



SYNOPTICAL VOLUME VII A

G. T. SURVEY OF INDIA.



THE JODHPORE MERIDIONAL SERIES

AND

THE EASTERN SIND MERIDIONAL SERIES

APPERTAINING TO THE

NORTH-WEST QUADRILATERAL.



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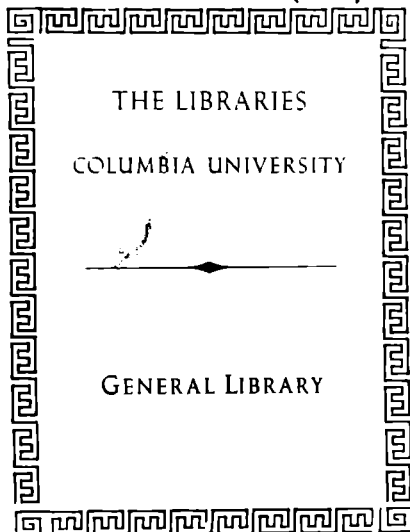
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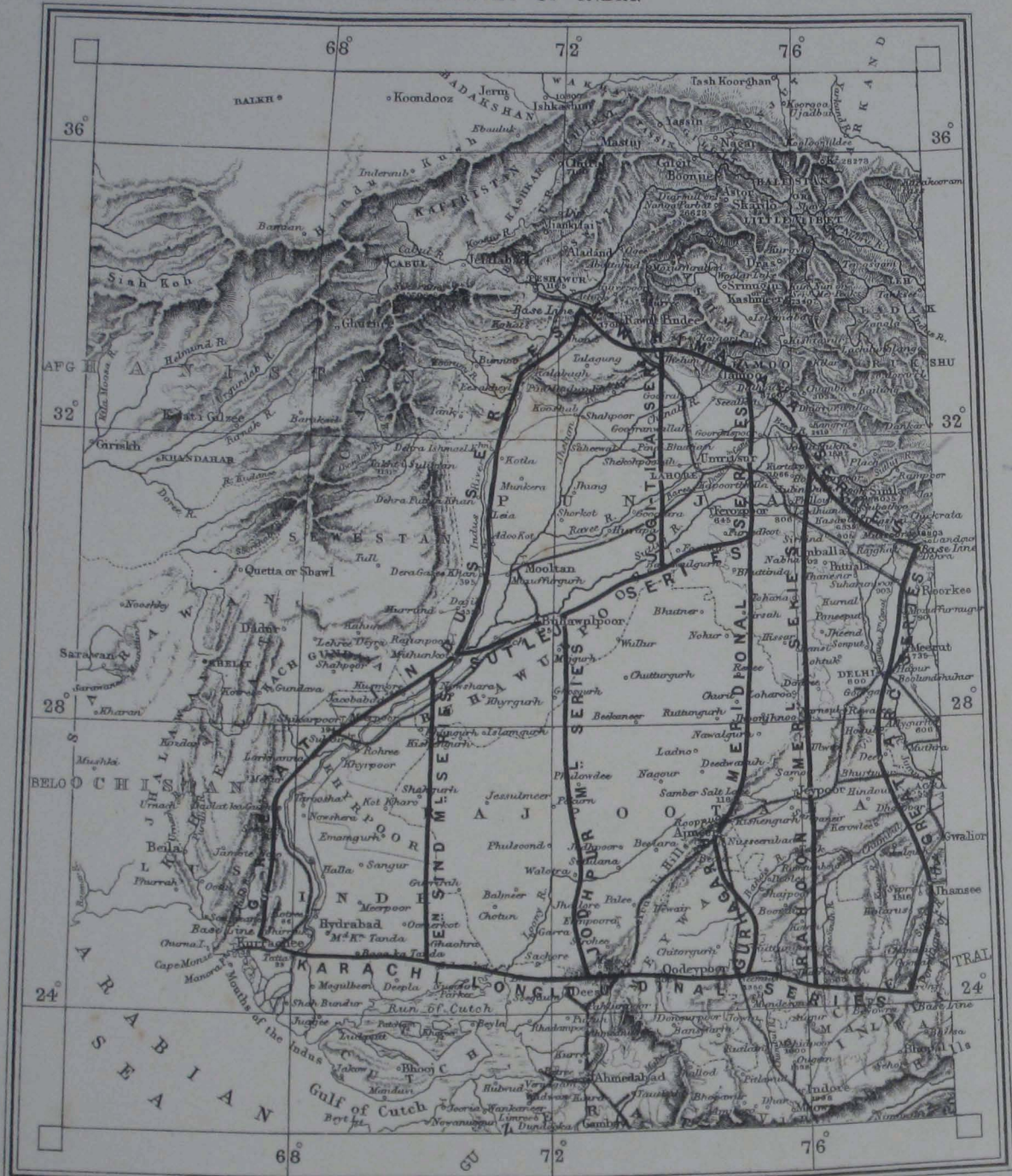
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DIAGRAM  
OF THE  
NORTH WEST QUADRILATERAL  
OF THE  
G. T. SURVEY OF INDIA.



C. F. Guthrie, Photo.

C. G. Ollenbach, Zinc



SYNOPSIS OF THE RESULTS OF THE OPERATIONS OF  
**THE GREAT TRIGONOMETRICAL SURVEY OF INDIA**

VOLUME VII A.

---

DESCRIPTIONS AND CO-ORDINATES  
OF THE  
PRINCIPAL AND SECONDARY STATIONS AND OTHER FIXED POINTS OF  
**THE JODHPORE MERIDIONAL SERIES**

AND

**THE EASTERN SIND MERIDIONAL SERIES**

OF THE

**NORTH-WEST QUADRILATERAL.**

---

PREPARED IN THE OFFICE OF THE TRIGONOMETRICAL BRANCH, SURVEY OF INDIA,  
COLONEL C. T. HAIG, R.E., DEPUTY SURVEYOR GENERAL, IN CHARGE.

PUBLISHED UNDER THE ORDERS OF  
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## ERRATA ET ADDENDA.

PAGE					<i>read</i>
iii	line 25 from top and <i>passim</i>	<i>for</i>	Bálmír		Bármer
ix	" 5 "		" that all trouble		" and that all trouble
xvii	" 16 "		" <i>dhands</i>		" <i>dhands</i>
49	" 15 " col. 1	}	" base of pillar	" top of pillar	
52	" 32 " " 2		" }		
"	" 16 " " 3		" bottom of wall	" ground level at N. W. Angle	
64	" 22 " " 3	<i>after</i>	S. W. End Base	<i>add</i>	A base-line 379·6 feet was measured between this point and Revenue Survey No. 12 s. for the purpose of fixing the latter which could only be seen from Chápu h.s.

Since the Co-ordinate List of the Jodhpore Meridional Series, given on pages 46 to 65, was printed information regarding the surfaces to which certain heights above sea level refer has been obtained. The surfaces are noted below, each followed by the list of points to which it applies.

Roof of temple or building:—Abu House No. 3, Bhádra Temple, Gadar Máli Building, Jeysulmere Temple No. 3, Nún Hill Pagoda, Pokaran Building, Pokaran House, Pokaran Temple No. 1 and Pokaran Temple No. 5.

Top of spire:—Bickaneer Temple, Jeysulmere Temple No. 1, Jeysulmere Temple No. 2, Marla Temple, Pokaran Temple No. 2, Pokaran Temple No. 3, Pokaran Temple No. 4 and Rathanada Temple.

Top of dome:—Devíkot Temple, Jodhpore Gate No. 1, Jodhpore Gate No. 2, Jodhpore Gate No. 3 and Maujgarh Mosque.

Top of tower:—Kita Fort and Motagaon Fort.

Top of sleepers:—Nána Railway Station s., Pindwára Railway Station s. and Rohera Railway Station s.

Top of N. W. Angle:—Kotra Fort.

Top of Tree:—Bhagugaon Tree.

PAGE				
103	lines 28 and 29 from top, col. 3	<i>for</i>	base of dome, 22 feet above ground	<i>read</i> top of dome

## REFERENCES.



The abbreviations employed in the text are as follows:—

h.s. denotes hill station (secondary),

s. „ 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 details of each series will be found in the text. The latter exhibits numerical values of triangles only to points of a superior class, to which alone, if exhibited on the Charts, lines are drawn: the lines are either continuous throughout, or dotted for half the length and continuous for the other half: the dots indicate that the bearing was not observed. For other points, difficult to identify or of comparatively less accuracy, numerical values of triangles or azimuths are not given.

*May, 1887.*

W. H. COLE,

*In charge of Computing Office.*



## P R E F A C E .



The Jodhpore and the Eastern Sind Meridional Series, of which the details are given in this volume, form two of the internal chains of the North-West Quadrilateral, or that section of the triangulation of India which embraces the area included between the lines running from Central India westwards to Kurrachee (Karáchi) and northwards to the Himalayas, and the British Frontier lines on the west and north. With the exception of the two Series contained in this volume and which had not then been commenced, the whole of the principal triangulation of this great quadrilateral was completed by the year 1866; and as the base-lines at its four corners, namely Sironj, Dehra Dún, Chach and Karáchi, on which the linear elements are dependent, had been measured several years previously, the final reduction of the Quadrilateral was commenced without waiting for the completion of the entire figure. The general principles of the simultaneous reduction of the Quadrilateral, 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 two Series under notice, including an account of the separate reductions of the same so as to harmonize it with the values determined by the Simultaneous Reduction of the Quadrilateral are given in Volume IV A.

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

For the several Series forming the North-West Quadrilateral,

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

For those forming the South-East Quadrilateral,

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

} Already published.

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

- |   |   |                    |
|---|---|--------------------|
| XIV. Budhon Meridional Series.  | } | Already published. |
| XV. Rangir Meridional Series.   |   |                    |
| XVI. Amua and Karára Meridional Series.   |   |                    |
| XVII. Gurwáni and Gora Meridional Series.   |   |                    |
| XVIII. Huriláong and Chendwár Meridional Series.                                    |   |                    |
| XIX. North Párasnáth and North Malúncha Meridional Series.                          |   |                    |
| XX. Calcutta and Brahmaputra Meridional Series.                                     |   |                    |
| XXI. East Calcutta Longitudinal and Eastern Frontier Series, Section<br>23° to 26°. |   |                    |

The present is the 23rd Synoptical Volume in order of publication, but as it appertains to the North-West Quadrilateral, it has been numbered VII A for the purpose of grouping it with the other Synoptical Volumes of that Quadrilateral.

It gives the results of the whole of the triangulation executed in connection with the two Series under notice, both the principal, which was executed with theodolites having azimuthal circles of 24 inches in diameter read by 5 micrometer microscopes, and the secondary, which was executed with smaller theodolites read by verniers.

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

The Introduction to each Series states the initial and terminal sides between which the Series is adjusted; the discrepancies at the close, or quantities which had to be dispersed in log side, latitude, longitude, azimuth and height, in order to render the Series perfectly consistent as just stated; and gives a historical and descriptive sketch of the progress of the whole of the operations in the field—both principal and secondary—from year to year, mentioning the Officers by whom they were conducted, the theodolites with which principal angles were measured, and, when the information is forthcoming, the work done by each of the Assistants. It has been found convenient to give the Introductions to both Series at the commencement of the volume. At the commencement of the details of each Series two lists of Principal Stations are given, in the first of which the stations are arranged alphabetically with the numbers opposite the names, in the second numerically with the names opposite the numbers. Roman numerals, progressive in the order from south to north, have been adopted for the nomenclature of the stations, the first number for each Series being unity.

The data given in this volume are the following:—

*First* (pages 1 and 69), alphabetical lists of the names of the principal stations, showing the numbers assigned to them, which were employed in the reductions as being more convenient to use than names.

*Second* (pages 2 and 70), numerical lists giving the names corresponding to the numbers.

*Third* (pages 3 and 71), descriptions of the principal stations—of their structure and positions—as taken from the original records of the observations.

*Fourth* (pages 14 and 81), the angles and sides of the principal triangles, numbered and arranged in order from south to north.

*Fifth* (pages 20 and 87), the angles and sides of certain secondary triangles. The numbering is here made consecutive to that of the principal triangles, in order to facilitate references which are made in other sections to the place where the length of a side is to be found.

*Sixth* (pages 36 and 95), the azimuths of surrounding stations and points, at principal, principal-auxiliary and secondary stations, the latter arranged in alphabetical order.

*Seventh* (pages 46 and 102), 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 378 triangles for the Jodhpore Meridional Series and of 168 triangles for the Eastern Sind Meridional Series, which were selected as most likely to be of future use, and the azimuths of all these sides, have been given; but for a number of other points the co-ordinates only have been given. With the aid of Nos. X, XI and XII of the *Auxiliary Tables to facilitate calculations of the Survey Department of India*, Dehra Doon, 1868,\* local surveyors, working on a system of rectangular co-ordinates, can readily transform the spheroidal co-ordinates here given to suit their own requirements.

The Heights above mean sea level of the stations of the Jodhpore Meridional Series depend on those of the stations of Bonik and Sunda of the Karáchi Longitudinal Series and of Kaimsir and Kanda of the Sutlej Series, as finally determined in the Simultaneous Reduction of the North-West Quadrilateral. Similarly those of the Eastern Sind Meridional Series depend on the values of the stations of Rojhra and Sandohar of the Karáchi Longitudinal Series and of Máchka and Dáowála of the Great Indus Series, as finally determined by the same reduction. The heights of the several principal stations of the Jodhpore and Eastern Sind Meridional Series were first determined differentially from reciprocal vertical angles measured at the time of minimum refraction, the calculations being carried from south to north: the closing errors at the northern stations which were as follows:—

Jodhpore Meridional Series	...	...	+10·7 Feet
Eastern Sind	„	...	+ 2·7 „

were then dispersed by simple proportion throughout each Series. It may here be stated that where stations are marked by masonry pillars, the heights invariably refer to the upper surfaces of the pillars.

The Longitudes depend on an astronomically determined value of the longitude of the Madras Observatory, East of the Royal Observatory at Greenwich, which was deduced about the year 1815. The longitude of the Madras Observatory has however been recently re-determined, by the Electro-Telegraphic method, by observations which were 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  $80^{\circ} 14' 51''$ ; and as the originally adopted value, on which the longitudes of the whole of the stations of this Survey are based, is  $80^{\circ} 17' 21''$ —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 Lists for Rajputana and Sind. 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 transliteration is given in parenthesis where the name occurs for the first time.

The Charts accompanying this volume show the whole of the principal stations and triangulation, the positions of all the secondary points, and those portions of the secondary triangulations of which full details of the

\* A new edition of the Auxiliary Tables is about to be issued in which these will be numbered respectively XXVI, XXVII and XXVIII.



angles, sides and azimuths are given. With the aid of the Charts it is hoped that little difficulty will be met with in finding out any of the data which may be required. The descriptions of the secondary stations are in some cases not as full and clear as is to be desired: this arises from the inadequacy of the information entered on the spot by the surveyors in their field books; every effort has been made to supplement the field books, whenever it was found practicable to do so, in order to facilitate the future identification of the stations; 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. W. H. Cole, M.A., Deputy Superintendent, the Officer in charge of the Computing Office. The Introductions to both Series were written by Major M. W. Rogers, R.E., Deputy Superintendent. The volume like its predecessors has been printed at the Trigonometrical Branch Office at Dehra; Mr. Peychers and Baboo Gunga Pershad have rendered valuable service in the examination of the press proofs generally, and Mr. Peychers more particularly in regard to the numerical details which require the utmost care in supervision through the press, and in this respect from his natural aptitude and experience his assistance has been most valuable.

DEHRA DUN, }  
 April 1887. }

C. T. HAIG, COLONEL, R.E.,  
*Dy. Surveyor General,*  
*In charge Trigonometrical Surveys.*

**JODHPORE MERIDIONAL SERIES**

**AND**

**EASTERN SIND MERIDIONAL SERIES.**





## JODHPORE (JODHPUR) MERIDIONAL SERIES.

### INTRODUCTION.

This chain of triangles is the eastern of two meridional series which were intended to fill up the space between the Gurbágarh Meridional Series in long.  $75^\circ$  and the Great Indus in long.  $68^\circ$ , and so complete the North-West Quadrilateral. From Calcutta westward to the Gurbágarh Meridional Series the meridional series were carried at intervals of one degree; but in filling up the remaining area two series  $2\frac{1}{2}$  degrees apart were considered sufficient; these series, however, were to be double throughout and to have an extended secondary triangulation between them.

On completion of the revision of the Great Arc Series from Bangalore to Bider, Lieutenant M. W. Rogers, R.E., and his establishment were transferred to Rajputana (Rájputána) to carry out this work. The Jodhpore Meridional Series emanates from the side Sunda (XLIV) to Bonik (XLI) of the Karáchi Longitudinal Series and closes on the side Kanda (XXI) to Kaimsir (XIX) of the Sutlej Series.

Lieutenant Rogers having detached Mr. Torrens to finish up the work remaining on the Great Arc Series, Section  $18^\circ$  to  $24^\circ$ , proceeded with the remainder of the party by rail to Poona (Puna), where the office and heavy stores were left, and thence to Ahmedabad (Amdávád), which, owing to the destruction of several bridges on the Bombay and Baroda Railway and the consequent stoppage of traffic, was not reached until the end of November. Messrs. Price and Bryson marched

Season 1872-73.  
PERSONNEL.

Lieut. M. W. Rogers, R.E., Offg. Deputy Supt.,	
3rd Grade.	
Mr. W. C. Price, Asst. Surveyor, 1st Grade.	
„ C. P. Torrens, „ „ 3rd „	
„ A. Bryson, „ „ 4th „	
„ W. Oldham, „ „ 4th „	

thence direct to the scene of operations, to inspect the country and commence the approximate work. Lieutenant Rogers visited Mount Abu, which it was intended to make the permanent recess quarters of the party, and marched thence *viá* Erinpura to aid the assistants in their selection of stations.

The country from the origin of the Series for about 60 miles is very favorable for triangulation, being generally flat with high isolated hills rising from it. The approximate series was soon sufficiently advanced to commence principal observations, and Mr. Oldham

having brought up the large theodolite (Barrow's 24-inch No. 2\*) from Ahmedabad, where it had been left in charge of the Executive Engineer, the measurement of the final angles was begun at Sunda (XLIV) of the Karáchi Longitudinal Series on the 31st January 1873 and proceeded with steadily until the beginning of April. Observations were taken at 14 principal stations, forming 15 triangles, which extended a distance of 95 miles. Lieutenant Rogers also took astronomical observations for the direct determination of azimuth at Thob (VIII), about 44 miles W.S.W. of the city of Jodhpore. The field operations were brought to a close at Dodo (x) on the 8th April 1873, and the party marched towards Ahmedabad in separate detachments, closing stations on the road, *i.e.*, building small rectangular pyramidal pillars over the upper marks to protect them from injury, and arrived at recess quarters in Poona on the 8th May.

Messrs. Price and Bryson made good progress in the approximate operations, Mr. Price having charge of the selection, and Mr. Bryson of the building of the stations. The total out-turn of approximate work for the season was the selection of 25 stations extending over a distance of 147 miles.

Mr. Torrens was employed on the Great Arc Series, Section 18° to 24°, and Mr. Oldham acted as Lieutenant Rogers' assistant in the office and observatory.

The country through which the season's operations were carried, is sandy and flat, with an elevation towards the east of about 700 feet, diminishing towards the west and the Lúni river to 300 or 400 feet. South of the Lúni small detached ranges and isolated hills are numerous: their sides are precipitous and covered with jungle, and many of them rise to a considerable height above the plain, several exceeding 2,000 feet. To the east, towards the Lúni, which flowing west across the Series turns south and skirts its western flank, the country becomes barren and sandy, with sand hills covered with low shrubs; water is scarce and brackish, and villages few and far between. The ranges disappear, and save sand hills, the country is level for 70 miles, as far as the Bálmir hills. North of the Lúni the country becomes still more sandy and desolate, and nearly all the water in the tract embraced by the Series is brackish. About 15 miles north of the Lúni and 20 miles from the east flank of the Series, is the city of Jodhpore, which lies at the foot of the hill on which the fort is situated and at its southern side: its greatest length from north to south is  $2\frac{1}{2}$  miles and its greatest breadth  $\frac{3}{4}$  of a mile. It is closed in on the north by the fort, and on the east, south and west by a high wall capable of mounting guns, and having six gateways. Jodhpore is a good specimen of a native city and is kept fairly clean: it possesses many wells and three tanks; one of the latter, which is artificial, is very fine and large, its bed and sides being of stone masonry.

The fort is built on a hill, the highest in the neighbourhood, rising 360 feet above the surrounding country. There are two roads leading up to it which unite a few yards from the gateway and turn a sharp corner before reaching the gate; both roads are well protected by guns. Besides this gate there are two others to be passed before the fort is gained—the first a small though strong one in a narrow pass between two rocks, and the second a large one approached by a steep ascent, well commanded by guns, and like the

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\* For the description of this instrument *vide* Appendix No. 2, Volume II of the *Account of the Operations*, &c.

outer one made difficult by being placed round a corner. Access to the fort from any other direction would be impossible, as the sides are sheer precipices from two to three hundred feet high. The country below is commanded on all sides by the guns of the fort, save one small eminence opposite the fort gate and within the outer line of fortification.

In October 1873, Lieutenant Rogers took furlough to England, and the charge of

Season 1873-74.

PERSONNEL.

Lieut. J. Hill, R.E., Asst. Supt. 1st Grade.  
Mr. W. C. Price, Asst. Surveyor 1st Grade.  
" C. P. Torrens, " " 3rd "  
" W. Oldham, " " 4th "

the party was transferred to Lieutenant (now Major) J. Hill, R.E. Lieutenant Hill left Poona on the 1st November 1873 and marched to the first station of observation, having *en route* established his Head Quarters at Mount Abu. The country to be triangulated this season was a

sandy desert; and the difficulty of obtaining water and provisions soon began to make itself felt. By the kindness of the Jodhpore *Darbár* (Court), a *rakíl* (Agent) and staff of *sowárs* (mounted men), &c., was attached to the party as in the former season, and by their aid the difficulties of the country were successfully surmounted. Lieutenant Hill experienced delay from the cloudy and misty weather; he calculated that he lost 34 days in four months from this cause; however the work was pushed on vigorously by all concerned. The sand hills in the desert were generally flat-topped, low and of about equal altitudes, so that the advantages of a hilly country were lost and short sides were unavoidable. Observations were taken at 21 principal stations extending over a distance of 90 miles. The towns of Phalodi and Pokaran were fixed in position and height, and a considerable amount of secondary triangulation was accomplished.

The Superintendent having directed that three sets of observations for the determination of azimuth should be taken on the Series, at equal intervals between the Karáchi Longitudinal and Sutlej Series, astronomical observations were made at Jambo (xxvi) in lat. 27° 16'. Angular observations were closed at Harban (xxviii) on the 3rd April, and the party arrived at their recess quarters at Mount Abu on the 30th of that month.

During the season Mr. Price who was employed in laying out the approximate series in advance worked with great energy, and in spite of the difficult nature of the country, pushed on the work for 102 miles, selecting 21 stations.

Mr. Torrens was employed on secondary triangulation. Mr. Oldham assisted Lieutenant Hill as observatory recorder.

Captain Hill writes:—"With the exception of the approximate work which extends into Bickaneer (Bikaner), the field operations of the season were confined to the States of Jodhpore and Jeysulmere (Jáisalmír). This season in the Jodhpore desert the triangulation traversed a sandy country, but towards the close of the season the Series entered a part of Jeysulmere where the ground is hard and strewn with dark, shining stones. The reflection from these stones is something like the reflection from water, and for this reason vertical observations to certain of the heliotropes gave a good deal of trouble. Mirage was frequently observable in the mornings, but, except in one or two instances, did not retard the work."

"Throughout the country triangulated, and especially in Jeysulmere, water is scarce

“and in general brackish. In many cases, according to the statement of the people, well water, which is drinkable in the cold season, becomes actually poisonous in the hot weather. The villages and wells are few and far between. The former generally consist of a collection of circular wigwams, the inhabitants of which are a primitive, dirty and good humoured people, but given to highway robbery and other forms of thieving. The wells are very deep, one at the village of Akhadna near the station of Nok (xxx) in Jeysulmere, (said by the people to be 80 *purush* in depth) is 5 feet in diameter and 374 feet deep. The water arrived at after such a laborious excavation was unfortunately bitter and quite unfit for use. The deepest well I have seen is at the village of Bákri in Jodhpore; it has been bored through a rock and is 5 feet 4 inches in diameter and 450 feet in depth: its water is good. I know of no other well so deep in Rajputana. The city of Jeysulmere, which was fixed this season, is much smaller than that of Jodhpore, its reported number of inhabitants being 10,000; but from all I could see and hear the place was once in a far more flourishing state; the ruins of its former greatness are yet to be seen. The water supply for the city is obtained from an adjoining lake; when this fails, which is generally the case in June, good water has to be brought from a small village, Kisamghát, which is about 3 miles distant. There are numerous wells in the city but the water is not good. The city used to be closed in by a rampart, now useless, as the wall is rapidly crumbling to pieces. The fort, once strong, is now in a dilapidated state and would ill stand an assault; it contains no tanks but many wells. The Jain temples in the fort are very fine, the carving in the stone being exquisite; in fact this may be said of most of the houses in the city, the doors, windows and walls having more or less carving about them. The greater number of the inhabitants who reside within the walls of the fort are Bhati Rájputs and Jains, and are as a rule great opium eaters.”

In November 1874, Captain Rogers having returned from furlough again took charge

Season 1874-75.

PERSONNEL.

Capt. M. W. Rogers, R.E., Offg. Dy. Supt., 3rd Grade.

Mr. W. C. Price, Surveyor, 4th Grade.

„ C. P. Torrens, Asst. Surveyor, 3rd Grade.

„ P. F. Prunty, „ „ 4th „

of the party and proceeded at once into the field to carry on the principal observations. These were commenced at Nok (xxx) on the 17th December, and carried on without interruption. Work was closed at Bhulan (XLIX) on the 21st March, as the party had a long march across the desert to Mount Abu. During the season observations were taken at 25 principal stations and the Series was advanced 104 miles. The work lay chiefly in the States of Bickaneer and Jeysulmere whose *darbárs* afforded very great assistance to the party. Astronomical observations for the determination of azimuth were taken at Mugrala (XLIII) in lat. 28° 31'. The approximate series under Mr. Price was pushed on 64 miles and brought to a successful termination by junction with the Sutlej Series on the side Kanda (xxi) to Kaimsir (xix), 17 stations being selected and built.

Mr. Torrens carried a minor series eastward to the city of Bickaneer, of which the height had not been fixed by the Gurhágárh Meridional Series. He effected a junction with the minor series emanating from the Gurhágárh, with very satisfactory results. He then returned to the main series, built small rectangular pyramidal pillars over the principal stations at which observations had been completed, and connected the town of Pungal and also the tri-

junction pillar of the States of Bickaneer, Baháwalpur and Jeysulmere by a minor triangulation.

Mr. Prunty who had joined the party from the Computing Office at Dehra acted as observatory recorder.

Bickaneer is a fine city, built on a slightly elevated spot in the desert where the ground is hard, stony, and intersected by ravines. It has a wall  $3\frac{1}{2}$  miles in circuit wholly built of stone, in which are eight gates and three sally ports; the wall is from 15 to 30 feet high and in good repair, and has a ditch on three sides about 15 feet deep. There are many highly carved houses in the city and two imposing looking Jain temples. Water is plentiful from many very fine wells. The chief productions are sugarcandy and blankets, both of which are of a superior kind. The population is about 35,000. The fort of Bickaneer which contains the Mahárája's palace is about 300 yards N.E. of the city. The palace rises above the battlements which gives it an imposing appearance; it is 1,100 yards in circumference and has two gates, numerous bastions and a ditch all round.

Owing to the heavy rains of 1875 the return of men from leave and the collection of

*Season 1875-76.*

PERSONNEL.

Capt. M. W. Rogers, R. E., Dy. Supt., 3rd Grade.  
Mr. W. C. Price, Surveyor, 4th Grade.  
" C. P. Torrens, Asst. Surveyor, 3rd Grade.  
" P. F. Prunty, " " 4th "

stores for the party were much delayed and Captain Rogers did not leave Mount Abu until October 23rd. He however utilised his time by visiting Deesa and inspecting the Meteorological Observatory there and laying out a small triangulation to connect both it and the Telegraph Office with

the main triangulation of the Karáchi Longitudinal Series. After a long march the party reached the scene of operations on the 4th December. Observations were at once commenced and the 21 miles remaining to complete the Series were finished on the 3rd January 1876. After this the party marched westward to take up the Eastern Sind Series on the meridian of  $70^{\circ}$ .

Mr. Price was this year employed in selecting stations for the new series.

Mr. Torrens first took up the connection of Deesa (Dísa), on completion of which he commenced a minor series on the meridian of  $71^{\circ} 15'$ , starting from the Karáchi Longitudinal Series and effecting a junction in the vicinity of the town of Jeysulmere with a secondary series which had been extended to this place in the field season of 1873-74.

Mr. Prunty was employed for a month in connecting such of the Baháwalpur Revenue Survey stations as could be identified near the Series.

The Jodhpore Meridional Series is 310 miles in length, and with the exception of a small portion to the south of the river Lúni, it passes over a sandy tract of nearly utter desolation. On all sides nothing meets the eye for miles but sand-hills dotted here and there with tufts of coarse grass and stunted shrubs. These sand ridges vary from 20 to 200 feet in height and are sometimes 2 or 3 miles in length: they appear to be scattered on every side like the billows of the sea, but run generally in a N.E. and S.W. direction. The villages are few in number and consist of collections of squalid wigwams situated around spots where wells have been excavated. These are sometimes as much as 200 feet deep and often yield only brackish water; for the soil seems to be impregnated, although capriciously, with saline matter, and the water from a large number of the wells is more or less unfit for drinking purposes.

In the whole distance between the Lúni River and the Sutlej Series—250 miles—only one place, Phalodi, was met with which could be dignified by the name of a town, and but four which ranked as fair sized villages. There is not much difference in the degree of barrenness in the country traversed by the whole Series, but if any, the northern portion in Baháwalpur is the most sterile. There the Series passed over a length of 70 miles in which there were only three wells of drinkable water, and these were within a space of 10 miles. In Baháwalpur the sand hills grow smaller and fewer, and are replaced by long stretches of perfectly level hard clay like the beds of dried up tanks, separated by tracts of drifting sand, accumulating here and there into mounds; there is not a particle of vegetation save a few sparsely scattered *Phog* (*Calligonum*) bushes. However, for two or three months in the year the desert presents a cheerful appearance: each village has several hamlets, called *dhanis*, established where there is any hard soil capable of retaining water; in excavations made in this, water lodges for two or three months after the rains, and the inhabitants of the villages come to these to feed their flocks and herds on the freshly grown herbage, and to cultivate the few miserable fields which they have in the hollows between the sand hills. The rainfall is however very small, 4 or 5 inches; and the inhabitants have a hard struggle for life in respect to both food and water; their food they supplement with the seeds of various grasses, the principal of which is the *bhurut*. The grain of this grass is about the size of a pin's head and is enclosed in a prickly husk which causes a great deal of discomfort to both man and beast as it sticks in the clothes of the former and the hair of the latter and is very difficult to get rid of. Water is collected in receptacles called *tankas*, cylindrical reservoirs about 6 feet in diameter and 8 or 10 feet deep, coated with fine chunam. When full they are covered in with brushwood and mud and are not used until the well water fails or becomes brackish, as generally happens in the hot weather. When, as is often the case these tanks also fail, those who can afford it send for water 15 or 20 miles from the nearest fresh-water well, and the poorer drink the brackish water mixing it with a little *dahi* or curds.

Under these circumstances great care had to be taken to ensure a supply of wholesome water for the main camp and detached signal parties, and in many cases it had to be brought from upwards of 15 miles and sometimes over 20 miles, and even with all these precautions at times every one had to put up with brackish and hardly drinkable water; this was especially the case on the approximate series under Mr. Price, who, having to reconnoitre in parts concerning which no sure information could be got, had often to take with him a camel load of water and march on, not knowing when or where he might get a fresh supply. However every one bore with cheerfulness these privations when they occurred, and owing to the good arrangements for supplies &c., combined with the healthiness of the desert, there was but little sickness and the party lost but one man during the four years.

The most sterile part of the country, as mentioned above, crossed by the northern portion of the Series, is very near the district which at page xxiv—*a*. of the Introduction to the Jogi-Tila Meridional Series (see Synoptical Volume VI) is mentioned as having been visited by Lieutenant J. Tennant and Mr. J. W. Armstrong with a view to carrying that series south of the Sutlej. They found it impracticable without the arrangements which

the experience of the Executive Officers of the Jodhpore Meridional Series had taught them to adopt, and moreover they experienced hindrance and opposition from the Baháwalpur *Sardárs*. It shows the improvement which has taken place in that country under the guardianship of Colonel Minchin, that, instead of opposition, Captain Rogers met with civility and help from every one, that all trouble as to carriage of water, provisions and materials for station building was taken off his hands, native officials vying with each other in aiding the survey operations. This was also the case, though perhaps in a lesser degree, in the States of Marwar (Márwár), Bickaneer and Jeysulmere, the *darbárs* of which gave great aid to the party. In fact without such assistance no series could have been taken across the desert except at an enormous expense.

The calculations of the triangulation of this Series having been carried up from the side of origin, Sunda-Bonik, of the Karáchi Longitudinal Series, to the terminal side, Kaimsir-Kanda, of the Sutlej Series, the following discrepancies were met with between the original values of the length and azimuth of the terminal side above named and those of the latitude and longitude of the terminal station Kanda, and the values of the same as derived from the Sutlej Series after the Simultaneous Reduction of the North-West Quadrilateral:—

In Logarithm of the side in feet	...	...	—	0.000,0123,4 = 1.8 inches per mile.
„ Latitude	...	...	—	0".172
„ Longitude	...	...	—	0.121
„ Azimuth	...	...	—	3.216

These discrepancies were treated as errors in the Jodhpore Meridional Series and were dispersed as described in Part I of Supplement to Volumes III and IV of the *Account of the Operations, &c.*

The heights of the stations above mean sea level are entirely dependent on trigonometrical determinations, no line of spirit-leveling having been executed in the neighbourhood of this Series. The heights of the terminal stations, Kanda and Kaimsir of the Sutlej Series, as brought up by the Jodhpore Series, were in excess of the final values given in Volume IV of the *Account of the Operations, &c.*, by 8.6 and 12.8 feet respectively. The mean difference 10.7 feet was treated as an error generated in the Jodhpore Series and was dispersed by simple proportion.

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### *Secondary Triangulation.*

This may be divided into two classes:—

- (1st). Secondary series of some length.
- (2nd). Permanent marks intersected from the principal stations with the large theodolite or fixed by one or two triangles observed with a smaller instrument.



As already mentioned on page III, the intervals between the principal chains of triangles in this desert country were increased from  $1^{\circ}$  to  $2\frac{1}{2}^{\circ}$ . This reduction in the amount of the principal required an increase in that of the secondary triangulation, otherwise a sufficient number of fixed points of reference would not be provided for topographical surveys; it was therefore decided to run a longitudinal chain of secondary triangles from the Indus to the Jodhpore Meridional Series, and also a meridional chain between it and the next intended principal series to the west, which should supply points in the southern and better inhabited portion of the country. In pursuance of this scheme the undermentioned secondary series were executed:—

**The Bálmir and Jeysulmere Secondary Series.** The longitudinal portion of this series, between the stations of Daichu (xix), Jalora (xxi), and Ekka (xxiii) of the Jodhpore Meridional Series, and the city of Jeysulmere, was executed in the field season of 1873-74, and the meridional portion (which is double throughout) between the stations of Gangasára (lxv), Didáwa (lxii), and Támpi (lx) of the Karáchi Longitudinal Series, and the city of Jeysulmere, in the season of 1875-76. Both portions were executed by Mr. C. P. Torrens with a 10-inch theodolite by Troughton and Simms, and extend a distance of about 230 miles. The meridional portion passes through the district of Mallani which is well inhabited for that region, and fixes the town of Bálmir and many permanent marks. The whole chain has been treated as one series in the Synoptical Volume of this series and adjusted between the final position values of the principal stations of the Karáchi Longitudinal and Jodhpore Meridional Series.

**The Bickaneer Secondary Series.** This series was executed in the field season of 1874-75 by Mr. C. P. Torrens with a 10-inch theodolite, and emanates from the side Ronesar (xl) to Bithnok (xxxviii) of the principal series, extends eastwards for about 45 miles, and closes on the side Bickaneer-Hethiári of the Bickaneer Secondary Series which extends westwards from the Gurlhagarh Meridional Series (see Synoptical Volume IV). Thus the Jodhpore and Gurlhagarh Meridional Series are connected by a longitudinal chain of triangles.

**Mount Abu Secondary Triangulation.** This was executed by No. 7 Topographical Survey Party, Rajputana Survey, under Captain G. Strahan, R.E., during the field season of 1869-70, and is based on the side Gúru Sikkar-Súnda (xlii-xliv) of the Karáchi Longitudinal Series. At the greater number of the stations, observations were taken with a 14-inch theodolite to luminous signals; but in a few cases, when an ascent was too steep and dangerous to carry up the large instrument, a 6-inch theodolite was employed: it will be seen that the summit of Mount Abu rises about 4,700 feet above the plain of Sirohee at the foot of the mountain. In 1876 Mr. Prunty connected the Hospital and the Survey Office at Mount Abu with the above triangulation, observations being taken with a 10-inch theodolite to luminous signals. The stations of this triangulation are in general marked with an engraved circle and dot and covered by a cairn of stones.

The remainder of the secondary triangulation was mainly executed *pari passú* with the principal series, by the measurement—with the large theodolite—of angles at the prin-

cipal stations to the surrounding secondary stations, trijunction and Revenue Survey pillars and other prominent objects, the angles at the secondary stations being measured with smaller theodolites: in this way the positions of the following places of note were determined, the town of Erinpura, the fort of Jálór, the city of Jodhpore, the large village of Pungal and the towns of Mároth, Mírgarh and Maujgarh in Baháwalpur.

*August, 1884.*

MALCOLM W. ROGERS, R.E.

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## EASTERN SIND MERIDIONAL SERIES.

## INTRODUCTION.

The Eastern Sind is the western of the two meridional series which have been carried across the deserts of Rajputana (Rájputána) and Sind, between the Great Indus and the Gurhágárh Meridional Series.

The Series is double throughout and 240 miles in length: it originates from the side Rohra (LXXV) to Sandohar (LXXVIII) of the Karáchi Longitudinal Series and after passing through the Thar and Párkar district of Sind, the eastern portion of the Khairpur State and the western portion of Jeysulmere (Jáisalmír), enters the Ubauro taluk of Shikárpur, its eastern flank stations being within the boundaries of the Baháwalpur State; it terminates on the side Dáowála (LXII) to Máchka (LIX) of the Great Indus Series. Operations were commenced in the field season of 1875-76, and continued the following year, but were suspended from 1877 to 1879, at first on account of the failure of the rains in 1877 which deprived the country of its natural water supply, and afterwards because Major Rogers's services were required with the Army in Southern Afghanistan. The Series was continued in 1879-80 and finally completed by Lieut.-Colonel Branfill in 1880-81.

With the exception of the last 50 miles of the Series on which Colonel Branfill used Troughton and Simms' 24-inch Theodolite No. 1, the observations were taken by Captain (now Major) Rogers, R.E., with Barrow's 24-inch Theodolite No. 2.

On the completion of the Jodhpore Meridional Series in January 1876, Captain

*Season 1875-76.*

## PERSONNEL.

Capt. M. W. Rogers, R.E., Offg. Dy. Supt., 3rd Grade.

Mr. W. C. Price, Surveyor, 4th Grade.

" C. P. Torrens, Asst. Surveyor, 3rd Grade.

" P. F. Prunty " " 4th "

Rogers having been ordered to commence a series on the meridian of 70°, marched from Kainsir (XIX) of the Sutlej Series where he had closed his observations, through Baháwalpur to the portion of the Great Indus Series which lies on that meridian.

Unfortunately the River Indus had washed away several of the old stations about

the most convenient locality, so that Captain Rogers had to adopt a side west of the given meridian, intending to gradually work on to it and then turn southwards.

The country south of the Indus is quite flat and covered with dense tree and grass jungle and for four or five months in the year is inundated; it therefore became necessary in the 20 miles which intervene between the river and the sand hills to resort to ray-tracing and tower-building, and as this style of work was new to all the members of the party, the progress was in consequence slow. Eight stations were selected, advancing the Series to the the sand hills a distance of 24 miles. Two towers were built and 10½ miles of rays cleared.

Mr. Price, who was to take up the selection of stations in the southern section, was delayed for a month owing to his camp being attacked by fever and having to go to Deesa (Disa) for medical treatment, he then marched to the meridian of 70° on the Karáchi Longitudinal Series and commenced selecting and building. Mr. Price found the station Rojhra of the Karáchi Longitudinal Series in complete preservation, and the pillar at the station of Sandohar was also in good condition except that the upper mark was wanting. The neighbouring stations of Fulrár and Chánga were in ruins. He therefore based his work on the side Rojhra-Sandohar and rebuilt the stations Fulrár and Chánga as nearly on their old sites as possible making use of them to construct a hexagon about Sandohar. The elements for these stations given in the details of the Karáchi Longitudinal Series are therefore no longer applicable. He selected 24 stations and built eight, extending the Series 110 miles.

During this season there were no final observations taken, but the party was employed in pushing on the preliminary work in order to get a fair start for the next season.

The party took the field in October and marched from Mount Abu to Cháchra in Thar

*Season 1876-77.*

PERSONNEL.

Capt. M. W. Rogers, R. E., Offg. Dy. Supt., 3rd Grade.

Mr. W. C. Price, Surveyor, 4th Grade.

" C. P. Torrens, Asst. Surveyor, 3rd Grade.

" P. F. Prunty, " " 4th "

and Párkar, and thence to Rojhra station of the Karáchi Longitudinal Series. Observations were commenced here on the 20th November and were carried on continuously through the Thar and Párkar district of Sind, the Khairpur State and Jeysulmere, and were closed at Dhanono (XXIV) on the 18th March up to which the weather had been very favourable for observations; after this, as is usual in the desert, high winds and duststorms commenced and made the observing difficult and tedious.

Twenty-six new principal stations were fixed, extending the Series 125 miles along the meridian. An azimuth was observed at Malar (XIV) to two circumpolar stars.

Mr. Price selected 21 new principal stations, advancing the Series 98 miles and completing its junction with the southernmost side of the work laid out by Captain Rogers during the previous season.

Mr. Torrens built 19 and closed 16 principal stations, and moreover did a good deal of work in identifying and fixing a number of stations of the Sind Revenue Survey. The construction of stations in the desert involved a large amount of trouble, owing to the difficulties of making good bricks and of transporting them, when made, to the sites where they were required.

The country through which the Series passed this season, in the district of Thar and

Párkar, chiefly consisted of narrow sand hills sometimes of considerable height, running from south-west to north-east in perfectly parallel lines: they are higher and closer together than those in Rajputana, and their slopes are steep, cut up by ravines and covered with low thorn jungle. Travelling was thus rendered very tedious, the village tracks had to be followed and long detours made, 10 miles was a heavy march for laden camels, and much time was spent in moving from station to station. This season, for about 50 miles along the western side of the Series, the country was inundated and a vast expanse of water stretched as far as the eye could reach. The town of Umarkot, when visited was surrounded on two sides by water which came up to the base of the fort.

In the north of Thar and Párkar and the western portion of Jeysulmere a new phenomenon is met with. This is the *draens* or expanse of shifting sand, which occurs here and there amongst the desert sand hills and is often many miles in extent. These draens have no vegetation, and their surface is continually changing, the sand is in one place scooped out into funnel shaped hollows, and in another thrown up into beautifully rounded hills. They were only crossed, when unavoidable, and then the road had to be inspected and prepared beforehand, and five miles was a fatiguing march. It is a curious fact that in certain places in these draens there are wells of water on small pieces of hard ground, which seem to be spared by the overwhelming sand, and the water of which is invariably good. The draens are very numerous for some 75 miles north of parallel 26°. They impoverish the already sterile country, the acme of desolation being reached in eastern Khairpur and western Jeysulmere. There are no crops and the people live nearly entirely on milk in various forms; a little *bajri* and *mot* are however imported from Sind in exchange for sheep. The inhabitants say that the draens travel gradually northwards, but very slowly. Their summits rise to a considerable height, in many cases overtopping the sand hills: and it was a matter of considerable difficulty to arrange the Series so that the stations should not fall on them. In two cases this could not be avoided, and although all precautions for stability were taken in their construction, it is doubtful if they can remain for long. The villages are of the same description as those met with in other parts of the desert, and the majority of the houses are merely wigwams of brushwood; a house with mud walls is a rarity, and brick and stone are almost unknown. With the exception of Umarkot there is no place along the Series worthy of the name of a town. The villages are, nearly without exception, built on the summits of sand hills, and often at a great distance from their wells, which are in the hollows between the hills. The reason for this custom seems to be, that in the cold weather the tops of the sand hills are considerably warmer than the valleys where the cold is sometimes very great. The party experienced considerable trouble from the difficulty of procuring drinking water, especially on the eastern side of the Series, near the junction of the four States of Marwar (Márwár), Jeysulmere, Khairpur, and Thar and Párkar, where there is a tract of country 30 miles broad by 40 long without any drinkable water.

During the season of 1877-78 the operations of the Eastern Sind Meridional Series were suspended owing to the failure of the rains in Rajputana. Captain Rogers and his assistants, Messrs. Torrens and Prunty, were sent to carry on a survey across the Frontier in Beluchistan, whilst Mr. Price was sent to the Eastern Frontier Series in Burma.

During the season of 1878-79, Captain Rogers was sent as Survey Officer with the Army into Southern Afghanistan. Mr. Price remained with the party and continued the triangulation in Beluchistan, Mr. Torrens joining him after having completed some secondary triangulation to connect the main series with the Jeysulmere secondary series and reconnoitred the intended Schwán secondary series.

Having completed the operations on which he had been engaged in Southern Afghanistan in connection with the military movements, Captain Rogers returned to Sind to resume the principal and secondary triangulations which had been suspended in 1878 when war with Afghanistan was declared. On his return he was much delayed for want of transport, all available animals being required for the Army, and when he arrived at Hyderabad, Sind, where his principal instruments had been left in store, he was further delayed because no *hammáls* or bearers were to be obtained for the carriage of the large theodolite, all persons of this calling having either joined the Army or deserted the country through fear of being required to do so. Thus it was necessary to wait until bearers could be brought up from Poona (Púna) before operations could be commenced. This enforced delay was utilised in computing and projecting the series of triangles from Quetta to Kandahár the observations of which had been taken by Captain Rogers a few months before.

The amount of work remaining to be completed on the Eastern Sind Series would have been just possible to accomplish in a long field season and under a very favourable combination of circumstances, if the survey party were fresh and in full vigour after some months' residence in recess quarters: but it could hardly be expected from Captain Rogers and his party who had just returned from more than a year's continuous field service in Afghanistan and Beluchistan, and who were unable to commence their observations until late in the season.

Having obtained bearers from Poona, Captain Rogers left Hyderabad on the 7th January and marching through Sind and western Jeysulmere commenced observations at Ráviláhu (xxvi) on the 27th January; work was closed at Chauki (xxxv) on the 27th March, and the party marched to Reti on the Indus Valley Railway, and thence proceeded by rail and road to Dehra Dún. Fifty angles were observed at the stations, advancing the Series 64 miles: an azimuth was observed at Asu (xxxI) to two circumpolar stars.

The country through which the Series passed was much the same as described the last season, but draens were not met with outside the tract that lies between the meridians of  $69^{\circ} 15'$  and  $79^{\circ} 15'$  and the parallels of  $26^{\circ}$  and  $27^{\circ}$ . It was taken from the Amírs of Sind after the war of 1845 and given as a reward to the Maharáwal of Jeysulmere to whom it still belongs, it contains no towns of any size, and but three forts, two of which, Sháhgarh and Kháro, are of mud and in ruins, being rapidly buried by the desert sand; the third, Gotáru, is of brick and much larger; it contains two wells and is in fair repair, with two antiquated cannons on the ramparts.

Season 1879-80.

PERSONNEL.

Captain M. W. Rogers, R. E., Offg. Dy. Supt.,  
3rd Grade.  
Mr. W. C. Price, Surveyor, 4th Grade.  
„ C. P. Torrens, Asst. Surveyor, 2nd Grade.



Colonel Branfill having finished the principal triangulation in Southern India proceeded from Bangalore to Sind, where on the 6th November

Season 1880-81.

PERSONNEL.

Lieut.-Col. B. R. Branfill, Dy. Supt., 2nd Grade.  
Mr. C. P. Torrens, Asst. Surveyor, 1st Grade.

he assumed charge of the Bombay Party formerly under Major Rogers, R.E.; it had been equipped for the field by Mr. Hennessey who had held temporary charge in addition to his other duties since Major Rogers' departure on furlough to Europe in April.

The southern portion of the country triangulated in this year was desert pure and simple, water having to be carried on camels many miles to each station. Then, as the boundary between the Baháwalpur desert and the valley of the Indus was approached, hills and long ridges of drift sand were met with, interspersed with stretches of low lying, alluvial flats, which are mostly dependent on rainfall for their supply of water, and are thus practically desert for the greater portion of the year: when rain does fall, grass and shrubs spring up and render these tracts good grazing ground for cattle and camels for a short time afterwards; to some of them the flood waters of the Indus find occasional access by the old river channels, the deeper parts of which contain water for several months after the subsidence of the annual inundation, and are thus natural reservoirs; they are locally called *dhauds*. Finally, the valley of the Indus was entered and the principal operations were brought to a close on two stations—Dáowála (LXII) and Máchka (LIX)—of the Great Indus Series, which had been established in the year 1859-60; this part of the country was covered with a dense growth of acacias and other trees, the clearance of the necessary rays through which was tedious and laborious.

The triangulation had already been designed and laid out by Major Rogers in 1876-77 in the form of a hexagon, a quadrilateral, and two pentagonal figures. Half the stations had been built; but three towers and as many platform stations remained to be completed, and 140 miles of line had to be cleared on the rays between the principal stations. The ray on the side, between the stations of Chauki (XXXV) and Trisingh (XXXVIII) was found to have become blocked up by a moving sand hill during the interval of six months which had elapsed since the stations were last visited; but Major Rogers had fortunately anticipated that this might happen, and had taken observations at both the base stations to the forward station at the vertex of the first triangle; thus it only remained to measure the third angle, and the necessity for clearing a ray through the sand hill was avoided.

The terminal stations in the valley of the Indus, consisting of towers about 24 feet high, were found still serviceable, having been put in repair in 1876-77, but had both become deflected to some extent; it was thus necessary to enlarge the upper portions of the central shafts before the large theodolite could be plumbed over the mark-stone at the ground level.

The principal triangulation completed this season extended for a distance of 50 miles along the meridian, introducing 13 new stations. The vertical angles were observed with some trouble owing to variations in atmospheric conditions materially influencing the terrestrial refraction, which in several cases was found to be negative, to an average extent of an eighth of the contained arc, thus making signals at a distance of 10 miles appear to be as much as 14 feet below their actual position.

Observations for azimuth to circumpolar stars were taken at two stations on the

series, Vijnot (XLIV), and Dáowála (LXII) of the Great Indus Series.

Although so much of the country traversed by the Eastern Sind Meridional Series is a dreary wilderness of sand, it is not entirely devoid of interest, from the fact that it may only have become a desert in comparatively recent times, and being in a state of continual motion it is now probably spreading in the direction of the prevailing wind during the dry, hot season. That a part of the desert was not always so, appears from the existence of many ruined places and forts within its borders, and from the change of the bed of the river Indus from east to west within historic times. The westerly tendency of the river bed has been attributed to the natural "set" to the westward of a north to south flowing current in the northern hemisphere, due to the increasing velocity of diurnal rotation of the parallels which it successively crosses; but a more effective cause of change may be found in the prevalence of westerly or south-westerly over easterly or north-easterly winds, especially in the dry, hot months of March, April and May, when the sand of the river channel is transported continually to the eastward, tending to fill up the more easterly channels and to protect their eastern banks from erosion by the water of the ensuing inundation, besides going to increase the actual amount of drift sand in the desert to the eastward. However this may be, there is no doubt that many towns and villages have been deserted by the rivers which once watered them. The ruins of some of these and the traces of the river channels on which they were built are still met with, especially on the western and northern edges of the desert where the sand has not quite obliterated them; but most of them have probably been overwhelmed and lost in the ever moving flood of sand from the south-westward.

In the portion of Baháwalpur traversed by the Jodhpore Meridional Series the ruinous and nearly deserted towns of Maujgarh, Mírgarh and Mároth mark the course of the now non-existent Hurkaru river, and on the north of the Eastern Sind Series were met with the ruins of Vijnot and Sirwáhi (or Seoráe), the former of which is a collection of blackened mounds from 10 to 20 feet in height, consisting of the *débris* of bricks and pottery mixed with earth and comminuted pieces of charcoal, indicating the site of a considerable town extending over half a mile in length and nearly a quarter of a mile in width. Exclusive of suburban mounds the site now measures a mile and a half in circumference. The only tradition about Vijnot amongst the country folk is, that it was one of the five (or seven) chief cities of Sind in the early days before the Muhammadan conquest (711 A.D.). The place lies about half a mile east of the Reni nadi, an old channel of the river Indus, and about 4 miles south of the Reni station of the Indus Valley State Railway.

Sirwáhi, the site of a lofty fort close to a town which is also said to be one of the ancient fortified cities of Sind, is situated about five miles N.E. of Sabzalkot and 3 miles N.W. of the Walhár station of the Indus Valley State Railway in the Baháwalpur State. The fort is about a quarter of a mile in circumference and rises 50 feet above the great plain around it, whilst the mound on which the adjacent town stood is perhaps half to three quarters of a mile around and 20 to 30 feet high.

The calculations of the triangulation of this Series having been carried from the side of origin, Rojhra-Sandohar of the Karáchi Longitudinal Series, to the terminal side, Máchka-Dáowála of the Great Indus Series, the following discrepancies were met with

between the original values of the length and azimuth of the terminal side above named and those of the latitude and longitude of the terminal station Dáowála, and the values of the same as derived from the Great Indus Series after the Simultaneous Reduction of the North-West Quadrilateral:—

In Logarithm of the side ... ..	= - 0'000,0074,2 = 1'1 inches per mile.
„ Latitude ... ..	= - 0''423
„ Longitude ... ..	= + 0'028
„ Azimuth ... ..	= + 0'939

These discrepancies were treated as errors in the Eastern Sind Meridional Series and were dispersed as described in Part I of Supplement to Volumes III and IV of the *Account of the Operations, &c.*

The heights of the stations above mean sea level are entirely dependent on trigonometrical determinations, no line of spirit-leveling having been executed in the neighbourhood of this Series. The heights of the terminal stations, Máchka and Dáowála of the Great Indus Series, as brought up by the Eastern Sind Meridional Series, were in excess of the final values given in Volume III of the *Account of the Operations, &c.*, by 5·0 and 0·3 feet respectively. The mean difference 2·7 feet was treated as an error generated in the Eastern Sind Meridional Series and was dispersed by simple proportion.

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#### *Secondary Triangulation.*

The secondary triangulation executed in connection with the Eastern Sind Meridional Series may be divided into three portions.

(1st). Secondary Series of some length.

The Jeysulmere Secondary Series. The extension of the Jeysulmere chain of secondary triangles of the Jodhpore Series westward from the city of Jeysulmere to meet the principal triangulation of the Eastern Sind Meridional Series. This work was done by Mr. C. P. Torrens, Assistant Surveyor, 2nd Grade, in the field season of 1878-79. It is about 60 miles in length and extends from the side Asu-Maringra of the Eastern Sind Meridional Series to the side Jeysulmere-Thaiat of the Jeysulmere Minor Series, thereby establishing a secondary longitudinal series on the parallel of 27°, extending from the Jodhpore to the Eastern Sind Meridional Series.

The Schwán Secondary Series. This series originates from the side Ramsar (xvi) to Patanawári (xviii) of the Eastern Sind Series and extends on the parallel of 26° 25' to the side Mírkhán (xii) to Bhit (x) of the Great Indus Series. It consists of 24 triangles extending over a direct distance of 154 miles. The whole of this series was the work of Mr. C. P. Torrens, in the field seasons of 1878-79, 1879-80 and 1880-81. The instrument used for the observations was a 10-inch theodolite; it gave very satisfactory results, the closing errors at the junction with the Great Indus Series being minute.

(2nd). Permanent marks intersected from the principal stations with the large theodolite or fixed by one or more triangles observed with a smaller instrument.

(3rd). In addition to these triangulations a considerable amount of secondary work was executed during the progress of the Series in order to fix all the stations of the Sind Revenue Survey which could be identified and which fell within the limits of the principal triangulation, also the boundary and junction pillars of the States of Marwar, Khairpur, Jey-sulmere, Sind and Baháwalpur, and several forts which had once been important in that part of the country. Owing to the nature of the country and the innumerable sand hills, auxiliary stations had to be established in nearly every case. In the season of 1876-77 observations were taken with a 7-inch theodolite by Mr. C. P. Torrens, and in 1879-80 by Captain Rogers with the same instrument. Owing to the desert nature of the country the same dearth of intersected points prevails on this Series as was noticed on the Jodhpore Meridional Series.

MALCOLM W. ROGERS, R.E.

*August, 1884.*

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**JODHPORE MERIDIONAL SERIES.**



## JODHPORE MERIDIONAL SERIES.

## ALPHABETICAL LIST OF PRINCIPAL STATIONS.

Adori . . . . .	XI.	Kundal . . . . .	III.
Aukli . . . . .	LII.	Loharan . . . . .	XVI.
Blada . . . . .	XLV.	Lohawat . . . . .	XXII.
Bhadrájan . . . . .	V.	Malunga . . . . .	XV.
Bhulan . . . . .	XLIX.	Mandaula . . . . .	IV.
Bijli . . . . .	LVII.	Mankasar . . . . .	XXXVI.
Bikampur . . . . .	XXXIII.	Mansa . . . . .	LIII.
Binli . . . . .	XXIX.	Marot . . . . .	LIV.
Bithnok . . . . .	XXXVIII.	Modia . . . . .	XXXIX.
Bonik (of the Karachi Longitudinal Series).	XLI.	Mongolia . . . . .	XXXI.
Borla . . . . .	IX.	Mugrala . . . . .	XLIII.
Borta . . . . .	I.	Nagar . . . . .	VI.
Chamu . . . . .	XVII.	Nok . . . . .	XXX.
Daichu . . . . .	XIX.	Omlo . . . . .	XXIV.
Dhaura . . . . .	II.	Pabusar . . . . .	XXXII.
Dodo . . . . .	X.	Panchkot . . . . .	LVIII.
Dugur . . . . .	XII.	Pelu . . . . .	XVIII.
Ekka . . . . .	XXIII.	Phogala . . . . .	XLVIII.
Girondi . . . . .	XXXV.	Phulasar . . . . .	XXXIV.
Habib . . . . .	XLVI.	Randu . . . . .	LIX.
Harban . . . . .	XXVIII.	Ronesar . . . . .	XL.
Hasau . . . . .	IV.	Sachu . . . . .	XLI.
Jalora . . . . .	XXI.	Samdari . . . . .	VII.
Jambo . . . . .	XXVI.	Sirad . . . . .	XXVII.
Jodasar . . . . .	XIII.	Soma . . . . .	L.
Kainsir (of the Sutlej Series).	XIX.	Sorau . . . . .	XX.
Kanda (of the Sutlej Series).	XXI.	Sulkia Thalau . . . . .	XIV.
Karamala . . . . .	XLVII.	Sultán . . . . .	LVI.
Ketu . . . . .	XIII.	Súnda (of the Karachi Longitudinal Series).	XLIV.
Khirsar . . . . .	XLIV.	Thob . . . . .	VIII.
Khirwa . . . . .	XXV.	Telu . . . . .	LI.
		Uperthal . . . . .	XXXVII.

JODHPORE MERIDIONAL SERIES.

NUMERICAL LIST OF PRINCIPAL STATIONS.



XLI (of the Karáchi Longitudinal Series).	Bonik.	XXXI	Mongolia.
XLIV (of the Karáchi Longitudinal Series).	Súnda.	XXXII	Pabasar.
I	Borta.	XXXIII	Bikampur.
II	Dhaura.	XXXIV	Phulasar.
III	Kundal.	XXXV	Girondi.
IV	Mandaula.	XXXVI	Mankasar.
V	Bhádrájan.	XXXVII	Uperthal.
VI	Nagar.	XXXVIII	Bifhnok.
VII	Samdari.	XXXIX	Modia.
VIII	Thob.	XL	Ronesar.
IX	Borla.	XLI	Sachu.
X	Dodo.	XLII	Jodasar.
XI	Adori.	XLIII	Mugrala.
XII	Dugur.	XLIV	Khirsar.
XIII	Ketu.	XLV	Bhada.
XIV	Sulkia Thalau.	XLVI	Habib.
XV	Malunga.	XLVII	Karamala.
XVI	Loharan.	XLVIII	Phogala.
XVII	Chamu.	XLIX	Bhulan.
XVIII	Pelu.	L	Soma.
XIX	Daichu.	LI	Telu.
XX	Sorau.	LII	Aukli.
XXI	Jalora.	LIII	Mansa.
XXII	Loháwat.	LIV	Marot.
XXIII	Ekka.	LV	Hasan.
XXIV	Omlo.	LVI	Sultán.
XXV	Khírwa.	LVII	Bijli.
XXVI	Jambo.	LVIII	Panchkot.
XXVII	Sirad.	LIX	Randu.
XXVIII	Harban.	XIX (of the Sutlej Series).	Kaimsir.
XXIX	Bintli.	XXI (of the Sutlej Series).	Kanda.
XXX	Nok.		



## JODHPORE MERIDIONAL SERIES.

### DESCRIPTION OF PRINCIPAL STATIONS.



The Principal Stations of this Series consist of circular masonry pillars from 3 to 4 feet in diameter for the large Theodolite to rest on, and in general are surrounded by a platform of stones and earth, or sand, on which the observatory tent was pitched. In certain instances the sand hills, on which several of the stations fell, did not afford a satisfactory foundation for the pillars; and piles were driven deep down on which the foundations were laid and the pillars built so that their surfaces were nearly flush with the level of the hill top. When this was the case a platform was not always necessary. Being almost invariably on the highest accessible points the pillars rarely required to be raised more than 3 or 4 feet. They contain mark-stones placed vertically over one another, the uppermost being generally flush with the surface: over this a rectangular protecting pillar, bearing a sufficiently accurate mark for Topographical and Revenue Survey purposes—as shown at page 74 of Volume II of the “*Account of the Operations, &c.*”—was erected after the completion of the observations.

The following descriptions have been compiled from those given by the officers who executed the Series. The orthography of such names of parganas, districts &c., as has been fixed by Government for Rajputana has been adhered to. A few details, such as the name of a village or pargana within which a station is situated, have been obtained from the returns furnished by the political authorities to whose charge the stations have been committed.

XLI.—(*Of the Karáchi Longitudinal Series*). Bonik Hill Station, lat.  $25^{\circ} 4'$ , long.  $72^{\circ} 54'$ —observed at in 1850 and 1873—is situated in a group of hills which are unconnected with the Aravalli range and lie 25 miles north of Mount Abu on the border of Marwar; pargana Jhara Kharul of the Sirohee territories. The station is fixed on the most prominent though not the most elevated hill of the group, being an acute peak crowned with large naked masses of granite of square outline. The platform is built upon and amongst these rocks, the upper surface of the pillar being 2 feet 9 inches below the highest one, *viz.*, that towards the north-west angle of the platform.

The pillar, which is surrounded by a platform of the usual construction, is solid, and contains three marks, one at the surface, the others 1 foot and 3 feet below it, the last being at the level of the foundation. When visited in 1872 prior to the commencement of the Jodhpore Meridional Series, the station of 1850 was found intact. The azimuths and distances of the surrounding villages are:—Wáan  $190^{\circ}$ , at foot of hill; Barwára  $325^{\circ}$ , miles 2; Andor  $356^{\circ}$ , miles 2.5; Modoni (temple)  $83^{\circ}$ , miles 7.3.

XLIV.—(*Of the Karáchi Longitudinal Series*). Sunda Hill Station, lat.  $24^{\circ} 47'$ , long.  $72^{\circ} 28'$ —observed at in 1851 and 1873—is situated on an isolated group of hills, about 24 miles W. by N. of Mount Abu. The southern half of this group, known as the Nimbáj hills, from the town of Nimbáj, which lies at their foot, belongs to the Sirohee territories. The northern portion, including the hill of Sunda, after which the station is named, is in taluk Jálór of the Jodhpore territories. The ascent commences at the small village of Usmat on the eastern side of the hill.

The pillar, which is surrounded by a platform of the usual construction, is solid and contains three marks, one at the surface, the others 1.21 and 3.21 feet below it, the last being at the level of the foundation. When visited in 1872 prior to the commencement of the Jodhpore Meridional Series, the station of 1851 was found intact. The azimuths and distances of the surrounding villages are:—Warra  $288^{\circ}$ , miles 2.8; Víkanwa  $240^{\circ}$ , miles 4.7; Nimbáj (temple)  $293^{\circ}$ , miles 4.1; Rajiraua  $155^{\circ}$ , miles 6.0.

I. Borta Hill Station, lat.  $25^{\circ} 6'$ , long.  $72^{\circ} 23'$ —observed at in 1873—is on the highest part of a short range running N.E. and S.W., south of Borta village and 8 miles N.E. of Bhínámál, a large village. It is on the northern portion of the hill which is locally called Renáva. The road has been made from about a mile W. of the village and N.E. of the station. The station is in sub-division Bhínámál of taluk Jálór of the Jodhpore territories.

The pillar, which is surrounded by a platform of the usual construction, is solid and contains two marks, one level with the hill top on a very large stone, and the other at the surface of the pillar which is 3.10 feet high. The azimuths and distances of the circumjacent villages are:—Pádrú  $127^{\circ}$ , miles 2.8; Borta  $224^{\circ}$ , miles 1.2; Ledramír  $351^{\circ}$ , miles 2.7.

II. Dhaula Hill Station, lat.  $25^{\circ} 15'$ , long.  $72^{\circ} 42'$ —observed at in 1873—is situated on a small detached hill about 440 feet above the plain, the platform being on a mass of boulders on the eastern and highest portion. The hill, which is locally named Pansútía, is apparently a portion of the Ásaróna hills, being the most southwesterly of all. The station derives its name from Dhaula village, in the lands of which it lies; it is in taluk Jálór of the Jodhpore territories. The large town and fort of Jálór are about 5.4 miles W.N.W. of the station.

The pillar, which is surrounded by a platform of the usual construction, contains two marks, the lower on the rock *in situ*, and the upper in the surface of the pillar, which is 2.75 feet high. The azimuths and distances of the circumjacent villages are:—Bhaugal  $109^{\circ}$ , miles 2.9; Dhaula  $224^{\circ}$ , mile 1.0; Nuranáwa  $346^{\circ}$ , miles 1.4.

III. Kundal Hill Station, lat.  $25^{\circ} 29'$ , long.  $72^{\circ} 22'$ —observed at in 1873—is on a hill locally called Waduwar and is on the peak which is the highest and most southerly, and most westerly but one, of a long range about 10 miles N. of the Sukri river, 16 miles N.W. of Jálór and 12 miles S. of Siwána village, extending in a curved line from Kanki to Mangi village. The hill on which the station is situated is about  $1\frac{1}{4}$  miles S.W. of Kundal village from whence the ascent begins. It is in taluk Siwána of the Jodhpore territories. There is a higher hill, about 3 miles N., called Saura, or Mahádeo-ka-Bakra, which is the highest in that portion of the country.

The pillar, which is surrounded by a platform of the usual construction, is solid and contains two marks, one on a huge boulder and flush with the surface of the hill, and the other at the surface of the pillar which is 3.33 feet high. The azimuths and distances of the circumjacent villages are:—Pádrú  $104^{\circ}$ , miles 7.9; Kundal  $171^{\circ}$ , at foot of hill; Elana  $301^{\circ}$ , miles 8.5.

IV. Mandaula Hill Station, lat.  $25^{\circ} 25'$ , long.  $71^{\circ} 55'$ —observed at in 1873—is situated on a sand hill (locally called Ura) about 200 yards from the left bank of the Lúni river, and about two miles W. of the village of Mandaula. The station is in the lands of that village in taluk Maloni of the Jodhpore territories.

The pillar, which has no surrounding platform but is sunk so that its surface is level with the ground, is solid and contains two marks, one at the top and the other 3.25 feet below at the level of the foundation. The azimuths and distances of the circumjacent villages are:—Harra  $92^{\circ}$ , mile 1; Koela  $220^{\circ}$ , miles 4; Mandaula  $239^{\circ}$ , miles 2.27.

V. Bhádrájan Hill Station, lat.  $25^{\circ} 36'$ , long.  $72^{\circ} 54'$ —observed at in 1873—is identical with the station of the same name of the Rajputana Topographical Survey. It is on the bastion of an old fort on the highest and most westerly peak of a small group of hills at the north-eastern foot of which lies the large village of Bhádrájan. The hill is locally called Dhumra and is in the Bhádrájan jágír, taluk Jodhpore, of the Jodhpore territories. The bastion on which the station is placed is 16 feet in diameter and the highest on the southern face of the fort.

The pillar, which is surrounded by a platform of the usual construction, is solid and contains two marks, the lower on the rock *in situ* and the upper in the surface of the pillar which is 3·17 feet high. The azimuths and distances of the circumjacent villages are:—Agalia 51°, miles 4·5; Ráma 186°, miles 4·1; Bhádrájan 270°, at foot of hill; and Koola 307°, miles 1·9.

VI. Nagar Hill Station, lat. 25° 47', long. 72° 12'—observed at in 1873—is situated on one of three peaks locally called Vauki Taunka, on the western portion of a long low range running east and west about 3 miles S. of Lúni river and 5 miles S.W. of Bálotra. The station derives its name from the village of Nagar which lies at the foot of the hill on the north. The hill is difficult of ascent; it is in sub-division Jasol, talúk Maloni of the Jodhpore territories.

The pillar, which is surrounded by a platform of irregular shape, is solid and contains two marks, one in the foundation and the other in the surface of the pillar which is 3 feet high. The azimuths and distances of the circumjacent villages are:—Nagar 147°, at foot of hill; Temawa 215°, miles 3·5; and Tápra 354°, miles 3·95.

VII. Samdari Hill Station, lat. 25° 49', long. 72° 37'—observed at in 1873—is on a small isolated, irregularly shaped hill locally named Mátalalasi, on the north bank of the river Lúni and close to the large village of Samdari, in taluk Siwána of the Jodhpore territories.

The pillar, which is surrounded by a platform of the usual construction, is solid and contains three marks, one in the foundation, 2 feet below the ground, another flush with the hill top and the third on the surface of the pillar; the difference of height between the upper and lower marks is 3·13 feet. The azimuths and distances of the circumjacent villages are:—Devalihari 66°, miles 1·7; Mokruni 180°, miles 2·25; Deopura 243°, miles 2·1; and Komáwas 335°, miles 2·6.

VIII. Thob Hill Station, lat. 26° 3', long. 72°, 25'—observed at in 1873—is on a low hill, about half a mile W. of the large village of Thob and 10 miles N. of Pachbudra village, in taluk Siwána of the Jodhpore territories. There is a well of fairly good water near the village.

The pillar, which is surrounded by a platform of the usual construction, is solid and contains two marks, one in the foundation, flush with the hill top and the other in the surface of the pillar which is 3 feet high. The azimuths and distances of the circumjacent villages are:—Havadhan Roáro 35°, miles 2·95; Thob 266°, mile 0·63; and Roáro 348°, miles 2·22.

IX. Borla Hill Station, lat. 26° 9', long. 72° 7'—observed at in 1873—derives its name from the local name of the sand hill on which it stands, and which is about 3 miles N.W. from the village of Lapúndra to the lands of which it appertains. It is in a desolate and barren country the nearest village being Lapúndra. Perao village lies to the N.E. distant 3·1 miles. The water of the villages is hardly drinkable, but a small supply for a short time may be obtained from the villagers' tanks. The station lies about 16 miles W. of Patodi in taluk Maloui of the Jodhpore territories.

The pillar, which is built on a foundation laid on wooden stakes driven into the ground which had previously been excavated to a depth of 4 feet, is solid and contains two marks, one in the foundation and the other in the surface of the pillar 3 feet above it. There is no platform.

X. Dodo Hill Station, lat. 26° 4', long. 72° 51'—observed at in 1873—is on a flat rock to the west of higher but unsuitable rocks on the western side of a low irregular rocky hill about 20 miles south-east of Jodhpore, near the road from Jasol and Bálotra to Jodhpore. The hill is in the lands of Doda-Lonasar village in taluk Jodhpore of the Jodhpore territories. Water can be obtained up to the end of March from a tank  $\frac{1}{3}$  mile to the north.

The pillar, which is surrounded by a platform of the usual construction, is solid and contains two marks, the lower on the rock *in situ* and the upper in the surface of the pillar 3·33 feet above it. The azimuths and distances of the circumjacent villages are:—Selawa 91°, miles 2·2; Lanowás 160°, miles 1·8; Kalijára 354°, miles 1·4; and Katowás 186°, miles 4·2.

XI. Adori Hill Station, lat. 26° 20', long. 72° 23'—observed at in 1873—is on a small rocky hill about 300 feet above the level of the surrounding country and situated amongst the sand hills, between the villages of Shera and Sheráda. It is in the lands of Tína village in taluk Jodhpore of the Jodhpore territories.

