 1857.	23 50 32·2	69 46 25·2	...	572
Khedoi Hill Temple <i>Kheroí H. Temple</i>	"	About 1½ miles S.W. by W. of the large village of that name, 1½ miles E. by N. of Mathada, and ¼ of a mile S. of the road from Khedoi to Mathada. 1857.	23 3 13·6	69 56 26·8	...	403 404
Khengárpur Rock <i>Indrua Rock</i>	"	On a hill peak about ½ a mile S.S.E. of the village of Khengárpur, 2½ miles S. of Suví, the same distance N.N.E. of Rámráo, and ¼ of a mile E. of the road from Rámráo to Suví. 1856.	23 34 44	70 31 40	[202]	111 112
Khuáda Fort <i>Karah W. Gateway Pole</i>	"	W. gateway of the fort about 3 miles S.E. of the large village of Sutári. 1859.	22 59 57·4	68 59 29·5	...	511
Kirgíría h.s.	"	On the highest point of the hill of that name, about 2 miles E.N.E. of Bhárápúr village, and the same distance W.S.W. of Jadum: sub-division Bhúj. The station consists of a platform of rubble enclosing a solid and isolated pillar of masonry 2 feet in height. 1859.	23 8 35·76	69 42 13·41	† 1060 2	72
Kodái Temple <i>Kara W. Temple Spire</i>	"	Spire of W. temple in the large village of that name on the left bank of the Rukmáratí river, about 5 miles N.E. of the town of Mándví, and 1½ miles W. of the metalled road from Mándví to Bhúj. 1859.	22 53 46·9	69 25 51·0	[135]	446 447
Kokra Temple	"	Close S.E. of the large village of that name, about 2½ miles N.E. of Modar, the same distance S.W. of Rápur, and 2 miles N.N.W. of Jhalu. 1857.	23 13 16·9	70 2 12·4	...	200
Kotada Hill Temple <i>Koríkuba H. Temple</i>	"	On the highest part of a small, detached hill, about a mile E.S.E. of the village of that name, 3½ miles S. by W. of Roha, and close N. of the road from Kotada to Dervur. 1855.	23 8 33·8	69 18 0·9	930	466 467
Kotadi Temple <i>Kotri V. Temple W. Spire</i>	"	Spire. Close W. of the large village of that name, about 2½ miles N.W. of the large village of Nángarecha, the same distance N. by E. of Ihojai, and 5 miles N.E. by E. of Sábhráí Mota. 1859.	23 2 48·3	69 13 16·0	...	501 502
Koteshvar Temple No. 1 (helio.) <i>Chapalpir Temple</i>	"	About ¼ of a mile S.S.E. of Koteshvar, and ¼ of a mile N.W. of Náráyan Sarovar. The point is marked by a circle and dot on the temple, covered over by a pile of stones. 1857.	23 40 48·23	68 34 11·67	...	554 555

* To upper surface of circular pillar.

† To upper surface of pillar.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Koteshvar Temple No. 2 <i>Koteysar Temple</i>	Cutch State	Spire of the highest temple close N.W. of the village of this name on the southern shore of the Kori creek, and about a mile N.W. by N. of Nārāyan Sarovar, a well known place of Hindu pilgrimage and fair. 1857.	23 41 14·1	68 34 7·0	feet [103]	556 557
Kothāra t.s. <i>Kotara T.S.</i>	"	On the southernmost and highest tower of the fort, about 2 miles N.E. of Sāhera, and 4 miles S.E. by S. of Bhānādeo (Bhānāra) sub-division Abdāsa. The station is denoted by a platform. 1859.	23 8 6·98	68 58 34·01	*	91
Koti, XXXV	Karāchi	<i>vide page 11—L.</i>	24 16 9·22	68 11 37·15	† 45 27	47
Kukma Temple No. 1 <i>Kokma Temple out of Village</i>	Cutch State	Spire of the temple a few yards N. of the village of that name, about 4½ miles E.S.E. of Mādhpur, and 3½ miles W.S.W. of Padar village. 1855.	23 13 6·6	69 49 7·2	...	216
Kukma Temple No. 2 <i>Kokma Temple in Village</i>	"	Spire of the conspicuous temple in the centre of the village of that name. 1855.	23 13 1·0	69 49 11·5	...	217
Kumbhārdi Temple <i>Komaria Temple</i>	"	W. spire. Close W. of the village of that name, about 6 miles N.W. of the large village of Bhachāu, and 2½ miles W. of Sikta. 1856.	23 20 32·4	70 18 6·2	[123]	158 159
Lāija Tower (helio.) <i>B. Lahija Tower S.</i>	"	In the village of Lāija Mota on the right bank of the Kharod river, about 3½ miles S.W. of the town of Godra. The point is denoted by a mark on the tower. 1859.	22 53 28·32	69 15 48·78	‡ 96	485 486
Lāktadiya Fort (helio.) <i>Lakria Tower</i>	"	On the conspicuous tower of the fort or walled town of this name. 1856.	23 20 41·06	70 37 12·68	[283]	132
Lāktadiya Temple No. 1 <i>Lakria Temple No. 1</i>	"	Spire of the highest, grey temple alongside the fort wall, having a bent flag on N. side. 1856.	23 20 43·4	70 37 18·2	...	130
Lāktadiya Temple No. 2 <i>Lakria Temple No. 2</i>	"	Spire of a white temple beside a tree in the town. 1856.	23 20 45·7	70 37 13·6	...	131
Lākhāpur Hill Mark (helio.) <i>Lakapur H.S.</i>	"	On a small height about a mile W. by S. of the village of that name on the left bank of the Bukhi river, about 3 miles S. by W. of the large village of Patri, 3½ miles N.N.E. of Samāghogha, 4 miles N.W. of Gundāla, and 3 miles W. of Ratādia. 1859.	22 56 3·39	69 45 11·43	175	420 421
Lakhmi Rāni Hill Peak (helio.) <i>Lakmiari Hill</i>	"	About 2 miles S.S.W. of the village of that name, 4 miles E.N.E. of Pipar, and 1½ miles N.E. by N. of Ratipāl. 1859.	23 32 25·41	68 37 23·03	[215]	543 544
Lākhond Hill <i>Maringra H. Pole</i>	"	The highest point of the E. knoll about ¼ of a mile S.W. by S. of Kālitāhoi village, 3 miles in the same direction of Chaprelī, and 1½ miles N.E. by N. of Lākhond. 1855.	23 16 20	69 50 2	...	226

* To upper surface of platform. † To upper surface of perforated, circular pillar. ‡ To mark on tower.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Lakhpat, XXV	Cutch State	<i>Tide page 9—L.</i>	23 49 19' 89	68 49 33' 27	$\frac{\text{feet}}{*}$ 132' 28 5	34, 85
Lákria Hill (helio.)	"	On a well-known hill of that name, about $\frac{1}{4}$ a mile W. by N. of Sálhero village, and $1\frac{1}{4}$ miles S.S.W. of Devpur. 1855.	23 16 29' 28	69 22 2' 92	[1189]	265 266
Lálchatha Hill Temple <i>Lalchetta H. Temple</i>	"	Dome of the conspicuous and solitary temple on the eastern bank of the Khori mouth of the Indus river, about $1\frac{1}{2}$ miles N. by W. of Chher Mota, and $2\frac{1}{4}$ miles N.W. of Khengárpur. 1857.	23 47 35' 6	68 41 37' 0	[54]	853 354
Lathedi Hill Mark (helio.) <i>Dumro H.S.</i>	"	On the southern embankment of a tank about 2 miles E. of the village of that name, $2\frac{1}{2}$ miles N.W. of Modkuba on the right bank of the Sai river, $2\frac{1}{2}$ miles W. by N. of Kokalin, and close S. of the road from the latter to Lathedi. 1859.	22 59 20' 11	69 5 59' 33	74	495 496
Lifra h.s. <i>Dhendassera H.S.</i>	"	On the highest point of a range of low, flat hills, about a mile W. of the village of that name, 3 miles S.E. by S. of Bandhra Mota, and close S. of the road from Lifra to Kannjhara: sub-division Kánthi. The station consists of a platform of rubble enclosing a solid and isolated pillar of masonry about 2 feet in height. 1860.	23 1 32' 72	69 47 35' 13	† $\frac{395}{2}$	68
Lík Hill Mark (helio.) <i>Likka H.M.</i>	"	On the highest point of the hills known by that name, about 2 miles N. by E. of Ghaduli, and $3\frac{1}{2}$ miles N.E. by N. of Dháresi. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 43 38' 32	68 56 2' 61	[605]	338 339
Lún h.s.	"	On a sand hill on the S. border of the island of that name, about 10 miles W.N.W. of the large village of Jukháu. The station is denoted by a mark-stone on the top of a masonry pillar 1 foot in height. 1859.	23 15 48' 30	68 35 40' 88	† $\frac{33}{1}$	526
Luni Hill Mark (helio.) <i>Amiramori H.S.</i>	"	On a sand ridge on the sea beach, about $2\frac{1}{2}$ miles E. of the large village of Luni, 3 miles S. by W. of Vadáin, $4\frac{1}{2}$ miles S.W. of Bhadresar, and close to the road from Luni to Bhadresar. 1860.	22 52 26' 37	69 53 26' 58	31	411 412
Luni Tower (helio.) <i>Lun T.S.</i>	"	In the large village of that name, about $3\frac{1}{2}$ miles S.E. of Gundála, 4 miles E. of Sadáu, the same distance N.W. of Vadáin, and 6 miles E.N.E. of the town of Mundra. The point is denoted by a mark on the tower. 1860.	22 52 14' 40	69 51 8' 44	‡ 59	413 414
Lunva Hill <i>Chana Donger</i>	"	About a mile N.N.W. of the village of that name, 2 miles E. of Sukhpur, $3\frac{1}{2}$ miles S. of Amardi, and close W. of the road from Lunva to Dhamadka. 1856.	23 16 54	70 16 7	[295]	172 173
Lunva Hill Mark	"	About a mile N.E. of the village of that name, $2\frac{1}{2}$ miles W. by N. of Chopadvu, and $4\frac{1}{2}$ miles S. by W. of Kumbhárdi. 1856.	23 16 37' 82	70 17 36' 21	...	170 171

* To mark-stone on top of circular pillar.

