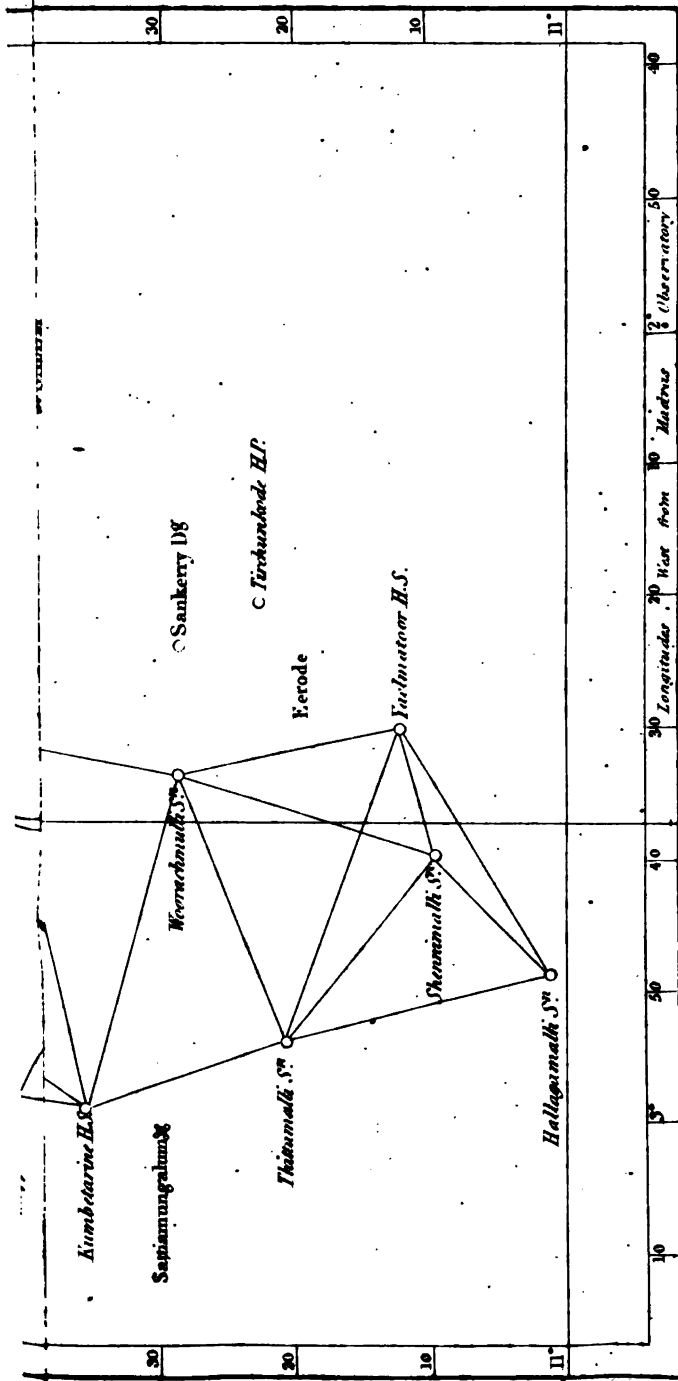


VIII.

An Account of the Measurement of an Arc on the Meridian, extending from Latitude $10^{\circ} 59' 49''$ to $15^{\circ} 6' 0''.65$ North.

BY MAJOR WILLIAM LAMBTON,
33d Regiment of Foot.

IT is with much satisfaction that I have it in my power to state to the Society the success which has attended a further extension of the grand meridional arc, and the conclusive results from another series of astronomical observations at a station near *Gooty*, in latitude $15^{\circ} 6' 0''.65$. I am thereby enabled to set aside entirely those doubtful observations at *Dodagoontah*, so often mentioned in my former communications; not, however, without some regret at the necessity of so doing; because I wished to have noticed the progressive increase of the degrees on the meridian, as I advanced to the northward, by arcs not more than two degrees in amplitude. However, as the case stands at present, it is fully satisfactory. The whole arc is $6^{\circ} 56' 22''.25$, and it may be considered as consisting of two sections; one of $2^{\circ} 50' 10''.5$, the southern one, which gives the degree 60473 fathoms nearly, for the latitude $9^{\circ} 34' 44''$, the middle point of that degree, as appeared from my last paper (in the commencement of the present volume of the *Researches*). The other section is $4^{\circ} 6' 11''.28$ in amplitude, and lies to the northward of the former. This gives the degree due to the



J. Baird, (map)

Published by John Murray, London, 1877.

middle point, or latitude $13^{\circ} 2' 55''$ equal to 60487.27 fathoms. Also the degree due to latitude $11^{\circ} 37' 49''$, the middle point of the whole arc, is 60480.42 fathoms. So that, for latitude $9^{\circ} 34' 44''$, the degree is 60472.91 fathoms; and for latitude $11^{\circ} 37' 49''$ the degree is 60480.42 fathoms; also, for latitude $13^{\circ} 2' 55''$, the degree is 60487.27 fathoms. These, being deduced from actual observations, afford a regularity in the increase exceeding my most sanguine expectations.

The recent measurement is a continuation of the former triangles in 1805 and 1806, commencing on the distance *Paughur* and *Yerracondah*, and terminating at the station of observation about three miles West from *Gooty*, where a base line has been measured as a verification to the present, and a foundation for a farther extension of a future series of meridional triangles. And, to render this account of what has already been done complete, I have here included the whole number of triangles, from the base in *Coimbetoor* to that near *Gooty*. A particular account of the measurement of the base near *Bangalore* has already been given in the 10th volume of the *Asiatick Researches*; of course it is not necessary to repeat it here. That base is therefore only taken up as a new datum, from which the triangles are carried southward to the stations *Ponnassmalk* and *Kumbetarine* hill, and northerly to *Paughur* and *Yerracondah*, and then recourse is had to the last measured base near *Gooty*. Hence what is given here, together with what appears in the 10th and present volumes of the *Researches*, will furnish an entire account of the whole arc in its present state of progress; and its future extension will, I hope, be more in the order of time, as a meridional series will be chiefly attended to; and it may be gratifying to the intelligent reader, who is interested in subjects of this nature, to know that these operations are to be extended through the *Dekkan*; which, if no local difficulties occur, may be carried to the northern confines of the NIZAM'S dominions, consi-

derably beyond the latitude of 20 degrees. It however may be doubtful as to the practicability of extending it so far, in the present state of that country; but I hope I shall have no difficulty in penetrating as far as the latitude of 18 degrees, and perhaps my next observations may be on the banks of the *Goodavery*. It is scarcely necessary to mention here, that the number of years elapsed, since the commencement of this arc in 1805, has been owing to the time taken up in extending the survey over the whole Peninsula. The base near *Gooty* has been the foundation of a series of triangles connecting *Masulipatam* with *Goa*, which I expect will be completed in 1813, and after that my whole attention will be directed to the northward, where, having only the meridional series to attend to, my progress in that direction must consequently be more rapid.

Besides the purpose of extending this arc to the northward, there is another object of equal importance, which is the measurement of a perpendicular arc, in a latitude as far north as it is possible to penetrate. It is from these perpendicular arcs that a scale is obtained for computing the relative longitudes; and when this survey is carried through the *Circars*, it will be of great importance to determine the positions of places along the sea-coast. Some of those places, according to Major RENNELL's account, are laid down from observations formerly made under the direction of Colonel PEARSE, on his route from *Madras* to *Calcutta*, in 1784; but his route was chiefly inland after crossing the *Kistna*, touching the coast in very few places; and his positions are laid down only in latitude. Others are fixed from Major STEPHEN'S survey; but the data seem to have been insufficient. Even astronomical observations are incompetent to fix the relative longitudes of a number of places within a few miles of each other. To determine the measure of a degree perpendicular to the meridian affords the only correct means: and with these low latitudes

great nicety in the observations is necessary. It therefore becomes an important desideratum to obtain an accurate scale for computing longitudes, and the more northern latitudes afford the surest results.

I have already noticed that these meridional operations were begun in 1805. The base near *Bangalore*, measured in 1804, was the first foundation, and its height above the sea was determined from a series of triangles brought from the *Coromandel* coast, and commencing from a base near *St. Thomas's Mount*. The perpendicular height above the sea of every great station was determined in the usual manner, by using the contained arcs between two stations; a method so well known, that it is needless to explain it here. An account of those heights, with the terrestrial refraction as observed at every station in going direct from sea to sea, is given in the 10th volume of the *Asiatick Researches*.

In 1805, on my return from the *Malabar* coast, the meridional triangles were begun at *Paughur* and *Yerracondah* (see the plan), and brought down to the base near *Bangalore*, from which other triangles had been extended southerly in 1804, for the purpose of obtaining sides of a great length, for measuring a perpendicular arc, but which answered exceedingly well for the meridional series. In the beginning of 1806, that series was resumed, and carried down to the *Coimbevoor* country, where a base was measured, and a choice collection of zenith distances observed, an account of which was given in my last communication, which gives the particulars of the southern section of this arc.

In 1811, the triangles were again taken up at *Paughur* and *Yerracondah*, and carried up to *Gooty*, for determining as usual the height of that base above the sea; but when that measurement was computed, and reduced to the level of the sea, the triangles were computed back to

the distance *Paughur* and *Yerracondah*, differing from the same distance brought from the base near *Bangalore* $1\frac{1}{10}$ feet, which, proportioned to the measured base near *Gooty*, will make a difference of $3\frac{6}{10}$ inches, supposing it to have been computed as a side of the last triangles brought out from the base near *Bangalore*. The superintendence of these triangles was intrusted to Lieutenant RIDDELL, of the Company's service, while I was measuring the base, and observing zenith distances; and thus terminated these operations; a summary account of which I have thought it necessary to give, because they have been carried on at intervals only, and, in point of time, bear but a small proportion to that taken up on the geographical scale.

In the present volume of these Researches, I have given the general formulæ for determining the figure and dimensions of the earth, taking my own measurements as stated in that account, and the different measurements in *England*, *France*, and at the *Polar Circle*, from which a mean result is had, for determining the rates of the *Polar* to the equatorial diameter.

The present degree in latitude $11^{\circ} 37' 19''$, compared with the *English*, *French*, and *Swedish* measurements, will give an ellipticity of $\frac{1}{200.95}$; but I forbear making any deductions till I have done all that I mean to do in the meridional measurements, and until I know further respecting the operations carried on in *England*.—When these arcs are extended as far as it is practicable, some final conclusions may then be drawn with respect to the figure and dimensions of our earth. For what has been done by those eminent men sent out to different countries in the last century seems to have left the question more involved in uncertainty than it was before. BOUGUER appears to have been the most correct; and had he taken any other measurement made in the northern latitudes, rather than that of MAUPERTUIS, to compare with his

own, his hypothesis might have been near the truth.— The degree given by the *ABBE DE LA CAILLE* is as inconsistent as that of *MAUPERTUIS*; and he draws a conclusion equally inconsistent with the doctrine of rotatory motion, viz., that the meridians in the southern hemisphere have a different curvature to those in the northern, or that the degrees of longitude in the same latitude are different in the two hemispheres. I wish to see that measurement put to the test. *MAUPERTUIS* has been found, by the members of the *Swedish* academy, to be out upwards of 200 fathoms, which circumstance cannot but tend to lessen our confidence in the *Abbé's* performance at the *Cape of Good Hope*.

In the sequel of this paper I have added, as in my last, a table, shewing the perpendicular heights of the stations above the level of the sea. The base lines are all on the table land, and it may be curious to notice their comparative heights. The table land in the neighbourhood of *Bangalore*, and towards *Ooscotta* is upwards of 3000 feet above the sea. The table land, or rather the general height of the low country in *Coimbeetoor* (for it is much undulated), is about 900 feet. Towards *Tinnevelly* it falls to between four and five hundred feet. The fall to the northward of *Bangalore* is very rapid after passing *Nundydroog*; and the summit of *Paughur*, which rises high from its base, is nearly upon a level with the table land near *Bangalore*. The mean height of the base near *Gooty* is 1182 feet, which is nearly the mean height of the flat country extending round *Gooty* and *Bellary*, from which plain the mountains and hills rise like islands from the sea. These facts being established, it is not difficult to account for the different temperatures in the different districts at the same, and at different, seasons of the year. In carrying on my geographical operations I have been particular as to the heights, and the general ranges of mountains, for they form the most prominent features of the country, and such information might aid the researches

of intelligent medical men in their investigation of the causes of those diseases, which are so fatal in some parts of the Peninsula. There are some remarkable facts with respect to the country to the westward of *Bangalore*. After passing the range of hills, in which *Savendroog*, *Paughur*, and several other stations are situated, the country has a sudden descent, and continues low considerably to the westward of *Seringapatam*, where it begins again to rise towards the mountains called the western ghauts, which are in general from two to three thousand feet higher than those which form the eastern ghauts. *Seringapatam* therefore, and all the country north and north-easterly towards the ceded districts, is a valley, upwards of a thousand feet below the table land round *Bangalore*, descending as we advance to the northward. The *Savendroog* range forms a kind of barrier to the east, but a more complete one is formed to the westward, by those stupendous mountains which form the ghauts, a number of which are from five to six thousand feet above the sea. The countries of *Canara* and *Malabar* lie immediately below these ghauts, and the sea is every where in sight. These countries are low, but broken, and much interspersed with back-water, rivers, and extensive ravines, shaded with forest and jungle, and filled with population; for the upland is barren, and it is in these ravines, and on the banks of the rivers, where all the inhabitants reside. In the month of February the low country becomes excessively hot, and the vapour and exhalation so thick, that it is difficult to see to the distance of five miles. I have viewed this curious laboratory from the tops of some of the highest mountains, where I was scarcely able to bear the cold. The heat increasing during the months of March and April, a prodigious quantity of this moisture is collected, which remains day and night in a floating state, sometimes ascending nearly to the height of the mountains, where it is checked or condensed by the cold; but immediately after descending it is again rarefied, and becomes vapour before it can reach

the earth ; and in this state of floating perturbation it remains till the setting in of the western monsoon, when the whole is condensed into rain, some falling on the low country, some among the mountains, and what escapes is blown across the *Mysoor*, and immediately over this valley, which I have just mentioned. This account is foreign to my present purpose ; but I trust I shall be pardoned for the digression, as it is a statement of facts relative to a part of the country, which has been a grave both to Europeans and natives, ever since the fall of *Seringapatam*.