The pillar, which is surrounded by a platform of the usual construction, is solid and contains two marks, the lower on the rock *in situ* and the upper at the surface of the pillar which is 2·08 feet high. The azimuths and distances of the circumjacent villages are:—Shera 73°, miles 2·5; Tína 101°, miles 1·5; Sheráda 263°, miles 2·0; and Soitra 328°, miles 4·0.

XII. Dugur Hill Station, lat. 26° 17', long. 72° 42'—observed at in 1873—is situated on a conical rocky hill, the northernmost of a range of isolated hills running north and south about 23 miles west of Jodhpore city. The ascent of the hill is from the village of Dugur. There is a tank of good water about  $\frac{1}{2}$  a mile from the hill. It is in taluk Jodhpore of the Jodhpore territories.

The pillar, which is surrounded by a platform of the usual construction, is solid and contains two marks, one on the rock *in situ* and the other on the surface of the pillar which is 1 foot high. The azimuths and distances of the circumjacent villages are:—Angolai 105°, miles 1·34; Batila 253°, miles 3·22; and Sironi 343°, miles 2·99.

XIII. Ketu Hill Station, lat. 26° 31', long. 72° 33'—observed at in 1873—is situated on a rocky hill, distant about 4 miles in an easterly direction from the village of Ketu, and about 3 miles in a westerly direction from the village of Belwa. It is in taluk Ketu of the Jodhpore territories. The water is good but scarce in the hot weather.

The pillar, which is surrounded by a platform of the usual construction, is solid and contains two marks, one on the rock *in situ* and the other at the surface of the pillar which is 3 feet high. Kirja village lies S. W. by W., at a distance of 10·7 miles.

XIV. Sulkia Thalau Hill Station, lat. 26° 31', long. 72° 20'—observed at in 1873—is on the westernmost knoll of a range of sand hills, and is distant 2 miles to the N.E. from the large village of Sulkia Thalau in taluk Jodhpore of the Jodhpore territories. There is no good water near the station. The water in the village of Sulkia Thalau is brackish.

The pillar, which has no surrounding platform, but is sunk so that its surface is level with the ground, is solid and contains three marks, one at the bottom of the foundation, a second 2 feet above it, and a third in the surface of the pillar, which is 3·04 feet high. The azimuths and distances of the circumjacent villages are:—Loharan 205°, miles 10·5; and Kirja 325°, miles 8·5.

XV. Malunga Hill Station, lat. 26° 29', long. 72° 49'—observed at in 1874—is situated on a conspicuous conical-shaped rocky hill which rises to the height of 320 feet above the surrounding country. The small hamlet of Digari lies at its foot to the south-east, and the village of Malunga is distant 2·4 miles and 58° E. of S. The water at the village of Malunga is good. The station lies within the boundary of the village of Malunga, taluk Ketu of the Jodhpore territories.

The pillar, which is surrounded by a platform of the usual construction, is solid and contains two marks, one at the surface and the other at the bottom of the pillar which is 3 feet high. The azimuths and distances of the circumjacent places are:—Báro 255°, miles 2 nearly; and Jodhpore city 311°, miles 20·1.

XVI. Loharan Hill Station, lat. 26° 40', long. 72° 25'—observed at in 1874—is situated on a low range of sand hills at a distance of  $\frac{1}{4}$  of a mile in a direction 22° E. of N. from the village of Loharan. It is within the boundary of the village of Loharan in taluk Ketu of the Jodhpore territories. There is no good water near the station.

The pillar, which is solid and 3 feet high, is built on a foundation 2 feet thick. There are three mark-stones, one at the bottom of the foundation, a second 2 feet above it and a third in the surface of the pillar. The sand had to be heaped up  $1\frac{1}{4}$  feet above the former hill top level, so as to form a platform flush with the upper surface of the pillar. The bearings and distances of the circumjacent villages are:—Kaudia W.N.W., about 4 miles; Laurta N.E., about 3 miles; and Daidu E.S.E., about 3 miles.

XVII. Chamu Hill Station, lat. 26° 40', long. 72° 38'—observed at in 1874—is distant about 1 mile in a direction 42° E. of N. from the village of Chamu, and is situated on the highest sand hill in the vicinity of that village. It lies within the boundary of the village of Chamu in taluk Ketu of the Jodhpore territories.

The pillar, which is solid and 3 feet high, has been sunk so that its surface is level with the ground, and has been built on a circular foundation 6 feet in diameter and 1 foot in thickness, resting on wooden piles. It contains two marks, one at the surface and the other at the bottom of the pillar. Baruan village lies about 4 miles N.W.

XVIII. Pelu Hill Station, lat. 26° 49', long. 72° 30'—observed at in 1874—is situated on a small sand hill, and is distant  $2\frac{1}{2}$  miles in a direction 30° E. of S. from the village of Pelu. It lies on the boundary between the villages of Pelu and Marla in taluk Ketu of the Jodhpore territories.

The pillar, which is solid and 3 feet high, has been sunk so that its surface is level with the ground and has been built upon a circular foundation 6 feet in diameter and 1 foot in thickness, resting on wooden piles. It contains two marks, one at the surface and the other at the bottom of the pillar. The azimuth and distance of Bákri village are 235°, miles 10·8.

XIX. Daichu Hill Station, lat. 26° 49', long. 72° 20'—observed at in 1874—is situated at the eastern extremity of a long range of sand hills, and lies about  $3\frac{1}{4}$  miles in a north-westerly direction from the large village of Daichu and 2 miles in a direction 7° 30' W. of N. from the village of Ságra. It is on the lands of the village of Daichu, in taluk Ketu of the Jodhpore territories.

The pillar, which is solid and 3 feet high, has been sunk so that its surface is level with the ground and has been built on a foundation 2 feet thick. It contains three mark-stones, one in the upper surface of the pillar, the second at the bottom of the pillar, and the third at the bottom of the foundation. The azimuths and distances of the circumjacent villages are:—Marla 149°, miles 4·7; and Koru 191°, miles 7·2.

XX. Sorau Hill Station, lat. 26° 50', long. 72° 42'—observed at in 1874—is situated on the highest knoll of a rather elevated sand ridge, and is distant 2½ miles in a direction 68° E. of N. from the good sized village of Sorau. It is on the lands of the village of Sorau, in pargana Phalodi of the Jodhpore territories.

The pillar, which is solid and 3·08 feet high, has been sunk so that its surface is level with the ground, and has been built on a foundation 2 feet thick. It contains three mark-stones, one in the upper surface of the pillar, the second at the bottom of the pillar, and the third at the bottom of the foundation. The azimuth and distance of Bákri village are 138° 30', miles 5·5.

XXI. Jalora Hill Station, lat. 26° 58', long. 72° 25'—observed at in 1874—is situated on a rocky hill which has but a small elevation above the surrounding country. It is distant 2·7 miles in a direction 33° W. of S. from the village of Jalora, and is on the lands of that village in pargana Phalodi of the Jodhpore territories.

The pillar, which is surrounded by a platform of the usual construction, is solid and contains two marks, one in the surface and the other in the foundation 4 feet below. The azimuths and distances of the circumjacent villages are;—Koru 51°, miles 5·4; and Dhaiakor 328° 30', miles 5·4.

XXII. Loháwat Hill Station, lat. 27° 0', long. 72° 36'—observed at in 1874—is situated on a conspicuous conical-shaped rocky hill which rises to a height of 250 feet above the rather elevated piece of country which immediately surrounds it. It lies in a direction 80° W. of N. from the Vishnui portion and 65° W. of N. from the Ját portion of the village of Loháwat, and is distant 2·4 miles from a point about half way between these parts of the village. It is within the boundary of the village of Loháwat in pargana Phalodi of the Jodhpore territories. Good water can be obtained from the village of Loháwat from a well 333 feet deep.

The pillar, which is surrounded by a platform of the usual construction, is solid, 3 feet high and contains two marks, one at its surface and the other at the bottom of the pillar. The azimuth and distance of Bákri village are 332°, miles 7·2.

XXIII. Ekka Hill Station, lat. 27° 6', long. 72° 22'—observed at in 1874—is situated on the highest of a low group of sand hills and is distant 1·1 miles in a direction S.W. from the village of Ekka and 3·2 miles in a direction 36° W. of S. from the fort in the town of Phalodi. It is on the lands of the village of Ekka in pargana Phalodi of the Jodhpore territories.

The pillar, which is solid and 3 feet high, has been sunk so that its surface is level with the ground. It has been built on a foundation 1 foot thick which rests on piles driven into the sand. There are two mark-stones, one at the top and the other at the bottom of the pillar. The azimuth and distance of Mokheri village are 27° 30', miles 2·4.

XXIV. Omlo Hill Station, lat. 27° 7', long. 72° 31'—observed at in 1874—is situated on a low stony hill and is distant 0·8 of a mile from the village of Omlo in a direction 31° W. of S. It is on the lands of the village of Omlo in pargana Phalodi of the Jodhpore territories.

The pillar, which is surrounded by a platform of the usual construction, is solid, 5 feet high and rests on a foundation 1 foot thick. It contains two marks, one at the top and the other at the bottom. The azimuths and distances of the circumjacent places are:—Phalodi town 100°, miles 7·3; and Kicham village 108° 15', miles 4·1.

XXV. Khirwa Hill Station, lat. 27° 17', long. 72° 24'—observed at in 1874—is situated on land of the village of Khirwa in pargana Báp of the Jeysulmere territories. The station is built on one of a group of sand knolls at a distance of about 2½ miles in a direction 65° 30' E. of S. from the village of Khirwa.

The pillar, which is surrounded by a rough platform of sand covered with a layer of stones 1 foot thick, is solid and 3 feet high and has been sunk so that its surface is flush with the level of the platform. It has been built on a foundation 2 feet thick. It contains three mark-stones, one in the upper surface of the pillar, the second at the bottom of the pillar and the third at the bottom of the foundation. The azimuths and distances of the circumjacent places are:—Báp village of the Jeysulmere territories 180° 27', miles 6·6½; Agar village of the Jodhpore territories 281°, miles 5·75; and Phalodi town of the latter territories 357° 30', miles 10·0.

XXVI. Jambo Hill Station, lat. 27° 16', long. 72° 34'—observed at in 1874—is situated on a long sand ridge which runs in a N.E. and S.W. direction. It is distant 2·4 miles in a direction due south from the village of Jambo and is on the lands of Naneo village in pargana Phalodi of the Jodhpore territories.

The pillar, which is surrounded by a rough platform of sand covered with a layer of stones 1 foot thick, is solid and 3 feet high and has been sunk so that its surface is flush with the level of the platform. It has been built on a foundation 2 feet

thick. It contains three mark-stones, one in the upper surface of the pillar, the second at the bottom of the pillar and the third at the bottom of the foundation. The azimuths and distances of the circumjacent places are:—Phalodi town  $45^{\circ}$ , miles 13.75; Sawanti village  $76^{\circ} 30'$ , miles 3; and Báp village of the Jeysulmere territories  $125^{\circ}$ , miles 12.2.

XXVII. Sirad Platform Station, lat.  $27^{\circ} 26'$ , long.  $72^{\circ} 28'$ —observed at in 1874—is situated on an extensive flat, the soil of which is very hard and stony. It is on the lands of the village of Bara Sirad in pargana Nok of the Jeysulmere territories. The nearest village is Nauagaon, from which the station is distant  $3\frac{1}{4}$  miles in a direction  $50^{\circ}$  E. of S.

The pillar, which is surrounded by a platform of the usual construction, is solid and 3.94 feet high, resting on a foundation 2 feet thick the upper surface of which is flush with the surface of the ground. There are three marks, one on the upper surface of a large stone in the bottom of the foundation, the second 7 inches above it and level with the surface of the ground, and the third in the upper surface of the pillar. The azimuths and distances of the circumjacent villages are;—Báp  $54^{\circ}$ , miles 6.0; and Sirad  $169^{\circ} 30'$ , miles 3.9.

XXVIII. Harban (or Ghatari Mál) Hill Station, lat.  $27^{\circ} 26'$ , long.  $72^{\circ} 17'$ —observed at in 1874—is situated on a rocky hillock about 50 yards from which is another, surmounted by a stone pillar bearing an inscription. It is distant from Harban village 3.9 miles, in a direction  $24^{\circ}$  W. of N. It is on the lands of the village of Báp in pargana Báp of the Jeysulmere territories.

The pillar, which is surrounded by a platform of the usual construction, is solid and 3 feet high, resting on a foundation 2 feet thick. There are two mark-stones, one in the upper surface of the pillar and the other at the ground level. The azimuths and distances of the circumjacent villages are:—Sheora  $211^{\circ} 30'$ , miles 8; Báp  $299^{\circ}$ , miles 8.3; and Mondáli  $136^{\circ} 30'$ , miles 2.75.

XXIX. Bintli Hill Station, lat.  $27^{\circ} 26'$ , long.  $72^{\circ} 39'$ —observed at in 1874—is named after some fields that are in its neighbourhood, and is built on the highest sand hill in that part of the country. The boundary between the Jodhpore and Jeysulmere states passes close to the station on its eastern side. The nearest village is Partáb Sing-ka-sirad from which the station is distant 6.3 miles in a direction  $72^{\circ} 30'$  E. of S. The station is on the lands of that village in pargana Nok of the Jeysulmere territories.

The pillar, which is surrounded by a rough platform of sand covered with a layer of stones 1 foot thick, is solid and 3 feet high and has been sunk so that its surface is flush with the level of the platform. It has been built on a foundation 2 feet thick. It contains three mark-stones, one in the upper surface of the pillar, the second at the bottom of the pillar and the third at the bottom of the foundation. The azimuths and distances of the circumjacent villages are;—Jambo in the Jodhpore territories  $32^{\circ}$ , miles 9.6; and Modia in the Jeysulmere territories  $192^{\circ} 30'$ , miles 12.0.

XXX. Nok Hill Station, lat.  $27^{\circ} 36'$ , long.  $72^{\circ} 20'$ —observed at in 1874—is on the easternmost of a number of low sand knolls near the village of Nok. The knoll on which the station has been built is known as Mátá ji khejri-ka-dhúra. The station is on the lands of the village of Nok, from which it is distant 3.6 miles in a direction  $45^{\circ} 30'$  E. of N; pargana Nok of the Jeysulmere territories. The water obtained from its wells is good, and the supply never fails.

The pillar, which is surrounded by a rough platform of sand covered with a layer of stones 1 foot thick, is solid and 3 feet high, and has been sunk so that its surface is flush with the level of the platform. It has been built on a foundation 2 feet thick. It contains three mark-stones, one in the upper surface of the pillar, the second at the bottom of the pillar and the third at the bottom of the foundation. The azimuth and distance of Sheora village are  $356^{\circ} 30'$ , miles 4.8.

XXXI. Mongolia Platform Station, lat.  $27^{\circ} 38'$ , long.  $72^{\circ} 32'$ —observed at in 1874—is situated on a slight rise near the spot where the former hamlet of Mongolia once stood. The site of that village is still marked by a few plum and other trees. The nearest village is Girájsúr from which the station is distant  $6\frac{1}{4}$  miles in a direction  $25^{\circ}$  W. of S. The station is on the lands of Nok village in pargana Nok of the Jeysulmere territories.

The pillar, which is surrounded by a rough platform of sand covered with a layer of stones 1 foot thick, is solid and 3 feet high, and has been sunk so that its surface is flush with the level of the platform. It has been built on a foundation 2 feet thick and contains three mark-stones, one in the upper surface of the pillar, the second at the bottom of the pillar and the third at the bottom of the foundation. The azimuths and distances of the circumjacent villages are:—Sirad  $21^{\circ}$ , miles 11.6; Nokra  $270^{\circ} 30'$ , miles 9.5; and Trijunction Pillar on Jodhpore, Bickauere and Jeysulmere boundary  $281^{\circ}$ , miles 12.6.

XXXII. Pabusar Hill Station, lat.  $27^{\circ} 44'$ , long.  $72^{\circ} 23'$ —observed at in 1874—is called after the village of that name which is distant 0.35 mile at an azimuth of  $255^{\circ}$ . It is on the northern end of a sand hill about 52.5 feet high terminating abruptly at the station. The path from Bikampur to Pabusar skirts its base. The village of Pabusar is very small and has a well of brackish water; fresh water comes from Nok. The vil-

lage of Kolasir a little larger lies about 5 miles to the E. The station is in that portion of pargana Nok which belongs to the Thakur of Bikampur in the Jeysulmere territories.

The pillar is 3 feet high having a foundation of 2 feet with three mark-stones, one at the bottom, another 1 foot above it and the upper one at the surface. No mention is made in the records of the existence of a platform.

**XXXIII.** Bikampur Hill Station, lat.  $27^{\circ} 43'$ , long.  $72^{\circ} 14'$ —observed at in 1874—is on the highest point of a sand ridge about 64.5 feet in height, the nearest village being Bikampur distant 4.9 miles at an azimuth of  $131^{\circ}$ . The fort, or Thakur's residence, built of white stone can be seen from the station. The water at Bikampur is brackish in the wells, a small quantity for drinking is stored in small excavations. The station is in the lands of the Thakur of Bikampur, in pargana Nok of the Jeysulmere territories.

The pillar is solid and 3 feet high exclusive of foundation, and has three mark-stones, one at the bottom, the second 9 inches above it and the third at the surface. No mention is made in the records of the existence of a platform. The bearings and distances of the circumjacent villages are:—Borono S.W., miles 8; and Charanala N.N.W., miles 8.

**XXXIV.** Phularsar Hill Station, lat.  $27^{\circ} 52'$ , long.  $72^{\circ} 22'$ —observed at in 1874-75—is named after a small village of Vishnu worshippers, which is distant 6.3 miles at an azimuth of  $174^{\circ}$ . There is a dry tank called Natheri about 1 mile south; and the station itself is on the highest sand hill in the vicinity. The only village seen is Phularsar. There is a well of brackish water at Phularsar but no good water nearer than Bikampur. The station is in the lands of the village of Gogaliala, belonging to the Thakur of Bikampur, in pargana Nok of the Jeysulmere territories.

The pillar, which is surrounded by a rough platform of sand and stones, is solid and 3 feet high exclusive of the foundation. It has three mark-stones, one at the base on a large stone, another 9 inches above it and the third at the surface. The approximate azimuths and distances of the circumjacent villages are:—Charanala  $81^{\circ}$ , miles 6; and Gogaliala  $47^{\circ}$ , miles 9.

**XXXV.** Girondi Hill Station, lat.  $27^{\circ} 50'$ , long.  $72^{\circ} 32'$ —observed at in 1875—is on a high sand hill locally called Gadalet-ka-dhura near the boundary of Jeysulmere. Girondi village is distant 1.72 miles at an azimuth of  $336^{\circ}$ . The station is in the lands of the village of Nok in pargana Nok, of the Jeysulmere territories. There are wells of brackish water at Girondi and drinking water can be obtained from the chunam tanks.

The pillar, which is surrounded by a rough platform of stones and sand, is 3 feet high with a foundation of 2 feet and has three mark-stones, one in the foundation, another 7 inches above it flush with the hill top and the third at the surface. The azimuths and distances of the circumjacent villages are:—Ghariala (which is visible from the station and is in the Bickaneer territories)  $314^{\circ}$ , miles 7.26; and Girajsar (approximately)  $338^{\circ}$ , miles 7.

**XXXVI.** Mankasar Hill Station, lat.  $28^{\circ} 0'$ , long.  $72^{\circ} 31'$ —observed at in 1875—is on a sand ridge 2.62 miles from Mankasar village which lies at an azimuth of  $216^{\circ}$ . All the villages about are small and have wells of brackish water, drinking water being obtained from tanks. Bangarsar is the nearest village for supplies. The station is on the lands of Nok village, in pargana Nok of the Jeysulmere territories.

The pillar, which is surrounded by a platform of stones and sand, is solid and 3.71 feet high with a 2 feet foundation. It contains three mark-stones, one at the bottom, another 2 feet above it flush with the hill surface and the third at the surface. The approximate azimuth and distance of Bangarsar village are  $287^{\circ}$ , miles 8 nearly.

**XXXVII.** Uperthal Hill Station, lat.  $28^{\circ} 0'$ , long.  $72^{\circ} 17'$ —observed at in 1875—is on a very high sand hill called by the natives Uperthal from its being the highest in those parts; it is 170 feet above the plain to the east and commands a good view all round. The station is on the lands of Nok village, in pargana Nok of the Jeysulmere territories. The water at Goru is brackish.

The pillar is solid and 3.04 feet high exclusive of the foundation. It contains three mark-stones, one at the bottom, another 7 inches above it and the third at the top. The bearings and distances of the circumjacent villages are:—Goru (a Vishnu village) S.E., miles 1.16; Nargroh W., about miles 10; Phularsar S.S.E., miles 6; and Barsalpur the only large village N.N.W., miles 14.6.

**XXXVIII.** Bithnok Hill Station, lat.  $27^{\circ} 53'$  long.  $72^{\circ} 42'$ —observed at in 1875—is on the highest sand hill of a range running N. and S. locally called Gajath Thal a few hundred yards south of a cart track from Bithnok to Bagu village. Bithnok is a large village with good water. The station is in the lands of that village in pargana Magra of the Bickaneer territories.

The pillar, which is surrounded by a platform of sand and stones, is solid and 3.5 feet above the ground with a foundation and has two mark-stones, one at the bottom and the other 2 feet above it level with the top of the hill. No mention is made of a mark-stone having been placed at the surface of the pillar. The azimuths and distances of the circumjacent villages are:—Bangarsar (approximately)  $141^{\circ}$ , miles 9 nearly; Bithnok  $275^{\circ}$ , miles 5.22; and Mandal  $323^{\circ}$ , miles 10 nearly.

**XXXIX.** Modia Hill Station, lat.  $28^{\circ} 15'$ , long.  $72^{\circ} 27'$ —observed at in 1875—is on a very conspicuous, high, long sand hill overlooking the country on all sides, 11·88 miles S.E. by E. of the large village of Barsalpur. There are no villages near, only dhanis, *e.i.*, cold weather temporary villages; of these Modia is the nearest. The station is in the lands of the Rao of Barsalpur in pargana Nok of the Jeysulmere territories.

The pillar, which is surrounded by a platform of sand, is solid and 4 feet in height above the ground and has three mark-stones, one in the lowest part of the foundation, the second 2 feet above it flush with the hill top and the third at the surface of the pillar. The approximate azimuths and distances of the circumjacent villages are:—Modia  $29^{\circ}$ , miles 2·83; Bhati Walla  $59^{\circ}$ , miles 5·61; and Bhim Walla  $104^{\circ}$ , miles 4.

**XL.** Ronesar Hill Station, lat.  $28^{\circ} 3'$ , long.  $72^{\circ} 44'$ —observed at in 1875—is on a high flat and extensive sand hill, not on the very highest point on account of the ray to Modia H. S. No villages are visible from the station. Water and supplies are scarce in the small villages around. The station is on the lands of the village of Ronesar in pargana Magra of the Bickaneer territories.

The pillar, which is surrounded by a platform of stones and sand, is solid and 3 feet high above the ground and has three mark-stones, one at the bottom of the foundation, the second 1 foot above it flush with the ground and the third on the top of the pillar. The approximate azimuths and distances of the circumjacent villages are:—Ronesar  $314^{\circ}$ , miles 6; and Augnu  $180^{\circ}$ , miles 6.

**XLI.** Sachu Hill Station, lat.  $28^{\circ} 15'$ , long.  $72^{\circ} 7'$ —observed at in 1875—is on a sand hill 183·9 feet high and 10·29 miles distant from the large village of Barsalpur to the N.N.W.: the cart track from thence to Sachu village runs about 1 mile S. of the hill. The station is on the lands of the village of Sachu which belongs to the Rao of Barsalpur in pargana Nok of the Jeysulmere territories. The well water at Sachu is drinkable.

The pillar, which is surrounded by a platform of stones and earth, is solid and 3·83 feet high with a foundation of 1 foot. There are three mark-stones, one at the bottom of the foundation, the second 11 inches above this flush with the hill top and the third at the surface of the pillar. Sachu village is distant 2·69 miles at an azimuth of  $54^{\circ}$ .

**XLII.** Jodasar Hill Station, lat.  $28^{\circ} 18'$ , long.  $72^{\circ} 44'$ —observed at in 1875—is on a high sand hill called by the natives Keridi dhúra, and is 6·1 miles E. of the village of Jodasar and about 8 miles S.S.E. of Ramra village. The station is on the lands of Jodasar village which belongs to the Rao of Pungal in the Bickaneer territories. The water at Jodasar village is brackish. Good water has to be brought from Pungal which is 15 miles distant to the N.E.

The pillar, which is surrounded by a platform of stones and sand, is solid and 5·06 feet high with a foundation of 1·75 feet. It has three mark-stones, one on the top of the foundation, the second 2·64 feet above it and the third 2·42 feet above the second at the surface of the pillar.

**XLIII.** Mugrala Hill Station, lat.  $28^{\circ} 31'$ , long.  $72^{\circ} 25'$ —observed at in 1875—is on a high sand hill called Mugrala. It is in the lands of the village of Akasar in the estate of the Rao of Pungal in the Bickaneer territories. The water at Akasar and Siasar is very brackish, at Balhar slightly better, at Rachni there is a small tank. Besides this there is no good water nearer than Bhiawala toba (tank), 24 miles distant to the N.N.W., in the Baháwalpur territories.

The pillar is solid and 5·17 feet high, with a foundation, which with the pillar contains 5 mark-stones, the first at the bottom of the foundation, the second 2 feet above it, the third 0·50 foot above the second, and flush with the hill surface, the fourth 2·50 feet above the third, and the fifth 2·67 feet above the fourth and flush with the upper surface of the pillar. The bearings and distances of the circumjacent villages are:—Akasar N.E., miles 4·8; Rachni S.W., miles 8·46; Balhar S., miles 8; and Siasar N.E., miles 10.

**XLIV.** Khirsar Hill Station, lat.  $28^{\circ} 30'$ , long.  $72^{\circ} 42'$ —observed at in 1875—derives its name from Khirsar village in the lands of which it lies in pargana Pungal of the Bickaneer territories. The hill slopes gently from the south and terminates abruptly to the north being there 186 feet above the adjacent plain. The path from Dattohar to Pungal runs south of the hill. The water of Khirsar village is brackish, drinking water comes from Pungal.

The pillar, which is surrounded by a platform of stones and sand, is solid and 5·15 feet high with a 1 foot foundation, and has three mark-stones, one at the top of the foundation, a second 2·54 feet above it and the third 2·60 feet above the second flush with the top of the pillar. The approximate bearings and distances of the circumjacent villages are:—Khirsar E. by S., miles 3·37; Dattohar S.W. by S., miles 10·03; Pungal E., miles 9·5; and Ramra S., miles 6 nearly.

**XLV.** Bhada Hill Station, lat.  $28^{\circ} 43'$ , long.  $72^{\circ} 36'$ —observed at in 1875—is on the highest point of an extensive sand hill with many spurs. It is on the lands of Bhada village belonging to the Rao of Pungal



in the Bickaneer territories. The track from Pungal to Maujgarh is a little to the north. The water at Bhada is very brackish, at Bheria and Siasar slightly so.

The pillar, which is surrounded by a platform of stones and sand, is solid, 3 feet high with 1 foot foundation and has two mark-stones, one on the top of the foundation flush with the hill top and the second 3 feet above it at the surface of the pillar. The azimuths and distances of the circumjacent places are:—Bhada village  $8^{\circ}$ , miles 2.90; Siasar village (approximately)  $45^{\circ}$ , miles 8 nearly; and Bheria well  $273^{\circ}$ , miles 6.40.

**XLVI.** Habib Hill Station, lat.  $28^{\circ} 44'$ , long.  $72^{\circ} 23'$ —observed at in 1875—is on a low flat-topped hill in the desert near no village. The station is in the lands of the village of Maujgarh (24 miles N.N.W.) in thána Maujgarh, pargana Khairpur of the Baháwalpur territories.

The pillar is solid and 5.33 feet high exclusive of a 2 feet foundation and has three marks, one on the top of the foundation flush with the hill top, the second 2.33 feet above the first and the third at the surface of the pillar 3 feet above the second. The boundary between Bickaneer and Baháwalpur runs near the station and the nearest visible boundary pillars have the following azimuths and distances:—No. 1,  $299^{\circ}$ , mile 0.89; No. 2,  $270^{\circ}$ , miles 1.13; No. 3,  $242^{\circ}$ , miles 3.23. The approximate bearings and distances of neighbouring places are:—Bhiawala toba (tank) N.N.W., miles 8; and Bhaian-kí-verah (well) S.E., miles 9.

**XLVII.** Karamala Hill Station, lat.  $28^{\circ} 45'$ , long.  $72^{\circ} 48'$ —observed at in 1875—is on a hill which rises gradually from the well at Karamala village, the water of which is slightly brackish. It is on the lauds of that village which belongs to the Rao of Pungal in the Bickaneer territories.

The pillar, which is surrounded by a platform of stones and sand, is 3 feet high with 1 foot foundation and has two mark-stones, one on the top of the foundation flush with the hill surface and the second 3 feet above it at the surface of the pillar. The approximate bearings and distances of the following places are:—Alden-kí-verah (well) S., miles 6 nearly; Naishera S.S.W., miles 8; Karamala well S.W., mile 0.68; and Rakasam well E. by S., mile 0.97.

**XLVIII.** Phogala Hill Station, lat.  $28^{\circ} 51'$ , long.  $72^{\circ} 28'$ —observed at in 1875—is on a low sand hill called either “Tappiwala dhúra” or Phogala from the numerous Phog trees on it. It is in the desert in the lands of Bhiawala village in thána Maujgarh of the Baháwalpur state and pargana. There are a number of small tanks in the neighbourhood which dry up about January.

The pillar is solid and sunk in the ground so that its top is flush with the hill surface: it has two marks, one at the surface of the pillar and a second 4.25 feet below it, on the second lowest course of bricks. The Bickaneer and Baháwalpur boundary runs near the station, the three nearest visible boundary pillars have the following azimuths and distances:—No. 1,  $356^{\circ} 51'$ , miles 3.78; No. 2,  $348^{\circ} 33'$ , miles 3.64; No. 3,  $3^{\circ} 33'$ , miles 4.01. Bhiawala toba (tank) is 8 miles W., and Maujgarh 20 miles N.W.

**XLIX.** Bhulan Hill Station, lat.  $28^{\circ} 57'$ , long.  $72^{\circ} 41'$ —observed at in 1875—is on a rising ground 4 miles S.S.W. of Bhulan tank and about  $\frac{1}{2}$  mile S.S.W. of Karamala small tank (both dry in February) in the heart of the desert. It is on the lands of Bhulan hamlet thána Marot; pargana Khairpur of the Baháwalpur territories.

The pillar, which is surrounded by a platform of sundried bricks and sand, is solid and 3 feet high having three marks on bricks, one at the very bottom of the foundation, one 2 feet above it flush with the surface of the hill and the third 3 feet above the second, at the surface of the pillar. Three of the pillars on the boundary of Bickaneer and Baháwalpur have azimuths and distances as follows:—No. 1,  $340^{\circ} 47'$ , miles 2.39; No. 2,  $316^{\circ} 54'$ , miles 2.38; and No. 3,  $1^{\circ} 15'$ , miles 2.78. Mirgarh village lies 15 miles N.; Phulera 15 miles N.E.; and Sakhi in Bickaneer 14 miles E., the three nearest places at which drinkable water can be obtained.

**L.** Soma Hill Station, lat.  $29^{\circ} 2'$ , long.  $72^{\circ} 30'$ —observed at in 1875—is on a small mound on the highest sand hill 5.88 miles,  $23^{\circ}$  E. of S. of Soma well hamlet and about 5 miles E.S.E. of Jalalsar well hamlet and about 10 miles S. of Marot town. The path from Marot to Pungal in Bickaneer passes about a mile and a half E. of the hill. The station is in the lands of Soma hamlet; thána Marot, pargana Khairpur, in the Baháwalpur territories. The water at Soma and Jalalsar is undrinkable; all supplies of water are got from Marot.

The pillar, which is surrounded by a platform of sundried bricks and sand, is solid and 3.15 feet high with a foundation of 1.75 feet; it has three marks, one at the bottom of the foundation, another 1.75 feet above it and the third 3.15 feet above the second, at the surface of the pillar.

**LI.** Telu Hill Station, lat.  $28^{\circ} 56'$ , long.  $72^{\circ} 17'$ —observed at in 1875—is on a sand rise of ground hardly to be called a hill, about 6 miles N. of Bhiawala tank and 7.77 miles S.E. of Maujgarh town. There are two old mud towers near Telu from which the station takes its name, distant 0.55 of a mile at an azimuth of  $86^{\circ} 16'$ . It is in thána Maujgarh, pargana and state Baháwalpur. Water is obtained from either Bhiawala or Maujgarh.

The pillar, which is surrounded by a platform of sundried bricks and sand, is solid and 5 feet high with a 2.5 feet foundation. There are three mark-stones, one at the bottom of the foundation, the second  $2\frac{1}{2}$  feet above it flush with the hill top and the third 5 feet above the second at the surface of the pillar. The azimuth and distance of Gidarwala village are  $180^{\circ} 45'$ , miles 2.37.

LII. Aukli Hill Station, lat.  $29^{\circ} 4'$ , long.  $72^{\circ} 40'$ —observed at in 1875—is on a black looking hill with plenty of shrubs on the top, about 5 miles N.W. of Bhulan tank which dries up in January, in pargana Khairpur, thána Marot, and state Baháwalpur. Water is brought from Mírgarh.

The pillar, which is surrounded by a platform of sundried bricks and sand, is solid and 3.52 feet high having three mark-stones, one at the bottom of the pillar, a second 2.46 feet above it and flush with the hill top, and the third 1.06 feet above the second at the surface of the pillar. The azimuths and distances of the circumjacent places are:—Jamgarh  $144^{\circ} 58'$ , miles 8.2; Mírgarh  $177^{\circ} 38'$ , miles 7.2; and Kheniwala Thul (an old mud tower)  $196^{\circ} 25'$ , miles 4.25.

LIII. Mansa Hill Station, lat.  $29^{\circ} 5'$ , long.  $72^{\circ} 17'$ —observed at in 1875—is 2 miles E. of a higher sand hill called by this name on a loose, shifting sand knoll, having no vegetation on the top, but being the best procurable. The country here is more or less a plain, with small rises and gentle slopes. The station is in the lands of Chápu village; in thána Maujgarh, pargana and state Baháwalpur. Water is obtained from Kundai wells 3 and 4 miles east and from Chápu village.

The pillar, which is surrounded by a platform of sundried bricks and sand, is solid and sunk into the hill. It is 5.08 feet high, with three mark-stones, one at the bottom, a second 2.62 feet above it and the third 2.46 feet above the second at the surface of the pillar. The approximate bearings and distances of the circumjacent places are:—Maujgarh town S.W., miles 8.2; Khirsar hamlet N.W., miles 4; and Chápu village N., miles 4.51.

LIV. Marot Station, lat.  $29^{\circ} 11'$ , long.  $72^{\circ} 29'$ —observed at in 1875—is on the fort on the highest mud bastion at the S.E. corner which is about 150 feet above the ground. The fort which is of mud, about 725 feet square is quite in ruins and the town lies partly within and partly without the walls. The bastion on which the station stands is of solid clay and is approached by a ramp. It is in pargana Khairpur of the Baháwalpur state. There are a tank and wells at this place.

The pillar is solid and has been sunk in the bastion; it is 4.25 feet deep with two marks, the lower at the bottom of the pillar and the upper 4.25 feet above it at the surface of the pillar.

LV. Hasan Hill Station, lat.  $29^{\circ} 14'$ , long.  $72^{\circ} 19'$ —observed at in 1875—is in the desert on a ridge called Hasanwala tibba the top of which is loose sand, 12.6 miles W.  $20^{\circ}$  N. of Marot town and about 6 miles N. of Chápu wells. The station is in the lands of Chápu village, thána Marot, division Khairpur, and state Baháwalpur.

The pillar, which is surrounded by a low platform of bricks and sand, is solid and 3 feet deep with 3 mark-stones, one at the bottom of the pillar, a second 2 feet above the first and a third (at the surface of the pillar) 1 foot above the second. The azimuths and distances of the circumjacent places are:—Bakshuwala hill (approximately)  $180^{\circ}$ , miles 2; Mashkiwala thul (deserted tower)  $230^{\circ}$ , miles 1.66; and Saduwala thul  $297^{\circ}$ , miles 3 nearly.

LVI. Sultán Hill Station, lat.  $29^{\circ} 9'$ , long.  $72^{\circ} 13'$ —observed at in 1875—is on a sand hill locally named Sultánwala tibba, which is a mass of moving sand hills; but the station has been carefully built and it is anticipated that it may be permanent. The Marot-Baháwalpur track which is marked by pyramidal kacha pillars runs about  $1\frac{1}{2}$  miles north; the nearest pillar—the 7th from Marot on the Revenue Survey maps—having an azimuth of  $139^{\circ}$  is distant  $1\frac{1}{2}$  miles. The station is on the lands of Chápu and Khirsar villages in the Maujgarh thána, division and state Baháwalpur.

The pillar, which is surrounded by a platform of bricks and mud, is solid and 3 feet deep with two mark-stones, one in the foundation and the second 3 feet above it at the surface of the pillar which is flush with the surface of the hill. The bearings and distances of the circumjacent places are:—Khirsar hamlet and well S., miles 2; Chápu well E., about 5.5 miles; and Maujgarh town S., miles 9.

LVII. Bijli Hill Station, lat.  $29^{\circ} 18'$ , long.  $72^{\circ} 25'$ —observed at in 1875—is on a flat-topped sand hill called Bijli by the inhabitants and Jewunee on the Revenue Survey charts. It is in thána Marot, division Khairpur of the Baháwalpur state. It is about a mile east of the track from Marot to Khairpur. The nearest good well water is obtained from Marot.

The pillar, which is surrounded by a platform of sand and bricks, is 3 feet deep with 3 mark-stones, one at the bottom of the pillar, a second 1 foot above the first flush with the hill surface and a third 2 feet above the second and at the surface of the pillar. The bearings and distances of the following places are:—Mauri Rania temple (not visible) S.S.E., miles 3.50; Khandowala toba N.W. by N., miles 2.68; Marot town S., miles 10; and Khairpur town N., miles 21.

LVIII. Panchkot Hill Station, lat.  $29^{\circ} 16'$ , long.  $72^{\circ} 10'$ —observed at in 1875—is on the highest portion of a flat-topped hill in the desert 18 miles S. of the Sutlej River, and is called after a toba or tank which is 0·65 of a mile distant at an azimuth of  $345^{\circ}$ . It is on the lands of Bhiawala toba (30 miles S.), thána Maujgarh, division and state Baháwalpur. When the tanks are dry the nearest good water is at Chápu about 12 miles S.E.

The pillar, which is surrounded by a low platform of bricks and sand, is solid and 3 feet high with 3 mark-stones, one at the bottom of the pillar, a second one foot above this flush with the hill top and a third 2 feet above the second on the surface of the pillar. Gharialwala toba lies to W., about miles 3.

LIX. Randu Hill Station, lat.  $29^{\circ} 19'$ , long.  $72^{\circ} 18'$ —observed at in 1875—is on a flat-topped sand hill of the Kali Dhari range, the highest point of which is 3 miles to the east. It is in the heart of the desert, in the lands of the town of Khairpur, in division Khairpur, of the Baháwalpur state.

The pillar, which is surrounded by a platform of sand and bricks, is solid and 3 feet high with 3 mark-stones, one at the bottom of the foundation, a second 1·08 feet above it flush with the hill top and a third 1·92 feet above the second on the surface of the pillar. The bearings and distances of the following places are:—Kimsir well (good) N.W., miles 10; Naganiwala toba N., miles 2; Jamsar well (slightly brackish) N.N.E., miles 10; Ganiwala toba N.E., miles 3; Bahawala toba N.E., miles 4; Rohriwala N.E., miles 3·50; and Sera well (brackish) S.E., miles 8.

XIX.—(*Of the Sutlej Series*). Kaimsir Tower Station, lat.  $29^{\circ} 25'$ , long.  $72^{\circ} 11'$ —observed at in 1862 and 1876—is situated in the Baháwalpur territories, and stands in the desert about 7 miles S. of the village of Asrani. There is a well about  $1\frac{1}{4}$  miles to the N.

The pillar is perforated, and 10·8 feet high. It has a mark-stone at level of ground floor. The station was visited in 1876 for the purpose of connecting the Jodhpore with the Sutlej Series and the mark-stone at the level of the ground was found intact.

XXI.—(*Of the Sutlej Series*). Kanda Tower Station, lat.  $29^{\circ} 28'$ , long.  $72^{\circ} 22'$ —observed at in 1862 and 1875—is situated in the Baháwalpur territories, and stands in the desert about 10 miles S. E. of the town of Khairpur. There is a well about 2 miles to the W.

The pillar is perforated, and 20·4 feet high. It has a mark-stone at level of ground floor. The station was visited in 1875 for the purpose of connecting the Jodhpore with the Sutlej Series and the mark-stone on the level of the ground was found intact.

April 1878.

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

## JODHPORE MERIDIONAL SERIES.

### PRINCIPAL TRIANGULATION. TRIANGLES.

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle				Distance		
							Log. feet	Feet	Miles
1	Bonik, XLI	1' 54	38	58	34	07	5' 07 16 172	117928' 1	22' 335
	Súnda, XLIV	1' 55	67	46	16	38	5' 2394301	173552' 2	32' 870
	Borta, I	1' 55	73	15	9	55	5' 2541461	179533' 8	34' 003
2	Bonik, XLI	1' 90	42	1	19	02	5' 0802173	120286' 6	22' 782
	Borta, I	1' 89	32	57	38	30	4' 9901707	97762' 1	18' 516
	Dhaura, II	1' 90	105	1	2	68	5' 2394301	173552' 2	32' 870
3	Bonik, XLI	1' 37	80	59	54	16	5' 2799382	190518' 9	36' 083
	Súnda, XLIV	1' 36	30	27	7	16	4' 9901707	97762' 1	18' 516
	Dhaura, II	1' 37	68	32	58	68	5' 2541461	179533' 8	34' 003
4	Borta, I	1' 15	62	5	14	34	5' 1262128	133725' 1	25' 327
	Dhaura, II	1' 16	65	16	14	27	5' 1381530	137452' 6	26' 033
	Kuudal, III	1' 15	52	38	31	39	5' 0802173	120286' 6	22' 782
5	Dhaura, II	1' 45	81	14	27	24	5' 2492749	177531' 3	33' 623
	Kuudal, III	1' 45	50	38	45	99	5' 1420863	138904' 9	26' 306
	Bhádrájan, V	1' 44	48	6	46	77	5' 1262128	133725' 1	25' 327

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

2. Stations XLI and XLIV appertain to the Karachi Longitudinal Series.

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle			Distance		
						Log. feet	Feet	Miles
6	Kundal, III Bhadrājan, V Samdari, VII	"	°	'	"			
		1°40	43	5	42°06	5°0882241	122524·8	23°205
		1°41	55	2	24°63	5°1672452	146975·6	27°836
7	Kundal, III Samdari, VII Nagar, VI	1°41	81	51	52°41	5°2492749	177531·3	33°623
		1°26	59	58	37°37	5°1381662	137456·8	26°033
		1°26	52	14	10°43	5°0986612	125505·1	23°770
8	Borta, I Kundal, III Mandaula, IV	1°26	67	47	12°20	5°1672452	146975·6	27°836
		1°66	52	40	50°02	5°1895976	154738·2	29°306
		1°67	82	22	27°45	5°2852262	192852·9	36°525
9	Kundal, III Mandaula, IV Nagar, VI	1°66	44	56	42°53	5°1381530	137452·6	26°033
		1°45	71	15	46°46	5°2174339	164981·0	31°246
		1°45	46	5	17°38	5°0986612	125505·1	23°770
10	Nagar, VI Samdari, VII Thob, VIII	1°45	62	38	56°16	5°1895976	154738·2	29°306
		°98	48	42	30°58	5°0322912	107718·7	20°401
		°99	57	47	49°93	5°0838982	121310·5	22°975
11	Samdari, VII Thob, VIII Dodo, X	°99	73	29	39°49	5°1381662	137456·8	26°033
		1°00	78	52	36°02	5°1596842	144438·9	27°356
		°99	54	5	19°98	5°0763668	119224·9	22°580
12	Thob, VIII Dodo, X Dugur, XII	°99	47	2	4°00	5°0322912	107718·7	20°401
		°92	40	23	2°58	4°9764159	94714·4	17°938
		°92	58	28	48°72	5°0955764	124616·7	23°602
13	Thob, VIII Dugur, XII Adori, XI	°92	81	8	8°70	5°1596842	144438·9	27°356
		°84	54	17	18°54	5°0263011	106243·2	20°122
		°84	53	27	47°71	5°0217356	105132·2	19°911
14	Nagar, VI Thob, VIII Borla, IX	°84	72	14	53°75	5°0955764	124616·7	23°602
		°95	47	51	11°33	5°0185059	104353·2	19°764
		°96	72	36	55°27	5°1281315	134317·2	25°439
15	Thob, VIII Borla, IX Adori, XI	°95	59	31	53°40	5°0838982	121310·5	22°975
		°79	65	7	38°65	5°0521347	112754·7	21°355
		°78	57	46	11°59	5°0217356	105132·2	19°911
16	Adori, XI Dugur, XII Ketu, XIII	°78	57	6	9°76	5°0185059	104353·2	19°764
		°61	58	35	3°61	4°9804878	95606·6	18°107
		°61	49	54	37°11	4°9330135	85706·5	16°232
17	Dugur, XII Ketu, XIII Malunga, XV	°62	71	30	19°28	5°0263011	106243·2	20°122
		°53	55	52	6°43	4°9300411	85121·9	16°122
		°53	55	44	31°81	4°9293907	84994·5	16°097
18	Ketu, XIII Malunga, XV Chamu, XVII	°53	68	23	21°76	4°9804878	95606·6	18°107
		°39	71	51	28°43	4°9435461	87810·4	16°631
		°38	41	2	28°39	4°7829933	60672·7	11°491
19	Chamu, XVII Loharan, XVI	°39	67	6	3°18	4°9300411	85121·9	16°122
		°31	62	58	19°07	4°8462130	70179·9	13°292
		°31	66	39	51°30	4°8593774	72339·8	13°701
20	Adori, XI Ketu, XIII Sulkia Thalau, XIV	°31	50	21	49°63	4°7829933	60672·7	11°491
		°36	53	27	44°08	4°8480978	70485·2	13°349
		°36	48	51	26°29	4°8199682	66064·5	12°512
		°36	77	40	49°63	4°9330135	85706·5	16°232

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle	Distance		
				Log. feet	Feet	Miles
21	Ketui, XIII Sulkin Thalau, XIV Loharan, XVI	"	°			
		'30	49 3 52'61	4'7732438	59325'8	11'236
		'31	67 5 50'60	4'8593774	72339'8	13'701
22	Loharan, XVI Chamu, XVII Pelu, XVIII	'30	63 50 16'79	4'8480978	70485'2	13'349
		'29	61 47 49'41	4'8289003	67437'3	12'772
		'29	51 41 39'53	4'7784987	60048'0	11'373
23	Chamu, XVII Pelu, XVIII Sorau, XX	'30	66 30 31'06	4'8462130	70179'9	13'292
		'31	58 51 57'14	4'8248902	66817'5	12'655
		'32	61 22 36'72	4'8358276	68521'6	12'978
24	Pelu, XVIII Sorau, XX Lohawat, XXII	'31	59 45 26'14	4'8289003	67437'3	12'772
		'32	57 22 36'42	4'8264636	67060'0	12'701
		'33	65 34 7'31	4'8602906	72492'1	13'730
25	Pelu, XVIII Lohawat, XXII Jalora, XXI	'32	57 3 16'27	4'8248902	66817'5	12'655
		'27	49 1 44'85	4'7538389	56733'4	10'745
		'27	56 13 29'68	4'7955865	62457'8	11'829
26	Loharan, XVI Pelu, XVIII Daichu, XIX	'27	74 44 45'47	4'8602906	72492'1	13'730
		'24	55 56 1'81	4'7539932	56753'6	10'749
		'24	62 50 44'85	4'7850410	60959'5	11'545
27	Pelu, XVIII Daichu, XIX Jalora, XXI	'24	61 13 13'34	4'7784987	60048'0	11'373
		'25	62 51 44'40	4'7948772	62355'9	11'810
		'25	63 2 44'27	4'7955865	62457'8	11'829
28	Jalora, XXI Lohawat, XXII Omlo, XXIV	'25	54 5 31'33	4'7539932	56753'6	10'749
		'21	49 40 9'54	4'7018973	50338'2	9'534
		'22	71 6 25'09	4'7957073	62475'2	11'832
29	Omlo, XXIV Ekka, XXIII	'21	59 13 25'37	4'7538389	56733'4	10'745
		'18	49 15 47'69	4'6832602	48223'7	9'133
		'19	51 43 55'13	4'6986910	49967'9	9'464
30	Jalora, XXI Lohawat, XXII Ekka, XXIII	'19	79 0 17'18	4'7957073	62475'2	11'832
		'22	98 55 57'40	4'9096344	81214'7	15'382
		'22	37 25 48'85	4'6986910	49967'9	9'464
31	Ekka, XXIII Omlo, XXIV Khirwa, XXV	'22	43 38 13'75	4'7538389	56733'4	10'745
		'25	75 11 12'07	4'8566423	71885'7	13'615
		'25	64 22 53'51	4'8263807	67047'2	12'698
32	Khirwa, XXV Jambo, XXVI	'24	40 25 54'42	4'6832602	48223'7	9'133
		'24	47 2 9'35	4'7296663	53661'9	10'163
		'25	54 21 24'67	4'7751950	59593'0	11'287
33	Jambo, XXVI Ekka, XXIII Omlo, XXIV Jambo, XXVI	'25	78 36 25'98	4'8566423	71885'7	13'615
		'21	58 24 15'40	4'7751950	59593'0	11'287
		'21	111 25 3'14	4'9508828	89306'4	16'914
34	Jambo, XXVI Sirad, XXVII	'21	30 10 41'46	4'6832602	48223'7	9'133
		'23	65 53 51'42	4'7910041	61802'2	11'705
		'23	61 40 28'59	4'7752348	59598'4	11'288
35	Sirad, XXVII Bintli, XXIX	'23	52 25 39'99	4'7296663	53661'9	10'163
		'24	52 36 19'08	4'7377445	54669'4	10'354
		'24	63 28 54'44	4'7893889	61572'8	11'662
		'24	63 54 46'48	4'7910041	61802'2	11'705

No. of Triangle	Station	Spherical Excess	Corrected Plano Angle			Distance		
						Log. feet	Feet	Miles
36	Sirad, XXVII	"	°	'	"			
	Bintli, XXIX	.34	76	38	51'22	4'9314209	85392'7	16'173
	Mongolia, XXXI	.33	64	49	25'79	4'8999729	79427'9	15'043
37	Sirad, XXVII	.33	38	31	42'99	4'7377445	54669'4	10'354
	Mongolia, XXXI	.35	47	29	25'35	4'7991190	62967'9	11'926
	Nok, XXX	.35	64	5	47'40	4'8855712	76837'1	14'552
38	Harban, XXVIII	.36	68	24	47'25	4'8999729	79427'9	15'043
	Khirwa, XXV	.28	59	47	10'54	4'8061453	63994'9	12'120
	Sirad, XXVII	.28	66	37	26'72	4'8323596	67976'6	12'874
39	Harban, XXVIII	.27	53	35	22'74	4'7752348	59598'4	11'288
	Nok, XXX	.31	53	19	40'53	4'8077578	64232'9	12'165
	Mongolia, XXXI	.31	73	37	42'08	4'8855712	76837'1	14'552
40	Pabusar, XXXII	.31	53	2	37'39	4'8061453	63994'9	12'120
	Mongolia, XXXI	.23	62	36	10'93	4'7831116	60689'2	11'494
	Pabusar, XXXII	.23	50	17	54'71	4'7209196	52592'0	9'961
41	Girondi, XXXV	.24	67	5	54'36	4'7991190	62967'9	11'926
	Mongolia, XXXI	.26	54	41	13'52	4'7769581	59835'4	11'332
	Pabusar, XXXII	.27	69	27	16'83	4'8367231	68663'1	13'004
42	Phularsar, XXXIV	.27	55	51	29'65	4'7831116	60689'2	11'494
	Girondi, XXXV	.20	67	0	40'47	4'7738646	59410'7	11'252
	Phularsar, XXXIV	.19	44	59	31'43	4'6592272	45627'6	8'642
43	Bikampur, XXXIII	.20	67	59	48'10	4'7769581	59835'4	11'332
	Nok, XXX	.18	55	50	14'92	4'6920303	49207'4	9'320
	Pabusar, XXXII	.18	61	59	21'86	4'7201817	52502'7	9'944
44	Phularsar, XXXIV	.18	62	10	23'22	4'7209196	52592'0	9'961
	Bikampur, XXXIII	.18	94	26	45'41	4'8429305	69651'5	13'192
	Phularsar, XXXIV	.17	40	46	36'03	4'6592272	45627'6	8'642
45	Mankasar, XXXVI	.18	44	46	38'56	4'6920303	49207'4	9'320
	Phularsar, XXXIV	.28	57	57	48'65	4'8090908	64430'4	12'203
	Girondi, XXXV	.29	70	37	23'17	4'8555191	71700'0	13'580
46	Uperthal, XXXVII	.28	51	24	48'18	4'7738646	59410'7	11'252
	Phularsar, XXXIV	.30	68	16	58'59	4'8631165	72965'3	13'819
	Mankasar, XXXVI	.29	45	48	22'15	4'7506006	56311'9	10'665
47	Uperthal, XXXVII	.30	65	54	39'26	4'8555191	71700'0	13'580
	Mankasar, XXXVI	.53	76	14	23'93	5'0172722	104057'2	19'708
	Modia, XXXIX	.52	60	49	55'04	4'9710294	93546'9	17'717
48	Sachu, XLI	.52	42	55	41'03	4'8631165	72965'3	13'819
	Uperthal, XXXVII	.76	62	27	54'03	5'0326461	107806'8	20'418
	Modia, XXXIX	.75	58	40	37'31	5'0164405	103858'1	19'670
49	Mugrara, XLIII	.76	58	51	28'66	5'0172722	104057'2	19'708
	Modia, XXXIX	.81	83	20	2'91	5'1321256	135558'1	25'674
	Sachu, XLI	.80	44	29	21'39	4'9806505	95642'4	18'114
50	Mugrara, XLIII	.81	52	10	35'70	5'0326461	107806'8	20'418
	Khirsar, XLIV	.68	50	7	57'32	4'9668150	92643'5	17'546
	Mugrara, XLIII	.69	77	27	33'81	5'0712328	117823'8	22'315
		.68	52	24	28'87	4'9806505	95642'4	18'114

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle	Distance		
				Log. feet	Feet	Miles
51	Girondi, XXXV	"	° ' "			
	Manknsar, XXXVI	29	73 44 28.59	4.8688143	73928.9	14.002
	Bithnok, XXXVIII	28	49 28 9.26	4.7673861	58531.0	11.085
52	Manknsar, XXXVI	29	47 20 17.39	4.7607855	57648.2	10.918
	Bithnok, XXXVIII	30	62 5 32.79	4.8405886	69276.9	13.121
	Ronesar, XL	30	70 34 9.82	4.8688143	73928.9	14.002
53	Manknsar, XXXVI	51	89 43 56.91	5.0650027	116145.6	21.997
	Ronesar, XL	51	53 39 2.71	4.9710294	93546.9	17.717
	Modia, XXXIX	51	36 37 0.38	4.8405886	69276.9	13.121
54	Ronesar, XL	64	51 44 39.44	4.9677235	92837.5	17.583
	Modia, XXXIX	64	49 1 11.78	4.9506238	89253.2	16.904
	Jodnsar, XLII	65	79 14 8.78	5.0650027	116145.6	21.997
55	Modia, XXXIX	54	39 17 24.82	4.8729132	74630.0	14.134
	Jodnsar, XLII	55	88 44 4.78	5.0712328	117823.8	22.315
	Khirsar, XLIV	55	51 58 30.40	4.9677235	92837.5	17.583
56	Mugrals, XLIII	56	56 5 3.43	4.9393501	86966.1	16.471
	Khirsar, XLIV	56	61 46 57.92	4.9654010	92342.4	17.489
	Bhadsa, XLV	56	62 7 58.65	4.9668150	92643.5	17.546
57	Mugrals, XLIII	42	46 42 57.62	4.8402953	69230.2	13.112
	Bhadsa, XLV	42	57 7 5.06	4.9023565	79865.0	15.126
	Habib, XLVI	43	76 9 57.32	4.9654010	92342.4	17.489
58	Bhadsa, XLV	24	43 59 57.51	4.6985533	49952.0	9.461
	Habib, XLVI	24	61 41 27.70	4.8014690	63309.5	11.990
	Phogala, XLVIII	24	74 18 34.79	4.8402953	69230.2	13.112
59	Bhadsa, XLV	39	60 54 10.00	4.9053712	80421.3	15.231
	Phogala, XLVIII	39	75 38 7.06	4.9501667	89159.3	16.886
	Bhulan, XLIX	39	43 27 42.94	4.8014690	63309.5	11.990
60	Khirsar, XLIV	46	42 38 49.71	4.8361017	68564.9	12.986
	Bhadsa, XLV	46	78 6 52.43	4.9957924	99035.8	18.757
	Karamala, XLVII	46	59 14 17.86	4.9393501	86966.1	16.471
61	Bhadsa, XLV	41	57 43 53.87	4.8934831	78249.8	14.820
	Karamala, XLVII	41	74 27 35.95	4.9501667	89159.3	16.886
	Bhulan, XLIX	40	47 48 30.18	4.8361017	68564.9	12.986
62	Phogala, XLVIII	34	53 12 46.28	4.8293997	67514.9	12.787
	Bhulan, XLIX	35	54 14 25.30	4.8351156	68409.4	12.956
	Soma, L	35	72 32 48.42	4.9053712	80421.3	15.231
63	Phogala, XLVIII	35	72 28 35.67	4.9075826	80831.9	15.309
	Soma, L	35	53 42 55.63	4.8346015	68328.4	12.941
	Telu, LI	35	53 48 28.70	4.8351156	68409.4	12.956
64	Soma, L	31	42 10 17.28	4.7461424	55736.8	10.556
	Telu, LI	31	61 1 3.97	4.8610862	72625.0	13.755
	Mansa, LIII	31	76 48 38.75	4.9075826	80831.9	15.309
65	Soma, L	27	63 22 13.44	4.8333322	68129.0	12.903
	Mansa, LIII	27	44 16 54.58	4.7260047	53211.4	10.078
	Marot, LIV	28	72 20 51.98	4.8610862	72625.0	13.755



No. of Triangle	Station	Spherical Excess	Corrected Plane Angle			Distance		
			o	'	"	Log. feet	Feet	Miles
66	Bhulan, XLIX	.20	52	24	58.08	4.7306825	53787.6	10.187
	Soma, L	.19	43	28	52.57	4.6693669	46705.4	8.846
	Aukli, LII	.20	84	6	9.35	4.8293997	67514.9	12.787
67	Soma, L	.23	84	42	50.96	4.8578856	72091.8	13.654
	Aukli, LII	.22	47	18	16.18	4.7260047	53211.4	10.058
	Marot, LIV	.22	47	58	52.86	4.7306825	53787.6	10.187
68	Mansa, LIII	.22	52	22	56.37	4.7388714	54811.5	10.381
	Marot, LIV	.21	47	41	58.33	4.7091025	51180.3	9.693
	Hasan, LV	.22	79	55	5.30	4.8333322	68129.0	12.903
69	Marot, LIV	.15	45	15	20.56	4.6059500	49359.9	7.644
	Hasan, LV	.15	60	2	25.52	4.6922427	49231.5	9.324
	Bijli, LVII	.15	74	42	13.92	4.7388714	54811.5	10.381
70	Hasan, LV	.09	56	49	16.06	4.5578404	36127.7	6.842
	Bijli, LVII	.09	53	56	55.31	4.5428074	34898.6	6.610
	Randu, LIX	.10	69	13	48.63	4.6059500	49359.9	7.644
71	Bijli, LVII	.15	63	2	16.69	4.7375599	54646.2	10.350
	Randu, LIX	.16	80	51	26.71	4.7819799	60531.3	11.464
	Kanda, XXI	.15	36	6	16.60	4.5578404	36127.7	6.842
72	Randu, LIX	.21	73	52	44.93	4.8021263	63405.4	12.009
	Kanda, XXI	.21	50	13	50.46	4.7052635	50729.8	9.608
	Kaimsir, XIX	.21	55	53	24.61	4.7375599	54646.2	10.350
73	Mansa, LIII	.11	60	42	25.93	4.6539955	45081.2	8.538
	Hasan, LV	.11	37	21	10.01	4.4964028	31361.9	5.940
	Sultan, LVI	.11	81	56	24.06	4.7091025	51180.3	9.693
74	Hasan, LV	.15	60	4	26.55	4.6645260	46187.7	8.748
	Sultan, LVI	.15	62	9	23.38	4.6732354	47123.3	8.925
	Panchkot, LVIII	.14	57	46	10.07	4.6539955	45081.2	8.538
75	Hasan, LV	.12	65	47	35.72	4.6600621	45715.4	8.658
	Panchkot, LVIII	.12	44	7	41.10	4.5428074	34898.6	6.610
	Randu, LIX	.12	70	4	43.18	4.6732354	47123.3	8.925
76	Panchkot, LVIII	.17	61	36	15.32	4.7052635	50729.8	9.608
	Randu, LIX	.17	65	57	15.79	4.7215129	52663.9	9.974
	Kaimsir, XIX	.16	52	26	28.89	4.6600621	45715.4	8.658

NOTE.—Stations XIX and XXI appertain to the Sutlej Series.

December, 1883.

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

**JODHPORE MERIDIONAL SERIES.**  
**SECONDARY TRIANGULATION. TRIANGLES.**

**PRINCIPAL-AUXILIARY STATIONS AND INTERSECTED POINTS.**

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

No. of Triangle	Station	Corrected Plane Angle	Distance			No. of Triangle	Station	Corrected Plane Angle	Distance			Theodolite used
			Log. feet	Feet	Miles				Log. feet	Feet	Miles	
77	Súnda, XLIV	124 55 14	5.313446	205800	38.977	82	Súnda, XLIV	0 / "			Inch	
	Dhaura, II	5 41 52	4.396327	24919	4.719		Borta, I	19 34 49	4.626781	42343		8.019
	Nodona Hill		5.279938	199519	36.083		Bhimtal Hill Mark (heliotrope)	49 23 1	4.981861	95909		18.165
78	Súnda, XLIV	27 35 56	4.781418	60453	11.449	88	Borta, I	72 49 46	5.061286	115156	21.810	
	Borta, I	37 3 17	4.895588	78630	14.892		Dhaura, II	13 32 44	4.450708	28230	5.347	
	Bugeon Hill		5.071617	117928	22.335		Tau Hill Mark	5.080217	120287	22.782		
79	Súnda, XLIV	44 10 25	5.008380	101948	19.308	84	Borta, I	78 45 45	5.143723	139227	26.369	
	Borta, I	82 6 49	5.161123	144918	27.447		Kundal, III	25 41 46	4.789218	61549	11.657	
	Ponússa Mark (heliotrope)		5.071617	117928	22.335		Tatol	5.138153	137453	26.033		
80	Súnda, XLIV	24 21 56	4.693301	49352	9.347	85	Dhaura, II	81 20 9	5.143723	139227	26.369	
	Borta, I	55 58 34	4.996269	99145	18.777		Kundal, III	24 56 47	4.804956	61820	12.087	
	Bhimásí Hill Pagoda Mark		5.071617	117928	22.335		Tatol	5.126213	133725	25.327		
81	Borta, I	142 18 53	5.237821	172011	32.748	86	Borta, I	38 8 56	4.677783	47619	9.019	
	Kundal, III	8 36 35	4.626781	42343	8.019		Tatol	14 49 41	4.295104	19729	3.737	
	Bhimtal Hill Mark (heliotrope)		5.138153	137453	26.033		Lár Hill Mark	4.789218	61549	11.657		

NOTES.—1. Names followed by Roman numerals are those of Principal Stations.

Station Súnda, XLIV, appertains to the Karachi Longitudinal Series.

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

SECONDARY TRIANGULATION. TRIANGLES.

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
87	Borta, I	54 49 26	5.041820	110108	20.854	Inch	100	Kundal, III	47 39 8	5.122060	134453	Inch	
	Dhaura, II	8 25 18	4.295104	19729	3.737	24		Bhadrājan, V	34 29 14	5.006362	101476	25.086	24
	Lār Hill Mark	5.086217	120287	22 782	33.623	"		Roza Hill	5.249275	177531	19.219	"	
88	Borta, I	25 53 8	4.552583	35693	6.760	7	101	Kundal, III	90 44 52	5.254524	170690	"	
	Tatol	22 57 0	4.503509	31879	6.038	"		Samdari, VII	34 22 48	5.006362	101476	"	
	Modra Hill Mark	h.s.	4.789218	61549	11.657	"		Roza Hill	5.167245	146976	27.836	"	
89	Borta, I	52 52 37	5.082478	120914	22.900	24	102	Boni, XLI	45 35 6	5.093543	124035	"	
	Kundal, III	12 8 7	4.503509	31879	6.038	"		Borta, I	46 18 57	5.098902	125575	"	
	Modra Hill Mark	h.s.	5.138153	137453	26.033	"		Jālor	5.239430	173552	32.870	"	
90	Borta, I	10 23 48	4.048528	11182	2.118	7	103	Borta, I	48 43 58	5.035718	108572	"	
	Tatol	86 14 44	4.791209	61831	11.711	"		Kundal, III	59 10 11	5.093543	124035	"	
	Nān Hill Pagoda	h.s.	4.789218	61549	11.657	"		Jālor	5.138153	137453	26.033	"	
91	Boni, XLI	63 38 3	5.239800	173736	32.905	24	104	Kundal, III	62 2 37	5.138621	137601	"	
	Bhadrājan, V	22 46 46	4.875512	75078	14.219	"		Mandaula, IV	21 19 39	4.753252	56657	"	
	Aula	h.s.	5.286742	193327	36.653	"		Serao Hill	5.189598	154738	29.306	"	
92	Boni, XLI	11 48 36	4.474206	29799	5.644	"	105	Borta, I	28 19 48	4.831607	67859	"	
	Dhaura, II	30 22 8	4.866936	73610	13.941	"		Kundal, III	45 39 48	5.009781	102278	"	
	Thoro Hill	h.s.	4.990171	97762	18.516	"		Katrūna Hill	5.138153	137453	26.033	"	
93	Dhaura, II	139 55 11	5.197824	157697	29.867	"	106	Borta, I	33 45 27	4.825292	66879	"	
	Kundal, III	6 59 18	4.474206	29799	5.644	"		Dhaura, II	58 11 21	5.009781	102278	"	
	Thoro Hill	h.s.	5.126213	133725	25.327	"		Katrūna Hill	5.080217	120287	22.782	"	
94	Dhaura, II	64 46 31	5.105094	127378	24.125	"	107	Dhaura, II	22 11 41	5.027056	106428	"	
	Bhadrājan, V	34 40 19	4.903635	80100	15.171	"		Bhadrājan, V	7 20 34	4.556394	36008	"	
	Raonak Hill	h.s.	5.142686	138895	26.306	"		Laida Hill	5.142686	138895	26.306	"	
95	Boni, XLI	54 14 31	4.903635	80100	15.171	"	108	Borta, I	30 34 3	4.846864	70285	"	
	Dhaura, II	43 41 41	4.833713	68189	12.915	"		Kundal, III	53 26 47	5.045495	111021	"	
	Raonak Hill	h.s.	4.990171	97762	18.516	"		Kawāna Hill	5.138153	137453	26.033	"	
96	Borta, I	64 6 13	5.177390	150449	28.494	"	109	Kundal, III	49 50 33	5.154428	142701	"	
	Kundal, III	60 37 25	5.103574	145738	27.602	"		Bhadrājan, V	22 6 46	4.846864	70285	"	
	Asārana Hill	h.s.	5.138153	137453	26.033	"		Kawāna Hill	5.249275	177531	33.623	"	
97	Kundal, III	42 39 55	5.086186	121951	23.097	"	110	Kundal, III	30 56 42	4.972971	93666	"	
	Bhadrājan, V	56 43 45	5.177390	150449	28.494	"		Bhadrājan, V	45 20 46	5.113919	129993	"	
	Asārana Hill	h.s.	5.249275	177531	33.623	"		Godhan Hill	5.249275	177531	33.623	"	
98	Borta, I	19 3 58	4.644757	44132	8.358	"	111	Dhaura, II	75 29 23	5.113919	129993	"	
	Dhaura, II	43 50 59	4.971251	93595	17.726	"		Kundal, III	19 42 5	4.655780	45267	"	
	Balūnda Hill	h.s.	5.080217	120287	22.782	"		Godhan Hill	5.126213	133725	25.327	"	
99	Borta, I	43 1 17	4.973281	94033	17.809	"	112	Dhaura, II	25 34 24	4.951259	89384	"	
	Kundal, III	42 46 21	4.971251	93595	17.726	"		Bhadrājan, V	10 33 12	4.770816	58995	"	
	Balūnda Hill	h.s.	5.136153	137453	26.033	"		Dausu Hill	5.142686	138895	26.306	"	

Note.—Station Boni, XLI, appertains to the Karachi Longitudinal Series. \* Base deduced by two sides and included angle.

## JODHPORE MERIDIONAL SERIES.

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	
113	Dhaura, II Jalor Dausa Hill	h.s.	30 9 4	4.560634	37122	7.031	126	Kundal, III Nagar, VI Balmir Hill Mark (heliotrope)	44 48 20	5.409504	256746	5	Inch 24
			127 2 18	4.770816	58995	11.173			115 2 40	5.518617	330078	62.515	
114	Dhaura, II V Bhadrajan, V Modri Hill	h.s.	45 8 24	5.016103	103777	19.655	127	Samdari, VII Thob, VIII Jasol Hill Mark	52 52 54	5.005718	101335	5	"
			26 25 38	4.813979	65160	12.341			69 9 20	5.074050	118754	22.491	
115	Borta, I Dhaura, II Modri Hill	h.s.	25 37 57	4.813979	65160	12.341	128	Kundal, III Samdari, VII Jasol Hill Mark	50 23 26	5.074650	118754	5	"
			101 22 20	5.169284	147667	27.967			57 9 9	5.112269	129500	24.526	
116	Bhadrajan, V Jalor Panchota Hill Mark (heliotrope)	h.s.	68 59 29	5.068587	117108	22.180	129	Dodo, X Dugur, XII Sar Hill Mark	141 43 54	5.123083	132785	5	"
			25 43 31	4.736007	54451	10.313			12 2 49	4.650700	44740	8.474	
117	Dhaura, II Bhadrajan, V Panchota Hill Mark (heliotrope)	h.s.	22 46 13	4.736007	54451	10.313	130	Samdari, VII Dodo, X Sar Hill Mark	16 48 53	4.650700	44740	9	"
			58 4 29	5.077028	110406	22.615			112 45 11	5.154201	142627	27.013	
118	Bhadrajan, V Samdari, VII Kumbi Hill	h.s.	88 42 54	5.105764	127574	24.162	131	Dodo, X Dugur, XII Hill No. 25	34 4 16	4.733585	54148	10.255	"
			17 30 32	4.584228	38391	7.271			67 25 48	4.950620	89252	16.904	
119	Borta, I Mandaula, IV Saura Hill	h.s.	55 36 42	5.226317	168390	31.892	132	Samdari, VII Dodo, X Hill No. 25	42 58 22	4.950620	89252	16.904	"
			53 27 35	5.214605	163044	31.050			71 26 39	5.093872	124120	23.509	
120	Kundal, III Mandaula, IV Saura Hill	h.s.	115 19 17	5.226317	168390	31.892	133	Thob, VIII Adori, XI Burdu Hill	56 21 25	5.028844	106131	20.101	"
			8 30 51	4.440605	27581	5.224			68 5 18	5.072893	118275	22.401	
121	Bhadrajan, V Jalor Maklur Hill	h.s.	49 53 10	5.025748	106108	20.096	134	Thob, VIII Dodo, X Burdu Hill	38 18 58	4.952738	89689	16.986	"
			65 48 45	5.102315	126565	23.971			54 50 47	5.072893	118275	22.401	
122	Kundal, III Jalor Maklur Hill	h.s.	71 20 10	5.025749	106108	20.096	135	Dugur, XII Malunga, XV Bijolai	60 34 12	4.974040	94168	17.840	"
			32 52 18	4.783817	60788	11.513			67 37 46	5.000064	100015	18.942	
123	Mandaula, IV Nagar, VI Goina Hill	h.s.	21 38 35	4.904638	80286	15.206	136	Malunga, XV Bijolai Jodhpore	8 43 12	4.287730	19397	3.674	"
			27 38 12	5.004210	100974	19.124			123 52 1	5.026267	106235	20.120	
124	Nagar, VI Borta, IX Goina Hill	h.s.	105 21 53	5.240014	173786	32.914	137	Bijolai Jodhpore Massuria	32 29 10	4.046651	11134	2.109	"
			26 27 12	4.904638	80286	15.206			36 51 12	4.04583	14433	2.355	
125	Mandaula, IV Nagar, VI Balmir Hill Mark (heliotrope)	h.s.	87 39 37	5.409504	256746	48.626	138	Jodhpore Massuria Rathanada Temple	87 4 9	4.172328	14871	2.816	"
			52 23 42	5.368721	203573	38.556			44 32 7	4.018830	10443	1.978	

\* Base deduced by two sides and included angle.