† To upper surface of pillar.

‡ To mark on tower.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Mádi h.s. ... <i>Mari H.S.</i>	Cutch State	On a small height, about a mile S.E. by E. of Depa village, and close W. of the intersection of the roads from Depa to Ghelada and from Rámáni to Desalpur: sub-division Mándvi. The station consists of a platform of earth enclosing a perforated and isolated pillar of masonry about 2 feet in height, with an aperture for access to the lower mark. 1859.	22 55 21' 13"	69 37 10' 74"	$\frac{\text{feet}}{209}$ 2	70
Mái Hill Peak (helio.) <i>Mhow H. Pk.</i>	"	Also called Khair Bat. About 1½ miles E.S.E. of the village of that name, 3 miles S. of Kákarra, and 2 miles W. by N. of Vamka. 1856.	23 25 54' 87"	70 26 23' 13"	[362]	146 147
Mamuára Hill Mark (helio.) <i>Teekar H.</i>	"	On the highest part of a hill, about 1½ miles N.W. by W. of the village of that name, 2 miles S.E. of Chaprelí, and ½ a mile S.W. of the road from Mamuára to Chaprelí. The point is denoted by a mark-stone covered over by a pile of stones. 1857.	23 17 26' 16"	69 53 14' 45"	...	221 222
Mamuára Hill Tomb <i>Perestana H.T.</i>	"	On the highest part of a hill, about 350 yards E.N.E. of the preceding point. 1855.	23 17 30' 6"	69 53 23' 9"	[604]	219 220
Mándvi Light-house	"	Close S.W. of the sea-port town on the right bank of the Rukhmávati river. 1859.	22 49 40' 8"	69 23 20' 6"	...	480
Mándvi s. ... <i>Mandavi Mahil S.</i>	"	On the S.W. corner of the terrace at the top of the Rao's palace in the sea-port town. The palace is now given up for the use of European travellers: sub-division Mándvi. The station consists of a perforated pillar of masonry 5 feet in height, having an aperture on the S. side. 1859.	22 49 42' 33"	69 23 28' 53"	$\frac{71}{5}$	79
Maniára Hill Fort (helio.) <i>Muniara H. Fort</i>	"	On the S.W. and conspicuous bastion of the fort, about ¼ of a mile W. by N. of the village of that name, 4 miles W. of Khári, and 1½ miles E.N.E. of Ber Mota. 1857.	23 28 8' 78"	68 39 29' 93"	225	532 533
Manjal, XVIII ...	"	<i>Vide page 8—L.</i> ...	23 37 43' 70"	69 10 54' 32"	$\frac{435}{5}$	25
Manjal Hill Mark (helio.)	"	On a hill known by that name, about 2 miles W. of Kora and the same distance N. of Betiáli. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 38 38' 51"	68 53 14' 48"	[518]	331 332
Mánki Hill Mark (helio.) <i>Vahar H. Mark</i>	"	On the highest point of a hill known by that name, about ¼ of a mile S. of Velhár Mota village, 4½ miles S.W. of Nakhtrána Mota, and 5 miles S. by E. of Kotada. 1859.	23 17 42' 72"	69 15 31' 98"	1017	283 284
Mátánomadh Hill Mark (helio.) <i>Mhar H. Platform</i>	"	About 2½ miles E. by S. of the large village of that name, 3½ miles W.N.W. of Itarapur, 3 miles S. by W. of Válka Mota, and 3½ miles W. of Gbadáni. The point is denoted by a mark in the centre of a platform. 1857.	23 32 24' 00"	69 1 53' 78"	[836]	317 318

* To upper surface of perforated pillar.

† To upper surface of circular pillar.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Mátánomadh Hill Temple <i>Mhar Hill Temple</i>	Cutch State	Spire of the conspicuous temple on a hill, about $\frac{1}{2}$ a mile W. by N. of the village of Mátánomadh. 1857.	23 32 41.7	68 58 56.6	feet [568]	315 316
Memán's Mosque ... <i>Meyman's Dome</i>	Karáchi	Spire of the dome of the mosque known as Kuba Sájan Sháh, about $\frac{1}{2}$ of a mile S. by E. of Bachal village, 2 miles S.W. of the village of Ibrahim Kumbár, and $1\frac{1}{2}$ miles due S. of that of Yusuf Jat: táluca Jati, sub-division Sháhbandar. 1859.	24 11 16.0	68 8 10.8	...	358 359
Midiála Hill Temple <i>Mendiara H. Temple</i>	Cutch State	Small temple of Pata Pír on a hill close N.W. of the village of that name, about 2 miles E. by S. of the large village of Khedoi, and $3\frac{1}{2}$ miles S.S.E. of Khámra. 1857.	23 3 37.7	69 59 44.1	...	387 388
Mod, XXXI ...	Karáchi	<i>Vide page 10—L.</i>	24 11 46.92	68 33 38.66	$\frac{35.41}{25}$	42, 43
Modkuba Hill Mark (helio.) <i>Morkuba H.S.</i>	Cutch State	On the southern bank of a tank close W. of the village of that name, about $2\frac{1}{2}$ miles S.W. of Kokalia, and $1\frac{1}{2}$ miles N.W. by N. of Bámghanai. 1859.	22 57 31.49	69 6 50.63	58	491 492
Modkuba Tower ... <i>Morkuba Building Flag</i>	"	Round tower about $\frac{1}{2}$ of a mile N. of the village of that name on the right bank of the Sai river, the same distance S. of Vidh village, 2 miles S.W. of Kokalia, and $1\frac{1}{2}$ miles N.W. by N. of Bámghanai. 1859.	22 57 50.2	69 7 8.6	...	498
Moghul Bbin, XXXVII	Karáchi	<i>Vide page 11—L.</i>	24 21 7.66	68 19 34.67	$\frac{44.65}{20}$	40, 50
Moghul Bbin Mosque <i>Mugar Bbin N. White Dome</i>	"	Spire of the northern, white dome of a small, noted mosque close W. of the large village of this name: táluca Jati, sub-division Sháhbandar. 1858.	24 21 22.1	68 18 14.6	...	362 363
Mohádi h.s. <i>Mocari H.S.</i>	Cutch State	On a low range of sand hills, about $\frac{1}{2}$ of a mile N. of the village of that name, 4 miles W. by N. of Kosa, and the same distance S.W. of Chadopadi Mota: sub-division Gardo. The station consists of a platform of rubble enclosing a solid pillar of masonry 1 foot in height. 1859.	23 19 39.02	68 41 26.58	$\frac{64}{1}$	94
Mor Dho h.s. ...	"	On a sand ridge on the sea shore, about $1\frac{1}{2}$ miles S.S.W. of Khuáda village, and $3\frac{1}{2}$ miles S.S.E. of the well-known village of Suthri: sub-division Mándvi. The station consists of a platform of rubble enclosing a perforated and isolated pillar of masonry 5 feet in height. 1859.	22 58 59.94	68 59 0.96	$\frac{51}{5}$	92
Mosuna Hill Mark (helio.) <i>Mosona Hill</i>	"	On the northern of three hills, about $\frac{1}{2}$ of a mile N.E. of the village of that name, 3 miles S.S.E. of Sóngnára, and $5\frac{1}{2}$ miles S. by E. of Naklitrána Mota. 1855.	23 15 50.89	69 18 48.82	...	287
Mosuna Hill Tree <i>Aklia H. Tree</i>	"	Conspicuous tree on the highest part of a low range of hills, about $1\frac{1}{2}$ miles W. by N. of Sukhsán village, and 2 miles S. of Sóngnára. 1855.	23 16 28	69 19 17	[611]	285 286