I have also added a short table of the latitudes and longitudes of places, depending on the meridional arc. It is not my intention here to animadvert on the geography of the Peninsula, as we have had it handed to us in the printed maps. These, it is true, are erroneous ; but when we consider the materials from which they have been compiled, and the total impossibility of procuring better, we must allow that great credit is due to those gentlemen who have had the perseverance and industry to compile them. I can now speak with confidence with respect to the Peninsula in general, in which, in the course of this and the next year, every place of note will be laid down, from *Cape Comorin* to *Goa* on the west, and *Masulipatam* on the east, including all the interior. These, which fall within the limits of the meridional triangles, will serve as a specimen of what has been done elsewhere, and the reader can compare their positions with those in the printed maps. I only hope that the next maps of the Peninsula, if any should be published, will be constructed from other materials besides what are furnished by military marches and perambulators. These may do in the hands of a Quarter-Master General, who wants the actual distances that troops have to march, and not the distances reduced to the chords of arcs ; nor does it matter to him whether the armies march on the surface of a spheroid or of a sphere, or on a flat. But, when such materials are intended for geographical purposes, it

becomes necessary to have the outlines, at least, of a general map, on correct principles, so that the distances, however crooked and winding, may be adjusted, and fitted to those laid down with mathematical accuracy. Under these limitations, the materials furnished from military marches may be eminently useful.

I shall conclude by expressing my earnest hope that nothing will happen to prevent my fulfilling what I have here held out to the learned reader: and, were any incitement wanted to accelerate my exertions, it would necessarily arise from reflecting on the liberal and flattering treatment which I have experienced from this and the supreme Government; and which must ever continue to animate my zeal, and excite the most lively feelings of gratitude.

W. LAMBTON.

Bellary, Nov. 17, 1812.

Triangles connecting the Base in Coimbetoor with the Base near Bangalore.

In the present volume, page 43, the distance from *Hallagamalli* to *Yaelmatoor* is brought out in the 10th triangle from the base line.—This distance is the base for proceeding northerly.

ANGLES.

At Hallagamalli Station.

BETWEEN	AND			
Thittamalli Station . . .	Yaelmatoor Station . . .	72	11	51.5
				51.25
Shennimalli Station ..	Thittamalli Station . . .	59	20	59.5
				59.
				61.25
				61.5
				60.31

At Shennimalli Station.

Hallagamalli Station ..Thittamalli Station	84 00	13.5 16.5 15.5 16.75	} 15.56	
Woorachmalli Station ..Yaelmatoor Station....	56 51	35.5 36. 35.75		} 35.75
Kumbetarinemalli Station	53 22	28.5 30.25 28.5			} 29.08

At Yaelmatoor Station.

Shennimalli Station ..Woorachmalli Station..	93 31	35.75 33.	} 34.37
Hallagamalli Station ..Thittamalli Station	51 55	10. 12.75		} 11.37

At Thittamalli Station.

Shennimalli Station ..Hallagamalli Station ..	36 38	45.62 46.25 47.25	} 46.37		
Hallagamalli Station ..Yaelmatoor Station....	55 53	3.5 0.75 2.5		} 2.25	
Shennimalli Station ..Woorachmalli Station..	61 19	22.5 23.62 23.75 24.75			} 23.66
Woorachmalli Station Yaelmatoor Station....	42 5	6. 5.25 8.5 7.5 9.75	} 7.4		
Woorachmalli Station Kumbetarinemalli	87 23	44.5 43.5 43.5 44.75 42.25		} 43.7	

At Woorachmalli Station.

Shennimalli Station .. Yaelmatoor Station	... 29	36	57.75	}	56.65	
			56.75			
			55.75			
			58.25			
			54.75	}	45.08	
Kumbetarinemalli	.... 87	47	48.25		
			41.	}	46.4	
			46.			
Thittamalli Station...., Shennimalli Station	.. 50	43	45.37	}	46.4	
			45.5			
			47.62			
			47.88			
			45.63	}	58.68	
Kumbetarinemalli Thittamalli Station 37	3			61.85
				54.6	}	43.07
				59.6		
Thittamalli Station.... Yaelmatoor Station 80	20	42.87	}	23.5	
			42.63			
			42.37			
			43.63			
Paulamalli Station Kumbetarinemalli 86	4	25.5	}	
				25.		
				22.		
				21.5		

At Paulamalli Station.

Kumbetarinemalli Station Woorachmalli Station	65	49	1.	}	2.12
			0.75		
			4.5		
			2.25		
Ponnassmalli Station.... Kumbetarinemalli	.. 91	22	1.5	}	2.12
			2.75		

At Kumbetarinemalli Station.

Ponnassmalli Station .. Paulamalli Station 43	48	33.25	}	34.15
			35.25		
			34.75		
			35.25		
			32.25	}	
			32.25		

At Kumbetarinmalli Station (continued.)

BETWEEN	AND			
Woorachmalli Station ..	Paulamalli Station	28°	6'	38.75
				39.25
				38.75
				37.5
				35.
				23.58
				21.57

} 37.85

} 22.57

At Ponnassmalli Station.

Kumbetarinemalli Station	Paulamalli Station ..	44°	49'	36.04
				35.04
				33.04

} 34.71

PRINCIPAL TRIANGLES.

Hallagamalli from Yaelmatoor 130600.5 feet.							
Number.	TRIANGLES.	Observed Angles.	Difference.	Spherical Excess.	Error.	Angles for Calculation.	Distances in Feet.
1	Hallagamalli Station ..	° ' "	"			° ' "	
	Yaelmatoor Station ..	79 11 51.25	-1.4			79 11 49.5	
	Thittamalli Station....	51 55 11.37	-1.11			51 55 09.75	
		55 58 02.25	-1.14			55 53 00.75	
		180 00 04.87		" 3.65	+ 1.92	180 00 00.00	
	Thittamalli from	{ Hallagamalli Station { Yaelmatoor Station.....					194171.3 150193.2
Hallagamalli from Shennimalli Station 74520.2 feet.							
2	Hallagamalli Station ..	59 21 00.31	-0.54			59 20 59.75	
	Shennimalli Station ..	84 00 15.56	-0.84			84 00 14.5	
	Thittamalli Station....	36 38 46.37	-0.50			36 38 45.75	
			180 00 02.24		1.88	+ 0.36	180 00 00.0
	Thittamalli from	{ Hallagamalli Station { Shennimalli Station.....					194168.7 107409.5
The above Base will be found in the commencement of this volume, in the 7th triangle.							

Thittamalli from Woorachmali Station, 128593.8 feet.							
Number.	TRIANGLES.	Observed Angles.	Differences.	Spherical Excess.	Error.	Angles for Calculation.	Distances in Feet.
7	Thittamalli Station . . .	0' 87 23 43.7	" -1.36			0' 87 23 41.75	
	Woorachmali Station	37 03 58.68	-0.73			37 03 57.95	
	Kumbetarinemalli . . .	55 39 22.57	-0.76			55 39 21.00	
		180 00 04.95		9.85	+ 2.1	180 00 00.00	
	Kumbetarinemalli Station from		{ Thittamalli Station 94008.4 { Woorachmali Station 15580.9				
The above Base is the mean distance found in the three triangles on the following different Bases, viz., Shennimalli from Thittamalli, Shennimalli from Woorachmali, and Yaematoor hill from Thittamalli station; differing in the extremes only one foot.							
Shennimalli from Woorachmali 191794.4 feet.							
8	Shennimalli Station ..	53 29 29.08	-1.14			53 29 28.	
	Woorachmali Station.	87 47 45.08	-2.16			87 47 43.	
	Kumbetarinemalli . . .	. . . . .				38 49 49.
						180 00 00.	
	Kumbetarinemalli from		{ Shennimalli 199989.1 { Woorachmali 155801.6				
The side Shennimalli from Woorachmali is the mean distance found in the triangles Shennimalli, Yaematoor hill, Woorachmali; and Shennimalli, Thittamalli, Woorachmali.—							
Woorachmali from Kumbetarinemalli, 158801.6 feet.							
9	Woorachmali Station	86 04 23.5	-0.75			86 04 22.	
	Kumbetarine Station..	28 06 37.85	-1.36			28 06 37.	
	Paulamalli Station . . .	65 49 02.12	-0.84			65 49 01.	
		180 00 03.47		9.95	+ 0.52	180 00 00.	
	Paulamalli from		{ Woorachmali 80470.9 { Kumbetarinemalli 170388.5				
Kumbetarine from Paulamalli, 170388.5 feet.							
10	Kumbetarinemalli . . .	43 48 34.15	-1.68			43 48 32.5	
	Paulamalli Station . . .	91 22 02.12	-3.45			91 21 54.5	
	Ponnassmali Station ..	44 49 34.71	-1.66			44 49 33.0	
		180 00 10.98		6.74	+ 4.24	180 00 00.0	
	Ponnassmali Station from		{ Kumbetarinemalli 241632.9 { Paulamalli Station 167319.6				

DESCRIPTION OF THE GREAT STATIONS.

Hallagamalli. A hill with a pagoda on the top, about seven miles S. W. from *Shennimalli*. The station is on the platform of the pagoda.

Shennimalli. A hill near a respectable village of that name on the great road from *Eerode* to *Daraporam*. The station is on the highest part of the hill, a few hundred feet N. W. from the pagoda. It is marked as usual with a platform and stone.

Yáélmatoor. A well-known hill about six miles E. N.E. from *Shennimalli*, with a pagoda near the top. The station is on a stone platform a little way to the N. W. of the pagoda, on the highest part of the hill.

Thittamalli. A small hill with a pagoda near the top, and lies about thirteen miles S. easterly from *Sattimungalum*. The station is on a rock, above where the pagoda stands, and a little way north from it.

Woorachmalli. A peaked hill about two miles N. E. from *Bhavany*, on the west bank of the *Cauvery*. The station is on the platform of the pagoda, on the top of the hill.

Paulamalli.—A very large mountain below the ghauts, in the northern district of *Coimbetoor*. The *Cauvery* river runs a little way to the westward of it. This mountain is well known, and is a few miles northerly from *Bhavany*, where the collector resides. On the very summit there is a pagoda, and the station is on the platform of that pagoda marked.

Kumbetarinemalli.—Another prodigious mountain in the northern district of *Coimbetoor*, about seven miles northerly from *Sattimungalum*. The mountain is well known there, and the road ascends from that side. The station is on the top of the peak, near a small pillar and a place of worship. It is in the middle of a platform built of mud and stones.

Ponnassmalli.—A great mountain well known in that part of the country. It has a double top, but the station is on the northernmost one, and cannot be mistaken. It is on a platform, with a marked stone in the middle. *Allambaddy* lies about seven miles east from this mountain.



Triangles taken up at the Base near Bangalore, and continued back to Ponnassmalli and Kumbetarine.



ANGLES.

At the N. end of the Base (near Bangalore).

BETWEEN	AND	
S. end of the Base	Muntapum Station	89 19 21.5
		19.75
		20.25
		21.5
		} 20.75



At the S. end of the Base.

N. end of the Base	Muntapum Station	33 43 60.4
		58.15
		61.27
		60.43
		} 60.06
Muntapum Station	Bonnairgottah Station	106 09 36.25
		39.76
		36.5
		38.38
		} 37.72

At the Muntapum Station.

BETWEEN	AND				
N. end of the Base	S. end of the Base	56	56	40.62	} 41.42
				41.4	
				42.25	} 56.05
S. end of the Base	Bonnaigottah Station	35	3	56.05	
				54.75	} 53.39
				54.25	
				57.75	} 53.39
				57.5	
Bonnaigottah Station	Tirtapully Station	97	26	51.53	} 53.39
				55.25	

At the Muntapum Centre.

Bonnaigottah Station	Tirtapully Station	97	28	55.75	} 55.27
				54.85	
				55.	} 46.5
				55.5	
	Savendroog Station	69	50	45.25	} 46.5
				47.75	

At Dodagoontah Station.

Savendroog Station	Bonnaigottah Station	61	34	54.	} 51.29
				50.	
				49.	
				55.	
				50.	} 29.68
Referring Flag	Savendroog Station	104	4	29.5	
				31.25	
				29.	
				27.3	} 29.68
				32.5	
				28.5	} 29.68
				28.5	
Referring Lamp	Pole Stars W. elong. 19th	1	31	53.	} 29.68
	1805, July 22d			56.25	
	8th			51.25	
	12th			48.5	
	17th			46.25	
	18th			47.5	
	19th			45.5	
	23d			45.5	
	26th			43.5	
	26th			44.5	

At Bonnairgottah Station.

BETWEEN	AND				
S. end of the Base	Muntapum Station	38	46	30.02	} 31.15
				32.28	
Muntapum Station	Tirtapully Station	51	7	53.25	} 54.62
				53.6	
				57.	
Tirtapully Station	Muntapum Station	51	5	56.65	} 56.91
				56.55	
				59.55	
Muntapum Station	Savendroog Station	70	52	25.06	} 23.91
				22.77	
Dodagoontah Station	Savendroog Station	83	20	14.75	} 16.17
				17.5	
				16.25	

At Tirtapully Station.