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.	
139	Jodhpore	h.s.	3° 01' 32"	7979	1° 511	152	Pelu, XVIII	0	3	38243	Theodolite used	
	Massuria	"	3° 6' 36"	4454	0° 844		Lohawat, XXIII	31 32 17	4° 58' 25"	56810		7° 243
	Jodhpore Gate No. 1	"	4° 0' 46"	11134	2° 109		Bhakhari Fort	50 59 19	4° 75' 42"	10760		"
140	Jodhpore	h.s.	3° 83' 30"	6844	1° 296	153	Dachu, XIX	16 58 24	4° 45' 42"	28462	Theodolite used	
	Massuria	"	3° 6' 40"	4459	0° 845		Jalora, XXI	22 47 13	4° 57' 03"	37761		7° 152
	Jodhpore Gate No. 2	"	4° 0' 46"	11134	2° 109		Koru Temple	4° 79' 47"	62356	11° 810		"
141	Jodhpore	h.s.	4° 02' 21"	10523	1° 093	154	Ekka, XXIII	114 46 0	5° 00' 56"	101312	Theodolite used	
	Massuria	"	3° 51' 08"	3287	0° 623		Khirwa, XXV	28 17 52	4° 72' 39"	32893		10° 018
	Jodhpore Temple No. 1	"	4° 0' 46"	11134	2° 109		Puthelia Hill Mark (heliotrope)	4° 82' 38"	67047	12° 698		"
142	Jodhpore	h.s.	4° 03' 27"	10896	2° 064	155	Ekka, XXIII	6 11 47	3° 81' 02"	6460	Theodolite used	
	Massuria	"	3° 51' 02"	3281	0° 621		Omlo, XXIV	47 28 58	4° 64' 50"	44115		8° 355
	Jodhpore Gate No. 3	"	4° 0' 46"	11134	2° 109		Malár Hill	4° 68' 32"	48224	9° 133		"
143	Jodhpore	h.s.	4° 28' 03"	19468	3° 687	156	Khirwa, XXV	85 44 16	4° 86' 11"	72629	Theodolite used	
	Massuria	"	4° 03' 48"	10835	2° 052		Jambo, XXVI	46 48 7	4° 72' 50"	53093		10° 055
	Jodhpore House	"	4° 0' 46"	11134	2° 109		Phalodi Fort Mark (heliotrope)	4° 72' 96"	53662	10° 103		"
144	Jodhpore	h.s.	4° 02' 73"	10650	2° 017	157	Omlo, XXIV	93 11 7	4° 86' 11"	72629	Theodolite used	
	Massuria	"	3° 11' 03"	1316	0° 249		Jambo, XXVI	31 48 19	4° 58' 36"	33337		7° 261
	Jodhpore Temple No. 2	"	4° 0' 46"	11134	2° 109		Phalodi Fort Mark (heliotrope)	4° 77' 51"	59593	11° 287		"
145	Jodhpore	h.s.	4° 16' 23"	14533	2° 753	158	Lohawat, XXII	56 34 42	4° 81' 27"	65657	Theodolite used	
	Massuria	"	3° 63' 26"	4292	0° 813		Omlo, XXIV	83 38 12	4° 89' 30"	78180		14° 867
	Jodhpore Temple No. 3	"	4° 0' 46"	11134	2° 109		Ronesar Hill Mark (heliotrope)	4° 70' 18"	50338	9° 534		"
146	Ketu, XIII		37° 50' 41"	55299	10° 473	159	Omlo, XXIV	53 59 24	4° 57' 07"	57109	Theodolite used	
	Malunga, XV		71° 21' 5"	85401	16° 174		Jambo, XXVI	68 26 2	4° 81' 27"	65657		12° 435
	Undria Hill		4° 93' 00"	85122	16° 122		Ronesar Hill Mark (heliotrope)	4° 77' 51"	59593	11° 287		"
147	Adori, XI		35° 14' 47"	43744	8° 285	160	Ekka, XXIII	29 38 31	4° 52' 10"	33195	Theodolite used	
	Sulkia Thalau, XIV		25° 23' 41"	32507	6° 157		Khirwa, XXV	62 58 10	4° 77' 59"	59785		11° 323
	Kirja Hill		4° 81' 99"	60605	12° 512		Bawuri Hill Mark (heliotrope)	4° 82' 63"	67047	12° 698		"
148	Ketu, XIII		19° 18' 41"	44242	8° 379	161	Ekka, XXIII	16 36 41	4° 50' 87"	19893	Theodolite used	
	Malunga, XV		20° 12' 11"	46201	8° 750		Khirwa, XXV	88 54 52	4° 84' 24"	69574		13° 177
	Badi Hill		4° 93' 00"	85122	16° 122		Kalina, Hill Mark (heliotrope)	4° 82' 63"	67047	12° 698		"
149	Sulkia Thalau, XIV		35° 27' 50"	37593	7° 120	162	Khirwa, XXV	30 8 41	4° 69' 40"	49438	Theodolite used	
	Loharan, XVI		30° 49' 35"	33203	6° 280		Harban, XXVIII	13 31 31	4° 30' 21"	23024		4° 361
	Hill No. 2		4° 77' 32"	59326	11° 236		Mata-le-bhakar Hill Mark (heliotrope)	4° 83' 23"	67977	12° 674		"
150	Malunga, XV		80° 25' 49"	112769	21° 358	163	Khirwa, XXV	23 9 35	4° 32' 46"	21116	Theodolite used	
	Chamu, XVII		49° 24' 34"	86843	16° 448		Jambo, XXVI	64 59 38	4° 08' 14"	48657		9° 215
	Digwi Hill		4° 94' 35"	87810	16° 631		Referring Mark (heliotrope)	4° 72' 96"	53662	10° 103		"
151	Pelu, XVIII		80° 34' 2"	77236	14° 628	164	Sirad, XXVII	76 5 46	4° 72' 83"	53559	Theodolite used	
	Jalora, XXI		46° 31' 8"	56810	10° 760		Bintli, XXIX	21 40 23	4° 30' 91"	26377		3° 859
	Bhakhari Fort		4° 79' 55"	62458	11° 829		Ekka Thalali Hill Mark (heliotrope)	4° 73' 74"	54669	10° 334		"

JODHPORE MERIDIONAL SERIES.

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	Theodolite used			
165	Khirwa, XXV Harban, XXVIII Bāp Mark (heliotrope)	34 29 1	4° 6' 41.786	43831	8° 30'	8.301	178	Telu, LI Manasa, LIII Maujgarh Mosque	50 43 9	4° 6' 38.868	43538	8° 246	"	24		
		26 55 29	4° 54' 47.64	35056	6° 6' 39	6.639			47 0 6	4° 6' 14.237	41137	7° 791	"	"		
			4° 8' 32.360	67977	12° 8' 74	12.874				4° 7' 46.142	55737	10° 556	"	"		
166	Sread, XXVII Harban, XXVIII Bāp Mark (heliotrope)	38 23 31	4° 6' 41.786	43831	8° 30'	8.301	179	Telu, LI Manasa, LIII Maujgarh Fort Mark (heliotrope)	50 34 16	4° 6' 37.691	43420	8° 224	"	"		
		26 39 54	4° 5° 00.696	31673	5° 9' 99	5.999			46 53 47	4° 6' 13.235	41043	7° 773	"	"		
			4° 8' 00.145	63995	12° 12' 0	12.120				4° 7' 46.142	55737	10° 556	"	"		
167	Bintli, XXIX Mongolia, XXXI Nokra Hill Mark	42 19 2	4° 8' 13.863	65142	12° 33' 8	12.338	180	Soma, L Aukli, LII Jamgarh Bastion No. 1 Mark (heliotrope)	46 9 5	4° 6' 35.602	43212	8° 184	"	"		
		75 44 6	4° 9' 7.209	93777	17° 76' 1	17.761			69 59 39	4° 7' 50.532	56303	10° 663	"	"		
			4° 9' 31.421	85393	16° 17' 3	16.173				4° 7' 30.683	53788	10° 187	"	"		
168	Mongolia, XXXI Girondi, XXXV Nokra Hill Mark	76 39 14	4° 9' 10.209	83025	15° 72' 4	15.724	181	Soma, L Marot, LIV Jamgarh Bastion No. 1 Mark (heliotrope)	38 33 46	4° 55' 06.68	36280	6° 871	"	"		
		49 46 0	4° 8' 13.863	65142	12° 33' 8	12.338			75 19 56	4° 7' 50.532	56303	10° 663	"	"		
			4° 8' 30.723	68663	13° 00' 4	13.004				4° 7' 26.005	53211	10° 078	"	"		
169	Modia, XXXIX Sachu, XLI Girnāl Hill Mark (heliotrope)	65 29 55	5° 0' 14.431	103379	19° 57' 9	19.579	182	Soma, L Aukli, LII Jamgarh Bastion No. 2 Mark (heliotrope)	46 22 18	4° 6' 37.870	43438	8° 227	"	"		
		42 53 31	4° 8' 88.316	77334	14° 6' 45	14.645			69 57 12	4° 7' 51.089	56375	10° 677	"	"		
			5° 0' 32.646	107807	20° 41' 8	20.418				4° 7' 30.683	53788	10° 187	"	"		
170	Mankasar, XXXVI Modia, XXXIX Girnāl Hill Mark (heliotrope)	55 42 26	4° 8' 88.316	77334	14° 6' 45	14.645	183	Soma, L Marot, LIV Jamgarh Bastion No. 2 Mark (heliotrope)	38 20 33	4° 55' 76.44	36111	6° 839	"	"		
		36 6 25	4° 7' 41.579	55154	10° 44' 6	10.446			75 34 33	4° 7' 51.089	56375	10° 677	"	"		
			4° 9' 7.1029	93587	17° 71' 7	17.717				4° 7' 26.005	53211	10° 078	"	"		
171	Modia, XXXIX Sachu, XLI Band-ke-tibba	38 36 24	4° 8' 27.867	67277	12° 74' 2	12.742	184	Soma, L Marot, LIV Mirgarh Bastion No. 1 Mark (heliotrope)	54 2 22	4° 7' 73.723	59391	11° 248	"	"		
		50 28 12	4° 9' 19.221	83161	15° 75' 0	15.750			79 28 31	4° 8' 58.180	72141	13° 603	"	"		
			5° 0' 32.646	107807	20° 41' 8	20.418				4° 7' 26.005	53211	10° 078	"	"		
172	Modia, XXXIX Mugrala, XLIII Band-ke-tibba	44 43 40	4° 8' 38.879	69005	13° 06' 9	13.069	185	Aukli, LII Marot, LIV Mirgarh Bastion No. 1 Mark (heliotrope)	55 20 36	4° 7' 73.723	59391	11° 248	"	"		
		58 0 25	4° 9' 19.221	83161	15° 75' 0	15.750			31 29 38	4° 5' 76.557	37719	7° 144	"	"		
			4° 9' 80.651	95642	18° 11' 4	18.114				4° 8' 57.886	72092	13° 654	"	"		
173	Jodasar, XLII Khirsar, XLIV Aduwālī	38 13 32	4° 6' 60.143	46681	8° 84'	8.841	186	Soma, L Marot, LIV Mirgarh Bastion No. 2 Mark (heliotrope)	53 58 15	4° 7' 73.706	59389	11° 248	"	"		
		43 21 10	4° 7' 14.255	51791	9° 80' 9	9.809			79 35 38	4° 8' 58.706	72228	13° 660	"	"		
			4° 8' 27.913	74630	14° 13' 4	14.134				4° 7' 26.005	53211	10° 078	"	"		
174	Khirsar, XLIV Aduwālī Saruwālī	29 50 14	4° 4' 60.996	28907	5° 47' 5	5.475	187	Aukli, LII Marot, LIV Mirgarh Bastion No. 2 Mark (heliotrope)	55 21 0	4° 7' 73.706	59389	11° 248	"	"		
		96 41 58	4° 7' 61.195	57702	10° 92' 9	10.929			31 36 45	4° 5' 77.970	37842	7° 167	"	"		
			4° 6' 60.9143	46681	8° 84'	8.841				4° 8' 57.886	72092	13° 654	"	"		
175	Khirsar, XLIV Saruwālī Būdīthal	19 23 9	4° 2' 29.493	19723	3° 73' 6	3.736	188	Manasa, LIII Marot, LIV Chāpu	60 17 7	4° 7' 82.706	60633	11° 483	"	"		
		56 48 5	4° 6' 05.549	49222	9° 41' 7	9.417			17 6 22	4° 3' 12.491	20535	3° 889	"	"		
			4° 7' 61.195	57702	10° 92' 9	10.929				4° 8' 33.332	68129	12° 903	"	"		
176	Khirsar, XLIV Aduwālī Būdīthal	49 13 23	4° 6' 04.697	40244	7° 62' 2	7.622	189	Revenue Survey No. 12 S. W. end Base Chāpu	90 0 0	3° 8' 38.570	6896	1° 306	"	7		
		69 19 39	4° 6' 05.549	49222	9° 41' 7	9.417			3 9 20	2° 57' 93.03	*380	0° 072	"	"		
			4° 6' 60.9143	46681	8° 84'	8.841				4° 4' 31.255	67804	12° 842	"	24		
177	Saruwālī Būdīthal Pungal Fort Mark (heliotrope)	28 55 53	3° 6' 74.022	4721	0° 89' 4	0.894	190	Soma, L Manasa, LIII Marot Fort Mark (heliotrope)	62 49 39	4° 8' 31.255	67804	12° 842	"	24		
			4° 19' 50.4	15758	2° 98' 4	2.984			44 49 45	4° 7' 30.229	53732	10° 176	"	"		
			4° 29' 49.83	19733	3° 73' 6	3.736				4° 8' 61.086	72625	13° 755	"	"		

\* Measured base.

SECONDARY TRIANGULATION. TRIANGLES.

No. of Triangle	Station	Corrected Plane Angle	Distance		Theodolite	No. of Triangle	Station	Corrected Plane Angle	Distance		Theodolite	
			Log. feet	Feet					Log. feet	Feet		
191	Soma, L	85 15 26	4 862231	72817	13 791	202	Lalji	84 38 16	5 044576	110809	Inch 10	
	Aukli, LII	47 20 20	4 730229	53732	10 176		Gangasara, LXV	55 44 31	4 963729	91987	17 422	"
	Marot Fort Mark (heliotrope)	4 730683	53798	10 187	Durimana		39 37 13	4 851094	70973	13 442	"	"
192	Hasan, LV	41 26 14	4 432350	27061	5 125	203	Gangasara, LXV	52 6 58	4 042861	87672	16 605	"
	Bijli, LVII	57 48 14	4 539112	34603	6 554		Durimana	41 53 56	4 870301	74182	14 050	"
	Kali Dahar	4 605950	40360	7 044	Kariali		85 59 6	5 044576	110809	20 987	"	"
193	Hasan, LV	15 23 2	3 968817	9307	1 763	204	Gangasara, LXV	107 51 29	5 069456	117343	22 224	"
	Randu, LIX	80 30 13	4 539112	34603	6 554		Lalji	36 59 37	4 870301	74182	14 050	"
	Kali Dahar	4 542807	34899	6 610	Kariali		35 8 54	4 851094	70973	13 442	"	"
194	Randu, LIX	42 38 20	4 147108	14032	2 658	205	Durimana	79 58 46	4 995473	98963	18 743	"
	Kali Dahar	110 39 44	4 287405	19382	3 671		Kariali	39 16 58	4 803655	62629	12 051	"
	Revenue Survey Station D. s.	26 41 56	3 968817	9307	1 763		Mangta	60 44 16	4 942861	87672	16 605	"
195	Randu, LIX	58 37 42	4 710789	51379	9 731	206	Kariali	64 44 1	5 059817	114767	21 736	"
	Kanda, XXI	6 36 54	3 840871	6932	1 313		Mangta	64 1 26	5 057237	114087	21 607	"
	Haidarwala	4 737560	54646	10 350	Chotan		51 14 33	4 995473	98963	18 743	"	"
196	Kaimsir, XIX	53 31 9	4 710789	51379	9 731	207	Durimana	43 49 50	5 057237	114087	21 607	"
	Kanda, XXI	43 36 57	4 644238	44080	8 348		Kariali	104 0 59	5 203673	150836	30 272	"
	Haidarwala	4 802126	63405	12 009	Chotan		32 9 11	4 942861	87672	16 605	"	"
197	Randu, LIX	108 35 47	4 300870	19993	3 786	208	Chotan	46 11 25	4 823101	83772	15 866	"
	Kali Dahar	45 13 18	4 175318	14973	2 836		Mangta	35 9 57	4 825159	66859	12 663	"
	Revenue Survey Station J. s.	3 968817	9307	1 763	Taratra		98 38 38	5 059817	114767	21 736	"	"
198	Randu, LIX	19 36 58	3 942420	8758	1 659	209	Mangta	33 4 26	4 914558	82141	15 557	"
	Haidarwala	144 58 27	4 175318	14973	2 836		Taratra	113 6 28	5 141266	138441	26 220	"
	Revenue Survey Station J. s.	3 840871	6932	1 313	Balmir		33 49 6	4 923101	83772	15 866	"	"
199	Didawa, LXII	84 44 1	4 851094	70973	13 442	210	Taratra	69 42 3	4 997893	99516	18 848	"
	Gangasara, LXV	37 21 51	4 636034	43255	8 192		Balmir	59 34 20	4 901381	9492	17 328	"
	Lalji	57 54 8	4 780888	60379	11 435		Sioni	50 43 37	4 914558	82141	15 557	"
200	Tiampi, LX	32 52 3	4 851094	70973	13 442	211	Chotan	61 29 49	4 961381	91492	17 328	"
	Gangasara, LXV	12 46 56	4 461411	28934	5 480		Taratra	78 32 51	5 008759	102037	19 325	"
	Lalji	134 21 1	4 970891	93517	17 712		Sioni	39 37 20	4 825159	66859	12 663	"
201	Tiampi, LX	65 54 48	4 636034	43255	8 192	212	Balmir	79 50 42	5 134073	136167	25 789	"
	Didawa, LXII	37 38 19	4 461411	28934	5 480		Sioni	46 9 4	5 049718	112129	21 237	"
	Lalji	76 26 53	4 603335	46001	8 724		Nimla	46 0 14	4 997893	99516	18 848	"
202	Didawa, LXII	65 54 48	4 636034	43255	8 192	213	Sioni	21 50 23	4 710368	51330	9 722	"
	Didawa, LXII	37 38 19	4 461411	28934	5 480		Nimla	77 27 15	5 129316	134684	25 508	"
	Lalji	76 26 53	4 603335	46001	8 724		Kotra	80 42 22	5 134073	136167	25 789	"
203	Didawa, LXII	65 54 48	4 636034	43255	8 192	214	Balmir	62 53 9	5 120316	134684	25 508	"
	Didawa, LXII	37 38 19	4 461411	28934	5 480		Sioni	75 59 27	5 166764	146813	27 825	"
	Lalji	76 26 53	4 603335	46001	8 724		Kotra	41 7 24	4 997893	99516	18 848	"

BALMIR AND JEYSULMERE  
SECONDARY SERIES.

Notes.—1. Stations Kaimsir, XIX, and Kanda, XXI, pertain to the Surtley Series.  
2. Stations Tiampi, LX, Didawa, LXII, and Gangasara, LXV, pertain to the Karachi Longitudinal Series.  
\* Base deduced by two sites and included angle.  
† Difference 0. See preamble p. 20.

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	
215	Nimla	h.s.	62 5 22	5 056152	113803	21 554	228	Suer Māli	h.s.	37 1 37	4 575103	37593	7 120
	Kotra	"	94 25 17	5 108563	128399	24 318		Thaiait	"	115 28 17	4 750961	56359	10 674
	Daroi	"	23 29 21	4 710368	51330	9 722		Kākrasar	"	27 30 6	4 459799	88827	5 460
216	Kotra	h.s.	24 56 7	4 708104	51063	9 671	229	Thaiait	h.s.	49 14 10	4 762291	57848	10 956
	Daroi	"	45 2 56	4 933065	85717	16 234		Kākrasar	"	101 16 43	4 874492	74902	14 186
	Mandai	"	110 0 57	5 056152	113803	21 554		Lon Charri	"	29 29 7	4 575103	37593	7 120
217	Nimla	h.s.	23 25 9	4 708104	51063	9 671	230	Kākrasar	h.s.	76 34 25	4 986801	97007	18 372
	Daroi	"	68 32 17	5 077608	119566	22 645		Lon Charri	"	67 58 24	4 965920	92453	17 510
	Mandai	"	88 2 34	5 108363	128399	24 318		Chāran Thalli	"	35 27 11	4 762291	57848	10 956
218	Daroi	h.s.	97 10 4	4 935061	86112	16 309	231	Lon Charri	h.s.	42 8 30	4 818181	65793	12 461
	Mandai	"	46 47 32	4 801122	63259	11 981		Chāran Thalli	"	56 15 15	4 911348	81536	15 442
	Lakman	"	36 2 24	4 708104	51063	9 671		Jonju Thalli	"	81 36 15	4 986801	97007	18 372
219	Mandai	h.s.	29 8 13	4 663011	46027	8 717	232	Chāran Thalli	h.s.	63 21 29	4 770819	58995	11 173
	Lakman	"	85 13 40	4 974064	94203	17 841		Jonju Thalli	"	22 4 10	4 394442	24799	4 097
	Jisu	8.	65 38 7	4 935061	86112	16 309		Jhalari Māli	"	94 34 21	4 818181	65793	12 461
220	Daroi	h.s.	72 52 19	4 974064	94203	17 841	233	Jonju Thalli	h.s.	78 34 27	4 894456	78425	14 853
	Mandai	"	75 55 45	4 980536	95617	18 109		Jhalari Māli	"	53 55 13	4 810667	64665	12 247
	Jisu	s.	31 11 56	4 708104	51063	9 671		Ekalguri	"	47 30 20	4 770819	58995	11 173
221	Lakman	h.s.	53 12 2	4 862526	72866	13 800	234	Jhalari Māli	h.s.	29 7 22	4 714428	51812	9 813
	Jisu	8.	96 24 55	4 956308	90429	17 127		Ekalguri	"	18 19 33	4 524693	33473	6 340
	Gadar Māli	h.s.	30 23 3	4 663011	46027	8 717		Nār Māgra	8.	132 33 5	4 894456	78425	14 853
222	Jisu	h.s.	28 14 23	4 618098	41505	7 861	235	Nār Māgra	s.	70 12 18	4 831295	67810	12 843
	Gadar Māli	h.s.	27 55 47	4 613695	41086	7 781		Ekalguri	h.s.	63 49 46	4 810774	64681	12 250
	Kita	"	123 49 50	4 862526	72866	13 800		Hardikot	"	45 57 56	4 714428	51812	9 813
223	Lakman	h.s.	27 13 34	4 618098	41505	7 861	236	Ekalguri	h.s.	45 15 32	4 963814	92006	17 425
	Gadar Māli	"	58 18 50	4 887520	77183	14 618		Hardikot	"	103 10 25	5 100794	126123	23 887
	Kita	"	94 27 16	4 956308	90429	17 127		Kair Dūngar	"	31 34 3	4 831295	67810	12 843
224	Gadar Māli	h.s.	115 24 22	4 899732	79384	15 035	237	Hardikot	h.s.	51 27 52	4 978057	95073	18 006
	Kita	"	36 24 43	4 717359	52166	9 880		Kair Dūngar	"	79 20 11	5 077161	119443	22 622
	Thaiait	"	28 10 55	4 618098	41505	7 861		Marla	"	49 11 57	4 963814	92006	17 425
225	Kita	h.s.	37 52 11	4 756275	57053	10 805	238	Kair Dūngar	h.s.	46 53 23	4 895356	78588	14 884
	Thaiait	"	83 27 53	4 995368	92335	17 488		Marla	"	71 4 57	5 007895	101834	18 287
	Jaysulmere	s.	58 39 56	4 899732	79384	15 035		Jalora, XXI	"	62 1 40	4 978057	95073	18 006
226	Gadar Māli	h.s.	79 29 22	4 965368	92335	17 488	239	Marla	h.s.	49 12 23	4 794877	62356	11 810
	Kita	"	74 16 54	4 956165	90399	17 121		Jalora, XXI	"	23 22 31	4 514261	32678	6 189
	Jaysulmere	8.	26 13 44	4 618098	41505	7 861		Daichu, XIX	"	107 25 6	4 895356	78588	14 884
227	Jaysulmere	h.s.	29 56 4	4 459799	28827	5 460	240	Kair Dūngar	h.s.	32 41 41	4 794877	62356	11 810
	Thaiait	h.s.	51 2 8	4 622412	44917	8 507		Jalora, XXI	"	85 24 11	5 060955	115068	21 793
	Suer Māli	"	99 1 48	4 750275	57053	10 805		Daichu, XIX	"	61 54 8	5 007895	101834	19 287



SECONDARY TRIANGULATION. TRIANGLES.

No. of Triangle	Station	Corrected Plane Angle		Distance			Theodolite	No. of Triangle	Station	Corrected Plane Angle		Distance			Theodolite		
		o	'	''	Log. feet	Feet				Miles	Log. feet	Feet	Miles				
241	Kair Dāngar	h.s.	28	18	41	4° 60' 60"	40668	9.464							Inch		
	Jalora, XXV		46	49	34	4° 85' 568"	78837	14.552	254	Taratra	h.s.	41	24	47	4° 73' 9717"	54918	10.401
	Ekka, XXIII		104	51	45	5° 00' 7895"	101834	19.287		Bālmīr	"	40	13	33	4° 72' 2928"	53616	10.155
242	Karali	h.s.	52	52	9	4° 97' 977"	95472	18.082		Jessa Hill Mark No. 1	h.s.	84	49	17	5° 04' 0132"	10681	20.773
	Chotan	"	54	49	20	4° 99' 0695"	97880	18.538	255	Taratra	"	57	47	58	4° 96' 9375"	93191	17.650
	Bachrao Hill		5	05	7337	114087	21.607		Lassua Hill		4	825	159	66859	12.663		
243	Durimāna	h.s.	70	59	4	4° 99' 0695"	97880	18.538		Bālmīr	h.s.	11	54	0	4° 743' 567"	55407	10.404
	Karali	"	51	8	50	4° 90' 6470"	80625	15.370	256	Taratra	"	9	50	16	4° 661' 908"	45910	8.695
	Bachrao Hill		4	94	2861	87672	16.065		Jessa Hill Mark No. 2		4	997	893	99516	18.848		
244	Chotan	h.s.	10	4	55	4° 09' 367"	12313	2.332		Taratra	h.s.	18	7	20	4° 457' 285"	28661	5.428
	Taratra	"	61	49	21	4° 79' 2406"	62002	11.743	257	Bālmīr	"	44	56	1	4° 813' 442"	65079	12.326
	Akora Hill		4	82	5159	66859	12.663		Marori Temple		4	914	558	82141	15.557		
245	Mangta	h.s.	16	53	15	4° 75' 1094"	56376	10.677		Bālmīr	h.s.	69	30	44	5° 155' 523"	143062	27.095
	Bālmīr	"	28	37	17	4° 96' 8311"	92963	17.607	258	Nimla	"	63	14	52	5° 134' 734"	136375	25.829
	Rānigson Hill Mark		5	14	266	138441	26.220		Redhano Hill Mark		5	049	718	112129	21.237		
246	Mangta	h.s.	16	11	11	4° 42' 3134"	26493	5.018		Taratra	h.s.	74	35	48	5° 134' 734"	136375	25.829
	Taratra	"	101	59	41	4° 96' 8311"	92963	17.607	259	Bālmīr	"	69	54	18	5° 123' 344"	132845	25.100
	Rānigson Hill Mark		4	92	3101	83772	15.866		Redhano Hill Mark		4	914	558	82141	15.557		
247	Mangta	h.s.	10	5	42	4° 493' 421"	31147	5.899		Bālmīr	h.s.	35	25	48	4° 761' 400"	57730	10.934
	Taratra	"	141	46	41	5° 04' 1173"	109944	20.823	260	Sioni	"	52	26	58	4° 897' 362"	78952	14.033
	Barila Hill Mark		4	92	3101	83772	15.866		Vesala Hill Mark		4	997	893	99516	18.848		
248	Taratra	h.s.	41	1	50	4° 851' 278"	71003	13.448		Bālmīr	h.s.	44	24	54	4° 894' 769"	78482	14.864
	Sioni	"	16	44	12	4° 493' 421"	31147	5.899	261	Nimla	"	44	45	8	4° 897' 362"	78952	14.953
	Barila Hill Mark		4	96	1381	91492	17.328		Vesala Hill Mark		5	049	718	112129	21.237		
249	Taratra	h.s.	51	8	33	4° 820' 261"	66109	12.521		Bālmīr	h.s.	26	23	23	4° 668' 725"	46636	8.833
	Bālmīr	"	24	13	13	4° 541' 930"	34828	6.596	262	Sioni	"	82	5	14	5° 016' 723"	103926	19.683
	Jona Hill Mark		4	914	558	82141	15.557		Baratra Hill		4	997	893	99516	18.848		
250	Bālmīr	h.s.	35	21	7	4° 774' 633"	59516	11.272		Bālmīr	h.s.	36	20	46	4° 916' 698"	88450	16.752
	Sioni	"	39	59	35	4° 820' 261"	66109	12.521	263	Kotra	"	44	20	0	5° 016' 723"	103926	19.683
	Jona Hill Mark		4	997	893	99516	18.848		Baratra Hill		5	166	764	146813	27.865		
251	Taratra	h.s.	33	22	48	4° 777' 823"	59955	11.355		Nimla	h.s.	43	14	32	4° 957' 342"	50645	17.168
	Sioni	"	89	31	21	5° 037' 296"	108967	20.638	264	Mandai	"	21	24	9	4° 683' 792"	48283	9.144
	Saitraso Temple		4	961	381	91492	17.328		Kotra Fort		5	077	608	119566	22.645		
252	Chotan	h.s.	69	5	5	4° 915' 072"	82238	15.575		Kotra	h.s.	73	8	35	5° 039' 609"	109549	20.748
	Taratra	"	61	30	6	4° 888' 579"	77371	14.654	265	Daroi	"	10	40	40	4° 326' 524"	21209	4.017
	Tomlia Hill		4	825	159	66859	12.663		Balasar Hill		5	056	152	113303	21.554		
253	Taratra	h.s.	28	17	16	4° 708' 001"	51051	9.669		Nimla	h.s.	58	27	43	5° 039' 609"	109549	20.748
	Sioni	"	29	50	57	4° 729' 298"	53616	10.155	266	Daroi	"	34	10	1	4° 828' 452"	72186	13.672
	Jessa Hill Mark No. 1		4	961	381	91492	17.328		Balasar Hill		5	108	563	128399	24.318		

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	
267	Nimla	h.s.	4.857821	72081	13.652	10	Daroi	h.s.	31 36 32	4.434752	72711	7	Inch 10
	Mandai	"	4.784689	60910	11.536		Mandai	"	68 48 32	4.684916	48408	9.168	
	Jesara Hill Mark	"	5.077608	119566	22.645		Kali Mali Hill	"	4.708104	51003	51003	9.671	
268	Nimla	h.s.	4.141222	13843	2.622	"	Daroi	h.s.	66 45 34	4.690560	50068	9.483	"
	Kotra	"	4.784689	60910	11.536		Mandai	"	43 40 6	4.573465	37624	7.126	
	Jesara Hill Mark	"	4.710368	51330	9.722		Pusad Temple	"	4.708104	51063	51063	9.671	
269	Kotra	h.s.	4.798158	62829	11.899	"	Nimla	h.s.	44 17 58	4.927406	84607	16.024	"
	Mandai	"	4.97742	34559	5.958		Mandai	"	54 57 16	4.996419	99179	18.784	
	Seu Building Mark (heliotrope)	"	4.933065	85717	16.234		Bhair Hill Mark	"	5.077608	119566	22.645		
270	Daroi	h.s.	4.798158	62829	11.899	"	Mandai	h.s.	79 52 50	5.039832	109605	20.759	"
	Mandai	"	4.919497	83080	15.735		Lakman	"	49 27 24	4.927406	84607	16.024	
	Seu Building Mark (heliotrope)	"	4.708104	51063	9.671		Bluar Hill Mark	"	4.935061	86112	16.309		
271	Kotra	h.s.	4.939010	86898	16.458	"	Daroi	h.s.	113 9 45	4.965759	92419	17.504	"
	Mandai	"	4.925239	84186	15.944		Lakman	"	27 50 18	4.671555	46941	8.890	
	Kaunda Hill	"	4.933065	85717	16.234		Maniari Temple	"	4.801122	63259	11.981		
272	Daroi	h.s.	4.743123	53351	10.483	"	Daroi	h.s.	15 59 41	4.153291	14233	2.696	"
	Mandai	"	4.841282	69388	13.142		Mandai	"	65 20 18	4.671555	46941	8.890	
	Balai Hill Mark	"	4.708104	51063	9.671		Maniari Temple	"	4.708104	51063	9.671		
273	Kotra	h.s.	4.743123	53351	10.483	"	Daroi	h.s.	116 18 45	4.782981	60671	11.491	"
	Mandai	"	4.660102	43720	8.659		Mandai	"	14 42 42	4.235240	17189	3.255	
	Balai Hill Mark	"	4.933065	85717	16.234		Niboi Hill	"	4.708104	51003	9.671		
274	Kotra	h.s.	4.670819	46862	8.875	"	Mandai	h.s.	61 30 14	4.893056	78173	14.805	"
	Mandai	"	4.622669	41944	7.944		Lakman	"	43 0 25	4.782981	60671	11.491	
	Bhi Bakri Hill Mark	"	4.933065	85717	16.234		Niboi Hill	"	4.935061	86112	16.309		
275	Nimla	h.s.	4.936062	86310	16.347	"	Daroi	h.s.	67 16 4	4.866899	78868	14.937	"
	Daroi	"	5.003204	100740	19.080		Lakman	"	65 1 9	4.889360	77510	14.680	
	Negara Hill	"	5.108563	128399	24.318		Khonao Hill Mark	"	4.801122	63259	11.981		
276	Kotra	h.s.	4.936062	86310	16.347	"	Daroi	h.s.	42 58 19	4.816984	65612	12.427	"
	Daroi	"	4.743043	53341	10.481		Jisu	s.	53 38 4	4.889360	77510	14.680	
	Negara Hill	"	5.056152	113803	21.554		Khonao Hill Mark	"	4.980536	95617	18.109		
277	Kotra	h.s.	4.986495	96938	18.359	"	Mandai	h.s.	39 37 2	4.739768	54925	10.402	"
	Mandai	"	5.044769	110858	20.996		Lakman	"	51 43 57	4.831222	67627	12.808	
	Jojeni Peak	"	4.933065	85717	16.234		Bari Daroi Hill Mark	"	4.935061	86112	16.309		
278	Nimla	h.s.	4.986495	96938	18.359	"	Daroi	h.s.	55 3 13	4.739768	54925	10.402	"
	Mandai	"	4.990553	97848	18.332		Lakman	"	15 41 33	4.236246	18124	3.433	
	Jojeni Peak	"	5.077608	119566	22.645		Bari Daroi Hill Mark	"	4.801122	63259	11.981		
279	Kotra	h.s.	4.434752	72711	5.154	"	Daroi	h.s.	85 1 2	4.858502	72194	13.673	"
	Mandai	"	4.830347	67662	12.815		Lakman	"	34 10 58	4.609755	40715	7.711	
	Kali Mali Hill	"	4.933065	85717	16.234		Theri Nadi Temple	"	4.801122	63259	11.981		

SECONDARY TRIANGULATION. TRIANGLES.

No. of Triangle	Station	Corrected Plane Angle	Distance			Theodolite used
			Log. feet	Feet	Miles	
298	Mandai	h.s.	41 5 37	66469	12.589	Inch
	Jisu	s.	27 35 2	4822617	8.869	10
	Mátzaji Temple		4 670484 4 974564	46826 94203	8.869 17.841	"
294	Daroi	h.s.	64 43 36	46826	8.869	"
	Mandai	"	34 50 8	4670484	5.602	"
	Mátzaji Temple		4 470987 4 708104	29579 51063	9.671	"
295	Mandai	h.s.	49 27 21	485584	71711	"
	Jisu	s.	37 9 23	4755856	10.795	"
	Sanda Hill Mark		4 855384 4 974064	50998 94203	13.582 17.841	"
296	Daroi	h.s.	89 54 20	4755856	59998	"
	Mandai	"	26 28 24	4404979	4.812	"
	Sanda Hill Mark		4 708104	51063	9.671	"
297	Daroi	h.s.	57 36 25	4752158	56514	"
	Lakman	"	51 27 17	4718885	53346	"
	Baniassar Hill		4 801122	63259	11.981	"
299	Daroi	h.s.	64 33 24	4840007	69184	"
	Mandai	"	73 38 49	4866379	73516	"
	Sangar Temple		4 708104	51063	9.671	"
299	Daroi	h.s.	44 11 24	4837550	68794	"
	Lakman	"	95 56 48	4991049	98163	"
	Khoras Hill Mark		4 801122	63259	11.981	"
300	Mandai	h.s.	49 4 4	4837550	68794	"
	Lakman	"	59 54 24	4890446	79785	"
	Khoras Hill Mark		4 935061	86112	16.309	"
301	Daroi	h.s.	40 4 30	4615187	41228	"
	Lakman	"	58 52 32	4738041	54820	"
	Doungri Fort Mark		4 801122	63259	11.981	"
302	Lakman	h.s.	22 26 56	4430022	26973	"
	Jisu	s.	116 53 15	4799333	62999	"
	Somlai Hill Mark		4 663011	46027	8.717	"
303	Mandai	h.s.	44 57 12	4866300	64066	"
	Lakman	"	63 48 22	4908554	81013	"
	Devi Hill Mark		4 935061	86112	16.309	"
304	Mandai	h.s.	15 48 59	4438064	27420	"
	Jisu	s.	53 38 13	4908554	81013	"
	Devi Hill Mark		4 974064	94203	17.841	"
305	Daroi	h.s.	9 34 42	4070368	11759	"
	Lakman	"	106 53 37	4830067	67619	"
	Choria Thalli Hill Mark		4 801122	63259	11.981	"
306	Lakman	h.s.	12 1 34	4354300	22610	"
	Jisu	s.	13 4 15	4389898	24541	"
	Baloni Temple		4 663011	46027	8.717	"
307	Jisu	h.s.	57 20 0	4547574	35284	"
	Kita	h.s.	44 4 10	4464668	29152	"
	Sorari Nadi Tree		4 613695	41086	7.781	"
308	Jisu	h.s.	18 26 15	4201510	15904	"
	Kita	h.s.	36 21 7	4474319	29807	"
	Kumtala Thalli Hill		4 613695	41086	7.781	"
309	Jisu	h.s.	48 32 15	4512485	32545	"
	Kita	h.s.	60 22 4	4576906	37749	"
	Devikot Temple		4 613695	41086	7.781	"
310	Gadar Mali	h.s.	47 11 51	4512485	32545	"
	Kita	"	63 27 46	4598617	39681	"
	Devikot Temple		4 618098	41505	7.861	"
311	Kita	h.s.	50 11 12	4904542	80268	"
	Jeysulmure	s.	11 53 42	4333223	21539	"
	Kita Fort		4 965368	92335	17.488	"
312	Lakman	h.s.	65 13 2	4771918	59145	"
	Jisu	s.	69 49 45	4786391	61149	"
	Rathanada Thalli Hill Mark		4 663011	46027	8.717	"
313	Jisu	h.s.	54 49 33	4688879	48852	"
	Kita	h.s.	81 44 39	4771918	59145	"
	Rathanada Thalli Hill Mark		4 613695	41086	7.781	"
314	Gadar Mali	h.s.	42 5 20	4801850	63365	"
	Kita	"	111 52 6	4943160	87732	"
	Naria Hill		4 618098	41505	7.861	"
315	Gadar Mali	h.s.	79 7 10	4710700	51369	"
	Thaiait	s.	15 7 8	4134924	13643	"
	Sugano Hill Mark		4 717389	52166	9.880	"
316	Thaiait	h.s.	96 31 40	4908456	80995	"
	Jeysulmure	s.	39 3 31	4710700	51369	"
	Sugano Hill Mark		4 756275	57053	10.805	"
317	Gadar Mali	h.s.	56 39 27	4683197	48217	"
	Thaiait	"	58 40 35	4692885	49304	"
	Dabia Hill		4 717389	52166	9.880	"
318	Gadar Mali	h.s.	51 34 55	4619261	41616	"
	Thaiait	"	49 16 5	4604761	40250	"
	Akal Hill		4 717389	52166	9.880	"

Triangle No.	Station	Corrected Plane Angle	Distance			Theodolite used	Triangle No.	Station	Corrected Plane Angle	Distance			Theodolite used	
			Log. feet	Feet	Miles					Log. feet	Feet	Miles		
319	Gadar Māli	h.s.	4° 54' 43.39	35022	6.633	332	Jonju Thalli	h.s.	4° 75' 21.31	56511	10.703	10		
	Thaiat	"	4° 24' 46.09	17563	3.326		Jhalari Māli	"	4° 44' 22.14	27683	5.243		"	
	Asach Temple	"	4° 71' 73.89	52166	9.880		Sodakhor Fort	"	4° 77' 08.19	58995	11.173		"	
320	Gadar Māli	h.s.	4° 58' 72.45	38659	7.322	333	Jonju Thalli	h.s.	4° 81' 44.06	65224	12.353	"		
	Thaiat	"	4° 30' 13.10	20013	3.790		Jhalari Māli	"	4° 25' 33.76	17922	3.394		"	
	Motagaon Fort	"	4° 71' 73.89	52166	9.880		Bhadra Temple	"	4° 77' 08.19	58995	11.173		"	
321	Thaiat	h.s.	4° 65' 54.56	45233	8.567	334	Nār Māgra	g.	4° 83' 43.33	68286	12.933	"		
	Suer Māli	"	4° 75' 09.68	57540	10.898		Hardikot	h.s.	4° 58' 46.08	38424	7.277		"	
	Jeysulmure Temple No. 1	"	4° 45' 97.99	28827	5.460		Bāman Thalli Pillar	"	4° 81' 07.74	64681	12.250		"	
322	Thaiat	h.s.	4° 64' 58.97	44248	8.380	335	Ekalguri	h.s.	4° 83' 43.33	68286	12.933	"		
	Suer Māli	"	4° 74' 95.37	56174	10.639		Hardikot	"	4° 17' 13.70	14838	2.810		"	
	Jeysulmure House No. 1 Mark (heliotrope)	"	4° 45' 97.99	28827	5.460		Bāman Thalli Pillar	"	4° 83' 12.95	67810	12.843		"	
323	Thaiat	h.s.	4° 65' 83.11	45531	8.623	336	Nār Māgra	g.	4° 82' 25.21	66454	12.586	"		
	Suer Māli	"	4° 75' 07.11	57157	10.825		Hardikot	h.s.	4° 70' 94.93	51226	9.702		"	
	Jeysulmure House No. 2 Mark (heliotrope)	"	4° 45' 97.99	28827	5.460		Ekalguri Pillar	"	4° 81' 07.74	64681	12.250		"	
324	Thaiat	h.s.	4° 17' 04.37	14806	2.804	337	Nār Māgra	g.	4° 87' 75.57	75432	14.286	"		
	Jeysulmure	h.	4° 78' 06.79	51130	9.684		Hardikot	h.s.	4° 93' 46.16	86023	16.292		"	
	Jeysulmure Temple No. 3	"	4° 75' 02.75	57053	10.805		Konkat Thalli Hill	"	4° 81' 07.74	64681	12.250		"	
325	Thaiat	h.s.	4° 63' 68.69	43338	8.208	338	Hardikot	h.s.	5° 00' 61.65	101430	19.210	"		
	Kākrasar	"	4° 71' 73.72	52164	9.880		Kair Dūngar	"	4° 87' 75.57	75432	14.286		"	
	Gadar Māli Building	"	4° 57' 51.03	37593	7.120		Konkat Thalli Hill	"	4° 96' 38.14	92006	17.425		"	
326	Gadar Māli	h.s.	4° 63' 68.69	43338	8.208	339	Ekalguri	h.s.	5° 00' 42.83	100991	19.127	"		
	Kākrasar	"	4° 65' 83.11	45534	8.628		Kair Dūngar	"	4° 86' 84.01	73859	13.988		"	
	Gadar Māli Building	"	4° 75' 09.61	50359	10.674		Bāg Thalli Hill	"	5° 10' 07.94	120123	23.887		"	
327	Thaiat	h.s.	4° 66' 44.7	46392	8.786	340	Hardikot	h.s.	39° 46' 26	73380	13.898	"		
	Suer Māli	"	4° 43' 22.28	27054	5.124		Kair Dūngar	"	13° 33' 42	20896	5.094		"	
	Bhagaon Tree	"	4° 45' 97.99	28827	5.460		Pokaran	"	126° 39' 52	92006	17.425		"	
328	Thaiat	h.s.	4° 66' 32.41	46051	8.722	341	Kair Dūngar	h.s.	22° 18' 17	4495767	31316	"		
	Kākrasar	"	4° 78' 34.46	60736	11.503		Pokaran	"	40° 29' 1	4728917	53569		10.146	"
	Sonari Hill	"	4° 57' 51.03	37593	7.120		Tika Māli	"	117° 12' 42	4865577	73380		13.898	"
329	Kākrasar	h.s.	4° 15' 12.42	14166	2.683	342	Kair Dūngar	h.s.	43° 28' 12	4827387	67203	"		
	Lon Charri	"	4° 66' 32.41	46051	8.722		Marla	"	33° 15' 28	4728917	53569		10.146	"
	Sonari Hill	"	4° 76' 22.91	57848	10.956		Tika Māli	"	103° 16' 20	4978057	95073		18.006	"
330	Lon Charri	h.s.	4° 77' 18.83	59140	11.201	343	Marla	h.s.	23° 55' 26	4457479	28673	"		
	Charan Thalli	"	4° 85' 13.98	71023	13.451		Tika Māli	"	47° 57' 41	4720274	52514		9.946	"
	Nār Bhākhar Hill	"	4° 98' 68.01	97007	18.372		Lowah	g.	108° 6' 53	4827387	67203		12.728	"
331	Lon Charri	h.s.	4° 99' 05.87	97856	18.533	344	Pokaran	h.s.	41° 46' 4	4457479	28673	"		
	Jonju Thalli	"	4° 85' 13.98	71023	13.451		Tika Māli	"	91° 33' 17	463372	43030		8.150	"
	Nār Bhākhar Hill	"	4° 91' 13.48	81530	15.442		Lowah	g.	46° 40' 39	4495767	31316		5.931	"

SECONDARY TRIANGULATION. TRIANGLES.

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	
345	Pokaran Tika Málí Anja Mark (heliotrope)	h.s. " "	87 37 40 54 50 7	4 710583 4 623442 4 495767	51355 42019 31316	9 726 7 958 5 931	h.s. " "	129 10 16 5 51 51	4 674003 3 793879 4 633772	47207 6221 43930	8 941 1 178 8 150	Inch 10 "	
346	Pokaran Lowah Pokaran Temple No. 1	h.s. s.	82 57 20 21 2 58	4 643586 4 202181 4 633772	44014 15929 43030	8 336 3 017 8 150	h.s. " "	6 16 20 21 54 47	3 793879 4 327389 4 429088	6221 21551 26896	1 178 4 025 5 094	"	
347	Tika Málí Lowah Pokaran Tower Mark (heliotrope)	h.s. s.	77 2 12 60 38 53	4 618117 4 569659 4 457479	41507 37124 28673	7 861 7 031 5 431	h.s. s.	91 52 26 42 38 54	4 604171 4 435310 4 457479	40195 27246 28673	7 613 5 166 5 431	"	
348	Pokaran Lowah Pokaran Tower Mark (heliotrope)	h.s. s.	74 58 51 13 58 14	4 618117 4 016677 4 633772	41507 10391 43030	7 861 1 968 8 150	h.s. " "	20 14 34 116 53 33	4 435310 4 846531 4 728917	27246 70231 53569	5 160 13 301 10 146	"	
349	Tika Málí Lowah Pokaran Temple No. 2	h.s. s.	80 35 12 58 34 16	4 636028 4 573012 4 457479	43254 37412 28673	8 192 7 086 5 431	h.s. " "	24 22 14 10 36 7	4 353041 4 002252 4 495767	22545 10052 31316	4 270 1 904 5 931	"	
350	Pokaran Lowah Pokaran Temple No. 2	h.s. s.	85 28 54 11 53 37	4 636028 3 951447 4 633772	43254 8942 43030	8 192 1 694 8 150	h.s. " "	48 19 35 81 57 30	4 719771 4 842191 4 728917	52433 69533 53569	9 934 13 169 10 146	"	
351	Pokaran Tika Málí Pokaran Temple No. 3	h.s. " "	125 54 44 10 55 43	4 569133 3 938499 4 495767	37079 8680 31316	7 023 1 644 5 931	h.s. " "	46 6 56 21 18 50	4 719771 4 422470 4 827387	52453 26453 67203	9 934 5 010 12 728	"	
352	Pokaran Lowah Pokaran Fort Mark (heliotrope)	h.s. s.	86 45 36 11 35 37	4 637709 3 941533 4 633772	43422 3740 43030	8 224 1 655 8 150	h.s. " "	47 57 58 49 49 52	4 388709 4 598938 4 514261	24479 25060 32678	4 636 4 746 6 189	"	
353	Tika Málí Lowah Pokaran Fort Mark (heliotrope)	h.s. s.	81 1 4 58 16 16	4 637709 4 572766 4 457479	43422 37391 28673	8 224 7 082 5 431	h.s. " "	72 52 24 58 26 15	4 833498 4 783671 4 728917	68155 60768 53569	12 908 11 509 10 146	"	
354	Tika Málí Lowah Pokaran Building	h.s. s.	81 9 25 58 9 10	4 638059 4 572394 4 457479	43457 37359 28673	8 230 7 076 5 431	h.s. " "	68 33 35 44 50 5	4 833498 4 712871 4 827387	68155 51626 67203	12 908 9 778 12 728	"	
355	Pokaran Lowah Pokaran Building	h.s. s.	87 4 28 11 28 31	4 638059 3 937358 4 633772	43457 8657 43030	8 230 1 640 8 150	h.s. " "	h.s. s.	h.s. s.	h.s. s.	h.s. s.	h.s. s.	"
356	Tika Málí Lowah Pokaran Masjid Mark (heliotrope)	h.s. s.	82 4 57 55 52 28	4 627447 4 549537 4 457479	42408 35444 28673	8 032 6 713 5 431	h.s. " "	90 59 35 33 16 48	4 843549 4 582074 4 760785	69751 35280 57648	13 210 7 250 10 918	24 10	
357	Pokaran Lowah Pokaran Masjid Mark (heliotrope)	h.s. s.	80 13 42 9 11 49	4 627447 3 837448 4 633772	42408 6678 43030	8 032 1 303 8 150	h.s. " "	Ronesar, XL Bithnok, XXXVIII Narthal	h.s.	h.s.	h.s.	h.s.	"

BICKANEER  
SECONDARY SERIES.

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							
369	Bithnok, XXXVIII	h.s.	4 706325	50842	9.629	382	Palana	64 25 48	4.953107	89765	17.001	10						
	Narthal	s.	4 774575	59508	11.270		Hethiari	40 0 20	4.805990	63972	12.116		"					
	Gudho	s.	4 843549	69751	13.210		Bickaneer Temple		4.983940	90370	18.252		"					
370	Bithnok, XXXVIII	h.s.	4 871215	74339	14.079	383	Palana	64 18 54	4.792891	62071	11.756	"						
	Roneeser, XL	s.	4 774575	59508	11.270		Gigasar	68 14 46	4.805990	63972	12.116		"					
	Gudho	s.	4 760785	57648	10.918		Bickaneer Temple		4.705281	50732	9.608		"					
371	Narthal	h.s.	4 671345	46919	8.886	384	Hethiari	45 11 13	4.818459	55835	12.469	"						
	Gudho	s.	4 749754	56202	10.644		Gigasar	105 21 21	4.951774	89490	16.949		"					
	Khari	s.	4 706225	50842	9.629		Bickaneer Dome No. 1		4.659327	45038	8.644		"					
372	Gudho	s.	4 522514	33395	6.308	385	Bickaneer	119 57 3	4.818459	55835	12.469	"						
	Khari	"	4 593715	39239	7.432		Gigasar	5 3 57	3.826675	6709	1.271		"					
	Chandni	h.s.	4 671345	40919	8.886		Bickaneer Dome No. 1		4.793989	62228	11.786		"					
373	Narthal	h.s.	4 593715	39239	7.432	386	Bickaneer	120 11 38	4.818752	55880	12.477	"						
	Gudho	s.	4 880767	75992	14.392		Gigasar	5 4 40	3.820056	6746	1.278		"					
	Chandni	h.s.	4 706225	50842	9.629		Bickaneer Dome No. 2		4.793989	62228	11.786		"					
374	Khari	s.	5 068172	116996	22.158	387	Hethiari	45 12 31	4.818752	55880	12.477	"						
	Chandni	h.s.	5 042684	110328	20.895		Gigasar	105 20 38	4.951930	89522	16.955		"					
	Bickaneer	s.	4 522514	33395	6.308		Bickaneer Dome No. 2		4.659327	45638	8.644		"					
375	Chandni	h.s.	4 815117	65331	12.373	MOUNT ABU SECONDARY TRIANGULATION.						388						
	Bickaneer	s.	4 926320	84396	15.984								Gurú Sikkar, XLII	62 22 24	5.063996	115877	21.946	14
	Palana	"	5 068172	116996	22.158								Súnda, XLIV	102 54 12	5.105460	127485	24.145	
376	Khari	s.	4 926319	84396	15.984							Rámkund	23 15 20	4.154502	14273	7.03	6	
	Chandni	h.s.	4 989691	97654	18.495							Rámkund	89 53 6	4.558088	36148	6.846		6
	Palana	s.	4 522514	33395	6.308							Kunharon-ka-Mangra	66 51 34	4.521661	33240	6.295		
377	Palana	s.	4 949831	89090	16.873							Rámkund	51 15 48	4.110895	12009	2.445	6	
	Bickaneer	"	4 983940	90370	18.252							Kunharon-ka-Mangra	69 8 50	4.180362	15405	2.929		14
	Hethiari	"	4 815117	65331	12.373							Parok	59 35 22	4.154502	14273	2.703		
378	Bickaneer	h.s.	4 382442	24124	4.569							Gurú Sikkar, XLII	24 31 31	4.189362	15405	2.929	"	
	Palana	"	4 860663	72554	13.741							Rámkund	38 37 18	4.366521	23255	4.404		"
	Bhojúsar Mark (heliotrope)	"	4 815117	65331	12.373							Parok	116 51 11	4.521661	33240	6.295		
379	Chandni	h.s.	4 860663	72554	13.741							Rámkund	36 45 21	4.050806	11241	2.129	"	
	Bickaneer	s.	4 780857	60378	11.435							Parok	87 49 44	4.273498	18771	3.555		"
	Bhojúsar Mark (heliotrope)	s.	5 068172	116996	22.158	Kanuna	55 24 55	4.169362	15405	2.929	"							
380	Bickaneer	s.	4 705281	50732	9.608	Gurú Sikkar, XLII	24 31 31	4.189362	15405	2.929		"						
	Palana	"	4 793989	62228	11.786	Rámkund	38 37 18	4.366521	23255	4.404			"					
	Gigasar	"	4 815117	65331	12.373	Parok	116 51 11	4.521661	33240	6.295	"							
381	Bickaneer	s.	4 659327	45638	8.644	Rámkund	36 45 21	4.050806	11241	2.129		"						
	Hethiari	"	4 793989	62228	11.786	Parok	87 49 44	4.273498	18771	3.555			"					
	Gigasar	"	4 949831	89090	16.873	Kanuna	55 24 55	4.169362	15405	2.929	"							

NOTE.—Stations Gurú Sikkar, XLII and Súnda, XLIV appertain to the Karachi Longitudinal Series.

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	Parok Kamuna Achalgarh Fort	h.s. s. s.	38 30 3 67 50 31 73 59 26	3' 862142 4' 053627 4' 050806	7880 10805 11241	1' 379 2' 046 2' 129	406	Kumharon-ka-Mangra Kue-ka-Pahar Athni Rock	h.s. " "	62 2 51 51 3 2 4' 069524	11270 9953 11736	2' 135 1' 979 2' 223	Inch 6 14
394	Kamuna Guru Sikkar, XLII	h.s. s.	61 21 39 88 29 30 30 8 51	4' 104566 4' 161091 3' 862142	12722 14491 7280	2' 410 1' 749 1' 379	407	Kumharon-ka-Mangra Parok Athni Rock	h.s. " "	27 59 47 48 18 59 4' 110895	6237 9923 12909	1' 181 1' 879 2' 445	6 14
395	Ramkund Kamuna Athni	h.s. " "	36 40 29 29 44 56 113 34 35	4' 087524 4' 007009 4' 273498	12233 10163 18771	2' 317 1' 925 3' 555	408	Abu Gate Abu, B Abu, House No. 1	h.s. " "	13 13 53 37 39 55 3' 676207	1399 3730 4745	0' 265 0' 708 0' 899	6 "
396	Parok Kamuna Athni	h.s. " "	87 40 24 25 39 59 66 39 37	4' 087524 3' 724501 4' 050806	12233 5303 11241	2' 317 1' 004 2' 129	409	Ramkund Abu Gate Abu, House No. 1	h.s. " "	65 20 50 67 40 17 3' 477917	3736 3803 3005	0' 708 0' 720 0' 569	14 6
397	Ramkund Kumharon-ka-Mangra Kue-ka-Pahar	h.s. " "	51 40 46 20 53 48 107 25 26	4' 069524 3' 727184 4' 154502	11736 5336 14273	2' 223 1' 011 2' 703	410	Ramkund Athni Abu Church	h.s. " "	12 49 16 7 37 4 4' 007009	6458 3858 10163	1' 223 0' 731 1' 925	14 "
398	Ramkund Athni Kue-ka-Pahar	h.s. " "	103 1 26 24 34 45 52 23 49	4' 096825 3' 727184 4' 007009	12498 5336 10163	2' 367 1' 011 1' 925	411	Ramkund Kumharon-ka-Mangra Abu Church	h.s. " "	64 9 56 15 25 2 4' 154502	13061 3858 14273	2' 474 0' 731 2' 703	6 "
399	Ramkund Athni Abu Gate	h.s. " "	73 2 5 17 12 6 89 45 49	3' 987689 3' 477917 4' 007009	9721 3005 10163	1' 841 0' 569 1' 925	412	Abu, A Abu, B Abu, House No. 2	h.s. " "	27 7 38 94 44 49 3' 329676	1147 2507 2136	0' 217 0' 475 0' 405	" "
400	Ramkund Abu Gate Abu, A	h.s. " "	48 16 13 105 38 4 26 5 43	3' 707506 3' 818224 3' 477917	5999 6580 3005	0' 966 1' 246 0' 569	413	Ramkund Abu, A Abu, House No. 2	h.s. " "	8 54 49 15 4 54 3' 818224	2507 4210 6580	0' 475 0' 707 1' 246	14 6
401	Ramkund Athni Abu, A	h.s. " "	24 45 52 33 21 5 121 53 3	3' 700140 3' 818224 4' 007009	5013 6580 10163	0' 950 1' 246 1' 925	414	Ramkund Athni Abu, Residency Flagstaff	h.s. " "	25 53 59 11 32 14 4' 007009	7302 3344 10163	1' 383 0' 633 1' 925	14 "
402	Abu Gate Abu, A Abu, B	h.s. " "	24 43 54 68 18 15 86 57 51	3' 329676 3' 678207 3' 707506	2136 4745 5099	0' 405 0' 899 0' 966	415	Ramkund Kumharon-ka-Mangra Abu, Residency Flagstaff	h.s. " "	77 14 39 13 32 51 4' 154502	13922 3344 14273	2' 637 0' 633 2' 703	6 "
403	Athni Abu, A Abu, B	h.s. " "	24 24 46 79 40 31 75 54 43	3' 329676 3' 706313 3' 700140	2136 5085 5013	0' 405 0' 963 0' 950	416	Abu, A Abu, B Abu, Residency Lightning Rod	h.s. " "	43 31 57 90 48 49 3' 329676	2046 2970 2136	0' 388 0' 503 0' 405	" "
404	Kumharon-ka-Mangra Parok Rishikishan Rock	h.s. " "	71 8 48 66 6 24 4' 110895	4' 255231 4' 242209 4' 110895	17998 17389 12909	3' 409 3' 293 2' 445	417	Ramkund Abu, B Abu, Residency Lightning Rod	h.s. " "	17 6 46 31 17 13 3' 310907	2046 3611 5200	0' 388 0' 684 0' 985	14 6
405	Guru Sikkar, XLII Kumharon-ka-Mangra Rishikishan Rock	h.s. " "	28 7 6 73 26 4 4' 558088	4' 240269 4' 548566 4' 558088	17389 35364 36148	3' 293 6' 846 6' 846	418	Abu, A Abu, B Abu, House No. 3	h.s. " "	34 52 50 85 48 39 3' 329676	1416 2468 2136	0' 268 0' 407 0' 405	" "

\* Base deduced by two sides and included angle.  
 Note.—Station Guru Sikkar, XLII, appertains to the Karachi Longitudinal Series.

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	
419	Rámkund Abu, B Abu, House No. 3	h.s. " "	3° 15' 10.19 3° 6' 17.416 3° 7' 15.968	1416 4144 5200	0° 268 0° 785 0° 985	Inch 14 6	Abu Gate Abu, B Abu, Barrack	22° 27' 44 93° 58' 19	3° 30' 6.315 3° 7' 23.123 3° 6' 7.207	2024 5286 4745	0° 383 1° 001 0° 899	Inch 14 6	
420	Rámkund Athni Abu Dak Bungalow	h.s. " "	3° 7' 05.939 3° 7' 38.659 4° 00' 70.009	5081 5478 10163	0° 962 1° 038 1° 945	14 " "	Abu, A Abu, B Abu, Barrack	62° 47' 17 7° 0' 28	3° 30' 6.315 2° 44' 36.31 3° 32' 9.676	2024 278 2136	0° 383 0° 053 0° 405	" "	
421	Athni Abu, B Abu Dak Bungalow	h.s. " "	2° 8' 19.038 3° 70' 59.39 3° 70' 63.13	659 5081 5085	0° 125 0° 962 0° 963	" 6	Rámkund Athni Abu, House No. 7	41° 1' 55 27° 34' 29	3° 85' 52.335 3° 70' 35.05 4° 00' 70.009	7165 5052 10163	1° 357 0° 957 1° 925	14 " "	
422	Abu, A Abu, B Abu, House No. 4	h.s. " "	3° 22' 0.193 3° 35' 00.06 3° 32' 9.676	1695 2243 2136	0° 321 0° 425 0° 405	" "	Rámkund Abu, B Abu, House No. 7	32° 17' 29 71° 1' 2	3° 45' 55.15 3° 70' 35.05 3° 71' 59.68	2854 5052 5200	0° 541 0° 957 0° 985	" 6	
423	Rámkund Abu, B Abu, House No. 4	h.s. " "	3° 22' 0.193 3° 63' 7.93 3° 71' 59.68	1695 4342 5200	0° 321 0° 822 0° 985	14 6	Rámkund Athni Abu, House No. 8	30° 47' 34 35° 37' 11	3° 75' 41.15 3° 81' 01.24 4° 00' 70.009	5677 6458 10163	1° 075 1° 223 1° 925	14 " "	
424	Athni Abu, B Abu, House No. 5	h.s. " "	3° 14' 7.604 3° 66' 30.73 3° 70' 63.13	1405 4603 5085	0° 266 0° 872 0° 963	14 6	Rámkund Abu, A Abu, House No. 8	6° 1' 42 76° 56' 34	2° 84' 27.73 3° 81' 01.24 3° 81' 82.24	696 6458 6580	0° 132 1° 223 1° 246	" 6	
425	Rámkund Athni Abu, House No. 5	h.s. " "	3° 66' 30.73 3° 79' 7.91 4° 00' 70.009	4603 6278 10163	0° 872 1° 189 1° 925	14 " "	Rámkund Athni Awada Debi Temple	50° 55' 0 39° 2' 10	3° 80' 6.999 3° 80' 6.219 4° 00' 70.009	7889 6401 10163	1° 494 1° 212 1° 925	14 " "	
426	Abu, A Abu, B Abu Hospital	h.s. " "	3° 36' 26.98 3° 01' 14.54 3° 32' 9.676	2305 1027 2136	0° 437 0° 194 0° 405	6 " "	Rámkund Kumharon-ka-Mangra Awada Debi Temple	102° 15' 40 21° 48' 26	4° 22' 6.257 3° 80' 6.219 4° 15' 45.02	16837 6401 14273	3° 189 1° 212 2° 703	" 6	
427	Athni Abu, B Abu Hospital	h.s. " "	3° 36' 26.98 3° 60' 14.80 3° 70' 63.13	2305 3905 5085	0° 437 0° 737 0° 963	14 6	Rámkund Athni Awada Debi Rock	66° 7' 9 35° 28' 13	3° 97' 70.86 3° 77' 95.93 4° 00' 70.009	9486 6020 10163	1° 797 1° 140 1° 925	14 " "	
428	Abu, A Abu, B Abu, House No. 6	h.s. " "	3° 27' 12.45 3° 21' 58.06 3° 32' 9.676	1867 1044 2136	0° 354 0° 311 0° 405	" "	Rámkund Kumharon-ka-Mangra Awada Debi Rock	117° 27' 49 17° 23' 46	4° 25' 20.29 3° 77' 95.93 4° 15' 45.02	17866 6020 14273	3° 384 1° 140 2° 703	" 6	
429	Rámkund Abu, B Abu, House No. 6	h.s. " "	3° 27' 12.45 3° 70' 00.81 3° 71' 59.68	1867 5913 5200	0° 354 0° 949 0° 985	14 6	Rámkund Parok Dilwara Temple	39° 56' 56 39° 21' 29	4° 00' 45.75 3° 99' 17.1 4° 18' 93.62	10106 9981 15465	1° 914 1° 890 2° 929	14 " "	
430	Rámkund Athni Abu, Nun Rock	h.s. " "	3° 83' 33.6 3° 60' 74.05 4° 00' 70.009	6797 4650 10163	1° 287 0° 881 1° 925	14 " "	Rámkund Athni Dilwara Temple	39° 52' 4 68° 38' 27	3° 83' 69.45 3° 99' 17.1 4° 00' 70.009	6870 9981 10163	1° 301 1° 890 1° 925	" "	
431	Rámkund Abu, B Abu, Nun Rock	h.s. " "	3° 34' 02.43 3° 66' 74.65 3° 71' 59.68	2189 4650 5200	0° 415 0° 881 0° 985	" 6	Gúrú Sikkar, XLII Athni Abu	110° 39' 18 57° 2' 47	3° 82' 07.43 4° 46' 34.96 4° 41' 61.69	6618 29073 26072	1° 253 5° 506 4° 938	10 " "	

\* Base deduced by two sides and included angle.  
NOTE.—Station Gúrú Sikkar, XLII, appertains to the Kangchi Longitudinal Series.



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	
445	Athni	h.s.	41 19 10	3 939656	8793	460	Kannagar, XXXVIII	0 1 11	4 580695	38080	Inch 12	
	Abu	"	108 32 27	4 090796	12497		Belka, XXXIX	122 42 3	5 054955	113489		21 494
	Kue-ka-Pahár (new)	"	30 8 23	3 820743	6618		Pindwára Railway Station	40 53 54	4 945954	88299		16 723
446	Abu	h.s.	28 10 55	3 727088	5334	451	Belka, XXXIX	25 42 18	5 004511	101044	" "	
	Kue-ka-Pahár (new)	"	22 12 54	3 630483	4271		Gurú Sikkar, XLII	9 24 28	4 580695	38080		7 212
	Rámkund "	"	129 36 11	3 939656	8793		Pindwára Railway Station	144 53 14	5 127093	133996		25 378
447	Kue-ka-Pahár (new)	h.s.	27 4 46	3 848870	7060	452	Gurú Sikkar, XLII	17 0 13	4 932953	85695	" "	
	Rámkund "	"	132 48 12	4 056116	11379		Belka, XXXIX	10 12 25	4 715402	51928		9 835
	Abu Hospital	s.	20 7 2	3 727088	5334		Rohera Railway Station	152 47 22	5 127093	133996		25 378
448	Athni	h.s.	65 34 20	4 056116	11379	458	Kannagar, XXXVIII	14 31 14	4 291377	19560	" "	
	Kue-ka-Pahár (new)	"	25 10 31	3 727239	5336		Nána Railway Station	100 22 8	4 885024	76740		14 534
	Abu Hospital	s.	89 9 9	4 096796	12497		Wilár Hill Mark	4 849841	70769	13 403		
449	SECONDARY TRIANGULATION											
	FIXING STATIONS OF RAIPUTANA-MALWA RAILWAY.											
	Kannagar, XXXVIII	37 24 36	4 729541	53646	10 160	12						
Belka, XXXIX	53 15 55	4 849841	70769	13 403	"							
Nána Railway Station	89 19 29	4 945954	88299	16 723	"							

\* Base deduced by two sides and included angle.

NOTE.—Stations Kannagar, XXXVIII, Belka, XXXIX, and Gurú Sikkar, XLII, appertain to the Karachi Longitudinal Series.

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J. ECCLES,  
Offg. in charge of Computing Office.

**JODHPORE MERIDIONAL SERIES.**  
**AZIMUTHS OF SURROUNDING STATIONS AND POINTS, AT PRINCIPAL,**  
**PRINCIPAL-AUXILIARY, AND SECONDARY STATIONS.**

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

Name of station with azimuths of surrounding points	No. of Triangle giving distance	Name of station with azimuths of surrounding points	No. of Triangle giving distance	Name of station with azimuths of surrounding points	No. of Triangle giving distance
ABU, h.s.		ABU, B, h.s.		ABU HOSPITAL, s.	
Kue-ka-Pahar (new)	33 28 3	Abu, House No. 2	106 27 35	Kue-ka-Pahar (new)	h.s. 38 20 4
Rámkund (new)	61 38 58	Abu, Residency	110 43 35	Rámkund (new)	" 58 27 6
Gúrú Sikkar, XLII*	227 52 48	Abu Gate	h.s. 114 14 33	Athui	" 309 10 55
Athui	284 55 35	Abu, House No. 3	115 43 45		
		Abu, House No. 4	130 35 49		
ABU, A, h.s.		Abu, Nun Rock	142 48 31	ACHALGARH FORT, s.	
Abu, House No. 2	21 12 28	Abu, House No. 7	150 27 24	Parok	h.s. 34 36 41
Abu, House No. 3	48 20 6	Abu, House No. 6	153 18 40	Kamuna	" 108 36 7
	56 5 18	Abu, Dak Bungalow	191 12 58	Gúrú Sikkar, XLII*	" 197 5 37
Rámkund	63 25 0	Abu, A	201 12 24		
Abu, Residency	64 44 25	Abu, Barrack	208 12 32	ADORI, XI	
Abu, House No. 4	66 39 56	Abu, House No. 5	214 49 26	Borla, IX	50 45 51.92
Abu, House No. 6	78 39 36	Abu Hospital	227 35 14	Sulhia Thalau, XIV	169 21 58.14
Abu Gate	89 30 43	Athui	" 277 7 7	Kirja Hill	204 36 45
Abu, House No. 8	140 21 34	ABU GATE, h.s.		Ketu, XIII	222 49 42.57
Abu Hospital	295 11 18	Rámkund	h.s. 15 8 24	Dugur, XII	281 24 46 79
Athui	301 31 57	Abu, A	" 269 30 20	Burdu Hill	285 34 23
Abu, Barrack	318 25 11	Abu, Barrack	" 271 46 30	Thob, VIII	353 39 41.37
		Athui	" 285 22 35		
		Abu, B	" 294 14 14	ADWALI, h.s.	
		Abu, House No. 1	307 28 7	Jodasar, XLII	28 43 39
				Khirsar, XLIV	127 8 57
ABU, B, h.s.				Bádithal	196 28 36
Abu, House No. 1	76 34 38			Saruwáli	" 223 50 55
					178
					173
					176
					174

Name of station with azimuths of surrounding points	No. of Triangle (fting)	Name of station with azimuths of surrounding points	No. of Triangle (fting)	Name of station with azimuths of surrounding points	No. of Triangle (fting)	Name of station with azimuths of surrounding points	No. of Triangle (fting)
ARHAT h.s.	398	BAND-KE-TIBBA h.s.	171	BAND-KE-TIBBA h.s.	171	BICKANEER s.	385
Kue-ka-Pahar	445	Siachu, XLI	172	Siachu, XLI	172	Bickaneer Dome No. 1	377
Kue-ka-Pahar (new)	395	Mugrals, XLIII	171	Mugrals, XLIII	171	Hethiari	380
Ramkund	410	Modia, XXXIX		Modia, XXXIX		Gigasar	
Abu Church	408						
Abu, B	97 7 29	BEKA, XXXIX*		BEKA, XXXIX*		BULI, LVII	69
Abu, Residency Flagstaff	99 43 24	Kohra, Railway Station	452	Kohra, Railway Station	452	Randu, LV	70
Abu Dak Bungalow	104 33 38	Gurti Sikkar, XLII*	451	Gurti Sikkar, XLII*	451	Randu, LXIX	192
Abu	104 56 4	Pindwara Railway Station	460	Pindwara Railway Station	460	Kali Dahar	71
Abu Gate	105 23 16	Nawa Railway Station	449	Nawa Railway Station	449	Kanda, XXI†	69
Abu, Nun Rock	110 26 52	Kannagar, XXXVIII*	449	Kannagar, XXXVIII*	449	Marot, LIV	
Abu, House No. 5	112 47 58						
Abu, House No. 7	115 45 39						
Abu, A	121 32 15	BRADA, XLV		BRADA, XLV		BROLAT h.s.	135
Abu Hospital	123 9 54	Mugrals, XLIII	56	Mugrals, XLIII	56	Dugar, XII	135
Awada Debi Rock	123 39 23	Habib, XLVI	57	Habib, XLVI	57	Malunga, XV	136
Abu, House No. 8	123 48 21	Phogals, XLVIII	58	Phogals, XLVIII	58	Jodhpore	137
Awada Debi Temple	127 13 20	Bhulan, XLIX	59	Bhulan, XLIX	59	Massuria	
Abu Hospital	129 11 14	Karamala, XLVII	60	Karamala, XLVII	60		
Dihwara Temple	156 49 37	Khirsar, XLIV	56	Khirsar, XLIV	56	BRAMPUR, XXXIII	44
Kamuna	201 45 45					Phulasar, XXXIV	43
Parok	268 25 22					Pabusar, XXXII	43
						Nok, XXX	
AVULI, LII		BHADRAJAN, V	97	BHADRAJAN, V	97		
Soma, I	74 58 22.13	Asrona Hill	5	Asrona Hill	5		
Marot, LIV	122 16 38.54	Dhuala, II	110	Dhuala, II	110		
Marot Fort Mark (helio)	122 18 42	Godhan Hill	107	Godhan Hill	107	BRATLI, XXXIX	35
Jangarh Bastion No. 2 Mark (helio)	144 55 34	Laida Hill	100	Laida Hill	100	Jambo, XXXVI	164
Jangarh Bastion No. 1 Mark (helio)	144 58 1	Roza Hill	42 2 6	Roza Hill	42 2 6	Ekkal/Thali Hill Mark (helio)	68 16 44
Mirgarh Bastion No. 1 Mark (helio)	177 37 15	Kumbi Hill	118	Kumbi Hill	118	Sird, XXVII	36
Mirgarh Bastion No. 2 Mark (helio)	177 37 39	Daisu Hill	112	Daisu Hill	112	Mongolia, XXXI	154 46 33.02
Bhulan, XLIX	350 52 12.59	Kawuna Hill	109	Kawuna Hill	109	Nokra Hill Mark	197 5 35
		Modri Hill	114	Modri Hill	114		
		Kundal, III	5	Kundal, III	5	BRITNOK, XXXVIII	51
		Maklur Hill	121	Maklur Hill	121	Girondi, XXXV	67 37 55.91
		Samdari, VII	6	Samdari, VII	6	Manikasar, XXXVI	124 25 18.34
		Panchota Hill Mark (helio)	116	Panchota Hill Mark (helio)	116	Ronesar, XL	180 30 51.43
AVLA h.s.	62 41 27	Aula	91	Aula	91	Narthal	219 47 39
Bonik, XLI*	156 16 38	Raonak Hill	94	Raonak Hill	94	Gudbo	265 15 59
Bhadrajau, V							
BALEMB h.s.							
Ranigon Hill Mark	27 57 28	BRULAN, XLIX	245	BRULAN, XLIX	245	BONIK, XLI*	1
Taratra	33 9 17	Bhadra, XLV	209	Bhadra, XLV	209	Standa, XLIV*	1
Jona Hill Mark	57 22 30	Phogals, XLVIII	249	Phogals, XLVIII	249	Borta, I	94 2 51.29
Jesai Hill Mark No. 1	78 5 18	Soma, I	254	Soma, I	254	Thoro Hill	124 15 35
Murori Temple	80 49 37	Aukhi, LII	257	Aukhi, LII	257	Dhuala, II	136 4 11.20
Jesai Hill Mark No. 2	103 3 35	Karamala, XLVII	256	Karamala, XLVII	256	Jilor	139 37 57
Sioni	119 7 0		210		210	Raonak Hill	190 18 42
Redhano Hill Mark	128 9 25		258		258	Aula	242 36 19
Bavatra Hill	155 36 46	BICKANEER s.	260	BICKANEER s.	260		
Vesala Hill Mark	172 34 19	Palana	262	Palana	262	BORLA, IX	124
Kotra	359 20 11	Bhojisar Mark (helio)	260	Bhojisar Mark (helio)	260	Goins Hill	14 24 7
Nitula		Chandni	214	Chandni	214	Adori, XI	230 38 48.14
Maungta		Khari	212	Khari	212	Thob, VIII	288 25 0.51
		Bickaneer Dome No. 2	209	Bickaneer Dome No. 2	209	Nagar, VI	347 56 54.86

\* Of the Karcluj Longitudinal Series. † Of the Sutlej Series.