* To upper surface of perforated, circular pillar. † To upper surface of pillar. ‡ To upper surface of perforated pillar.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Mudhvai Hill Mark No. 1 (helio.) <i>Kari Mori H.M.</i>	Cutch State	About 2 miles E. by S. of Mudhvai, 3½ miles S.S.W. of Baidva, and 2½ miles N.W. of Pánadra. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 42 31·07	68 45 31·00	feet [163]	345 346
Mudhvai Hill Mark No. 2 (helio.) <i>Dahi H. Mark</i>	"	About 1½ miles N.N.W. of the village of that name, 2 miles S.W. of Balde, and 1½ miles N.E. of Kuriáni. The point is marked by a circle and dot covered over by a small mound of earth. 1857.	23 43 56·03	68 43 16·82	...	347 348
Mudia Hill Mark (helio.) <i>Jehr H.M.</i>	"	About a mile W.S.W. of the village of that name, 2½ miles S. of Godhátbad, and 1 mile N.E. of Bunda. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 36 28·21	68 41 54·04	[297]	326 327
Mudia Hill Platform (helio.) <i>Muria H. Platform</i>	"	About a mile E. by S. of the village of that name, 3½ miles N.N.E. of Baranda, 1½ miles W. by N. of Chámda, and 4½ miles S.W. of Midáli. 1857.	23 36 29·68	68 43 50·19	[333]	328 329
Mulu Hill Mark (helio.) <i>Kanir Hill</i>	"	About 1½ miles N. of the village of that name, 3½ miles E. of that of Amára, and 2½ miles N.E. of Aiar. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 31 58·97	69 13 8·87	...	292 293
Mundra Bandar Building (helio.) <i>Mandra Bunder Building</i>	"	At the well-known port on the Gulf of Cutch, about 3 miles S. of the town of Mundra. 1860.	22 47 44·28	69 45 53·27	36	415
Mundra t.s. ...	"	On the centre of the highest and N.E. tower of the fortified town: sub-division Mundra. The station consists of a perforated pillar of masonry, 8 feet in height, built on a square foundation: an aperture on the S. side gives access to the lower mark. When visited by the Levelling Party in 1874-75, the station was found in good order. 1860.	22 50 32·04	69 45 51·95	* $\frac{79 \cdot 51}{8}$	69
Nábhoi Hill Mark (helio.) <i>Utkua H. Mark</i>	"	On the highest point of a hill close N.E. of the village of that name on the road from Ludo to Kurbi, 3½ miles N. of the former and 2½ miles S.S.E. of the latter, and 4½ miles N.E. of the large village of Siságad. 1859.	23 8 46·42	69 26 39·86	682	248 249
Naga Valária Tower <i>B. Wallaria Tower</i>	"	In the village so called on the right bank of a small stream or creek, about 1½ miles S.S.E. of Bita Valária, 2½ miles N.N.W. of Vira, and 4½ miles W. by S. of Sangar. 1857.	22 58 7·3	70 0 49·9	...	391 392
Naliya, XVII ...	"	<i>Fide page 8—L.</i> ...	23 13 33·91	68 51 42·61	† $\frac{107}{5}$	24
Naliya Temple No. 1 <i>Nallia Temp. No. 1</i>	"	Spire of the eastern of the two conspicuous temples, with a pointed stone kalas, in the centre of the town of Naliya. 1855.	23 15 39·4	68 51 59·3	...	290
Naliya Temple No. 2 <i>Nallia Temp. No. 2</i>	"	Flat-topped spire of the western of the two conspicuous temples, W. of the highest house and in the centre of the town. 1855.	23 15 39·6	68 51 58·7	[136]	291

* To upper surface of perforated pillar.

† To upper surface of circular pillar.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Nanáma Hill (helio.) <i>Nanna H.</i>	Cutch State	On a conspicuous, nearly dome-shaped hill so called, about 1½ miles S.W. of the large village of Magrána, 5 miles E. of that of Roba, and 6½ miles N. of Siságad. 1855.	23 11 51' 91"	69 23 20' 59"	1429 <i>feet</i>	255 256
Nara, II	"	<i>Vide page 6—L.</i>	23 26 27' 95"	70 35 33' 49"	* 713 5	2, 3
Nara Hill Mark (helio.) <i>Thassa H.M.</i>	"	About a mile W. by N. of the well-known village of Nara on the W. bank of the Nara river. 1857.	23 39 21' 70"	69 8 54' 16"	...	300
Naráyan Sarovar Temple <i>Narainsir Temple</i>	"	Spire of the highest and famous temple at the mouth of the Kori river, in the large village of that name, and about a mile S.E. by S. of Kotesvar, a well-known place of Hindu pilgrimage. 1857.	23 40 26' 5"	68 34 46' 1"	[103]	552 553
Navínál Tree <i>Navinar Palm Tree</i>	"	Palm tree about ¼ a mile N.E. of the village of that name, 3 miles S.W. of Bhujpur Mota, the same distance W. of Jharpara, and 3½ miles S.S.E. of Desalpur. 1860.	22 50 15"	69 38 47"	...	437
Netra Hill Mark (helio.) <i>Naithra H. Peak</i>	"	On a hill peak about a mile S.E. by S. and just above the large village of that name, 3 miles E. of that of Bándia, 2 miles W.N.W. of Rasalia, and close to the road from Bándia to Rasalia. 1859.	23 23 59' 47"	69 6 16' 14"	514	281 282
Nindamani, XXXVI	Karáchi	<i>Vide page 11—L.</i>	24 11 29' 64"	68 3 8' 19"	† 33 ‡	48
Nokhána Hill Peak <i>Palkiari Double Rock Noka</i>	Cutch State	About 2½ miles W. by S. of the village of that name, 3 miles S.S.W. of Lorin, and 4 miles S.E. by S. of Jhura on the left bank of the Kaila river. 1857.	23 23 4"	69 41 48"	[392]	235
Nokhána h.s. <i>Palkiari H.S.</i>	"	On a small hill about 2½ miles S.W. of Nokhána, close to and half way between the foot-path from Makanpur to Nokhána, and 4½ miles S. by W. of Lorin. 1857.	23 21 27' 06"	69 41 58' 93"	[446]	230
Nurlisháh, XXXIII	Karáchi	<i>Vide page 10—L.</i>	24 6 41' 18"	68 16 4' 63"	† 40 ‡	45
Pachham Pir Tomb	...	<i>See Kála Dongar</i>
Padar Tree	Cutch State	Solitary, conspicuous tree about 1½ miles E.N.E. of the large village of this name. 1855.	23 14 56"	69 53 53"	...	218
Pakhdo Hill Mark No. 1 (helio.) <i>Sura Pakra H.</i>	"	On a well-known hill of that name, about a mile N.W. by N. of the village of Viráni Mota, and 3 miles N. of Nakhtrána Mota. 1855.	23 23 44' 67"	69 18 2' 97"	[857]	277 278
Pakhdo Hill Mark No. 2 (helio.) <i>Pahil Pakra H.</i>	"	On the western of the two hills known by that name, about 1½ miles W. by N. of the village of Viráni Mota, and 3½ miles N.N.W. of Nakhtrána Mota. 1855.	23 23 18' 71"	69 16 50' 81"	[825]	279 280

* To upper surface of circular pillar.

† To upper surface of perforated, circular pillar.