Muntapum Station	Bonnairgottah Station	31	25	15.03	} 16.15
				17.27	
Muntapum Centre	Bonnairgottah Station	31	25	7.97	} 8.96
				9.95	
Deorabetta Station	Savendroog Station	46	42	26.25	} 24.5
				22.75	

At Deorabetta Station.

Savendroog Station	Tirtapully Station	79	40	54.	} 52.9
				52.	
				53.	
				52.75	
Savendroog Station	Bundhullydroog	97	47	52.75	} 57.75
				58.5	
				58.25	
Bundhullydroog	Ponnassmalli Station	36	19	56.5	} 23.33
				24.	
				24.	
				23.	

At Savendroog Station.

BETWEEN	AND			
Muntapum Centre	Bonnairgottah Station	39	16	50.25
				50.75
				50.25
				51.25
				51.75
				51.05
Tirtapully Station	Deorabetta Station	53	36	48.
				48.
				47.25
				46.75
Deorabetta Station	Bundhullydroog Station	41	41	41.25
				40.5
				40.75
				41.5
				40.25
				41.75
				40.5

At Bundhullydroog Station.

Savendroog Station	Deorabetta Station	37	70	28.5
				31.75
Deorabetta Station	Ponnassmalli Station	66	43	2.75
				3.25
				3.
				4.
Ponnassmalli Station	Kumbetarinemalli	85	12	57.19
				54.7
				55.94
				53.95
				55.2

At Ponnassmalli Station.

Deorabetta Station	Bundhully Station	76	57	35.
				34.25
				34.25
Bundhully Station	Kumbetarinemalli	67	12	36.75
				36.75
				37.5
				35.25
				33.25
				36.25

At Kumbetarinemalli Station.

BETWEEN AND
 Bundhullydroog.....Ponnassmalli Station^o27 34' 34" }
 36. }
 34.25 } 35.96
 35.5 }
 37. }
 37.5 }
 37.5 }

PRINCIPAL TRIANGLES.

N. end of the base from S. end of the base 39793.7 feet.							
Number.	TRIANGLES.	Observed Angles.	Differences.	Spherical Excess.	Error.	Angles for Calculation.	Distances in Feet.
11	N. end of the base....	^o 89 ['] 19 ["] 20.75	-0.12			^o 89 ['] 19 ["] 20	
	S. end of the base	33 44 00.06	-0.06			33 43 5 93	
	Muntapum Station....	56 56 41.42	-0.06			56 56 40.7	
		180 00 02.23		["] 0.24 + 1.99	180 00.00 0		
Muntapum station from { N. end of the base 26365.95 S. end of the base 47475.03							
S. end of the base from Muntapum Station 47475.03 feet.							
12	S. end of the base	106 09 37.72	-0.3			106 09 35.9	
	Muntapum Station....	35 03 56.05	-0.08			35 03 54.5	
	Bonnaigottah Station	38 46 31.15	-0.07			38 46 29.6	
		180 00 04.92		0.47 + 1.45	180 00 00.0		
Bonnaigottah station from { S. end of the base 43551.7 Muntapum Station 72811.7							
Muntapum Station from Bonnaigottah Station 72811.7 feet.							
13	Muntapum Station....	97 26 53.39	-1.07			97 26 53.9	
	Bonnaigottah Station	51 07 54.62	-0.37			51 07 51.2	
	Tirtapully hill Station	31 25 16.15	-0.41			31 25 11.9	
		80 00 04.16		1.85 + 2.31	180 00 00.0		
Tirtapully Station from { Muntapum Station 108746.8 Bonnaigottah Station 138492.3							

Bonairgottah Station from Tirtapully Station 138492.9 feet.							
Number.	TRIANGLES.	Observed Angles.	Differences.	Subtotal Excess.	Error.	Angles for Calculation.	Distances in Feet.
14	Bonairgottah Station	51° 05' 56.91"	-0.4"			51° 05' 56.5"	
	Tirtapully Station	31° 25' 08.96"	-0.4"			31° 25' 09"	
	Muntapum Centre....	97° 28' 55.27"	-1.1"			97° 28' 54.5"	
		180° 00' 01.14"		1.9"	-0.76"	180° 00' 00.0"	
Muntapum centre from { Bonairgottah Station							72815.6
							{ Tirtapully Station 108705.1
Muntapum Centre from Bonairgottah 72815.6 feet.							
15	Muntapum Centre....	69° 50' 46.5"	-0.6"			69° 50' 46"	
	Bonairgottah Station	70° 52' 23.91"	-0.6"			70° 52' 23.5"	
	Savendroog Station ..	39° 16' 50.88"	-0.5"			39° 16' 50.5"	
		180° 00' 01.29"		1.7"	-0.41"	180° 00' 00.00"	
Savendroog Station from { Muntapum Centre							108661.6
							{ Bonairgottah Station .. 107968.7
Bonairgottah from Savendroog Station 107968.7 feet.							
16	Bonairgottah Station	83° 20' 16.17"	-0.79"			83° 20' 15.4"	
	Savendroog Station ..	35° 04' 53.8"				35° 04' 53.8"	
	Dodagoontah Station ..	61° 34' 51.29"	-0.52"			61° 34' 50.8"	
						180° 00' 00.0"	
Dodagoontah Station from { Bonairgottah.....							70556.7
							{ Savendroog Station.... 121933.9
<p>With the sides <i>Muntapum Centre from Tirtapully hill</i> 108705.1 feet, and <i>Muntapum Centre from Savendroog</i> 108661.6 feet, and the included angle at <i>Muntapum Centre</i> 167° 19' 29".3, the side <i>Savendroog Station from Tirtapully Hill</i> is found 216038.9 feet.</p> <p>Again, with the sides <i>Bonairgottah from Tirtapully</i> 138492.9 feet, and <i>Bonairgottah from Savendroog</i> 107968.7 feet, and the included angle at <i>Bonairgottah</i> 121° 58' 19", the side <i>Savendroog from Tirtapully</i> is found 216038.8 feet, differing from the above $\frac{1}{10}$ of a foot, and of which the mean is 216038.85 feet.</p>							

Number.	TRIANGLES.	Observed Angles.	Differences.	Spherical Excess.	Error.	Angles for Calculation.	Distance in Feet.
Savendroog from Tirtapully Station 216038.85 feet.							
17	Savendroog Station ..	53 36 47.5	-1.9			35 36 45.5	
	Tirtapully Station	46 42 24.5	-1.9			46 42 22.5	
	Deorabetta Station ..	79 40 52.9	-2.8			79 40 52	
		180 00 04.9		6.6	-1.7	180 00 00.0	
Deorabetta Station from { Savendroog Station.....							159828.8
{ Tirtapully Station							176775.8
Savendroog Station from Deorabetta 159828.8 feet.							
18	Savendroog Station ..	44 41 40.93	-1.4			44 41 39.5	
	Deorabetta Station ..	97 47 57.75	-4			97 47 53	
	Bundhullydroog Station	37 30 30.12	-1.5			37 30 28.5	
		180 00 08.8		" 6.9	" 1.9	180 00 00.0	
Bundhullydroog from { Savendroog Station.....							260072
{ Deorabetta Station							184620.5
Deorabetta Station from Bundhullydroog 184620.5 feet.							
19	Deorabetta Station ..	36 19 23.33	-1.25			36 19 22	
	Bundhully Station	66 43 03.25	-1.47			66 43 03.5	
	Ponnassmalli Station ..	76 57 34.5	-1.78			76 57 34.5	
		180 00 01.08		4.5	+ 3.42	180 00 00.0	
Ponnassmalli Station from { Deorabetta Station....							174071.7
{ Bundhullydroog							112951.8
Bundhullydroog from Ponnassmalli 112951.8 feet.							
20	Bundhullydroog Station	85 12 55.4	-2.66			85 12 52.5	
	Ponnassmalli Station ..	67 12 35.96	-1.71			67 12 33.5	
	Kumbetarinemalli Stat.	27 34 35.96	-1.54			27 34 34	
		180 00 07.32		5.91	+ 1.41	180 00 00.0	
Kumbetarinemalli from { Bundhully Station							223551.4
{ Ponnassmalli Station.....							241627.7
<p>Here appears a difference of $4\frac{1}{2}$ feet in the distance from <i>Ponnassmalli</i> to <i>Kumbetarine</i> hill, as given by the triangle, from whence it may be inferred, that, had the base been computed from bringing the triangles from the northward, it would have exceeded the measurement by $7\frac{1}{2}$ inches.</p>							

DESCRIPTION OF THE GREAT STATIONS.

N., and *S.* end of the base line, near *Bangalore*, are both defined by square masses of stone masonry, having each a circle and a point in the centre of the mass. The first is near the village of *Banswaddy*, nearly a quarter of a mile *S.* easterly from it. The second lies about half a mile *S.* easterly from a small village named *Agrarum*, which is upwards of three miles *N. E.* from *Beygoor*.

Muntapum Station. There are two stations made use of: the one is in the centre of the *Muntapum*; and the other a few feet to the west of it, but is now defaced. The *Muntapum* (a small *Hindoo* building on four pillars) lies about four miles north from *Bangalore*, a little way to the westward of the *Nundydroog* road. It is a noted object, and seen at a great distance.

Dodagoontah Station. This is the great station of observation at which the position of the meridian line is determined. It lies half way between the north end of the base and the *Muntapum*, and is marked by a large well-built stone platform of a circular form, and about ten feet in diameter. Its foundation is about two feet and a half under ground, having a large stone at the bottom, with a circle whose centre corresponds with the centre of the circle above, over which the plummet of the instrument was suspended during the observation.

Bonnairgottah Station. A small rocky hill close to the village of that name, lying about ten miles nearly south from *Bangalore*. The station is on a platform of clay on the top of the hill, with a marked stone in the middle.

Tirtapulli Station. A small hill, upwards of seven miles *E. S. E.* from the *Eedgah*, near *Ooscottah*. It is well known in that neighbourhood, and the station is on its summit, being a platform of clay and stones, with a marked stone in the middle. It is close to the road leading from *Ooscottah* to *Malloor*.

Deorabetta Station. This is a small hill upwards of seven miles south from *Annicul*, with a pagoda on the top. The station is on the platform of the pagoda, marked by a small millstone.

Savendroog Station. The station is on the summit of the east peak of the droog, about forty or fifty feet north easterly from the *Muntapum*. The circle is inserted on the rock.

Bundhullydroog or Eekrumgherry Station. This is a large mountain south of the *Cauvery* river, in the northern district of *Coimbetoor*, upwards of thirteen miles nearly east from *Sattiagul*. The station is on the platform of a small building on the highest pinnacle of the droog. There is another building close to it to the west. A circle is marked on the building, over which the instrument stood; but there was erected a pyramid of brick, several feet high, to serve as a mark to be taken from the other stations, and which may probably remain for many years. The village of *Bundhully* is a little way to the eastward.

Triangles taken up at Deorabetta and Savendroog, and continued to the side Paughur from Yerracondah.

ANGLES.

At Deorabetta Station.

BETWEEN	AND		
Savendroog Station	Allasoor Station	47° 20'	36.68
			38.18
			37.93
			38.93
			41.93
			} 38.73

At Savendroog Station.

BETWEEN		AND			
Deorabetta Station	....	Allasoor hill	.....	78° 57'	48. } 47.5
					48. }
					47.25 }
					56.75 }
Allasoor hill Station	..	Cheetkul hill Station	..	55 41	36. } 34.92
					35.5 }
					33.25 }

At Allasoor Station.

Deorabetta Station	....	Savendroog Station	....	53 41	39.87 } 39.59
					42. }
					37.75 }
					38.75 }
Savendroog Station	....	Cheetkul Station	.....	62 10	44.5 } 43.71
					44.75 }
					41.87 }
Cheetkul Station	.....	Kulkotah Station	....	60 45	47.75 } 48.
					47.75 }
					46.5 }
					50. }

At Cheetkul Station.

Savendroog Station	..	Allasoor hill Station	..	62 7	47.75 } 47.87
					48. }
Allasoor hill Station	..	Kulkotah Station	.....	42 19	21.75 } 19.62
					17.5 }
Kulkotah Station	....	Bailippe Station	....	71 36	29.25 } 27.54
					29. }
					26.75 }
					27. }
					25.75 }

At Kulkotah Station.

Cheetkul hill Station	..	Allasoor Station	.....	76 54	54.75 } 52.
					49.75 }
					52.25 }
					50.75 }
					52.5 }

At Kulkotah Station (continued.)

BETWEEN	AND			
Cheetkul Hill	Bailippee Station	....53	34	3.
				5.5
				3.5
				3.5
				3.
Bailippee Station	.... Yerracondah Station	..59	20	36.25
				38.
				37.25
				36.5
				37.5

At Bailippee Station.

Kulkotah Station	....Cheetkul Station.....	54	49	32.75
				35.75
				34.
				38.
	Yerracondah Station	..72	20	57.5
				58.5
				59.75
				54.25
Yerracondah Station	..Paughur Station	.....	54	7
				38.
				41.
				39.75
				39.5

At Yerracondah Station.

Kulkotah StationBailippee Station	48	18	29.75
					31.25
					30.12
Bailippee Station	....Paughuroog Station..	63	20	45.5
				44.25	
				45.	
				44.25	
				46.75	

At Paughuroog Station.

Yerracondah Station	..Bailippee Station.....	62	31	43.75
				44.5
				43.75
				41.75
				43.75
				42.25

PRINCIPAL TRIANGLES.