AZIMUTHS OF STATIONS AND INTERSECTED POINTS.

Name of station with azimuths of surrounding points	o / ' "	No. of triangle giving distance	Name of station with azimuths of surrounding points	o / ' "	No. of triangle giving distance	Name of station with azimuths of surrounding points	o / ' "	No. of triangle giving distance
<b>ERAGURI h.s.</b>			<b>GRONDI XXXV</b>			<b>HARDKOT h.s.</b>		
Nār Magra	20 23 20	234	Mongolia, XXXI	2 20 20 26	41	Kair Dūngar	h.s. 239 47 52	236
Jhalari Mālī	38 42 53	233	Pabusan, XXXII	58 11 50 18	41	Pokaran	" 279 34 18	340
Bāman Thalli Pillar	42 7 52	235	Phulugar, XXXIV	103 11 21 81	42	Pokaran Temple No. 4	" 285 50 38	359
Jonju Thalli	86 13 13	233	Mankasar, XXXVI	173 48 45 27	45	Marla	" 291 15 44	237
Bāg Thalli Hill	218 6 40	339	Bīthnok, XXXVIII	247 33 14 15	51			
Kair Dūngar	271 18 2	236	Nokra Hill Mark	312 34 20	168			
Hardikot	316 33 34	235						
			<b>GDRO s.</b>			<b>HASAN, LV</b>		
<b>EKA, XXXIII</b>			Bīthnok, XXXVIII	85 21 8	369	Mānsa, LIII	10 3 10 01	68
Kair Dūngar	h.s. 85 28 38	241	Ronesar, XL	134 52 5	370	Sultān, LVI	47 24 20 13	73
Bawuri Hill Mark (helio.)	156 46 53	160	Nārthāl	h.s. 163 19 28	369	Panchkot, LVIII	107 28 46 83	74
Kālina Hill Mark (helio.)	169 48 43	161	Kharī	s. 233 22 39	371	Randū, LIX	173 16 22 67	70
Kīrwa, XXV	186 25 23 55	31	Chandni	h.s. 277 45 14	372	Kāli Dehār	h.s. 188 39 25	192
Jambo, XXVI	223 12 20 26	33				Bījī, LVII	230 538 82	69
Mālār Hill	255 24 49	155	<b>GDRO SIKKAR, XLIII*</b>			Marot, LIV	290 8 4 49	68
Omlo, XXIV	261 36 35 87	29	Actalgarh Fort	s. 47 5 54	384			
Lohāwat, XXII	296 58 39 27	30	Parok	h.s. 25 8 22	391			
Puthelia Hill Mark (helio.)	301 11 24	154	Kumharon-ka-Mangra	" 26 24 33	389			
Jalora, XXI	340 36 53 24	29	Kamuna	" 47 14 45	384			
			Abu	" 47 54 26	444			
			Rāmkund	" 49 39 53	388			
			Sūnda, XLIV*	112 2 17 42	383			
<b>GADAR MALI h.s.</b>			Pindwāra Railway Station	s. 239 29 9	451	<b>JALOR h.s.</b>		
Jisu	8 34 57	221	Belka, XXXIX*	248 53 37 13	451	Bortā, I	47 37 44	102
Kita	36 30 44	222	Rohera Railway Station	265 53 50	452	Kundāl, III	119 43 35	103
Sāgano Hill Mark	72 47 56	315	Rishikishan Rock	358 17 27	405	Maklūr Hill	152 35 53	121
Nārā Hill	78 36 4	314				Dūisu Hill	204 44 0	113
Dābla Hill	95 15 39	317				Panchota Hill Mark (helio.)	244 8 9	116
Akāl Hill	100 20 11	318				Bonik, XLJ*	319 31 47	102
Jaysultmere	116 0 6	226						
Asach Temple	141 40 49	319						
Thāiat	151 55 6	224						
Motagaon Fort	190 42 51	320						
Lakmān	338 11 54	221						
Derikot Temple	349 18 53	310						
			<b>HATDARWALA h.s.</b>					
			Kāmsir, XIX†	126 55 22	196	<b>JALORA, XXI</b>		
			Revenue Survey Station J	179 34 13	198	Dāichū, XIX	28 24 31 50	27
			Kanda, XXI†	209 47 16	195	Koru Temple	51 11 45	153
			Randū, LIX	324 32 40	195	Marla	51 47 3	238
						Kair Dūngar	113 48 43	238
						Eka, XXII	160 38 16 55	29
						Omlo, XXIV	209 54 4 42	28
						Lohāwat, XXII	239 34 14 18	25
						Bhākuri Fort	287 47 52	151
						Petu, XVIII	334 18 59 92	25
<b>GANGASARA, LKV*</b>			<b>HARBAN, XXVIII</b>					
Kariālī	172 15 48	203	Nok, XXX	198 41 19 99	38			
Durimāna	280 22 46	202	Sirād, XXXVII	272 19 2 39	38			
Lālji	280 7 17	199	Bāp Marit (heliotrope)	298 58 56	165			
Dudāwa, LXII*	317 29 8 37	199	Kīrwa, XXV	325 54 25 40	38			
			Māta-ke-bhākhar Hill Mark (helio.)	339 35 56	162	<b>JAMBO, XXXVI</b>		
						Omlo, XXIV	13 6 48 19	32
						Eka, XXIII	43 17 29 86	33
<b>GRASAR s.</b>			<b>HARDKOT h.s.</b>			Phalodi Fort Mark (helio.)	44 55 7	156
Palana	86 58 26	380	Nār Magra	s. 90 39 31	235	Kīrwa, XXV	91 43 14 41	32
Bickaneer Temple	155 13 12	383	Bāman Thalli Pillar	124 6 44	334	Sirād, XXVII	153 23 43 23	34
Bickaneer	156 47 42	380	Ekālguri Pillar	136 37 21	386	Referring Mark (helio.)	150 42 52	163
Bickaneer Dome No. 1	161 51 39	384	Ekālguri	136 37 27	235	Bintli, XXIX	266 0 2 55	35
Bickaneer Dome No. 2	161 52 22	386	Konkat Thalli Hill	165 38 28	387	Ronesar Hill Mark (helio.)	304 40 46	159
Hethiari	267 13 0	381						

\* Of the Karticū Longitudinal Series † Of the Sutlej Series.

Name of station with azimuths of surrounding points	No. of triangle givings	Name of station with azimuths of surrounding points	No. of triangle givings	Name of station with azimuths of surrounding points	No. of triangle givings
<b>JAYULMERE s.</b>		<b>JONJU THALI h.s.</b>		<b>KANDA, XXI*</b>	
Jayulmère Temple No. 3	204 2 53	Cháran Thalli	h.s. 6 46 26	Randu, LIX	231
Thaít	263 27 7	Nár Bhákar Hill	42 51 8	Haidarwala	331
Suer Máli	293 23 11	Sodakhor Fort	55 53 28	Kaimsir, XIX*	332
Gadur Máli	295 53 19	Lon Charri	88 22 41	Bijli, LVII	231
Sayano Hill Mark	302 30 38	Bhádra Temple	242 20 55		347 6 27 17
Kita	322 7 3	Ekalguri	266 7 49	<b>KANWAGAR, XXXVIII†</b>	
Kita Fort	334 0 45	Jwalarí Máli	344 42 16	Belka, XXXIX†	449
				Pindwára Railway Station	450
<b>JHALARI MÁLI h.s.</b>		<b>KAINSTR, XIX*</b>		Nána Railway Station	449
Cháwan Thalli	h.s. 70 9 13	Panchkot, LVIII	1 40 50 71	Wálar Hill Mark	453
Sodakhor Fort	137 6 0	Kanda, XXI*	253 20 56 33		
Jonju Thalli	164 43 34	Haidarwala	306 52 6	<b>KARAMALA, XLVII</b>	
Bhádra Temple	160 17 44	Randu, LIX	309 14 21 65	Khirsar, XLIV	60
Ekalguri	218 38 47			Bhada, XLV	60
Nár Mgura	s. 247 46 9	<b>KATR DONGAR h.s.</b>		Bhulan, XLIX	61
		Tika Máli	24 2 33		
<b>JIST s.</b>		Pokaran Temple No. 5	44 17 7	<b>KARALI h.s.</b>	
Khono Hill Mark	13 3 14	Pokaran	46 20 50	Chotan	206
Sombai Hill Mark	41 52 14	Hardkot	59 54 32	Bachrao Hill	242
Deví Hill Mark	44 15 19	Ekalguri	91 28 35	Mangta	205
Kuntala Thalli Hill	141 53 26	Konkat Thalli Hill	105 29 25	Durimána	203
Kita	160 19 41	Bag Thalli Hill	127 18 59	Láji	204
Gadur Máli	188 34 4	Eka, XXII	265 22 17	Gangasára, LXV†	203
Devikot Temple	208 51 56	Jalora, XXI	293 40 58		
Rathanada Thalli Hill Mark	215 9 14	Sauri Hill Mark (heliotrope)	311 10 9	<b>KER, XIII</b>	
Sorari Nadi Tree	217 39 41	Daichu, XIX	326 22 39	Adori, XI	16
Baloni Temple	271 54 44	Bomenu Hill	335 42 58	Sulkia Thalan, XIV	20
Lakman	284 58 59	María	340 34 21	Lollaran, XVI	19
Sanda Hill Mark	313 27 43			Chamu, XVII	18
Daroi	319 25 10	<b>KAKRASAR h.s.</b>		Maibunga, XV	17
Mátají Temple	323 2 4	Gadur Máli Building	17 9 21	Baddál Hill	148
Mandai	350 37 6	Suer Máli	69 34 27	Undria Hill	146
		Thaít	97 4 33	Dugur, XII	16
<b>JODASAR, XLIII</b>		Sonári Hill	180 38 26		
Ronesar, XL	2 20 39 56	Lon Charri	198 21 16	<b>KHARI s.</b>	
Modia, XXXIX	81 43 48 98	Cháran Thalli	274 55 41	Gudho	371
Khirsar, XLIV	170 27 54 31			Narthal	374
Aduwáli	208 41 26	<b>KALI DHAR h.s.</b>		Bickaneer	376
		Husan, LV	8 39 53	Palana	300 44 30
<b>JODHPORE h.s.</b>		Randu, LIX	92 46 38	Chandni	357 56 58
Jodhpore Gate No. 1	10 47 12	Revenue Survey Station J s.	137 59 56		
Jodhpore Gate No. 2	34 33 54	Bijli, LVII	287 54 21	<b>KHIRSAR, XLIV</b>	
Masuria	40 52 44	Revenue Survey Station D "	342 6 54	Modia, XXXIX	50
Bijolai	83 43 56			Muerala, XLIII	50
Malunga, XV	131 8 43	<b>KANWA h.s.</b>		Bhada, XLV	56
Jodhpore Temple No. 3	270 48 23	Athni	21 46 6	Karamala, XLVII	60
Jodhpore House	282 6 18	Rámkund	51 31 2	Búdíthal	175
Rathanada Temple	319 48 35	Gurú Sikkar, XLII†	227 13 57	Saruwáli	174
Jodhpore Gate No. 3	329 32 7	Achalgarh Fort	s. 288 35 30	Aduwáli	178
Jodhpore Temple No. 1	336 3 20	Farok	h.s. 356 6 7	Jodasár, XLII	55
Jodhpore Temple No. 2	341 37 36				

Name of station with azimuths of surrounding points ° / "	No. of triangle (trihing distance)	Name of station with azimuths of surrounding points ° / "	No. of triangle (trihing distance)	Name of station with azimuths of surrounding points ° / "	No. of triangle (trihing distance)	Name of station with azimuths of surrounding points ° / "	No. of triangle (trihing distance)								
<b>KATWA, XXV</b> Ekka, XXIII Bavuri Hill Mark (heliotrope) 69 24 12 Kalina Hill Mark (heliotrope) 95 20 54 Māka-ke-bhākar Hill Mark (helio.) 115 48 58 Harban, XXVIII 145 57 39.48 Bāp Mark (heliotrope) 180 26 40 Sirad, XXVII 295 44 50.29 Referring Mark (heliotrope) 248 29 7 Jambo, XXVI 271 38 41.95 Omlo, XXIV 326 0 6.87 Puthela Hill Mark (heliotrope) 338 8 10 Phalodi Fort Mark (heliotrope) 337 22 58	31 160 161 162 38 165 34 163 32 31 154 156	<b>KUE-KA-PAHAR (new)</b> h.s. Kāmkund (new) h.s. Abu h.s. Abu Hospital s. Athni h.s. 243 36 4 191 14 47 213 27 41 218 19 33 243 36 4	446 445 447 445	<b>KUMHARON-KA-MANGRA</b> h.s. Kue-ka-Pahār h.s. Kāmkund h.s. Abu, Residency Flagstaff Abu Church Awada Debi Rock Awada Debi Temple Athni, S. Rock Gūru Sikkar, XLII Parok Bishikshan Rock 279 49 24 118 37 58 139 31 46 153 4 37 154 56 48 156 55 32 161 20 12 180 40 49 206 23 20 208 40 36 279 49 24	397 889 415 441 441 489 406 389 390 404	<b>LABMAN</b> h.s. Kita h.s. Gadar Māli h.s. Rathanada Thalli Hill Mark Choria Thalli Hill Mark Dongri Fort Mark Banasar Hill Theri Nadi Temple Bari Daroi Hill Mark Bhar Hill Mark N'boi Hill Daroi h.s. 343 46 34 131 0 46 158 14 40 170 15 40 236 52 57 288 54 2 292 19 17 309 35 36 328 5 1 330 21 34 336 48 33 h.s.	293 221 312 305 301 297 292 292 290 293 287 218	<b>KIRA</b> h.s. Kumtala Thalli Hill Kita Fort Naria Hill Jaysulmere s. Thabat h.s. Gadar Māli Rathanada Thalli Hill Mark Devikot Temple Sorari Nadi Tree Lakman h.s. Jisu s. 16 39 38 92 0 35 104 36 35 142 11 47 160 3 58 216 28 41 258 33 52 279 56 27 296 14 21 310 55 57 340 18 31	308 311 314 225 224 222 313 309 307 223 222	<b>KORBA</b> h.s. Barātra Hill h.s. Randa Hill Balasar Hill Negara Hill Bibi Bakri Hill Mark Jesara Hill Mark Manda Kalt Māli Hill Daroi Seu Building Mark (helio.) Balai Hill Mark Jojeni Peak Nimla Bālmir 16 39 18 19 51 54 115 4 41 128 23 4 154 21 54 160 33 4 167 29 54 176 35 32 191 57 20 201 31 39 212 10 49 233 59 23 295 56 50 335 31 54	213 263 271 265 274 268 216 279 215 269 273 277 213 214	<b>LABMAN</b> h.s. Maniari Temple Mandi Khorao Hill Mark Khoras Hill Mark Somlai Hill Mark Devi Hill Mark Jisu Baloni Temple 11 36 52 10 48 58 48 47 43 79 43 22 82 35 42 83 7 20 105 2 38 117 4 12	284 218 288 299 302 303 219 306	<b>LOWAH</b> s. Pokaran Temple No. 1 Pokaran Tower Mark (helio.) Pokaran Temple No. 2 Pokaran Fort Mark (heliotrope) Pokaran Building Pokaran Masejd Mark (helio.) 107 31 19 114 36 3 116 40 40 116 58 40 117 5 46 119 22 28	346 387 349 352 354 366
<b>KOTBA</b> h.s. Siomi Barātra Hill Randa Hill Balasar Hill Negara Hill Bibi Bakri Hill Mark Jesara Hill Mark Manda Kalt Māli Hill Daroi Seu Building Mark (helio.) Balai Hill Mark Jojeni Peak Nimla Bālmir 16 39 18 19 51 54 115 4 41 128 23 4 154 21 54 160 33 4 167 29 54 176 35 32 191 57 20 201 31 39 212 10 49 233 59 23 295 56 50 335 31 54	213 263 271 265 274 268 216 279 215 269 273 277 213 214	<b>LABMAN</b> h.s. Maniari Temple Mandi Khorao Hill Mark Khoras Hill Mark Somlai Hill Mark Devi Hill Mark Jisu Baloni Temple 11 36 52 10 48 58 48 47 43 79 43 22 82 35 42 83 7 20 105 2 38 117 4 12	284 218 288 299 302 303 219 306	<b>LOWAH</b> s. Pokaran Temple No. 1 Pokaran Tower Mark (helio.) Pokaran Temple No. 2 Pokaran Fort Mark (heliotrope) Pokaran Building Pokaran Masejd Mark (helio.) 107 31 19 114 36 3 116 40 40 116 58 40 117 5 46 119 22 28	346 387 349 352 354 366										

\* Of the Karachi Longitudinal Series.

Name of station with azimuths of surrounding points		Name of station with azimuths of surrounding points		Name of station with azimuths of surrounding points		Name of station with azimuths of surrounding points	
o	'	o	'	o	'	o	'
LOWAH s.		MANGOTA h.s.		MASSUTIA h.s.		MONGOLIA, XXXI	
Pokaran Temple No. 4	122 43 26	Kariahi	h.s.	Bijolai	h.s.	Sirad, XXVII	36
Pokaran	128 34 17	Chotrana	"	Jodhpore Temple No. 2	"	Nok, XXX	37
Pokaran Temple No. 5	132 36 2	Turatra	"	Jodhpore Temple No. 2	"	Pabusear, XXXII	40
Tika Māli	175 14 56	Barila Hill Mark	"	Jodhpore Gate No. 2	"	Girondi, XXXV	41
Marla	283 21 49	Rānigson Hill Mark	"	Jodhpore Temple No. 3	"	Nokra Hill Mark	167
		Bālmir	"	Jodhpore Gate No. 3	"	Binthe, XXIX	36
		Durimāna	"	Jodhpore Temple No. 1	"		
				Jodhpore Temple No. 1	"		
MALEPURA, XV		Durimāna	"	Jodhpore House	"		
Undria Hill	24 25 27			Rathanada Temple	"		
Duceur Hill	27 23 9' 55	MAJKASAR, XXXVI					
Budd Hill	75 34 21	Phulasar, XXXIV	45				
Ketu, XIII	95 46 31' 84	Uperthal, XXXVII	46				
Chamu, XVII	136 49 0' 62	Girāl Hill Mark (heliotrope)	170				
Digwi Hill	217 14 50	Modia, XXXIX	47				
Jodhpore	311 2 12	Ronesar, XL	52				
Bijolai	319 45 24	Bithnok, XXXVIII	51				
		Girondi, XXXV	45				
MANDAI h.s.		MANSA, LIII					
Bhi Bakri Hill Mark	10 54 15	Telu, LI	64				
Randa Hill	54 57 37	Maujgarh Fort Mark (helio.)	179				
Khoras Hill Mark	150 42 32	Maujgarh Mosque	178				
Devi Hill Mark	154 49 24	Sulbān, LVI	73				
Jisu	170 38 23	Chapu	188				
Sangar Temple	172 55 19	Hasan, LV	68				
Lakman	199 48 36	Marot Fort Mark (heliotrope)	190				
Mitrajī Temple	211 44 0	Marot, LIV	65				
Sanda Hill Mark	220 5 44	Soma, L	64				
Bari Daroi Hill Mark	239 23 38						
Daroi	246 34 8						
Nihoi Hill	261 16 50						
Jojeni Peak	279 39 26						
Pusad Temple	282 8 1						
Manari Temple	290 14 14						
Kālī Māli Hill	311 54 26						
Balai Hill Mark	315 22 40						
Nimla	327 51 15						
Neu Building Mark (helio.)	334 36 42						
Kotra Fort	339 40 23						
Kotra	356 0 51						
Jesara Hill Mark	356 35 5						
	358 19 27						
MANDAULA, IV		MANOTA h.s.					
Bālmir Hill Mark (heliotrope)	127 12 1	Kariahi	h.s.				
Gonia Hill	193 13 3	Chotrana	"				
Nagar, VI	214 51 38' 38	Barila Hill Mark	"				
Saura Hill	252 26 6	Rānigson Hill Mark	"				
Kundal, III	260 56 57' 21	Bālmir	"				
Seraso Hill	282 16 30	Durimāna	"				
Borta, I	305 53 41' 41						



Name of station with azimuths of surrounding points	o' ' "	Name of station with azimuths of surrounding points	o' ' "	Name of station with azimuths of surrounding points	o' ' "	No. of triangles distance	Name of station with azimuths of surrounding points	o' ' "	No. of triangles distance
<b>NANA RAILWAY STATION S.</b>		<b>PABESAE, XXXII</b>		<b>PABESAE, XXXII</b>			<b>PABESAE, XXXII</b>		
Widr Hill Mark	154 28 47	Nok, XXX	14 40 48.03	Nok, XXX	14 40 48.03	453	Nok, XXX	14 40 48.03	40
Kanagar, XXXVIII*	254 50 55	Bikampur, XXXIII	76 40 0.08	Bikampur, XXXIII	76 40 0.08	449	Bikampur, XXXIII	76 40 0.08	43
Belka, XXXIX*	344 10 24	Puhsar, XXXIV	171 6 45.07	Puhsar, XXXIV	171 6 45.07	449	Puhsar, XXXIV	171 6 45.07	42
		Girondi, XXXV	238 7 26.34	Girondi, XXXV	238 7 26.34		Girondi, XXXV	238 7 26.34	41
<b>NAR MAGRA S.</b>		Mongolia, XXXI	307 34 43.44	Mongolia, XXXI	307 34 43.44		Mongolia, XXXI	307 34 43.44	40
Jhalari Mali	67 48 44								
Baman Thali Pillar	192 8 22								
Ekalguri	200 21 49	<b>PALAWA S.</b>		<b>PALAWA S.</b>			<b>PALAWA S.</b>		
Konkat Thali Hill	201 43 27	Chandni	101 29 20	Chandni	101 29 20	375	Chandni	101 29 20	375
Hardikot	212 32 53	Bhojisar Mark (heliotrope)	105 57 54	Bhojisar Mark (heliotrope)	105 57 54	378	Bhojisar Mark (heliotrope)	105 57 54	378
	270 34 7	Khari	120 51 49	Khari	120 51 49	376	Khari	120 51 49	376
<b>NARVAL H.S.</b>		Bekaneer Temple	202 35 8	Bekaneer Temple	202 35 8	382	Bekaneer Temple	202 35 8	382
Bithnok, XXXVIII	39 51 34	Bekaneer	203 30 50	Bekaneer	203 30 50	375	Bekaneer	203 30 50	375
Ronesar, XL	95 35 11	Gigasar	266 54 2	Gigasar	266 54 2	380	Gigasar	266 54 2	380
Khari	291 36 28	Hethari	267 0 56	Hethari	267 0 56	377	Hethari	267 0 56	377
Chandni	315 15 41								
Gudho	343 18 14	<b>PANCHOK, LVIII</b>		<b>PANCHOK, LVIII</b>			<b>PANCHOK, LVIII</b>		
		Kamrar, XIX†	181 40 42.16	Kamrar, XIX†	181 40 42.16	76	Kamrar, XIX†	181 40 42.16	76
<b>NIRMA H.S.</b>		Randu, LIX	243 16 57.65	Randu, LIX	243 16 57.65	75	Randu, LIX	243 16 57.65	75
Vesala Hill Mark	37 18 18	Hasan, LV	287 24 38.86	Hasan, LV	287 24 38.86	74	Hasan, LV	287 24 38.86	74
Sioni	38 33 24	Sultan, LVI	345 10 49.07	Sultan, LVI	345 10 49.07	74	Sultan, LVI	345 10 49.07	74
Redhano Hill Mark	55 48 2	<b>PAROK H.S.</b>		<b>PAROK H.S.</b>			<b>PAROK H.S.</b>		
Kotra Fort	111 26 20	Kumharon-ka-Mangra	28 41 4	Kumharon-ka-Mangra	28 41 4	390	Kumharon-ka-Mangra	28 41 4	390
Kotra	116 0 39	Athni, S. Rock	77 0 3	Athni, S. Rock	77 0 3	407	Athni, S. Rock	77 0 3	407
Balasar Hill	110 38 18	Ramkund	88 16 26	Ramkund	88 16 26	390	Ramkund	88 16 26	390
Jesara Hill Mark	126 15 47	Athni	88 25 46	Athni	88 25 46	396	Athni	88 25 46	396
Negara Hill	135 58 10	Diwara Temple	127 37 55	Diwara Temple	127 37 55	442	Diwara Temple	127 37 55	442
Manda	154 40 52	Kamuna	176 6 10	Kamuna	176 6 10	391	Kamuna	176 6 10	391
Daroi	178 6 1	Guru Sikkar, XLII*	205 7 37	Guru Sikkar, XLII*	205 7 37	393	Guru Sikkar, XLII*	205 7 37	393
Bhar Hill Mark	198 58 50	Achalgarh Fort	214 36 13	Achalgarh Fort	214 36 13	404	Achalgarh Fort	214 36 13	404
Joyeni Peak	266 28 14	Rishikishan Rock		Rishikishan Rock			Rishikishan Rock		
Balmir	352 33 10								
<b>NOR, XXX</b>		<b>PELU, XVIII</b>		<b>PELU, XVIII</b>			<b>PELU, XVIII</b>		
Harban, XXVIII	18 43 5.70	Loharan, XVI	28 38 45.30	Loharan, XVI	28 38 45.30	22	Loharan, XVI	28 38 45.30	22
Bikampur, XXXIII	138 49 14.15	Daichu, XIX	91 29 30.40	Daichu, XIX	91 29 30.40	26	Daichu, XIX	91 29 30.40	26
Pabusar, XXXII	194 39 29.24	Jalora, XXI	154 21 15.05	Jalora, XXI	154 21 15.05	25	Jalora, XXI	154 21 15.05	25
Mongolia, XXXI	237 15 40.40	Lohawat, XXII	203 23 0.17	Lohawat, XXII	203 23 0.17	24	Lohawat, XXII	203 23 0.17	24
Sirad, XXVII	325 40 28.00	Bhakhti Fort	234 55 17	Bhakhti Fort	234 55 17	151	Bhakhti Fort	234 55 17	151
		Sorau, XX	260 45 36.02	Sorau, XX	260 45 36.02	23	Sorau, XX	260 45 36.02	23
<b>OMRO, XXIV</b>		Chanu, XVII	322 8 13.95	Chanu, XVII	322 8 13.95	22	Chanu, XVII	322 8 13.95	22
Jalora, XXI	29 56 41.13	<b>PHOGALA, XLVIII</b>		<b>PHOGALA, XLVIII</b>			<b>PHOGALA, XLVIII</b>		
Ekka, XXIII	81 40 36.45	Habib, XLVI	34 3 38.04	Habib, XLVI	34 3 38.04	58	Habib, XLVI	34 3 38.04	58
Phalodi Fort Mark (heliotrope)	99 54 33	Telu, LI	118 25 32.91	Telu, LI	118 25 32.91	63	Telu, LI	118 25 32.91	63
Malār Hill	129 9 34	Soma, L	190 54 8.04	Soma, L	190 54 8.04	62	Soma, L	190 54 8.04	62
Khirwa, XXV	140 3 30.20	Bhulan, XLIX	244 6 55.57	Bhulan, XLIX	244 6 55.57	59	Bhulan, XLIX	244 6 55.57	59
Jambo, XXVI	193 5 39.80	Bhuda, XLV	319 45 3.02	Bhuda, XLV	319 45 3.02	58	Bhuda, XLV	319 45 3.02	58
Ronesar Hill Mark (heliotrope)	247 5 4								
Lohawat, XXXII	330 43 15.55								

\* Of the Karschi Longitudinal Series. † Of the Sudlej Series.

Name of station with azimuths of surrounding points	No. of Triangle or distance	Name of station with azimuths of surrounding points	No. of Triangle or distance	Name of station with azimuths of surrounding points	No. of Triangle or distance
<b>RAMKUND</b> h.s.	395	<b>SACHU, XLI</b>	171	<b>SOMA, I</b>	62
Athni	390	Band-ke-tibba	h.s.	Phogala, XLVIII	63
Parok	389	Mugrala, XLIII	218 12 33	Telu, LI	64
Kumbharon-ka-Mangra	319 31 5	Modha, XXXIX	224 11 22 48	Mansa, LIII	65
		Girmal Hill Mark (heliotrope)	268 40 44 68	Marot Fort Mark (heliotrope)	180
		Upertal, XXXVII	311 34 16	Marot, LIV	65
			327 32 14 09	Jangru Bastion No. 2 Mark (helio.)	182
<b>RAMKUND (new) h.s.</b>	446	<b>SAMPARI, VII</b>	32 29 33 12	Jangru Bastion No. 1 Mark (helio.)	180
Kue-ka-Pahar (new)	447	Kundal, III	84 43 44 81	Mirgarh Bastion No. 2 Mark (helio.)	186
Abu Hospital	446	Nagar, VI	89 38 42	Mirgarh Bastion No. 1 Mark (helio.)	184
		Jasol Hill Mark	142 31 35 72	Aukli, LII	66
		Thob, VIII	179 25 51	Bhulan, XLIX	62
<b>RANDU, LIX</b>	75	Hill No. 25	221 24 12 73		
Panchkot, LVIII	72	Dofo, X	238 13 6	<b>SORAU, XX</b>	28
Kainsir, XIX*	195	Sar Hill Mark	310 37 39 31	Chamu, XVII	23
Haidarwala	197	Bhadrajan, V	328 8 11	Pelu, XVIII	24
Revenue Survey Station J s.	193	Kumbi Hill	358 6 45	Lohawat, XXII	
Kandi, XXI*	70	Roza Hill			
Kali Dahar	194			<b>SUR MAUL h.s.</b>	321
Revenue Survey Station D s.	194	<b>SARUWALI h.s.</b>	43 52 42	Jeyulmere Temple No. 1	227
Hasan, LV	70	Adwáli	97 20 30	Jeyulmere	322
		Khirsar, XLIV	145 48 36	Jeyulmere House No. 1 Mark (helio.)	323
<b>REVENUE SURVEY No. 12 s.</b>	189	Pungal Fort Mark (helio.)	154 8 35	Thaiat	227
S. W. End Base	189	Búdithal		Blagugaon Tree	327
Chépa	189			Kakrasar	228
		<b>STONY h.s.</b>	3 16 42	Gadar Mahi Building	326
<b>REVENUE SURVEY STATION D s.</b>	194	Chotan	52 50 43		
Randu, LIX	194	Saitrao Temple	190 30 31	<b>SULKIA THALAU, XIV</b>	21
Kali Dahar	194	Baratra Hill	196 36 18	Loharan, XVI	149
		Kotra	218 26 41	Hill No. 2	20
<b>REVENUE SURVEY STATION J s.</b>	197	Nimla	220 8 47	Kirja Hill	147
Kali Dahar	197	Vesala Hill Mark	272 35 45	Adori, XI	20
Randu, LIX	198	Bálmir	282 26 1		
Haidarwala	198	Jesai Hill Mark No. 2	293 28 25	<b>SUITAN, XVI</b>	74
		Jesai Hill Mark No. 1	300 35 10	Panchkot, LVIII	73
		Barila Hill Mark	312 35 20	Hasan, LV	73
		Jona Hill Mark	323 19 22	Mansa, LIII	
		Taratra			
<b>ROHRA RAILWAY STATION s.</b>	452	<b>STRAD, XXXVII</b>	25 47 2 32	<b>SUNDA, XLIV†</b>	79
Gurú Sikkar, XLII†	454	Khirwa, XXV	54 0 58	Ponassa Mark (heliotrope)	80
Belka, XXXIX†	452	Báp Mark (heliotrope)	92 24 29 32	Bhínmál Hill Pagoda Mark	82
		Harban, XXXVIII	145 44 10 16	Bhínmál Hill Mark (heliotrope)	1
<b>RONESAB, XI</b>	52	Nok, XXX	193 13 35 86	Bugraon Hill	78
Bithnok, XXXVIII	52	Mongolia, XXXI	209 52 27 42	Dhaura, II	8
Mankasar, XXXVI	53	Binti, XXIX	333 21 22 10	Bonik, XLI†	1
Modia, XXXIX	54	Jambo, XXVI	345 58 13	Gurú Sikkar, XLII†	888
Jodisar, XLII	368	Ekkal Thalhi Hill Mark (helio.)		Ramkund	888
Narthal	370			Narthal	877
Gudho	370			Nodona Hill	77

\* Of the Sudej Series. † Of the Karschi Longitudinal Series.

AZIMUTHS OF STATIONS AND INTERSECTED POINTS.

Name of station with azimuths of surrounding points	No. of triangling distance	Name of station with azimuths of surrounding points	No. of triangling distance	Name of station with azimuths of surrounding points	No. of triangling distance
TAMPI, LX* Didawa, LXII* Lalji	79 58 2 20 h.s. 145 52 50	TELV, LI Maujgarh Fort Mark (helio.) Mansa, LIII Sona, L Phogala, XLVIII	179 64 63 63	TLOV, VIII Adoni, XI Dugur, XII Bardu Hill Dodo, X Samdari, VII	18 12 133 11 10
TARABTA h.s. Chotan Saitrao Temple Lassua Hill Tomlia Hill Akora Hill Redhano Hill Mark Sioni Jona Hill Mark Jesai Hill Mark No. 1 Barila Hill Mark Marori Temple Balmir Rauigaon Hill Mark Maugta	64 50 53 110 0 56 122 38 51 126 20 59 126 40 14 138 29 59 h.s. 143 23 44 161 57 14 171 41 0 184 25 34 194 58 27 h.s. 213 5 47 224 12 34 326 12 15	THAKAT h.s. Kita Akai Hill Dabla Hill Suer Mali Jeysulmere Temple No. 1 Jeysulmere s. Jeysulmere House No. 1 Mark (helio.) Jeysulmere House No. 2 Mark (helio.) Jeysulmere Temple No. 3 Sonari Hill Lon Charri Kakrasar Bhugsoon Tree Motsgaon Fort Gadar Mali Gadar Mali Building Asach Temple Sagano Hill Mark	224 218 317 227 321 225 322 323 324 328 229 228 327 320 224 325 319 315	TIKA MALI h.s. Aujia Mark (heliotrope) Pokaran Tower Mark (helio.) Pokaran Temple No. 2 Pokaran Temple No. 3 Pokaran Fort Mark (helio.) Pokaran Building Pokaran Masjid Mark (helio.) Pokaran h.s. Pokaran Temple No. 5 Pokaran Hill Kair Dtingar h.s. Sauri Hill Mark (heliotrope) Bomenu Hill Marla h.s. Lowah s.	845 347 340 351 353 354 356 341 360 362 341 366 363 342 343
TAROL h.s. Lur Hill Mark Borta, I Modra Hill Mark Kundal, III Nun Hill Pagoda Dhuala, II	62 47 20 77 37 1 100 34 1 153 9 30 163 51 45 224 52 34	THON, VIII Jasol Hill Mark Nagar, VI Boria, IX	127 10 14	UPERTHAL, XXXVII Suchu, XLI Modia, XXXIX Mankasar, XXXVI Phulasar, XXXIV	48 47 46 46
TELV, LI Maujgarh Mosque	132 47 24				

\* Of the Karachi Longitudinal Series.

November, 1886.

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

## JODHPORE MERIDIONAL SERIES.

### CO-ORDINATES AND DESCRIPTIONS OF ALL STATIONS AND POINTS.

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

NOTE.— $\lambda$  stands for Latitude North; L for Longitude East of Greenwich; H for Height of station in feet above mean sea level, determined trigonometrically, and  $h$  for Height of station tower or pillar above ground level. The trigonometrical heights always refer to the upper mark-stone let into the pillar when the latter is solid; and to the upper surface of the pillar, on which the theodolite stood, when the pillar is perforated or the tower is hollow. For visited stations and for other points of superior accuracy the values of  $\lambda$  and L are given to two places of decimals; for well determined objects to one place, and for the remaining points to the nearest second. Principal stations are distinguished by the Roman numerals I, II, &c., secondary stations by the letters s. and h.s. The names in italics are those of the territories, states or districts in which the stations or points are situated. The season when a station or point was fixed is given immediately after its name and description.

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p>Abu h.s. On a flat rock opposite the S.W. corner of the building used as the G. T. Survey Office in 1876. A <math>\odot</math> engraved on the rock <i>in situ</i> marks the station. 1875-76. (<i>Sirohee State</i>).</p> <p style="text-align: center;">o ' "</p> <p><math>\lambda</math>           24 35 45'26 L            72 45 13'14 H            3945 Nos. 444</p>	<p>Abu, B h.s. On the summit of a large and conspicuous boulder in the compound of, and within about a hundred yards of, the Cantonment Magistrate's house. It is marked on the rock <i>in situ</i>. 1869-70. (<i>Sirohee State</i>).</p> <p style="text-align: center;">o ' "</p> <p><math>\lambda</math>           24 35 34'62 L            72 45 27'76 H            3972 Nos. 402, 403</p>	<p>Abu Church Turret. 1869-70. (<i>Sirohee State</i>).</p> <p style="text-align: center;">o ' "</p> <p><math>\lambda</math>           24 35 34'8 L            72 45 12'8 H            3849, floor of porch Nos. 410, 411</p>
<p>Abu, A h.s. In Abu Cantonments. Marked by a <math>\odot</math> and surmounted by a cairn of stones. 1869-70. (<i>Sirohee State</i>).</p> <p><math>\lambda</math>           24 35 54'35 L            72 45 36'13 H            4001 <math>h</math>           o Nos. 400, 401</p>	<p>Abu, Barrack. Chimney of married men's Barrack. 1869-70. (<i>Sirohee State</i>).</p> <p><math>\lambda</math>           24 35 52'3 L            72 45 38'1 Nos. 432, 433</p>	<p>Abu Dāk Bungalow, Centre of roof. 1869-70. (<i>Sirohee State</i>).</p> <p><math>\lambda</math>           24 35 41'0 L            72 45 29'1 H            3822, floor of veranda Nos. 420, 421</p>

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Abu Gate h.s.</b> On a somewhat conspicuous rock about 100 yards to the left of the old road from Anidra to the station of Mount Abu, near the point where it first reaches the plateau. It is marked on the rock <i>in situ</i>. 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 35 53·91 L 72 44 40·88 H 3983 Nos. 399</p>	<p><b>Abu, House No. 5.</b> Chimney of Doctor Orwin's house. 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 35 46·0 L 72 45 36·5 Nos. 424, 425</p> <p><b>Abu, House No. 6.</b> Chimney of Executive Engineer's house. 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 35 51·2 L 72 45 18·7 Nos. 428, 429</p> <p><b>Abu, House No. 7.</b> East end of roof of Colonel Nixon's house. 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 35 59·2 L 72 45 12·5 H 3977, ridge of roof Nos. 434, 435</p> <p><b>Abu, House No. 8.</b> Highest chimney of Barrack Sergeant's house. 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 35 59·7 L 72 45 31·3 H 4004, top of chimney Nos. 436, 437</p> <p><b>Abu, Nun Rock.</b> 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 35 51·9 L 72 45 13·4 Nos. 430, 431</p> <p><b>Abu, Residency Flagstaff.</b> 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 35 40·6 L 72 45 4·4 H 3931, foot of flagstaff Nos. 414, 415</p> <p><b>Abu, Residency Lightning Rod.</b> 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 35 41·8 L 72 45 7·0 H 3960, top of roof Nos. 416, 417</p> <p><b>Achalgarh Fort s.</b> On the roof of the highest building in the old hill fort of that name. The mark is cut on one of the stone slabs forming the roof, and a cairn of stones is heaped over it. 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 36 57·92 L 72 48 26·37 H 4688 h not forthcoming No. 393</p>	<p><b>Adori, XI.</b> <i>Vide page 5.</i></p> <p>λ 26 20 20·83 L 72 22 42·07 H 1042 h 2 Nos. 13, 15</p> <p><b>Adúwáli h.s.</b> On a high sand hill in the lands of Gogriála village, about 5½ miles S.S.W. of Pungal town: pargana Pungal. The approximate azimuths and distances of the circumjacent villages are.—Ladúsar 14°, miles 3; Gogriála 247°, miles 4; and the small and now deserted hamlet of Adúwáli, after which the hill is called and which lies at its foot, 270°. It is marked by a circular is-bated pillar of paka masonry 2½ feet deep and 2½ feet in diameter, surrounded by a paka annulus wall, with two mark-stones, one on the surface of the pillar flush with the hill top and the other 2½ feet below. 1874-75. (<i>Bickaneer State</i>).</p> <p>λ 28 25 1·95 L 72 48 56·57 H 631 h 0 No. 173</p> <p><b>Akal Hill.</b> Centre of the highest peak of hills near Akal village: pargana Devikot. 1875-76. (<i>Jaysulmere State</i>).</p> <p>λ 26 49 25·4 L 71 4 57·3 H 876 No. 318</p> <p><b>Akora Hill.</b> Centre of a low hill S. of Akora village: taluk Maláni. 1875-76. (<i>Jodhpore State</i>).</p> <p>λ 25 34 39·6 L 71 15 6·1 H 1171 No. 244</p> <p><b>Asach Temple.</b> Centre of the higher of two old temples on high ground adjoining the hamlet of Asach: pargana Devikot. 1875-76. (<i>Jaysulmere State</i>).</p> <p>λ 26 50 30·5 L 71 10 14·2 H 790, base of temple No. 319</p> <p><b>Asárona Hill.</b> Highest and most conspicuous peak of the Asárona range: taluk Jálór. 1872-73. (<i>Jodhpore State</i>).</p> <p>λ 25 16 45·8 L 72 46 31·7 H 2759 Nos. 96, 97</p>
<p><b>Abu Hospital.</b> S.E. end of roof of east hospital. 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 35 50·0 L 72 45 46·2 H 4006, top of roof Nos. 426, 427</p> <p><b>Abu Hospital s.</b> In the compound of the European Regimental Hospital. Marked by a masonry pillar 2½ feet deep and 2½ feet in diameter, with two mark-stones, one at the foundation and the other on the surface of the pillar flush with the level of the ground. The barometer cistern in the Hospital Office is 3·5 feet above the upper mark-stone. 1875-76. (<i>Sirohee State</i>).</p> <p>λ 24 36 1·77 L 72 45 37·61 H 3941 Nos. 447, 448</p> <p><b>Abu, House No. 1.</b> Centre of roof of Mr. Cook's house. 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 35 31·4 L 72 45 13·0 Nos. 408, 409</p> <p><b>Abu, House No. 2.</b> Highest roof of Colonel Arthur's house. 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 35 37·8 L 72 45 15·8 Nos. 412, 413</p> <p><b>Abu, House No. 3.</b> Lightning Rod of the Office of the Agent to the Governor General for Rájputána. 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 35 40·7 L 72 45 13·9 H 3953 Nos. 418, 419</p> <p><b>Abu, House No. 4.</b> S. end of thatch of Chaplain's house. 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 35 45·6 L 72 45 13·8 Nos. 422, 423</p>		

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Āsmānwāla No. 1 h.s.</b> On the range of sand hills called in the Revenue Survey Maps Āsmānwāla Tibba, about <math>\frac{1}{4}</math> mile N.W. of the Revenue Survey Station Qs., and <math>\frac{8}{10}</math> miles S.W. of Marot town: thāna Maujgarh, pargana Bahāwalpur. It is marked by a mass of bricks cemented with thick clay, <math>1\frac{1}{2}</math> feet deep and <math>2\frac{1}{2}</math> feet in diameter, with a mark-brick in the centre. 1875-76. (Bahāwalpur State).</p> <p>o ' "</p> <p>λ 29 7 27.08 L 72 22 43.83 H 459 h o</p>	<p><b>Aula h.s.</b> On the highest and most westerly of three peaks of a low hill, about <math>\frac{1}{4}</math> mile N. of the river and 1 mile N. of the Erinpura Dāk Bungalow. It is marked by a ⊙ engraved on a small rock. 1872-73. (Sirohee State).</p> <p>o ' "</p> <p>λ 25 9 33.22 L 73 6 27.43 H 1045 No. 91</p>	<p><b>Balai Hill Mark.</b> On a well known hill called Balai-ka-Bhūkhār after the old and now deserted village of Balai, about 3 miles N.E. of the town of Seu; the hill belongs to Balai village: pargana Seu. It is marked by a ⊙ engraved on the rock <i>in situ</i> and surmounted by a pole and brush. 1875-76. (Jodhpore State).</p> <p>o ' "</p> <p>λ 26 13 15.50 L 71 18 26.84 H 930, base of pole Nos. 272, 273</p>
<p><b>Āsmānwāla No. 2 h.s.</b> On the range of sand hills called in the Revenue Survey Maps Āsmānwāla Tibba, about <math>\frac{1}{4}</math> mile N.E. of the Revenue Survey Station Qs., and 7 miles S.W. of Marot town: thāna Marot, pargana Khairpur. It is marked by a mass of bricks cemented with thick clay, <math>1\frac{1}{2}</math> feet deep and <math>2\frac{1}{2}</math> feet in diameter, with a mark-brick in the centre. 1875-76. (Bahāwalpur State).</p> <p>λ 29 7 6.05 L 72 21 9.91 H 464 h o</p>	<p><b>Awada Debi Rock.</b> 1869-70. (Sirohee State).</p> <p>λ 24 36 20.5 L 72 44 56.9 H 4721, highest point Nos. 440, 441</p>	<p><b>Balasar Hill.</b> Centre of a hill locally known as Abapalia Dūngar, situated between the villages of Baotria and Balasar: pargana Seu. 1875-76. (Jodhpore State).</p> <p>λ 26 9 2.7 L 71 10 57.0 H 1067 Nos. 265, 266</p>
<p><b>Athni h.s.</b> On a dat-topped hill about 1 mile E. of the Civil Station of Abu. Bhlwāra village lies at the N.E. base of the hill. It is marked by a ⊙ surmounted by a cairn of stones. When revisited in 1876, the station was found all right. 1869-70. (Sirohee State).</p> <p>λ 24 35 28.37 L 72 46 22.43 H 4312 h o Nos. 395, 396</p>	<p><b>Awada Debi Temple.</b> 1869-70. (Sirohee State).</p> <p>λ 24 36 15.6 L 72 45 14.4 H 4219, foot of door Nos. 438, 439</p>	<p><b>Bālmīr Hill Mark (heliotrope).</b> On the highest part of the hill locally called Suzeri, N.E. of and very close to the Mātaji temple: taluk Malāni. It is marked by a ⊙. 1872-73. (Jodhpore State).</p> <p>λ 25 44 48.64 L 71 25 5.10 H 1385 h o Nos. 125, 126</p>
<p><b>Athni h.s.</b> On a dat-topped hill about 1 mile E. of the Civil Station of Abu. Bhlwāra village lies at the N.E. base of the hill. It is marked by a ⊙ surmounted by a cairn of stones. When revisited in 1876, the station was found all right. 1869-70. (Sirohee State).</p> <p>λ 24 35 28.37 L 72 46 22.43 H 4312 h o Nos. 395, 396</p>	<p><b>Bachrao Hill.</b> Centre of a low conical hill above Bachrao village, 23 miles S. of Bālmīr: taluk Malāni. 1875-76. (Jodhpore State).</p> <p>λ 25 24 1.4 L 71 22 27.2 H 706 Nos. 242, 243</p>	<p><b>Bālmīr h.s. (destroyed)*.</b> On a high conical hill, the highest in the neighborhood, locally known as Suzeri, in the lands of and about <math>\frac{1}{4}</math> mile N.W. of Bālmīr town. It was 22 feet from the S.W. and 23 feet from the N.W. corner of the roof of the Mātaji temple, and about 58 feet S.S.W. of Bālmīr Hill Mark: taluk Malāni. The station was marked by a ⊙ engraved on the rock <i>in situ</i>. 1875-76. (Jodhpore State).</p> <p>λ 25 44 48.21 L 71 25 4.54 H 1383 No. 209</p>
<p><b>Athni Rock.</b> South rock. 1869-70. (Sirohee State).</p> <p>λ 24 35 15.9 L 72 46 14.0 Nos. 406, 407</p>	<p><b>Badāl Hill.</b> Centre of the highest point, about 6 miles S.E. of Belwa village: taluk Jodhpore. 1873-74. (Jodhpore State).</p> <p>λ 26 27 29.6 L 72 41 4.4 H 1200 No. 148</p>	<p><b>Bāloni Temple.</b> Centre of temple on rising ground overgrown with Kumrat and other thorny desert trees which, being dedicated to the goddess Mātaji, are left uncut. The roof of the temple is 9 feet above the ground; it is in the lands of and about 3 miles N. of the village of Baloni: pargana Vinjori. 1875-76. (Jey-sulmure State).</p> <p>λ 26 36 12.9 L 71 14 23.6 H 940, roof of temple No. 306</p>
<p><b>Aujla Mark (heliotrope).</b> About <math>\frac{1}{4}</math> mile S.E. of Aujla village appertaining to Pokaran. It is marked by a paka masonry pillar 2 feet deep and <math>2\frac{1}{2}</math> feet in diameter with two mark-stones, one on the surface of the pillar flush with the level of the ground and the other 2 feet below. 1873-74. (Jodhpore State).</p> <p>λ 26 49 27.79 L 71 59 6.22 No. 345</p>	<p><b>Bāg Thalli Hill.</b> Centre of the highest and northernmost point of a high sand hill near Chahim village: pargana Nāchana. 1873-74. (Jey-sulmure State).</p> <p>λ 27 14 49.5 L 71 53 17.6 H 886 No. 339</p>	
<p><b>Aukli, LII.</b> <i>vide page 12.</i></p> <p>λ 29 4 13.28 L 72 40 3.38 H 507 h 1 No. 66</p>	<p><b>Bakra Kudan Hill.</b> Centre of a low, conspicuous and well-known peaked hill, about 3 miles W. and in the lands of Bari Daroi village: pargana Seu. 1875-76. (Jodhpore State).</p> <p>λ 26 27 8 L 71 20 54 H 1094</p>	

\* Major R. Beavan visited this hill in June 1881 and reported as follows:—"The station of Bālmīr has been destroyed, the rock having been blasted away in order to repair the temple. A new station has been established 17.5 feet east of the temple. No trace of the situation of the old station is now discernible".

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Balúnda Hill.</b> Top of, about 3 miles N. of the Jálor range: taluk Jálor. 1872-73. (<i>Jodhpore State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 25 17 20·3 L 72 34 18·1 H 1127 Nos. 98, 99</p>	<p><b>Bari Daroi Hill Mark.</b> On a low hill in the lands of Bari Daroi village which lies at its foot: pargana Seu. It is marked by a ⊙ engraved on the rock <i>in situ</i> and surmounted by a pole and brush. 1875-76. (<i>Jodhpore State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 26 40·45 L 71 23 43·86 H 1074 Nos. 290, 291</p>	<p><b>Bhádrájan, V.</b> <i>Vide page 4.</i></p> <p style="text-align: center;">o ' "</p> <p>λ 25 35 48·29 L 72 53 43·89 H 2111 h 3 No. 5</p>
<p><b>Báman Thalli Pillar.</b> On a sand hill near Loharki village, on the boundary between Jodhpore and Jaisalmer, 2½ miles from Ekalguri h.s. 1873-74. (<i>Jodhpore and Jaisalmer States</i>).</p> <p>λ 27 3 25·2 L 71 43 2·3 H 791, base of pillar h 6 Nos. 334, 335</p>	<p><b>Barila Hill Mark.</b> On a conical hill about 15 miles S.W. of Bálmir. Barila village is at its N.E. foot: taluk Maláni. It is marked by a ⊙ engraved on a stone embedded on hill top and surmounted by a pole and brush. 1875-76. (<i>Jodhpore State</i>).</p> <p>λ 25 38 34·38 L 71 17 20·22 H 2053 Nos. 247, 248</p>	<p><b>Bhngugaon Tree.</b> Large tree 36½ feet high in centre of village: pargana Lathi. 1873-74. (<i>Jaisalmer State</i>).</p> <p>λ 26 55 2 L 71 12 37 H 758 No. 327</p>
<p><b>Band-ke-tibba h.s.</b> Also called "Station M on masonry platform, Trijunction of Bickaneer, Jaisalmer and Bahawalpur States" on Sheet No. 38 of Bahawalpur Revenue Survey. The approximate azimuth and distance of Sahiba-ke-vera are 122°, miles 6. It is marked by a circular masonry pillar 3 feet high with two mark-stones, one at top and the other at bottom flush with hill surface and centered over the charcoal which was found embedded in the sand; the pillar rests on a square foundation 1 foot thick. 1874-75. (<i>Bickaneer, Jaisalmer and Bahawalpur States</i>).</p> <p>λ 28 23 38·98 L 72 14 51·27 H 476 h 3 Nos. 171, 172</p>	<p><b>Bawuri Hill Mark (heliotrope).</b> On top of a hill S.W. of Khirwa and S.E. of Shekásur village: pargana Phalodi. It is marked by a ⊙. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 27 14 48·72 L 72 17 53·86 H 859 h o No. 160</p>	<p><b>Bhakhri Fort.</b> Centre of N. tower of a small fort above the village of the same name: taluk Jodhpore. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 54 3·4 L 72 38 50·8 H 1143, base of tower Nos. 151, 152</p>
<p><b>Baniasar Hill.</b> Centre of a group of upright stones erected in memory of the dead, on high ground 1½ miles W. of Marari village: taluk Maláni. 1875-76. (<i>Jodhpore State</i>).</p> <p>λ 26 30 49·4 L 71 27 59·9 H 1050 No. 297</p>	<p><b>Belka, XXXIX*.</b> On a high hill of the Aravalli range, about 24 miles from Mount Abu: pargana Rohai. It is marked by a solid pillar 5·6 feet high having three mark-stones, one at bottom, another two feet higher and a third at top. When visited in December 1882 the station was found in excellent order. 1850-61. (<i>Sirohee State</i>).</p> <p>λ 24 46 54·71 L 73 11 43·48 H 3599 h 6 No. 449</p>	<p><b>Bhiar Hill Mark.</b> On a conical hill locally known as Thorali, about 2 miles S. and in the lands of Bhiar village: pargana Seu. It is marked by a ⊙ engraved on the rock <i>in situ</i> and surmounted by a pole and brush. 1875-76. (<i>Jodhpore State</i>).</p> <p>λ 26 18 38·42 L 71 28 20·10 H 1032 Nos. 282, 283</p>
<p><b>Báp Mark (heliotrope).</b> On roof of Kachahri in village: pargana Báp. It is marked by a ⊙ engraved on the roof 14·2 feet above the ground. 1873-74. (<i>Jaisalmer State</i>).</p> <p>λ 27 22 31·65 L 72 23 41·20 H 666 h 14 Nos. 165, 166</p>	<p><b>Bhada, XLV.</b> <i>Vide page 10.</i></p> <p>λ 28 42 51·12 L 72 35 31·79 H 528 h 3 No. 56</p>	<p><b>Bhi Bákri Hill Mark.</b> On a low hill in the lands of and about 3 miles N.W. from Harwa village and the same distance S.E. of Japli: pargana Seu. It is marked by a ⊙ engraved on stone embedded on the hill top, surmounted by a pole and brush. 1875-76. (<i>Jodhpore State</i>).</p> <p>λ 26 13 24·01 L 71 11 26·05 H 925 No. 274</p>
<p><b>Baratra Hill,</b> Centre of the highest portion, about 3 miles N. of Sora village: pargana Seu. 1875-76. (<i>Jodhpore State</i>).</p> <p>λ 25 53 8·2 L 71 8 30·3 H 1238 Nos. 262, 263</p>	<p><b>Bhádra Temple.</b> A well known place on a low hill about ¼ mile from the village of the same name: pargana Lathi. 1873-74. (<i>Jaisalmer State</i>).</p> <p>λ 27 5 53·8 L 71 35 54·2 H 699 No. 333</p>	<p><b>Bhánmál Hill Mark (heliotrope).</b> In taluk Jálor. 1872-73. (<i>Jodhpore State</i>).</p> <p>λ 25 0 12·11 L 72 18 24·82 H 550 h not forthcoming Nos. 81, 82</p>

\* Of the Karáchi Longitudinal Series.

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Bhímál Hill Pagoda Mark.</b> On platform on S. side of Pagoda: taluk Jálor. It is marked by a <math>\odot</math> surmounted by a pole and brush. 1872-73. (<i>Jodhpore State</i>).</p> <p style="text-align: center;">o ' "</p> <p><math>\lambda</math> 24 59 52.17 L 72 16 52.13 H 931 h not forthcoming Nos. 80</p>	<p><b>Bickaneer Temple.</b> Centre of spire of Bhandasar-ki-deora, a large temple 87½ feet above ground, at the S. extremity of Bickaneer town. 1861-62. (<i>Bickaneer State</i>).</p> <p style="text-align: center;">o ' "</p> <p><math>\lambda</math> 28 0 16.8 L 73 20 32.1 H 864 Nos. 382, 383</p>	<p><b>Bitlnok, XXXVIII.</b> <i>Vide page 9.</i></p> <p style="text-align: center;">o ' "</p> <p><math>\lambda</math> 27 53 22.03 L 72 42 21.73 H 774 h 4 No. 51</p>
<p><b>Bhojúsar Mark (heliotope).</b> On roof of Thákur's house in village, 13½ miles S.W. of Bickaneer town. It is marked by a <math>\odot</math> engraved on a stone. 1874-75. (<i>Bickaneer State</i>).</p> <p><math>\lambda</math> 27 51 37.64 L 73 11 39.49 H 879 h not forthcoming Nos. 378, 379</p>	<p><b>Bijli, LVII.</b> <i>Vide page 12.</i></p> <p><math>\lambda</math> 29 17 57.32 L 72 24 44.85 H 507 h 2 No. 69</p>	<p><b>Bomenu Hill.</b> On the highest part of a sand hill about ¼ mile W. of the small village of Bomenu appertaining to Pokaran. It is marked by a pole and brush. 1873-74. (<i>Jodhpore State</i>).</p> <p><math>\lambda</math> 26 54 16.1 L 72 13 23.5 H 939 Nos. 363, 364</p>
<p><b>Bhulan, XLIX.</b> <i>Vide page 11.</i></p> <p><math>\lambda</math> 28 56 36.70 L 72 41 26.80 H 517 h 3 Nos. 69, 61</p>	<p><b>Bijolai h.s.</b> On the highest and most conspicuous peak of the range of hills, 3½ miles W. of Jodhpore. The azimuths and distances of the adjacent villages are:—Chaukha 79°, miles 1½; and Barli 144°, miles 2. The hill is well known owing to there being at the foot a garden house, also called Bijolai, belonging to the Maharája. It is marked by a <math>\odot</math> engraved on the rock <i>in situ</i>; no pillar or platform was built. It is identical with Bijolai P.S. of the Rájputána Topographical Survey. The road to it from Jodhpore is <i>via</i> Aki Ráj's tank and Bijolai garden house. 1873-74. (<i>Jodhpore State</i>).</p> <p><math>\lambda</math> 26 17 26.41 L 73 0 4.62 H 1316 No. 135</p>	<p><b>Bonik, XLI.*</b> <i>Vide page 3.</i></p> <p><math>\lambda</math> 25 3 51.50 L 72 54 21.85 H 2098 h 3 No. 1</p>
<p><b>Bickaneer, Dome No. 1.</b> Centre of the southern of the two highest domes of the Maharája's palace in the fort. 1861-62. (<i>Bickaneer State</i>).</p> <p><math>\lambda</math> 28 1 18.32 L 73 21 33.62 H 786, basement of dome at bottom of balustrade Nos. 384, 385</p>	<p><b>Bikampur, XXXIII.</b> <i>Vide page 9.</i></p> <p><math>\lambda</math> 27 42 35.85 L 72 13 59.97 H 665 h 3 No. 43</p>	<p><b>Borla, IX.</b> <i>Vide page 5.</i></p> <p><math>\lambda</math> 26 8 33.54 L 72 6 43.60 H 739 h 3 No. 14</p>
<p><b>Bickaneer, Dome No. 2.</b> Centre of the northern of the two highest domes of the Maharája's palace in the fort. 1861-62. (<i>Bickaneer State</i>).</p> <p><math>\lambda</math> 28 1 18.78 L 73 21 33.61 H 786, basement of dome at bottom of balustrade Nos. 386, 387</p>	<p><b>Bintli, XXIX.</b> <i>Vide page 8.</i></p> <p><math>\lambda</math> 27 25 36.85 L 72 38 32.30 H 876 h 3 No. 35</p>	<p><b>Borta, I.</b> <i>Vide page 4.</i></p> <p><math>\lambda</math> 25 5 49.53 L 72 22 58.39 H 1326 h 3 No. 1</p>
<p><b>Bickaneer s.</b> On Rám Chand (Dadha) bania's house 42½ feet high, in the Dadha Chauk at the S. extremity of the town, and close to the temple called Bhandasar-ki-deora. It is marked by a paka platform 3 feet square and 6 inches high with a mark-stone. It was visited in December 1874 and the mark-stone found intact. 1861-62. (<i>Bickaneer State</i>).</p> <p><math>\lambda</math> 28 0 25.13 L 73 20 48.76 H 822 h 43 No. 374</p>	<p><b>Bírwára Hill Mark.</b> 1882-83. (<i>Sirohee State</i>).</p> <p><math>\lambda</math> 24 50 12.55 L 73 0 56.09 No. 454</p>	<p><b>Búdithal h.s.</b> On a small sand hill in the lands of and about 1 mile N. from Pungal town: pargana Pungal. It is marked by a circular, isolated pillar of paka masonry 2½ feet deep and 2½ feet in diameter, surrounded by a paka annular wall, with two mark-stones, one on the surface of the pillar flush with the hill top and the other 2½ feet below. 1874-75. (<i>Bickaneer State</i>).</p> <p><math>\lambda</math> 28 31 24.05 L 72 51 4.55 H 635 Nos. 176, 176</p>

\* Of the Karáchi Longitudinal Series.



Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Bugaon Hill.</b> Top of a long low hill N. of Dohirra: taluk Jálór. 1872-73. (<i>Jodhpore State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ           24 59 24·2 L           72 31 21·6 H           1733 Nos. 78</p>	<p><b>Cháran Thalli h.s.</b> On a low sand hill in the lands of and about ¼ mile W. from the village of Chhattasur or Kerala: pargana Lathi. It is marked by an isolated pillar of puka masonry 2½ feet deep and 2½ feet in diameter, surrounded by a puka annular wall, with two marks, one on the surface of the pillar flush with the ground and the other 2½ feet below. 1873-74. (<i>Jeysulmere State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ           26 53 44·42 L           71 31 32·81 H           844 Nos. 230</p>	<p><b>Daisu Hill.</b> Top of a small rocky hill about 5 miles N. of the Sukri river and 7 miles N. of Jálór. The village is at its E. foot: taluk Jálór. 1872-73. (<i>Jodhpore State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ           25 25 12·5 L           72 42 24·8 H           864 Nos. 112, 113</p>
<p><b>Burdu Hill.</b> Top of a small rocky hill, 1½ miles S. of Dugur H.S.: taluk Jodhpore. 1872-73. (<i>Jodhpore State</i>).</p> <p>λ           26 15 37·4 L           72 41 25·2 H           945 Nos. 133, 134</p>	<p><b>Choria Thalli Hill Mark.</b> On a low sand hill known as Nadi Thalli, about ¼ mile from the village of Choria: pargana Vinjori. It is marked by a ⊙ on stone placed over charcoal buried in the sand and surmounted by a pole and brush. 1875-76. (<i>Jeysulmere State</i>).</p> <p>λ           26 35 25·93 L           71 20 12·86 H           1019 h           o Nos. 305</p>	<p><b>Daroi h.s.</b> On the highest part of the highest hill in the locality known as Chhoti Daroi-ka-bhákhar, in the lands of Chhoti Daroi village which lies at foot of the hill. The hill rises at a gentle slope from the W.S.W., terminating very abruptly at the height of about 250 or 300 feet above the general level of the country: pargana Seu. The azimuths and distances of the circumjacent villages are:—Rájal 58°, miles 7½; Gonga 121°, miles 9; and Bari Daroi 219°, miles 3½. It is marked by a ⊙ on the rock <i>in situ</i> over which a rough platform of stones for the observatory tent was built. 1875-76. (<i>Jodhpore State</i>).</p> <p>λ           26 24 20·67 L           71 21 38·76 H           1246 Nos. 215</p>
<p><b>Chamu, XVII.</b> <i>Vide page 6.</i></p> <p>λ           26 39 52·74 L           72 37 53·46 H           1065 h           o Nos. 18</p>	<p><b>Chotan h.s.</b> On the northern peak of a very high and conspicuous hill well known throughout the country, about 1400 feet above its general level, in the lands of and named after the village of Chotan which lies at its foot at an azimuth of 259°. An annual fair is held at this village about January: thána Takhtabád, taluk Mulani. The approximate azimuths and distances of the following villages are:—Lilsar 299°, miles 14; and Kupron 358°, miles 4. It is marked by a ⊙ on the rock <i>in situ</i>. A higher rock 10 yards to the N.W. was found to be inaccessible. 1875-76. (<i>Jodhpore State</i>).</p> <p>λ           25 28 44·86 L           71 5 53·46 H           2154 Nos. 206, 207</p>	<p><b>Devi Hill Mark.</b> On a hill about 2 miles S. of Rámo village: pargana Vinjori. It is marked by a ⊙ engraved on the rock <i>in situ</i> and surmounted by a pole and brush. 1875-76. (<i>Jeysulmere State</i>).</p> <p>λ           26 33 5·84 L           71 6 43·85 H           1006, base of pole Nos. 303, 304</p>
<p><b>Chandni h.s.</b> On a small hillock on the elevated ground in the lands of the deserted village of Dia, and about 2 miles W.N.W. of Chandni village: pargana Magra. The approximate azimuths and distances of the circumjacent villages are:—Kotri 11°, mile 1; Dia 104°, miles 4; and Goilri 214°, miles 4. It is marked by a masonry pillar, the lower portion of which is built of stones cemented with clay, 4 feet square and 5 feet high above foundation of puka masonry, and the upper portion, 3 feet high, circular and of puka masonry, and isolated by an annular wall. There are four mark-stones in the pillar, one in the foundation, and the others 2½, 5 and 8 feet respectively above it. 1874-75. (<i>Dickaneer State</i>).</p> <p>λ           27 53 17·60 L           73 0 36·14 H           892 h           8 Nos. 372, 373</p>	<p><b>Dabla Hill.</b> Centre of a low hill equidistant from the villages of Dabla, Jodha and Dhumwa: pargana Devíkot. 1875-76. (<i>Jeysulmere State</i>).</p> <p>λ           26 48 58·5 L           71 3 12·5 H           869 Nos. 317</p>	<p><b>Devíkot Temple.</b> Centre of dome of the large temple 30 feet high on a slight elevation, about ¼ mile W. of town: pargana Devíkot. It is marked by a pole and brush. 1875-76. (<i>Jeysulmere State</i>).</p> <p>λ           26 41 47·8 L           71 13 35·5 H           922 Nos. 309, 310</p>
<p><b>Chápu h.s.</b> On a sand ridge called in the Revenue Survey maps Jhondrán Tibba, but by the people Lúlsinghwála Tibba, about 1½ miles W. of Chápu village, 11½ miles W. of Marot town and 11 miles N.E. of Maujgarh town. The road from Marot to Baháwalpur passes at the N. base of the hill: thána Maujgarh, pargana Baháwalpur. It is marked by a mass of bricks set in clay, 1½ feet deep and 2½ feet in diameter, with a mark brick in the centre of the upper surface flush with the ground. 1875-76. (<i>Baháwalpur State</i>).</p> <p>λ           29 8 45·32 L           72 17 23·06 H           455 Nos. 188, 189</p>	<p><b>Daichu, XIX.</b> <i>Vide page 6.</i></p> <p>λ           26 48 54·50 L           72 19 50·89 H           1023 h           o Nos. 26</p>	<p><b>Dhaura, II.</b> <i>Vide page 4.</i></p> <p>λ           25 15 28·46 L           72 42 2·97 H           1174 h           3 Nos. 2, 3</p>

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<p><b>Didáwa, LXII*.</b> On a sand hill in the Thar or little desert, in the lands of Dongri village; pargana Sáchor. The azimuths and distances of the circumjacent places are:—Didáwa hamlet 65°, mile 2; and Varia village 204°, mile 1. It is marked by a solid pillar 2 feet high, with three mark-stones, one at bottom of the foundation and the others 1 and 2 feet respectively above it. When visited in January 1876 the upper mark-stone was found intact. 1851-52. (<i>Jodhpore State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 24 51 19'36 L 71 21 24'87 H 212 h 2 No. 199</p>	<p><b>Dugur, XII.</b> <i>Vide page 5.</i></p> <p style="text-align: center;">o ' "</p> <p>λ 26 16 51'33 L 72 41 46'35 H 910 h 1 No. 12</p>	<p><b>Ekkal Thalli Hill Mark (heliotrope).</b> On the top of a hill, 5½ miles E. of Báp village; pargana Báp. It is marked by a ⊙. 1873-74. (<i>Jeysulmere State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 27 22 20'25 L 72 29 20'33 H 751 h o No. 164</p>
<p><b>Digwi Hill.</b> Centre of right peak as seen from the west: taluk Jodhpore. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 40 43'4 L 72 58 35'4 H 1297 No. 150</p>	<p><b>Durimána h.s.</b> On the highest rock of a well-known hill rising 550 feet above the general level of the country, and named after the village which lies at the W. foot of the hill. The space on the rock is very small, and difficult of access; this hill is believed to be the one observed as Durimána Peak in the Karáchi Longitudinal Series. The hill is in the lands of Durimána village, in that portion of taluk Maláni which belongs to the Rána of Gúra. The approximate azimuth and distance of Gúra town are 258°, miles 24. It is marked by a ⊙ on the rock <i>in situ</i>. 1875-76. (<i>Jodhpore State</i>).</p> <p>λ 25 11 44'37 L 71 28 5'67 H 968 No. 202</p>	<p><b>Erinpura Hospital.</b> N.W. angle of the new hospital opposite the dáki bungalow situated to the W. of the cantonment. 1872-73. (<i>Sirohee State</i>).</p> <p>λ 25 8 55'8 L 73 5 56'5 H 869, bottom of wall</p>
<p><b>Dilwára Temple.</b> 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 36 30'9 L 72 45 53'1 H 3914, summit Nos. 442, 443</p>	<p><b>Ekalguri Pillar.</b> On a sand hill near Nowa Thalau village and near Ekalguri h.s.: on the boundary between the Jodhpore and the Jeysulmere States. 1873-74. (<i>Jodhpore and Jeysulmere States</i>).</p> <p>λ 27 5 4'4 L 71 45 2'7 H 806, base of pillar h 6 No. 336</p>	<p><b>Gadar Máli Building.</b> Centre of a small building on a well-known hill of Gadar Máli, close to Motagoon village; pargana Devikot. 1873-74. (<i>Jeysulmere State</i>).</p> <p>λ 26 48 14'0 L 71 12 14'2 H 967 Nos. 325, 326</p>
<p><b>Dodo, X.</b> <i>Vide page 5.</i></p> <p>λ 26 3 44'63 L 72 51 12'79 H 735 h 3 No. 11</p>	<p><b>Ekalguri h.s.</b> On a sand hill of the same name in the lands of Ata village, about ¼ mile E. of the cart track from Kala to Nowagaon, and 4 miles from the former; pargana Lathi. The azimuths and distances of the circumjacent places are:—Bánan Thalli Pillar 42°, miles 2½; Badran 189°, miles 4½; Malúk Dhani 252° 30', miles 3½; and Ekalguri Pillar 317°, mile ½. It is marked by a masonry pillar 2½ feet deep and 2½ feet in diameter, surrounded by a paka annular wall, with two mark-stones, one on the surface of the pillar flush with the hill top and the other 2½ feet below in the foundation: there is no platform around the pillar. 1873-74. (<i>Jeysulmere State</i>).</p> <p>λ 27 5 14'21 L 71 44 52'44 H 814 No. 233</p>	<p><b>Gadar Máli h.s.</b> On a hill well known in the vicinity and in the lands of Motagoon village; pargana Jeysulmere. The azimuths and distances of the adjacent villages are:—Asuch 142°, miles 3½; and Motagoon 191°, miles 3½. It is marked by a ⊙ engraved on the rock <i>in situ</i>. 1875-76. (<i>Jeysulmere State</i>).</p> <p>λ 26 48 14'03 L 71 12 14'41 H 964 No. 221</p>
<p><b>Dohirra hill.</b> Top of hill, about 8½ miles N. of Sándá H.S.: taluk Jálor. 1872-73. (<i>Jodhpore State</i>).</p> <p>λ 24 54 11'2 L 72 26 55'9 H 2850</p>	<p><b>Eka, XXIII.</b> <i>Vide page 7.</i></p> <p>λ 27 5 44'66 L 72 22 15'04 H 918 h o Nos. 29, 30</p>	<p><b>Gangasára, LXV*.</b> On a sand hill in the lands of and about 2 or 3 miles S.W. from the village of the same name; pargana Sáchor. The azimuths and distances of the circumjacent villages are:—Bandania 233°, miles 1½; Fagalia 328°, miles 2½; Sionia 37°, miles 4. It is marked by a solid pillar with three mark-stones, one at the level of its foundation, another at its upper surface, and the third 2 feet above the former. When visited in January 1876 no upper mark-stone but the first below it was found. 1851-52. (<i>Jodhpore State</i>).</p> <p>λ 24 58 40'45 L 71 14 1'82 H 428 h o No. 199</p>
<p><b>Dongri Fort Mark.</b> On the S.E. tower of the fort in village, 26½ feet above the ground; pargana Vinjori. It is marked by a ⊙ on a stone embedded in the tower, and surmounted by a pole and brush. 1876-76. (<i>Jeysulmere State</i>).</p> <p>λ 26 32 37'12 L 71 25 43'11 H 1036 h 29 No. 301</p>		

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Gigasar s.</b> On a low sand hill locally known as Basawála, in the lands of and about 1 mile W. from the village of the same name: pargana Bickaneer. The approximate azimuths and distances of the circumjacent villages are:—Deshnok 34°, miles 4; Ambusar 136°, miles 4; and Hárádono 208°, miles 5. It is marked by an isolated pillar of paka masonry 2 feet deep and 4 feet in diameter, surrounded by a paka annular wall, with two mark-stones, one on the surface of the pillar flush with the hill top and the other 2 feet below. 1874-75. (<i>Bickaneer State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 27 50 58.84 L 73 25 22.34 H 894 Nos. 380, 381</p>	<p><b>Gudho s.</b> On high ground in the lands of Gudho village, about 100 yards S. of a small tank and 200 yards in the same direction from the cart track from Gudho to Pabusar village: pargana Magra. The approximate azimuths and distances of the adjacent villages are:—Dia 271°, miles 3; Mar 302°, miles 6; and Gudho 329°, mile 1. It is marked by a masonry pillar 14 feet high, the lower 10 being 4 feet square, and the upper 4 being circular, 3 feet in diameter. Two feet of the square portion of the pillar are below the surface of the ground and built of paka masonry, the remaining 8 feet are of stones cemented with clay; the circular portion is of paka masonry surrounded by an annular wall; there are five mark-stones in the pillar, the lowest being in the foundation 2 feet below the ground, and the others 2, 6, 10 and 14 feet respectively above it. The pillar is surrounded by a platform of earth and stones 20 feet square at base and 9 at top. 1874-75. (<i>Bickaneer State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 27 54 10.22 L 72 53 22.81 H 820 h 12 Nos. 369, 370</p>	<p><b>Harban, XXVIII.</b> <i>Vide page 8.</i></p> <p style="text-align: center;">o ' "</p> <p>λ 27 26 2.16 L 72 16 35.84 H 728 h 3 No. 38</p>
<p><b>Girnál Hill Mark (heliotrope).</b> On a high sand hill, about 5 miles N.N.E. of Gornu village and 11 miles S.E. of Barsulpur town: pargana Barsulpur. It is marked by a paka masonry pillar 3 feet square and 4 feet in height half above and half below ground, with two mark-stones. 1874-75. (<i>Jaysulmer State</i>).</p> <p>λ 28 3 35.73 L 72 21 28.66 H 634 h 2 Nos. 169, 170</p>	<p><b>Gúrú Sikkar, XLII*.</b> On the highest pinnacle of Mount Abu. The small rock temple of Gúrú Sikkar, a resort of pilgrims from all parts of India, adjoins (is about 20 feet from) the station platform towards the S.W. The pillar is solid and 3 5 feet high. It has a mark at its surface, and another engraved on the rock <i>in situ</i>. When visited by the Rájputána Topographical Survey Party in season 1869-70 the station was found in good preservation. 1850-51. (<i>Sirohee State</i>).</p> <p>λ 24 38 58.39 L 72 49 6.91 H 5650 h 4 No. 394</p>	<p><b>Hardikot h.s.</b> On one of the highest of a number of low hills on the rising ground in the lands of and 4½ miles W. from the town of Pokaran, 23 feet N.W. of a tree in the centre of the hill, and about ¼ mile N. of the cart track from Pokaran to Jaysulmer: appertaining to Pokaran. The azimuths and distances of the circumjacent places are:—Kelawa village 57°, miles 5½; Kala village 163°, miles 4½; and Bello 329°, miles 2½. It is marked by a ⊙ engraved on the rock <i>in situ</i>. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 57 6.32 L 71 53 27.75 H 842 No. 235</p>
<p><b>Girondi, XXXV.</b> <i>Vide page 9.</i></p> <p>λ 27 49 41.10 L 72 32 18.78 H 709 h 2 No. 41</p>	<p><b>Habib, XLVI.</b> <i>Vide page 11.</i></p> <p>λ 28 43 59.93 L 72 22 38.06 H 476 h 5 No. 57</p>	<p><b>Hasan, LV.</b> <i>Vide page 12.</i></p> <p>λ 29 13 41.10 L 72 18 55.14 H 478 h 0 No. 68</p>
<p><b>Godhan Hill.</b> A pyramidal shaped hill with a small tree on the top, N.N.E. of Jalor, N. of the Sukri river and W. of the village of the same name: taluk Jalor. 1872-73. (<i>Jodhpore State</i>).</p> <p>λ 25 22 24.9 L 72 45 6.0 H 1039 Nos. 110, 111</p>	<p><b>Haidarwála h.s.</b> Or No. 3 h.s.; is in the desert on the highest point of a range of sand hills locally called Haidarwála Tibba, nearly on the ray from Randu H.S. to Kaimsir T.S. 1½ miles N.W. of the former and about 8½ miles S.E. of the latter, 9½ miles N.W. of Sera well and 10 miles S.S.W. of Jamsar well: tháná and pargana Khaipur. It is marked by a mass of bricks, set in clay embedded in the hill, 14 feet deep and 2½ feet in diameter, with a mark brick in the centre of its upper surface. 1875-76. (<i>Baháwalpur State</i>).</p> <p>λ 29 20 20.15 L 72 17 23.52 H 481 Nos. 195, 196</p>	<p><b>Hethiári s.</b> In the lands of Kilehu village on a sand hill locally called Hethiári: pargana Bickaneer. The approximate azimuths and distances of the circumjacent villages are:—Bora Kesardesar 125°, miles 4; Ramsar 251°, miles 4; and Gajrubdesar 357°, miles 2½. It is marked by a circular isolated pillar of paka masonry 2½ feet deep and 4 feet in diameter, with two mark-stones, one on the surface of the pillar flush with the hill top and the other 2½ feet below, surrounded by a paka annular wall 1 foot thick. When visited in the course of the Jodhpore Series Operations, the station of 1861-62 was found in ruins and no trace of the mark-stone could be found; all that remained was a small heap of clay on the sand hill, which once formed the sun-dried bricks used in the platform. The new station is on the site of the old one, the present mark-stone occupying within 6 inches of the position of the former mark. 1874-75. (<i>Bickaneer State</i>).</p> <p>λ 27 51 20.51 L 73 33 50.25 H 975 No. 377</p>
<p><b>Goína Hill.</b> Top of a detached rocky hill W. of Nagar and the Sukri river: taluk Maláni. 1872-73. (<i>Jodhpore State</i>).</p> <p>λ 25 40 46.0 L 71 58 51.1 H 1032 Nos. 123, 124</p>	<p><b>Hill No. 2.</b> Conspicuous tree on hill, 6½ miles S. by E. of Loharan village: taluk Jodhpore. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 33 48 L 72 25 45 H 1009, ground at foot of tree No. 149</p>	

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<p><b>Hill No. 25.</b> A conspicuous hill peak between Thob and Dugur: taluk Jodhpore. 1872-73. (Jodhpore State).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 9 28·6 L 72 36 10·7 H 913 Nos. 131, 132</p>	<p><b>Jasol Hill Mark.</b> On a hill on the S. bank of the Lúni river: taluk Malámi. It is marked by a ⊙ surmounted by a pole and brush. 1872-73. (Jodhpore State).</p> <p style="text-align: center;">o ' "</p> <p>λ 25 48 50·65 L 72 15 8·38 H 695 Nos. 127, 128</p>	<p><b>Jeysulmere House No. 2 Mark (heliotrope).</b> On the roof of Diwán Nathmalji's house in the city. It is marked by a ⊙ engraved on the roof. 1873-74. (Jeysulmere State).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 54 55·97 L 70 57 14·39 H 840 h not forthcoming No. 323</p>
<p><b>Jálor h.s.</b> On the highest part of Jálor fort: taluk Jálor. It is marked by a ⊙ on the N.E. of four stones projecting from the smaller of two masonry platforms. 1872-73. (Jodhpore State).</p> <p>λ 25 19 38·55 L 72 39 35·33 H 2093 h not forthcoming Nos. 102, 103</p>	<p><b>Jesai Hill Mark No. 1.</b> On the highest peak of a hill appertaining to the village of Jesai which lies at its N. foot, about 10½ miles W.S.W. of Bálmir town: thána Bálmir, taluk Malámi. It is marked by a ⊙ engraved on the rock <i>in situ</i> and surmounted by a pole and brush. 1875-76 (Jodhpore State).</p> <p>λ 25 42 12·30 L 71 15 29·14 H 2073 Nos. 253, 254</p>	<p><b>Jeysulmere s.</b> On the paka roof of the highest building of the fort in the city, 34 feet from the centre of door, and 23½, 7½, 8½ and 26 feet respectively from the W., N., E. and S. walls. It is marked by a ⊙ engraved on the roof. The station was visited in January 1876 and again in December 1878 when the mark was found intact. 1873-74. (Jeysulmere State).</p> <p>λ 26 54 45·75 L 70 57 16·76 H 957 h not forthcoming Nos. 225, 226</p>
<p><b>Jalora, XXI.</b> <i>Vide page 7.</i></p> <p>λ 26 57 57·81 L 72 25 18·36 H 1069 h 4 Nos. 25, 27</p>	<p><b>Jesai Hill Mark No. 2.</b> On top of a hill 1½ miles N. of Jesai village: taluk Malámi. It is marked by a ⊙ engraved on a stone embedded on the hill top and surmounted by a pole and brush. 1875-76. (Jodhpore State).</p> <p>λ 25 43 35·48 L 71 16 48·88 H 1461 No. 256</p>	<p><b>Jeysulmere Temple No. 1.</b> Spire of the Jain temple in city. 1873-74. (Jeysulmere State).</p> <p>λ 26 54 43·1 L 70 57 11·7 H 955 No. 321</p>
<p><b>Jambo, XXVI.</b> <i>Vide page 7.</i></p> <p>λ 27 16 28·88 L 72 33 32·71 H 772 h 3 Nos. 32, 33</p>	<p><b>Jesara Hill Mark.</b> On a high peak in the lands of and near Jesara village: pargana Seu. It is marked by a ⊙ engraved on stone embedded on top of hill and surmounted by a pole and brush. 1875-76. (Jodhpore State).</p> <p>λ 26 9 6·14 L 71 13 26·54 H 1051 Nos. 267, 268</p>	<p><b>Jeysulmere Temple No. 2.</b> Spire of Mahádeo temple in city. 1873-74. (Jeysulmere State).</p> <p>λ 26 54 50·7 L 70 56 54·4 H 948</p>
<p><b>Jamgarh Bastion No. 1 Mark (heliotrope).</b> On the top-most arch of the S.E. bastion of the fort, 36 feet above ground, about 7 miles E. of Marot Fort: thána Marot, pargana Khairpur. It is marked by a pillar of paka bricks cemented with clay, ¾ foot high and 3½ feet in diameter, with a mark-brick in centre. 1874-75. (Baháwalpur State).</p> <p>λ 29 10 3·51 L 72 35 23·55 H 490 h 37 Nos. 180, 181</p>	<p><b>Jeysulmere House No. 1 Mark (heliotrope).</b> On the roof of Diwán Saliu Singh's house in the city, 66 feet high. It is marked by a ⊙ engraved on the roof. 1873-74. (Jeysulmere State).</p> <p>λ 26 54 48·49 L 70 57 26·17 H 846 h 66 No. 322</p>	<p><b>Jeysulmere Temple No. 3.</b> Centre of Aiji temple on hill, 2½ miles N.E. of city and close to the Gagrub Ságur tank. 1873-74. (Jeysulmere State).</p> <p>λ 26 56 59·7 L 70 58 23·4 H 925 No. 324</p>
<p><b>Jamgarh Bastion No. 2 Mark (heliotrope).</b> On the top-most arch of the N.W. bastion of the fort, 36 feet above ground. Jamgarh village is at foot and Mírgarh Fort about 5 miles to E: thána Marot, pargana Khairpur. It is marked by a pillar of paka bricks cemented with clay, ¾ foot high and 3½ feet in diameter, with a mark-brick in centre. 1874-75. (Baháwalpur State).</p> <p>λ 29 10 5·17 L 72 35 21·80 H 488 h 37 Nos. 182, 183</p>	<p><b>Jhalari Máli h.s.</b> On the highest and most conspicuous of a group of low hills in the lands of and about 1½ miles S.S.E. from the small village of Bassi: pargana Lathi. The azimuth and distance of Sodakhor village are 137°, miles 10½. The boundary between Jodhpore and Jeysulmere passes by the S. foot of the hill. It is marked by a ⊙ engraved on the rock <i>in situ</i> about 35 feet from the centre of the hill; it has no pillar or platform. 1873-74. (Jeysulmere State).</p> <p>λ 26 55 7·87 L 71 35 50·49 H 823 No. 232</p>	

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Jisu s.</b> On high ground in the lands of and about 500 yards W. from the deserted village of the same name and 38 feet N.N.E. of an old temple: pargana Devikot. The approximate azimuths and distances of the adjacent villages are:—Bakrani 107°, miles 4; Baloni 301°, miles 6; and Onda 314°, miles 1½. It is marked by a ⊙ engraved on a slab of stone set in mortar and embedded on the surface of the ground; and another on a similar slab also set in mortar 1½ feet below. No pillar was built. 1875-76. (Jeysulmere State).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 36 20·40 L 71 10 14·59 H 992 Nos. 219, 220</p>	<p><b>Jodhpore House.</b> Angle of pent roof of the highest house (an upper storied one) in that part of the suburbs of Jodhpore known as Chhāuni, 40½ feet above ground. 1873-74. (Jodhpore State).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 17 24·9 L 73 5 32·9 H 807 No. 143</p> <p><b>Jodhpore Temple No. 1.</b> Spire of Nāthji-ka-Mandir towards the S. portion of the city, a few yards W. of the Sojat Gate. 1873-74. (Jodhpore State).</p> <p>λ 26 17 17·7 L 73 3 51·2 H 837, top of masonry below brass top-piece. No. 141</p>	<p><b>Johju Thalli h.s.</b> On the N.E. and highest portion of the sand hill of the same name, in the lands of and about 1½ miles N. by W. from the large village of Lathi on the high road from Jodhpore to Jeysulmere, and 1¼ miles S. of the cart track from Sodakhori to Bhādra: pargana Lathi. The azimuths and distances of the adjacent villages are:—Sodakhori 56°, miles 5½; and Bhādra 242°, miles 3½. It is marked by an isolated pillar of paka masonry 2½ feet deep and 2½ feet in diameter, surrounded by a paka annular wall, with two mark-stones, one on the surface of the pillar flush with the hill top and the other 2½ feet below. 1873-74. (Jeysulmere State).</p> <p style="text-align: center;">o ' "</p> <p>λ 27 4 31·49 L 71 32 58·53 H 730 No. 231</p>
<p><b>Jodasar, XLII.</b> <i>Vide page 10.</i></p> <p>λ 28 17 32·17 L 72 44 18·09 H 653 h 5 No. 54</p>	<p><b>Jodhpore Temple No. 2.</b> Spire of Peshwānji-ka-Mandir in the heart of the city, between the Maharājā's stables and the Gaukhāna. 1873-74. (Jodhpore State).</p> <p>λ 26 17 35·1 L 73 3 41·1 H 898, top of masonry below brass top-piece. No. 144</p>	<p><b>Kairsir, XIX*.</b> <i>Vide page 13.</i></p> <p>λ 29 24 42·15 L 72 10 45·04 H 461 h 11 Nos. 72, 76</p>
<p><b>Jodhpore Gate No. 1.</b> Centre of the chief dome of Jālor Gate of the city, 47½ feet above ground. 1873-74. (Jodhpore State).</p> <p>λ 26 17 4·1 L 73 3 27·3 H 851 No. 139</p>	<p><b>Jodhpore Temple No. 3.</b> Spire of Uda Mandir outside the walls of the city towards W. and a few yards N. of the Merta Gate. 1873-74. (Jodhpore State).</p> <p>λ 26 17 46·8 L 73 4 23·7 H 887, top of masonry below brass top-piece. No. 145</p>	<p><b>Kair Dūngar h.s.</b> On a high conspicuous hill well known in the neighbourhood, in the lands of Khara village appertaining to Pokarnn. The approximate azimuths and distances of the circumjacent villages are:—Hir 157°, miles 6; Chhoti Bengati 250°, miles 8; and Khara 330°, miles 3½. It is marked by a ⊙ engraved on the rock <i>in situ</i>; no pillar or platform was built. 1873-74. (Jodhpore State).</p> <p>λ 27 4 43·95 L 72 8 7·55 H 970 No. 236</p>
<p><b>Jodhpore Gate No. 2.</b> Centre of the chief dome of Siwāna Gate of the city, 43½ feet above ground. 1873-74. (Jodhpore State).</p> <p>λ 26 17 11·1 L 73 3 8·7 H 871 No. 140</p>	<p><b>Jojeni Peak.</b> Centre of a small conspicuous peak about 4 miles N.N.E. of Bhiar village: pargana Seu. 1875-76. (Jodhpore State).</p> <p>λ 26 17 36·9 L 71 30 24·9 H 968 Nos. 277, 278</p>	<p><b>Kākrasar h.s.</b> On the highest portion of the ridge between Bhiru and Bhagugaon villages, in the lands of and about 5 miles W.S.W. from the former and 2 miles E. of the latter. The foot-path connecting these two villages passes close to the station over the ridge, about 200 paces N.: pargana Lathi. The approximate azimuths and distances of the adjacent villages are:—Sawel 173°, miles 3; and Bhojak 190°, miles 2. It is marked by a ⊙ engraved on a slab of granite set in mortar flush with the ground. 1873-74. (Jeysulmere State).</p> <p>λ 26 55 4·10 L 71 14 35·30 H 792 No. 228</p>
<p><b>Jodhpore Gate No. 3.</b> Centre of the chief dome of Sojat Gate of the city, 43½ feet above ground. 1873-74. (Jodhpore State).</p> <p>λ 26 17 19·4 L 73 3 54·8 H 855 No. 142</p>	<p><b>Jona Hill Mark.</b> On the highest peak of hills in the lands of Jona village which lies at its foot, and 1¼ miles S.W. of Būlmīr: taluk Malāni. It is marked by a ⊙ engraved on the rock <i>in situ</i> and surmounted by a pole and brush. 1875-76. (Jodhpore State).</p> <p>λ 25 38 54·78 L 71 14 56·03 H 2158 Nos. 249, 250</p>	<p><b>Jodhpore h.s.</b> On a building called Karrai-li-kothri at the S.W. extremity of the fort, 80 yards N.E. of a small tank and about the same distance S.W. of the chief gun platform. It commands a good view of the city, being about the highest building in the fort, except the Zanān-khāna which is a few feet higher. It is marked by a paka masonry pillar 8 inches high and 2½ feet in diameter, with two marks, one on the surface of the pillar and the other 8 inches below on a stone forming part of the roof of the building. 1873-74. (Jodhpore State).</p> <p>λ 26 17 47·43 L 73 3 36·49 H 1217 h not forthcoming No. 136</p>

\* Of the Sutlej Series.

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Káli Dahar h.s.</b> On the highest point of a long flat-topped hill, about 2 miles E. of Randu H.S., 4 miles N. of the Revenue Survey Station D s., 13 miles N.W. of Marot town and 10 miles S. of Jamsar well: thána Marot, pargana Khairpur. It is marked by a mass of bricks in clay, sunk into the hill, 1½ feet deep and 2½ feet in diameter, with a mark-brick in the centre of its upper surface. 1875-76. (<i>Bahawalpur State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 29 19 19'79 L 72 19 53'98 H 487 h o</p> <p style="text-align: right;">Nos. 192, 193</p>	<p><b>Kánnagar, XXXVIII†.</b> On a peak on the western flank of the Aravalli range of mountains, about 19 miles N.W. of Erin-pura cantonment and 7 miles S.E. of Bijapur. It is marked by a solid pillar 3 feet high having three mark-stones, one at bottom, another 2 feet higher and a third at top. When visited in December 1882 the platform was found in good order. 1850-51. (<i>Jodhpore State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 24 58 28'78 L 73 21 27'13 H 3607 h 3</p> <p style="text-align: right;">No. 449</p>	<p><b>Ketu, XIII.</b> <i>Vide page 6.</i></p> <p style="text-align: center;">o ' "</p> <p>λ 26 30 43'00 L 72 33 23'52 H 1207 h 3</p> <p style="text-align: right;">No. 16</p>
<p><b>Káli Máli Hill.</b> Centre of a low black looking peaked hill belonging to Gonga village, with a small temple on the S.W. slope, on road between the villages of Gonga and Rajral, about 4 miles from the former and 3 miles from the latter: pargana Sea. 1875-76. (<i>Jodhpore State</i>).</p> <p>λ 26 17 47'9 L 71 16 33'5 H 966</p> <p style="text-align: right;">Nos. 279, 280</p>	<p><b>Karamala, XLVII.</b> <i>Vide page 11.</i></p> <p>λ 28 45 6'50 L 72 48 6'58 H 551 h 3</p> <p style="text-align: right;">No. 60</p>	<p><b>Khári s.</b> In Khári village, on the roof of a temple known as Karniji-ka-thán, 16 feet 7 inches from the S.W. corner and 4 feet from the S.E. corner of the roof: pargana Magra. It is marked by a ⊙ on a small slab of granite embedded in mortar on the roof, 8½ feet above the platform at entrance of the temple. 1874-75. (<i>Bickaneer State</i>).</p> <p>λ 27 58 47'19 L 73 0 22'86 H 823</p> <p style="text-align: right;">No. 371</p>
<p><b>Kalina Hill Mark (heliotrope).</b> On top of a hill about 1½ miles S. of Bathanda village: pargana Phalodi. It is marked by a ⊙. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 27 17 2'81 L 72 19 58'63 H 777</p> <p style="text-align: right;">No. 161</p>	<p><b>Kariali h.s.</b> On a high sand hill well known as Kariali-ka-dhwa. The hill is claimed by the village of Kitnorja lying about 1½ miles to N. in that part of the Maláni taluk which belongs to Gúra, and also by the village of Kudanpura of the Síchor pargana which lies about 3 miles to S. It is marked by a circular isolated pillar of paka masonry with two mark-stones, one at foundation and the other 2 feet 7 inches above and flush with the hill top, surrounded by an annular wall. 1875-76. (<i>Jodhpore State</i>).</p> <p>λ 25 10 48'64 L 71 12 13'10 H 543</p> <p style="text-align: right;">Nos. 203, 204</p>	<p><b>Khirsar, XLIV.</b> <i>Vide page 10.</i></p> <p>λ 28 29 40'91 L 72 41 59'52 H 603 h 5</p> <p style="text-align: right;">Nos. 50, 55</p>
<p><b>Kamuna h.s.</b> On the highest point of a rocky ridge running nearly east and west across the plateau. The large village of Uriya is towards the north-east. A platform covered with a pile of stones marks the station. 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 37 20'92 L 72 47 11'59 H 4677 h not forthcoming</p> <p style="text-align: right;">No. 392</p>	<p><b>Katrúna Hill.</b> Top of W. peak of the southern of two hills, about 1½ miles E. of the Sukri river and 5 miles S.W. of the W. end of the double-peaked Jálor hill: taluk Jálor. 1872-73. (<i>Jodhpore State</i>).</p> <p>λ 25 20 51'2 L 72 31 26'5 H 916</p> <p style="text-align: right;">Nos. 105, 106</p>	<p><b>Khirwa, XXV.</b> <i>Vide page 7.</i></p> <p>λ 27 16 44'49 L 72 23 38'18 H 743 h 3</p> <p style="text-align: right;">No. 31</p>
<p><b>Kanda, XXI*.</b> <i>Vide page 13.</i></p> <p>λ 29 27 41'52 L 72 22 12'29 H 478 h 20</p> <p style="text-align: right;">No. 71</p>	<p><b>Kawúna Hill,</b> Top of, about 2 miles N.E. of Katrúna: taluk Jálor. 1872-73. (<i>Jodhpore State</i>).</p> <p>λ 25 21 47'9 L 72 32 51'6 H 1174</p> <p style="text-align: right;">Nos. 108, 109</p>	<p><b>Khonao Hill Mark.</b> On top of the well-known hill of Khonao, about 2½ miles S. of Riweri village: pargana Vinjori. It is marked by a ⊙ engraved on a slab of granite embedded on hill top and surmounted by a pole and brush. 1875-76. (<i>Jaysulmere State</i>).</p> <p>λ 26 25 47'32 L 71 7 31'55 H 1030</p> <p style="text-align: right;">Nos. 288, 289</p>
	<p><b>Khoras Hill Mark.</b> On a high hill about 6 miles E. of Shear village: pargana Derikot. It is marked by a ⊙ engraved on the rock <i>in situ</i> and surmounted by a pole and brush. 1875-76. (<i>Jaysulmere State</i>).</p> <p>λ 26 32 20'20 L 71 5 58'95 H 1028</p> <p style="text-align: right;">Nos. 299, 300</p>	

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Kirja Hill.</b> Top of a conical hill rising above Kirja village and 150 feet above the surrounding country: taluk Jodhpore. 1873-74. (<i>Jodhpore State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 25 13.5 L 72 25 11.0 H 1038 No. 147</p>	<p><b>Kotra Fort.</b> N.W. corner of fort on a low hill above Kotra town: pargana Sou. 1875-76. (<i>Jodhpore State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 6 4.1 L 71 14 12.5 H 967 No. 264</p>	<p><b>Kumháron-ka-Mangra. h.s.</b> On a conspicuous peak on the south-west corner of the plateau which commands an uninterrupted view on all sides. A platform covered with a pile of stones marks the station. 1869-70. (<i>Sirohee State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 24 33 37.61 L 72 46 12.74 H 4437 No. 889</p>
<p><b>Kita Fort.</b> Centre of the highest tower of an old small mud fort, now in ruins, on a low hill above Bara Kita village: pargana Devikot. 1875-76. (<i>Jeysulmere State</i>).</p> <p>λ 26 42 51.0 L 71 3 44.7 H 965 No. 311</p>	<p><b>Kotra h.s.</b> On the highest of an isolated group of low granite hills half covered with sand, rising to a height of about 200 feet above the general level of the country; it is in the lands of Kotra village, about 10 yards S.S.W. of the remains of an old temple or hermit's house on the hill: pargana Sou. The approximate azimuths and distances of the circumjacent villages are:—Kotra 0°, miles 2½; Barka 150°, miles 4; and Agoria 281°, miles 6. It is marked by a ⊙ engraved on the rock <i>in situ</i>. 1875-76. (<i>Jodhpore State</i>).</p> <p>λ 26 6 52.28 L 71 13 59.43 H 1054 Nos. 213, 214</p>	<p><b>Kumtala Thalli Hill.</b> Centre of a large conspicuous sand hill, about 4 miles S.E. of Kita village: pargana Vinjori. 1875-76. (<i>Jeysulmere State</i>).</p> <p>λ 26 40 12.7 L 71 6 51.8 H 1019 No. 308</p>
<p><b>Kita h.s.</b> On the highest of a group of sand hills lying between the villages of Sirwa and Kita and locally known as Tuli-ka-tok or Rata-ki-thalli, in the lands of Kita village: pargana Devikot. The approximate azimuths and distances of the circumjacent villages are:—Kita 92°, miles 4; Chor 241°, miles 2; and Sirwa 342°, miles 3. It is marked by a solid circular masonry pillar 4 feet in diameter, with two mark-stones, one at bottom and the other 3½ feet above and flush with the hill top: the pillar is surrounded by an annular wall. 1876-76. (<i>Jeysulmere State</i>).</p> <p>λ 26 42 43.57 L 71 7 42.05 H 1014 Nos. 222, 223</p>	<p><b>Kue-ka-Pahár h.s.</b> Marked by a cairn of stones. 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 34 33.32 L 72 44 21.14 H 4598, foot of pole Nos. 397, 398</p>	<p><b>Kundal, III.</b> <i>Vide page 4.</i></p> <p>λ 25 28 30.85 L 72 22 26.38 H 2735 h 3 No. 4</p>
<p><b>Konkat Thalli Hill.</b> Top of the highest sand hill about 2 miles E.S.E. of Loharki village: pargana Lathi. It is marked by a pole and brush. 1873-74. (<i>Jeysulmere State</i>).</p> <p>λ 27 9 11.1 L 71 50 5.4 H 906 Nos. 337, 338</p>	<p><b>Kue-ka-Pahár (new) h.s.</b> On a high conical shaped hill E. of the road to "Sun-set Point". When the hill was visited in June 1876, only a pile of stones was found to indicate the site of the Topographical Survey station of the same name. A ⊙ was engraved on the rock <i>in situ</i> in the centre of this pile to denote the new station. 1875-76. (<i>Sirohee State</i>).</p> <p>λ 24 34 33.33 L 72 44 21.14 H 4598 No. 445</p>	<p><b>Laida Hill.</b> Top of a low rocky hill just N. of the Sukri river: taluk Játor. 1872-73. (<i>Jodhpore State</i>).</p> <p>λ 25 21 23.6 L 72 42 39.4 H 778 No. 107</p>
<p><b>Koru Temple,</b> Centre of dome, in Koru village: pargana Phalodi. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 55 1.1 L 72 21 13.3 H 861, base of temple No. 153</p>	<p><b>Kúmbi Hill.</b> Top of the E. peak of a low hill running E. and W., S.W. of Bhandrajan H.S.: taluk Siwána. 1872-73. (<i>Jodhpore State</i>).</p> <p>λ 25 31 5.8 L 72 49 3.3 H 1189 No. 118</p>	<p><b>Lakman h.s.</b> On a high sand hill, the highest in the neighbourhood, locally known as Thor Thalli, in the lands of Lakman village: pargana Devikot. The approximate azimuths and distances of the adjacent villages are:—Punnsar 152°, miles 4; Lakman 170°, miles 5; and Dongri 285°, miles 7½. It is marked by a solid isolated masonry pillar 3 feet square with two mark-stones, one at bottom and the other 3½ feet above the first and flush with the hill top. 1875-76. (<i>Jeysulmere State</i>).</p> <p>λ 26 34 22.31 L 71 18 24.36 H 1087 No. 218</p>
<p><b>Kota Fort.</b> Centre of round tower on hill above Kota fort: taluk Játor. 1872-73. (<i>Jodhpore State</i>).</p> <p>λ 25 2 21.5 L 72 24 29.8 H 872</p>		

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<p><b>Lálji h.s.</b> On a low isolated rocky hill well known in the neighbourhood as Lálji-ka-bhákhar, in the lands of Dongri village: pargana Sáchor. The approximate azimuths and distances of the adjacent places are:—Ogala bungalow 132°, miles 4; and Chalkunda 181°, miles 6. Dongri deserted village is at the foot of the hill to S.E. It is marked by a ☉ on the highest rock, and is believed to be the same as Lálji Hill Mark of the Karachi Longitudinal Series; but no trace of any mark was found. 1875-76. (Jodhpore State).</p> <p style="text-align: center;">o ' "</p> <p>λ 24 56 36·35 L 71 26 41·02 H 396 Nos. 199, 200, 201</p>	<p><b>Lowah s.</b> On a swell of land about 100 yards S.W. by W. of the village of Lowah, 200 yards S. of a tomb, 7 feet 2½ inches from a ☉ mark on the plinth at the N.W. corner, and 9 feet 4 inches from that at the S.E. corner of a similar tomb: appertaining to Pokaran. The azimuths and distances of the adjacent villages are:—Rawar 86° 30', miles 1¼; and Dudia 287° 30', miles 3. There are two mark-stones, both set in mortar, 10 inches apart, the upper being flush with the surface of the ground. 1873-74. (Jodhpore State).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 51 56·37 L 72 4 32·61 H 821 Nos. 343, 344</p>	<p><b>Mandai h.s.</b> On the highest part of the well-known hill of Bhalur-ka-bhákhar; it marks the boundaries between Jodhpore and Jeysulmere States and between the villages of Rajral and Khoral of the Jodhpore State and Mandai of the Jeysulmere State: parganas Seu and Vinjori. The approximate azimuths and distances of the circumjacent villages are:—Harwa 1°, miles 6; Mandai (after which the station is called) 130°, miles 2; and Rajral 274°, miles 2½. It is marked by a ☉ on the rock <i>in situ</i>. 1875-76. (Jodhpore and Jeysulmere States).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 20 59·81 L 71 13 3·41 H 1110 Nos. 216, 217</p>
<p><b>Lassua Hill.</b> Centre of the highest point of a long hill close to and above Lassua village: taluk Maláni. 1875-76. (Jodhpore State).</p> <p>λ 25 43 11·9 L 71 0 4·0 H 1122 No. 255</p>	<p><b>Lúr Hill Mark.</b> On a high hill close to Borta H.S.: taluk Jálór. It is marked by a ☉ and surmounted by a pole and brush. 1872-73. (Jodhpore State).</p> <p>λ 25 4 24·77 L 72 26 11·78 H 1565 Nos. 86, 87</p>	<p><b>Mandaula, IV.</b> <i>Vide page 4.</i></p> <p>λ 25 24 32·35 L 71 54 38·69 H 374 h 3 No. 8</p>
<p><b>Loharan, XVI.</b> <i>Vide page 6.</i></p> <p>λ 26 39 58·22 L 72 24 59·81 H 1063 h 0 Nos. 19, 21</p>	<p><b>Maklúr Hill.</b> Top of a conspicuous peak on the range of which Kundal is the S. extremity: taluk Siwána. 1872-73. (Jodhpore State).</p> <p>λ 25 35 11·5 L 72 30 41·9 H 2540 Nos. 121, 122</p>	<p><b>Mangta h.s.</b> On the highest boulder on summit of the most elevated of an isolated group of low rocky hills, in the lands of Mangta village, and about 26 miles S. of Balmir: in that portion of taluk Maláni which belongs to Gúra. The approximate azimuths and distances of the circumjacent villages are:—Dudwa 39°, miles 2½; Buchrao 148°, miles 4; and Mangta (1st) 287°, at foot of the hill. It is marked by a ☉ on the rock <i>in situ</i>. The rock is about 16 feet square. 1875-76. (Jodhpore State).</p> <p>λ 25 21 56·89 L 71 25 22·02 H 745 No. 205</p>
<p><b>Loháwat, XXII.</b> <i>Vide page 7.</i></p> <p>λ 26 59 39·15 L 72 35 35·25 H 1255 h 3 No. 24</p>	<p><b>Malár Hill,</b> Centre of, 1¼ miles W. of Omlo village: pargana Phalodi. 1873-74. (Jodhpore State).</p> <p>λ 27 7 34·5 L 72 30 7·6 H 890 No. 155</p>	<p><b>Maniari Temple,</b> Centre of, on a hill about 2 miles S of Rajral village and 10 miles N. of Seu town; the ruins of Maniari village are at foot of the hill: pargana Seu. 1875-76. (Jodhpore State).</p> <p>λ 26 19 25·6 L 71 14 59·8 H 1008, base of temple. Nos. 284, 285</p>
<p><b>Lon Charri h.s.</b> On the northern and higher of the two isolated hills, conspicuous and well known in the vicinity, in the lands of Jaita village: pargana Lathi. The approximate azimuths and distances of the adjacent villages are:—Eta 175°, miles 5; Malingra 234°, miles 3; Chaudhan 327°, miles 4½; and Jaita 348°, miles 4. It is marked by a ☉ on the rock <i>in situ</i>; no pillar or platform was built. 1873-74. (Jeysulmere State).</p> <p>λ 27 4 7·84 L 71 17 56·83 H 658 No. 229</p>	<p><b>Malunga, XV.</b> <i>Vide page 6.</i></p> <p>λ 26 29 19·00 L 72 48 55·92 H 1273 h 3 No. 17</p>	<p><b>Mankasar, XXXVI.</b> <i>Vide page 9.</i></p> <p>λ 28 0 15·40 L 72 31 1·30 H 633 h 2 No. 45</p>



Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Mansa, LIII.</b> <i>vide page 12.</i></p> <p>λ 29 5 22'15 L 72 17 14'43 H 475 h 0 Nos. 64</p>	<p><b>Massuria h.s.</b> At the N.E. angle of the northern and higher of two conspicuous hills, about 2 miles S.W. of Jodhpore and ½ mile W. of the road from Siwāna to Jodhpore <i>via</i> Gangano village. It is marked by a paka masonry pillar 9 inches high and 2½ feet in diameter with a paka annular wall, surrounded by a platform of earth and stones 8 feet in diameter; it has two marks, one on the rock <i>in situ</i> and the other 9 inches above it on the surface of the pillar. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 16 32'04 L 73 2 7'20 H 1061 Nos. 137</p>	<p><b>Mírgarh Bastion No. 1 Mark (heliotrope).</b> On the upper arched terrace of the S.E. bastion of fort, 40 feet above ground; it is 11 miles E. of Marot Fort. and W. of Phulera town: pargana Khairpur. It is marked by a pillar of paka bricks cemented with clay, 2½ feet high, with a mark-brick in centre, and surrounded by an annular wall. 1874-75. (<i>Baháwalpur State</i>).</p> <p>λ 29 10 26'41 L 72 39 45'71 H 505 Nos. 184, 185</p>
<p><b>Marla h.s.</b> On one of the N. peaks of a range of low sand hills lying to S. of the road from Jodhpore to Pokaran, in the lands of Chhoti or Rājput-ki-Marla; the peak is well known as Champusri-ka-dhura: appertaining to Pokaran. The azimuths and distances of the adjacent villages are:—Bomena 185°, miles 5; Bari Marla 230°, miles 2; and Chhoti Marla 285°, miles 1½. It is marked by a masonry pillar 2½ feet deep and 2½ feet in diameter, surrounded by a paka annular wall, with two mark-stones, one flush with the hill top and the other 2½ feet below in the foundation; there is no platform around the pillar. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 49 55'85 L 72 13 56'68 H 935 Nos. 237</p>	<p><b>Mátaji Temple.</b> Centre of dome of a small temple on the westernmost peak of the hill locally known as Sanda-ka-Magra, about 2 miles W. of Sanda village: pargana Devikot. 1875-76. (<i>Jaysulmere State</i>).</p> <p>λ 26 27 34'2 L 71 17 34'4 H 1067, base of temple. Nos. 293, 294</p>	<p><b>Mírgarh Bastion No. 2 Mark (heliotrope).</b> On the upper arched terrace of the N.E. bastion of fort, 40 feet above ground; pargana Khairpur. It is marked by a pillar of paka bricks cemented with clay, 2½ feet high, with a mark-brick in centre, and surrounded by an annular wall. 1874-75. (<i>Baháwalpur State</i>).</p> <p>λ 29 10 27'62 L 72 39 45'71 H 506 Nos. 186, 187</p>
<p><b>Marla Temple,</b> Spire, called Thukur temple, in Pansia Marla village: appertaining to Pokaran. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 52 27'0 L 72 17 28'0 H 879 Nos. 365</p>	<p><b>Máta-ke-bhákhar Hill Mark (heliotrope).</b> On top of a hill 6½ miles S.W. of Ráp village: pargana Ráp. It is marked by a ⊙. 1873-74. (<i>Jaysulmere State</i>).</p> <p>λ 27 18 23'74 L 72 19 48'39 H 804 Nos. 162</p>	<p><b>Modia, XXXIX.</b> <i>vide page 10.</i></p> <p>λ 28 15 18'87 L 72 27 10'63 H 610 h 4 Nos. 47, 53</p>
<p><b>Marori Temple.</b> Centre of temple on the high ground near Marori village: thána Balmir, taluk Maláni. 1875-76. (<i>Jodhpore State</i>).</p> <p>λ 25 43 49'5 L 71 19 57'8 H 776, base of temple. Nos. 257</p>	<p><b>Maujgarh Fort Mark (heliotrope).</b> On the easternmost bastion of the fort, 45 feet above ground, 35 yards E. of a mosque in fort: thána Maujgarh, pargana Baháwalpur. It is marked by a platform of paka bricks and clay 18 feet in diameter with a mark-brick in the centre. 1874-75. (<i>Baháwalpur State</i>).</p> <p>λ 29 0 48'04 L 72 10 57'53 H 459 Nos. 179</p>	<p><b>Modra Hill Mark.</b> On the top of a low isolated hill N.E. of Borta: taluk Jalor. It is marked by a ⊙ surmounted by a pole and brush. 1872-73. (<i>Jodhpore State</i>).</p> <p>λ 25 9 5'39 L 72 27 30'52 H 651 Nos. 88, 89</p>
<p><b>Marot, LIV.</b> <i>vide page 12.</i></p> <p>λ 29 10 33'95 L 72 28 35'73 H 542 h 0 Nos. 65, 67</p>	<p><b>Maujgarh Mosque,</b> Centre of dome, in fort, 35 yards W. of mark, on bastion 102 feet above the ground level; it is the most conspicuous object in the fort, and is covered with encaustic tiles: thána Maujgarh, pargana Baháwalpur. 1874-75. (<i>Baháwalpur State</i>).</p> <p>λ 29 0 47'9 L 72 10 55'9 H 501 Nos. 178</p>	<p><b>Modri Hill.</b> Top of a small hill about 7 miles N.W. of Jalor, and S. of Modri village: taluk Jalor. 1872-73. (<i>Jodhpore State</i>).</p> <p>λ 25 25 43'6 L 72 38 27'7 H 918 Nos. 114, 115</p>
<p><b>Marot Fort Mark (heliotrope).</b> On the westernmost bastion of fort, 150 feet high, at the N.W. corner of a square fortified enclosure: thána Marot, taluk Khairpur. It is marked by a square platform of paka bricks cemented with clay, with a mark-stone in the centre. 1874-75. (<i>Baháwalpur State</i>).</p> <p>λ 29 10 38'15 L 72 28 29'07 H 537 Nos. 190, 191</p>	<p><b>Mongolia, XXXI.</b> <i>vide page 6.</i></p> <p>λ 27 38 21'71 L 72 31 47'62 H 782 h 3 Nos. 36</p>	

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<b>Motagaon Fort,</b> Centre of the tower 16 feet high, in the centre of the well-known village of Motagaon or Baragaon: pargana Devikot. 1875-76. ( <i>Jeysulmere State</i> ). " " " λ 26 51 28.8 L 71 12 55.5 H 779 No. 320	<b>Nār Magra s.</b> In a field on the high ground about ½ mile S.E. of the cart track from Odhania to Chandani village, in the lands of the latter: taluk Malāni, pargana Seu. The azimuths and distances of the adjacent villages are:—Chandani 84°, miles 2½; and Odhania 259°, miles 4½. A place of worship marked by an upright stone 6 feet high, called by the natives Sil, and situated a little to N.W. of the above road, is a good land-mark to finding the station. It is marked by an isolated pillar of paka masonry 2½ feet deep and 2½ feet in diameter, surrounded by a paka annular wall, with two mark-stones, one flush with the ground and the other 2½ feet below. 1873-74. ( <i>Jodhpore State</i> ). " " " λ 26 57 13.18 L 71 41 32.94 H 771 No. 234	<b>Nimla h.s.</b> On a high sand hill locally known as Chatalia or Tūkhia Thalī, in the lands of Nimla village: pargana Seu. The approximate azimuths and distances of the adjacent villages are:—Nimla 162°, mile ½; and Barka 326°, miles 4. It is marked by a pillar cemented with clay, the lower portion being 5 feet square and 2 feet 9 inches high, and the upper portion circular 2 feet 4 inches high and 2½ feet in diameter and surrounded by an annular wall. It has three mark-stones, one at base, the second on surface of the square portion and the third at top of pillar flush with the hill top. 1875-76. ( <i>Jodhpore State</i> ). " " " λ 26 3 9.56 L 71 22 25.58 H 789 No. 212
<b>Mugrala, XLIII.</b> <i>Vide page 10.</i> λ 28 30 57.06 L 72 24 44.59 H 517 h 5 No. 49	λ 26 57 13.18 L 71 41 32.94 H 771 No. 234	λ 26 3 9.56 L 71 22 25.58 H 789 No. 212
<b>Nagar, VI.</b> <i>Vide page 5.</i> λ 25 46 52.33 L 72 11 50.44 H 1352 h 3 Nos. 7, 9	<b>Narthal h.s.</b> On a high conspicuous sand hill well known in the vicinity, in the lands of Sūrūjara village: pargana Magra. The approximate azimuths and distances of the circumjacent villages are:—Pabuser, Ronesar and Sanduka 34°, miles 4½; Sūrūjara 199°, miles 2; and Lombasar 344°, miles 4. It is marked by a circular isolated pillar of paka masonry with a paka annular wall, surrounded by a rough platform; it has three mark-stones, one on the surface of the pillar 3 feet above the ground level, the second 3 feet below the first, and the third 2 feet below the second. 1874-75. ( <i>Bikaner State</i> ). λ 28 2 12.48 L 72 50 39.98 H 764 No. 368	<b>Nodona Hill.</b> Top of a high conspicuous peak on the side of the Nūnbāj valley opposite Sūnda H.S.: taluk Jālor. 1872-73. ( <i>Jodhpore State</i> ). λ 24 43 18.4 L 72 30 2.3 H 3225 No. 77
<b>Nāna Railway Station s.</b> On the platform of the Nāna Railway Station, 76 feet 6 inches from the S.W. angle of the main building and 29 feet 5 inches from the edge of the platform and 14 feet 5 inches from prolongation of side of the building, measured on a line at right angles to the edge of the platform. It is marked by a ○. 1882-83. ( <i>Jodhpore State</i> ). λ 24 55 26.05 L 73 9 4.71 H 1175 No. 449	<b>Negara Hill.</b> Centre of a high well-known hill 1 mile W. of the village so called: pargana Seu. 1875-76. ( <i>Jodhpore State</i> ). λ 26 15 6.4 L 71 9 36.4 H 1022 Nos. 275, 276	<b>Nok, XXX.</b> <i>Vide page 8.</i> λ 27 36 4.67 L 72 20 24.63 H 682 h 3 Nos. 37, 39
<b>Nār Bhākhar Hill.</b> Centre of a conspicuous small peak near Jand village: pargana Lathī. 1873-74. ( <i>Jeysulmere State</i> ). λ 26 52 40.5 L 71 20 43.5 Nos. 330, 331	<b>Nokra Hill Mark.</b> On a black rocky hill close to Jeysulmere and Bikaner boundary and 3½ miles N.E. of Nokra village. It is marked by a paka masonry pillar 6 feet high and 3½ feet in diameter, surrounded by a platform of stones 14 feet square, with three mark-stones. 1873-74-75. ( <i>Bikaner State</i> ). λ 27 40 24.42 L 72 43 38.90 H 875 Nos. 167, 168	<b>Nokra Hill Mark.</b> On a black rocky hill close to Jeysulmere and Bikaner boundary and 3½ miles N.E. of Nokra village. It is marked by a paka masonry pillar 6 feet high and 3½ feet in diameter, surrounded by a platform of stones 14 feet square, with three mark-stones. 1873-74-75. ( <i>Bikaner State</i> ). λ 27 40 24.42 L 72 43 38.90 H 875 Nos. 167, 168
<b>Nār Bhākhar Hill.</b> Centre of a conspicuous small peak near Jand village: pargana Lathī. 1873-74. ( <i>Jeysulmere State</i> ). λ 26 52 40.5 L 71 20 43.5 Nos. 330, 331	<b>Negara Hill.</b> Centre of a high well-known hill 1 mile W. of the village so called: pargana Seu. 1875-76. ( <i>Jodhpore State</i> ). λ 26 15 6.4 L 71 9 36.4 H 1022 Nos. 275, 276	<b>Nūn Hill Pagoda.</b> Spire of Dāresar temple: taluk Jālor. 1872-73. ( <i>Jodhpore State</i> ). λ 25 9 47.1 L 72 33 18.6 H 605 No. 90
<b>Naria Hill.</b> Centre of a conspicuous hill peak named after the village at foot: pargana Devikot. 1875-76. ( <i>Jeysulmere State</i> ). λ 26 45 21.4 L 70 56 25.6 H 1062 No. 314	<b>Niboi Hill.</b> Centre of a low conical peak about 3 miles S.E. of Chhoti Daroi village: pargana Seu. 1875-76. ( <i>Jodhpore State</i> ). λ 26 22 30.5 L 71 24 2.9 H 961 Nos. 286, 287	<b>Omlo, XXIV.</b> <i>Vide page 7.</i> λ 27 6 54.07 L 72 31 3.07 H 924 h 5 No. 28

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Pabusar, XXXII.</b> <i>Vide page 8.</i></p> <p style="text-align: center;">o ' "</p> <p>λ 27 44 28.51 L 72 22 52.77 H 706 h 3 No. 40</p>	<p><b>Phalodi Fort Mark (heliotrope).</b> On the outer wall of the fort in Phalodi town. It is marked by a ⊙ on a stone 46 feet above the ground. 1873-74. (<i>Jodhpore State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 27 7 59.24 L 72 24 5.02 H 784 Nos. 156, 157</p>	<p><b>Pokaran Hill.</b> Pile of stones on Bhiru Tonka hill near the town. 1873-74. (<i>Jodhpore State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 57 8.1 L 71 59 59.3 H 847 No. 362</p>
<p><b>Palana s.</b> On a low sand hill locally known as Hándár Dhūra, in the lands of Palana village: pargana Bickaneer. The approximate azimuths and distances of the circumjacent villages are:—Barsingar 45°, miles 2; Sarūpdesar 162°, miles 4; and Palana 264°, miles 1½. It is marked by a circular isolated pillar of paka masonry 1½ feet deep, surrounded by a paka annular wall, with two mark-stones, one at top flush with the hill top and the other 1½ feet below. 1874-75. (<i>Bickaneer State</i>).</p> <p>λ 27 50 32.00 L 73 15 57.93 H 904 Nos. 375, 376</p>	<p><b>Phogala, XLVIII.</b> <i>Vide page 11.</i></p> <p>λ 28 50 49.77 L 72 27 52.35 H 496 h o No. 58</p>	<p><b>Pokaran h.s.</b> At the southern edge of a flat-topped hill, the highest of the range running E. and W., and lying N. of the town of Pokaran of which it commands a full view. The azimuths and distances of the adjacent places are:—Bankna village 8°, miles 2; Pokaran town 33°, miles 1½; Dongarsar tank 77°, yards 200; and Hatalmir temple 264° 30', mile ¾. It is marked by a ⊙ engraved on the rock in <i>sidd</i>, and has no pillar or platform. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 56 21.94 L 71 58 20.83 H 858 No. 340</p>
<p><b>Panchkot, LVIII.</b> <i>Vide page 13.</i></p> <p>λ 29 16 0.97 L 72 10 27.60 H 471 h 2 No. 74</p>	<p><b>Phularas, XXXIV.</b> <i>Vide page 9.</i></p> <p>λ 27 51 54.92 L 72 21 34.22 H 653 h 3 Nos. 42, 44</p>	<p><b>Pokaran House.</b> Centre of Rāmlāl Pīr-ki-kothri on a hill near the town. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 56 20.7 L 71 57 24.4 H 853</p>
<p><b>Panchota Hill Mark (heliotrope).</b> On the highest point of a rugged-topped hill N.W. of Erinpura: taluk Siwāna. It is marked by a ⊙ surmounted by a pole and brush. 1872-73. (<i>Jodhpore State</i>).</p> <p>λ 25 28 3.36 L 72 58 45.28 H 1912 Nos. 116, 117</p>	<p><b>Pindwāra Railway Station s.</b> On the platform of Pindwāra Railway Station at a distance of 133 feet 3 inches to the S. of the Signal Post and 22 feet 9 inches from the edge of the platform. Marked by a ⊙. 1882-83. (<i>Sirohee State</i>).</p> <p>λ 24 47 25.83 L 73 4 51.64 H 1216 Nos. 450, 451</p>	<p><b>Pokaran Masjid Mark (heliotrope).</b> It is marked by a ⊙ over the Masjid gateway in the town, 11 feet above the ground. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 55 22.22 L 71 57 44.27 H 744 Nos. 356, 357</p>
<p><b>Parok h.s.</b> On the highest point of a conspicuous conical peak of that name, overlooking the western slopes of Mount Abu. A platform covered with a pile of stones marks the station. 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 35 29.81 L 72 47 19.86 H 4574 Nos. 390, 391</p>	<p><b>Pokaran Building.</b> Top of the highest building in the centre of the fort in the town. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 55 12.2 L 71 57 25.2 H 822 Nos. 354, 355</p>	<p><b>Pokaran Temple No. 1.</b> Spire of Khujmāta Mandir near the town. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 54 7.4 L 71 56 48.9 H 832 No. 346</p>
<p><b>Pelu, XVIII.</b> <i>Vide page 6.</i></p> <p>λ 26 48 40.25 L 72 30 17.16 H 1052 h o No. 22</p>	<p><b>Pokaran Fort Mark (heliotrope).</b> On the bastion of the fort in the town. It is marked by a ⊙. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 55 11.27 L 71 57 25.05 H 808 Nos. 352, 353</p>	<p><b>Pokaran Temple No. 2.</b> Spire of Thākūr Mandir in the town. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 55 8.5 L 71 57 25.6 H 795 Nos. 349, 350</p>

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Pokaran Temple No. 3.</b> Spiral of Jain Mandir in the town. 1873-74. (<i>Jodhpore State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 55 9.6 L 71 57 29.1 H 80.4 No. 351</p>	<p><b>Puthelia Hill Mark (heliotrope).</b> On the top of the hill about 1½ miles S. of Chila village: pargana Phulodi. 1873-74. (<i>Jodhpore State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 27 1 13.13 L 72 30 35.41 H 1066 No. 154</p>	<p><b>Raonak Hill.</b> Highest point of the hill of the Dudiāli range: taluk Jalor. 1872-73. (<i>Jodhpore State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 25 14 56.1 L 72 56 34.8 H 2737 Nos. 94, 95</p>
<p><b>Pokaran Temple No. 4.</b> Chief dome of Satia Mandir near the town. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 56 8.8 L 71 57 13.7 H 817 Nos. 358, 359</p>	<p><b>Rámkund h.s.</b> On the extreme summit of a high conical peak overlooking the lake and on its south side. A pile of stones marks the station. 1869-70. (<i>Sirohee State</i>).</p> <p>λ 24 35 25.17 L 72 44 32.37 H 4354 No. 388</p>	<p><b>Rathanada Temple.</b> Centre of the chief dome of Ganeshji-ke-mandir on a hill about 4 miles S.E. of Jodhpore city. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 16 28.4 L 73 4 50.5 H 896 No. 138</p>
<p><b>Pokaran Temple No. 5.</b> Spiral of the old well-known Hatalmir temple on a hill close to the town, 9 feet above the ground level. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 56 25.7 L 71 59 5.6 H 839 Nos. 360, 361</p>	<p><b>Rámkund h.s. (new)</b> On a conspicuous hill south of Naki Talao which lies at its foot. When the hill was visited in June 1876 nothing was found to indicate the site of the Topographical Survey Station of the same name, save a pile of stones. A ⊙ was engraved on the rock <i>in situ</i> in the centre of this pile to denote the new station. 1875-76. (<i>Sirohee State</i>).</p> <p>λ 24 35 25.17 L 72 44 32.42 H 4354 No. 446</p>	<p><b>Rathanada Thalli Hill Mark.</b> On a well-known sand hill about 4 miles N.E. of Derikot town: pargana Derikot. It is marked by a ⊙ on a stone surmounted by a pole and brush and covered by a heap of stones. 1875-76. (<i>Jey-sulmere State</i>).</p> <p>λ 26 44 19.23 L 71 16 30.25 H 967 Nos. 312, 313</p>
<p><b>Pokaran Tower Mark (heliotrope).</b> In the centre of the roof of the square tower at the S.E. corner of Ganesh Das's garden towards the E. portion of the town. It is marked by a ⊙ 23 feet above the ground. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 26 54 47.32 L 71 57 35.65 H 781 Nos. 347, 348</p>	<p><b>Randa Hill.</b> On the hill over the village of Randa: pargana Vinjari. It is marked by a pole and brush over a pile of stones. 1875-76. (<i>Jey-sulmere State</i>).</p> <p>λ 26 12 45.0 L 71 0 2.1 H 1180 No. 271</p>	<p><b>Redhano Hill Mark.</b> On a high conspicuous peak of a hill near the well-known village of Redhano which is famous for its salt works: taluk Malāni. It is marked by a ⊙ engraved on the rock <i>in situ</i> and surmounted by a pole and brush. 1875-76. (<i>Jodhpore State</i>).</p> <p>λ 25 49 51.44 L 71 0 50.42 H 1384 Nos. 258, 259</p>
<p><b>Ponāssa Mark (heliotrope).</b> On a low mound: taluk Jalor. It is marked by a ⊙. 1872-73. (<i>Jodhpore State</i>).</p> <p>λ 24 59 49.76 L 72 5 42.42 H 340 No. 79</p>	<p><b>Randu, LIX.</b> <i>vide page 13.</i></p> <p>λ 29 19 24.24 L 72 18 8.95 H 487 h 2 Nos. 70, 75</p>	<p><b>Referring Mark (heliotrope).</b> On a sand hill about 2 miles N.W. of Jambo village: pargana Phulodi. It is marked by a ⊙ surmounted by a pole and brush. 1873-74. (<i>Jodhpore State</i>).</p> <p>λ 27 19 40.96 L 72 32 0.14 H 775 No. 163</p>
<p><b>Pungal Fort Mark (heliotrope).</b> On the roof of the stables in the fort in the town: pargana Pungal. It is marked by a ⊙ on a stone embedded in lime. 1874-75. (<i>Bikaner State</i>).</p> <p>λ 28 30 37.37 L 72 51 1.72 H 537 No. 177</p>	<p><b>Ránigaon Hill Mark.</b> On the top of a high well-known hill named after the village at foot, 10½ miles S. by W. of Balmir town: taluk Malāni. It is marked by a ⊙ on a stone embedded on top, surmounted by a pole and brush. 1875-76. (<i>Jodhpore State</i>).</p> <p>λ 25 36 34.83 L 71 20 15.78 H 1875 Nos. 245, 246</p>	<p><b>Revenue Survey No. 12 s.</b> On a level piece of hard ground overgrown with stunted trees, about ¼ mile W. of a pillar on the road from Marot to Bahāwalpur, and 2¼ miles W. of Chāpu well: thāna Maujgarh, pargana Bahāwalpur. It is marked by a square pillar of bricks in mortar about 1½ feet square and 1½ feet high. The pillar has "No. 12" marked on the side. 1875-76. (<i>Bahāwalpur State</i>).</p> <p>λ 29 9 48.46 L 72 16 53.79 H 425 No. 189</p>
<p><b>Pusad Temple.</b> Centre of, on a low hill about 1 mile E. of Pusad village: pargana Seu. 1875-76. (<i>Jodhpore State</i>).</p> <p>λ 26 18 8.0 L 71 21 39.7 H 849, base of temple. No. 291</p>		

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Revenue Survey Station D s.</b> On a sand mound about 4 miles S. of Kāli Duhar h.s., 3½ miles S.W. of Rundu H.S., 11 miles N.W. of Marot town, and 6 miles W.N.W. of Maori Rānia temple: thānas Marot and Maujgarh. It is marked by a paka pillar 1½ feet square and 1½ feet high, with a woolen peg sunk into its centre. The station was found to be partially destroyed. 1875-76. (Bahāwalpur State).</p> <p style="text-align: center;">° ' "</p> <p>λ           29 17 7.58 L           72 20 42.65 H           430 No. 194</p>	<p><b>Ronesar, XL.</b> <i>Fide page 10.</i></p> <p style="text-align: center;">° ' "</p> <p>λ           28 2 49.20 L           72 43 34.73 H           689 h           3 No. 62</p> <p><b>Ronesar Hill Mark (heliotrope).</b> On a low sand hill about 4 miles S.W. of Ronesar village: pargana Phalodi. It is marked by a paka masonry pillar with two mark-stones. 1873-74. (Jodhpore State).</p> <p>λ           27 11 6.81 L           72 42 12.82 H           874 Nos. 168, 159</p>	<p><b>Sanda Hill Mark.</b> On the easternmost and highest peak of the hill known as Sanda-ka-Magra, about ¼ mile S.W. of Sanda village which lies at its foot: pargana Devikot. It is marked by a ⊙ engraved on the rock <i>in situ</i> and surmounted by a pole and brush. 1875-76. (Jeysulmere State).</p> <p style="text-align: center;">° ' "</p> <p>λ           26 28 11.51 L           71 19 47.43 H           1127 Nos. 295, 296</p>
<p><b>Revenue Survey Station J s.</b> On the high ground in the heart of the desert and about 3 miles N. of Randu H.S., 3½ miles W. of the path from Marot to Khairpur, and 1 mile N.W. of Naganiwāla toba (tank): parganas Khairpur and Bahāwalpur. It is marked by a mass of bricks, the remains of a Revenue Survey Station. 1875-76. (Bahāwalpur State).</p> <p>λ           29 21 46.86 L           72 17 22.78 H           444 Nos. 197, 198</p>	<p><b>Roza Hill.</b> Top of the highest and northernmost peak of the Jālor range: taluk Jālor. 1872-73. (Jodhpore State).</p> <p>λ           25 19 20.6 L           72 37 52.5 H           2411 Nos. 100, 101</p>	<p><b>Sangar Temple.</b> Centre of the temple on a hill known as Gadha Māli, about 1 mile N. of Sangar village: pargana Devikot. 1875-76. (Jeysulmere State).</p> <p>λ           26 32 19.8 L           71 11 29.5 H           954, base of temple No. 298</p>
<p><b>Revenue Survey Station Q s.</b> On a piece of hard level ground S. of a range of sand hills called Āsmānwāla Tibba, about 7½ miles S.W. of Marot town, 4½ miles S.E. of Chāpu well, and 3 miles S. of the road from Marot to Bahāwalpur: thānas Marot and Maujgarh. It was marked by a square masonry pillar of bricks which was found to be partially destroyed and is now nearly level with the ground. 1875-76. (Bahāwalpur State).</p> <p>λ           29 6 48.66 L           72 22 25.85 H           428</p>	<p><b>Sachu, XLI.</b> <i>Fide page 10.</i></p> <p>λ           28 14 55.74 L           72 7 5.29 H           544 h           4 No. 48</p>	<p><b>Sar Hill Mark.</b> Or Sar Hill Mark; on a hill E. of Dodo H.S. and W. of the Lūni river: taluk Jodhpur. It is marked by a ⊙. 1872-73. (Jodhpore State).</p> <p>λ           26 1 21.93 L           72 58 57.26 H           1000 Nos. 129, 130</p>
<p><b>Rishikishan Rock.</b> 1869-70. (Sirohee State).</p> <p>λ           24 33 8.2 L           72 49 18.3 H           3331 Nos. 404, 405</p>	<p><b>Sagano Hill Mark.</b> On a hill about ¼ mile E. of the site of Sagano village: pargana Devikot. It is marked by a ⊙ engraved on the rock <i>in situ</i> and surmounted by a pole and brush. 1875-76. (Jeysulmere State).</p> <p>λ           26 47 34.05 L           71 9 50.57 H           903 Nos. 315, 316</p>	<p><b>Saruwāli h.s.</b> On a high sand hill in the lands of and about 3 miles S.E. from Pungal. It is named after a small tank or nadi which lies at the foot of the hill at an azimuth of 180°: pargana Pungal. It is marked by a circular isolated pillar of paka masonry 2½ feet deep and 2½ feet in diameter, surrounded by a paka annular wall, with two mark-stones, one at top flush with the hill top and the other 2½ feet below. 1874-75. (Bickancer State).</p> <p>λ           28 28 28.32 L           72 52 40.99 H           636 No. 174</p>
<p><b>Rohera Railway Station s.</b> About 20 feet beyond the northern end of the platform at a distance of 203 feet 7 inches from the central dome of the station, and 21 feet 3 inches from the signal lever. It is marked by a ⊙. 1882-83. (Sirohee State).</p> <p>λ           24 39 34.91 L           72 58 28.44 H           1090 No. 453</p>	<p><b>Saitrao Temple.</b> Centre of a temple on a hill near the town of Saitrao: taluk Malāni. 1875-76. (Jodhpore State).</p> <p>λ           25 39 35.0 L           70 58 14.9 H           1070, base of temple No. 251</p>	<p><b>Saura Hill.</b> Top of the highest hill N. of Kundal H.S.: taluk Siwāna. 1872-73. (Jodhpore State).</p> <p>λ           25 32 52.9 L           72 23 51.8 H           3199 Nos. 119, 120</p>
	<p><b>Samdari, VII.</b> <i>Fide page 5.</i></p> <p>λ           25 48 59.55 L           72 36 48.02 H           846 h           3 No. 6</p>	

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Sauri Hill Mark (heliotrope).</b> On a low sand hill about <math>\frac{3}{4}</math> mile N. of Sauri village: pargana Phalodi. It is marked by an isolated pillar of puka masonry 2½ feet in height, partly above and partly below the ground, with two mark-stones, one at top and the other at bottom. 1873-74. (Jodhpore State).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 58 7.53 L 72 16 33.19 H 919 Nos. 366, 367</p>	<p><b>Soma, L.</b> <i>Vide page 11.</i></p> <p style="text-align: center;">o ' "</p> <p>λ 29 1 54.85 L 72 30 18.12 H 517 h 3 No. 62</p>	<p><b>Sulkia Thalau, XIV.</b> <i>Vide page 6.</i></p> <p style="text-align: center;">o ' "</p> <p>λ 26 31 3.92 L 72 20 27.84 H 990 o h No. 20</p>
<p><b>Serao Hill.</b> Small detached hill W. of the Sukri river: taluk Jálór. 1872-73. (Jodhpore State).</p> <p>λ 25 19 40.5 L 72 19 4.3 H 669 No. 104</p>	<p><b>Somlai Hill Mark.</b> On a hill about 2 miles E. of Somlai village: pargana Devikot. It is marked by a ⊙ engraved on the rock <i>in situ</i> and surmounted by a pole and brush. 1875-76. (Jeysulmere State).</p> <p>λ 26 33 1.43 L 71 6 56.32 H 993 No. 302</p>	<p><b>Sultán, LVI.</b> <i>Vide page 12.</i></p> <p>λ 29 8 38.88 L 72 12 40.84 H 458 h o No. 73</p>
<p><b>Seu Building Mark (heliotrope).</b> On the roof of a building known as Raj-ki-kothri on the W. bank of a tank in the town: pargana Seu. It is marked by a ⊙ on a stone embedded on the roof, 10½ feet above the ground level. 1875-76. (Jodhpore State).</p> <p>λ 26 11 16.18 L 71 17 3.02 H 791 Nos. 269, 270</p>	<p><b>Sonári Hill.</b> Centre of the upright stone on the summit of a low conspicuous hill close to Lon Charri h.s.: pargana Latli. 1873-74. (Jeysulmere State).</p> <p>λ 27 2 33.7 L 71 16 0.6 H 642 Nos. 328, 329</p>	<p><b>Súnda, XLIV*.</b> <i>Vide page 4.</i></p> <p>λ 24 46 50.77 L 72 27 44.54 H 3252 h 3 No. 1</p>
<p><b>Sioni h.s.</b> On the highest of a group of hills in the lands of and near Sioni village lying at its foot to N.W., about 19 miles W. of Balmir town, and 12 miles N.E. of Saitrao thana station: thana Balmir, taluk Maláni. It is marked by a ⊙ on the rock <i>in situ</i>. 1875-76. (Jodhpore State).</p> <p>λ 25 45 33.98 L 71 6 57.14 H 1731 Nos. 210, 211</p>	<p><b>Sorari Nadi Tree.</b> Large tree on the bank of a tank about 2 miles S. of Devikot town: pargana Devikot. 1875-76. (Jeysulmere State).</p> <p>λ 26 40 9 L 71 13 31 H 875, foot of tree No. 307</p>	<p><b>S.W. End Base.</b> 1875-76. (Baháwalpur State).</p> <p>λ 29 9 47.1 L 72 16 49.8 No. 189</p>
<p><b>Sirad, XXVII.</b> <i>Vide page 6.</i></p> <p>λ 27 25 36.03 L 72 28 25.53 H 740 h 4 No. 34</p>	<p><b>Sorau, XX.</b> <i>Vide page 7.</i></p> <p>λ 26 50 25.99 L 72 42 25.33 H 1170 h o No. 23</p>	<p><b>Támpi, LX.*</b> On a low sand hill on the eastern border of the Tharr or little desert, about 2 miles N.W. of the village of the same name: pargana Sáčhor. It is marked by a solid pillar 6 feet high with four mark-stones, one at the level of the foundation, and the others 2, 5 and 6 feet respectively above it. When visited in January 1876 no upper mark-stone but the first below it was found, a new mark-stone was placed one foot above this. 1851-52. (Jodhpore State).</p> <p>λ 24 52 39.08 L 71 29 37.37 H 180 h 6 No. 200</p>
<p><b>Sodakhorr Fort.</b> Centre of the small fort in village: pargana Lathi. 1873-74. (Jeysulmere State).</p> <p>λ 27 1 57.7 L 71 28 45.0 H 692, top of wall No. 332</p>	<p><b>Suer Máli h.s.</b> On a conspicuous peak rising considerably above the surrounding hills and well known in the district, in the lands of and about 1½ miles N.E. from Dabla village, the same distance W. of Jnirat, and 8½ miles E.S.E. of Jeysulmere city: pargana Devikot. It is marked by a ⊙ engraved on one of the huge boulders; no pillar or platform was built. 1873-74. (Jeysulmere State).</p> <p>λ 26 51 48.97 L 71 4 52.04 H 868 No. 227</p>	<p><b>Taratra h.s.</b> On the highest peak of a long hill 800 feet above the general level of the country, running E. and W. and forming the southernmost of the ranges of hills lying E. of the town of Balmir. It is in the lands of Taratra village: thana Balmir, taluk Maláni. The approximate azimuths and distances of the circumjacent villages are:—Goilar 22°, miles 2; Dudwa 106°, miles 8; Taratra 246°, at foot; and Lilsar 340°, miles 10. It is marked by a ⊙ on the rock <i>in situ</i>; a rough pillar was made for the instrument to stand on. 1875-76. (Jodhpore State).</p> <p>λ 25 33 26.76 L 71 16 53.95 H 1623 No. 208</p>

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Tatol h.s.</b> On the highest portion of the W. side of a small hill close to Tatol village. It is marked by a <math>\odot</math> on a stone and surmounted by a pole and brush. 1872-73. (Jodhpore State).</p> <p style="text-align: center;">o ' "</p> <p><math>\lambda</math> 25 8 0'69 L 72 33 52'43 H 796 Nos. 84, 85</p> <p><b>Tau Hill Mark.</b> On the top of a low hill S.E. of Borta H.S.: taluk Jálór. It is marked by a <math>\odot</math> surmounted by a pole and brush. 1872-73. (Jodhpore State).</p> <p><math>\lambda</math> 25 2 36'29 L 72 26 40'36 H 926 No. 83</p> <p><b>Telu, LI.</b> Vide page 11.</p> <p><math>\lambda</math> 28 56 11'34 L 72 16 35'98 H 470 h 5 No. 68</p> <p><b>Thaiat h.s.</b> Towards the southern edge of a flat-topped hill, in the lands of Thaiat village, and about 200 yards N.E. of the ruins of some half-a-dozen houses lying on the same hill, 10½ miles E. of the city of Jaysulmère which is visible from the station, 1½ miles E. of Thaiat village, and the same distance W. of Buseanpir: pargana Lathi. It was originally marked by a <math>\odot</math> engraved on the rock <i>in situ</i>, but when visited in December 1878, a pillar 5 feet in height, having a mark-stone at surface and surrounded by a platform of stones, was constructed. 1873-74. (Jaysulmère State).</p> <p><math>\lambda</math> 26 55 49'80 L 71 7 43'07 H 841 No. 224</p>	<p><b>Theri Nadi Temple.</b> Centre of the temple on a low hill near the tank known as Theri Nadi: pargana Seu. 1875-76. (Jodhpore State).</p> <p style="text-align: center;">o ' "</p> <p><math>\lambda</math> 26 26 46'2 L 71 28 36'5 H 1021, base of temple. No. 292</p> <p><b>Thob, VIII.</b> Vide page 5.</p> <p><math>\lambda</math> 26 3 5'85 L 72 24 49'35 H 856 h 3 No. 10</p> <p><b>Thoro Hill.</b> Top of the most southerly bluff of the western of three small ranges running N. and S. between Dhaula H.S. and Bonik H.S.: taluk Jálór. 1872-73. (Jodhpore State).</p> <p><math>\lambda</math> 25 10 41'6 L 72 43 19'5 H 1466 Nos. 92, 93</p> <p><b>Tika Málí h.s.</b> On a low but conspicuous peaked hill, well known in the vicinity, in the lands of Ekka village, and about 6 miles E. of Pokaran town, 500 yards E. of the cart track from Dadoni Dháni to Phalodi, and ½ mile W. of a stone quarry (for Phalodi). The approximate azimuths and distances of the adjacent villages are:—Dadoni Dháni 27°, mile 1; Hathiji Dháni 99°, miles 1½; and Ekka 130°, mile ½. It is marked by a <math>\odot</math> engraved on the rock <i>in situ</i>; no pillar or platform was built. 1873-74. (Jodhpore State).</p> <p><math>\lambda</math> 26 56 39'37 L 72 4 6'36 H 875 Nos. 341, 342</p>	<p><b>Tomlia Hill.</b> Centre of a high hill, about 1 mile N. of Tomlia village: taluk Maláni. 1875-76. (Jodhpore State).</p> <p style="text-align: center;">o ' "</p> <p><math>\lambda</math> 25 41 29'1 L 71 4 49'8 H 1393 No. 252</p> <p><b>Undria Hill,</b> Centre of the highest point, 5½ miles N.E. by N. of Dugur village: taluk Jodhpore. 1873-74. (Jodhpore State).</p> <p><math>\lambda</math> 26 21 0'1 L 72 44 44'5 H 985 No. 146</p> <p><b>Uperthal, XXXVII,</b> Vide page 9.</p> <p><math>\lambda</math> 28 0 27'62 L 72 17 27'29 H 622 h 3 No. 48</p> <p><b>Vesala Hill Mark.</b> On the highest peak of a hill lying between the villages of Vesala and Sora: pargana Seu. It is marked by a <math>\odot</math> engraved on the rock <i>in situ</i> and surmounted by a pole and brush. 1875-76. (Jodhpore State).</p> <p><math>\lambda</math> 25 52 50'94 L 71 13 44'72 H 1504 Nos. 260, 261</p> <p><b>Wílár Hill Mark.</b> 1882-83. (Jodhpore State).</p> <p><math>\lambda</math> 24 58 20'91 L 73 7 33'12 No. 453</p>

January, 1887.