‡ Not forthcoming.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Pasuda s. ... <i>Passura H.S.</i>	Cutch State	In a field, about 1½ miles S.E. by S. of the village of that name, 2½ miles W.N.W. of Chirai Nána, and ¼ a mile S. of the road from Chirai Nána to Pasuda. 1856.	23 12 50·73	70 15 5·42	feet [93]	175 176
Pasvália h.s. ... <i>Suril Bet H.S.</i>	"	On an isolated hill peak known as Suril Bet, about ¾ a mile S.E. by S. of Pasvália Mita, 1½ miles E.S.E. of Satápúr, the same distance W. of Pasvália Khárá, and close N. of the road from Satápúr to Varsámedi. 1857.	23 9 24·76	70 6 16·72	265	193 194
Patta-ka-Bedhi, XXX	Karáchi	<i>Fide page 10—L.</i>	24 3 29·68	68 25 28·57	* 39 25	41
Peáka Hill Mark (helio.) <i>Piaka H.S.</i>	Cutch State	About 1½ miles S.W. by W. of the village of that name, close E. of the road from Poldia to Ratádía, 2½ miles E.N.E. of the large village of Nángarecha, and 4½ miles E. by S. of Kotadi. 1859.	23 2 9·39	69 17 40·76	464	473 474
Pinjor Pir, XXIV ...	"	<i>Fide page 9—L.</i>	23 42 46·84	68 35 45·63	* 114 12	33
Pinjor Pir Hill No. 1 (helio.) ...	"	On the south-eastern hill, about 4½ miles N.E. by E. of Kotesliwar, and the same distance N.E. of Náráyan Sarovar. 1857.	23 43 6·38	68 37 34·46	...	319
Pinjor Pir Hill No. 2 (helio.) ...	"	On the north-western hill, about 4½ miles N.E. of Kotesliwar, and 4½ miles N.E. by N. of Náráyan Sarovar. 1857.	23 43 30·01	68 37 14·18	...	350
Pipar Dome ... <i>Piper Highest Dome</i>	"	Highest dome. About 1½ miles W. by S. of the well-known village of Pipar. 1859.	23 30 53·7	68 32 43·7	[78]	540 541
Pir Daras Tomb ... <i>Dome with white building</i>	Karáchi	White, pointed dome of the tomb about 3 miles N.W. by N. of Guja on the main road from Tatta to Gháro, 1 mile S. of Kadirna, and 2½ miles in the same direction of the somewhat large village of Chákarkhán: táluca Tatta, sub-division Jerruck. 1853. Note.—This point is identical with Dome No. 2 of the Karáchi Longitudinal Series.	24 46 54·1	67 47 29·1	...	†
Pir Patho Mosque <i>Pir Patta Minaret</i>	"	Conspicuous minaret of the western mosque in the well-known place of this name on the left bank of the Bughar river, and close to the road from Tatta to Kotri: táluca Tatta, sub-division Jerruck. 1858.	24 33 17·6	67 55 32·3	...	364 365
Pir Patho Tomb No. 1 <i>Pir Patta Hill Higher Dome</i>	"	Dome of the highest, single-domed tomb: táluca Tatta, sub-division Jerruck. 1858.	24 33 42·2	67 55 12·2	...	366 367
Pir Patho Tomb No. 2 <i>Pir Patta Lower Dome</i>	"	Southern dome of the lower, white-domed tomb; táluca Tatta, sub-division Jerruck. 1858.	24 33 35·9	67 55 5·5	...	368 369
Poldia Hill Mark (helio.) <i>Roha Tonk H.</i>	Cutch State	About a mile N.W. by N. of the village of that name, 2½ miles N.E. of Kotadi, and 3½ miles N. of the large village of Nángarecha. 1859.	23 4 20·84	69 15 31·61	649	471 472

* To upper surface of perforated, circular pillar.

† For tripping fixing this point, see the Synoptical Volume of the Karáchi Longitudinal Series.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Punadi h.s. <i>Dhudugri H.S.</i>	Cutch State	On the highest point of a range of hills, about 1½ miles N.E. by E. of the village of that name, 3 miles S.E. by S. of Dhanoi, and the same distance W.S.W. of Gajod: sub-division Kánthi. The station is denoted by a platform 2 feet in height. 1859.	23 1 28.10	69 33 44.91	feet # $\frac{473}{2}$	71
Rabiáda, IV	"	<i>Fide page 6—L.</i>	23 28 4.60	70 11 41.86	† $\frac{32}{4}$	5
Rámraj Temple <i>Ramraj Dome</i>	"	Highest dome spire of a temple, about 1½ miles W.S.W. of Gholáy village, 4 miles S.W. by W. of Ber Mota, and 1½ miles N.W. of Ghunáu. 1859.	23 26 16.7	68 35 2.3	...	538 539
Rámváo h.s. <i>Kagnor H.S.</i>	"	On the highest part of a hill, about 2½ miles E.S.E. of the village of that name, 5 miles S.W. by S. of Tramáu, and 4 miles N.E. of Kanthkot. 1856.	23 31 29.55	70 32 55.52	[404]	103 104
Ran, V	"	<i>Fide page 6—L.</i>	23 36 54.54	70 18 37.35	† $\frac{14}{4.8}$	7, 8
Raudah, XL	Karáchi	<i>Fide page 11—L.</i>	24 32 20.08	68 4 31.32	§ $\frac{56}{25}$	54
Rangan Hill Mark (helio.)	Cutch State	On a sand ridge along the gulf of Cutch, about a mile E. of the Narinál creek. 1859.	22 46 39.93	69 36 1.96	29	440
Rápur s. <i>Rahpur Temple S.</i>	"	On the terraced entrance tower of a temple in the large village of that name, about 2½ miles N.E. of Kokra, and the same distance N.W. by W. of Ambápur. The station is marked by a circle and dot. 1857.	23 14 54.40	70 3 45.77	[288]	189 190
Rápur Temple <i>Rahpur Temple</i>	"	Spire. In the S.W. portion of the large village of this name, about 4½ miles E.S.E. of Tramáu. 1856.	23 34 13.3	70 41 8.6	[280]	117 118
Rápur ts. <i>Rahpur T.S.</i>	"	On the S.W. bastion of the village fort on the right bank of the Náera river, about 3 miles S.E. by S. of Sindhori Mota, and the same distance S.W. of Vánku: sub-division Abdása. The station consists of a platform enclosing a perforated and isolated pillar of masonry, built round the centre of the circular stair-case of the bastion and level with the top of the parapet wall: an aperture gives access to the lower mark. 1859.	23 5 43.21	68 51 18.12	 57	93
Rával Pir Dome <i>Rawal Pir Dome</i>	"	Of a grave of a Muhammadan saint about 1½ miles S. by E. of Masbka village, 2 miles S.W. of the large village of Gundiáli, and 3 miles E.S.E. of the sea-port town of Mándri on the right bank of the Rukhmávati river. 1859.	22 48 50.8	69 25 53.6	[71]	444 445
Rav Temple <i>Rav Temple on tank</i>	"	Spire of a conspicuous temple known as Devisar on the N.E. bank of a tank about 1½ miles N.W. of the large village of this name, and ¼ of a mile S.W. of the road from Gángta Bet to Rav. 1856.	23 39 58.5	70 36 38.1	[107]	107 108
Reladi Hill <i>Dutarwari H.</i>	"	About 2 miles S. by W. of Reladi Mota village, 3 miles S.E. of Kukma, and 3½ miles S.S.W. of Padar. 1855	23 11 31	69 51 23	...	215

* To upper surface of platform. † To upper surface of circular pillar. ‡ Not forthcoming.
§ To upper surface of perforated, circular pillar. || To upper surface of perforated pillar.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station Height of Structure	No. of Triangle
Roha, XIV	Cutch State	<i>Fide</i> page 8—L.	23 12 4'23	69 18 53'22	$\frac{\text{feet}}{875}$ 4	20
Roha Hill Mark (helio.)	"	On an isolated hill, about 2½ miles N.N.W. of Lálkhápur, and 3½ miles N.E. by E. of Ghaduli. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 43 49'18	68 58 38'87	[388]	337
Rojhla Hill Mark (helio.) <i>Rojla Highest Hill</i>	"	On the southern and highest part of one of the conspicuous, detached hills, about ½ of a mile N.W. of Vej-pisar village, 1½ miles E.N.E. of Gangon, and 4 miles N.E. of Roha. 1855.	23 13 58'98	69 21 46'93	1146	261 262
Rojhla Hill Peak (helio.) <i>Rojla E. Hill</i>	"	On one of the conspicuous, detached hills, about a mile N. by W. of the large village of Magvána, and 3 miles W. by S. of that of Majal. 1855.	23 13 49'84	69 24 2'81	1067	259 260
Sábhrai Tower (helio.) <i>Sabraki T.S.</i>	"	In the southern part of the large village of that name, about 3½ miles W. of Bhojáí, 5 miles S.W. of Kotadi, and the same distance E.S.E. of Dumra on the left bank of the Chok river. The point is denoted by a mark on the tower. 1859.	23 0 42'62	69 9 20'61	† 153	497 498
Sagália h.s. <i>Sogalia H.S.</i>	"	On a low hill, about 2 miles W.S.W. of the village of that name. 1857.	23 10 2'85	69 58 10'72	[458]	198 199
Sáhera Hill Mark No. 1 (helio.) <i>Khangan Hill</i>	"	On a hill also called Dhundha. About 1½ miles S.E. of the village of that name, and 2 miles N.W. by W. of the large village of Mundhán. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 46 11'54	68 56 39'10	...	340
Sáhera Hill Mark No. 2 (helio.) <i>Kettipir H.S.</i>	"	On a small hill about 3 miles S.E. of the large village of that name, 4 miles N.E. of the village of Suthri, and 3½ miles S. by E. of the large village of Kothára. 1859.	23 4 52'47	68 59 43'04	131	509 510
Sahiji, CVII†	Karáchi	<i>Fide</i> page 12—L.	24 51 0'90	67 38 26'47	* $\frac{445}{3}$	62, 63
Sáhind, XIX	Cutch State	<i>Fide</i> page 8—L.	23 24 34'08	68 48 39'14	§ $\frac{292}{4}$	26
Saiyid Ali, XXVII	Karáchi	<i>Fide</i> page 9—L.	23 56 25'77	68 42 42'34	§ $\frac{3047}{24}$	37, 38
Saiyid Ali Pir Hill Tomb <i>Syad Ali Pir</i>	Cutch State	About 4 miles S. of the large village of Ghuar, 2 miles S.S.W. of Hamankhudi, the same distance S.E. of Sakarda, 4 miles N.N.E. of Pipar village, and a short distance E. of the road from Hamankhudi to Pipar. 1859.	23 34 40'5	68 34 42'0	[123]	545 546
Sakarda h.s. <i>Likka Dho H.S.</i>	"	On a small sand hill bordering on the innundated land on the W. coast of Cutch, about 5 miles S.S.W. of Núr-yan Sarovar, 2½ miles S.W. of Ghuar, and 1½ miles W. by N. of Hamankhudi: sub-division Gardo. The station is denoted by a mark-stone on the top of a solid pillar 1 foot in height. 1859.	23 36 39'08	68 32 37'47	 $\frac{69}{1}$	535