Savendroog from Deorabetta Station 159828.8 feet.							
Number.	TRIANGLES.	Observed Angles.	Differences.	Spherical Excess.	Error.	Angles for Calculation.	Distance in Feet.
31	Savendroog Station ...	78 57 47.5	-2.26			78 57 45.1	145859.1 194662.8
	Deorabetta Station ...	47 20 38.73	-1.55			47 20 37.	
	Allasoor Station	53 41 39.59	-1.69			53 41 37.9	
		180 00 05.82		5.4	+ 0.42	180 00 00.0	
	Allasoor hill from { Savendroog Station..... Deorabetta Station.....						145859.1 194662.8
Savendroog from Allasoor hill 145859.1 feet.							
32	Savendroog Station ..	55 41 34.92	-1.3			55 41 32.8	145924.8 136292.3
	Allasoor Station	62 10 43.71	-1.4			62 10 41.5	
	Cheetkul Station	62 07 47.87	-1.4			62 07 45.7	
		180 00 06.5		4.2	+ 2.3	180 00 00.0	
	Cheetkul Station from { Savendroog Station..... Allasoor Station						145924.8 136292.3
Allasoor hill from Cheetkul hill 136292.3 feet.							
33	Allasoor Station	60 45 48.	-0.8			60 45 48.2	94211.4 122100.6
	Cheetkul Station	42 19 19.62	-0.8			42 19 19.8	
	Kulkotah Station	76 54 52.	-1.1			76 54 52.	
		179 59 59.62		2.6	-2.98	180 00 00.0	
	Kulkotah hill from { Allasoor Station						94211.4 122100.6
Cheetkul hill from Kulkotah Station 122100.6 feet.							
34	Cheetkul Station	71 36 27.54	-1.3			71 36 25.3	122100.6 141745.
	Kulkotah Station	53 34 03.07	-1.0			53 34 01.7	
	Bailippee Station	54 49 35.12	-1.1			54 49 33.	
		180 00 06.36		3.3	+ 3.06	180 00 00.0	
	Bailippee Station from { Cheetkul Station..... Kulkotah Station						122100.6 141745.

Kulkotah Station from Bailippee Station 141745 feet.							
Number.	TRIANGLES.	Observed Angles.	Differences.	Spherical Excess.	Error.	Angles for Calculation.	Distance in Feet.
85	Kulkotah Station	59 20 37.1	-1.8			59 20 35.3	180883.3 163990.5
	Bailippee Station	72 20 57.5	-1.8			72 20 55.7	
	Yerracondah Station ..	48 18 30.37	-1.6			48 18 29.	
		180 00 04.97		5.2	-0.23	180 00 00.0	
	Yerracondah from	{ Kulkotah Station { Bailippee Station					
Bailippee Station from Yerracondah 163990.5 feet.							
86	Bailippee Station	54 7 39.56	-1.6			54 7 37.	164484.9 149134.2
	Yerracondah Station ..	63 20 45.15	-1.8			63 20 42.5	
	Paughur Station.....	62 31 43.29	-1.8			62 31 40.5	
		180 00 08.00		5.2	+ 2.8	180 00 00.0	
	Paughurdroog from	{ Bailippee Station { Yerracondah Station					

DESCRIPTION OF THE GREAT STATIONS.

Allasoor Station.—A rocky hill close to the *Nundydroog* road, near twelve miles north from *Dodagoontah*. The station is on the highest part of the rock to the westward of a small hollow running across the top. The circle is on the rock.

Cheetkul Station.—It is a hill about a mile to the S. W. of a large village of that name, lying on the road from *B. Pallapoor* or *Davaroydroog*. The station is marked on the top of the rock. There is a very large stone close to the south of the rock.

Kulkotah Station.—A hill near a village of that name, near seven miles N. W. from *Nundydroog*. The station is on a platform at the summit, close to a high rock with

a pillar upon it to the S. E. of the platform. A stone with a circle defines the station.

Bailippee Station.—A hill in the jungle, upwards of five miles precisely east from *Mudgherry*. The station is on its summit marked as usual.

Yerracondah Station.—A hill in the ceded districts, about twelve miles S. S. E. from *Pencondah*. There is no village very near it, but it is well known; the station is on the highest part, and is on a large platform built of loose stones and mud, with a stone and circle in the middle. The ascent is on the east side.

Paughur Station. A large droog, well known on the northern boundary of *Mysoor*. The station is on a circular platform on the top of a square mass of building where the flag-staff stood, and is in the centre of the Sultan's battery, the largest circular fortified rock on the top of the droog. A circular stone with a hole in it defines the station.

Measurement of the Base Line near Gooty.

Experiments made for comparing the Chains.

PREVIOUS TO THE MEASUREMENT.			AFTER THE MEASUREMENT.			
MONTH.	Excess of the old Chain.		REMARKS.	MONTH.	Excess of the Old Chain	REMARKS.
1811.	A. M.	P. M.		1811.	A. M.	
April 10th,	Divisions.	Divisions.	<p style="text-align: center;">Mean temperature during these experiments, A. M. 81.3 P. M. 101.6</p>	May 11th,	Divisions.	<p style="text-align: center;">Mean temperature during these experiments was 89.6.</p>
	31	30			38.95	
	30	30.5			37.5	
	30	30			38.5	
	30	30			39	
	31	31			39	
	30	30			39	
	31	31			38.5	
	30	29.5			38.5	
	31	30			39	
	81.5	30			38	
	31				37	
	30.5				37	
31						
Mean	30.62	30.2	Mean	38.27		

TABLE containing the Particulars of the Measurement.

[Commenced 12th April, 1811.]

No. of the Hypotheses.	Length of each in Feet.	Angles of Elevation and Depression.	Deductions from each Hypotheses.	Perpendicular.		Commencement from the last.		Mean Temperature.
				Ascents.	Descents.	Above.	Below.	
			Feet.	Feet.	Feet.	Inches.	Inches.	°
1	1300	0 12 39	.00084		4.78	.30		98.2
2	700	0 9 42	.00021		0.55		9.8	98.
3	900	0 22 35	.01935		5.90		10.8	103.7
4	1100	0 30 57	.04466		9.90		12.2	99.6
5	800	0 15 54	.00856		3.70			96
6	500	0 14 00	.00415		2.04		10.8	101.4
7	400	0 5 37	.00082	0.65		15.2		80.2
8	800	0 2 15	.00016		0.52	9-		95.2
9	800	0 5 00	.00088		1.16			100.8
10	900	0 23 09	.02243		6.06		10.5	92.1
11	600	0 09 09	.00210		6.60		5.7	107.1
12	700	0 21 45	.02986		1.47		16.1	83.3
13	800	0 30 00	.03048		6.98		13.	104.7
14	400	0 28 57	.01420		3.37		2.6	114.6
15	700	0 34 12	.03465		6.96			81.5
16	700	0 23 06	.01582		4.70		1.5	95.7
17	900	0 23 57	.02187		6.27		4.5	92.1
18	900	0 25 15	.02421		6.61	15.5		96.6
19	800	0 21 03	.01504		4.90	5.		98.8
20	900	0 15 57	.00662		4.18		4.6	89.1
21	800	0 14 12	.00680		3.30		3.7	92.1
22	900	0 12 30	.00603		3.27		2.2	90.1
23	700	0 01 15	.00014	0.25			4.5	110.8
24	700	0 19 15	.01099		2.92			89.2
25	900	0 16 55	.00450		2.26	5.7		96.4
26	900	0 08 06	.00232		2.12		4.2	100.9
27	800	0 07 00	.00168		1.03		12.1	88.2
28	1000	0 18 22	.00760		2.29	2.2		110.3
29	600	0 16 27	.00684		2.27		5.3	89.3
30	900	0 23 54	.02172		6.26		10.7	106.1
31	800	0 17 49	.01072		4.15	14.		92.5
32	700	0 00 45			0.15	8.3		107.1
33	700	0 Level					3.2	99.8
34	1600	0 12 44	.01104	5.93			5.8	104.9
35	800	0 01 08	.00002		0.26		8.5	103.5
36	600	0 08 23	.00186		1.40	1.2		104.9
37	1300	0 13 27	.01001		5.09		5.7	102.9
38	900	0 17 12	.01125		4.50		13.0	81.8
39	200	0 01 35	.00002	0.09				99.7
40	700	0 17 24	.00896		3.54		12.7	110.2
41	500	0 20 00	.00845		2.91		6.5	80.4
Percent from the termination of the Base to the ground..							27.9	
Total	32600		.43073	6.92	138.6	16.7	229.2	97.13

[Completed 4th May, 1811.]

N. end of the Base above S. end of the Base in perpendicular height 142.98 feet.

At the commencement, the old chain exceeded the new one 30.41 divisions of the micrometer, equal to .01218 feet. Therefore 326×100.01218 feet, will be the measure in terms of the new chain. . . = 32603.9707

At the conclusion, the old chain exceeded the new one 38.27 divisions of the micrometer, and had therefore increased 7.86 divisions, equal to .00315 feet. Hence $326 \times \frac{0.00315}{3} = 0.5133$ feet, the correction for the wear, which add. . . + 0.5133

The sum of the deductions from col. 4th is 0.43673 feet, which being increased in the ratio of 100.01218 feet, will be 0.43678, which subtract — 0.4368

Hence the apparent horizontal distance will be 32604.0472

The correction for the expansion and reduced to the standard temperature of 62° will be $\frac{(97^{\circ}.13 - 50) \times .0074 - (62^{\circ} - 50^{\circ}) \times .01237}{12}$ $\times 32604.0472$. will be 5.4429 feet, which add. + 5.4429

Hence the corrected measure of the base for the temperature of 62° will be. . . 32609.4901

Which being reduced to the level of the sea by taking the mean height of the base, and which is 1181.5 feet above the level of the sea will be 32607.6000

Triangles taken up at the Base near Gooty, and continued back to the side Paughurdroog from Yerracindah.

ANGLES.

At the N. end of the Base.

BETWEEN	AND			
Gootydrroog Station	..S. end of the Base	....87	27	16.5
				21.5
				20.5
				17.
				15.
				16.5
				15.
				14.
				13.5
				15.
S. end of the Base	....Paumdy Station	.....35	04	8.
				7.
				7.5
				4.
				3.

16.45

5.9

At the S. end of the Base.

Gootydrroog Station	..N. end of the Base	....27	13	59.
				67.5
				69.
				70.5
				58.5
				64.5
				65.5
				64.
				55.5
				56.5
				58.5
N. end of the Base	....Paumdy Station	....105	2	69.5
				56.5
				64.
				65.5
				62.5
				69.
				68.5
				66.

62.64

65.19

At the S. end of the Base (continued).

BETWEEN	AND			
Gootydroog Station	..Namthabad Station	..	27 14	2.64
Namthabad Station	..Paumdy Station	....	105 03	5.19
∠. N. end of the Base	Paumdy Station	....	105 3	05.19
∠. Gootydroog Station	N. end of the Base	..	27 14	02.64
<hr/>				
∠. Paumdy Station	..Gootydroog Station	..	132 17	07.83

At Paumdy Station.

N. end of the BaseS. end of the Base	39 52	50.5	}	49.75
				49.		
				49.		
				50.		
				50.		
Namthabad Station	..N. end of the Base	0 28	53.5	}	54.
				53.5		
				55.5		
				54.		
Gootydroog Station	..S. end of the Base	26 26	19.	}	19.69
				20.5		
				18.5		
				20.		
				21.5		
				21.5		
				18.5		
Konakoondloo Station	Gootydroog Station	..	78 44	50.	}	51.61
				52.5		
				50.5		
				52.		
				52.5		
				52.		
				51.		
				51.5		

BETWEEN		AND			
Gootydroog Station	..	Guddakulgooda Station	88° 42'	29.	} 29.35
				29.	
				27.5	
				25.	
				27.5	
				28.5	
				29.5	
				25.	
				35.	
				37.5	
N. end of the Base	Namthabad Station 0 28	54.	
		S. end of the Base 39 52	49.5	
S. end of the Base	Namthabad Station 40 21	43.5	

At Konakoondloo Station.

Gootydroog Station	..	Koelacondah Station	.. 41 26	16.	} 18.57
				18.	
				16.	
				20.	
				21.	
				21.	
Paumdy Station	Gootydroog Station 36 01	43.	} 41.58
				39.5	
				43.	
				36.5	
				41.	
				46.5	

At Koelacondah Station.

Gootydroog Station	..	Guddakulgooda Station	74 59	9.5	} 11.15
				8.	
				8.5	
				9.	
				7.5	
				9.5	
				7.5	
				18.	
				17.	
				17.	
Konakoondloo Station	..	Gootydroog Station 58 55	62.5	} 60.8
				56.5	
				64.	
				63.	
				58.	

At Guddakulgooda Station.

BETWEEN	AND		
Gootydrroog Station	..Ooderpudroog Station	69° 26'	22.5
			27.5
			24.
			27.5
			18.5
			18.5
			17.5
			17.
Paumdy Station	.....Gootydrroog Station	..24 14	38.5
			33.
			35.
			40.
			37.
			33.

} 21.63

} 36.17

At Guddakulgooda Station.

Gootydrroog Station	..Koelacondah Station	..30 12	35.5
			34.
			55.
			47.5
			54.
			54.5
			39.
			45.5

} 45.63

At Gootydrroog Station.