W. H. COLE,

In charge of Computing Office.





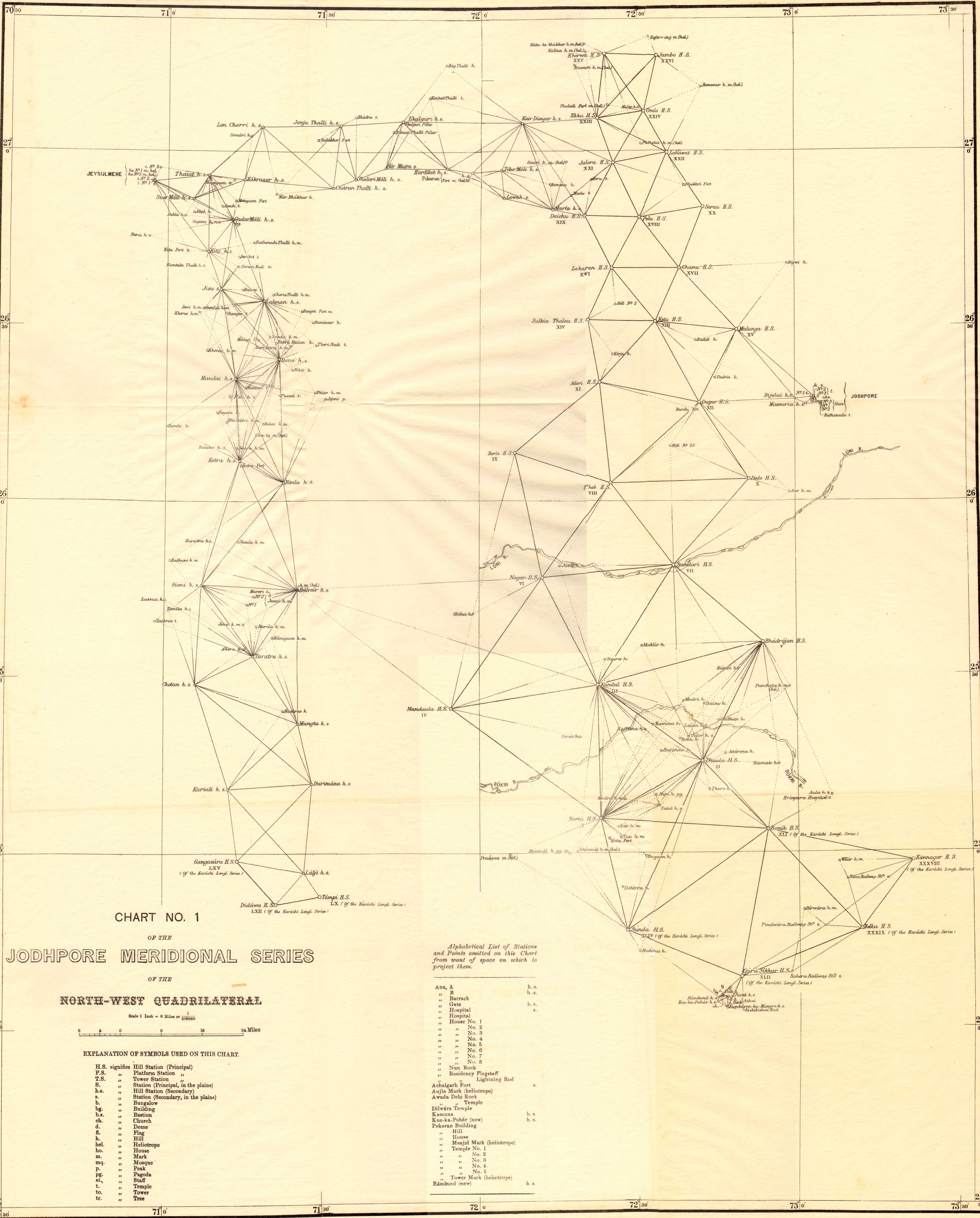


CHART NO. 1

OF THE

JODHPORE MERIDIONAL SERIES

OF THE

NORTH-WEST QUADRILATERAL

Scale 1 Inch = 8 Miles or 506880



EXPLANATION OF SYMBOLS USED ON THIS CHART.

- H.S. signifies Hill Station (Principal)
- P.S. " Platform Station "
- T.S. " Tower Station "
- S. " Station (Principal, in the plains)
- h.s. " Hill Station (Secondary)
- s. " Station (Secondary, in the plains)
- b. " Bungalow
- bg. " Building
- b.a. " Bastion
- ch. " Church
- d. " Dome
- fl. " Flag
- h. " Hill
- hel. " Heliotrope
- ho. " House
- m. " Mark
- mq. " Mosque
- p. " Peak
- pg. " Pagoda
- st. " Staff
- t. " Temple
- to. " Tower
- tr. " Tree

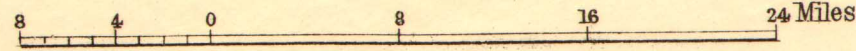
Alphabetical List of Stations and Points omitted on this Chart from want of space on which to project them.

- Abu, A h. s.
- B h. s.
- Barrack h. s.
- Gate h. s.
- Hospital s.
- House No. 1
- " No. 2
- " No. 3
- " No. 4
- " No. 5
- " No. 6
- " No. 7
- " No. 8
- Nun Rock
- Residency Flagstaff
- Lightning Rod s.
- Achalgarh Fort
- Auja Mark (heliotrope)
- Awada Debi Rock
- " Temple
- Dilwara Temple
- Kamuna h. s.
- Kue-ka-Pahar (new) h. s.
- Pokaran Building
- " Hill
- " House
- Masjid Mark (heliotrope)
- Temple No. 1
- " No. 2
- " No. 3
- " No. 4
- " No. 5
- Tower Mark (heliotrope)
- Rambund (new) h. s.



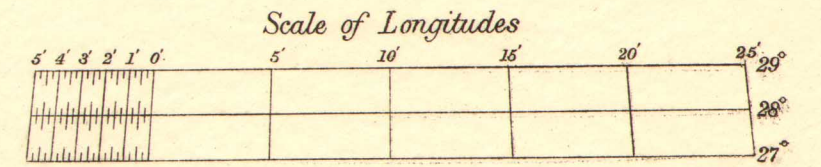
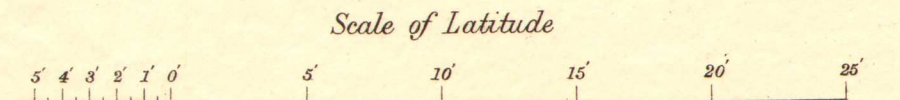
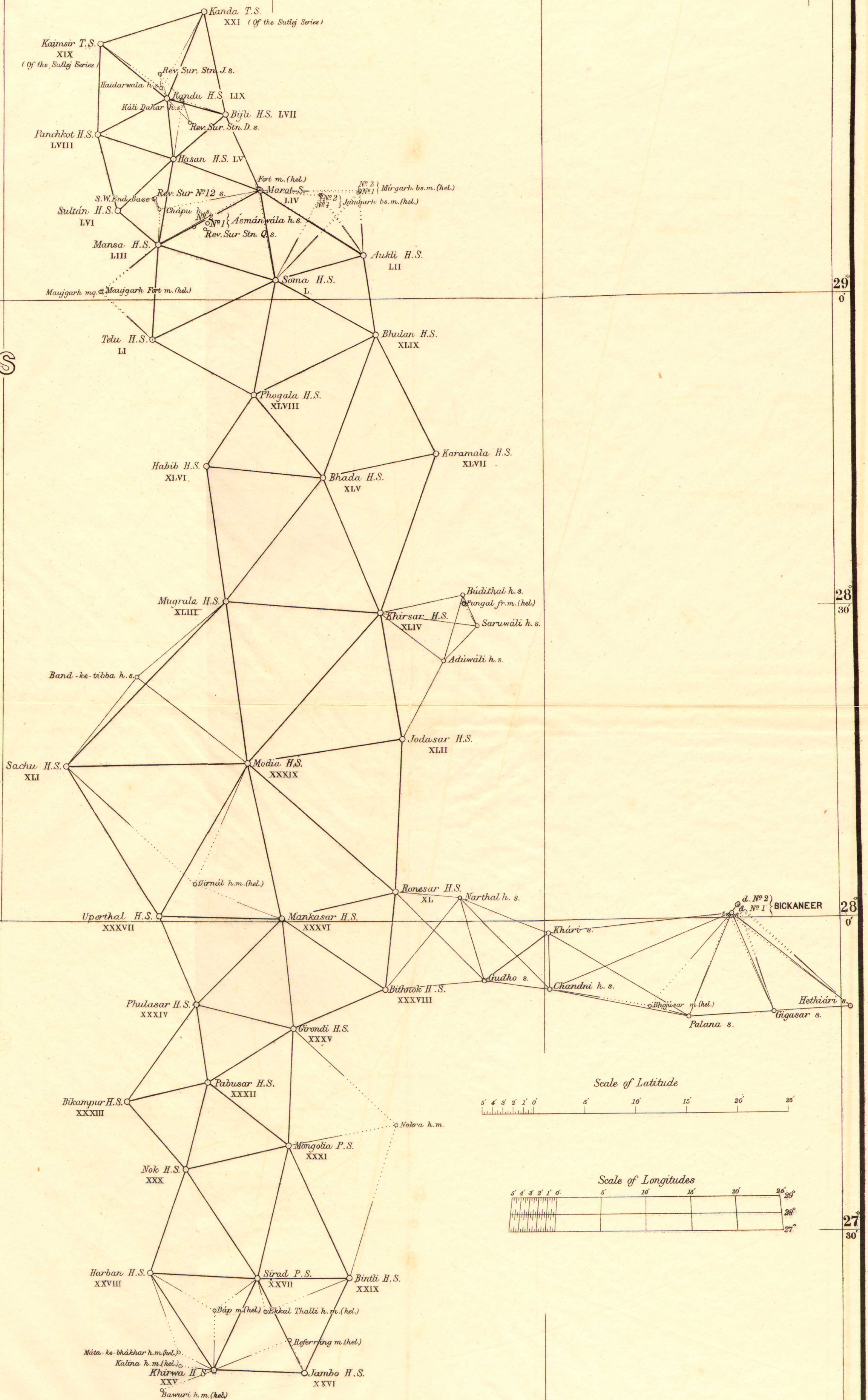
CHART NO. 2  
 OF THE  
**JODHPORE MERIDIONAL SERIES**  
 OF THE  
**NORTH-WEST QUADRILATERAL**

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



EXPLANATION OF SYMBOLS USED ON THIS CHART.

- |      |           |                                    |
|------|-----------|------------------------------------|
| H.S. | signifies | Hill Station (Principal)           |
| P.S. | "         | Platform Station "                 |
| T.S. | "         | Tower Station "                    |
| S.   | "         | Station (Principal, in the plains) |
| h.s. | "         | Hill Station (Secondary)           |
| s.   | "         | Station (Secondary, in the plains) |
| b.   | "         | Bungalow                           |
| bg.  | "         | Building                           |
| b.s. | "         | Bastion                            |
| ch.  | "         | Church                             |
| d.   | "         | Dome                               |
| fl.  | "         | Flag                               |
| h.   | "         | Hill                               |
| hel. | "         | Heliotrope                         |
| ho.  | "         | House                              |
| m.   | "         | Mark                               |
| mq.  | "         | Mosque                             |
| p.   | "         | Peak                               |
| pg.  | "         | Pagoda                             |
| st.  | "         | Staff                              |
| t.   | "         | Temple                             |
| to.  | "         | Tower                              |
| tr.  | "         | Tree                               |





**EASTERN SIND MERIDIONAL SERIES.**



## EASTERN SIND MERIDIONAL SERIES.

## PRINCIPAL TRIANGULATION. ALPHABETICAL LIST OF STATIONS.



Arrabhit . . . . .	XXII.	Máchka . . . . .	LIX.
Asu . . . . .	XXXI.	(Of the Great Indus Series).	
Badhor . . . . .	XV.	Máhu . . . . .	XXVII.
Bándri . . . . .	XXV.	Malar . . . . .	XIV.
Bhádi . . . . .	V.	Mangtor . . . . .	IX.
Bhitala . . . . .	X.	Mári . . . . .	XLI.
Bitri . . . . .	XXXII.	Máringra . . . . .	XXIX.
Chánga . . . . .	II.	Morgich . . . . .	XXXVII.
Chauki . . . . .	XXXV.	Narhar . . . . .	XI.
Dáowála . . . . .	LXII.	Narithal . . . . .	IV.
(Of the Great Indus Series).		Núrpír . . . . .	XLIII.
Dewari . . . . .	XLVIII.	Parethal . . . . .	XXXIII.
Dhanono . . . . .	XXIV.	Patatonk . . . . .	III.
Fulrár . . . . .	I.	Potanawári . . . . .	XVIII.
Ghundi . . . . .	LI.	Ramsar . . . . .	XVI.
Girája . . . . .	XXVIII.	Ráviláhu . . . . .	XXVI.
Got Mír Muhammad . . . . .	XLVII.	Rojhra . . . . .	LXXV.
Harnáo . . . . .	XXIII.	(Of the Karáchi Longitudinal Series).	
Hatodan . . . . .	VI.	Rupihar . . . . .	VII.
Jeysulmere . . . . .	XIII.	Sanahu . . . . .	XXI.
Joganali . . . . .	XIX.	Sandohar . . . . .	LXXVIII.
Kanakotri . . . . .	VIII.	(Of the Karáchi Longitudinal Series).	
Kardo . . . . .	XX.	Sinaba . . . . .	XVII.
Kháro . . . . .	XXXVI.	Singra . . . . .	XXX.
Kirariwáro . . . . .	XL.	Thakur . . . . .	XII.
Kolu . . . . .	XXXIV.	Thar Muhári . . . . .	XXXIX.
Kot Sabzal . . . . .	XLIX.	Trisingh . . . . .	XXXVIII.
Kubba . . . . .	L.	Vijnot . . . . .	XLIV.
Longwáli . . . . .	XLV.	Vín . . . . .	XLVI.
		Yáru . . . . .	XLII.

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LXXVIII (Of the Karachi Longitudinal Series).	Sandohar.	XXVIII	Girája.
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II	Chánga.	XXX	Singra.
III	Patatonk.	XXXI	Asu.
IV	Narithal.	XXXII	Bitri.
V	Bhádi.	XXXIII	Parethal.
VI	Hatodan.	XXXIV	Kolu.
VII	Rupihar.	XXXV	Chauki.
VIII	Kanakotri.	XXXVI	Kháro.
IX	Mangtor.	XXXVII	Morgich.
X	Bhitala.	XXXVIII	Trisingh.
XI	Narhar.	XXXIX	Thar Mubári.
XII	Thakur.	XL	Kirariwáro.
XIII	Jeysulmere.	XLI	Mári.
XIV	Malar.	XLII	Yáru.
XV	Badhor.	XLIII	Núrpír.
XVI	Ramsar.	XLIV	Vijnót.
XVII	Sinaba.	XLV	Longwáli.
XVIII	Potanawári.	XLVI	Vín.
XIX	Joganali.	XLVII	Got Mír Muhammad.
XX	Kardo.	XLVIII	Dewari.
XXI	Sanahu.	XLIX	Kot Sabzal.
XXII	Arrabhít.	L	Kubba.
XXIII	Harnáo.	LI	Ghundi.
XXIV	Dhanono.	LIX (Of the Great Indus Series).	Máchka.
XXV	Bándri.	LXII (Of the Great Indus Series).	Dáowála.
XXVI	Ráviláhu.		

## EASTERN SIND MERIDIONAL SERIES.

### DESCRIPTION OF PRINCIPAL STATIONS.



Of the 51 Principal Stations composing this Series, those numbered I to XLIII and XLVII are situated on sand hills. Each consists of a solid, circular, isolated pillar of masonry surrounded by an annular wall, the pillar being sunk to a depth of 3 feet, and having its upper surface flush with the hill top. In the centre and upper surface of the pillar a mark (circle and dot) engraved either on stone or brick, was imbedded in the normal of one or two other similar marks previously inserted within the pillar. Stations LXXV and LXXVIII of the Karáchi Longitudinal Series are similar in construction to those above described, with the exception that the pillars are not sunk but rise above the hill tops and are surrounded by platforms about 14 feet square for the observatory tent to stand on. The remainder with stations LIX and LXII of the Great Indus Series, on which this Series closes, are tower stations. Each consists of either a solid or perforated central pillar surrounded by solid towers of sun-dried bricks set in mud cement for the accommodation of the observatory tent: the pillars themselves are composed of rectangular blocks of masonry surmounting one another, each succeeding block being contracted, so as to leave a plinth at its base, the uppermost block, for the theodolite to stand on, is circular,  $3\frac{1}{2}$  feet in diameter, and isolated from the tower. The solid pillars have marks, as already described, at top and bottom and others intermediately, the perforated pillars have a mark imbedded at about the level of the floor and another below in the foundation. In the case of perforated pillars access to the upper mark is obtained by a vaulted passage, especially constructed for the purpose, through the tower and the central pillar. The upper mark-stones, where the pillars are solid, are protected by a rectangular pyramidal pillar of masonry erected after the completion of the observations, and bearing a sufficiently accurate mark for Topographical and Revenue Survey purposes—as shown at page 74 of Volume II of the *Account of the Operations &c.*

The following descriptions have been compiled from those given by the officers who executed the Series. The orthography of such names of parganas, districts &c., as has been fixed by Government for Rajputana and Sind has been adhered to. A few details, such as the name of a village or pargana within which a station is situated, have been obtained from the returns furnished by the political authorities to whose charge the stations have been committed.

LXXV.—(*Of the Karáchi Longitudinal Series*). Rojhra Hill Station, lat.  $24^{\circ} 57'$ , long.  $70^{\circ} 17'$ —observed at in 1851 and 1876—is situated on a high, narrow hill  $1\frac{1}{4}$  miles west of the road from Cháchra to Islámkot. The hill lies in that part of the Thar or little desert which appertains to Bhuj. It is in the lands of Rohrara village, taluka Cháchra, district Thar and Párkar.

The masonry pillar, which is surrounded by an annular wall, is solid and 3 feet high. It contains three mark-stones, one at the foundation, another 2 feet above it, and the third at the surface of the pillar. When visited in 1876 for originating the Eastern Sind Meridional Series, the pillar was found in good order and the upper mark-stone intact, and no alteration in the construction of the station was made. The azimuths and distances of the circumjacent villages are:—Pariara  $143^{\circ}$ , miles  $3\frac{1}{4}$ ; and Dhakla  $297^{\circ}$ , miles 2.

LXXVIII.—(*Of the Karáchi Longitudinal Series*). Sandohar Hill Station, lat.  $25^{\circ} 3'$ , long.  $70^{\circ} 1'$ —observed at in 1851 and 1876—is situated on a narrow and extensive hill in that portion of the Thar or little desert appertaining to Bhuj, about 2 miles N. of the road from Cháchra to Chelár. It is in the lands of Akli village, taluka Cháchra, district Thar and Párkar.

The masonry pillar, which is surrounded by an annular wall, is solid and 3 feet high. It contains three mark-stones, one at the foundation, another 2 feet above, and the third at the upper surface of the pillar. When visited in 1876 for originating the Eastern Sind Meridional Series, the pillar was found in good preservation, but there was no upper mark: on cutting into the pillar the second mark on stone was found intact one foot below the surface. The pillar was then re-built to its original height and a new mark was placed in its upper surface one foot above and in the normal of the mark found. The azimuths and distances of the circumjacent villages are:—Sandohar  $88^{\circ}$ , mile 0.5; and Arnára  $198^{\circ}$ , mile 1.

I. Fulrár Hill Station, lat.  $24^{\circ} 53'$ , long.  $70^{\circ} 6'$ —observed at in 1876—is on a high and narrow sand hill in that portion of the Thar or little desert appertaining to Bhuj. It is in the lands of Fulrár village, taluka Cháchra, district Thar and Párkar.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains two mark-stones, one at the bottom and the other 3 feet above it at the surface of the pillar. This station is nearly identical with station LXXVI of the Karáchi Longitudinal Series established in 1851, which was found almost totally destroyed in 1876. The centre of the old pillar was determined from the lowest layer of bricks indicating its circumference. The azimuths and distances of the circumjacent villages are:—Fulrár  $157^{\circ}$ , mile 1; Dhurio  $10^{\circ}$ , miles 2; and Bisasar  $44^{\circ}$ , miles 4.

II. Chánga Hill Station, lat.  $24^{\circ} 59'$ , long.  $69^{\circ} 51'$ —observed at in 1876—is situated on a sand hill bearing that name in that portion of the Thar or little desert appertaining to Bhuj. It lies  $1\frac{1}{2}$  miles S.W. of the road from Chelár to Nabisar. The nearest good water is at Asar 2.4 miles S.E. The station is in the lands of Chelár village, taluka Cháchra, district Thar and Párkar.

The masonry pillar, which is surrounded by an annular wall, is solid and  $3\frac{1}{2}$  feet deep. It contains three marks, two on stone, one at the foundation, the other  $1\frac{1}{2}$  feet above it, and the third on brick at the surface of the pillar. This station is nearly identical with station LXXX of the Karáchi Longitudinal Series established in 1851, which was found entirely destroyed. The present pillar is erected on the ruins of the base of the old pillar. The azimuths and distances of the circumjacent villages are:—Chelár  $275^{\circ}$ , miles 3.8; and Jojar  $263^{\circ}$ , miles 4.5.

III. Patatonk Hill Station, lat.  $25^{\circ} 10'$ , long.  $69^{\circ} 46'$ —observed at in 1876—is situated on a hill peak midway between the high roads from Umarmot to Nabisar and Chelár, 7 miles E. of the former and the same distance W. of the latter, and 4 miles E. of the plains of Sind. It is in the lands of Pata village, taluka Cháchra, district Thar and Párkar.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three marks, two on stone, one at the foundation, the other 1 foot above it, and the third on brick at the surface of the pillar. The station mark at the foundation was originally fixed in the course of the execution of the Umarmot Minor Series of the Karáchi Longitudinal Series. Pata (Ali Akbar) well azimuth  $187^{\circ}$ , mile 0.5.

IV. Narithal Hill Station, lat.  $25^{\circ} 16'$ , long.  $69^{\circ} 55'$ —observed at in 1876—is situated on a sand hill of the same name. The high road from Umarmot to Cháchra runs  $1\frac{1}{2}$  miles W. and that to Kesar 4 miles N. It is in the lands of Kacholi village, taluka Umarmot, district Thar and Párkar.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar. The station is identical with that of the Umarmot Minor Series of the Karáchi Longitudinal Series, the marks being plumbed over the old station mark. The azimuths and distances of the circumjacent places are:—Aja well  $205^{\circ}$ , mile  $\frac{1}{2}$ ; and Rojhra or Rodhar well  $36^{\circ}$ , miles 2.

V. Bhádi Hill Station, lat.  $25^{\circ} 15'$ , long.  $70^{\circ} 14'$ —observed at in 1876—is situated on a high, narrow and very long sand hill, 2 miles E.N.E. of Bhádi sweet-water well. Gatta village and well lie at the foot of the hill to the N.W. The road from Umarmot to Kesar runs about 7 miles N. It is in the lands of Bhádi village, taluka Cháchra, district Thar and Párkar.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three marks, the upper engraved on stone is let into the surface of the pillar, and two others on bricks are 2 and 3 feet respectively below it. The azimuths and distances of the circumjacent villages are:—Bhádi  $75^{\circ}$ , miles 2; and Gatta  $230^{\circ}$ , mile 1.



VI. Hatodan Hill Station, lat.  $25^{\circ} 30'$ , long.  $69^{\circ} 52'$ —observed at in 1876—is situated on the northern extremity of a long sand hill running in the usual direction and terminating abruptly towards the north, about  $1\frac{3}{4}$  miles W. of the road from Umarmkot to Ránáhu village, 3 miles W. of the low ground inundated by the Nára river, and  $2\frac{1}{2}$  miles S.E. of Sínai (new) sweet-water wells. It is in the lands of Chor village, taluka Umarmkot, district Thar and Párkar.

The masonry pillar, which is surrounded by an annular wall, is 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third on the surface of the pillar. The azimuths and distances of the circumjacent places are :—Kerlo sweet-water well  $280^{\circ}$ , miles  $1\frac{1}{2}$ ; Chor village old (Sínai)  $134^{\circ}$ , miles 4; and Chor village new  $186^{\circ}$ , miles 2.2.

VII. Rupihar Hill Station, lat.  $25^{\circ} 27'$ , long.  $70^{\circ} 5'$ —observed at in 1876—is situated on a sand hill 1 mile north of the village so called on the high road from Umarmkot to Gadra and Balmer. It is in the lands of Rupihar village, taluka Umarmkot, district Thar and Párkar.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three marks, the upper engraved on stone is flush with the surface of the pillar, and two others on brick are 2 and 3 feet respectively below it. Rupihar well azimuth  $23\frac{1}{2}^{\circ}$ , mile 0.9.

VIII. Kanakotri Hill Station, lat.  $25^{\circ} 30'$ , long.  $70^{\circ} 17'$ —observed at in 1876—is situated on a high sand hill about  $3\frac{1}{2}$  miles S. E. of the road from Umarmkot to Kesar village. It is in the lands of Kanakotri village, taluka Umarmkot, district Thar and Párkar.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three marks, the upper engraved on stone flush with the surface of the pillar, and two others on brick 2 and 3 feet respectively below it. The azimuths and distances of the circumjacent villages are :—Jagmal  $174^{\circ}$ , miles 1.5; and Silali  $104^{\circ}$ , mile 0.7.

IX. Mangtor Hill Station, lat.  $25^{\circ} 39'$ , long.  $69^{\circ} 57'$ —observed at in 1877—is situated on a low flat hill, about 2 miles S. of the well of the same name, and 5 miles E. of the road from Chor and Umarmkot to Ránáhu. It is in the lands of Mangtor village, taluka Umarmkot, district Thar and Párkar.

The masonry pillar, which is surrounded by an annular wall  $1\frac{1}{2}$  feet thick, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three marks, one at the foundation, another 1 foot above it, and the third on the surface of the pillar. The azimuths and distances of the circumjacent wells are :—Goedani  $48^{\circ}$ , miles 4 (by road 4.7 miles); Bandho  $48^{\circ}$ , miles 6.7; and Mangtor  $180^{\circ}$ , miles 2.

X. Bhitla Hill Station, lat.  $25^{\circ} 39'$ , long.  $70^{\circ} 11'$ —observed at in 1877—is situated on a long, narrow sand hill running N. E. and S. W., about 3 miles S. W. by S. of Khuri or Khokro village, and 3 miles S. of Lapla well. It is in the lands of Khara Lapla village, taluka Umarmkot, district Thar and Párkar.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third on the surface of the pillar. The azimuths and distances of the circumjacent wells are :—Datura  $133^{\circ}$ , miles 8.5; and Somo  $157^{\circ}$ , miles 8.9.

XI. Narhar Hill Station, lat.  $25^{\circ} 51'$ , long.  $69^{\circ} 57'$ —observed at in 1877—is situated on the hill on which the Revenue Survey station of Bamniwáro formerly existed, and about  $5\frac{1}{2}$  miles E. of the road from Umarmkot and Chor to Ránáhu. It is in the lands of Narhar village, taluka Khipra, district Thar and Párkar.

The masonry pillar, which is surrounded by an annular wall  $1\frac{1}{2}$  feet thick, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third on the surface of the pillar. Narhar village distant 1.6 miles, azimuth  $68^{\circ}$ .

XII. Thakur Hill Station, lat.  $25^{\circ} 50'$ , long.  $70^{\circ} 10'$ —observed at in 1877—is situated on a sand ridge, about 3 miles W. of the boundary between Jodhpore and Sind. It is in the lands of Juma village, taluka Khipra, district Thar and Párkar.

The masonry pillar, which is surrounded by an annular wall  $1\frac{1}{2}$  feet thick, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third on the surface of the pillar. The azimuths and distances of the circumjacent places are :—Katarlo well  $345^{\circ}$ , miles 3; Tar Rang Dahar (large village)  $152^{\circ}$ , miles  $5\frac{1}{2}$ ; Marwar village  $258^{\circ}$ , miles 5; and Juma well  $69^{\circ}$ , miles 2. It is identical with the Revenue Survey station of the same name.

XIII. Jeysulmere Hill Station, lat.  $26^{\circ} 5'$ , long.  $69^{\circ} 54'$ —observed at in 1877—was situated on the highest elevated sand knoll of the Jeysulmere draen (a tract of shifting sand) which extends for a space of about 50 square miles and has in parts sand knolls of considerable height. It was close to the Revenue Survey station of the same name. There are two wells of good water in the draen, about  $\frac{3}{4}$  and  $1\frac{1}{2}$  miles respectively W. of the site of the station, which is in the lands of Lodhar village, taluka Khipra, district Thar and Párkar.

The masonry pillar, which was surrounded by an annular wall, was solid, 5 feet deep and  $3\frac{1}{2}$  feet in diameter. It contained three mark-stones, one at the foundation, another 2 feet above it, and the third on the surface of the pillar. Lodhar village is distant 3.6 miles, azimuth  $77^{\circ}$ . This station was reported by the district officer in May 1879 to have been completely carried away by the shifting sand, the *debris* were collected and heaped together close to the original site.

XIV. Malar Hill Station, lat.  $26^{\circ} 2'$ , long.  $70^{\circ} 6'$ —observed at in 1877—is situated on the lowest and southernmost of three sand hills about a mile distant from each other, named after a hamlet about 2 miles to N.W., and 2 miles W. of the boundary between Sind and Marwar. It is in the lands of Saiadáhu village, taluka Khipra, district Thar and Párkar.

The masonry pillar, which is surrounded by an annular wall  $1\frac{1}{2}$  feet thick, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third on the surface of the pillar. Saiadáhu village, on the road from Khipra to Jeysulmere town, is distant 4 miles, azimuth  $128^{\circ}$ .

XV. Badhor Hill Station, lat.  $26^{\circ} 0'$ , long.  $70^{\circ} 20'$ —observed at in 1877—is situated on a high sand hill in division Giraub, taluka Shiu, territory Jodhpore.

The masonry pillar, which is surrounded by an annular wall  $1\frac{1}{2}$  feet thick, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third on the surface of the pillar. The azimuths and distances of the circumjacent places are:—Saijado well  $217^{\circ}$ , miles 3; and Sundra  $143^{\circ}$ , miles 10.

XVI. Ramsar Hill Station, lat.  $26^{\circ} 13'$ , long.  $70^{\circ} 2'$ —observed at in 1877—is situated on a hill 2 miles N. of the boundary between Thar and Párkar and Khairpur State. It is in lands of Wuriáhu village, Khairpur State, Sind.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third on the surface of the pillar which is flush with the hill top. The azimuths and distances of the circumjacent villages are:—Ramsar Bhil  $325^{\circ}$ , mile 1; and Wuriáhu  $175^{\circ}$ , miles 2.

XVII. Sinaba Hill Station, lat.  $26^{\circ} 12'$ , long.  $70^{\circ} 14'$ —observed at in 1877—is situated on the northern summit of a long sand ridge, about 4 miles N.E. of Khara well and a mile N.W. of the path from Saidáhu to Jeysulmere town, which passes by Khara. The nearest good water is at Saidáhu, 14 miles S.W. It is in village and division of Mehájljar, Jeysulmere State.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third on the surface of the pillar which is flush with the hill top. The azimuths and distances of the circumjacent places are:—Badhi Baor hill (close to which is the quadri-junction pillar of Thar and Párkar, Jeysulmere, Khairpur and Jodhpore)  $36^{\circ}$ , miles 4; Sundra (in Jodhpore)  $340^{\circ}$ , miles 9; and Mehájljar (in Jeysulmere)  $250^{\circ}$ , miles 12.

XVIII. Potanawári Hill Station, lat.  $26^{\circ} 24'$ , long.  $69^{\circ} 56'$ —observed at in 1877—is situated on a low sand hill 2 miles W.  $19^{\circ}$  N. of Bakshiwári village. It is in the lands of Bakshiwári village, Khairpur State, Sind.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third on the surface of the pillar which is flush with the hill top. The azimuths and distances of the circumjacent places are:—Juma wells  $332^{\circ}$ , miles 2 and 3; Chanáhu well  $116^{\circ}$ , miles 1.6; Raknáhu well  $255^{\circ}$ , miles 3.3; and Bakshiwári village  $289^{\circ}$ , miles 2.3.

XIX. Joganali Hill Station, lat.  $26^{\circ} 25'$ , long.  $70^{\circ} 6'$ —observed at in 1877—is situated on the second highest hill in the locality, about  $1\frac{1}{2}$  miles S.E. of Gauj Sing's wand and the same distance S.W. of Gagu hill which is the highest in this part of the country. It is in the lands of Sartanáhu village, Khairpur State, Sind.

The masonry pillar, which is surrounded by an annular wall, is solid,  $3\frac{1}{2}$  feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another  $1\frac{1}{2}$  feet above it, and the third  $3\frac{1}{2}$  feet above, on the surface of the pillar which is flush with the ground. Azimuth and distance of Sartanáhu village are  $54^{\circ}$ , miles 4.8.

XX. Kardo Hill Station, lat.  $26^{\circ} 24'$ , long.  $70^{\circ} 17'$ —observed at in 1877—is situated on a long sand ridge running N.E. and S.W. in the lands of Kardo (Karora) village, division Mchájliar, Jeysulmere State.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third on the surface of the pillar which is flush with the hill top. The azimuths and distances of the circumjacent places are:—Pochina well  $350^{\circ}$ , miles 2; Komprajro Par  $27^{\circ}$ , miles  $8\frac{1}{2}$ ; and Kardo or Karora village  $204^{\circ}$ , miles 2.2.

XXI. Sanahu Hill Station, lat.  $26^{\circ} 34'$ , long.  $70^{\circ} 1'$ —observed at in 1877—is situated on a sand hill conspicuous from its having several large trees on it, about  $\frac{1}{3}$  of a mile N.E. of a well so called, and 2 miles S. of the boundary between Khairpur and Jeysulmere. To the west, north and south there are extensive draens. It is in the lands of Sanahu village, Khairpur State, Sind.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar. The azimuth and distance of Sumráhu village are  $353^{\circ}$ , miles  $5\frac{1}{2}$ .

XXII. Arrabbit Hill Station, lat.  $26^{\circ} 34'$ , long.  $70^{\circ} 12'$ —observed at in 1877—was situated on a long sand hill, about 200 yards N.E. of the boundary between Jeysulmere and Khairpur, and 4 miles N.E. of Sonhar village. It is in the lands of Shem village, Jeysulmere State.

The masonry pillar, which was surrounded by an annular wall, was solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contained three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar which was flush with the hill top. The azimuths and distances of the circumjacent villages are:—Petrio  $49^{\circ}$ , miles  $2\frac{1}{2}$ ; and Sumráhu  $61^{\circ}$ , miles 12. This station was reported in 1880 by the District Officer as totally destroyed.

XXIII. Harnáo Hill Station, lat.  $26^{\circ} 44'$ , long.  $69^{\circ} 59'$ —observed at in 1877—was situated on the highest knoll of the draen called after the well of Harnáo about  $1\frac{1}{2}$  miles east. It was in the lands of Harnáo village, taluka Sháhgarh, Jeysulmere State.

The masonry pillar, which was surrounded by an annular wall, was solid, 5 feet deep and  $3\frac{1}{2}$  feet in diameter. It contained three mark-stones, one at the foundation, another 2 feet above it, and the third flush with the surface of the pillar. The directions and distances of the circumjacent places are:—Harnhár conspicuous sand-hill N.N.E., miles 4; Saunhar well E.N.E., miles 8; and Kharodi well W., mile 1. This station was reported by Major Rogers in 1880 to have been completely carried away by the shifting sand.

XXIV. Dhanono Hill Station, lat.  $26^{\circ} 45'$ , long.  $70^{\circ} 13'$ —observed at in 1877—is situated on the highest part of a long sand ridge, about 5 miles N.W. of Dhanono well, 9 miles E.S.E. of Saunhar well, and 8 miles S.S.W. of Bhoiána well. It is in the lands of Dhanono village, division Shem, Jeysulmere State.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar.

XXV. Bándri Hill Station, lat.  $26^{\circ} 55'$ , long.  $69^{\circ} 52'$ —observed at in 1877—is situated on a sand hill, which, though low, is the highest for some miles around. It is in the midst of draens, the largest of which is to the west and extends to the foot of the station hill. Saira well is 4.7 miles to the west. The station is in the lands of Bándri well, division Sháhgarh, Jeysulmere State.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar.

XXVI. Ráviláhu Hill Station, lat.  $26^{\circ} 52'$ , long.  $70^{\circ} 5'$ —observed at in 1877 and 1880—is situated on the highest sand hill in the vicinity. Ráviláhu fresh water well is distant 1.5 miles and Saunhar well 5.7 miles. It is in the lands of Ráviláhu well, taluka Sháhgarh, Jeysulmere State.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar. When again visited in 1880 for continuing the Series northwards, the station was found in good order and the upper mark-stone intact, and no alteration in its construction is stated to have been made.

**XXVII.** Máhu Hill Station, lat.  $27^{\circ} 5'$ , long.  $69^{\circ} 48'$ —observed at in 1880—is situated on a sand hill which is also called Ramúwáribhit from the toba (or tank) of that name at its N.W. foot. About  $3\frac{1}{4}$  miles W. of Máhu well. Maiha conspicuous Tar tree on a draen is distant 4 miles. The station is in the lands of Máhu well, taluka Sháhgarh, Jeysulmere State.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{3}{4}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar.

**XXVIII.** Girája Hill Station, lat.  $27^{\circ} 2'$ , long.  $70^{\circ} 3'$ —observed at in 1880—is situated on a high sand hill 8 miles S.S.W. of the village of Sháhgarh, and 3 miles E. of Girája well. It is in the lands of Girája well, taluka Sháhgarh, Jeysulmere State.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{3}{4}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar.

**XXIX.** Máringra Hill Station, lat.  $26^{\circ} 59'$ , long.  $70^{\circ} 15'$ —observed at in 1880—is situated on the highest part of a long sand hill, 4.6 miles S. of Mírwála well; and about 3 miles W. of Máringra well. It is in the lands of Máringra well, taluka Shem, Jeysulmere State.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{3}{4}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar.

**XXX.** Singra Hill Station, lat.  $27^{\circ} 14'$ , long.  $70^{\circ} 1'$ —observed at in 1880—stands on a rather conspicuous sand hill midway between the villages of Sháhgarh and Gotaru, the road between them passing by the eastern base of the hill. The nearest fresh water is obtained from a small well on the north side of the Sháhgarh draen, distant about 6 miles. The station is in the lands of Sháhgarh village, taluka Sháhgarh, Jeysulmere State.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{3}{4}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar. The directions and distances of the following places are:—Gotaru fort N., miles 8; and Sháhgarh village S., miles 8.

**XXXI.** Asu Hill Station, lat.  $27^{\circ} 11'$ , long.  $70^{\circ} 13'$ —observed at in 1880—is situated on a sand hill known in the neighbourhood as Báwalwála, which has several of equal or even greater height near it. The road from Gotaru to Jeysulmere, *viá* Khiwála, passes about 8 miles N. Asu well is distant about 5 miles. The station is in the lands of Asu well, taluka Khiwála (Kháro), Jeysulmere State.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{3}{4}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar.

**XXXII.** Bitri Hill Station, lat.  $27^{\circ} 23'$ , long.  $69^{\circ} 59'$ —observed at in 1880—is situated on a sand hill locally known as Saian-ki-Khabri, about  $1\frac{1}{2}$  miles S. of the path from Gotaru to Mitrau in Sind, and 4 miles E. of the Sind boundary. Gotaru fort and village, the nearest places for water, are about  $7\frac{1}{2}$  miles S.E. by E. The station is in the lands of Gotaru village, taluka Gotaru, Jeysulmere State.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{3}{4}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar.

**XXXIII.** Parethal Hill Station, lat.  $27^{\circ} 22'$ , long.  $70^{\circ} 8'$ —observed at in 1880—is situated on the highest sand hill in the neighbourhood, which is not much above the general level of the country, about  $\frac{1}{2}$  mile E. of the path from Gotaru to Hingora well. Gotaru fort, at which fresh water is obtained, is distant 5 miles S.W. The station is in the lands of Gotaru village, taluka Gotaru, Jeysulmere State.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{3}{4}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar.

**XXXIV.** Kolu Hill Station, lat.  $27^{\circ} 25'$ , long.  $70^{\circ} 20'$ —observed at in 1880—is situated on a low sand hill locally called Baurawála, about  $2\frac{1}{2}$  miles E. of Kolu well, and 7 miles distant in the same direction from Hassu and Hakara wells. It is in the lands of Kolu well, taluka Khiwála (Kháro), Jeysulmere State.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{3}{4}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar.

XXXV. Chauki Hill Station, lat.  $27^{\circ} 34'$ , long.  $69^{\circ} 56'$ —observed at in March and December 1880—is situated on the top of the sand hill which rises about 120 feet above the adjacent hollows. Fresh water is available from the Kiridi wells, 12 miles to N. The station is in Deh Sutiýáro, taluka Mirpur, district Shikárpur.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{4}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar. When again visited in December 1880 for continuing the Series northwards, "the station was evidently in perfect order, and the upper mark-stone intact," and no alteration in its construction is stated to have been made. The directions and distances of the circumjacent places are:—Ditta-ka-Toba N.E., mile  $\frac{3}{4}$ ; Korárdara N.W., miles 3; Sháhbáz Khán Wali Toba S.S.W., miles 2; Bandli N., miles 9; and Sone-ka-Dara (Daro Sono) W.S.W., miles 2.

XXXVI. Kháro Hill Station, lat.  $27^{\circ} 33'$ , long.  $70^{\circ} 8'$ —observed at in 1880—is situated on a flat-topped sand hill called by the natives Koudiwáladara from the tank at its northern base. The road from Kháro to Bandli in Sind passes 2 miles S. of the station. Kháro ruined fort is distant  $3\frac{3}{4}$  miles S.S.E., and Hingora well 7 miles S. Drinking water must be brought from Hassu well, about 12 miles S.E. It is in the lands of Hingora village, taluka Khiwála (Kháro), Jeysulmere State.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{4}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar.

XXXVII. Morgich Hill Station, lat.  $27^{\circ} 35'$ , long.  $70^{\circ} 17'$ —observed at in 1880—is situated on a small sand hill west of and close to the track from Kolu well to Khaigarh in Sind, and about 5 miles N. of the Karibhar well. It is in the lands of Karibhar well, taluka Khiwála (Kháro), Jeysulmere State.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{4}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar.

XXXVIII. Trisingh Hill Station, lat.  $27^{\circ} 42'$ , long.  $70^{\circ} 8'$ —observed at in March and December 1880—is situated on the northernmost of three high sand hills of that name lying together in the heart of the desert, far from any place. The station is built 200 yards S. of the declivity. The hill is a narrow ridge, 120 feet high, and steep except on the south side; a stone on the boundary of Sind and Jeysulmere, at the S.W. foot of the hill, is distant 1,105 feet W.S.W. from the station. Good water is available from the Kiridi and Sand (Khaigarh) wells in Sind, distant 16 and 14 miles respectively. The station is in the lands of Hingora well, taluka Khiwála (Kháro), Jeysulmere State.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{4}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar. The approximate directions and distances of the circumjacent places are:—Islám-ka-Tarái S. by W., miles 3 or 4; Kardo W. by S., miles 3 or 4; and Band Lodi E.N.E., miles 3 or 4. When again visited in December 1880 for continuing the Series northwards, it is presumed from the absence of any remarks in the original records that the station was found in good order and the upper mark-stone intact; and that no alteration in its construction was made.

XXXIX. Thar Muhávi Hill Station, lat.  $27^{\circ} 42'$ , long.  $69^{\circ} 43'$ —observed at in 1880—is situated on the northern summit of the sand hill of that name which rises to a height of about 100 feet above its base,  $1\frac{1}{2}$  miles S.S.W. from the present hamlet. It is in the lands of Saranwáro village, Deh Sutiýáro, taluka Mirpur, district Shikárpur.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{4}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar. The directions and distances of the circumjacent places are:—Saranwáro village N.N.E., miles  $1\frac{1}{2}$ ; Yáru Lund N.W., miles  $9\frac{1}{4}$ ; and Thar Bangáhu well W., miles  $1\frac{1}{2}$ .

XL. Kirariwáro Hill Station, lat.  $27^{\circ} 46'$ , long.  $69^{\circ} 52'$ —observed at in 1880—is situated on the sand hill locally known as Kír-ri-wáro, about 80 feet high, which stands out from the more desert tract to the south-east, in the Patti or low ground which is still occasionally reached by the (Sind) inundation, and is called Kirari and Kanderawála. It is in Deh Sutiýáro, taluka Mirpur, district Shikárpur.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{4}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar. The directions and distances of the circumjacent places are:—Bandli S.S.E., miles 5; and Janganwáli N.N.E., miles 6.

**XL I.** Mári Hill Station, lat.  $27^{\circ} 51'$ , long.  $69^{\circ} 46'$ —observed at in 1880—is situated on the top of a large sand ridge about 70 feet above the plain, known as Daro Mári from an old deserted hamlet at its south-west foot. It is in the lands of Bhághibhit, Deh Sutiyáro, taluka Mirpur, district Shikárpur.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar. The directions and distances of the circumjacent places are:—Yáru Lund W.S.W., miles 8; Bhághibhit S.S.E., mile 1; Chanesar E.N.E., miles 5; Cháudan N.N.W., miles 9; and Simna or Sinwála N.E., mile 1.

**XLII.** Yáru Hill Station, lat.  $27^{\circ} 55'$ , long.  $69^{\circ} 51'$ —observed at in 1880—is situated on a sand hill, locally known as Chor-ka-Dara, rising about 70 feet above the adjacent ground to its N. and W. It is in Deh Sutiyáro, taluka Mirpur, district Shikárpur.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar. The directions and distances of the circumjacent places are:—Reti Railway Station N. by E., miles  $12\frac{1}{2}$ ; Cháudan Imámwáh W.N.W., miles  $8\frac{1}{2}$ ; Chanesar S.S.W., miles  $2\frac{1}{2}$ ; and Khenju N.E. by E., miles  $5\frac{1}{2}$ .

**XLIII.** Núrpír Hill Station, lat.  $27^{\circ} 55'$ , long.  $70^{\circ} 2'$ —observed at in 1880—is situated on the present central summit of the somewhat isolated sand hill of that name which rises to a height of about 120 feet above the ground at its base, about  $1\frac{1}{2}$  miles W. by S. of Khairgarh fort, and 330 feet S.S.W. of the piles of old bricks supposed to mark the grave of Núrpír, after whom the place is named. It is in the lands of Deh Poh, taluka Mirpur, district Shikárpur.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{2}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar. The directions and distances of the circumjacent places are:—Khenju W.N.W., miles 7; Sand wells S.S.E., miles 2; and Kháugarh village N., miles  $2\frac{1}{2}$ .

**XLIV.** Vijnot Tower Station, lat.  $28^{\circ} 2'$ , long.  $69^{\circ} 53'$ —observed at in 1880 and 1881—stands on one of the highest mounds of the ruins of the ancient Hindu town of Vijnot, 3·8 miles S. by W. from the Railway Station of Reti. It is in Deh Vijnot, taluka Mirpur, district Shikárpur.

The station consists of a tower of sun-dried bricks set in mud cement, 20 feet square at base and 14 feet square at top, enclosing a central, perforated pillar of masonry 13 feet high. There are two marks, one engraved on stone is imbedded in the floor (15 feet above ground level) and the other, cut on a large brick, is 3 feet below it in the foundation of the pillar. A vaulted passage especially constructed for the purpose gives access to the upper mark. When again visited in 1881, the station was found in good preservation, the upper mark-stone intact, and no alteration in its construction is stated to have been made. The directions and distances of the circumjacent places are:—Reti village N.W., miles 4·2; and Reninadi W., miles  $3\frac{1}{2}$ .

**XLV.** Longwáli Hill Station, lat.  $28^{\circ} 2'$ , long.  $70^{\circ} 2'$ —observed at in 1881—is situated on the N.N.W. summit of the somewhat isolated sand ridge which rises to a height of 80 or 90 feet above the low ground at its base on three sides, *viz.*, the western, northern and eastern. The ridge is known as Rabbanwála Tibba, and among the Játs as Lániwáli Muhár, and is about  $1\frac{3}{4}$  miles N.E. by E. from the pond called Longwáli Taláí, and 11 miles E.S.E. from the Reti Railway Station. The station is in the lands of Lakhíwáh village, tahsíl Sádikabad, Baháwalpur State.

The masonry pillar, which is surrounded by an annular wall, and a platform of earth and brushwood, is solid, 10 feet high and  $3\frac{1}{2}$  feet in diameter. It contains five mark-stones, one at its upper surface, and four others at 4, 7, 9 and 10 feet below it respectively.

**XLVI.** Vín Tower Station, lat.  $28^{\circ} 7'$ , long.  $69^{\circ} 57'$ —observed at in 1881—is built on a small mound on the northern edge of the southern branch of the rice fields, about a mile S.E. of the Indus Valley State Railway, and 750 yards S.E. by E. from the old masonry well of Vín deserted village. It is in the lands of Sabzalwáli village, tahsíl Sádikabad, Baháwalpur State.

The station consists of a tower of sun-dried bricks set in mud cement  $16\frac{1}{2}$  feet square at base and about 14 feet square at top, enclosing a central, perforated pillar of masonry. There are two mark-stones, one 0·2 foot below the floor level, and the other 2·75 feet below it in the foundation of the pillar. A vaulted passage especially constructed for the purpose gives access to the upper mark. The directions and distances of the circumjacent places are:—Reti Railway Station W.S.W., miles 3·8; Dhandi village N.N.W., miles 2·7; and Kalaudar Sháh's tomb S.E. by S., miles 1·1.

**XLVII.** Got Mír Muhammad Hill Station, lat.  $28^{\circ} 8'$ , long.  $70^{\circ} 3'$ —observed at in 1881—is situated on the northern end of a low sand ridge, perhaps better known as Dhandhi Tálিবwáli, from the slight hollow or low ground so called to the N.N.E., and otherwise named Wáhi Uhde Dás from a masonry well of that name about 1 mile to N.W. and  $1\frac{1}{2}$  miles E.N.E. of Got Jumma village. The station is named after Got Mír Muhammad, a hamlet about a mile N.W. by W. and near the brick well of Uhde Dás. The sand ridge may be about 20 feet above the adjacent low ground. Formerly it was called after Músa Máchi who occupied both ends of the ridge and a hamlet to the N.E. The station is in the lands of Got Mír Muhammad village, tahsíl Sádikabad, Baháwalpur State.

The masonry pillar, which is surrounded by an annular wall, is solid, 3 feet deep and  $3\frac{1}{4}$  feet in diameter. It contains three mark-stones, one at the foundation, another 1 foot above it, and the third at the surface of the pillar. The azimuth and distance of Wallár Railway Station are  $168^{\circ} 38'$  and miles 4.4.

**XLVIII.** Dewari Tower Station, lat.  $28^{\circ} 9'$ , long.  $69^{\circ} 50'$ —observed at in 1881—is built on the top of an old earthen watch-tower of Abdul Khair Dahar of Ubauro, which stands on an irregular mound long used for a graveyard, and named after one Mahmúd Bádala. It is in the lands of Dewari village, taluka Ubauro, district Shikárpur.

The masonry pillar, which is enclosed in a tower of sun-dried bricks set in mud cement, 18 feet square at base and 14 feet square at top, is solid, 16 feet high and  $3\frac{1}{4}$  feet in diameter at top. It carries a mark at its top and others below, the number and their distances are not forthcoming. The directions and distances of the circumjacent places are:—Dewari village S.E., 0.6 mile; Kádu Rind (Juna) hamlet W.N.W., about 500 yards; Ubauro W. by N.,  $3\frac{1}{4}$  miles; and Reti Railway Station S.E.,  $6\frac{1}{4}$  miles.

**XLIX.** Kot Sabzal Tower Station, lat.  $28^{\circ} 13'$ , long.  $69^{\circ} 56'$ —observed at in 1881—is built on the mound which once formed the south-western round tower or bastion of the fort or fortified town of this name, and immediately over the new bridge across the Sabzalwáh canal at the S.W. corner of the place. The station is about 28 feet high above the level of the adjacent flat ground. It is in the lands of Kot Sabzal village, tahsíl Sádikabad, Baháwalpur State.

The isolated masonry pillar which is enclosed in a tower of sun-dried bricks set in mud cement, 14 feet square, is solid, 8 feet high and  $3\frac{1}{4}$  feet in diameter at top, built on the top of the old tower which was cut down to afford a level platform. The pillar has a mark on its upper surface and others below it, the number and the relative distances apart of these are not forthcoming.

**L.** Kubba Tower Station, lat.  $28^{\circ} 12'$ , long.  $69^{\circ} 44'$ —observed at in 1881—is built on a low mound about 30 yards N.E. of another such mound said to be the site of a ruined kubba (tomb or mausoleum) of Walla Kalál. The remains of a well are to be seen between the two mounds. The station is a few yards E. of the road, 3.2 miles N.W. of Ubauro. It is in the lands of Lángha village, taluka Ubauro, district Shikárpur.

The perforated masonry pillar which is enclosed in a tower of sun-dried bricks set in mud cement, of the usual dimensions, is 21 feet high above the floor of the vaulted passage. It contains two marks engraved on bricks, one in the floor and the other in the foundation 2 feet below it. A vaulted passage especially constructed for the purpose gives access to the upper mark. The directions and distances of the circumjacent places are:—Basti Jiwan Sháh N.W., miles 3; and Ubauro S.E., miles 3.

**LI.** Ghundi Tower Station, lat.  $28^{\circ} 15'$ , long.  $69^{\circ} 50'$ —observed at in 1881—is built on the south bank of the canal called (Abul Khair) Dahrwáh, about 28 feet above its bed, and 150 yards S.E. of a rough stone set up on its N. bank, said to mark the tenth mile-stone. It lies 1 mile S.W. by S. from the old Ghundi graveyard. It is in the lands of Ghundi village, taluka Ubauro, district Shikárpur.

The station consists of a tower of sun-dried bricks set in mud cement, 21 feet square at base, 15 feet square at top, enclosing a central, perforated pillar of masonry 21 feet high. The upper surface of the pillar is 18.8 feet above the mark imbedded in the floor of the vaulted passage, this mark is 3 inches below the floor level, a second mark-stone is in the foundation 1 foot below the upper mark. A vaulted passage especially constructed for the purpose gives access to the upper mark.

**LIX.**—(*Of the Great Indus Series*). Máchka Tower Station, lat.  $28^{\circ} 20'$ , long.  $69^{\circ} 42'$ —observed at in 1859, 1861 and 1881—is built on an island near the left bank of the Indus, or on a flat between the present main channel and the Kirár and Gudu branches, about 7 miles south of Kasmor. The flat is annually flooded during the inundation. The station is in the lands of Máchka village, tahsíl Sádikabad, Baháwalpur State.

The station as originally constructed in 1859 and 1861 consists of a tower of sun-dried bricks set in mud cement, enclosing a central, perforated pillar of masonry 24.6 feet high above the mark-stone at the ground level. When again visited in

1881, for the purpose of closing the Eastern Sind Meridional Series, the tower although somewhat settled and split, was found in a very serviceable condition, and the mark-stone at the floor level appeared unaltered. The pillar had however become inclined to the S.S.E., so that it was necessary to enlarge the perforation on the N.N.E. side to a depth of about 2 or 3 feet from the top of the pillar to allow of the mark-stone being plumbed over. The isolation and stability of the pillar were tested and seemed sufficiently perfect, and no alteration in the construction of the station was made. The directions and distances of the circumjacent places are :—Máchka (the present site of) S.E. by E., miles  $1\frac{1}{2}$ ; Daulatpur N.E., miles  $1\frac{1}{2}$ ; and Kharor W.S.W., mile 1.

LXII.—(*Of the Great Indus Series*). Dáowála Tower Station, lat.  $28^{\circ} 20'$ , long.  $69^{\circ} 53'$ —observed at in 1860-61 and 1881—is situated on low flat marshy ground of the Dhora Simna. It lies about  $1\frac{3}{4}$  miles N.E. from Dáowála village, the same distance N.N.W. of Mubárah Bhára, a mile E. from the head of the Sabzalwáh canal. It is in Mauza Dáowála, tahsil Sádikabad, Baháwalpur State.

The station as originally constructed in 1860-61 consists of a tower of sun-dried bricks and mud cement built on an artificial basement 8 feet high and 23 feet square, enclosing a central, perforated pillar of masonry 22·4 feet high and  $3\frac{1}{2}$  feet in diameter at top, having a mark-stone at its floor level. The station was visited by Captain Rogers in 1880 who identified and restored it; but the records do not say in what condition it was found. When again visited in 1881, for the purpose of closing the Eastern Sind Meridional Series, the station was in the same state as left by Captain Rogers. The top of the pillar was found deflected a couple of inches to north, but no alteration in the construction of the station was made. The directions and distances of the circumjacent places are :—Khambra S.W., miles  $3\frac{1}{2}$ ; and Kot Sabzal S.S.E., miles 9·3.

January, 1887.

W. H. COLE,

*In charge of Computing Office.*



## EASTERN SIND MERIDIONAL SERIES.

## PRINCIPAL TRIANGULATION. TRIANGLES.

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle	Distance		
				Log. feet	Feet	Miles
1	Rojhra, LXXV	.69	60 25 37.02	5.0107656	102509.9	19.415
	Sandohar, LXXVIII	.69	68 39 56.15	5.0405528	109787.5	20.793
	Bhádi, V	.69	50 54 26.83	4.9613162	91477.9	17.325
2	Sandohar, LXXVIII	.65	66 39 2.35	5.0220269	105202.7	19.925
	Bhádi, V	.65	49 53 29.89	4.9426978	87639.1	16.598
	Narthal, IV	.65	63 27 27.76	5.0107656	102509.9	19.415
3	Rojhra, LXXV	.34	46 47 48.73	4.8242060	66712.3	12.635
	Sandohar, LXXVIII	.34	44 57 20.76	4.8106689	64664.9	12.247
	Fulrá, I	.34	88 14 50.51	4.9613162	91477.9	17.325
4	Fulrá, I	.25	39 13 54.28	4.6899756	48975.1	9.276
	Sandohar, LXXVIII	.26	81 16 52.42	4.8838957	76541.3	14.496
	Chánga, II	.25	59 29 13.30	4.8242060	66712.3	12.635
5	Chánga, II	.29	84 46 38.51	4.9273848	84602.8	16.023
	Sandohar, LXXVIII	.28	60 1 9.47	4.8668065	73587.9	13.937
	Patatouk, III	.28	35 12 12.02	4.6899756	48975.1	9.276

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

2. Stations Rojhra, LXXV and Sandohar, LXXVIII, appertain to the Karachi Longitudinal Series.

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle			Distance		
			o	'	"	Log. feet	Feet	Miles
6	Patatonk, III	.37	73	40	56.39	4.9426978	87639.1	16.598
	Sandohar, LXXVIII	.36	38	25	36.27	4.7540044	56755.0	10.749
	Narithal, IV	.36	67	53	27.34	4.9273848	84602.8	16.023
7	Narithal, IV	.58	54	30	57.50	4.9507019	89269.3	16.907
	Bhádi, V	.58	51	49	21.78	4.9354085	86180.4	16.322
	Rupihar, VII	.59	73	39	40.72	5.0220269	105202.7	19.925
8	Bhádi, V	.46	45	29	7.05	4.8445843	69917.2	13.242
	Rupihar, VII	.46	68	56	55.78	4.9614544	91507.0	17.331
	Kanakotri, VIII	.46	65	33	57.17	4.9507019	89269.3	16.907
9	Kanakotri, VIII	.32	71	47	47.47	4.8870873	77105.8	14.603
	Rupihar, VII	.32	48	43	50.28	4.7853817	61007.3	11.554
	Bhitla, X	.32	59	28	22.25	4.8445843	69917.2	13.242
10	Rupihar, VII	.43	58	5	34.30	4.8911247	77826.0	14.740
	Bhitla, X	.43	64	39	21.33	4.9183152	82854.3	15.692
	Mangtor, IX	.42	57	15	4.37	4.8870873	77105.8	14.603
11	Narithal, IV	.42	49	24	7.70	4.8468162	70277.5	13.310
	Rupihar, VII	.42	61	59	19.05	4.9122945	81713.6	15.476
	Hatodan, VI	.43	68	36	33.25	4.9354085	86180.4	16.322
12	Hatodan, VI	.35	76	1	34.51	4.9183152	82854.3	15.692
	Rupihar, VII	.34	48	34	37.31	4.8063336	64022.6	12.126
	Mangtor, IX	.34	55	23	48.18	4.8468162	70277.5	13.310
13	Bhitla, X	.40	82	32	10.24	4.9775322	94958.1	17.984
	Mangtor, IX	.40	43	6	33.65	4.8158980	65448.3	12.396
	Thakur, XII	.40	54	21	16.11	4.8911247	77826.0	14.740
14	Mangtor, IX	.41	49	41	17.96	4.8637806	73077.0	13.840
	Thakur, XII	.40	48	3	51.22	4.8530313	71290.4	13.502
	Narhar, XI	.41	82	14	50.82	4.9775322	94958.1	17.984
15	Mangtor, IX	.44	92	47	51.98	5.0337371	108078.0	20.469
	Bhitla, X	.43	41	12	39.70	4.8530313	71290.4	13.502
	Narhar, XI	.44	45	59	28.32	4.8911247	77826.0	14.740
16	Narhar, XI	.43	60	41	1.09	4.9089662	81089.8	15.358
	Thakur, XII	.44	67	31	27.75	4.9341767	85936.3	16.276
	Malar, XIV	.43	51	47	31.16	4.8637806	73077.0	13.840
17	Thakur, XII	.44	57	3	26.89	4.8944387	78422.2	14.853
	Malar, XIV	.45	62	44	33.89	4.9194466	83070.5	15.733
	Badhor, XV	.45	60	11	59.22	4.9089662	81089.8	15.358
18	Badhor, XV	.41	55	49	56.68	4.8740247	74821.2	14.171
	Malar, XIV	.42	64	1	50.01	4.9100832	81298.6	15.397
	Sinaba, XVII	.42	60	8	13.31	4.8944387	78422.2	14.853
19	Malar, XIV	.33	56	8	31.47	4.8309009	67748.7	12.831
	Sinaba, XVII	.34	57	21	1.59	4.8369072	68692.2	13.010
	Ramsar, XVI	.34	66	30	26.94	4.8740247	74821.2	14.171
20	Narhar, XI	.42	46	38	47.17	4.8332637	68118.3	12.901
	Malar, XIV	.43	66	48	52.81	4.9350780	86114.9	16.310
	Jeysulmere, XIII	.42	66	32	20.02	4.9341767	85936.3	16.276

NOTE.—Station Sandohar, LXXVIII, appertains to the Karachi Longitudinal Series.