* To upper surface of circular pillar. † To mark on tower. ‡ This station appertains to the Karáchi Longitudinal Series.
§ To upper surface of perforated, circular pillar. || To upper surface of pillar.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Samāghogha Mosque <i>Gogaw Mosque Cupola</i>	Cutch State	Cupola. On the W. side of the large village of that name, about 3½ miles E.N.E. of Bhuipur Mota, and 4½ miles N.W. by N. of the town of Mundra. 1859.	22 53 18.8	69 43 12.8	feet ...	417
Sāmātra, XII	"	<i>Vide page 7—L.</i>	23 9 48.79	69 33 14.71	$\frac{*964}{5}$	17
Sāmātra Hill <i>Samethra Hill Heap</i>	"	Pile of stones on a hill, about 3½ miles S. by W. of the village of this name, and 4½ miles N.N.W. of Daisaru on the main road from Māndri to Bhūj. 1855.	23 8 39	69 31 52	...	250
Sānādra Hill Mark <i>Songar Bet H.</i>	"	On a rocky hill, about 2 miles N.E. of the village of that name, 2½ miles S.S.E. of Kunria, 3 miles S.W. of Kotāi, and close to the foot path from Sānādra to Kotāi. 1857.	23 21 50.46	69 47 6.52	...	236 237
Sāndhān Temple <i>Sandan W. Temple Spire</i>	"	Spire. In the southern part of the large village of that name on the right bank of the Kankāvatī river, and 3½ miles W.S.W. of Dumra on the left bank of the Chok river. 1859.	23 1 6.3	69 2 5.6	...	499 500
Sapdāi Hill Mark (helio.) <i>Wankalwala H. Platform</i>	"	About ¼ of a mile W.N.W. of the village of that name, 3 miles N.E. of Akri Mota, and close to the road from Kiranta to Rākhadi Dharmshāla. The point is denoted by a mark in the centre of a platform. 1857.	23 24 41.26	68 41 46.65	† 215	530 531
Serdi Hill <i>Serli Hill Pole</i>	"	About a mile S.S.E. of the village of Serdi on the right bank of the Kharod river, and 3 miles E.S.E. of Hāmā. 1859.	23 0 32	69 23 24	[343]	463
Serdi Hill Temple <i>Matha Chenda H. Temple</i>	"	On the highest part at the northern end of a hill, having the village of Serdi at its eastern foot, and 2½ miles E. of Majal. 1859.	23 1 39.0	69 23 0.3	...	461 462
Shāhājrya Hill Tomb <i>Conical Hill Tomb</i>	Karāchi	Known as Kuba Shāhājrya. On a small conical hill about 3½ miles S.E. of Guja on the main road from Tatta to Gāro, 1½ miles N.W. by N. of Mula village: tāluka Tatta. 1853. Note.—This point is identical with Conical Hill Tomb of the Karāchi Longitudinal Series.	24 42 17.4	67 50 59.5	...	‡
Shinaya No. 1 h.s. <i>Janghivara H.S.</i>	Cutch State	On a hill, about 1½ miles W. of the village of that name, 5 miles S. of the town of Anjār, 2 miles E.N.E. of Devalin, and close S. of the road from Shinaya to Sidungra: sub-division Anjār. The station consists of a platform enclosing a perforated and isolated pillar of masonry about 2 feet in height: an aperture gives access to the lower mark. 1860.	23 2 25.44	70 4 24.50	§ $\frac{219}{2}$	64
Shinaya No. 2 h.s. <i>Senai H.S.</i>	"	On the highest part of a hill, about ¼ of a mile N. by E. of the village of that name on the road from Anjār to Tāna, 1½ miles W.S.W. of Antarjāl, and 3 miles W.N.W. of Kidāna. 1857.	23 2 46.82	70 6 8.23	[189]	382 383 384
Siāri h.s.	"	On a sand hill very near the extremity of a tongue of land jutting into the sea, to the W. of the Siāri creek, about 6 miles S.W. of Jakhān town, and the same distance E. of India: sub-division Gardo. The station is denoted by a mark-stone. 1859.	23 9 38.54	68 41 21.52	 39	518

* To upper surface of circular pillar. † To upper surface of platform. ‡ For triangle fixing this point, see the Synoptical Volume of the Karāchi Longitudinal Series. § To upper surface of perforated pillar. || To mark-stone.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Sidungra Hill Mark <i>Sidongra H. Mk.</i>	Cutch State	On a low hill, about $\frac{3}{4}$ of a mile W.S.W. of the large village of that name, $1\frac{1}{2}$ miles S.E. by S. of Khánra, 3 miles N.E. of the large village of Khedoi, and $\frac{1}{4}$ a mile N. of the road from Khedoi to Sidungra. 1857.	23 5 22' 26"	69 59 38' 64"	... feet	380 381
Sidungra h.s. <i>Sidongra H.S.</i>	"	On a hill, about $\frac{3}{4}$ of a mile E. by S. of the village of that name, 1 mile S. by W. of Nágpur Mota, 3 miles S.W. by W. of the town of Anjúr, and close to the road from Sidungra to Shinaya. 1857.	23 5 34' 47"	70 1 27' 50"	362	373 374 375
Sidungra Hill Tomb <i>Sidongra H. Tomb</i>	"	Close S.W. of the village of this name, about $3\frac{1}{2}$ miles W.S.W. of the town of Anjúr. 1857.	23 5 41' 1"	70 0 37' 5"	...	378 379
Sidungra Temple <i>Sidongra V. Temple</i>	"	In the village of that name, about 4 miles W. by S. of the town of Anjúr, and $1\frac{1}{2}$ miles S.W. by W. of Nágpur Mota. 1857.	23 5 42' 3"	70 0 40' 6"	[311]	376 377
Sikra Hill Mark (helio.) <i>Rate Bet H. Mk.</i>	"	On the peak of a small isolated hill about a mile S.S.W. of the village of that name, 2 miles S.E. by E. of Kunbhárdi, and close W. of the road from Sikra to Chopadru. 1856.	23 19 36' 53"	70 19 55' 42"	[190]	162 163
Sirácha Hill Mark (helio.) <i>Seracha H.S.</i>	"	On a small hill about $1\frac{1}{2}$ miles S.S.W. of the village of that name, and the same distance E.S.E. of Tunda village. 1859.	22 49 19' 29"	69 35 40' 17"	23	438 439
Siságad Hill Fort <i>Sisagad Fort Bastion</i>	"	Also called Kotra Fort. The conspicuous, northern and highest bastion of the fort, about $2\frac{1}{2}$ miles S.E. by E. of Devpur, and 4 miles W. of the large village of Ludo. 1855.	23 6 22' 1"	69 23 7' 2"	[614]	459 460
Suarka Hill Mark (helio.)	"	On the highest part of a hill, about 2 miles N.E. of Khatiu village, and 3 miles N.N.W. of Haroda. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 42 20' 68"	69 1 53' 24"	[624]	335 336
Sugandia, XXVI	Karáchi	<i>Fide page 9—L.</i>	23 52 28' 99"	68 32 9' 72"	* $\frac{31' 34}{24}$	36
Sukhpur, VI	Cutch State	<i>Fide page 6—L.</i>	23 16 49' 77"	70 12 19' 17"	† $\frac{357' 19}{5}$	9
Sukhpur, XLV	Karáchi	<i>Fide page 12—L.</i>	24 33 14' 42"	67 44 33' 58"	* $\frac{31}{10}$	60
Sumrásar s. <i>Sunrasir S.</i>	Cutch State	On a small mound within a few yards of a Muhammadan burying ground, about $1\frac{1}{2}$ miles N. of the village of that name, and $3\frac{1}{2}$ miles N.W. of Dhorí. 1857.	23 27 46' 19"	69 44 59' 74"	...	233 234
Sura Gandhára, XXI	"	<i>Fide page 9—L.</i>	23 40 16' 83"	68 58 36' 00"	† $\frac{808}{5}$	28, 29
Suri Muri, XX	"	<i>Fide page 8—L.</i>	23 33 9' 34"	68 47 28' 31"	* $\frac{437}{12}$	27, 30

* To upper surface of perforated, circular pillar.