N. end of the Base	....S. end of the Base	....65 18	48.
			35.5
			44.5
			47.
			47.
			47.
			38.
			39.
			33.
			42.
			32.
Paumdy Station	.....S. end of the Base	....21 16	32.75
			37.
			36.5
			29.5
			27.5

} 41.19

} 32.65

At Gootydroog Station (continued).¹

BETWEEN	AND	°	'		
N. end of the Base	Namthabad Station	2	31	59.5	} 58.5
				57.	
				57.5	
Paumdy Station	Konakoondloo Station	65	13	28.5	} 27.83
				31.	
				26.	
				29.5	
				25.5	
Konakoondloo Station	Koelacondah	79	37	26.5	} 43.17
				38.5	
				48.5	
				40.5	
				45.5	
Koelacondah Station	Guddakulgooda	77	47	43.5	} 65.4
				42.5	
				72.5	
				64.	
				58.5	
Guddakulgooda Station	Paumdy Station	67	2	74.	} 56.17
				58.	
				57.	
Ooderpudroog Station	Guddakulgooda	44	37	59.	} 48.9
				52.5	
				48.	
				49.5	
				53.	
Davourcondah Station	Ooderpudroog Station	46	17	46.5	} 50.68
				52.	
				49.	
				41.5	
				57.5	
				58.	
				48.5	
				46.5	
				48.	
Namthabad	N. end of the base	2	31	50.5	} 50.68
N. end of the base	S. end of the base	65	18	41.19	
S. end of the base	Namthabad	67	50	39.69	

At Ooderpudroog Station.

BETWEEN	AND			
Guddakulgooda Station	Gootydrroog Station	...	65 55	49. ^o
				53.
				50.
				47.
				46.
				56.
				52.5
				60.
				60.5
				59.
Gootydrroog Station .. Davurcondah	.....	71 17	20.5	
			15.5	
			20.5	
			23.5	
			24.5	
			15.5	
			16.5	
Davurcondah Station .. Condapilly Station	....	51 25	61.5	
			63.5	
			59.5	
			57.	
			72.5	
			69.5	
			68.	

At Davurcondah Station.

Gootydrroog Station .. Ooderpudroog Station	..	62 24	54.5	
			52.5	
			53.	
			55.	
			53.5	
			54.	
Ooderpudroog Station	Condapilly Station	....	59 4	11.5
				18.
				15.
				18.
				15.5
				11.
				12.
				16.

At Davurcondah Station (continued).

BETWEEN	AND			
Condapilly Station....	Ooracondah Station ..	53	14	42.5
				42.5
				38.5
				37.
				40.
				} 40.1

At Condapilly Station.

Davurecondah Station..	Ooderpudroog Station	69	29	34.	} 43.14
				37.	
				44.	
				47.5	
				47.5	
Ooracondah Station ..	Davurcondah Station ..	84	41	16.	} 16.25
				13.5	
				13.5	
				18.5	
				19.	
Paughurdroog Station	Ooracondah Station ..	52	40	2.	} 2.81
				1.5	
				4.5	
				0.5	
				1.5	
				4.5	
				2.5	
				5.5	

At Ooracondah Station.

Paughurdroog Station	Condapilly Station	79	34	36.5	} 38.17
				36.	
				41.	
				36.5	
				36.5	
				42.5	

At Ooracondah Station (continued).

BETWEEN		AND			
Condapilly Station	Davurcondah Station ..	42	3	73.5	} 64.81
				72.	
				66.5	
				64.5	
				68.	
				57.	
				58.	} 30.6
				59.	
Yerracondah Station ..	Paughdroog Station ..	70	58	32.	
				30.	
				31.5	
				30.	
				29.5	

At Yerracondah Station.

Paughdroog Station	Ooracondah Station ..	55	32	28.5	} 33.44
				33.	
				34.5	
				34.5	
				34.5	
				33.5	
				34.5	
				34.5	

At Paughdroog Station.

Ooracondah Station ..	Yerracondah Station ..	53	28	59.	} 61.5
				62.5	
				60.	
				63.5	
				63.5	
				60.5	
Condapilly Station	Ooracondah Station ..	47	45	22.5	} 21.7
				21.5	
				21.5	
				21.	
				22.	

PRINCIPAL TRIANGLES.

N. end of the base from S. end of the base 32067.6 feet.							
Numbers.	TRIANGLES.	Observed Angles.	Differences.	Spherical Excess.	Error.	Angles for Calculation.	Distances in Feet.
27	N. end of the base....	35 04 5.9	—0.03			35 04 5.7	
	S. end of the base....	105 03 5.19	—0.15			105 3 4.8	
	Paumdy Station.....	39 52 49.75	—0.04			39 52 49.5	
		180 00 00.84		0.22	+ 0.62	180 00 00.0	
	Paumdy Station from	{ N. end of the base { S. end of the base				49110.4 29218.8	
28	N. end of the base....	87 27 16.45	—0.07			87 27 16.3	
	S. end of the base....	27 14 02.64	—0.03			27 14 2.6	
	Gootydröog Station ..	65 18 41.19	—0.03			65 18 41.1	
		180 00 00.28		0.13	+ 0.15	180 00 00.0	
	Gootydröog Station from	{ N. end of the base { S. end of the base				16423.3 35852.7	
S. end of the base from Gootydröog Station 35852.7 feet.							
29	S. end of the base....	132 17 7.83	—0.99			132 17 7.5	
	Gootydröog Station....	21 16 32.65	0.04			21 16 32.7	
	Paumdy Station.....	26 26 19.69	+ 0.06			26 26 19.8	
		180 00 00.17		0.19	—0.02	180 00 00.0	
	Paumdy Station from	{ S. end of the base { Gootydröog Station				29218.7 59571.6	
30	S. end of the base....	27 14 02.64	—0.03			27 14 2.61	
	Gootydröog Station ..	67 50 39.69	—0.04			67 50 39.65	
	Namthabad Station ..	. . . . .				84 55 17.74
						180 00 00.0	
	Namthabad from	{ S. end of the base { Gootydröog Station				33336.3 16471.8	

Gootydröog Station from Konakoondloo 99334.6 feet.

Numbers.	TRIANGLES.	Observed Angles.	Differences.	Spherical Excess.	Error.	Angles for Calculation.	Distances in Feet.
35	Gootydröog Station ..	0' 79 37 43.17	-0.75			0' 79 37 43.2	
	Konakoondloo Station	41 96 18.57	-0.49			41 96 17.8	
	Koelacondah Station ..	58 56 00.6	-0.54			58 56 00.0	
		180 00 02.54		" 1.78	+ 0.76	180 00 00.0	
	Koelacondah Station from		{ Gootydröog Station 76749.2 { Konakoondloo Station .. 114073.3				

Gootydröog Station from Koelacondah 76749.2 feet.

36	Gootydröog Station ..	77 48 5.4	-1.00			77 48 4.5	
	Koelacondah Station ..	71 59 11.15	-0.89			71 59 10.5	
	Guddakul Station	30 12 45.63	-0.69			30 12 45.	
		180 00 02.18		" 2.58	- 0.40	180 00 00.0	
	Guddakulgooda Station from		{ Gootydröog Station 145043.3 { Konakoondloo Station .. 149075.9				

Gootydröog Station from Guddakulgooda 145043.8 feet.

37	Gootydröog Station ..	44 37 48.5	-1.06			44 37 47.4	
	Guddakulgooda Station	69 26 21.63	-1.30			69 26 20.4	
	Ooderpeedroog Station	65 55 53.3	-1.24			65 55 52.1	
		180 00 03.43		" 3.60	- 0.17	180 00 00.0	
	Ooderpeedroog Station from		{ Gootydröog Station 148736.1 { Guddakulgooda Station .. 111599.7				

The distance from Gootydröog to Guddakulgooda, as a base in the above triangle, is a mean distance obtained by the 34th and 36th triangles.

Ooderpeedroog from Gootydröog Station 148736.1 feet.

38	Ooderpeedroog Station	71 17 29.5	-1.52			71 17 18	
	Gootydröog Station ..	46 17 50.68	-1.20			46 17 49.5	
	Davurcondah Station ..	62 24 53.75	-1.34			62 24 52.5	
		180 00 03.93		" 4.06	- 0.13	180 00 00.0	
	Davurcondah from		{ Ooderpeedroog Station 121317.2 { Gootydröog Station 158943.1				

Davarcondah from Ooderpeedroog Station 191317.2 feet.							
Number.	TRIANGLES.	Observed Angles.	Differences.	Spherical Excess.	Error.	Angles for Calculation.	Distances in Feet.
39	Davarcondah Station ..	59 4 14.62	-0.70			59 4 13.9	101273.8 111105.4
	Ooderpeedroog Station	51 26 4.5	-0.87			51 26 3.8	
	Condapilly hill Station	69 29 43.14	-0.94			69 29 42.3	
		180 00 02.26		2.5	-0.24	180 00 00.0	
	Condapilly Station from { Davarcondah Station						101273.8
	Ooderpudroog Station: ...						111105.4
Davarcondah from Condapilly Station 101273.8 feet.							
40	Davarcondah Station ..	53 14 40.1	-0.80			53 14 39.9	156503.1 121102.6
	Condapilly Station	84 41 16.25	-1.32			84 41 15.5	
	Ooracondah Station ..	42 4 4.81	-0.78			42 04 4.6	
		180 00 01.16		3.29	-1.74	180 00 00.0	
	Ooracondah Station from { Davarcondah Station						156503.1
	Condapilly Station						121102.6
Condapilly Station from Ooracondah Station 121102.6 feet.							
41	Condapilly Station	52 40 02.81	-1.07			52 40 21	160889.4 130073.9
	Ooracondah Station ..	79 31 38.17	-1.56			79 34 36.9	
	Paughurdroog Station	47 45 21.7	-1.05			47 45 21	
		180 00 02.68		3.68	-1.0	180 00 00.0	
	Paughurdroog from { Condapilly Station						160889.4
	Ooracondah Station						130073.9
Paughurdroog from Ooracondah Station 130073.9 feet.							
42	Paughurdroog Station	53 28 01.5	-1.4			53 28 59.75	126783.3 149135.4
	Ooracondah Station ..	70 58 30.6	-1.14			70 58 28.6	
	Yerracondah Station ..	55 32 33.44	-1.16			55 32 31.65	
		180 00 05.54		3.70	+1.84	180 00 00.0	
	Yerracondah Station from { Paughurdroog Station						126783.3
	Ooracondah Station ..						149135.4

The distance from *Paughurdroog* to *Yerracondah* will be found common; by referring to the 26th triangle, it will appear that there is a difference of $1\frac{2}{10}$ feet in the same side *Paughurdroog* from *Yerracondah*, from whence it may be inferred that had the base been computed from bringing the triangles from the southward, it would fall short of the measurement by $3\frac{6}{10}$ inches.

For the purpose of reducing the terrestrial arc, the following angles, with their including sides, have been used to obtain sides more conveniently situated with the meridian of *Dodagoontah* station, to which the whole arc is reduced.

The angle at *Bonnairgottah*, between *Dodagoontah* and *Deorabetta*, with the including sides, from which the angle at *Dodagoontah* station between *Bonnairgottah* and *Deorabetta* is found $14^{\circ} 48' 36''.6$; and also the direct distance from *Dodagoontah* to *Deorabetta* is 135931.3 feet. The angle at *Dodagoontah* station is then corrected, to make it as an observed angle, which becomes $14^{\circ} 48' 35''.77$.

DESCRIPTION OF THE GREAT STATIONS.

Base near Gooty.—N. end;—In the flat cotton ground about three miles west from *Gooty*, and near the village of *Namthabad*. It is situated on a rising ground marked by a circular platform of brick and chunam, with a stone and circle, the centre of which ascertains the extremity of the base.

S. end—Lies nearly a mile north of the village of *Eeranapully*, and is similarly marked with the former one. Under the masonry of both these platforms the extremities of the base are also defined by stones with

circles, fixed when the foundation was laid, and corresponding with those above.

Namthabad Station.—Lies about seven hundred and twenty-five feet nearly North from the North end of the base, being exactly in the same line with the extremities of the base, and marked in the very same manner, to define the station.

Paumdy Station.—A long hill, running nearly east and west, and about two miles north of the village of *Paumdy* and the *Pinna* river. The station is on a platform, and the centre is marked as usual.

Konakoondloo Hill.—This hill is about a mile N. W. of the large hill of *Pullycondah*, and about two miles south of the great road from *Gooty* to *Ballary*, a village of the same name, situated at its south side. The station is on an old bastion, marked by a stone and circle.

Guddakulgooda Pagoda.—On the platform of the pagoda, marked as usual. The village and hill are well known, being about half the distance between *Gooty* and *Ballary*.

Koolacondah.—This hill is about fourteen miles north from *Gooty* in the *Chinumpully* talook, and two miles from the village of that name. On the summit of a large detached stone, marked as usual.

Gooty droog.—On the highest point of that celebrated droog. While observing, the flag-staff was removed. It was afterwards replaced, and marks the station.

Ooderpeedroog.—A small well-known hill fort on the road from *Hundee Anantapoor* to *Ballary*. The station is on the centre of a square platform, marked by a stone and circle, about ten yards east of a ruined pagoda.

Davurcondah.—A small peaked hill, with a rugged summit, about three miles east of *Hundee Anantapoor*, on the great road to *Gooty*. A thin stone pillar, to which the flag bamboo was attached, was the intersected object. While the instrument was there this pillar was removed; its centre marked by a small mill-stone, over which it was again erected, and a small circular platform of stone and chunam built round it. The hill derives its name from a pagoda about thirty yards west of the summit.

Condapilly Hill.—It is on the summit of a considerable range running nearly north and south. It derives its name from a village of some extent about a mile N. W. of it. The place where the instrument stood is marked by a circle on the rock, and is a few feet from the stone pillar on the highest point of the hill.

Ooracondah.—This hill is on the northernmost of the *Pencondah* range, and west of the village of *Chinnakapilly*, on the great road between *Gooty* and *Bangalore*. On the other side is a village called *Nammudtella*. The station is marked with a platform, a large stone, and a circle, over the centre of which the instrument was placed.