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle			Distance		
						Log. feet	Feet	Miles
21	Jeysulmere, XIII	.32	61	11	26.48	4.8369072	68692.2	13.010
	Malar, XIV	.31	58	28	38.29	4.8249502	66826.7	12.657
	Ramsar, XVI	.31	60	19	55.23	4.8332637	68118.3	12.901
22	Ramsar, XVI	.40	77	11	24.97	4.9539220	89933.6	17.033
	Sinaba, XVII	.40	55	32	19.76	4.8810635	76043.7	14.402
	Joganali, XIX	.39	47	16	15.27	4.8309009	67748.7	12.831
23	Sinaba, XVII	.33	41	55	1.28	4.7795551	60194.3	11.400
	Joganali, XIX	.33	51	36	23.35	4.8489289	70620.2	13.375
	Kardo, XX	.34	86	28	35.37	4.9539220	89933.6	17.033
24	Kardo, XX	.28	56	58	45.87	4.7952603	62410.9	11.820
	Joganali, XIX	.28	69	3	7.04	4.8420730	69514.1	13.166
	Arrabhit, XXII	.27	53	58	7.09	4.7795551	60194.3	11.400
25	Joganali, XIX	.24	57	5	2.67	4.7626542	57896.8	10.965
	Arrabhit, XXII	.24	58	6	11.78	4.7675583	58554.2	11.090
	Sanahu, XXI	.25	64	48	45.55	4.7952603	62410.9	11.820
26	Ramsar, XVI	.30	45	32	0.02	4.7561450	57035.5	10.802
	Joganali, XIX	.30	62	23	3.37	4.8501258	70815.1	13.412
	Potanawári, XVIII	.31	72	4	56.61	4.8810635	76043.7	14.402
27	Potanawári, XVIII	.25	54	43	25.70	4.7675583	58554.2	11.090
	Joganali, XIX	.25	72	36	6.51	4.8353293	68443.0	12.963
	Sanahu, XXI	.25	52	40	27.79	4.7561450	57035.5	10.802
28	Arrabhit, XXII	.31	96	47	52.10	4.9735898	94100.1	17.822
	Sanahu, XXI	.31	45	32	40.16	4.8302269	67643.6	12.811
	Dhanono, XXIV	.30	37	39	27.74	4.7626542	57896.8	10.965
29	Sanahu, XXI	.37	53	51	39.78	4.8829032	76366.6	14.463
	Dhanono, XXIV	.38	41	47	58.26	4.7995300	63027.5	11.937
	Harnáo, XXIII	.38	84	20	21.96	4.9735898	94100.1	17.822
30	Sanahu, XXI	.29	99	24	20.33	4.9651481	92288.6	17.479
	Arrabhit, XXII	.28	42	21	27.83	4.7995299	63027.5	11.937
	Harnáo, XXIII	.28	38	14	11.84	4.7626542	57896.8	10.965
31	Harnáo, XXIII	.29	53	5	46.18	4.7980562	62814.0	11.897
	Dhanono, XXIV	.29	50	27	6.84	4.7822645	60571.0	11.472
	Ráviláhu, XXVI	.30	76	27	6.98	4.8829032	76366.6	14.463
32	Dhanono, XXIV	.32	50	52	6.51	4.8212126	66254.1	12.548
	Ráviláhu, XXVI	.33	81	47	18.96	4.9270439	84536.4	16.011
	Máringra, XXIX	.32	47	20	34.53	4.7980562	62814.0	11.897
33	Ráviláhu, XXVI	.28	64	59	12.14	4.8288056	67422.6	12.769
	Máringra, XXIX	.27	52	4	35.94	4.7685622	58689.8	11.115
	Girája, XXVIII	.28	62	56	11.92	4.8212126	66254.1	12.548
34	Máringra, XXIX	.35	70	11	36.01	4.8965141	78797.8	14.924
	Girája, XXVIII	.35	56	11	39.32	4.8425614	69592.3	13.180
	Asu, XXXI	.34	53	36	44.67	4.8288056	67422.6	12.769
35	Girája, XXVIII	.36	55	22	29.83	4.8445434	69910.7	13.241
	Asu, XXXI	.36	56	34	38.89	4.8506973	70908.3	13.430
	Singra, XXX	.37	68	2	51.28	4.8965141	78797.8	14.924

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle		Distance			
					Log. feet	Feet	Miles	
36	Harnáo, XXIII	"	°	'	"			
	Ráviláhu, XXVI	.31	59	41	54.21	4.8353579	68447.5	12.964
	Bándri, XXV	.31	70	28	51.62	4.8734507	74723.4	14.152
37	Ráviláhu, XXVI	.30	49	49	14.17	4.7822645	60571.0	11.472
	Bándri, XXV	.29	66	17	28.79	4.8450562	69993.3	13.256
	Girája, XXVIII	.29	50	9	4.10	4.7685622	58689.8	11.115
38	Bándri, XXV	.29	63	33	27.11	4.8353579	68447.5	12.964
	Girája, XXVIII	.36	70	10	32.07	4.8990446	79258.3	15.011
	Máhu, XXVII	.35	53	38	48.41	4.8315765	67854.2	12.851
39	Máhu, XXVII	.35	56	10	39.52	4.8450562	69993.3	13.256
	Girája, XXVIII	.41	51	10	5.47	4.8506973	70908.3	13.430
	Singra, XXX	.42	68	17	21.36	4.9272108	84568.9	16.017
40	Asu, XXXI	.41	60	32	33.17	4.8990446	79258.3	15.011
	Singra, XXX	.33	53	10	19.69	4.8144245	65226.6	12.354
	Parethal, XXXIII	.34	67	44	37.73	4.8774719	75417.5	14.284
41	Singra, XXX	.33	59	5	2.58	4.8445434	69910.7	13.241
	Parethal, XXXIII	.22	49	35	11.26	4.7144157	51810.3	9.813
	Bitri, XXXII	.22	56	58	7.01	4.7562482	57049.0	10.805
42	Bitri, XXXII	.23	73	26	41.73	4.8144245	65226.6	12.354
	Parethal, XXXIII	.27	85	7	36.09	4.8990670	79262.4	15.012
	Kháro, XXXVI	.26	54	14	3.13	4.8098817	64547.8	12.225
43	Bitri, XXXII	.26	40	38	20.78	4.7144157	51810.3	9.813
	Kháro, XXXVI	.35	53	8	55.88	4.8313570	67819.9	12.845
	Chauki, XXXV	.36	57	35	23.77	4.8546231	71552.2	13.552
44	Kháro, XXXVI	.36	69	15	40.35	4.8990670	79262.4	15.012
	Chauki, XXXV	.31	80	54	58.28	4.9149085	82207.0	15.569
	Trisingh, XXXVIII	.31	44	31	51.26	4.7662962	58384.3	11.058
45	Asu, XXXI	.31	54	33	7.46	4.8313570	67819.9	12.845
	Parethal, XXXIII	.38	43	6	11.72	4.8141024	65178.2	12.344
	Kolu, XXXIV	.39	84	38	57.74	4.9775849	94969.7	17.987
46	Parethal, XXXIII	.39	52	14	50.54	4.8774719	75417.5	14.284
	Kolu, XXXIV	.32	74	10	15.05	4.8933572	78227.1	14.816
	Kháro, XXXVI	.32	52	32	46.52	4.8098817	64547.8	12.225
47	Kolu, XXXIV	.32	53	16	58.43	4.8141024	65178.2	12.344
	Kháro, XXXVI	.24	38	54	0.09	4.6919359	49196.7	9.318
	Morgieh, XXXVII	.25	54	13	13.59	4.8031683	63557.7	12.037
48	Morgieh, XXXVII	.25	86	52	46.32	4.8933572	78227.1	14.816
	Kháro, XXXVI	.22	59	51	59.42	4.7662962	58384.3	11.058
	Trisingh, XXXVIII	.22	73	21	3.43	4.8107521	64677.3	12.249
49	Chauki, XXXV	.21	46	46	57.15	4.6919359	49196.7	9.318
	Trisingh, XXXVIII	.44	67	48	44.58	4.9390614	86908.3	16.460
	Kirariwáro, XL	.43	51	2	25.65	4.8632235	72983.3	13.823
50	Trisingh, XXXVIII	.44	61	8	49.77	4.9149085	82207.0	15.569
	Núrpir, XLIII	.43	51	45	14.85	4.8656989	73400.5	13.902
		.44	59	49	40.91	4.9074048	80798.8	15.303
		.44	68	25	4.24	4.9390614	86908.3	16.460

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle			Distance		
						Log. feet	Feet	Miles
51	Kirariwáro, XL	.24	51	3	12.44	4.7593006	57451.4	10.881
	Núrpir, XLIII	.23	45	24	44.43	4.7210583	52608.8	9.664
	Yáru, XLII	.24	83	32	3.13	4.8656989	73400.5	13.902
52	Chauki, XXXV	.33	43	45	36.33	4.7730187	59295.1	11.230
	Kirariwáro, XL	.34	77	53	9.75	4.9233583	83822.1	15.875
	Thar Muhári, XXXIX	.33	58	21	13.92	4.8632235	72983.3	13.823
53	Thar Muhári, XXXIX	.21	46	27	37.14	4.6787272	47723.0	9.038
	Kirariwáro, XL	.21	69	17	33.91	4.7894477	61581.1	11.663
	Mári, XLI	.21	64	14	48.95	4.7730187	59295.1	11.230
54	Mári, XLI	.13	77	3	55.81	4.7210583	52608.8	9.664
	Kirariwáro, XL	.13	40	47	31.43	4.5473432	35264.9	6.679
	Yáru, XLII	.13	62	8	32.76	4.6787272	47723.0	9.038
55	Núrpir, XLIII	.22	90	57	38.80	4.8751873	75021.8	14.209
	Yáru, XLII	.21	39	4	15.33	4.6747832	47291.5	8.957
	Longwáli, XLV	.21	49	58	5.87	4.7593006	57451.4	10.881
56	Yáru, XLII	.17	39	23	47.76	4.6906722	49053.8	9.290
	Longwáli, XLV	.17	36	41	35.20	4.6644730	46182.0	8.747
	Vijnót, XLIV	.18	103	54	37.04	4.8751873	75021.8	14.209
57	Yáru, XLII	.21	78	28	3.26	4.8203681	66125.4	12.524
	Núrpir, XLIII	.20	43	10	50.53	4.6644730	46182.0	8.747
	Vijnót, XLIV	.21	58	21	6.21	4.7593006	57451.4	10.881
58	Longwáli, XLV	.10	47	39	44.63	4.5604538	36345.8	6.884
	Vijnót, XLIV	.10	46	16	27.77	4.5506311	35532.9	6.730
	Vín, XLVI	.11	86	3	47.60	4.6906722	49053.8	9.290
59	Vijnót, XLIV	.12	61	37	39.30	4.6434436	43999.1	8.333
	Vín, XLVI	.12	71	45	4.25	4.6766104	47400.9	8.994
	Dewari, XLVIII	.12	46	37	16.45	4.5604538	36345.8	6.884
60	Vín, XLVI	.11	54	51	23.65	4.5786282	37899.0	7.178
	Dewari, XLVIII	.10	53	27	39.80	4.5709870	37238.1	7.053
	Kot Sabzal, XLIX	.11	71	40	56.55	4.6434436	43999.1	8.333
61	Longwáli, XLV	.08	50	45	52.37	4.4918012	31031.4	5.877
	Vín, XLVI	.08	66	44	51.07	4.5659586	36809.4	6.971
	Got Mír Muhammad, XLVII	.08	62	29	16.56	4.5506311	35532.9	6.730
62	Got Mír Muhammad, XLVII	.09	55	49	48.72	4.5709870	37238.1	7.053
	Vín, XLVI	.09	80	34	52.92	4.6473891	44400.6	8.409
	Kot Sabzal, XLIX	.09	43	35	18.36	4.4918012	31031.4	5.877
63	Dewari, XLVIII	.09	60	29	14.99	4.5642507	36664.9	6.944
	Kot Sabzal, XLIX	.09	55	24	53.25	4.5401566	34686.2	6.569
	Ghundi, LI	.09	64	5	51.76	4.5786282	37899.0	7.178
64	Kot Sabzal, XLIX	.10	45	42	26.15	4.5466178	35206.1	6.668
	Ghundi, LI	.11	86	5	44.76	4.6908285	49071.4	9.294
	Dáowála, LXII	.10	48	11	49.09	4.5642507	36664.9	6.944
65	Ghundi, LI	.14	85	58	0.17	4.7780783	59989.9	11.362
	Dáowála, LXII	.14	58	12	3.93	4.7085244	51112.2	9.680
	Máchka, LIX	.14	35	49	55.90	4.5466178	35206.1	6.668

Note.—Stations Máchka, LIX and Dáowála, LXII, appertain to the Great Indus Series.

No. of Triangle	Station	Spherical Excess	Corrected Plane Angle			Distance		
						Log. feet	Feet	Miles
66	Dewari, XLVIII	·09	63	42	35'37	4·5686747	37040'3	7·015
	Ghundi, LI	·09	59	11	39'49	4·5500413	35484'7	6·721
	Kubba, L	·08	57	5	45'14	4·5401566	34686'2	6·569
67	Kubba, L	·14	71	50	13'20	4·7085244	51112'2	9·680
	Ghundi, LI	·14	64	38	43'25	4·6867335	48610'9	9·207
	Máchka, LIX	·13	43	31	3'55	4·5686747	37040'3	7·015

NOTE.—Station Máchka, LIX, appertains to the Great Indus Series.

February, 1887.

W. H. COLE,

In charge of Computing Office.

EASTERN SIND MERIDIONAL SERIES.

SECONDARY TRIANGULATION. TRIANGLES.

PRINCIPAL-AUXILIARY STATIONS AND INTERSECTED POINTS.

Differences between the common sides of two triangles to stations and intersected points, are shown by the small figures in the column for "Distance in Feet" between the data of the two triangles, the earlier of which in order has supplied the greater value: these differences have been apportioned between the 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	
68	Sandohar, LXXVIII	0 1 11	4 791476	61869	11 718	73	Bhadi, V	0 7 36	4 809827	64510	12 223	Theodolite used
	Narthal, IV	10 31 48	4 463865	20098	5 511		h.s.	46 25 1	4 736150	54469	10 310	
	Drabi	146 36 16	4 942698	87639	16 598		"	74 27 23	4 860005	72444	13 721	
69	Sandohar, LXXVIII	43 47 7	4 924936	83953	15 900	74	Pajali Jalinthal	20 8 50	4 349984	22386	4 240	"
	Bhadi, V	h.s.	4 463865	29098	5 511		h.s.	63 4 5	4 763022	57046	10 975	
	Drabi	122 20 17	5 010766	102510	19 415		"	h.s.	4 809827	64540	12 223	
70	Narthal, IV	44 2 58	4 679487	47806	9 054	75	Pajali Haraba Hill Mark	70 59 13	4 767944	58606	11 100	"
	Drabi	h.s.	4 815083	63226	12 372		h.s.	69 11 40	4 598731	39695	7 518	
	Lehari Hill Mark	71 49 5	4 791476	61869	11 718		"	h.s.	4 763022	57946	10 975	
71	Sandohar, LXXVIII	47 23 43	4 815083	63226	12 372	76	Naraba Hill Mark	13 1 0	4 504277	31036	6 048	"
	Narthal, IV	33 31 10	4 690293	49911	9 282		h.s.	24 24 52	4 767944	58606	11 100	
	Lehari Hill Mark	h.s.	4 942698	87639	16 598		"	h.s.	4 656117	45302	8 580	
72	Sandohar, LXXVIII	43 56 24	4 860005	72444	13 721	77	Narthal, IV	46 44 5	4 656117	45302	8 580	"
	Bhadi, V	35 8 16	4 778784	60087	11 380		h.s.	49 16 45	4 673483	47150	8 930	
	Pajali	h.s.	5 010766	102510	19 415		"	h.s.	4 791476	61869	11 718	

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

Station Sandohar, LXXVIII, appertains to the Karachi Longitudinal Series.

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	
78	Narthal, IV Pajali Kalibhar Hill Mark	h.s. 60 45 33	4 710807 4 673483 4 598731	51382 47150 39695	9 731 8 930 7 518	Inch 7 "	Bhitala, X Thakur, XII Turiharo Hill Mark	91	71 43 47 58 30 42	4 910721 4 864006 4 815898	81418 73115 65448	15 420 13 848 12 396	Inch 24 "
79	Bhadi, V Pajali Chanda Hill Mark	h.s. 61 31 45	4 405213 4 808425 4 800005	25422 64332 72444	4 815 12 184 13 721	" " "	Narhar, XI Thakur, XII Turiharo Hill Mark	92	75 40 31 43 54 26	4 910721 4 765480 4 863781	81418 58275 73077	15 420 11 037 13 840	" " "
80	Sandohar, LXXVIII Pajali Chanda Hill Mark	h.s. 39 23 35	4 405213 4 638893 4 778784	25422 43540 60087	4 815 8 246 11 380	" " "	Bhitala, X Thakur, XII Somo Hill Mark	93	30 15 10 30 23 42	4 577841 4 570684 4 815898	37830 37991 65448	7 165 7 195 12 396	" " "
81	Bhadi, V Pajali Kaloji Hill Mark	h.s. 31 33 28	4 680108 4 605988 4 800005	47885 40363 72444	9 069 7 645 13 721	" " "	Thakur, XII Badhor, XV Chapti Hill Mark	94	94 6 27 13 30 45	4 939198 4 308895 4 919447	86936 20305 83070	16 465 3 857 15 733	" " "
82	Bhadi, V Pajali Intadi Hill Mark	h.s. 19 2 9	4 849939 4 375486 4 800005	70785 23740 72444	13 406 4 496 13 721	" " "	Bhitala, X Thakur, XII Chapti Hill Mark	95	14 27 23 38 53 29	4 308895 4 700429 4 815898	20365 51219 65448	3 857 9 701 12 396	" " "
83	Pajali Jalialhal Intadi Hill Mark	h.s. 87 2 11	4 513190 4 849939 4 809887	32598 70785 64540	6 174 13 406 12 223	" " "	Bhitala, X Thakur, XII Chutra Hill Mark	96	21 6 44 71 49 15	4 373006 4 794230 4 815898	23605 62263 65448	4 471 11 792 12 396	" " "
84	Bhadi, V Jalialhal Mirg-dahar Hill Mark	h.s. 32 35 10	4 538008 4 806727 4 736150	34515 64081 54469	6 537 12 136 10 316	" " "	Malar, XIV Badhor, XV Kotank Hill Mark	97	72 18 19 43 15 17	4 918119 4 775012 4 894439	82817 59568 78422	15 685 11 282 14 853	" " "
85	Bhadi, V Rupihar, VII Mirg-dahar Hill Mark	h.s. 41 3 1	4 617496 4 806727 4 950702	41447 64081 89269	7 850 12 136 16 907	" " "	Thakur, XII Badhor, XV Kotank Hill Mark	98	80 56 22 16 56 43	4 918119 4 388148 4 919447	82817 24443 83070	15 685 4 629 15 733	" " "
86	Rupihar, VII Jalialhal Draba Hill Mark	h.s. 95 46 43	4 691443 4 478081 4 555820	49141 30066 35960	9 307 5 694 6 811	" " "	Malar, XIV Badhor, XV Piraharu Hill Mark	99	58 39 40 42 26 18	4 834151 4 731812 4 894439	68258 53928 78422	12 928 10 214 14 853	7 24
87	Hatodan, VI Rupihar, VII Karura	s. 42 54 6	5 011136 4 845175 4 840816	102597 70012 70277	19 431 13 200 13 310	24 " "	Thakur, XII Badhor, XV Piraharu Hill Mark	100	49 3 14 17 45 42	4 834151 4 440399 4 919447	68258 27508 83070	12 928 5 221 15 733	" " "
88	Narthal, IV Hatodan, VI Karura	s. 58 24 19	4 845175 4 547006 4 912295	70012 35238 81714	13 260 6 674 15 476	" " "	Narhar, XI Jaysulmere, XIII Dhangar	101	47 48 1 37 18 34	4 806367 4 710220 4 935078	64088 52387 86115	12 126 9 922 16 310	" " "
89	Hatodan, VI Karura Umarkot	s. 19 16 4	4 397632 4 752698 4 845175	24982 56595 70012	4 721 10 717 13 260	" " "	Jaysulmere, XIII Malar, XIV Dhangar	102	29 13 46 68 30 54	4 526041 4 806367 4 833264	33577 64028 68118	6 359 12 901 12 126	" " "
90	Karura Umarkot Mahadeo Temple	s. 109 59 0	4 376836 4 601770 4 397632	23814 39973 24982	4 510 7 571 4 731	" " "	Narhar, XI Dhangar Ghorikan Hill Mark	103	78 24 14 28 57 54	4 730532 4 424581 4 719220	53769 26582 52387	10 184 5 034 9 922	7

NOTE.—Station Sandohar, LXXVIII, appertains to the Karachi Longitudinal Series.

\* Base deduced by two sides and included angle.



SECONDARY TRIANGULATION. TRIANGLES.

No. of Triangle	Station	Corrected Plane Angle	Distance			No. of Triangle	Station	Corrected Plane Angle	Distance			Theodolite used
			Log. feet	Feet	Miles				Log. feet	Feet	Miles	
104	Malar, XIV Ramsar, XVI Durawari Hill Mark	32 20 6 23 3 34	4.649712	44639	8.454	117	Bándri, XXV Ráviláhu, XXVI Raili S. Tree	14 48 12 9 8 10	4.634471	43099	8.163	Inch 24 "
			4.514403	32689	6.101				4.427874	26784	5.073	
			4.836907	68692	13.010				4.835358	68448	12.964	
105	Jeysulmere, XIII Ramsar, XVI Durawari Hill Mark	40 48 45 37 16 22	4.649712	44639	8.454	118	Bándri, XXV Girajá, XXVIII Raili N. Tree	33 57 3 17 56 55	4.606129	40674	9.408	"
			4.616002	41302	7.834				4.437902	27410	5.191	
			4.824950	66827	12.657				4.845056	69993	13.256	
106	Jeysulmere, XIII Ramsar, XVI Hadai Hill Mark	82 5 13 14 57 46	4.824091	66695	12.632	119	Ráviláhu, XXVI Girajá, XXVIII Raili N. Tree	56 0 9 45 36 32	4.696129	49674	9.408	"
			4.240188	17386	3.293				4.631594	42815	8.109	
			4.824950	66827	12.657				4.768562	58690	11.115	
107	Malar, XIV Ramsar, XVI Khara Hill Mark	50 55 52 44 28 10	4.728919	53570	10.146	120	Girajá, XXVIII Máringra, XXIX Jushbi-ka Kandi Tree	47 15 28 30 26 28	4.704834	50680	9.598	"
			4.684265	48335	9.154				4.543603	34963	6.622	
			4.836907	68692	13.010				4.828806	67423	12.769	
108	Ramsar, XVI Sinaba, XVII Khara Hill Mark	22 2 17 48 0 31	4.432075	27044	5.122	121	Ráviláhu, XXVI Máringra, XXIX Jushbi-ka Kandi Tree	44 18 16 21 38 8	4.704834	50680	9.598	"
			4.728919	53570	10.146				4.427360	26752	5.067	
			4.836907	67749	12.831				4.821213	66254	12.548	
109	Jeysulmere, XIII Ramsar, XVI Júbo-Khipra Boundary Pillar	10 57 56 33 12 46	4.261037	18241	3.455	122	Bándri, XXV Girajá, XXVIII Malarwali Tree	58 8 54 46 21 56	4.788263	61413	11.631	"
			4.720306	52525	9.943				4.718735	52328	9.911	
			4.824950	66827	12.657				4.845056	69993	13.256	
110	Jeysulmere, XIII Ramsar, XVI Bulaj-jo Kandi Hill Mark	12 50 7 23 9 55	4.402370	25256	4.783	123	Bándri, XXV Máhu, XXVII Malarwali Tree	12 1 38 33 10 53	4.299365	19923	3.773	"
			4.650543	44724	8.471				4.718735	52328	9.911	
			4.824950	66827	12.657				4.831577	67854	12.851	
111	Joganali, XIX Kardo, XX Júbo-Mchajilar Boundary Pillar	34 9 35 55 3 36	4.528947	33802	6.402	124	Máringra, XXIX Asu, XXXI Drunge-ka Khair Tree	43 41 35 50 9 59	4.682892	48183	9.126	"
			4.693278	49349	9.346				4.728800	53555	10.143	
			4.779555	60194	11.400				4.842561	69592	15.180	
112	Sinaba, XVII Kardo, XX Júbo-Mchajilar Boundary Pillar	22 52 11 31 25 0	4.528947	33802	6.402	125	Girajá, XXVIII Máringra, XXIX Drunge-ka Khair Tree	50 47 33 26 30 1	4.728800	53555	10.143	"
			4.656455	43337	8.587				4.489107	30839	5.841	
			4.848929	70620	13.375				4.828806	67423	12.769	
113	Joganali, XIX Kardo, XX Phata Dara	43 10 48 48 45 49	4.615047	41214	7.806	126	Girajá, XXVIII Sinagra, XXX Hakara Tree	54 21 33 47 1 6	4.769239	58781	11.133	"
			4.650621	45292	8.578				4.723574	52914	10.022	
			4.779555	60194	11.400				4.850697	79008	13.430	
114	Joganali, XIX Arrabbhit, XXII Phata Dara	25 52 19 42 22 51	4.467171	20321	5.553	127	Máhu, XXVII Girajá, XXVIII Hakara Tree	24 32 26 13 55 49	4.723574	52914	10.022	"
			4.650621	45292	8.578				4.486723	30671	5.809	
			4.795260	62411	11.820				4.899045	79258	15.011	
115	Bándri, XXV Ráviláhu, XXVI Harauthar Hill Mark (heliotrope)	31 43 43 65 53 22	4.560108	38317	6.878	128	Girajá, XXVIII Sinagra, XXX Maihatar Tree	55 32 56 58 18 14	4.805720	63932	12.108	"
			4.799564	63032	11.938				4.819323	65966	12.494	
			4.835358	68448	12.964				4.850697	79008	13.430	
116	Harnáo, XXIII Bándri, XXV Harauthar Hill Mark (heliotrope)	52 53 44 18 5 31	4.799564	63032	11.938	129	Bándri, XXV Girajá, XXVIII Maihatar Tree	54 12 51 66 23 15	4.819323	65966	12.494	"
			4.869935	24543	4.648				4.872217	74510	14.112	
			4.873451	47722	11.152				4.845056	69993	13.256	

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			
130	Giraja, XXVIII	28	4	25	4.622664	41943	7.944	Inch	143	Morgoch, XXXVII	34	9	11	4.548507	35360	6.607	Inch
	Singra, XXX	24	38	15	4.570014	37155	7.037	24		Khán-ka-dari	96	42	42	4.796244	62552	11.847	7
	Gāju Pir	127	17	20	4.850697	79908	13.430	7		Hadawáro Tree	41	12	41	4.548507	47632	9.021	24
131	Singra, XXX	17	44	36	4.304912	20180	3.822	24	144	Parethal, XXXIII	37	5	51	4.510170	32372	6.131	7
	Gāju Pir	21	33	38	4.386202	24333	4.609	7		Khán-ka-dari	37	5	51	4.510170	32372	6.131	7
	Nandawáli	140	41	46	4.622664	41943	7.944	"		Hadawáro Tree	41	12	41	4.548507	47632	9.021	24
132	Giraja, XXVIII	17	12	58	4.386202	24333	4.609	24	145	Kháro, XXXVI	12	55	12	4.365972	23226	4.399	24
	Singra, XXX	42	22	51	4.743040	55417	10.496	"		Kháro	155	40	13	4.631402	42796	8.105	"
	Nandawáli	140	41	46	4.622664	41943	7.944	"		Dáud-mohár Kandí Tree	137	11	51	4.447209	28003	5.304	7
133	Gāju Pir	39	9	32	4.187034	15383	2.913	7	146	Kháro	34	18	7	4.365972	23226	4.399	"
	Nandawáli	16	46	28	3.846983	7030	1.332	"		Dáud-mohár Kandí Tree	137	11	51	4.447209	28003	5.304	7
	Sháhgarh Fort Mark	4	30	49	4.304912	20180	3.822	"		Kháro	34	18	7	4.365972	23226	4.399	"
134	Asu, XXXI	58	30	12	4.922689	83693	15.851	24	147	Parethal, XXXIII	42	13	10	4.646660	44326	8.395	24
	Kolu, XXXIV	16	51	45	4.454419	28472	5.392	"		Kháro, XXXVI	59	40	33	4.755412	56939	10.784	"
	Somarwáli Tree	4	97	55	4.975585	94970	17.987	"		Gorári Tree	47	49	40	4.581737	38171	7.229	"
135	Singra, XXX	68	44	28	4.814161	65187	12.346	"	148	Kháro, XXXVI	59	23	16	4.646661	44326	8.395	"
	Asu, XXXI	19	25	8	4.366523	23255	4.404	"		Morgoch, XXXVII	52	0	3	3.682880	4818	0.913	7
	Bhopath	4	8	44	4.844543	69911	13.241	"		Gorári Tree	42	52	42	3.619135	4160	0.788	"
136	Singra, XXX	32	20	34	4.285117	19280	3.652	24	149	Kháro	42	52	42	3.784767	6092	1.154	"
	Bhopath	107	28	15	4.536266	34377	6.511	7		Kháro Fort Mark	31	58	0	4.600800	39884	7.554	24
	Jhetir	40	11	11	4.366523	23255	4.404	"		Lona Náiro Tree	89	4	21	4.876938	75325	14.266	"
137	Singra, XXX	36	23	54	4.671248	46908	8.884	24	150	Parethal, XXXIII	42	12	15	4.711499	51464	9.747	"
	Asu, XXXI	25	46	38	4.536266	34377	6.511	7		Kolu, XXXIV	79	29	50	4.876938	75325	14.266	"
	Jhetir	117	49	28	4.844543	69911	13.241	"		Lona Náiro Tree	42	12	15	4.711499	51464	9.747	"
138	Bhopath	80	24	26	4.363335	23085	4.372	"	151	Parethal, XXXIII	42	12	15	4.711499	51464	9.747	"
	Jhetir	44	9	20	4.212440	16309	3.089	"		Kolu, XXXIV	79	29	50	4.876938	75325	14.266	"
	Gotaru Fort Mark	4	28	51	4.285117	19280	3.652	"		Lona Náiro Tree	42	12	15	4.711499	51464	9.747	"
139	Parethal, XXXIII	59	5	43	4.766793	58451	11.070	24	152	Morgoch, XXXVII	52	53	21	4.583937	38365	7.266	"
	Kolu, XXXIV	73	5	30	4.703688	50476	9.560	7		Khári-ká-dari	29	2	25	4.368344	23353	4.423	"
	Kháro	4	81	102	4.814102	65178	12.344	"		Hassi Máli Tree	52	22	22	4.577315	37785	7.156	"
140	Parethal, XXXIII	15	4	32	4.312797	20549	3.892	24	153	Morgoch, XXXVII	59	57	3	4.566226	39466	7.475	"
	Kháro, XXXVI	39	42	30	4.703688	50476	9.560	"		Kháro	30	48	36	4.368344	23353	4.423	"
	Kháro	4	81	102	4.809882	64548	12.225	"		Hassi Máli Tree	45	22	22	4.577315	37785	7.156	"
141	Kolu, XXXIV	43	38	56	4.677900	47632	9.021	"	154	Kirariwáro, XL	52	21	26	4.623657	42039	7.962	"
	Morgoch, XXXVII	69	16	34	4.809851	64548	12.224	"		Yáru, XLII	45	22	22	4.577315	37785	7.156	"
	Khári-ka-dari	4	80	3168	4.803168	63558	12.037	"		Baghi Bhit Tree	52	21	26	4.623657	42039	7.962	"
142	Parethal, XXXIII	65	28	6	4.809851	64543	12.224	"	155	Trisingh, XXXVIII	50	3	57	4.799415	63011	11.934	"
	Kolu, XXXIV	47	47	51	4.720624	52550	9.954	"		Núrpur, XLIII	50	26	14	4.801756	63351	11.998	"
	Khári-ka-dari	4	81	102	4.814102	65178	12.344	"		Karimáad Khán	79	29	49	4.907405	80799	15.303	6

\* Base deduced by two sides and included angle.

No. of Triangle	Station	Corrected Plane Angle	Distance			Theodolite used	No. of Triangle	Station	Corrected Plane Angle	Distance			Theodolite used
			Log. feet	Feet	Miles					Log. feet	Feet	Miles	
156	Núrpir, XLIII	66 26 45	4' 675716	47393	8' 976	Inch	169	Gof Mir Muhammad, XLVII	44 18 50	4' 508394	32240	6' 106	Inch
	Longwáli, XLV	47 23 20	4' 580355	38550	7' 206	24		Kot Sabzal, XLIX	29 51 35	4' 361285	22977	4' 352	"
	Khenju Tree	4' 674783	47292	8' 957	"	Walhar Tower		4' 647389	44401	8' 409	"	"	
157	Yáru, XLII	34 39 51	4' 580355	38550	7' 206	"	170	Longwáli, XLV	42 44 5	4' 620767	41761	7' 909	"
	Núrpir, XLIII	24 30 54	4' 443398	27759	5' 257	Vin, XLVI		101 59 49	4' 779559	60195	11' 401	"	
	Khenju Tree	4' 759301	57451	10' 881	"	Walhar Mosque		4' 550631	35533	6' 730	"		
158	Mári, XLI	73 25 36	4' 646255	44285	8' 387	"	171	Vin, XLVI	35 14 58	4' 385546	24207	4' 602	"
	Yáru, XLII	56 49 22	4' 587399	38672	7' 324	Gof Mir Muhammad, XLVII		97 15 52	4' 620767	41761	7' 909	"	
	Chándan Mosque	4' 547343	35265	6' 679	"	Walhar Mosque		4' 491801	31031	5' 877	"		
159	Vijnot, XLIV	59 55 6	4' 580776	38087	7' 213	"	SEHWAN						10
	Longwáli, XLV	37 50 1	4' 478498	30095	5' 700	"							
	Máringra Hill Mark (heliotrope)	4' 690672	49054	9' 290	"								
160	Núrpir, XLIII	48 52 8	4' 572425	37362	7' 076	"	SECONDARY SERIES.						10
	Longwáli, XLV	58 41 34	4' 627169	42381	8' 027	"							
	Kot Liyém Fort Mark (heliotrope)	4' 674783	47292	8' 957	"								
161	Vijnot, XLIV	82 51 25	4' 602729	40062	7' 587	"	172	Ramsar, XVI	32 32 59	4' 597920	39620	7' 504	"
	Vin, XLVI	32 57 29	4' 341731	21965	4' 160	Potanawári, XVIII		41 31 47	4' 688631	48824	9' 247	"	
	Reti Mark	4' 560454	36346	6' 884	"	Kharandi		105 55 14	4' 850126	70815	13' 412	"	
162	Vin, XLVI	38 47 35	4' 449677	28163	5' 334	"	173	Potanawári, XVIII	91 12 39	4' 969189	93151	17' 642	"
	Dewari, XLVIII	63 1 32	4' 602729	40062	7' 587	Kharandi		63 37 24	4' 921542	83472	15' 809	"	
	Reti Mark	4' 643444	43999	8' 333	"	Chanrohi		25 9 57	4' 597920	39620	7' 504	"	
163	Vin, XLVI	46 22 5	4' 524932	33491	6' 343	"	174	Kharandi	39 9 47	4' 773799	59402	11' 250	"
	Dewari, XLVIII	25 35 52	4' 300856	19992	3' 786	Chanrohi		58 48 28	4' 905592	80462	15' 239	"	
	Reti Tower	4' 643444	43999	8' 333	"	Shafwári		82 1 45	4' 969189	93151	17' 642	"	
164	Vijnot, XLIV	25 6 48	4' 300856	19992	3' 786	"	175	Shafwári	92 47 30	4' 968709	93049	17' 623	"
	Vin, XLVI	25 22 59	4' 305191	20193	3' 824	Chanrohi		47 35 33	4' 837497	68786	13' 028	"	
	Reti Tower	4' 560454	36346	6' 884	"	Siyahwáro		39 36 57	4' 773799	59402	11' 250	"	
165	Vin, XLVI	41 4 11	4' 540017	34675	6' 567	"	176	Chanrohi	33 33 32	4' 720295	53516	9' 946	"
	Dewari, XLVIII	15 24 16	4' 146745	14020	2' 655	Siyahwáro		68 4 47	4' 945141	88134	16' 092	"	
	Dhandi House	4' 643444	43999	8' 333	"	Godarwáro		78 21 41	4' 968709	93049	17' 623	"	
166	Vin, XLVI	94 22 6	4' 544206	35011	6' 631	"	177	Siyahwáro	83 10 20	4' 900062	79444	15' 046	"
	Gof Mir Muhammad, XLVII	23 31 59	4' 146745	14020	2' 655	Godarwáro		55 48 18	4' 820227	66180	12' 534	"	
	Dhandi House	4' 491801	31031	5' 877	"	Mánuro		41 1 22	4' 720295	52516	9' 946	"	
167	Dewari, XLVIII	78 26 42	4' 561321	36418	6' 897	"	178	Godarwáro	47 25 22	4' 767312	58521	11' 084	"
	Ghandi, LI	32 37 35	4' 501930	20041	3' 796	Mánuro		h.s.	4' 742855	55317	10' 477	"	
	Ubauro Mark	4' 540157	34686	6' 569	"	Chandanhuro		88 28 0	4' 900062	79444	15' 046	"	
168	Kubba, L	74 39 44	4' 561321	36418	6' 897	"	179	Mánuro	75 23 59	4' 800456	63162	11' 963	"
	Ghandi, LI	26 34 5	4' 227632	16800	3' 199	Chandanhuro		40 53 7	4' 630652	42722	8' 091	"	
	Ubauro Mark	4' 568675	37040	7' 015	"	Kharora		63 42 54	4' 707312	58521	11' 084	"	

No. of Triangle	Station	Distance			Corrected Plane Angle	Theodolite used	No. of Triangle	Station	Corrected Plane Angle	Distance			Theodolite used
		Log. feet	Feet	Miles						Log. feet	Feet	Miles	
180	Chandahuro	h.s.	48 17 17	4' 680338	47900	9' 072	Inch	Mir-kun-ka Thal	29 36 12	4' 666110	46356	8' 780	
	Khārorā	"	51 51 49	4' 703031	50470	9' 559	10	Bago Toro	h.s.	4' 907807	80874	15' 317	
	Kerari	"	79 50 54	4' 800456	63162	11' 963	"	Sehwan	s.	4' 972339	93829	17' 771	
181	Khārorā	h.s.	68 25 27	4' 676535	47483	8' 993	"	Bago Toro	h.s.	4' 983657	96307	18' 240	
	Kerari	"	41 50 20	4' 532234	54059	6' 451	"	Sehwan	s.	4' 979064	95294	18' 048	
	Thumri	s.	69 44 13	4' 680338	47900	9' 072	"	Bārocha	h.s.	4' 666110	46356	8' 780	
182	Kernri	h.s.	55 44 30	4' 600553	39861	7' 550	"	Sehwan	s.	4' 818990	65916	12' 484	
	Thumri	s.	44 20 59	4' 527805	33714	6' 385	"	Bārocha	h.s.	4' 744394	55513	10' 514	
	Ahanwāro	h.s.	79 54 31	4' 676535	47483	8' 993	"	Akatar	s.	4' 983657	96307	18' 240	
183	Thumri	s.	89 25 36	4' 851649	71064	13' 459	"	Bārocha	h.s.	4' 929013	84920	16' 083	
	Ahanwāro	h.s.	56 27 20	4' 778554	59232	11' 218	"	Akatar	s.	5' 008176	101900	19' 299	
	Khānatār	"	34 7 4	4' 600553	39861	7' 550	"	Mir Khān, XII	s.	4' 818990	65916	12' 484	
184	Ahanwāro	h.s.	39 52 23	4' 663361	46064	8' 724	"	Akatar	s.	4' 969010	93113	17' 635	
	Khānatār	"	41 37 47	4' 678816	47733	9' 040	"	Mir Khān, XII	h.s.	4' 821452	66291	12' 555	
	Dingauwāri	s.	93 29 50	4' 851649	71064	13' 459	"	Bhif, X	"	4' 525781	33557	6' 355	
185	Khānatār	h.s.	74 59 45	4' 809534	64496	12' 215	"	Shafwāri	h.s.	4' 837497	68786	13' 028	
	Dingauwāri	s.	61 23 6	4' 768023	58617	11' 102	"	Siyāhwāri	"	4' 525781	33557	6' 355	
	Pur	h.s.	43 37 9	4' 663361	46064	8' 724	"	Chalhārhuro	"	4' 837497	68786	13' 028	
186	Dingauwāri	s.	40 32 10	4' 626727	42338	8' 019	"	Shafwāri	h.s.	4' 587147	38650	7' 320	
	Pur	h.s.	57 32 24	4' 740085	54965	10' 410	"	Chalhārhuro	"	4' 591580	39046	7' 395	
	Gachāhu	"	81 55 26	4' 809534	64496	12' 215	"	Kothio Hill Mark	"	4' 525781	33557	6' 355	
187	Gachāhu	h.s.	84 4 7	4' 802390	63444	12' 016	"	Shafwāri	h.s.	4' 341800	21968	4' 161	
	Pur	"	54 20 41	4' 714565	51828	9' 816	"	Chalhārhuro	"	4' 445332	27883	5' 281	
	Rannār	"	41 35 12	4' 626727	42338	8' 019	"	Arbāhu Hill Mark	"	4' 525781	33557	6' 355	
188	Pur	h.s.	32 34 58	4' 539785	31657	6' 564	"	Mānuro	h.s.	4' 787530	61310	11' 612	
	Rannār	"	67 4 20	4' 772843	59271	11' 226	"	Khārorā	"	4' 343461	22053	4' 177	
	Sāri	s.	80 20 42	4' 802390	63444	12' 016	"	Kuwi Mark	"	4' 030652	47722	8' 091	
189	Rannār	h.s.	68 14 54	4' 841788	69468	13' 157	"	Ahanwāro	h.s.	4' 224811	16781	3' 178	
	Sāri	s.	84 8 51	4' 871597	74404	14' 092	"	Khānatār	"	4' 917586	87715	15' 666	
	Layāri	"	27 36 15	4' 559785	34657	6' 564	"	Kāribhit Hill Mark	"	4' 678816	47733	9' 040	
190	Sāri	s.	35 2 41	4' 601433	39942	7' 565	"	Ahanwāro	h.s.	4' 797200	62690	11' 873	
	Layāri	"	57 53 28	4' 770262	58020	11' 159	"	Dingauwāri	s.	4' 917586	87715	15' 666	
	Jahājwāli	"	87 3 51	4' 841788	69468	13' 157	"	Kāribhit Hill Mark	"	4' 678816	47733	9' 040	
191	Layāri	s.	104 20 18	4' 849687	70744	13' 398	"	Khānatār	h.s.	4' 358629	18140	3' 436	
	Jahājwāli	"	42 29 56	4' 693105	49329	7' 343	"	Pur	"	4' 748120	55991	10' 604	
	Mir-kun-ka Thal	"	33 9 46	4' 601433	39942	7' 565	"	Jāmsālib Masjid	"	4' 768023	58617	11' 102	
192	Jahājwāli	s.	42 43 52	4' 972339	93829	17' 771	"	Khānatār	h.s.	4' 335992	17218	3' 261	
	Mir-kun-ka Thal	"	106 29 53	5' 122493	132585	25' 111	"	Pur	"	4' 747059	55932	10' 593	
	Bago Toro	h.s.	30 46 15	4' 849687	70744	13' 398	"	Jāmsālib Kubba	"	4' 768023	58617	11' 102	

NOTE.—Stations Bhif, X and Mir Khān, XII, appertain to the Great Indus Series.

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	
206	Ranmár Sári	h.s.	4.540145	34685	6.569	217	Páriwár Kalur	h.s.	4.855862	71757	13.590	Inch 10
	Rev. Sur. Tri-junction Pillar A	s.	3.464632	2915	5.552		Kathori	"	4.748846	56085	10.622	
			4.539785	34657	6.564				4.915727	82362	15.599	
207	Sári	s.	4.379595	23965	4.539	218	Kathori	h.s.	4.773529	59365	11.243	"
	Jahjwáli	"	4.581087	38114	7.219		Jaysulmère	s.	4.839721	69139	13.094	
208	Belo Kubba	"	4.770262	58920	11.159	219	Charu	h.s.	4.953106	89795	17.001	"
	Mir-kun-ka Thal	s.	4.640508	43703	8.277				4.756275	57053	10.805	
	Sehwan	"	4.677927	47635	9.022				4.596696	39509	7.483	
209	Daulatpur Mark (heliotrope)	"	4.907807	80874	15.317	220	Thiaiat	h.s.	4.773529	59365	11.243	"
							Asu, XXXI	s.	4.384331	24229	4.589	
							Jherua	s.	4.518124	32970	6.244	
210						221	Somarwáli Hill Mark		4.688090	48763	9.235	"
							Te	h.s.	4.381151	24052	4.555	
							Jherua	s.	4.628166	42478	8.045	
211						222	Sand Hill		4.743270	55369	10.487	"
							Asu, XXXI	s.	4.381151	24052	4.555	
							Jherua	s.	4.802589	63473	12.021	
212						223	Sand Hill		4.688090	48763	9.235	"
							Asu, XXXI	s.	4.615782	41284	7.819	
							Jherua	s.	4.893828	78312	14.832	
213						224	Mahabu Tree		4.688090	48763	9.235	"
							Chulari	h.s.	4.615782	41284	7.819	
							Jherua	s.	4.572098	37333	7.071	
214						225	Mahabu Tree		4.866250	73494	13.919	"
							Jherua	s.	4.736332	54492	10.320	
							Te	h.s.	4.895708	78652	14.896	
215						226	Bakar Hill Mark		4.743270	55369	10.487	"
							Chulari	h.s.	4.895708	78652	14.896	
							Jherua	s.	4.222594	17084	3.236	
216						227	Bakar Hill Mark		4.866250	73494	13.919	"
							Kalur	h.s.	4.757680	57237	10.840	
							Páriwár	"	4.682192	48105	9.111	
217						228	Kerda No. 1 Hill Mark		4.915727	82362	15.599	"
							Te	h.s.	4.757680	57237	10.840	
							Páriwár	"	4.648810	44546	8.437	
218						229	Kerda No. 1 Hill Mark		4.955688	90300	17.102	"
							Kalur	h.s.	4.747215	55875	10.582	
							Te	"	4.669596	40730	8.850	
219						230	Kerda No. 2 Hill Mark		4.929167	84951	16.089	"
							Kalur	h.s.	4.953106	89765	17.001	
							Te	"	4.855862	71757	13.590	
220						231	Kerda No. 2 Hill Mark		4.856876	71924	13.622	"
							Kalur	h.s.	4.953106	89765	17.001	
							Kathori	h.s.	4.856876	71924	13.622	

JEYSULMÈRE†  
SECONDARY SERIES.

† For continuation of this Series eastward and southward vide Balmir and Jaysulmère Secondary Series, page 25 of this volume.

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	
230	Pāriwār	h.s. 30 53 8	4.747215	55875	10.582	233	Kathori	° ' "	4.545450	35112	6.650	Inch
	To Kerda No. 2 Hill Mark	" 25 10 17	4.665546 4.955688	46296 93300	8.768 17.102		s. "	Jeysumere Pirwāla Hill Mark	18 18 5 35 5 49	4.808138 4.953106	64289 89765	12.176 17.001
231	Pāriwār	h.s. 21 3 30	4.326461	21206	4.016	234	Lon Charri	24 51 13	4.483296	30430	5.763	"
	Kathori Bhura Hill	" 50 48 13	4.660274 4.748846	45738 56085	8.662 10.622		h.s. "	Charu Kanod Hill Mark (heliotope)	63 9 10	4.810204 4.859472	64596 72356	12.234 13.704
232	Kathori	h.s. 23 4 40	4.433124	27110	5.134	235	Kathori	26 6 40	4.483296	30430	5.763	"
	Charu Pirwāla Hill Mark	" 68 22 0	4.808138 4.839721	64289 69139	12.176 13.094		h.s. "	Charu Kanod Hill Mark (heliotope)	63 30 18	4.791541 4.839721	61879 69139	11.719 13.094

\* Base deduced by two sides and included angle.

March, 1887.

W. H. COLE,

In charge of Computing Office.

## EASTERN SIND MERIDIONAL SERIES.

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

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

Name of station with azimuths of surrounding points	No. of triangle giving distance	Name of station with azimuths of surrounding points	No. of triangle giving distance	Name of station with azimuths of surrounding points	No. of triangle giving distance
AHANWARO h.s.	202	AST, XXXI	45 19 6	BAGO TORO h.s.	194
Kāribhit Hill Mark	183	Drunge-ka Khair Tree	48 46 21.76	Bārocha	188
Khānatar	184	Girāja, XXVIII	105 21 1.01	Sehwan	192
Dinganwāri	182	Singra, XXX	124 46 9	Mir-kun-ka Thal	192
Kerari	182	Bhopath	131 7 39	Jahājwāli	192
Thumi	182	Jhetir	158 31 21.04		
		Parethal, XXXIII	201 37 33.14		
		Kolu, XXXIV	260 7 45		
AKATAR s.	195	Sonarwāli Tree	262 16 24	BANDRI, XXV	88
Bārocha	197	Somarwāli Hill Mark	269 4 14	Māhu, XXVII	122
Bhit, X*	196	Saud Hill	269 4 14	Malarwāl Tree	129
Mir Khān, XII*	195	Jherua	288 45 54	Mallatār Tree	129
Sehwan	195	Mahabu Tree	315 44 43	Girāja, XXVIII	37
		Māringra, XXXIX	355 9 36.74	Raili North Tree	118
				Raili South Tree	117
				Rāvilāhu, XXVI	86
				Haramhār Hill Mark (helio.)	115
				Harnāo, XXIII	86
ARABHIT, XXII		BADHOB, XV	28 0 12		
Jogunali, XIX	24	Chāpti Hill Mark	41 30 56.86	BAROCHA h.s.	196
Saraha, XXI	25	Thakur, XII	58 27 40	Mir Khān, XII*	195
Harnāo, XXIII	30	Kotank Hill Mark	59 16 39	Akatar	194
Dhanoco, XXIV	28	Pirāhuru Hill Mark	101 42 56.52	Sehwan	194
Kardo, XX	24	Malar, XIV	157 32 53.61	Bago Toro	194
Phata Dara	114	Sinaba, XVII			

\* Of the Great Indus Series.

Name of station with azimuths of surrounding points	No. of triangle giv- ing distance	Name of station with azimuths of surrounding points	No. of triangle giv- ing distance	Name of station with azimuths of surrounding points	No. of triangle giv- ing distance
<b>BHADI, V</b> Katoji Hill Mark Sandohar, LXXVIII*	81	<b>CHANDANRURO</b> h.s. Khātura Kerari Godarwāro Manuro	179	<b>DEWARI, XLVIII</b> Uhuuro Mark Kubba, L Ghundi, LI Kot Sabzal, XLIX Dhandi House Vin, XLVI Reti Tower Vijnot, XLIV Reti Mark	167 68 63 60 165 59 163 59 162
40 0 1 43 14 34.80 57 7 11 58 3 13 78 22 51 93 8 5.34 137 30.27 144 57 27.70 154 54 33 170 5 37 190 26 35.21 352 20 7.28	h.s. h.s. h.s. h.s. h.s. h.s. h.s. h.s. h.s. h.s. h.s.	40 38 11 88 55 28 271 17 4 359 45 4 153 13 30.96 238 0 9.76 297 29 23.31	5 4 4	100 32 51 115 16 57.14 178 59 32.60 239 28 47.68 277 32 12 292 56 27.57 318 32 20 339 33 44.14 355 58 0	
<b>BITI, X†</b> Mir Khan, XII† Akatar	197 197	<b>CHANNORI</b> h.s. Shaifiwari Siyāhwāro Godarwāro Pofanawāri, XVIII Kharandi	174 175 176 178 173	<b>DHANGAR</b> h.s. Nadhar, XI Ghorkan Hill Mark Jaysulmere, XIII Malar, XIV	101 103 101 102
188 28 33.56 240 21 21	h.s.	8 44 21 56 19 54 89 53 26 284 45 56 309 55 53		37 16 36 66 14 30 132 10 1 244 19 21	
<b>BHOTAL, X</b> Ruphar, VII Manfor, IX Turithuro Hill Mark Narhar, XI Somo Hill Mark Chitra Hill Mark Thakar, XII Chapti Hill Mark Kanakotri, VIII	9 10 91 15 93 96 13 95 9	<b>CHAUKEI, XXXV</b> Phar Mulāri, XXXIX Kirariwāro, XL Trisingh, XXXVIII Kharo, XXXVI Bitri, XXXII	218 282 218 234 219	<b>DHANGONO, XXIV</b> Arribhit, XXII Sanahu, XXI Harnio, XXI Kāvilihu, XXVI Māringra, XXIX	28 29 29 31 32
27 15 27.54 91 54 49.30 102 43 13 133 7 29.44 144 11 50 153 20 16 174 26 59.94 188 54 23 327 47 4.98	h.s. h.s. h.s. h.s. h.s. h.s. h.s.	43 53 40 63 48 19 132 10 22 105 40 40 339 51 30 121 41 28.75 165 27 5.41 233 15 50.43 277 47 45.00 347 3 25.70	52 49 44 43 48	4 45 57.42 42 25 25.46 84 13 24.10 134 49 31.23 185 32 38.07	
<b>BITRI, XXXVII</b> Chauki, XXXV Kharo, XXXVI Parethal, XXXIII Singra, XXX	135 134 136 135	<b>CHUPHARI</b> h.s. Māringra, XXIX Muhabu Tree Jherua Bokār Hill Mark Kalur Nib	210 224 210 211 226 212 213	<b>DHABI</b> h.s. Lehari Hill Mark Kalibhar Hill Mark Narihal, IV Bhādi, V Sandohar, LXXVIII*	184 185 186 184 203
36 32 2 208 39 21 289 3 47 304 41 38	h.s.	96 35 52 126 36 39 148 32 1 195 41 24 249 51 12 237 2 35 307 26 50		0 54 32 62 17 38 102 49 48 262 24 42 358 29 12	
<b>CHADHARURO</b> h.s. Siyāhwāro Shaifiwari Arshu Hill Mark Kothio Hill Mark	198 198 200 199	<b>DAOWALA, LXII†</b> Ghundi, LI Māchka, LIX† Kot Sabzal, XLIX	64 65 64	<b>DHABI</b> h.s. Pur Ranmār Dinganwari	186 187 186
124 36 34 204 23 38 260 4 33 269 25 5	h.s. h.s.	28 49 22.63 87 1 26.70 340 37 33.44		74 9 13 96 41 33 145 58 18 237 1 45 359 22 2	70 77 68 69 68
				74 9 13 96 41 33 145 58 18 237 1 45 359 22 2	
				117 34 34.16 150 48 28.69 245 3 19.54	4 3 3

\* Of the Karachi Longitudinal Series.

† Of the Great Indus Series.



Name of station with azimuths of surrounding points	No. of triangling distance	Name of station with azimuths of surrounding points	No. of triangling distance	Name of station with azimuths of surrounding points	No. of triangling distance	Name of station with azimuths of surrounding points	No. of triangling distance
<b>GAJU PIR</b> h.s. Shiagharch Fort Mark Naudawáli Singra, XXX Goraru, XXVIII	133 131 130 130	0 ' "	137 12 11 176 21 43 197 55 21 345 12 41	<b>HATODAN, VI</b> Kapura Umarkot Mangor, IX Rupihar, VII Narthal, IV	87 89 12 11	0 ' "	68 54 9 109 5 20 153 14 40 311 4 41
<b>GHENDI, LI</b> Ubauro Mark Kubba, L Maichka, LIX* Diawala, LXII* Kot Sabzal, XLIX Dewari, XLVIII	167 66 65 64 63 63	0 ' "	31 37 4 58 11 8.96 122 49 52.34 208 47 52 66 204 53 37.52 358 59 29.38	<b>JAHAWALI, S.</b> Bago Toro Mir-kun-ka Thal Layari Sári Belo Kubba	192 191 190 190 207	0 ' "	17 44 39.39 80 7 43.06 152 43 49.82 209 48 52.73 235 41 12 278 52 0.05 313 1 35 330 28 23.73
<b>GIRAJA, XXVIII</b> Raili, North Tree Bándri, XXV Malarwáli Tree Mubha, XXVII Mathatar Tree Hakara Tree Gáju Pir Nandawáli Singra, XXX Asu, XXXI Drunge-ka Khair Tree Máringra, XXIX Jushbi-ka Kandi Tree Ráviláhu, XXVI	118 37 122 38 128 126 130 132 35 34 125 33 120 33	0 ' "	33 25 47 51 22 42.40 97 44 38 105 1 31.16 117 45 57 118 57 20 145 14 28 156 5 55 173 18 52.94 228 41 23.13 234 5 30 284 53 2.80 332 8 31 347 49 15.00	<b>JALATHAL, h.s.</b> Pajali Haraba Hill Mark Drába Hill Mark Mir-gahar Hill Mark Inradi Hill Mark Bhádi, V	73 74 86 84 83 73	0 ' "	7 20 27 77 10 19 117 32 46 140 7 50 155 17 18 182 51 8 224 49 50 302 9 30
<b>GODARWARO, S.</b> Máuro Chandanhuuro Chanrohi Siyáhwáro	177 178 176 176	0 ' "	43 56 13 91 21 35 269 40 14 348 7 55	<b>JAYSULMERE, s.</b> Hadai Hill Mark Bulni-jo Kandi Hill Mark Ramsar, XVI Jábo-Khipra Boundary Pillar Durawári Hill Mark Malar, XIV Dhangar Narhar, XI	106 110 110 109 105 20 20	0 ' "	10 27 52.82 76 1 50.45 147 49 38.24
<b>GOT MÚR, MUHAMMAD, XLVII</b> Longwáli, XLV Vin, XLVI Dhandi House Kot Sabzal, XLIX Walhar Mosque Walhar Tower	61 61 166 62 171 169	0 ' "	5 59 34.07 68 28 50.71 92 0 30 124 18 39.52 165 44 43 168 37 30	<b>JAYSULMERE, s.</b> Nib Kapur Kathori Pirwála Hill Mark Charu Thait	214 214 216 233 218 219	0 ' "	12 28 15.24 43 53 15 98 56 50.96 147 42 40 155 55 37.11
<b>HARNAO, XXIII</b> Bándri, XXV Harabár Hill Mark (helio.) Ráviláhu, XXVI Dhanono, XXIV Arrabbit, XXII Sanahu, XXI	86 116 31 29 30 29	0 ' "	151 19 25.99 204 13 10 211 1 20.50 264 7 6.97 310 13 17.19 348 27 29.31	<b>JHERVA, s.</b> Máringra, XXIX Asu, XXXI Somarwáli Hill Mark Sand Hill Te Bakár Hill Mark Chulari Mahabu Tree	209 209 220 221 221 225 210 223	0 ' "	26 15 35 105 45 24
				<b>KARURA, s.</b> Mahades Temple Hatodan, VI Rupihar, VII Narthal, IV	89 90 87 87 88	0 ' "	146 3 26 180 6 18 194 25 25 237 31 28 290 37 59

\* Of the Great India Series.

Name of station with azimuths of surrounding points	° ' "	No. of triangulation points	Name of station with azimuths of surrounding points	° ' "	No. of triangulation points	Name of station with azimuths of surrounding points	° ' "	No. of triangulation points
КАЛПОВИ h.s.	44 54 1	216	К П А Р О, XXXVI	40 18 6.28	42	ЛАХАРИ s.	95 19 7	191
Kalor h.s.	124 4 48	217	Biri, XXXII	97 53 30.41	43	Mir-kuu-ka Thal h.s.	265 29 6	189
Pirwār "	174 53 1	231	Chauki, XXXV	178 48 29.00	44	Ranmār s.	293 5 21	159
Bhura Hill	285 59 25	235	Trisingh, XXXVIII	252 9 32.65	47	Sāri "	350 58 49	190
Kanod Hill Mark (helio.)	312 6 5	218	Morgitch, XXXVII	270 35 24	150	Jahajwālī		
Charu "	335 10 45	232	Lona Nairo Tree	299 59 12	147	Lon Charri h.s.	103 47 0	234
Pirwāla Hill Mark	353 28 50	210	Gorari Tree	300 22 46.50	46	Kanod Hill Mark (helio.)		
Jaysulmere			Kolu, XXXIV	319 57 15	140			
			Kharāda	338 52 27	145			
			Dāud-mohār Kandi Tree	359 59 45.24	42			
			Farethal, XXXIII					
КЕРИБИ h.s.	30 32 35	181	К П А Р О, h.s.	100 17 34	181	LONGWALI, XLV	0 53 54.23	55
Keribi h.s.	86 17 5	182	Thumi	168 43 1	180	Nūrpār, XLIII	48 17 14	156
Ahanwāro	268 51 21	180	Kemari	220 34 50	179	Khenju Tree	49 43 35	159
Chandanwāro	348 42 15	180	Chandanwāro	284 17 44	179	Māringra Hill Mark (helio.)	50 52 0.31	55
			Mānuro	297 36 37	201	Yāru, XLII	87 33 35.69	56
			Kurji Mark			Vijnot, XLIV	135 13 20.42	58
						Vin, XLVI	177 57 25	170
КНАН-КА-ДАРИ h.s.	8 22 34	142				Walhār Mosque	185 59 13.88	61
Parethal, XXXIII	205 31 36	152				Got Mir Muhammad, XLVII	302 12 20	160
Hassi Mah Tree	234 34 1	141	К П А Р О, XL	63 18 40.72	62			
Morgitch, XXXVII	301 38 31	141	Thar Muthari, XXXIX	128 1 24	154	МАЧКА, LIX*		
Kolu, XXXIV	331 16 43	143	Baghi Blit Tree	132 36 14.84	53	Daowāla, LXII*	266 56 8.51	65
Hadawāro Tree	335 47 40	146	Māri, XLI	173 23 46.40	51	Ghundi, LI	302 46 4.55	65
Dāud-mohār Kandi Tree	344 22 15	149	Yāru, XLII	224 26 59.08	50	Kubba, L	346 17 8.23	67
Khāro Fort Mark			Nūrpār, XLIII	284 16 40.43	49			
			Trisingh, XXXVIII	345 25 30.63	49	МАНТ, XXVII		
			Chauki, XXXV			Singra, XXX	233 44 59.93	39
КНАСАРА h.s.	87 53 14	204				Hinkara Tree	260 22 40	127
Jānsāhib Masjid	88 49 49	205	К О Л У, XXXIV	4 48 46	134	Girājā, XXVIII	284 55 5.81	38
Jānsāhib Kubba	105 54 44	185	Somarwālī Tree	21 40 31.28	45	Malarwālī Tree	307 54 53	123
Fur	180 54 29	184	Ash, XXXI	73 55 22.21	45	Bāndri, XXV	341 5 45.68	38
Dinganwāri	222 32 16	183	Parethal, XXXIII	121 43 13	141			
Ahanwāro	301 39 20	183	Khān-ka-dari	121 44 9	139	МАТАРА, XIV		
Thumi	356 39 20	189	Kharāda	126 28 9.05	46	Dhangar	34 20 52	102
Kāribāt Hill Mark	351 49 25	202	Khāro, XXXVI	153 25 12	151	Nachar, XI	36 8 53.10	16
			Lona Nairo Tree	165 22 9.58	47	Jaysulmere, XIII	102 57 46.33	20
			Morgitch, XXXVII			Durawāri Hill Mark	129 6 20	104
КНАРАДА h.s.	14 45 25	139				Ramsar, XVI	161 26 24.93	19
Parethal, XXXIII	69 29 58	149	К О Т С А Р З А Л, XLIX	59 31 40.05	60	Khara Hill Mark	212 22 17	107
Khāro Fort Mark	139 58 23	140	Dewari, XLVIII	144 56 33.38	63	Sinaba, XVII	217 34 56.74	18
Hassi Mah Tree	196 42 11	153	Ghundi, LI	160 38 59.64	64	Budhor, XV	281 36 47.17	17
Kolu, XXXIV	301 39 55	139	Daowāla, LXII*	274 23 50	169	Pirāburu Hill Mark	344 16 27.99	99
Dāud-mohār Kandi Tree	344 18 10	145	Walhār Tower	304 15 24.91	62	Thakur, XII	344 21 21.50	16
			Got Mir Muhammad, XLVII	347 50 43.39	60	Kotank Hill Mark	353 55 6	97
			Vin, XLVI					
КНАВАНДИ h.s.	90 51 55	174	К У Б Б А, L	166 18 9.23	67	МАНГОТ, IX		
Chanrohi	130 1 42	173	Māchka, LIX*	238 8 22.57	66	Hatodan, VI	24 27 34.63	12
Potanawāri, XLVIII	193 39 6	172	Ghundi, LI	295 14 7.79	66	Nachar, XI	179 9 48.89	14
Ramsar, XVI	299 34 20	172	Dewari, XLVIII	312 48 7	168	Thakur, XII	228 42 7.26	13
			Ubawro Mark			Bhitala, X	271 48 41.30	10
						Rupihar, VII	329 3 46.11	10

Name of station with azimuths of surrounding points	No. of triangle giving distance	Name of station with azimuths of surrounding points	No. of triangle giving distance	Name of station with azimuths of surrounding points	No. of triangle giving distance	Name of station with azimuths of surrounding points	No. of triangle giving distance
<b>MANERO</b> h.s. Kharora Chandanuhuro Godanwaro Siyahwaro Kurji Mark	179 178 177 177 201	h.s. " h.s. " h.s. " h.s. " h.s.	104 21 7 179 45 6 223 51 44 264 53 6 324 9 50	<b>NARHAR, XI</b> Ghorakan Hill Mark Jeyulmire, XIII Malar, XIV Dhangar Thakur, XII Bhitaba, X Turiharoo Hill Mark Maungtor, IX	108 20 16 101 14 15 92 14	138 49 50 169 26 2 71 216 4 50 30 217 14 4 276 45 51 83 313 1 14 30 352 26 23 359 0 43 05	37 34 3 60 94 32 10 83 170 39 47 19 188 21 57 194 44 20 211 37 48 221 52 57 229 34 38 253 50 2 55 338 29 0 68
<b>MAR, XLI</b> Thar Mulhari, XXXIX Chandan Mosque Yaru, XLII Kirariwaro, XL	53 158 54 53	16 48 1 40 162 3 40 235 29 16 30 312 33 12 24	<b>NARHTHAL, IV</b> Lehari Hill Mark Kalibhar Hill Mark Paratank, III Karara Hatodan, VI Rupihar, VII Haraba Hill Mark Bhadi, V Pajali Drabi Sandohar, LXXXVIII†	70 77 6 88 11 7 75 2 75 68 2	9 58 35 12 39 42 44 20 52 99 110 40 32 169 4 50 68 218 28 58 80 231 29 59 272 59 56 87 300 41 39 325 55 37 330 27 25 28	PARATHAL, XXXIII Singra, XXX Bitri, XXXII Kharo, XXXVI Kharin-ka-dari Kharada Lona Nairo Tree Govani Tree Hudawaro Tree Kolu, XXXIV Asu, XXXI	215 230 227 215 231 217
<b>MARINERA, XXIX</b> Dhanono, XXIV Ravihahu, XXVI Jushibaka Kandji Tree Giraja, XXVIII Drunge-ka Khar Tree Asu, XXXI Jherua Chulari	82 32 120 33 124 34 209 210	5 33 18 87 52 53 53 72 74 32 2 104 58 29 94 131 28 31 175 10 6 29 216 54 59 276 29 17	<b>NARHAR, XI</b> Ghorakan Hill Mark Jeyulmire, XIII Malar, XIV Dhangar Thakur, XII Bhitaba, X Turiharoo Hill Mark Maungtor, IX	88 11 7 75 2 75 68 2	110 40 32 169 4 50 68 218 28 58 80 231 29 59 272 59 56 87 300 41 39 325 55 37 330 27 25 28	PARATHAL, XXXIII Singra, XXX Bitri, XXXII Kharo, XXXVI Kharin-ka-dari Kharada Lona Nairo Tree Govani Tree Hudawaro Tree Kolu, XXXIV Asu, XXXI	215 230 227 215 231 217
<b>MIR KHAN, XII*</b> Bhit, X* Akatar Baroeba	197 196 196	8 29 40 98 299 59 8 340 1 28	<b>NARHTHAL, IV</b> Lehari Hill Mark Kalibhar Hill Mark Paratank, III Karara Hatodan, VI Rupihar, VII Haraba Hill Mark Bhadi, V Pajali Drabi Sandohar, LXXXVIII†	213 213 214	127 33 38 187 19 31 237 32 59	PARATHAL, XXXIII Singra, XXX Bitri, XXXII Kharo, XXXVI Kharin-ka-dari Kharada Lona Nairo Tree Govani Tree Hudawaro Tree Kolu, XXXIV Asu, XXXI	6 5 5
<b>MIR-KUN-KA THAL</b> s. Bago Toro Selwan Daulatpur Mark (helio.) Layari Jahajwali	192 193 208 191 191	54 54 45 84 30 37 110 56 33 275 15 6 308 24 52	<b>NARHTHAL, IV</b> Lehari Hill Mark Kalibhar Hill Mark Paratank, III Karara Hatodan, VI Rupihar, VII Haraba Hill Mark Bhadi, V Pajali Drabi Sandohar, LXXXVIII†	50 51 156 57 55 160 155 50	44 31 26 66 89 56 11 33 114 27 5 133 7 2 06 180 53 50 35 229 45 58 285 40 8 336 6 21 98	PARATHAL, XXXIII Singra, XXX Bitri, XXXII Kharo, XXXVI Kharin-ka-dari Kharada Lona Nairo Tree Govani Tree Hudawaro Tree Kolu, XXXIV Asu, XXXI	113 114 113
<b>MONGIR, XXXVII</b> Gorari Tree Hadawaro Tree Khan-ka-dari Kharo, XXXVI Haasi Malli Tree Trisingh, XXXVIII Kolu, XXXIV	148 143 141 47 152 48 47	12 50 18 20 28 10 54 37 21 72 13 33 54 107 30 42 132 5 33 18 345 20 46 98	<b>NARHTHAL, IV</b> Lehari Hill Mark Kalibhar Hill Mark Paratank, III Karara Hatodan, VI Rupihar, VII Haraba Hill Mark Bhadi, V Pajali Drabi Sandohar, LXXXVIII†	78 75 74 73 82 72 81 79 72	59 58 45 120 44 18 191 43 31 211 52 21 239 15 13 268 17 22 289 50 50 319 49 7 359 12 42	PARATHAL, XXXIII Singra, XXX Bitri, XXXII Kharo, XXXVI Kharin-ka-dari Kharada Lona Nairo Tree Govani Tree Hudawaro Tree Kolu, XXXIV Asu, XXXI	172 173 27 26 26
<b>NANDAWALI</b> h.s. Shahgurb Fort Mark Singra, XXX Giraja, XXXVIII Gaju Pir	133 131 132 131	13 8 4 215 39 50 336 4 1 356 21 36	<b>NARHTHAL, IV</b> Lehari Hill Mark Kalibhar Hill Mark Paratank, III Karara Hatodan, VI Rupihar, VII Haraba Hill Mark Bhadi, V Pajali Drabi Sandohar, LXXXVIII†	78 75 74 73 82 72 81 79 72	59 58 45 120 44 18 191 43 31 211 52 21 239 15 13 268 17 22 289 50 50 319 49 7 359 12 42	PARATHAL, XXXIII Singra, XXX Bitri, XXXII Kharo, XXXVI Kharin-ka-dari Kharada Lona Nairo Tree Govani Tree Hudawaro Tree Kolu, XXXIV Asu, XXXI	188 187 186 185 186 205 204

\* Of the Great Indus Series. † Of the Karachi Longitudinal Series.

Name of station with azimuths of surrounding points	No. of triangles giving distance	Name of station with azimuths of surrounding points	No. of triangles giving distance	Name of station with azimuths of surrounding points	No. of triangles giving distance
<b>BAMBAR, XVI</b> Durawari Hill Mark Jubo-Khipra Boundary Pillar Jeysulmere, XII Hadai Hill Mark Bulai-jo Kandi Hill Mark Kharandi Potanawari, XVIII Joganali, XIX Sinaba, XVII Khara Hill Mark Malar, XIV	104 109 21 106 110 172 26 22 19 107 19	° ' " 4 28 13 8 31 49 41 44 34.73 56 42 21 64 54 30 119 37 47 152 10 46.22 197 42 40.55 274 54 11.91 296 56 29 341 24 39.19	° ' " 25 22 6.06 168 28 31.61 222 20 11.76 267 52 52.22 332 41 38.02	SANAHU, XXI Potanawari, XVIII Harano, XXIII Dhanono, XXIV Arribhit, XXII Joganali, XIX	27 29 28 25 25
<b>RANVAR h.s.</b> Sari Layari Revenue Survey Tri-junction Pillar A Gachahu Pur	188 189 206 187 187	° ' " s. s. h.s. h.s. h.s.	° ' " 58 3 20.77 109 6 24 118 4 30.52 156 30 7.15 h.s. 179 12 46 179 22 3 200 57 44 223 9 10.15 291 49 6.99 336 46 28.09	SANDONAR, LXXXVIII+ Changa, II Lehari Hill Mark Patatank, III Narthal, IV Dejali Drahi Chinda Hill Mark Bhadi, V Rojhara, LXXV+ Fulbar, I	4 71 5 2 72 68 80 1 1 3
<b>RAYLARI, XXVI</b> Harano, XXIII Karanhar Hill Mark (helio.) Bandri, XXV Kaili South Tree Rali North Tree Giraja, XXVIII Jushbi-ka Kandi Tree Maringra, XXIX Dhanono, XXIV	31 115 36 117 119 33 121 32 31	° ' " 31 3 55.97 35 39 26 101 32 47.90 110 40 58 111 50 8 117 50 16.99 188 31 13 232 49 29.40 314 36 48.69	° ' " 63 42 46 78 7 53 113 10 34 Pillar A 192 30 19 h.s. 197 19 25 277 40 7	TE h.s. Bakur Hill Mark Chulari Jhorua Sand Hill Pariwar Kenda No. 2 Hill Mark Kenda No. 1 Hill Mark Kalur	207 190 189 206 188 188 194 195 208 193 193
<b>ROJHARA, XXVII+</b> Fulbar, I Sandohar, LXXXVIII+ Bhadi, V	8 1 1	° ' " 65 7 48.01 111 55 37.09 172 21 14.80	° ' " h.s. h.s. h.s.	THAKUR, XII Somu Hill Mark Mangtor, IX Turliharo Hill Mark Chitra Hill Mark Narhar, XI Kotank Hill Mark Malar, XIV Pirahuru Hill Mark Bedhor, XV Chapri Hill Mark Bhitala, X	98 13 91 96 14 98 16 100 17 94 13
<b>RUPHAR, VII</b> Haraba Hill Mark Narthal, IV Karura Hatodan, VI Mangtor, IX Bhitala, X Dranba Hill Mark Kanakotri, VIII Mirg-dabar Hill Mark Bhadi, V	76 87 11 10 9 86 8 85 7	° ' " 14 8 17 38 33 9.48 s. 57 38 23 100 32 28.06 149 7 6.61 207 12 41.34 240 26 18 255 56 31.94 283 50 28 324 53 28.17	° ' " 37 38 37.35 46 59 8 94 59 39.28 150 31 59.44 169 34 50 192 27 1.05 337 30 23.63	THAR MUBARI, XXXIX Miri, XLI Kiranwaro, XL Chauki, XXXV	53 52 52 52

Name of station with azimuths of surrounding points	No. of triangle giving distance	Name of station with azimuths of surrounding points	No. of triangle giving distance	Name of station with azimuths of surrounding points	No. of triangle giving distance
THUMI s. Khanatar	183	UMARKOT s. Mahadeo Temple	90	VIN, XLVI Reti Mark	161
Ahanwáro	182	Karura,	89	Dewari, XLVIII	59
Kerari	181			Dhandi House	165
Kharora	181	VINOT, XLIV		Kot Sabzal, XLIX	80
		Yaru, XLIII	11 23 55.80	Walhar Mosque	170
TRISINGH, XXXVIII		Reti Mark	138 21 26	Got Mir Mulamanad, XLVII	61
Chauki, XXXV	44	Dewari, XLVIII	159 35 11.30	Longwáli, XLV	58
Kirariwáro, XL	49	Reti Tower	196 6 3		
Nurpir, XLIII	50	VIN, XLVI	221 12 50.72	YARU, XLIII	
Kartimlad Khan	155	Longwáli, XLV	267 29 18.59	Baghi Bhit Tree	154
Morgreb, XXXVII	48	Nurpir, XLIII	313 2 49.39	Mári, XLI	54
Kháro, XXXVI	44	Máingra Hill Mark (heliotrope)	318 24 25	Chándan Mosque	158
				Vijnot, XLIV	56
UMARKOT s. Hotadan, VI	89	VIN, XLVI Vijnot, XLIV Reti Tower	41 14 56.58 66 37 56	Longwáli, XLV	55
				Kheju Tree	157
				Nurpir, XLIII	51
				Kirariwáro, XL	51

April, 1887.

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

## EASTERN SIND MERIDIONAL SERIES.

## CO-ORDINATES AND DESCRIPTIONS OF ALL STATIONS AND POINTS.

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

NOTE.— $\lambda$  stands for Latitude North; L for Longitude East of Greenwich; H for Height of station in feet above mean sea level, determined trigonometrically, and  $h$  for Height of station tower or pillar above ground level. The trigonometrical heights always refer to the upper mark-stone let into the pillar when the latter is solid; and to the upper surface of the pillar, on which the theodolite stood, when the pillar is perforated or the tower is hollow. For visited stations and for other points of superior accuracy the values of  $\lambda$  and L are given to two places of decimals; for well determined objects to one place, and for the remaining points to the nearest second. Principal stations are distinguished by the Roman numerals I, II, &c., secondary stations by the letters s. and h.s. The names in italics are those of the territories, states or districts in which the stations or points are situated. The season when a station or point was fixed is given immediately after its name and description.