† To upper surface of circular pillar.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Suthri Temple ... <i>Sutri V. Temple Spire</i>	Cutch State	Highest spire of the temple in the centre of the large village of that name. 1859.	23 1 57.8	68 57 19.1	feet [86]	512 513
Suvi h.s. ... <i>Sui H. Ft.</i>	"	On the N.W. bastion of the small, ruined hill fort, about 1½ miles W.S.W. of <i>Jesada</i> , 5 miles W.N.W. of <i>Tramáu</i> , and the same distance N. by E. of <i>Rámúáo</i> . The large village of <i>Suvi</i> is at the eastern foot of the hill. 1856.	23 36 46.66	70 31 58.36	[139]	101 102
Suvi Hill Temple ... <i>Sui Temple in Fort</i>	"	In the fort above mentioned. 1856.	23 36 46.9	70 31 59.1	...	119 120
Tamáchi Pir Hill Tomb ... <i>Mia Tamaji H. Temp. Dome</i>	"	Dome of the tomb of a Muhammadan saint, about a mile S.E. by S. of <i>Kátada</i> , 3 miles S. of <i>Meráu</i> , and 4 miles W. of the sea-port town of <i>Mándvi</i> . 1859.	22 49 45.0	69 19 31.7	[91]	481 482
Tapar Hill Mark (helio.) ... <i>Tappar H.S.</i>	"	On the highest part of a small hill about ¾ of a mile W.S.W. of the village of that name, 5½ miles S.E. of the large village of <i>Kera</i> , and close S. of the road from <i>Tapar</i> to <i>Tumadi</i> . 1859.	23 1 0.96	69 41 26.66	400	423 424
Tapar Temple ...	"	S.W. temple about ¼ a mile N.E. of the large village of that name on the left bank of <i>Sákra</i> or <i>Sáng</i> river, 4½ miles S. by E. of the large village of <i>Dudhai</i> , and 4½ miles S.E. of <i>Kotadpa</i> . 1857.	23 15 10.6	70 11 0.7	[129]	179
Tatta Building ...	Karáchi	White top of the highest building in the town of <i>Tatta</i> , about ¾ of a mile W. of the <i>Jamma Masjid</i> : <i>táluka Tatta</i> , sub-division <i>Jerruck</i> . 1853.	24 44 47.1	67 57 54.6
Tatta Dome ... <i>Syud Alli Peer Dome</i>	"	White dome known as <i>Saiyid Ali Pir</i> , about 2½ miles N.W. by N. of the town, and close S. of <i>Kuba Isa Kalandar</i> : <i>táluka Tatta</i> , sub-division <i>Jerruck</i> . 1853. Note.—This point is identical with <i>Saiyid Ali Pir Dome</i> of the <i>Karáchi Longitudinal Series</i> .	24 46 43.4	67 56 42.0	...	*
Tatta Hill Mosque ... <i>Tatta Highest Dome</i>	"	Highest dome of a mosque beside a double dome, about 2 miles N.W. by W. of the town: <i>táluka Tatta</i> , sub-division <i>Jerruck</i> . 1857.	24 46 1.9	67 56 24.5	...	370
Tatta Sarái ...	"	Centre of the gateway of the <i>Sarái</i> close to the main road from <i>Gháro</i> to <i>Tatta</i> , about a mile W. of the latter town: <i>táluka Tatta</i> , sub-division <i>Jerruck</i> . 1853.	24 44 36.0	67 56 35.9	...	*
Tatta Tomb ... <i>Mucklee Tomb</i>	"	Largest dome of the tomb known as <i>Makli</i> , about 1½ miles W. by N. of the town: <i>táluka Tatta</i> , sub-division <i>Jerruck</i> . 1853. Note.—This point is identical with <i>Makli Tomb</i> of the <i>Karáchi Longitudinal Series</i> .	24 45 11.8	67 56 27.2	...	*
Tengo h.s. ...	Cutch State	On a hill, about a mile E. of the village of <i>Mathada</i> , 2 miles N.N.W. of <i>Bhund</i> , and the same distance S.W. of the large village of <i>Khedoi</i> : sub-division <i>An-jár</i> . The station consists of a platform of rubble, enclosing a solid pillar of masonry about 1 foot in height. 1860.	23 2 41.16	69 55 46.79	† 383 1	65, 66

* For triangles fixing these points, see the Synoptical Volume of the *Karáchi Longitudinal Series*.

† To upper surface of pillar.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Tera Fort (helio.) ... <i>Teyra Ht. Bast.</i>	Cutch State	On a conspicuous bastion of the fort in the centre of the town so called on the S. bank of the Mithi river. The point is denoted by a mark on the bastion. 1857.	23 17 18.88	68 58 48.48	feet * 200	288 289
Traghari h.s. ... <i>Morkuba H.S.</i>	"	A few hundred yards W. of the grave of a Muhammadan saint, known as Morkuba, on the sand ridge, about 4 miles S.S.W. of the village of Bhádía Nána, and 3½ miles S. of Traghari: sub-division Gardo. The station consists of a platform of sand enclosing a perforated and isolated pillar of masonry, about 2 feet in height: an aperture gives access to the lower mark. 1859.	22 46 32.35	69 30 29.42	† 52 2	77
Tramáu h.s. ... <i>Thirmo H.S.</i>	"	On a small range of hills, about ¼ a mile E. by S. of the large village of that name, 4½ miles W. by N. of Rápur, and 5 miles S. by W. of Rav village. 1856.	23 34 58.23	70 36 42.18	[264]	105 106
Tramáu Hill Temple <i>Thirmo H. Temple</i>	"	On a small range of hills, about ¼ a mile S.S.E. of the large village of that name, 4 miles S.E. of Jesada, and 5 miles E.S.E. of Suvi. 1856.	23 34 35.2	70 36 24.6	...	121
Trámbáu Hill (helio.) <i>Tharamba Bet H.</i>	"	About a mile N.N.W. of the village of Chopadvu, 3½ miles W. by S. of Bhacháu, the same distance S.S.W. of Sikra, and close W. of the road from Chopadvu to Pánkadsar. 1856.	23 17 7.53	70 19 29.70	[293]	168 169
Tumbadi Hill Mark (helio.) <i>Tumri H.S.</i>	"	On a small hill about 1½ miles S.S.E. of the village of Tumbadi Nána, 2 miles N.W. of Rámáni, and 3 miles N.E. of Farádi. 1859.	22 58 24.05	69 35 10.30	293	435 436
Túna s. ... <i>Tuna Bastion S.</i>	"	On the N.W. and highest bastion of Shankar Fort, about a mile S.E. by S. of the large village of that name, and 3 miles E. by S. of Sungar village. 1857.	22 58 38.99	70 7 38.50	48	389 390
Úmarsar Hill Mark (helio.) <i>Bheti Hill</i>	"	About a mile W.S.W. of Úmarsar, 2½ miles N.N.E. of Fulda, and 4 miles E.S.E. of Baiáva. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 44 19.05	68 50 26.31	[296]	343 344
Undot h.s. ... <i>Unrot H.S.</i>	"	On a small knoll about 1½ miles E.S.E. of the village of that name, 4½ miles N.E. of Báet, 5 miles N.W. by N. of Godhira on the left bank of the Kharod river, 2½ miles W. of Rutadía Mota, and ¼ a mile S. of the road from the latter to Undot: sub-division Kúnthi. The station consists of a platform, 2 feet in height, enclosing a perforated pillar of masonry which contains two mark-stones, one at the ground level, and the other 2 feet above it: an aperture gives access to the lower mark. 1859.	22 59 1.73	69 16 25.84	† 218 2	82
Váda Hill Mark (helio.) <i>Katla H. Mark</i>	"	On the highest part of a hill, about a mile E. of the village of that name, 1½ miles N.N.E. of Loháira, 2½ miles W.N.W. of Kháira, 4 miles N. by W. of Kheol, and close to the road from Váda to Kháira. The point is denoted by a circle and dot covered over by a pile of stones. 1857.	23 6 58.51	69 56 28.91	† 502	405 406
Váda Mark (helio.) <i>Kaira Talaori II.</i>	"	On the bank of a small tank about 1½ miles N.E. of Váda (Gadrálo), 3½ miles W.N.W. of Nundhatar on the right bank of the Kankávati river, and 2 miles S. of Rava. 1859.	23 10 25.99	69 4 48.43	218	506

* To mark on bastion.

† To upper surface of perforated pillar.

‡ To circle and dot.