*Pole Star Observations at Dodagoontah Station ; and
the Position of its Meridian.*

1805.	Apparent Polar Distance.	Latitude.	Azimuth.	Angle be- tween the Pole Star and referring Lamp.	Angle between the North Pole and referring Lamp.	
Month.						
July 19	0 43 58.2	13 00 04	1 46 42.16	1 31 53.	0 14 49.16	
22	1 43 57.57		1 46 41.7	1 31 56.35	0 14 45.45	
Aug. 8	1 43 54.07		1 46 38.1	1 31 51.25	0 14 46.85	
12	1 43 53.05		1 46 37.06	1 31 48.5	0 14 43.56	
17	1 43 51.7		1 46 35.67	1 31 46.25	0 14 49.42	
18	1 43 51.44		1 46 35.4	1 31 47.5	0 14 47.9	
19	1 43 51.16		1 46 35.1	1 31 45.5	0 14 49.6	
23	1 43 50.04		1 46 33.97	1 31 45.5	0 14 48.47	
26	1 43 49.09		1 46 32.99	1 31 43.5	0 14 49.49	
27	1 43 48.83		1 46 32.73	1 31 44.5	0 14 48.23	
Angle between the North Pole and referring Lamp..					0 14 48.31 N.E ^y	
Angle between the referring Lamp and <i>Savendroog</i> ..					104 4 29.68	
Angle between the North Pole and <i>Savendroog</i> Station					103 49 41.37 N.W ^y	

In this paper the latitude of *Dodagoontah*, which is the great station for fixing the position of the meridian line, is laid down by reducing the terrestrial arc between *Putchapolliam* and *Dodagoontah* to degrees and minutes, taking the mean degree as given by the observations at *Putchapolliam* and *Namthabad*, near *Gooty*, which is 60487.27 for latitude $13^{\circ} 02' 55''$, not differing much from the latitude of *Dodagoontah*. This gives an arc of $2^{\circ} 0' 14''.72$, which, added to the arc between *Punnae* and *Putchapolliam*, gives $4^{\circ} 50' 25''.26$; and this, applied to the latitude of *Punnae*, viz., $8^{\circ} 9' 38''.39$, gives $13^{\circ} 00' 03''.65$ for the latitude of *Dodagoontah*. This latitude exceeds that determined in 1805 by $3''.74$; therefore, if this quantity be added to $13^{\circ} 4' 8''.7$, the deduced latitude of the observatory (*Asiatick Researches*, vol. 10th, page 374), we have $13^{\circ} 4' 12''.44$, the latitude of the observatory, as corrected from the present operations.

Reduction of the Sides of the Meridional Triangles to the Meridian of Dodagoontah, for determining the Length of the Terrestrial Arcs.

The Length of the Arc comprehended by the Parallels of Dodagoontah Station, and the Station near Putschapolliam.

STATIONS AT	NAMES OF PLACES.	Bearings referred to the Meridian of Dodagoontah Station.	Distances.	Distances on the		Distances from Dodagoontah.	
				Perpendicular.	Meridian.	Perpendicular.	Meridian.
Dodagoontah	Deorabetta	0 18 06.48 S.E.	Feet. 135931.3	Feet. 549.6 E.	Feet. 135980.3 S.	Feet. 519.6 E.	Feet. 135930.3 S.
Deorabetta	Ponnasmalli	0 11 54.36 S.E.	174071.7	6677.6 E.	173947.6 S.	7197.8 E.	309877.9 S.
Ponnasmalli	Woorachmalli ..	3 49 54.39 S.E.	243508.4	16272.6 E.	249958.2 S.	23469.8 E.	552836.1 S.
Woorachmalli	Putschapolliam ..	7 53 51.58 S.W.	176169.4	24906.4 W.	174498.5 S.	736.6 W.	787934.6 S.

Distances between the Parallels of Dodagoontah and the Station at Namthabad.

STATIONS AT	NAMES OF PLACES.	Bearings referred to the Meridian of Dodagoontah Station.	Distances.	Distances on the		Distance from Dodagoontha.	
				Perpendicular.	Meridian.	Perpendicular.	Meridian.
Deorabetta	Allasoor hill	0 43 54.55 N.W.	Feet. 194662.8	Feet. 2486.3 W.	Feet. 194646.9 N.	Feet. 1966.7 W.	Feet. 58716.6 N.
Allasoor hill	Kulkotah hill ...	4 5 43.25 N.W.	94211.8	6702.3 W.	93971.2 N.	8695 W.	152687.8 N.
Kulkotah hill	Yerracondah....	5 43 49.55 N.E.	180883.8	18060.9 E.	179979.9 N.	9365.9 E.	332667.7 N.
Yerracondah	Ooracondah	7 4 21.49 N.W.	126783.3	15610.5 W.	125818.5 N.	6244.6 W.	458486.2 N.
Ooracondah	Davurcondah ..	5 39 52.09 N.E.	150503.3	14550.1 E.	149798.2 N.	8305.5 E.	608284.4 N.
Davurcondah	Goodydroog	0 16 40.56 N.E.	158943.1	771 E.	158941.9 N.	9076.5 E.	767225.6 N.
Goodydroog	Namthabad	70 43 30.91 S.W.	16471.8	15548.5 W.	5437.3 S.	6472 W.	761788.3 N.

Terrestrial Arcs between the parallels of Dodagoontah Station and Namthabad..... 761788.3 feet.

Dodagoontah Station and Putschapolliam 727334.6

Putschapolliam Station and Namthabad 1489192.9

Putschapolliam Station and Punnae Station 1029100.5

Punnae Station and Namthabad 2518293.4

Zenith distances of Stars, observed at *Namthabad Station*, with the corrections for precession, nutation, aberration, and the semi-annual solar equation, back to the beginning of the year 1805.

Observations at Namthabad.

. LEONIS.

Nearest Point on the Limb, 4° 20' South.

1811. Month.	Face.	Observed	Correc-	Correct	Thermometers	
		Zenith Distance.	tion.	Zenith Distance.	Upper.	Lower.
April 18	W.	4 21 9.13	109.11	4 19 20.02	86	86
20	E.	4 21 19.53	109.00	4 19 30.53	83	83
21	W.	4 21 10.38	108.95	4 19 21.43	84	84
22	E.	4 21 18.26	108.90	4 19 29.36	87	87
24	W.	4 21 8.63	108.80	4 19 19.83	91	91
25	E.	4 21 20.13	108.74	4 19 31.39	92	92
26	W.	4 21 9.63	108.68	4 19 20.95	94	93
27	E.	4 21 19.13	108.63	4 19 30.50	96	96
28	W.	4 21 9.63	108.58	4 19 21.05	94	94
29	E.	4 21 19.26	108.52	4 19 30.74	93	93
30	W.	4 21 9.63	108.47	4 19 21.16	92	92
May 2	E.	4 21 19.38	108.36	4 19 31.02	78	79
Mean					89.2	89.2

REGULUS.

Nearest Point on the Limb, 2° 15' South.

April 18	W.	2 12 47.51	115.48	2 10 52.03	86	86
20	E.	2 12 58.89	115.36	2 11 03.53	84	84
21	W.	2 12 45.76	115.29	2 10 50.47	83	83
22	E.	2 12 59.89	115.23	2 11 04.66	86	86
23	W.	2 12 44.76	115.16	2 10 49.60	83	83
24	E.	2 12 58.89	115.09	2 11 03.80	91	91
25	W.	2 12 44.87	115.03	2 10 49.84	91	91
26	E.	2 12 58.24	114.97	2 11 03.27	93	92
27	W.	2 12 44.74	114.90	2 10 49.84	95	94
28	E.	2 12 58.87	114.83	2 11 4.04	94	94
29	W.	2 12 46.87	114.77	2 10 52.10	93	93
30	E.	2 12 57.62	114.71	2 11 2.91	92	92
Mean					89.25	89.08

γ LEONIS.

Nearest Point on the Limb, 1° 20' North.

1811. Month.	Face.	Observed	Correc- tion.	Correct	Thermometers	
		Zenith Distance.		Zenith Distance.	Upper.	Lower.
		° ' "	+	° ' "	°	°
April 20	E.	1 21 29.26	126.54	1 23 35.80	80	80
21	W.	1 21 40.26	126.45	1 23 46.71	82	82
22	E.	1 21 28.13	126.35	1 23 34.48	85	85
23	W.	1 21 40.13	126.26	1 23 46.39	82	81
24	E.	1 21 28.28	126.6	1 23 34.44	89	89
25	W.	1 21 43.13	126.07	1 23 49.20	88	88
26	E.	1 21 30.13	125.98	1 22 36.11	91	91
27	W.	1 21 40.13	125.88	1 23 46.01	93	93
28	E.	1 21 29.63	125.79	1 23 35.42	93	93
29	W.	1 21 40.51	125.70	1 23 46.21	90	90
30	E.	1 21 29.13	125.60	1 23 34.73	90	90
May 4	W.	1 21 38.76	125.23	1 23 43.99	90	90
Mean					87.75	87.67

β LEONIS.

Nearest Point on the Limb, 0° 30' North.

1811. Month.	Face.	Observed	Correc- tion.	Correct	Thermometers	
		Zenith Distance.		Zenith Distance.	Upper.	Lower.
		° ' "	+	° ' "	°	°
April 18	W.	0 31 42.13	129.88	0 33 52.01	86	86
20	E.	0 31 33.76	129.68	0 33 43.44	79	79
21	W.	0 31 45.51	129.58	0 33 55.09	82	81
22	E.	0 31 33.63	129.47	0 33 43.10	84	84
23	W.	0 31 47.26	129.38	0 33 56.64	81	81
24	E.	0 31 31.58	129.28	0 33 40.66	87	87
25	W.	0 31 46.01	129.18	0 33 55.19	88	88
26	E.	0 31 33.03	129.07	0 33 42.10	90	90
27	W.	0 31 46.26	128.98	0 33 55.24	92	92
28	E.	0 31 35.13	128.88	0 33 44.01	92	92
29	W.	0 31 46.51	128.77	0 33 55.28	90	90
30	E.	0 31 33.13	128.66	0 33 41.79	90	90
Mean					86.75	86.67

, VIRGINIS.

Nearest Point on the Limb, 3° 5' South.

1811. Month.	Face.	Observed Zenith Distance.	Correc- tion.	Correct Zenith Distance.	Thermometers	
					Upper.	Lower.
April 25	W.	3 7 9.13	124.85	3 5 4.28	87	86
26	E.	3 7 23.39	124.75	3 5 18.64	90	90
27	W.	3 7 12.13	124.65	3 5 7.48	90	90
29	E.	3 7 20.26	124.44	3 5 15.82	88	88
30	W.	3 7 13.01	124.34	3 5 8.67	88	88
May 3	E.	3 7 20.76	124.01	3 5 16.75	82	82
Mean					87.5	87.33

, SERPENTIS.

Nearest Point on the Limb, 3° 55' South.

May 1	E.	3 55 15.13	77.56	3 53 57.57	81	81
3	W.	3 55 6.5	77.29	3 53 49.21	81	81
4	E.	3 55 14	77.15	3 53 56.85	79	79
5	W.	3 55 4	77.01	3 53 46.99	81	81
7	E.	3 55 15.13	76.74	3 53 58.39	84	84
9	W.	3 55 4.75	76.46	3 53 48.29	86	86
15	E.	3 55 11.63	75.61	3 53 56.02	85	85
Mean					82.13	82.13

, SERPENTIS.

Nearest Point on the Limb, 10 10' North.

May 1	E.	1 11 10.63	67.83	1 12 18.46	81	81
3	W.	1 11 17.51	67.51	1 12 25.02	81	81
4	E.	1 11 11.88	67.35	1 12 19.23	78	78
5	W.	1 11 19.76	67.18	1 12 26.49	81	81
7	E.	1 11 10.38	66.85	1 12 17.23	84	84
8	W.	1 11 21.01	66.69	1 12 27.70	86	86
9	E.	1 11 10.63	66.52	1 12 17.15	86	86
15	W.	1 11 21.13	65.48	1 12 26.61	84	84
Mean					82.63	82.63

α HERCULIS.*Nearest Point on the Limb, 0° 30' South.*

1811. Month.	Face.	Observed Zenith Distance.	Correc- tion.	Correct Zenith Distance.	Thermometers.	
					Upper.	Lower.
April	26 E.	0 29 5.37	27.69	0 28 37.68	83	83
	27 W.	0 28 55.4	27.55	0 28 27.85	83	83
	28 E.	0 29 3.87	27.40	0 28 36.47	83	83
	30 W.	0 28 57	27.09	0 28 29.91	82	82
May	1 E.	0 29 3.87	26.94	0 28 36.93	80	80
	2 W.	0 28 55.75	26.79	0 28 28.96	75	76
	3 E.	0 29 5	26.64	0 28 38.36	80	79
	4 W.	0 28 57.87	26.47	0 28 31.40	79	78
	5 E.	0 29 5	26.31	0 28 38.69	81	81
	7 W.	0 28 55.12	25.98	0 28 29.14	83	83
	8 E.	0 29 4.5	25.82	0 28 38.68	84	83
	9 W.	0 28 54.12	25.65	0 28 28.47	83	83
	Mean					81.33	81.17

 α OPHIUCHI.*Nearest Point on the Limb, 2° 25' South.*

April	25 W.	2 23 18.37	18.55	2 22 59.82	82	81
	26 E.	2 23 30.87	18.42	2 23 12.45	83	83
	27 W.	2 23 21.99	18.28	2 23 3.71	83	83
	28 E.	2 23 33.87	18.14	2 23 15.73	83	83
May	30 W.	2 23 22.74	17.86	2 23 4.88	82	82
	1 E.	2 23 32.24	17.71	2 23 14.53	80	80
	2 W.	2 23 20.74	17.57	2 23 3.17	75	76
	3 E.	2 23 31.37	17.41	2 23 13.96	79	79
	4 W.	2 23 20.37	17.27	2 23 3.10	79	79
	5 E.	2 23 31.12	17.11	2 23 14.01	81	81
	7 W.	2 23 20.74	16.80	2 23 3.94	83	83
	8 E.	2 23 29.37	16.63	2 23 12.74	83	83
Mean					81.09	81.09

ζ AQUILÆ.