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Ahanwáro h.s.</b> On the highest part of a high well-known sand hill, 6 miles E. of Yabu-pir village and about the same distance N.E. of Janurahu; pargana Nara. It is denoted by a masonry pillar, 3 feet in diameter, with three mark-bricks, one at the top and the others 2 and 3 feet respectively below it. 1880-81. (<i>Khairpur State</i>).</p> <p style="text-align: center;">o ' "</p> <p><math>\lambda</math> 26 26 41'05 L 68 59 28'29 H 255 No. 182</p>	<p><b>Arbáhu Hill Mark.</b> It is identical with the Revenue Survey Station of the same name. Is on a sand hill immediately S. of the boundary line between Khairpur State and Thar and Párkár district, and is denoted by a <math>\odot</math> on a brick with charcoal below. 1880-81. (<i>Thar and Párkár</i>).</p> <p style="text-align: center;">o ' "</p> <p><math>\lambda</math> 26 12 55'68 L 69 40 58'23 H 212 No. 200</p> <p><b>Arrabhit, XXII.</b> <i>Vide page 76.</i></p> <p><math>\lambda</math> 26 34 4'40 L 70 11 59'57 H 422 <math>h</math> o No. 24</p> <p><b>Asu, XXXI.</b> <i>Vide page 76.</i></p> <p><math>\lambda</math> 27 10 32'14 L 70 13 26'85 H 479 <math>h</math> o No. 34</p>	<p><b>Badhor, XV.</b> <i>Vide page 74.</i></p> <p style="text-align: center;">o ' "</p> <p><math>\lambda</math> 25 59 48'75 L 70 20 5'37 H 485 <math>h</math> o No. 17</p> <p><b>Baghi Bhit Tree.</b> A single conspicuous tree (kandi), in the hamlet on the hill. 1880-81. (<i>Shikárpur</i>).</p> <p><math>\lambda</math> 27 50 14 L 69 46 17 H 269, base of tree No. 154</p> <p><b>Bago Toro h.s.</b> On the highest and central of three sharp little peaks, which is also the highest point of the well known hill of that name. The ascent of the hill is from the S. by the Mor-lak pass where a number of Railway Banglows have been built. The Indus flows by the foot of the hill; village Laki, tálnka Mánjhand, division Sehwan. The station is denoted by a <math>\odot</math> on the rock in <i>situ</i> which is on the side of a small paka hunting lodge or pleasure house built by the former Mirs of Sind, the ruins of which still exist. The distances and directions of the following places are:—Sehwan city 8½ miles, N.; and Laki town 3 miles, S.E. 1880-81. (<i>Kurrachee</i>).</p> <p><math>\lambda</math> 26 18 20'65 L 67 54 47'20 H 1641 No. 102</p>

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Bakár Hill mark.</b> 1878-79. (<i>Jeysulmere State</i>).</p> <p style="text-align: center;">° ' "</p> <p>λ 26 58 34·13 L 70 31 59·92 H 739 Nos. 225, 226</p>	<p><b>Bhít, X.*</b> On the highest point of the hills so named, which projects northwards from the Klierthar range and is separated from it by a narrow cleft. The station is approached from the eastern side of the hill. It consists of a solid pillar of masonry 4 feet high, having three mark-stones, one at the top, another at the bottom and a third half-way between. When visited in 1880-81 the uppermost mark-stone was found intact. 1853-54. (<i>Kurrachee</i>).</p> <p style="text-align: center;">° ' "</p> <p>λ 26 21 8·65 L 67 28 36·06 H 2790 h 4 No. 197</p>	<p><b>Chalhárhuro h.s.</b> It is identical with the Revenue Survey Station of the same name. On a sand hill immediately S. of the boundary line between the Khairpur State and Thar and Párkar district. It is denoted by a ⊙ on a brick with charcoal buried below. 1880-81. (<i>Thar and Párkar</i>).</p> <p style="text-align: center;">° ' "</p> <p>λ 26 12 18·23 L 69 37 0·59 H 259 No. 198</p>
<p><b>Bándri, XXV.</b> <i>Vide page 75.</i></p> <p>λ 26 54 44·36 L 69 52 27·24 H 323 h 0 No. 36</p>	<p><b>Bhitala, X.</b> <i>Vide page 73.</i></p> <p>λ 25 38 47·02 L 70 11 11·99 H 362 h 0 No. 9</p>	<p><b>Chánda Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of Chánda-ha Paria, 1½ miles E. of Mithria Chauki; pargana Umarot. A ⊙ on a brick, surrounded by four bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Párkar</i>).</p> <p>λ 25 9 46·65 L 70 4 11·74 H 365 Nos. 79, 80</p>
<p><b>Bapoi Hill Mark.</b> It is identical with the Revenue Survey Station of the same name. On the highest part of a sand hill 3½ miles S.W. of Retnor village and 2 miles W. of Kitlor, called Ghillaur by the Revenue Survey; pargana Khipra. A ⊙ on a brick surrounded by four bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Párkar</i>).</p> <p>λ 25 49 59·56 L 70 0 41·37 H 307</p>	<p><b>Bhepath h.s.</b> On a high sand hill of that name, 3 miles S.S.E. of Ghotru fort. A masonry pillar, 3 feet in diameter and 19 feet deep, with two marks on bricks, one at the foundation and the other on the surface of the pillar, denotes the station. 1879-80. (<i>Jeysulmere State</i>).</p> <p>λ 27 16 39·95 L 70 3 33·33 H 409 No. 135</p>	<p><b>Chándan Mosque,</b> Centre of top of dome which is 38 feet above the ground. 1880-81. (<i>Shikápur</i>).</p> <p>λ 27 57 21·6 L 69 43 41·4 H 279, base of dome, 22 feet above ground. No. 168</p>
<p><b>Bárocha h.s.</b> On the second highest peak of the low range of hills running E and W., about 4 miles S. of the well-known lake of Manchhar, the highest peak is distant ¼ of a mile at an azimuth of 106° 48'. It is in the lands of Bárocha Kot, táluks and division Sehwan. The station is denoted by a ⊙ cut on the rock <i>in situ</i>. The azimuths of the adjacent villages are:—Jáfar Khán 17° 56'; Sháh Hassan 171° 11'; Dabhri 223° 56'; and Bárocha Kot 260° 16'. 1880-81. (<i>Kurrachee</i>).</p> <p>λ 26 20 32·09 L 67 37 29·97 H 548 No. 194</p>	<p><b>Bhura Hill,</b> Upright stone. 1878-79. (<i>Jeysulmere State</i>).</p> <p>λ 27 12 58 L 70 55 3 H 748 No. 231</p>	<p><b>Chandanhuro h.s.</b> On a high flat-topped sand hill well known as Chandanhuro Dáro, the westernmost and highest of four long ridges running from S.S.W. to N.N.E., parallel and close to each other. The path from Tarohi to Jehorari passes over the hill at 100 yards N.E. of the station; in the lands of Bijora, pargana Júbó. It is marked by a masonry pillar, 3 feet in diameter, with three mark-stones, one at the top and the others 3 and 5 feet respectively below it. The azimuths and distances of the circumjacent places are:—Jehorari well 156°, miles 3½; Sandura well 232°, miles 3; Bijora well 291°, miles 3½; and Tarohi well 323°, miles 3½. 1880-81. (<i>Khairpur State</i>).</p> <p>λ 26 27 12·50 L 69 14 53·73 H 247 No. 178</p>
<p><b>Belo Kubba.</b> Top of dome which is 36 feet above the ground level. 1880-81. (<i>Hyderabad</i>).</p> <p>λ 26 19 12·9 L 68 23 18·5 H 145, top of dome No. 207</p>	<p><b>Bitri, XXXII.</b> <i>Vide page 76.</i></p> <p>λ 27 22 47·33 L 69 58 47·55 H 367 h 0 No. 41</p>	<p><b>Chánga, II.</b> <i>Vide page 72.</i></p> <p>λ 24 58 47·00 L 69 53 50·47 H 351 h 0 No. 4</p>
<p><b>Bhádi, V.</b> <i>Vide page 72.</i></p> <p>λ 25 15 24·18 L 70 14 5·95 H 463 h 0 No. 1</p>	<p><b>Bulai-jo Kandi Hill Mark.</b> It is identical with the Revenue Survey Station of the same name. On the highest part of a sand hill 1½ miles E. of Udekarnáhu, 2 miles W. of Nathau and ¼ mile S. of the boundary between the Khairpur State and Thar district; pargana Khipra. A ⊙ on a brick, surrounded by bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Párkar</i>).</p> <p>λ 26 11 24·60 L 69 57 52·14 H 311 No. 110</p>	

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Chanrohi h.s.</b> On the highest part of a sand hill running N and S. and parallel to the lake (dhand) Puli Chan or Chanrohi which lies immediately below the hill at its western side. The village of Jamerdin is 4 miles to N.N.E. The station is in the lands of Jamerdin village, pargana Jābo. It is marked by a masonry pillar, 3 feet in diameter, with three mark-bricks, one at the top and the others 3 and 5 feet respectively below it. 1880-81. (<i>Khairpur State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ           26 27 2'44 L           69 41 12'05 H           295 No. 173</p>	<p><b>Chútra Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of the same name, 4½ miles S.E. of Kittor, called Ghillaar by the Revenue Survey, and 4 miles N.W. of Sono; pargana Khipra. A ⊙ on a brick, surrounded by four bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Párkar</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ           25 47 58'10 L           70 6 6'25 H           274 No. 96</p>	<p><b>Dhangar h.s.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of the same name, 1¼ miles W. of Málukálu; pargana Khipra. A ⊙ cut on a brick, surrounded by 4 bricks, with charcoal buried beneath, denotes the station. 1876-77. (<i>Thar and Párkar</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ           25 57 51'17 L           70 2 35'77 H           318 Nos. 101, 102</p>
<p><b>Chápti Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of the same name, 2 miles E. of Katarlo village; pargana Khipra. A ⊙ on a brick, surrounded by bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Párkar</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ           25 47 8'25 L           70 12 38'76 H           401 Nos. 94, 95</p>	<p><b>Dáowála, LXII*.</b> <i>Vide page 80.</i></p> <p style="text-align: center;">o ' "</p> <p>λ           28 20 12'87 L           69 52 57'86 H           282 h           22 No. 64</p>	<p><b>Dhanono, XXIV.</b> <i>Vide page 75.</i></p> <p style="text-align: center;">o ' "</p> <p>λ           26 45 12'05 L           70 13 1'48 H           436 h           0 No. 28</p>
<p><b>Charu h.s.</b> On the highest of the hills locally called Mashori, in the lands of Charu village. It is 13 feet 4 inches from an upright stone, and is marked by a ⊙ cut on the rock in situ; pargana Jeysumere. 1878-79. (<i>Jeysumere State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ           27 1 49'64 L           71 4 51'50 H           777 No. 218</p>	<p><b>Dáud-mohár Kandi Tree.</b> A small tree on a sand hill, 3½ miles S.S.E. of Kháro fort and 4 miles W.N.W. of Hassu well; pargana Khiwála. 1879-80. (<i>Jeysumere State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ           27 26 29 L           70 11 53 H           432, base of tree Nos. 145, 146</p>	<p><b>Dinganwári s.</b> On a small sand hill of the same name, well known in the neighbourhood. To the east foot of the hill is the lake or dhand Jorindawári; in the lands of Pakhiwári village, tappa Shahpur, táluka Sakrand, division Nausluhro. It is denoted by a masonry pillar, 3 feet in diameter, with three mark-bricks, one at the top and the others 1 and 2 feet respectively below it. The azimuths and distances of the circumjacent villages are:—Kunjawáro 162°, miles 2; Gundawáro 215°, miles 3½; Gulálu 261°, miles 1½; and Paka 358°, miles 1¼. 1880-81. (<i>Hyderabad</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ           26 25 38'88 L           68 50 47'68 H           218 No. 184</p>
<p><b>Chaunki, XXXV.</b> <i>Vide page 77.</i></p> <p style="text-align: center;">o ' "</p> <p>λ           27 34 17'96 L           69 55 49'75 H           348 h           0 No. 43</p>	<p><b>Daulatpur Mark (heliotrope).</b> It is marked by a ⊙ on the roof of Lála Rám Bania's house in the S.E. portion of the town of Daulatpur. 1880-81. (<i>Hyderabad</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ           26 30 3'96 L           68 0 41'24 H           157 No. 208</p>	<p><b>Drába Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of the same name, 3 miles W.S.W. of Rohir village; pargana Umankot. A ⊙ on a brick, surrounded by four bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Párkar</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ           25 29 54'76 L           70 9 32'12 H           341 No. 86</p>
<p><b>Chulari h.s.</b> On a very high sand hill well known in the locality, towards the west of which is an extensive flat plain tending to make the hill conspicuous; in the lands of Shem village, pargana Shem. It is marked by a masonry pillar, 2 feet deep, having two mark-stones, one at the foundation and the other on the surface of the pillar. Gagnia-ka Jherua village lies 5 miles to N. 1878-79. (<i>Jeysumere State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ           26 57 35'88 L           70 29 2'62 H           721 No. 210</p>	<p><b>Dewari, XLVIII.</b> <i>Vide page 79.</i></p> <p style="text-align: center;">o ' "</p> <p>λ           28 9 24'00 L           69 49 54'87 H           270 h           16 No. 59</p>	<p><b>Drábi h.s.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of the same name, 2½ miles S.W. of Mithria village; pargana Umankot. A ⊙ on a brick, surrounded by four bricks, with charcoal buried beneath, denotes the station. 1876-77. (<i>Thar and Párkar</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ           25 7 52'13 L           70 1 18'68 H           355 Nos. 68, 69</p>
	<p><b>Dhandi House.</b> Highest point of a brick house in village. 1880-81. (<i>Baháwalpur State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ           28 8 38'8 L           69 56 18'9 H           284 Nos. 165, 166</p>	



Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Drunge-ka Khair Tree.</b> A single umbrella-shaped tree on a sand hill, 8 miles E.N.E. of Girája well and the same distance W.N.W. of Mirwála well; pargana Shahgará. 1879-80. (<i>Jeysulmere State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 27 4 56.5 L 70 7 7.8 H 391, base of tree Nos. 124, 125</p>	<p><b>Ghorkan Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of the same name, 2 miles N.W. of Chandáhu village and 4½ miles S.E. of Ranáhu; pargana Khipra. A ⊙ on a brick, surrounded by four bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Párkar</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 25 54 16.31 L 69 53 36.78 H 254 No. 103</p>	<p><b>Gotaru Fort Mark.</b> On the roof of the highest portion of the fort which is large and in fair preservation. A small masonry pillar with a ⊙ on brick, denotes the point which is 50 feet above the ground level. 1879-80. (<i>Jeysulmere State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 27 19 1.68 L 70 5 0.05 H 308 No. 138</p>
<p><b>Durawári Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of the same name, 2½ miles N.W. of Snidáhu village; pargana Khipra. A ⊙ on a brick, surrounded by four bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Párkar</i>).</p> <p>λ 26 5 49.96 L 70 1 25.09 H 306 Nos. 104, 105</p>	<p><b>Ghundi, LL.</b> <i>Vide page 79.</i></p> <p>λ 28 15 7.41 L 69 49 48.05 H 271 h 19 No. 63</p>	<p><b>Hadai Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of the same name, 2½ miles N. of Lodliar village; pargana Khipra. A ⊙ cut on a brick, surrounded by bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Párkar</i>).</p> <p>λ 26 7 7.76 L 69 51 51.57 H 276 No. 106</p>
<p><b>Fulrá, I.</b> <i>Vide page 72.</i></p> <p>λ 24 52 56.48 L 70 6 7.90 H 475 h 0 No. 3</p>	<p><b>Girája, XXVIII.</b> <i>Vide page 76.</i></p> <p>λ 27 1 57.40 L 70 2 31.40 H 368 h 0 Nos. 33, 37</p>	<p><b>Hadawáro Tree.</b> An umbrella-shaped tree on a sand hill, 6 miles S. of Kháru fort and 2½ miles W. of Hakara and Hassu wells; pargana Khiwála. 1879-80. (<i>Jeysulmere State</i>).</p> <p>λ 27 25 34.9 L 70 12 54.1 H 455, base of tree Nos. 143, 144</p>
<p><b>Gacháhu h.s.</b> On a high sand hill locally named Mitár, 128 feet S.E. of a high conspicuous tree. It is in the lands of Gacháhu village, tappa Mubárákwá, division Nau-shahro. It is marked by a masonry pillar, 3 feet in diameter, with three mark-bricks, one at the top and the others 1 and 2 feet respectively below it. The adjacent places and objects with their azimuths and distances are as follows:—Onar village 15° 15', miles 1½; Gacháhu village 61° 45', miles 2; Sak-he Kandi (a tree on the hill) 145° 45', miles 1½; and Arbáhu village 325° 15', miles 3. 1880-81. (<i>Hyderabad</i>).</p> <p>λ 26 27 39.43 L 68 40 57.91 H 182 No. 186</p>	<p><b>Godarwáro s.</b> On the northern end of the central and highest of three distinct long ridges of sand, which run up from south into the <i>draen</i> (loose sand-waste) known as Godarwáli Draen. The station is on a small knoll of sand, which rises about 30 feet above the ridge; in the lands of Godarwáro hamlet, pargana Júbo. It is marked by a masonry pillar, 3 feet in diameter, with three mark-bricks, one at the top and the others 2½ and 4½ feet respectively below it. The distances and directions of the circumjacent places are:—Mandáhu well 2½ miles, S.; Chatkrohi well 4 miles, S.W.; and Godarwáro hamlet ½ mile, S. 1880-81. (<i>Khairpur State</i>).</p> <p>λ 26 26 59.86 L 69 25 2.26 H 282 No. 176</p>	<p><b>Hakara Tree.</b> The northern and larger of two trees on the top of a sand hill N. of Hakara well which is at the foot of the hill, and 2½ miles E. of Máhu well; pargana Shahgarh. 1879-80. (<i>Jeysulmere State</i>).</p> <p>λ 27 6 10.9 L 69 53 59.0 H 324, base of tree Nos. 126, 127</p>
<p><b>Gáju Pír h.s.</b> On a sand hill having a conspicuous tree on it, 1 mile S.E. of Shahgarh fort. A masonry pillar, 3 feet in diameter and 1.8 feet deep, with two marks, one at the foundation and the other on the surface of the pillar, denotes the station. 1879-80. (<i>Jeysulmere State</i>).</p> <p>λ 27 6 59.66 L 69 58 36.95 H 333 No. 130</p>	<p><b>Gorári Tree.</b> An umbrella-shaped tree on a sand hill, 6 miles E.S.E. of Kháru fort and 4½ and 3½ miles N. of Hakara and Hassu wells respectively; pargana Khiwála. 1879-80. (<i>Jeysulmere State</i>).</p> <p>λ 27 29 6.7 L 70 15 22.7 H 463, base of tree Nos. 147, 148</p>	<p><b>Haraba Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of Hurro Murho, 5 miles S. of Rupihar village; pargana Umarmot. A ⊙ on a brick, surrounded by four bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Párkar</i>).</p> <p>λ 25 22 21.12 L 70 3 21.59 H 332 No. 74</p>
<p><b>Got Mír Muhammad, XLVII.</b> <i>Vide page 79.</i></p> <p>λ 28 8 26.79 L 70 2 49.81 H 270 h 0 No. 61</p>	<p><b>Got Mír Muhammad, XLVII.</b> <i>Vide page 79.</i></p> <p>λ 28 8 26.79 L 70 2 49.81 H 270 h 0 No. 61</p>	<p><b>Haranhár Hill Mark (heliotrope).</b> 1876-77. (<i>Jeysulmere State</i>).</p> <p>λ 26 47 36.91 L 70 0 54.50 H 387 Nos. 115, 116</p>

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Harnho, XXIII.</b> <i>Vide page 75.</i></p> <p style="text-align: center;">o ' "</p> <p>λ 26 43 55.23 L 69 59 3.38 H 35<sup>o</sup> h o</p> <p style="text-align: center;">Nos. 29, 30</p>	<p><b>Jāmsāhib Kubba.</b> Centre of the chief <i>kubba</i> or dome, the summit of which is 23 feet above the ground, in the well known village of Jāmsāhib; tāluka Sakrand. 1880-81. (<i>Hyderabad</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 17 51.0 L 68 40 25.1 H 112, top of dome</p> <p style="text-align: center;">No. 205</p>	<p><b>Joganali, XIX.</b> <i>Vide page 74.</i></p> <p style="text-align: center;">o ' "</p> <p>λ 26 25 8.18 L 70 6 17.78 H 389 h o</p> <p style="text-align: center;">No. 22</p>
<p><b>Hassi Māli Tree.</b> A small tree on a sand hill, 7 miles N.W. of Karibhar well and 8 miles N.N.E. of Khāro fort; pargana Kharwāla. 1879-80. (<i>Jaysulmere State</i>).</p> <p>λ 27 36 24.8 L 70 12 49.3 H 421, base of tree</p> <p style="text-align: center;">Nos. 152, 153</p>	<p><b>Jāmsāhib Masjid.</b> Centre of the chief masjid, in the well known village of Jāmsāhib; tāluka Sakrand. 1880-81. (<i>Hyderabad</i>).</p> <p>λ 26 17 41.9 L 68 40 24.8</p> <p style="text-align: center;">No. 204</p>	<p><b>Jūbo-Khipra Boundary Pillar.</b> On the highest part of a sand hill, identical with station I of the Revenue Survey, on the boundary between the pargana of Jūbo of Khairpur State and that of Khipra of Thar and Pārkar district, 1 mile E. of Nathau village. 1876-77.</p> <p>λ 26 10 12.08 L 70 1 33.56 H 300, base of pillar</p> <p style="text-align: center;">No. 109</p>
<p><b>Hatodan, VI.</b> <i>Vide page 73.</i></p> <p>λ 25 29 34.72 L 69 52 12.52 H 299 h o</p> <p style="text-align: center;">No. 11</p>	<p><b>Jaysulmere, XIII.</b> <i>Vide page 74.</i></p> <p>λ 26 4 56.64 L 69 53 55.22 H 313 h o</p> <p style="text-align: center;">No. 20</p>	<p><b>Jūbo-Mehājliar Boundary Pillar.</b> On the highest part of a sand hill, identical with station V of the Revenue Survey, on the boundary between the pargana of Jūbo of Khairpur State and that of Mehājliar of Jaysulmere State, 3 miles N. of Kumpraj-ro-par village, 9 miles E. of Lakharo and the same distance N.W. of Mehājliar. It is a stone pillar. 1876-77.</p> <p>λ 26 19 34.51 L 70 12 54.32 H 404, base of pillar</p> <p style="text-align: center;">Nos. 111, 112</p>
<p><b>Intadi Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of the same name, 1½ miles E. of Kathopar village; pargana Umarnkot. A ⊙ on a brick, surrounded by four bricks, with charcoal buried beneath, indicates the point 1876-77. (<i>Thar and Pārkar</i>).</p> <p>λ 25 18 57.15 L 70 12 16.23 H 406</p> <p style="text-align: center;">Nos. 82, 83</p>	<p><b>Jaysulmere s.</b> On the paka roof of the highest building in the fort in city, 34 feet from the centre of the door, and 23½, 7½, 8½ and 26 feet respectively from the W., N., E. and S. walls. It is marked by a ⊙ engraved on the roof. The station was revisited in January 1876 and again in December 1878 when the mark was found intact. 1873-74. (<i>Jaysulmere State</i>).</p> <p>λ 26 54 45.75 L 70 57 16.76 H 957</p> <p style="text-align: center;">No. 214</p>	<p><b>Jushbi-ka Kandi Tree.</b> A single umbrella-shaped tree on the highest part of a sand hill, 6½ miles N.N.E. of Bāvilāhu well; pargana Shabgarh. 1879-80. (<i>Jaysulmere State</i>).</p> <p>λ 26 56 51.2 L 70 5 32.0 H 371, base of tree</p> <p style="text-align: center;">Nos. 120, 121</p>
<p><b>Jahājwāli s.</b> On the highest knoll towards the N.E. portion of a sand-waste lying to S. of the arid plain known as Khurjani-pat; in the lands of Jākro, tāluka Sakrand. It is marked by a masonry pillar, 3 feet in diameter, with three mark-bricks, one at the top and the others 1 and 2 feet respectively below it. The adjacent villages with their azimuths and distances are:—Jākro 175°, miles 2; Daggā 195°, miles 3; and Talta 234½°, miles 2. 1880-81. (<i>Hyderabad</i>).</p> <p>λ 26 19 59.82 L 68 19 0.31 H 130</p> <p style="text-align: center;">No. 190</p>	<p><b>Jherna s.</b> On a low sand hill, 2 miles S. by E. of Nokia Jherna village, 4 miles S.W. of Bhandu village and 3 miles N.W. of Churiari Khubar tree and tank; in the lands of Jherna village, pargana Shem. It is marked by a circular masonry pillar, 3 feet in diameter, with three mark-stones, one at the foundation, the second 1 foot above the first and the third 2 feet above the second. 1878-79. (<i>Jaysulmere State</i>).</p> <p>λ 27 7 56.53 L 70 21 57.95 H 568</p> <p style="text-align: center;">No. 209</p>	<p><b>Kalibhar Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of Katiabhar, 1½ miles W. of Katiabhar village and 3½ miles W. of Mithria Chauki; pargana Umarnkot. A ⊙ on a brick, surrounded by four bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Pārkar</i>).</p> <p>λ 25 8 44.21 L 69 53 8.99 H 302</p> <p style="text-align: center;">Nos. 77, 78</p>
<p><b>Jalinthāl h.s.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of Jalia Thur, 3 miles S.W. of Mithria village; pargana Umarnkot. A ⊙ on a brick, surrounded by four bricks, with charcoal buried beneath, indicates the station. 1876-77. (<i>Thar and Pārkar</i>).</p> <p>λ 25 22 1.91 L 70 7 24.77 H 361</p> <p style="text-align: center;">No. 73</p>	<p><b>Jhetir h.s.</b> On a high and conspicuous sand hill of that name, 5 miles N.W. of Asu well and 4 miles S.W. of Ghotru fort. A masonry pillar, 3 feet in diameter and 2½ feet deep, with two marks, one at the foundation and the other on the surface of the pillar, denotes the station. 1879-80. (<i>Jaysulmere State</i>).</p> <p>λ 27 15 37.54 L 70 6 55.28 H 432</p> <p style="text-align: center;">Nos. 136, 137</p>	<p><b>Kaloji Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of Kalunjari, N.W. of Kaloji village which is at the foot of the hill; pargana Chāchra. A ⊙ on a brick, surrounded by four bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Pārkar</i>).</p> <p>λ 25 10 17.80 L 70 9 23.51 H 369</p> <p style="text-align: center;">No. 81</p>

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Kalur h.s.</b> On the highest point towards the extremity of a short range of hills known as Kalur Dongar, in the lands of Chatrel vilage, the highest point of the range from the station being about a mile; pargana Jey-sulmere. It is marked by a masonry pillar, 1 foot high, with a mark-stone on its surface, over a mark on the rock <i>in situ</i>, the pillar being surrounded by a platform of stones. The adjacent villages with their azimuths and distances are:—Chatrel 1½, miles 24; Taju, 268°, miles 2; and Kund tank 278°, mile 1. 1878-79. (<i>Jey-sulmere State</i>).</p> <p>λ 27 1 5'33 L 70 46 4'05 H 783 Nos. 212</p>	<p><b>Karúra s.</b> On a small sand hill terminating abruptly to the N.E. It is on the site of the old station of the same name, which was a secondary station of the Karachi Longitudinal Series, close to and S.W. of the road from Chilar to Umarkot and 4·7 miles S.E. of the latter place; pargana Umarkot. A masonry pillar, 2 feet deep and 3¼ feet in diameter, with two mark-stones, one at the foundation and the other 2 feet above on the surface, and surrounded by a masonry annular wall, indicates the station. 1876-77. (<i>Thar and Párkar</i>).</p> <p>λ 25 18 23'07 L 69 49 2'18 H 281 Nos. 87, 88</p>	<p><b>Khán-ka-dari h.s.</b> On the highest point of a sand hill of that name, ¼ mile N.N.W. of Kháro fort. A large wooden peg driven into the top of the hill, marks the station. 1879-80. (<i>Jey-sulmere State</i>).</p> <p>λ 27 30 42'01 L 70 9 45'47 H 447 Nos. 141, 142</p>
<p><b>Kanakotri, VIII.</b> <i>Vide page 73.</i></p> <p>λ 25 30 15'61 L 70 17 7'01 H 454 h 0 No. 8</p>	<p><b>Kathori h.s.</b> On the highest portion of a range of low hills rising gradually from the south and terminating abruptly to the north. It is in the lands of Kathori vilage which is now nearly deserted, pargana Dewa. The site of the station is about 15 or 20 feet higher than the general level of the hill and is marked by a masonry pillar 1 foot high, having the usual mark ○ on its surface and another 1 foot below cut on the rock <i>in situ</i>. 1878-79. (<i>Jey-sulmere State</i>).</p> <p>λ 27 9 29'04 L 70 55 24'16 H 733 Nos. 216, 217</p>	<p><b>Khánatar h.s.</b> Towards the southern portion of a well known isolated sand hill of the same name, which rises up very gradually from the north. Bahwáribhit, also well known in the country, is about 3 miles E.N.E., and the tri-junction pillar at Karibhit, marking the tri-junction of the boundaries of Thar and Párkar, Khairpur State and Hyderabad, is 3·2 miles S.E.; pargana Nara. It is marked by a masonry pillar, 3 feet in diameter, with three mark-bricks, one at the top and the others 2 and 3 feet respectively below it. 1880-81. (<i>Khairpur State</i>).</p> <p>λ 25 18 2'69 L 68 50 39'65 H 155 No. 183</p>
<p><b>Kanod Hill Mark (heliotrope).</b> Marked by a ○ on top of the hill. 1878-79. (<i>Jey-sulmere State</i>).</p> <p>λ 27 6 39'79 L 71 6 22'51 H 667 Nos. 234, 235</p>	<p><b>Kerari h.s.</b> Towards the northern and highest portion of the sand hill well known in the neighbourhood as Kerariwáli. The sand hill with four Kanda trees, called Chhu-Kandawári, is about 3 miles E. and Togacho hamlet 8¼ miles S.S.W.; pargana Nara. It is marked by a masonry pillar, 3 feet in diameter, with three mark-bricks, one at the top and the others 2 and 3 feet respectively below it. 1880-81. (<i>Khairpur State</i>).</p> <p>λ 26 27 2'82 L 69 5 38'47 H 254 No. 180</p>	<p><b>Khara Hill Mark.</b> On the highest part of a sand hill. Khara well is at the foot of the hill to the W., Badhi Baor quadri-junction pillar of Thar, Khairpur, Jey-sulmere and Jodhpore districts is at the foot of the hill to the N. It is on the boundary of the pargana of Khupra of Thar and Párkar district and that of Seu of Jodhpore State. A ○ on a brick, surrounded by bricks, with charcoal buried beneath, denotes the point. 1876-77.</p> <p>λ 26 9 10'09 L 70 10 47'41 H 323 Nos. 107, 108</p>
<p><b>Kardo, XX.</b> <i>Vide page 75.</i></p> <p>λ 26 23 35'87 L 70 17 11'90 H 486 h 0 No. 23</p>	<p><b>Kerda No. 1 Hill Mark.</b> 1878-79. (<i>Jey-sulmere State</i>).</p> <p>λ 27 7 10'87 L 70 40 22'73 H 779 Nos. 227, 228</p>	<p><b>Kharáda h.s.</b> On the highest point of a sand hill, ¼ a mile E.N.E. of Kháro fort. A large wooden peg driven into the top of the hill, denotes the station. 1879-80. (<i>Jey-sulmere State</i>).</p> <p>λ 27 30 10'49 L 70 10 43'16 H 441 Nos. 139, 140</p>
<p><b>Karibhit Hill Mark.</b> Marked by a ○ on an upright stone on top of a high sand hill. It is well known and marks the tri-junction of the boundaries of Hyderabad, Thar and Párkar districts and Khairpur State. 1880-81.</p> <p>λ 26 15 18'17 L 68 51 5'87 H 152 Nos. 202, 203</p>	<p><b>Kerda No. 2 Hill Mark.</b> 1878-79. (<i>Jey-sulmere State</i>).</p> <p>λ 27 8 5'72 L 70 42 27'79 H 786 Nos. 229, 230</p>	<p><b>Khárandi h.s.</b> On a high sand hill with a number of trees on the top, ¼ a mile N.E. of the hamlet of Khárandi; in the lands of Khárandi vilage, pargana Jábo. It is marked by a masonry pillar, 3 feet in diameter, with three mark-bricks, one at the top and the others 2 and 3 feet respectively below it. 1880-81. (<i>Khairpur State</i>).</p> <p>λ 26 17 9'63 L 69 54 16'93 H 304 No. 172</p>
<p><b>Karímdád Khán h.s.</b> On a sand hill immediately S. of the hollow with a pond hole in it named Karímdád Khán-ka Toba and at the distance of 6040 feet to the S. of the Sind, Jey-sulmere and Baháwalpur boundary pillar. The main track from Jey-sulmere to Mirpur passes through the hollow at the N. foot of the hill and is 100 yards S. of the pillar; taluka Ubauro. A stout picket deeply driven into the top of the hill, marks the station. 1880-81. (<i>Shikárpur</i>).</p> <p>λ 27 51 47'05 L 70 13 14'09 H 363 No. 155</p>	<p><b>Kerda No. 2 Hill Mark.</b> 1878-79. (<i>Jey-sulmere State</i>).</p> <p>λ 27 8 5'72 L 70 42 27'79 H 786 Nos. 229, 230</p>	<p><b>Khárandi h.s.</b> On a high sand hill with a number of trees on the top, ¼ a mile N.E. of the hamlet of Khárandi; in the lands of Khárandi vilage, pargana Jábo. It is marked by a masonry pillar, 3 feet in diameter, with three mark-bricks, one at the top and the others 2 and 3 feet respectively below it. 1880-81. (<i>Khairpur State</i>).</p> <p>λ 26 17 9'63 L 69 54 16'93 H 304 No. 172</p>

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Kháro, XXXVI.</b> <i>Vide page 77.</i></p> <p style="text-align: center;">o ' "</p> <p>λ 27 32 46·30 L 70 8 16·32 H 438 h o</p> <p style="text-align: center;">Nos. 42, 46</p>	<p><b>Kot Livára Fort Mark (heliotrope).</b> Marked by a ⊙ on the eastern burj. 1880-81. (<i>Baháwalpur State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 27 59 6·98 L 70 7 59·58 H 281</p> <p style="text-align: center;">No. 160</p>	<p><b>Layári s.</b> On the highest of a number of low knolls, on the high ground to the S. of Layári village; in the lands of Layári village, tappa Lákhát, taluka Sakrand, division Nausahro. It is marked by a masonry pillar, 3 feet in diameter, with three mark-bricks, one at the top and the others 1 and 2 feet respectively below it. 1880-81. (<i>Hyderabad</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 26 30·55 L 68 17 51·48 H 123</p> <p style="text-align: center;">No. 189</p>
<p><b>Kháro Fort Mark.</b> On the S.W. bastion of the fort, about 25 feet above the ground and just to the W. of the well of brackish water, which is under the walls of the fort. A ⊙ on a stone imbedded in the surface, denotes the point. 1879-80. (<i>Jaysulmere State</i>).</p> <p>λ 27 29 56·06 L 70 9 59·88 H 322</p> <p style="text-align: center;">No. 149</p>	<p><b>Kot Sabzal, XLIX.</b> <i>Vide page 79.</i></p> <p>λ 28 12 34·44 L 69 55 59·83 H 274 h 28</p> <p style="text-align: center;">Nos. 60, 62</p>	<p><b>Lehari Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of that name, 1½ miles S.W. of Chulhar village; pargana Umarnot. A ⊙ on a brick, surrounded by four bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Párkár</i>).</p> <p>λ 25 5 42·58 L 69 52 58·34</p> <p style="text-align: center;">Nos. 70, 71</p>
<p><b>Khárorá h.s.</b> On the N. end of a high sand hill which rises up gradually from the south and falls abruptly to the north. At the W. foot of the hill lies the <i>dhand</i> or lake Khárorá, which extends about as much to the north as it does to the south of the hill; in the lands of Dubi hamlet which is about 1¼ miles S. by W., pargana Nára. It is marked by a masonry pillar, 3 feet in diameter, with three mark-bricks, one at the top and the others 2 and 3 feet respectively below it. 1880-81. (<i>Khairpur State</i>).</p> <p>λ 26 19 17·56 L 69 7 21·60 H 232</p> <p style="text-align: center;">No. 179</p>	<p><b>Kotank Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of the same name, 1¼ miles S. of Rang Dahar village; pargana Khipra. A ⊙ on a brick, surrounded by four bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Párkár</i>).</p> <p>λ 25 52 39·08 L 70 7 12·48 H 352</p> <p style="text-align: center;">Nos. 97, 98</p>	<p><b>Lon Charri h.s.</b> On the northern and higher of the two isolated hills, conspicuous and well known in the vicinity; in the lands of Jaita village, pargana Lathi. The approximate azimuths and distances of the adjacent villages are:—Eta 175°, miles 5; Malingra 234°, miles 3; Chaudhan 327°, miles 4½; and Jaita 348°, miles 4. It is marked by a ⊙ on the rock <i>in situ</i>; no pillar or platform was built. 1873-74. (<i>Jaysulmere State</i>).</p> <p>λ 27 4 7·84 L 71 17 56·83 H 658</p> <p style="text-align: center;">No. 234</p>
<p><b>Khenju Tree.</b> The centre of the highest tree on a sand hill. 1880-81. (<i>Shikarpur</i>).</p> <p>λ 27 57 11·9 L 69 55 32·4 H 274, base of tree</p> <p style="text-align: center;">Nos. 156, 157</p>	<p><b>Kothio Hill Mark.</b> It is identical with the Revenue Survey Station of the same name, on a sand hill immediately S. of the boundary line between Khairpur State and Thar and Párkár. It is denoted by a ⊙ on a brick with charcoal buried below. 1880-81. (<i>Thar and Párkár</i>).</p> <p>λ 26 12 21·94 L 69 44 4·97 H 249</p> <p style="text-align: center;">No. 199</p>	<p><b>Lona Nairo Tree.</b> A large umbrella-shaped tree on a sand hill, 1¼ miles W. of Karibhar well and 8 miles N.E. of Kháro fort; pargana Khivála. 1879-80. (<i>Jaysulmere State</i>).</p> <p>λ 27 32 42·0 L 70 15 39·4 H 453, base of tree</p> <p style="text-align: center;">Nos. 150, 151</p>
<p><b>Khipra-Júbo Boundary Pillar.</b> (See Júbo-Khipra Boundary Pillar).</p> <p><b>Kirariváro, XL.</b> <i>Vide page 77.</i></p> <p>λ 27 45 57·48 L 69 52 25·64 H 304 h o</p> <p style="text-align: center;">No. 49</p>	<p><b>Kubba, L.</b> <i>Vide page 79.</i></p> <p>λ 28 11 53·93 L 69 43 56·23 H 267 h 21</p> <p style="text-align: center;">No. 66</p>	<p><b>Longwáli, XLV.</b> <i>Vide page 78.</i></p> <p>λ 28 2 24·28 L 70 2 6·92 H 326 h 10</p> <p style="text-align: center;">No. 55</p>
<p><b>Kolu, XXXIV.</b> <i>Vide page 76.</i></p> <p>λ 27 25 6·31 L 70 19 55·29 H 459 h o</p> <p style="text-align: center;">No. 45</p>	<p><b>Kurji Mark.</b> It is identical with the Revenue Survey Station of the same name, S. of the Khairpur boundary. It is denoted by a ⊙ on a brick with charcoal buried below. 1880-81. (<i>Thar and Párkár</i>).</p> <p>λ 26 14 35·78 L 69 17 18·34 H 198</p> <p style="text-align: center;">No. 201</p>	<p><b>Máchka, LIX*.</b> <i>Vide page 79.</i></p> <p>λ 28 19 41·57 L 69 41 47·41 H 273 h 24</p> <p style="text-align: center;">Nos. 65, 67</p>

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Mahabu Tree.</b> 1878-79. (<i>Jeysulmere State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 27 1 16'3 L 70 23 31'2 H 600, top of tree Nos. 223, 224</p>	<p><b>Mánuro h.s.</b> On a high commanding sand hill so called. Two trees, called Badalwáli Jal, in a hollow invisible from the station, form the nearest landmark which shows the station. These trees are about 3 miles N.W. and Mamoi well 7 miles N.N.E. The station is in the lands of Mamoi, pargana Júbo. It is marked by a masonry pillar, 3 feet in diameter, with three mark-stones, one at the top and the others 3 and 5 feet respectively below it. 1880-81. (<i>Khairpur State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 17 32'88 L 69 14 56'52 H 227 No. 177</p>	<p><b>Mír-kun-ka Thal s.</b> On the old tower of this name well known in the neighbourhood, rising 70 feet above the general level of the country. It is in the lands of Mír-kun village, tappa Daulatpur, division Naushahro. The station is denoted by two mark-bricks, one flush with the top of the tower and the other 1½ feet below; the mark is not quite in the centre of the tower. 1880-81. (<i>Hyderabad</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 27 15'56 L 68 8 50'99 H 180 No. 191</p>
<p><b>Mahádeo Temple,</b> Centre of the W. dome, 4½ miles N.E. of Umarkot town and ¼ a mile S.W. of Mahádeo well; pargana Umarkot. 1876-77. (<i>Thar and Párkar</i>).</p> <p>λ 25 24 59'1 L 69 49 3'0 H 73, base of dome No. 90</p>	<p><b>Mári, XLI.</b> <i>Vide page 78.</i></p> <p>λ 27 51 17'24 L 69 45 54'26 H 284 h o No. 63</p>	<p><b>Mirg-dahar Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of that name, ¼ mile E. of Mirg-dahar village and 3 miles E. of Dhinor; pargana Umarkot. A ⊙ on a brick, surrounded by four bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Párkar</i>).</p> <p>λ 25 25 49'50 L 70 12 5'68 H 403 Nos. 84, 85</p>
<p><b>Máhu, XXVII.</b> <i>Vide page 76.</i></p> <p>λ 27 5 20'19 L 69 48 24'36 H 324 h o No. 88</p>	<p><b>Máringra, XXIX.</b> <i>Vide page 76.</i></p> <p>λ 26 59 5'37 L 70 14 31'76 H 465 h o No. 32</p>	<p><b>Morcha Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of Morcha, 2 miles W. of Khuiiri village and ½ mile S.W. of Lapla; pargana Umarkot. A ⊙ on a brick, surrounded by bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Párkar</i>).</p> <p>λ 25 40 45'11 L 70 10 34'73 H 349</p>
<p><b>Maihatar Tree.</b> A conspicuous tree on a sandy <i>draen</i> 1 mile N. of Máhu well and 2½ miles N.W. of Hakara well; pargana Sháhgarh. 1879-80. (<i>Jeysulmere State</i>).</p> <p>λ 27 7 1'3 L 69 51 45'4 H 331, base of tree Nos. 128, 129</p>	<p><b>Máringra Hill Mark (helio).</b> On the top of the hill, near the N.W. corner of a grave. 1880-81. (<i>Shikárpur</i>).</p> <p>λ 27 58 20'37 L 69 56 42'79 H 300 No. 159</p>	<p><b>Morgich, XXXVII.</b> <i>Vide page 77.</i></p> <p>λ 27 35 15'29 L 70 16 56'85 H 473 h o No. 47</p>
<p><b>Malar, XIV.</b> <i>Vide page 74.</i></p> <p>λ 26 2 25'80 L 70 6 3'37 H 328 h o No. 16</p>	<p><b>Mehájliar-Júbo Boundary Pillar.</b> (See Júbo-Mehájliar Boundary Pillar).</p>	
<p><b>Malarwáli Tree.</b> The S.W. and largest of several trees on a sand hill, 2½ miles S. of Máhu well and 4 miles S.W. of Hakara; pargana Sháhgarh. 1879-80. (<i>Jeysulmere State</i>).</p> <p>λ 27 3 18'9 L 69 51 18'2 H 317, base of tree Nos. 122, 123</p>	<p><b>Mír Khán, XII*.</b> On one of the two small rocky hills nearly due W. of Golur Khán's tomb and separated from it by an extensive chain of low hills. The station consists of a solid tower 30½ feet high, having a mark-stone at the top and others below; taluka Dádu, thána Rahím Khán's Tundo. When visited in 1880-81, the upper mark-stone was found intact. 1855-56. (<i>Kurra-chee</i>).</p> <p>λ 26 36 20'80 L 67 31 7'28 H, 183'95 h 31 No. 196</p>	<p><b>Nandawáli h.s.</b> On a sand hill of that name, 2 miles N. by E. of Sháhgarh and ¼ mile W. of the road to Ghotru. A masonry pillar, 3 feet in diameter and 1'7 feet deep, with two marks, one at the foundation and the other on the surface of the pillar, marks the station. 1879-80. (<i>Jeysulmere State</i>).</p> <p>λ 27 10 19'10 L 69 58 22'77 H 322 Nos. 181, 183</p>
<p><b>Mangtor, IX.</b> <i>Vide page 73.</i></p> <p>λ 25 39 12'08 L 69 57 1'86 H 290 h o Nos. 10, 12</p>		

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Narhar, XI.</b> <i>Vide page 73.</i></p> <p style="text-align: center;">o ' "</p> <p>λ 25 50 58.14 L 69 56 48.43 H 272 h o</p> <p style="text-align: right;">Nos. 14, 15</p>	<p><b>Páriwár h.s.</b> On the highest of an isolated group of hills, considered to be a very sacred place and frequently visited by the people of the adjacent places. The two hamlets known as Páriwár are equidistant, <math>\frac{1}{2}</math> mile from the hill, one being at an azimuth of 161° and the other 201°. The station is in the lands of Páriwár village, pargana Dewa. It is marked by a masonry pillar, 1 foot high, having a ⊙ mark on its surface and another on the rock <i>in situ</i>. The pillar is surrounded by a platform of stones. 1878-79. (<i>Jeyulmere State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 27 14 40.01 L 70 46 49.46 H 862 No. 215</p>	<p><b>Pírwaía Hill Mark.</b> On top of the hill, marked by a ⊙. 1878-79. (<i>Jeyulmere State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 59 51.05 L 71 0 22.55 H 873</p> <p style="text-align: right;">Nos. 232, 233</p>
<p><b>Narithal, IV.</b> <i>Vide page 73.</i></p> <p>λ 25 16 19.94 L 69 55 1.47 H 326 h o</p> <p style="text-align: right;">Nos. 2, 6</p>	<p><b>Patatonk, III.</b> <i>Vide page 72.</i></p> <p>λ 25 9 37.71 L 69 47 49.63 H 320 h o</p> <p style="text-align: right;">No. 5</p>	<p><b>Potanawári, XVIII.</b> <i>Vide page 74.</i></p> <p>λ 26 23 30.96 L 69 55 59.78 H 318 h o</p> <p style="text-align: right;">No. 26</p>
<p><b>Nib h.s.</b> On a very high peaked hill well known for miles round as Nib-ka Dongri, 66½ feet from a stone temple and 1½ miles from Khaba which was once a very large village of 1250 houses of which about 20 are now inhabited, in the lands of Khaba village, pargana Khaba. It is marked by the usual ⊙ on the rock <i>in situ</i>, over which a masonry pillar, 1 foot high having a mark-stone on its surface and surrounded by a platform of stones, is built. 1878-79. (<i>Jeyulmere State</i>).</p> <p>λ 26 47 14.97 L 70 44 4.85 H 956</p> <p style="text-align: right;">No. 213</p>	<p><b>Phata Dara h.s.</b> On the highest part of a sand hill, near the boundary of Jeyulmere and Khairpur States, 4 miles S.E. of Petrio village and about <math>\frac{1}{2}</math> mile S. by W. of Phata Dara Pillar; pargana Jábo. A ⊙ on a brick, surrounded by bricks, with charcoal buried beneath, denotes the station. 1876-77. (<i>Khairpur State</i>).</p> <p>λ 26 29 20.90 L 70 13 9.56 H 461</p> <p style="text-align: right;">Nos. 113, 114</p>	<p><b>Pur h.s.</b> On a high sand hill running N. and S., immediately above and 1300 feet N.W. of the well of the same name. It is in the lands of Pur village, on the boundary line of the tappas Shalpur and Mubárak-wái, division Naushahro. A masonry pillar, 3 feet in diameter, with three mark-bricks, one at the top and the others 1 and 2 feet respectively below it, marks the station. The azimuth and distance of Jari well are 198°, miles 1½. 1880-81. (<i>Hyderabad</i>).</p> <p>λ 26 20 41.49 L 68 40 19.93 H 172</p> <p style="text-align: right;">No. 185</p>
<p><b>Núrpir, XLIII.</b> <i>Vide page 78.</i></p> <p>λ 27 54 36.03 L 70 1 58.65 H 347 h o</p> <p style="text-align: right;">No. 50</p>	<p><b>Phata Dara Pillar.</b> On a low sand hill, identical with the Revenue Survey Stone pillar of the same name, on the boundary between the pargana of Mehájlíar of Jeyulmere State and that of Jábo of Khairpur State, 4 miles S.E. of Petrio village. 1876-77.</p> <p>λ 26 29 53.3 L 70 13 18.7 H 393, base of pillar</p>	<p><b>Raili N. Tree.</b> The northern and larger of two trees on a round sand hill, 1 mile E. of Saira well and 4 miles W.S.W. of Bándri; pargana Sháhgarh. 1879-80. (<i>Jeyulmere State</i>).</p> <p>λ 26 55 6.7 L 69 57 29.0 H 340, base of tree</p> <p style="text-align: right;">Nos. 118, 119</p>
<p><b>Pajali h.s.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of the same name, 1 mile S.W. of Adko village; pargana Umurkot. A ⊙ on a brick, surrounded by four bricks, with charcoal buried beneath, marks the station. 1876-77. (<i>Thar and Párkar</i>).</p> <p>λ 25 12 59.09 L 70 1 13.19 H 344</p> <p style="text-align: right;">No. 72</p>	<p><b>Píráhurh Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of Píráhurh Dakno Patho, 2 miles E. of Rang Bahar village; pargana Khípra. A ⊙ on a brick, surrounded by four bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Párkar</i>).</p> <p>λ 25 54 2.94 L 70 9 22.72 H 353</p> <p style="text-align: right;">Nos. 90, 100</p>	<p><b>Raili S. Tree.</b> The southern and smaller of two trees on a round sand hill, 1 mile E. of Saira well and 4 miles W.S.W. of Bándri; pargana Sháhgarh. 1879-80. (<i>Jeyulmere State</i>).</p> <p>λ 26 55 0 L 69 57 23</p> <p style="text-align: right;">No. 117</p>
<p><b>Parethal, XXXIII.</b> <i>Vide page 76.</i></p> <p>λ 27 22 7.08 L 70 8 20.54 H 442 h o</p> <p style="text-align: right;">No. 40</p>	<p><b>Ramsar, XVI.</b> <i>Vide page 74.</i></p> <p>λ 26 13 10.75 L 70 2 3.26 H 324 h o</p> <p style="text-align: right;">Nos. 19, 21</p>	

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Ranmár h.s.</b> On a high conspicuous sand hill well known in the neighbourhood as Ranmár, 2 miles N. of Batro village, 5 miles N.W. of Sohelo and 2 miles S.E. of Jhap. It is in the lands of Batro village, tappa Mubarakwáh, taluka Sakrand, division Nausahro. The station is marked by a masonry pillar, 3 feet in diameter, with three mark-bricks, one at the top and the others 1 and 2 feet respectively below it. 1880-81. (Hyderabad).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 27 27·91 L 68 31 27·71 H 175 No. 187</p>	<p><b>Rojhra, LXXV*.</b> <i>Vide page 71.</i></p> <p style="text-align: center;">o ' "</p> <p>λ 24 57 26·28 L 70 16 45·08 H 518 h 3 No. 1</p>	<p><b>Sehwan Railway Station.</b> Cross arms of the conspicuous signal post. 1880-81. (Kurrachee).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 24 43·1 L 67 54 4·5 H 151, cross arms of the signal post</p>
<p><b>Ráviláhu, XXVI.</b> <i>Vide page 75.</i></p> <p>λ 26 52 29·21 L 70 4 48·15 H 384 h o No. 31</p>	<p><b>Rupihar, VII.</b> <i>Vide page 73.</i></p> <p>λ 25 27 27·90 L 70 4 46·65 H 330 h o No. 7</p>	<p><b>Sehwan s.</b> On the roof of the Deputy Collector's house in the old fort on a low hill towards the N.E. of Sehwan city, which is the highest position in the locality. It is 15 feet 9 inches from the N.E., 14 feet 4 inches from the N.W., and 10 feet 1 inch from the W. corner; pargana Sehwan. The station is marked by a ○ on a brick imbedded 2 inches below the surface of the roof. 1880-81. (Kurrachee).</p> <p>λ 26 25 58·24 L 67 54 5·29 H 218 No. 193</p>
<p><b>Reti Mark.</b> It is marked by a ○ on top of Ghulám Mahíuddín lambardár's big ácha-paka house 23 feet high, on the E.N.E. side of the village. 1880-81. (Shikárpur).</p> <p>λ 28 4 45·82 L 69 50 16·99 H 272 No. 161, 162</p>	<p><b>Sanahu, XXI.</b> <i>Vide page 75.</i></p> <p>λ 26 33 43·59 L 70 1 22·28 H 338 h o Nos. 25, 27</p>	<p><b>Sehwan White Kubba.</b> Centre of the well known and conspicuous kubba or dome of that name. 1880-81. (Kurrachee).</p> <p>λ 26 25 42·9 L 67 54 11·5 H 178, top of dome</p>
<p><b>Reti Tower.</b> Centre of the railway water-tower, 12 feet in diameter and 31 feet high, a few yards N.E. of the booking office. 1880-81. (Shikárpur).</p> <p>λ 28 5 15·4 L 69 54 2·5 H 286, top of tower No. 163, 164</p>	<p><b>Sand Hill.</b> 1878-79. (Jeysulmers State).</p> <p>λ 27 10 42 L 70 25 10 Nos. 221, 222</p>	<p><b>Shafiwári h.s.</b> On the northern and highest portion of a high sand hill running N. and S; in the lands of Shafi hamlet, pargana Júbo. It is marked by a masonry pillar, 3 feet in diameter, with three mark-bricks, one at the top and the others 2 and 3 feet respectively below it. The azimuths and distances of the adjacent villages are:—Shafi 30° 56', mile <math>\frac{1}{2}</math>; Dochan 53° 26', miles <math>\frac{1}{2}</math>; Sanwári 166° 26', mile <math>\frac{1}{2}</math>; and Humma 200° 26', mile 1. 1880-81. (Khairpur State).</p> <p>λ 26 17 20·91 L 69 39 32·88 H 297 No. 174</p>
<p><b>Revenue Survey Tri-junction Pillar A.</b> 1880-81. (Hyderabad).</p> <p>λ 26 27 35·62 L 68 30 56·80 H 106, base of pillar No. 206</p>	<p><b>Sandohar, LXXVIII*.</b> <i>Vide page 72.</i></p> <p>λ 25 3 3·89 L 70 1 22·18 H 408 h 3 No. 1</p>	<p><b>Shálgarh Fort Mark.</b> On the roof of the Killadár's house in the S.E. bastion of the ruined fort of Shálgarh. A ○ on a stone surrounded by masonry, denotes the point. It is 25 feet above the ground level. 1879-80. (Jeysulmers State).</p> <p>λ 27 7 50·75 L 69 57 44·08 H 246 No. 133</p>
<p><b>Revenue Survey Tri-junction Pillar B s.</b> At the junction of the Mubarakwáh, Laklát and Shálgarh tappa boundaries; taluka Sakrand, division Nausahro. 1880-81. (Hyderabad).</p> <p>λ 26 19 59·40 L 68 27 49·71</p>	<p><b>Sári s.</b> On a low isolated sand hill, <math>\frac{1}{2}</math> mile S. of the high road from Khotbri to Jámáshih. The country towards the W. and S. is quite flat and covered with stunted bushes. It is about 2½ miles S. by W. of Malai village and 5½ miles S.W. of Sohelo; in the lands of Malai village, tappa Mubarakwáh, taluka Sakrand, division Nausahro. The station is marked by a masonry pillar, 3 feet in diameter, with three mark-bricks, one at the top and the others 1 and 2 feet respectively below it. 1880-81. (Hyderabad).</p> <p>λ 26 22 0·23 L 68 29 34·15 H 146 No. 188</p>	<p><b>Sinaba, XVII.</b> <i>Vide page 74.</i></p> <p>λ 26 12 12·87 L 70 14 24·45 H 408 h o No. 18</p>
<p><b>Sehwan Blue Kubba.</b> Centre of the well known and conspicuous kubba or dome of that name, which is the easternmost of three and 40½ feet high. 1880-81. (Kurrachee).</p> <p>λ 26 25 31·2 L 67 53 51·9 H 167, top of dome</p>		

\* Of the Karáchi Longitudinal Series.

Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.	Name of station, description, district, co-ordinates &c.
<p><b>Singra, XXX.</b> <i>Vide page 76.</i></p> <p style="text-align: center;">o ' "</p> <p>λ 27 13 34·87 L 70 0 59·95 H 389 h 0</p> <p style="text-align: center;">Nos. 35, 39</p>	<p><b>Te h.s.</b> On the southern edge of a flat-topped irregular hill terminating abruptly to the south. The path from Jeyulmere to Sukkur via Kuiala passes by the southern foot of the hill. It is in the lands of Kuiala village, pargana Kuiala. The station is marked by a masonry pillar, having two mark-stones, one at 1 foot below the surface of the hill top and the other 2 feet above the lower mark. The adjacent villages with their azimuths and distances are:—Habūr 232°, miles 4; Kuchri, 312°, miles 4; and Kuiala 108°, miles 4. 1878-79. (<i>Jeyulmere State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 27 7 33·73 L 70 32 10·32 H 807</p> <p style="text-align: center;">No. 211</p>	<p><b>Thumi s.</b> On a low sand hill forming the western border of the desert, the bed of the Nāra river being to the W. of the ridge; in the lands of Togacho, pargana Nāra. The station is marked by a masonry pillar, 3 feet in diameter, with three mark bricks, one at the top and the others 2 and 3 feet respectively below it. The adjacent places with their azimuths and distances are:—Panhwāri Dhand 207°, mile 1; Lokman-ke Kanda 266°, 700 yards; Dadar 327°, miles 2; and Togacho 328°, miles 3½. 1880-81. (<i>Khairpur State</i>).</p> <p style="text-align: center;">o ' "</p> <p>λ 26 20 17·71 L 69 1 13·21 H 176</p> <p style="text-align: center;">No. 181</p>
<p><b>Siyāhwāro h.s.</b> On the northern and highest portion of a high conspicuous blackish sand ridge well known in the neighbourhood as Siyāhwāro; in the lands of Mandlo, pargana Jūbo. The station is denoted by a masonry pillar, 3 feet in diameter, with three mark-bricks, one at the top and the others 2 and 3 feet respectively below it. The distances and directions of the following places are:—Mandlo well about 1½ miles S. by W.; Ghorawālo 3 miles W. by S.; and Khewai 3 miles N.W. 1880-81. (<i>Khairpur State</i>).</p> <p>λ 26 18 30·81 L 69 27 0·96 H 302</p> <p style="text-align: center;">No. 175</p>	<p><b>Thaiat h.s.</b> Towards the southern edge of a flat-topped hill, in the lands of Thaiat village, and about 200 yards N.E. of the ruins of some half-a-dozen houses lying on the same hill, 10½ miles E. of the city of Jeyulmere which is visible from the station, 1½ miles E. of Thaiat village, and the same distance W. of Basanpūr; pargana Lathi. It was originally marked by a ⊙ engraved on the rock <i>in situ</i>, but when visited in December 1878, a pillar 5 feet in height, having a mark-stone at the surface and surrounded by a platform of stones, was constructed. 1873-74. (<i>Jeyulmere State</i>).</p> <p>λ 26 55 49·80 L 71 7 43·07 H 841</p> <p style="text-align: center;">No. 219</p>	<p><b>Trisingh, XXXVIII.</b> <i>Vide page 77.</i></p> <p>λ 27 42 24·35 L 70 8 2·81 H 425 h 0</p> <p style="text-align: center;">Nos. 44, 48</p>
<p><b>Somarwāli Hill Mark.</b> 1878-79. (<i>Jeyulmere State</i>).</p> <p>λ 27 11 15·91 L 70 19 28·69 H 556</p> <p style="text-align: center;">No. 220</p>	<p><b>Thakur, XII.</b> <i>Vide page 73.</i></p> <p>λ 27 49 32·28 L 70 10 2·71 H 348 h 0</p> <p style="text-align: center;">No. 13</p>	<p><b>Turiharo Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of that name, 1 mile E. of Mangtor village; pargana Umarkot. A ⊙ on a brick, surrounded by bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Pārkar</i>).</p> <p>λ 25 41 25·92 L 69 58 12·25 H 318</p> <p style="text-align: center;">Nos. 91, 92</p>
<p><b>Somarwāli Tree.</b> Near the tank of the same name on the road to Jeyulmere from Ghotru and 9 miles E. of Asu well; pargana Khiwāla. 1879-80. (<i>Jeyulmere State</i>).</p> <p>λ 27 11 20 L 70 18 38 H 520, base of tree</p> <p style="text-align: center;">No. 184</p>	<p><b>Thar Muhāri, XXXIX.</b> <i>Vide page 77.</i></p> <p>λ 27 41 33·40 L 69 42 36·23 H 312 h 0</p> <p style="text-align: center;">No. 62</p>	<p><b>Ubauro Mark.</b> On the centre of the highest house of Lankshnichand Gorpuria Bnhman, marked by a ⊙ about 35 feet above the ground. 1880-81. (<i>Shikarpur</i>).</p> <p>λ 28 10 0·27 L 69 46 14·71 H 294</p> <p style="text-align: center;">Nos. 167, 168</p>
<p><b>Somo Hill Mark.</b> On the highest part of a sand hill, identical with the Revenue Survey Station of that name, 2 miles S.E.W. of Somo village; pargana Umarkot. A ⊙ cut on a brick, surrounded by four bricks, with charcoal buried beneath, denotes the point. 1876-77. (<i>Thar and Pārkar</i>).</p> <p>λ 25 43 52·18 L 70 7 8·93 H 349</p> <p style="text-align: center;">No. 95</p>	<p><b>Umarkot s.</b> On the high circular tower in the centre of the fort, which carries the flag-staff in Umarkot town. A solid masonry pillar, 3½ feet in diameter and 2 feet deep, with two mark-stones, one at the top and the other at bottom, marks the station. The mark-stone is 31 feet 8 inches from the south wall of the tower and 6 feet from the flag-staff at an azimuth of 297°. 1876-77. (<i>Thar and Pārkar</i>).</p> <p>λ 25 21 48·36 L 69 46 30·09 H 96</p> <p style="text-align: center;">No. 89</p>	



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<p>Vijnot, XLIV. <i>Vide page 78.</i></p> <table data-bbox="223 314 468 453"> <tr><td></td><td>°</td><td>'</td><td>"</td></tr> <tr><td>λ</td><td>28</td><td>2</td><td>3'30</td></tr> <tr><td>L</td><td>69</td><td>52</td><td>59'95</td></tr> <tr><td>H</td><td>276</td><td></td><td></td></tr> <tr><td>h</td><td>13</td><td></td><td></td></tr> <tr><td></td><td colspan="3">Nos. 56, 57</td></tr> </table> <p>Vin, XLVI. <i>Vide page 78.</i></p> <table data-bbox="223 517 468 626"> <tr><td>λ</td><td>28</td><td>6</td><td>33'96</td></tr> <tr><td>L</td><td>69</td><td>57</td><td>27'40</td></tr> <tr><td>H</td><td>261</td><td></td><td></td></tr> <tr><td>h</td><td>12</td><td></td><td></td></tr> <tr><td></td><td colspan="3">No. 58</td></tr> </table>		°	'	"	λ	28	2	3'30	L	69	52	59'95	H	276			h	13				Nos. 56, 57			λ	28	6	33'96	L	69	57	27'40	H	261			h	12				No. 58			<p>Walhár Mosque, Mud color dome. 1880-81. (<i>Baháwalpur State</i>).</p> <table data-bbox="642 314 929 453"> <tr><td></td><td>°</td><td>'</td><td>"</td></tr> <tr><td>λ</td><td>28</td><td>12</td><td>20'0</td></tr> <tr><td>L</td><td>70</td><td>1</td><td>42'9</td></tr> <tr><td>H</td><td>289,</td><td colspan="2">top of dome</td></tr> <tr><td></td><td colspan="3">Nos. 170, 171</td></tr> </table> <p>Walhár Tower. Centre of the railway water-tower. 1880-81. (<i>Baháwalpur State</i>).</p> <table data-bbox="642 534 929 626"> <tr><td>λ</td><td>28</td><td>12</td><td>9'8</td></tr> <tr><td>L</td><td>70</td><td>1</td><td>59'2</td></tr> <tr><td>H</td><td>283,</td><td colspan="2">top of tower</td></tr> <tr><td></td><td colspan="3">No. 169</td></tr> </table>		°	'	"	λ	28	12	20'0	L	70	1	42'9	H	289,	top of dome			Nos. 170, 171			λ	28	12	9'8	L	70	1	59'2	H	283,	top of tower			No. 169			<p>Yáru, XLII. <i>Vide page 78.</i></p> <table data-bbox="1062 314 1307 453"> <tr><td></td><td>°</td><td>'</td><td>"</td></tr> <tr><td>λ</td><td>27</td><td>54</td><td>34'99</td></tr> <tr><td>L</td><td>69</td><td>51</td><td>18'20</td></tr> <tr><td>H</td><td>290</td><td></td><td></td></tr> <tr><td>h</td><td>0</td><td></td><td></td></tr> <tr><td></td><td colspan="3">Nos. 51, 54</td></tr> </table>		°	'	"	λ	27	54	34'99	L	69	51	18'20	H	290			h	0				Nos. 51, 54		
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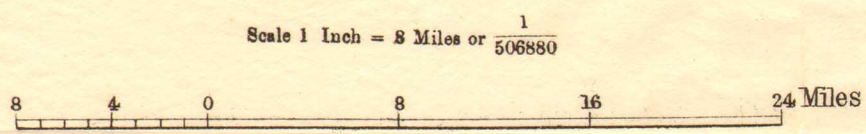
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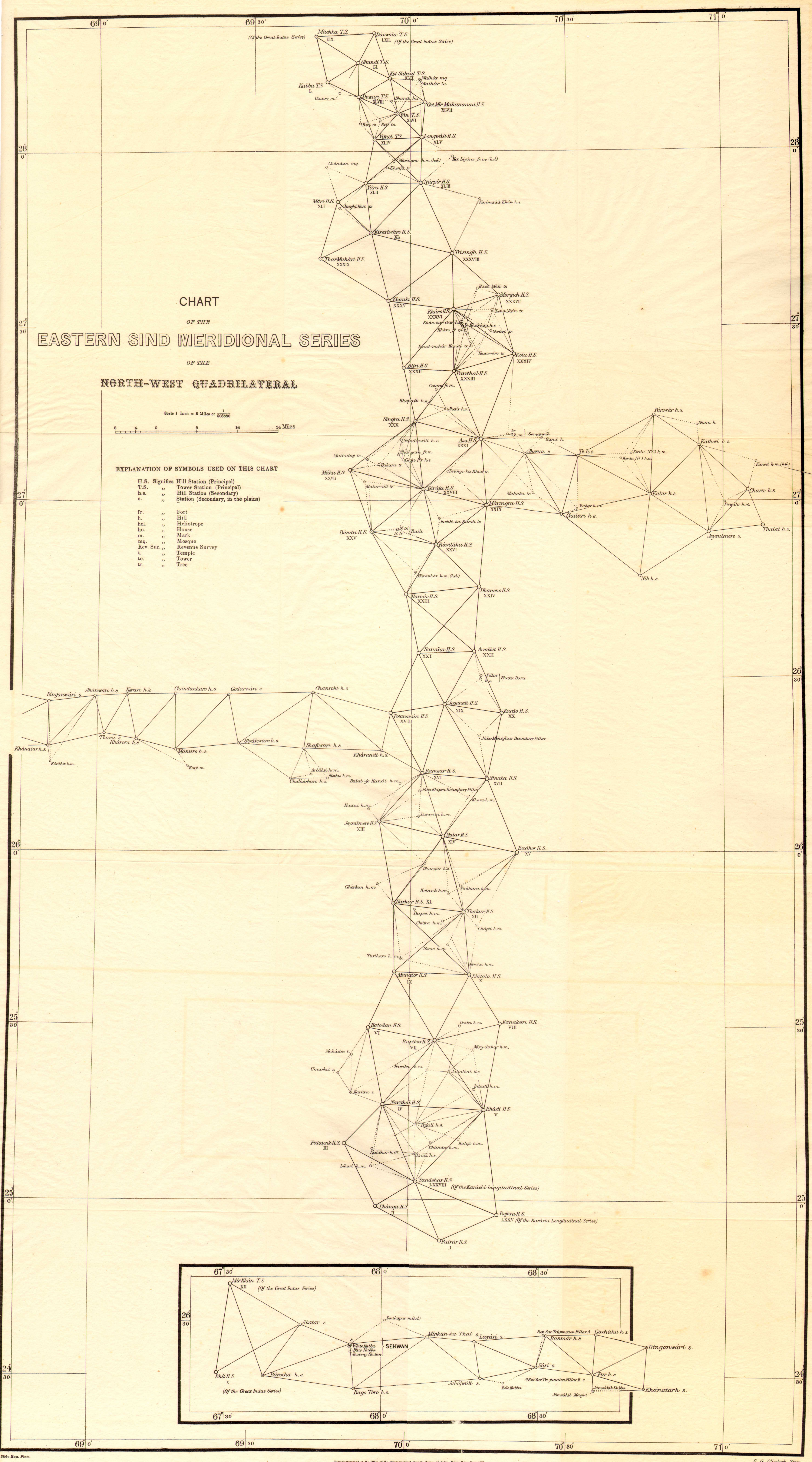
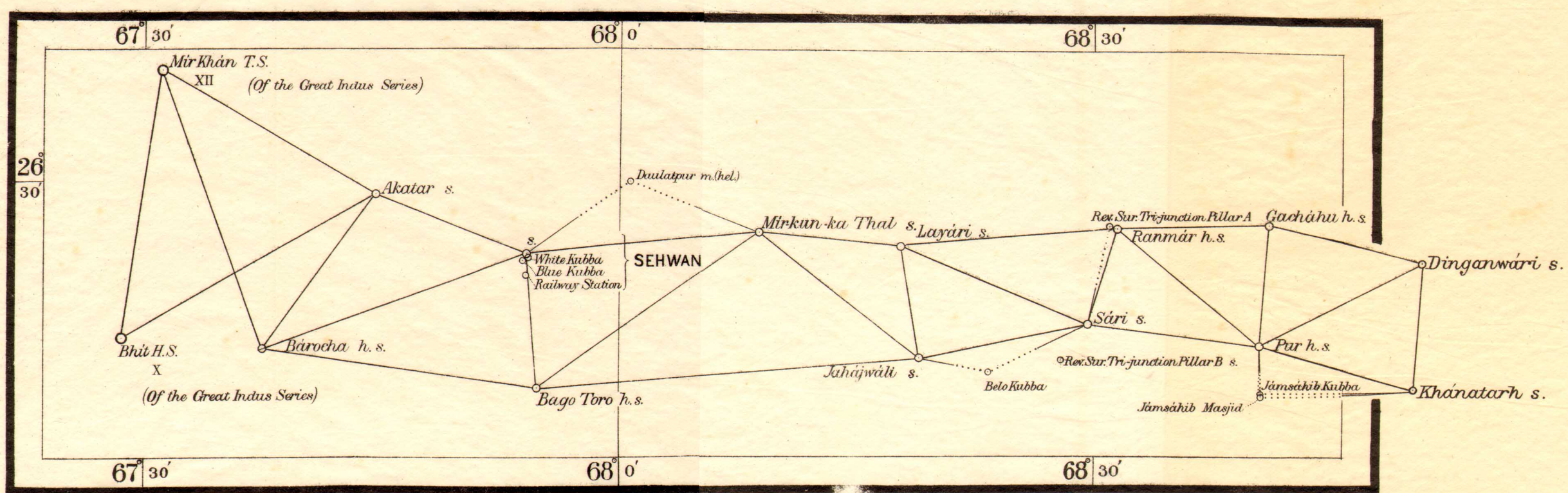
# CHART OF THE EASTERN SIND MERIDIONAL SERIES

## OF THE NORTH-WEST QUADRILATERAL



### EXPLANATION OF SYMBOLS USED ON THIS CHART

- |           |                                      |
|-----------|--------------------------------------|
| H.S.      | Signifies Hill Station (Principal)   |
| T.S.      | " Tower Station (Principal)          |
| h.s.      | " Hill Station (Secondary)           |
| s.        | " Station (Secondary, in the plains) |
| fr.       | " Fort                               |
| h.        | " Hill                               |
| hel.      | " Heliotrope                         |
| ho.       | " House                              |
| m.        | " Mark                               |
| mq.       | " Mosque                             |
| Rev. Sur. | " Revenue Survey                     |
| t.        | " Temple                             |
| to.       | " Tower                              |
| tt.       | " Tree                               |





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- 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 of  $18^{\circ} 3' 5''$ ;  $24^{\circ} 7' 11''$ ; and  $29^{\circ} 30' 18''$ . By Lieutenapt-Colonel Everest, F.R.S., &c., late Surveyor General of India, and his Assistants. London, 1847. (*Out of print*).
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- Do. in the Punjab and N.W. Provinces, Season 1866-67, Sections I to IV. Dehra Dún, 1869.
- Do. in the N.W. Provinces and Oudh, Seasons 1867-69, Sections V and VI. Dehra Dún, 1869.
- Do. from Lucknow *viá* Goruckpore &c., to Dildernugger G. T. Survey Bench-mark near Ghazee-pore, Seasons 1868-70, Section VII. Dehra Dún, 1871.
- Do. from Goruckpore *viá* Bettiah &c., to G. T. Survey Bench-mark near Parsurman, Season 1870-71, Section VIII. Dehra Dún, 1872.
- Do. from G. T. Survey Bench-mark near Parsurman to G. T. Survey Bench-mark at Pirpanti Railway Station, and from G. T. Survey Bench-mark at Purniah Church to N.E. End of Sonakhoda Base-Line; Season 1871-72, Section IX. Dehra Dún, 1873.
- Do. in Cutch, Kattywar, Guzerat, Thána and Bombay districts, No. 1 Bombay Presidency, Seasons 1874-78. Dehra Dún, 1879.
- Do. in Cuttack, Balasore, Midnapore, Howrah, 24-Pergunnahs, the Sundarbans and Hooghly districts of Bengal, Seasons 1881-83. Dehra Dún, 1884.
- Do. in the Thána, Násik and Khándesh districts of Bombay, and in Dhár, Dewás, Gwalior, Bhopal and Tonk, Native States of the Central India Agency. No. 4 Bombay Presidency and Central India Agency, Seasons 1877-78 and 1881-84. Dehra Dún, 1885.
- Do. in the Bombay Presidency and Nizam's Dominions, Nos. 2 and 3 (Revised Edition), Seasons 1877-80. Dehra Dún, 1886.
- Do. in the Madras Presidency, No. 1, Seasons 1869-85. Dehra Dún, 1886.

*April, 1887.*





DIAGRAM  
OF THE  
NORTH WEST QUADRILATERAL  
OF THE  
G. T. SURVEY OF INDIA.