CUTCH COAST SERIES.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Vadi Hill Mark (helio.) <i>Wori Hill M.</i>	Cutch State	On the peak of a hill, about 4½ miles E. of Kora village, and 3¼ miles E. by N. of Dayápur. The point is marked by a circle and dot covered over by a pile of stones. 1857.	23 38 33.32	68 59 43.63	feet ...	306 307
Vadli Hill Mark (helio.) <i>Dhora Donger H. Mark</i>	"	On the northern ridge of a low range of hills, about a mile S.W. of the village of that name, 3 miles W. of Chándia, and 4½ miles S.E. of Relha Mota. 1859.	23 5 26.31	69 50 10.60	719	407 408
Vadra Hill No. 1 ... <i>Rakal N.H.</i>	"	The north-eastern and highest point of the hills known as Rakhal, about 2½ miles N.N.W. of Vadra Mota village, and 3 miles N.N.E. of Darpur. 1855.	23 10 8	69 22 8	1000	251 252
Vadra Hill No. 2 (helio.) <i>Rakal S.H.</i>	"	The south-western point of the above named mass of hills, about 2 miles N. by E. of Darpur village, the same distance N.N.W. of Dujápur, and 4 miles N.N.W. of the large village of Siságud. 1855.	23 9 29.92	69 21 33.50	896	253 254
Vámka Hill Mark (helio.) <i>Wamka H.</i>	"	About a mile N.E. by N. of the village of that name, 2 miles N.N.W. of Halrái, and 4 miles E. of Mái village. The point is denoted by a mark-stone. 1856.	23 26 26.40	70 28 49.34	[470]	143 144
Vámka Hill Temple <i>Wamka Temp.</i>	"	Eastern dome of the conspicuous, grey temple about a mile N.E. of the village of this name, and 2½ miles N.N.W. of Halrái. 1856.	23 26 26.8	70 28 33.2	...	145
Vamoti h.s. <i>Chapri H.S.</i>	"	On the highest point of the Chapri hills, about 1½ miles S.W. of Vamoti Mota, 1½ miles S. of Vamoti Nana, 4½ miles E.N.E. of Hota, and 2½ miles E.S.E. of Balápur village: sub-division Abdúea. The station consists of a platform enclosing a perforated and isolated pillar of masonry, about 2 feet in height, which contains two mark-stones, one at the ground level and the other on the upper surface of the pillar. 1859.	23 17 22.10	69 8 44.38	* 415 2	87
Vándh Hill Mark No. 1 (helio.) <i>Chorbet H.S.</i>	"	About a mile S.E. by S. of the village of that name, 1½ miles S.W. by W. of that of Khojáchora, and 4½ miles E. by S. of Serdi village on the right bank of the Kharod river. 1859.	23 0 37.09	69 27 10.72	387	455 456
Vándh Hill Mark No. 2 (helio.) <i>Kosa H. Point</i>	"	On a small sand-hill close to the road from Vadsar to Vándh Theba, about 5 miles N.W. of the town of Naiya, and 4 miles S.W. by W. of the large village of Rámpur. 1859.	23 17 54.76	68 48 0.40	64	525
Vándhia, XIV†	"	<i>Vide page 6—L.</i>	23 14 44.22	70 39 18.59	† 116.37 5	§
Vánku Temple <i>Wanku V. Temple W. Flag</i>	"	Close S. of the village of that name on the right bank of the Náera river, about 2½ miles E.N.E. of Rápur, and 3½ miles N. by W. of Arikhánu. 1859.	23 7 4.0	68 53 27.0	...	516
Várár, XIII	"	<i>Vide page 7—L.</i>	23 20 33.33	69 36 2.91	 1128 5	18, 19

* To upper surface of perforated pillar. † This station appertains to the Káthiáwar Meridional Series. ‡ To mark-stone on top of circular pillar.
§ For triangle fixing this station, see the Synoptical Volume of the Káthiáwar Meridional Series. ¶ To upper surface of perforated, circular pillar.

Name of Station or Point	District	Description	Latitude North	Longitude East of Greenwich	Height of Station — Height of Structure	No. of Triangle
Varjhar Hill Mark (helio.) <i>Warjar H.S.</i>	Cutch State	On a small hill about 2 miles S.W. of the village of that name, 3½ miles S.E. by S. of Baladina, 4 miles E.S.E. of Kera, and close E. of the road from Jumkha or Boricha to Bábía. 1859.	23 3 11' 43"	69 41 22' 92"	feet 476	425 426
Vashtava Hill Temple <i>Wasota H. Temp.</i>	"	Double-domed temple about ¼ of a mile E. of the village of that name, 4 miles S.S.W. of Bádargad, and 2 miles N.N.W. of Shivlakha. 1856.	23 24 42' 0"	70 37 52' 8"	[476]	127 128
Vásta Bandar Fort (helio.) <i>Basta Bunder</i>	"	On the conspicuous bastion (broken) of an old fort being the site of a long abandoned bandar or seaport town of that name, about 1½ miles N.N.W. of the mouth of the Vásta creek, close S. of the boundary of Sind and Cutch State, and about 10 miles W. by N. of the town of Lakhpat. 1858.	23 51 44' 04"	68 39 41' 52"	...	355 356
Vethon Hill Mark (helio.) <i>Vitonia Conical H.</i>	"	On a small, isolated, conical hill about ¼ a mile N.W. of the village of that name, 1½ miles W.N.W. of Morjhar, and 2 miles S. by W. of Chávadka. 1855.	23 19 29' 49"	69 23 1' 77"	[921]	267 268
Vichhia Hill Mark (helio.) <i>Vichan Hill</i>	"	About a mile N.W. of the village of Sumrásar, the same distance S.W. by S. of Tánkaúsar, and 5 miles N. by W. of Makhana. 1855.	23 20 16' 39"	69 33 59' 52"	[822]	271
Vichhia Hill Peak (helio.) <i>Vichia H. Peak</i>	"	About 2½ miles E.N.E. of Natharkhui village, the same distance W. by N. of Sumrásar, and 5 miles N.W. by N. of Makhana. 1855.	23 19 54' 98"	69 32 37' 17"	...	269 270
Vikia, XLIII	Karáchi	<i>Vide page 12—L.</i>	24 41 52' 60"	68 6 6' 66"	* 47' 09 20	57, 58
Vinján Hill Mark (helio.) <i>Útrai Bet Hill Mk.</i>	Cutch State	On a small knoll about a mile N. of the large village of that name, 3½ miles E. by S. of Varádía, and close to the road from Vinján to Váda. 1859.	23 7 1' 05"	69 3 56' 00"	208	507
Vira Fort (helio.) <i>Vira Village Tower</i>	"	On the tower of the fort close to the right bank of a large stream, about 2½ miles E.S.E. of Valária, and 4½ miles S.W. of Sangar. The point is denoted by a mark on the tower. 1860.	22 56 17' 34"	70 1 43' 87"	† 71	393 394
Viri h.s. <i>Yerdi H.S.</i>	"	On one of the knolls of a range of hills, about 1½ miles S.W. of the village of that name, 5 miles in the same direction of the town of Anjár, 2 miles S.E. by S. of Sidungra, and close to the road from Sidungra to Dovalia. 1857.	23 4 6' 69"	70 1 50' 89"	[326]	385 386
Vitrio Hill Temple	"	On the highest part of the hill known by that name, about 1½ miles N.N.E. of the large village of Bádargad. 1854.	23 29 12' 1"	70 40 15' 7"	[755]	† 125
Vovár Hill Mark (helio.) <i>Kirkioara H.S.</i>	"	On a small hill about 1½ miles N.E. of the village of that name, 3 miles S.S.E. of Chándrodra, 3½ miles W.S.W. of Bhudá, and 4 miles N.N.E. of Vadála. 1860.	22 58 29' 54"	69 55 12' 11"	197	399 400
Yusuf Jat Tomb <i>Miah Usman's Dome</i>	Karáchi	Dome spire of the tomb of Mian Usmán about ¼ of a mile N.W. of the village of this name, and ¾ of a mile N. by E. of Dachal: túluka Játí, sub-division Sháhbandar. 1858.	24 12 28' 4"	68 8 4' 2"	...	360 361

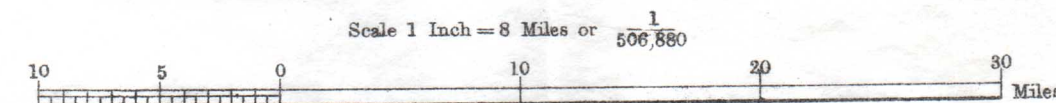
* To upper surface of perforated, circular pillar.

† To mark on tower.

‡ For another triangle fixing this point, see the Synoptical Volume of the Káthiáwár Meridional Series.