Nearest Point on the Limb, 1° 30' South.

1811. Month.	Face.	Observed Zenith Distance.	Correc- tion.	Correct Zenith Distance.	Thermometers		
					Upper.	Lower.	
			+				
May 10	W.	1 30 15.5	31.48	1 30 46.98	82	82	
14	E.	1 30 24.38	32.16	1 30 56.54	77	77	
15	W.	1 30 16	32.30	1 30 48.30	82	82	
Mean					80.37	78.03	

γ AQUILÆ.

Nearest Point on the Limb, 4° 55' South.

May		Face.	Observed Zenith Distance.	Correc- tion.	Correct Zenith Distance.	Thermometers	
						Upper.	Lower.
				+			
1	E.		4 56 9.13	52.44	4 57 1.57	78	83
2	W.		4 55 58.63	52.57	4 56 51.20	76	76
4	E.		4 56 8.63	52.86	4 57 1.49	77	77
5	W.		4 56 2.63	53.00	4 56 55.63	80	80
7	E.		4 56 9.00	53.29	4 57 2.29	80	80
10	W.		4 55 59.13	53.75	4 56 52.88	80	80
11	E.		4 56 8.63	53.92	4 57 2.55	81	80
12	W.		4 55 59.63	54.07	4 56 53.70	84	83
15	E.		4 56 7.13	54.56	4 57 1.69	81	81
Mean					79.67	80	

ATAIR.

Nearest Point on the Limb, 6° 45' South.

May		Face.	Observed Zenith Distance.	Correc- tion.	Correct Zenith Distance.	Thermometers	
						Upper.	Lower.
				+			
5	W.		6 42 57.24	58.02	6 43 55.26	80	80
7	E.		6 43 10.12	58.31	6 44 8.43	80	80
8	W.		6 42 57.74	58.46	6 43 56.20	80	80
9	E.		6 43 6.24	58.61	6 44 4.85	80	80
10	W.		6 42 54.87	58.76	6 43 53.63	79	79
11	E.		6 43 6.99	58.91	6 44 5.90	81	80
12	W.		6 42 54.25	59.08	6 43 53.33	84	83
15	E.		6 43 5.37	59.56	6 44 4.93	81	81
Mean					80.03	80.37	

β DELPHINI.*Nearest Point on the Limb, 1° 10' South.*

1811. Month.	Face.	Observed Zenith Distance.	Correc- tion.	Correct Zenith Distance.	Thermometers	
					Upper.	Lower.
May	9 E.	1 9 11.37	+ 74.12	1 10 25.49	79°	79°
	10 W.	1 9 1.87	74.27	1 10 16.14	79	79
	12 E.	1 9 14	74.59	1 10 28.59	83	82
	14 W.	1 9 4.62	74.91	1 10 19.53	77	77
	11 E.	1 9 10.37	75.09	1 10 25.46	80	80
Mean					79.6	79.4

Means of the Zenith Distances, taken on the right and left arcs corrected for refraction, equation of the sectorial tube, and the mean run of the micrometer.

Zenith Distances at Namthabad.

. LEONIS.

1811. MONTH.	Left Arc.	1811. MONTH.	Right Arc.	MEAN.
April 20	4 19 30.53	April 18	4 19 20.02	Mean 4 19 25.67
22	4 19 29.36	21	4 19 21.43	Refraction, &c. &c. + 4.24
25	4 19 31.39	24	4 19 19.83	
27	4 19 30.50	26	4 19 20.95	Zenith Distance 4 19 29.91
29	4 19 30.74	28	4 19 21.05	
May 2	4 19 31.02	30	4 19 21.16	
Mean	4 19 30.58	Mean	4 19 20.74	

REGULUS.

1811.	Left Arc.	1811.	Right Arc.	MEAN.
MONTH.	° ' "	MONTH.	° ' "	
April 20	2 11 3.53	April 18	2 10 52.03	Mean 2 10 57.18
22	2 11 4.66	21	2 10 50.47	Refraction, &c. &c. + 1.98
24	2 11 3.80	23	2 10 49.60	Zenith Distance .. 2 10 59.16
26	2 11 3.27	25	2 10 49.84	
28	2 11 4.04	27	2 10 49.84	
30	2 11 2.91	29	2 10 52.10	
Mean	2 11 3.70	Mean	2 10 50.65	

9 LEONIS.

April 21	1 23 46.71	April 20	1 23 35.80	Mean 1 23 40.79
23	1 23 46.39	22	1 23 34.48	Refraction, &c. &c. + 1.29
25	1 23 49.20	24	1 23 34.44	Zenith Distance .. 1 23 42.08
27	1 23 46.01	26	1 23 36.11	
29	1 23 46.21	28	1 23 35.42	
May 4	1 23 43.99	30	1 23 34.73	
Mean	1 23 46.42	Mean	1 23 35.17	

β LEONIS.

April 1	0 33 52.01	April 20	0 33 43.44	Mean 0 33 48.72
2	10 33 55.09	22	0 33 43.10	Refraction, &c. &c. + 0.45
23	0 33 56.64	24	0 33 40.66	Zenith Distance .. 0 33 49.17
25	0 33 55.19	26	0 33 42.10	
27	0 33 55.24	28	0 33 44.01	
29	0 33 55.28	30	0 33 41.79	
Mean	0 33 54.91	Mean	0 33 42.52	

, VIRGINIS.

April 26	3 5 18.64	April 25	3 5 4.28	Mean 3 5 11.94
29	3 5 15.82	27	3 5 7.48	Refraction, &c. &c. + 2.93
May 3	3 5 16.75	30	3 5 8.67	Zenith Distance .. 3 5 14.87
Mean	3 5 17.07	Mean	3 5 6.81	

♃ SERPENTIS.

1811.	Left Arc.	1811.	Right Arc.	MEAN.
MONTH.	° ' "	MONTH.	° ' "	
May 1	3 53 57.57	May 3	3 53 49.21	Mean 3 53 52.69
	4 3 53 56.85		5 3 53 46.99	Refraction, &c. &c. + 3.89
	7 3 53 58.39		9 3 53 48.29	
	15 3 53 56.02			Zenith Distance .. 3 53 56.58
Mean	3 53 57.21	Mean	3 53 48.16	

♄ SERPENTIS.

May 3	1 12 25.02	May 1	1 12 18.46	Mean 1 12 22.29
	5 1 12 26.94		4 1 12 19.23	Refraction, &c. &c. + 1.12
	8 1 12 27.70		7 1 12 17.23	
	15 1 12 26.61		9 1 12 17.15	Zenith Distance .. 1 12 23.41
Mean	1 12 18.02	Mean	1 12 26.57	

♌ HERCULIS.

April 26	0 28 37.68	April 27	0 28 27.85	Mean 0 28 33.55
	28 0 28 36.47		30 0 28 29.91	Refraction, &c. &c. + 0.54
May 1	0 28 36.93	May 2	0 28 28.96	
	3 0 28 38.36		4 0 28 31.40	Zenith Distance .. 0 28 34.09
	5 0 28 38.69		7 0 28 29.14	
	8 0 28 38.68		9 0 28 28.47	
Mean	0 28 37.80	Mean	0 28 29.29	

♍ OPHIUCHI.

April 26	2 23 12.45	April 25	2 22 59.82	Mean 2 23 85.0
	28 2 23 15.73		27 2 23 3.71	Refraction, &c. &c. + 2.49
May 1	2 23 14.53		30 2 23 4.88	
	3 2 23 13.96	May 2	2 23 3.17	Zenith Distance .. 2 23 10.99
	5 2 23 14.10		4 2 23 3.10	
	8 2 23 12.74		7 2 23 3.49	
Mean	2 23 13.90	Mean	2 23 3.10	

AQUILÆ.

1811.	Left Arc.	1811.	Right Arc.	MEAN.
MONTH. May 14	° 1' 30" 56.54	MONTH. May 10	° 1' 30" 46.98	Mean ° 1' 30" 52.09
			15 1' 30" 48.30	Refraction, &c. &c. + 1.53
Mean	1 30 56.54	Mean	1 30 47.64	Zenith Distance .. 1 30 53.62

γ AQUILÆ.

May 1	4 57 1.57	May 2	4 56 51.20	Mean 4 56 57.63
	4 4 57 1.49		5 4 56 55.63	Refraction, &c. &c. + 4.91
	7 4 57 2.29		10 4 56 52.88	
	11 4 57 2.55		12 4 56 53.70	Zenith Distance .. 4 57 2.54
	15 4 57 1.69			
Mean	4 57 1.92	Mean	4 56 53.35	

ATAIR.

May 7	6 44 3.43	May 5	6 43 55.26	Mean 6 44 00.32
	9 6 44 4.85		8 6 43 56.20	Refraction, &c. &c. + 6.87
	10 6 44 5.90		11 6 43 53.63	
	12 6 44 4.93		15 6 43 53.33	Zenith Distance .. 6 44 7.19
Mean	6 44 6.03	Mean	6 43 54.60	

β DELPHINI.

May 9	1 10 25.49	May 10	1 10 16.14	Mean 1 10 22.18
	12 1 10 28.59		14 1 10 19.53	Refraction, &c. &c. + 1.22
	15 1 10 25.46			
Mean	1 10 26.52	Mean	1 10 17.84	Zenith Distance .. 1 10 23.40

AMPLITUDE

Of the Arc between *Punnae* and *Namthabad*.

STARS.	ZENITH DISTANCES AT		AMPLITUDE.
	PUNNAE.	NAMTHABAD.	
• Leonis....	2 36 52.07 N.	4 19 29.91 S.	6 56 21.98
Regulus ..	4 45 24.06 N.	2 10 59.16 S.	6 56 23.22
♁ Leonis....	8 20 3.44 N.	1 23 42.08 N.	6 56 21.36
♁ Leonis....	7 30 11.59 N.	0 33 49.17 N.	6 56 22.42
• Virginis ..	3 51 5.95 N.	3 5 14.87 S.	6 56 20.82
♃ Serpentis..	3 2 25.36 N.	3 53 56.58 S.	6 56 21.94
♃ Serpentis ..	8 8 46.97 N.	1 12 23.41 N.	6 56 23.56
♁ Herculis ..	6 27 48.35 N.	0 28 34.09 S.	6 56 22.44
ζ Ophiuchi	4 33 11.86 N.	2 23 10.99 S.	6 56 22.85
ζ Aquilæ ..	5 25 29.25 N.	1 30 53.62 S.	6 56 22.87
♃ Aquilæ ..	1 55 19.77 N.	4 57 2.54 S.	6 56 22.31
Atair	0 12 14.69 N.	6 44 7.19 S.	6 56 21.88
♁ Delphini	5 45 58.29 N.	1 10 23.40 S.	6 55 21.69
		Mean	6 56 22.25

*Celestial Arc between the Parallels of**Punnae* and *Namthabad* Station..... 6 56 22.25

Terrestrial Arc..... 2518223.4 Feet.

Mean length of one degree .. 60480.42 Fath.

Latitude of the middle point, 11 37 49

AMPLITUDE

Of the Arc between *Putchapolliam* and *Namthabad*.

STARS.	ZENITH DISTANCES AT		AMPLITUDE.
	PUTCHAPOLLIAM.	NAMTHABAD.	
◦ Leonis....	0 13 18.16 S.	4 19 29.91 S.	4 6 11.75
Regulus ..	1 55 12.99 N.	2 10 59.16 S.	4 6 12.15
♁ Leonis....	5 29 54.26 N.	1 23 42.08 N.	4 6 12.18
♂ Leonis....	4 39 59.4 N.	0 33 49.17 N.	4 6 10.23
♋ Virginis ..	1 00 55.20 N.	3 5 14.87 S.	4 6 10.07
♏ Serpentis..	0 12 14.15 N.	3 53 56.58 S.	4 6 10.73
♌ Herculis ..	3 37 38.58 N.	0 28 34.09 S.	4 6 12.67
♎ Ophiuchi	1 43 00.69 N.	2 23 10.99 S.	4 6 11.68
♁ Aquilæ ..	2 35 16.44 N.	1 30 53.62 S.	4 6 10.06
♏ Aquilæ ..	0 50 50.74 S.	4 57 2.54 S.	4 6 11.80
♁ Atair	2 37 54.13 S.	6 44 7.19 S.	4 6 13.06
♀ Delphini..	2 55 45.68 N.	1 10 23.40 S.	4 6 9.08
		Mean	4 6 11.28

*Celestial Arc between the Parallels of**Putchapolliam* and *Namthabad*..... 4 6 11.28

Terrestrial Arc 1489122.9 Feet.

Mean length of one degree .. 60487.27 Fath.

Latitude of the middle point.. 13 2 55

It will scarcely be worth while to make any deductions until my meridional operations be finished, and those in England extended further. I shall only observe that if the degree in latitude $11^{\circ} 37' 49''$ as I have brought it out, be taken with the *English*, *French*, and *Swedish* measures respectively, and applied to the formulæ in Art. 2. in the Appendix to my last paper, the ratio of the polar to the equatorial diameter of the earth will be as 1 : 1.0032183, 1 : 1.0034688, and 1 : 1.0032811, respectively, whose mean is 1 : 1.0033227 or an ellipticity of $\frac{1}{308.78}$ nearly.