Chart No. 1

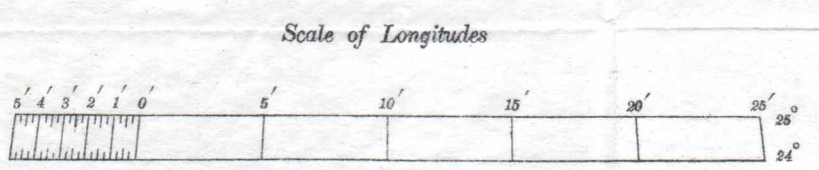
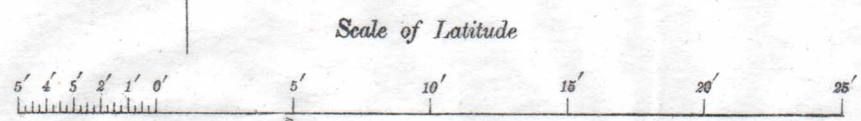
OF THE CUTCH COAST SERIES OR SERIES L OF THE SOUTH-WEST QUADRILATERAL

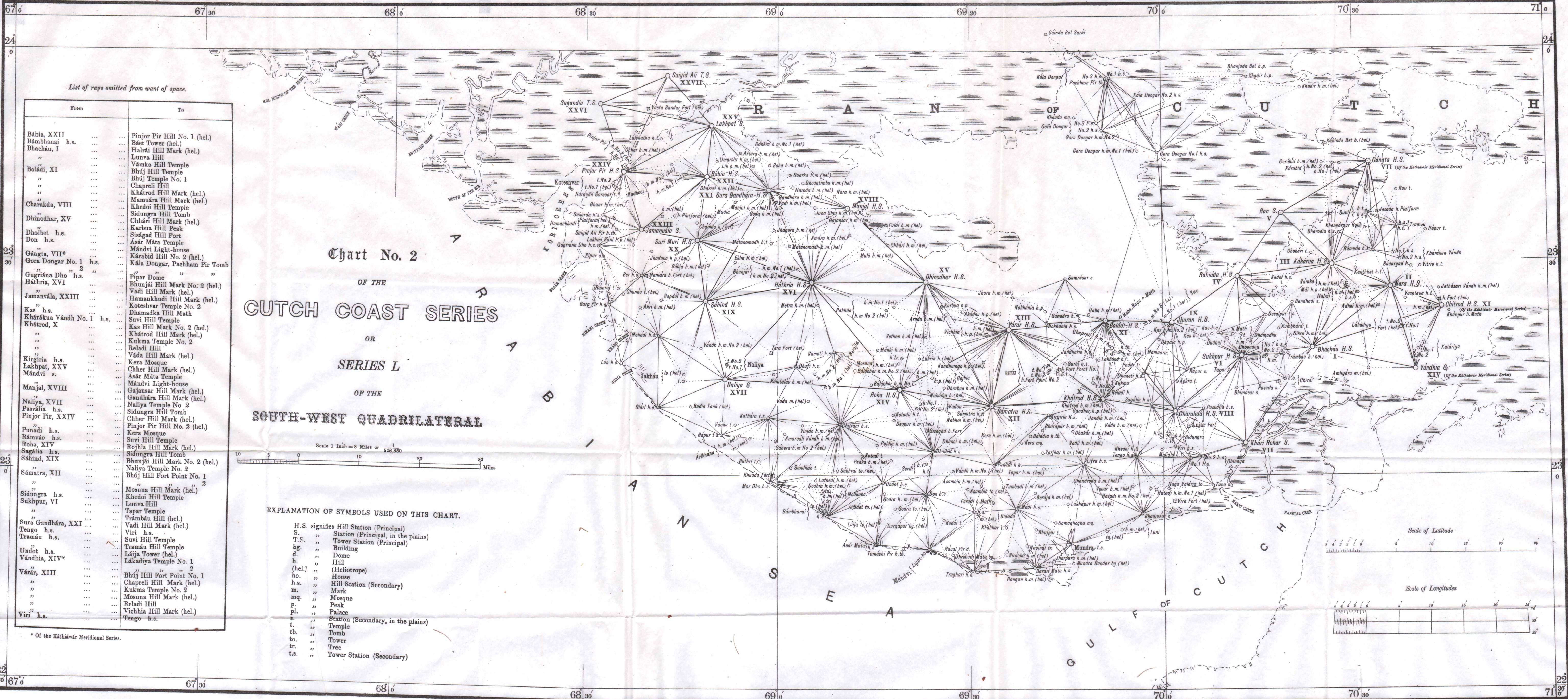


Ray omitted from want of space
from Abanshah, XXXVIII to Pir Patho Mosque

EXPLANATION OF SYMBOLS USED ON THIS CHART.

- H.S. signifies Hill Station (Principal)
- S. " Station (Principal, in the plains)
- T.S. " Tower Station (Principal)
- bg. " Building
- d. " Dome
- h. " Hill
- mq. " Mosque
- tb. " Tomb





List of rays omitted from want of space.

From	To
Bábia, XXII	Pinjor Pir Hill No. 1 (hel.)
Bámphanai h.s.	Báet Tower (hel.)
Bhacháú, I	Halráí Hill Mark (hel.)
	Lunva Hill
Boládi, XI	Vámka Hill Temple
	Bhúj Hill Temple
	Bhúj Temple No. 1
	Chaprelí Hill
	Khátrod Hill Mark (hel.)
Charakda, VIII	Mamúára Hill Mark (hel.)
	Khedoi Hill Temple
Dhinodhar, XV	Sidungra Hill Tomb
	Chhári Hill Mark (hel.)
	Karbuá Hill Peak
Dholbet h.s.	Siságad Hill Fort
Don h.s.	Asár Mátá Temple
Gángta, VII*	Mándvi Light-house
Gora Dongar No. 1 h.s.	Karábid Hill No. 2 (hel.)
	Káia Dongar, Pachham Pir Totab
Gugriána Dho h.s.	Pipar Dome
Háthria, XVI	Bhunjái Hill Mark No. 2 (hel.)
	Vadi Hill Mark (hel.)
Jamanvála, XXIII	Hamankhudi Hill Mark (hel.)
	Koteshtar Temple No. 2
Kas h.s.	Dhamadka Hill Math
Khárákua Vándh No. 1 h.s.	Suvi Hill Temple
Khátrod, X	Kas Hill Mark No. 2 (hel.)
	Khátrod Hill Mark (hel.)
	Kukma Temple No. 2
	Reladi Hill
Kirgíria h.s.	Váda Hill Mark (hel.)
Lakhpat, XXV	Kera Mosque
Mándvi s.	Chher Hill Mark (hel.)
	Asár Mátá Temple
Manjal, XVIII	Mándvi Light-house
	Gajansar Hill Mark (hel.)
Naliya, XVII	Gandhára Hill Mark (hel.)
Pasvála h.s.	Naliya Temple No. 2
Pinjor Pir, XXIV	Sidungra Hill Tomb
	Chher Hill Mark (hel.)
	Pinjor Pir Hill No. 2 (hel.)
Punadi h.s.	Kera Mosque
Rámváo h.s.	Suvi Hill Temple
Roha, XIV	Roshia Hill Mark (hel.)
Sagáia h.s.	Sidungra Hill Tomb
Sáhind, XIX	Bhunjái Hill Mark No. 2 (hel.)
	Naliya Temple No. 2
Sámatra, XII	Bhúj Hill Fort Point No. 1
	Bhúj Hill Fort Point No. 2
	Mosuna Hill Mark (hel.)
Sidungra h.s.	Khedoi Hill Temple
Sukhpur, VI	Lunva Hill
	Tapar Temple
	Trámáú Hill (hel.)
Sura Gandhára, XXI	Vadi Hill Mark (hel.)
Tengo h.s.	Viri h.s.
Tramáú h.s.	Suvi Hill Temple
	Tramáú Hill Temple
Undot h.s.	Láija Tower (hel.)
Vándhia, XIV*	Lákadiya Temple No. 1
	Lákadiya Temple No. 2
Várar, XIII	Bhúj Hill Fort Point No. 1
	Chaprelí Hill Mark (hel.)
	Kukma Temple No. 2
	Mosuna Hill Mark (hel.)
	Reladi Hill
Viri h.s.	Vichhia Hill Mark (hel.)
	Tengo h.s.

EXPLANATION OF SYMBOLS USED ON THIS CHART.

- H.S. signifies Hill Station (Principal)
- S. " Station (Principal, in the plains)
- T.S. " Tower Station (Principal)
- bg. " Building
- d. " Dome
- h. " Hill
- (hel.) " (Heliotope)
- ho. " House
- h.s. " Hill Station (Secondary)
- m. " Mark
- mq. " Mosque
- p. " Peak
- pl. " Palace
- s. " Station (Secondary, in the plains)
- t. " Temple
- tb. " Tomb
- to. " Tower
- tr. " Tree
- t.s. " Tower Station (Secondary)

* Of the Káthiawár Meridional Series.

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. (*Out of print*).**
- An Account of the Measurement of two Sections of the Meridional Arc of India, bounded by the parallels $18^{\circ} 3' 5''$; $24^{\circ} 7' 11''$; and $29^{\circ} 30' 18''$. By Lieutenant-Colonel Everest, F.R.S., &c., late Surveyor General of India, and his Assistants. London, 1847. (*Out of print*).**

Account of the Operations of the Great Trigonometrical Survey of India.

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- 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.**
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* No copies available at the Trigonometrical Branch Office, Dehra Dún.

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- Do. XXIII. The South Konkan Coast Series, or Series *C* of the Southern Trigon. Prepared in the Office of the Trigonometrical Branch, Survey of India, Colonel G. Strahan, R.E., Deputy Surveyor General, in charge, and published under the orders of Colonel H. R. Thuillier, R.E., Surveyor General of India. Dehra Dún, 1891.
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