And if this mean ratio, of 1 to 0033227 be used with the degree in $11^{\circ} 37' 49''$, and the other degrees in latitudes $9^{\circ} 34' 44''$; $13^{\circ} 2' 55''$ computed according to the formulæ in Art. 3 in the same Appendix, they will come out 60472.6 and 60486.47 respectively, differing only 0.21 and 0.63 fathoms from the observations, and these differences would hold good, where the three latitudes are so near each other, in any hypothesis of the Earth's figure that has resulted from the recent measurements. So near a coincidence of the observations with the elliptic theory, I must own has the appearance of chance. However if a series of observations two degrees further to the northward, should prove equally regular, the accuracy of the whole may be in a great measure relied on, and I shall then feel desirous of repeating the observations made at *Dodagoontah* in 1805; for to all appearance no part of the country could be more favourable, and it is possible, that at the commencement of my observing with the zenith sector, there might have been some oversight in using so delicate an instrument. I am not however aware that there was; but if the irregularity was occasioned by the attraction of dense matter to the northward, the matter must have been nearer to the place of observation, than I have hitherto supposed it to be.

It may be necessary to notice here, that in Art. 2. of the Appendix to my last paper, there has been an

oversight in taking the mean of two computed degrees, 60465.5 and 60498, which mean is $60481\frac{3}{4}$ in place of $60485\frac{3}{4}$; or 60482 to latitude $11^{\circ} 6' 24''$, which must therefore affect all the results given in that paper. But as the principal ones are computed according to the present measurement, it is unnecessary to recompute those formerly given. By using the mean ratio of 1 : 1.0033227, with the degree $11^{\circ} 37' 49''$, equal to 60480.42 fathoms, the degree of longitude at the equator will come out 60858.47 fathoms, and the length of the equatorial diameter of the earth will be 6973866 fathoms, from whence, by proceeding as in Page 97, of this volume, the quadrantal Arc of the elliptic Meridian will be had, equal to 5468170.8 fathoms, or 3937082976 inches, which divided by 10.000000, will give 39.37083 *English* inches for the measure of the *French* metre measured at the temperature of 62° which differs only $\frac{1}{5883}$ th part of an inch from that measured by the *French* mathematicians at 32° and reduced to the same temperature.

Latitudes and Longitudes

Of the great Stations, and some principal Places, as deduced from the Meridional Arc.

NAMES OF PLACES.	Latitude.	Longitudes from	
		Madras Observatory, W.	Greenwich, E.
	° / ' / "	° / ' / "	° / ' / "
* Mallagamalli	11 0 52	9 48 54	77 29 36
* Yaëlmatoor hill.....	11 12 16	9 30 12	77 48 18
* Eerode, (S. W. angle of the Fort) ..	11 20 27	9 31 36	77 46 54
* Thittamalli	11 20 49	9 53 49	77 24 41
Bhavany Pagoda	11 25 45	9 34 19	77 44 11
* Woorachmali	11 28 37	9 33 48	77 44 47
Sankerrydroog	11 28 51	9 23 41	77 54 49
Sattimungalum Pagoda	11 30 17	3 00 38	77 17 52
* Kumbetarine hill	11 35 31	9 56 57	77 19 33
Salem, (S. W. angle of the Fort)	11 39 9	9 5 49	78 12 41
* Paulamalli	11 41 39	9 31	77 47 30
Womooloor, highest cavalier	11 44 8	9 12 48	78 5 42
Cauverypoorum	11 54 43	9 29 36	77 48 54
Darampoory	12 3 48	9 5 5	77 13 25
Pennagra	12 7 45	9 20 58	77 57 32
Allambaddy	12 8 35	9 30 25	77 18 5
* Ponnassmalli	12 8 47	9 36 27	77 42 3
* Bnddhilly hill	12 12 16	9 55 2	77 23 28
Sattigal	12 14 38	3 6 32	77 11 58
Mallavilly	12 23	3 11 54	77 6 36
Gopauldroog	12 29 52	9 57 31	77 20 59
Ryacottah, (Flag Staff)	12 31 16	9 12 54	78 5 36
Denkanicottah	12 31 53	9 27 53	77 50 37
Kistnagherry.....	12 32 15	9 2 9	78 16 21
Anchittydroog (Muntapum)	12 35 23	9 21 45	77 56 45
* Deorabetta	12 37 32	9 37 35	77 40 55
Annicul Fort.....	12 42 33	9 33 31	77 44 59
Oosoor hill and Pagodah	12 43 34	9 24 52	77 53 38
* Bonnairgottah	12 48 43	9 40 41	77 37 49
Anniculdroog	12 49 36	3 9 51	77 15 39
* Savendroog	12 55 10	9 57 40	77 20 50
Bangalore Palace.....	12 57 34	9 40 45	77 37 45
* Dodageontah.....	13 0 4	9 37 40	77 40 50
* Muntapum centre	13 0 45	9 40 13	77 38 17
Goomicul	13 1 33	3 13 34	77 4 56
* Tirtapully hill	13 2 25	9 21 56	77 56 34
Ooscottah Mosque	13 4 21	9 28 13	77 50 17
Byrandroog	13 5 41	3 4 47	77 13 43
Colar Fort, (Pagoda)	13 8 20	9 6 49	78 11 41
* Allasoor hill	13 9 42	9 38	77 40 30
Shevagunga Pagoda.....	13 10 9	3 1 51	77 16 39
Deonelly	13 4 59	9 32 38	77 45 52
B. Ballapoor Eedgah	13 12 24	9 43 13	77 25 17
* Chetkul hill.....	13 19 16	9 58 52	77 19 38

NAMES OF PLACES.	Latitudes.	Longitudes from	
		Madras Observatory, W.	Greenwich, E.
	° / ' / "	° / ' / "	° / ' / "
* Rymandroog	13 21 17	2 14 37	78 3 53
* Nundydroog	13 22 12.5	2 34 1	77 44 29
* Devaroydroog	13 22 25	3 2 28	77 16 2
* Kulkotah hill.....	13 25 14	2 29 9	77 29 21
Macklydroog.....	13 25 58	2 45 4	77 33 26
Minchioldroog.....	13 27 27	3 2 16	77 15 14
* Baelippee hill.....	13 29 7	2 58 28	77 20 2
Mudgherrydroog	13 29 7	3 3 11	77 15 19
Goodeebundah	13 40 34	2 33 3	77 45 27
Bumungydroog	13 44 24	3 12 57	77 5 33
Serah, (Flag Staff)	13 44 39	3 20 29	76 58 1
Meddagashiedroog	13 49 54	3 3 34	77 14 56
Kodicondah	13 49 49	2 28 24	77 50 6
* Yerracondah.....	13 54 59	2 36 5	77 42 25
Muddukaerah	13 56 41	2 59	77 19 30
Pencondah, remarkable trees.....	14 4 13	2 40 2	77 28 28
* Panghardroog	14 6 19	2 58 34	77 10 26
Kaummundroog	14 14 59	2 58 44	77 10 46
* Ooracondah	14 15 51	2 38 44	77 39 46
Durmahveram Palace	14 17 49	2 27 24	77 50 56
Kunnaganpully Pagoda	14 26 52	2 44 8	77 34 22
* Condapilly hill	14 21 57	2 50 59	77 27 31
Hundee Anantapoor.....	14 40 59	2 22 39	77 29 51
* Ooderpeedroog.....	14 49 59	2 54 31	77 23 59
* S. end of the base, (Beranapilly).....	15 0 59	2 36 24	77 42 6
* N. end of the base, (Namthabad) ..	15 5 53	2 38 43	77 39 47
* Namthabad Station	15 6 00.6	2 38 46	77 39 44
* Konakoondloo hill	15 6 39	2 53 3	77 28 27
* Goetydroog	15 6 54	2 26 7	77 42 28
* Guddacuigooda.....	15 7 19	3 00 51	77 17 39
* Pamndy hill	14 27 54	2 40 15	77 38 15
* Koelacondah.....	15 19 21	2 38 39	77 39 51

Note. All Places marked with the Asterisk (*) are great Stations.

11. *Elevations and Depressions.*

Contained Arcs, and Terrestrial Refractions, together with the Heights above the Level of the Sea, of the principal Stations.

Stations at	Stations observed.	Apparent Elevations and Depressions	Contained Area.	Refraction.	Elevations above the Sea.	
					Stations.	Heights.
Yerracondah.....	Tirtapully.....	0 16 19 D.	25 4	1/24	Tirtapully.....	Fest. 3168.9
Tirtapully.....	Yerracondah.....	0 6 39 D.				
Tirtapully.....	Bonnairgottah.....	0 7 16 D.	28 49	1/21	Bonnairgottah.....	3305.1
Bonnairgottah.....	Tirtapully.....	0 13 30 D.				
Bonnairgottah.....	S. end of the Base.....	0 25 38 D.	7 11	1/20	S. end of the base ..	3025.6
S. end of the Base ..	Bonnairgottah.....	0 18 49 E.				
Bonnairgottah.....	Dodagontah.....	0 18 10 D.	11 40	1/17	Dodagontah.....	3037.9
Bonnairgottah.....	Deorabetta.....	0 0 0	11 35	1/16	Deorabetta.....	3408
Deorabetta.....	Bonnairgottah.....	0 10 6 D.				
Savandroog.....	Bandhully.....	0 15 41 D.	48 59	1/17	Bandhully.....	4954.5
Bandhully.....	Savandroog.....	0 22 17 D.				
Budhully.....	Kumbetarina.....	0 3 26 E.	28 56	1/18	Kumbetarina.....	5548.6
Kumbetarina.....	Bandhully.....	0 36 23 D.				
Deorabettah.....	Ponnasemalli.....	0 17 18 E.	28 47	1/17	Ponnasemalli.....	4928.8
Ponnasemalli.....	Deorabettah.....	0 43 43 D.	27 40	1/16	Paulamalli.....	4953.8
Ponnasemalli.....	Paulamalli.....	0 16 46 D.				
Paulamalli.....	Ponnasemalli.....	0 13 1 D.	13 18	1/22	Woorachmalli.....	1472
Paulamalli.....	Woorachmalli.....	2 34 47 D.				
Woorachmalli.....	Paulamalli.....	2 22 42 E.	20 7	1/20	Shennimalli.....	1788.6
Woorachmalli.....	Shennimalli.....	0 0 8 D.				
Shennimalli.....	Woorachmalli.....	0 17 58 D.	17 16	1/15	Allaseer hill.....	3282.6
Tirtapully hill.....	Allaseer hill.....	0 1 40 D.				
Allaseer hill.....	Tirtapully hill.....	0 14 38 D.	15 34	1/18	Kulkotah hill.....	3266.6
Allaseer hill.....	Kulkotah hill.....	0 6 17 D.				
Kulkotah hill.....	Allaseer hill.....	0 8 11 D.	20 54	1/16	Yerracondah.....	2846
Kulkotah hill.....	Yerracondah.....	0 23 45 D.				
Yerracondah.....	Kulkotah hill.....	0 2 30 D.	24 34	1/17	Faughuroog.....	3222
Yerracondah.....	Faughuroog.....	0 6 9 D.				
Faughuroog.....	Yerracondah.....	0 15 35 D.	24 7	1/17	Cheetkul hill.....	3320.3
Faughuroog.....	Cheetkul hill.....	0 26 32 D.				
Savandroog.....	Cheetkul hill.....	0 26 32 D.	19 52	1/17	Bailippes hill.....	2762.6
Cheetkul hill.....	Bailippes hill.....	0 26 34 D.				
Bailippes hill.....	Cheetkul hill.....	0 6 39 E.	20 57	1/16	Ooracondah.....	2223
Yerracondah.....	Ooracondah.....	0 24 35 D.				
Ooracondah.....	Yerracondah.....	0 9 19 D.	24 53	1/16	Davarcondah.....	1876
Ooracondah.....	Davarcondah.....	0 17 4 D.				
Davarcondah.....	Ooracondah.....	0 1 23 D.	28 17	1/16	Goetydroog.....	2172
Davarcondah.....	Goetydroog.....	0 4 27 D.				
Goetydroog.....	Davarcondah.....	0 17 16 D.				

Stations at	Stations observed.	Apparent Elevations and Depressions	Contained Arcs.	Refraction.	Elevations above the Sea.	
					Stations.	Heights.
Panghurdroog	Condapilly	0 26 19 D.	} 26 35	1/4	Condapilly	Foot.
Condapilly	Panghurdroog	0 6 37 E.			Condapilly	928
Condapilly	Ooderpeedroog	0 17 0 D.	} 18 22	1/4	Ooderpeedroog	1252
Ooderpeedroog	Condapilly hill	0 9 29 E.			Ooderpeedroog	1252
Ooderpeedroog	Guddaculgooda	0 3 44 D.	} 18 26	1/4	Guddaculgooda	1218
Guddaculgooda	Ooderpeedroog	0 8 25 D.			Guddaculgooda	1218
Guddacul	Paumdy hill	0 12 2 D.	} 28 10	1/4	Paumdy hill	1762
Paumdy hill	Guddacul	0 4 1 D.			Paumdy hill	1762
Goetydroog	S. end of the base ..	1 42 23 D.	} 5 56	1/2	S. end of the base ..	1111
S. end of the base ..	Goetydroog	1 41 44 E.			S. end of the base ..	1111
Paumdy hill	N. end of the base ..	0 37 34 D.	} 8 7	1/4	N. end of the base ..	1253
N. end of the base ..	Paumdy hill	0 33 28 E.			N. end of the base ..	1253
Paumdy hill	Konakoondloo	0 05 11 E.	} 15 10	1/6	Konakoondloo	2026
Konakoondloo	Paumdy hill	0 15 19 D.			Konakoondloo	2026
Guddacul	Koelacondah	0 6 17 D.	} 24 33	1/8	Koelacondah	2042
Koelacondah	Guddacul	0 11 29 D.			Koelacondah	2042