
List of Stations in Mashonaland Astronomically Observed, with Altitudes

Author(s): Robert M. W. Swan

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List of Stations in Mashonaland Astronomically Observed, with Altitudes.

By ROBERT M. W. SWAN, Esq.

Stations.	Latitude.			Longitude.			Heights.*
	°	'	"	°	'	"	
Mafeking	25	51	1	25	41	0	feet
Ramathlabama river	25	37	57				
At Pan	25	30	13	25	8	15	
Kanya, 11 miles S.S.E. of	25	7	2	25	8	15	3580
Kanya	24	58	30	25	16	0	3750
Molopolole	24	25	30	25	21	0	4020
Molopolole, 4 miles N. of	24	21	30	25	21	30	3872
Klippan, $\frac{1}{2}$ mile N. of	24	17	12				4020
Kurumurwa	24	8	33				3570
Khemi	23	50	8				3490
Boatlenama, 15 miles S.E. of	23	42	20	25	35	30	3540
Boatlenama	23	32	30				3400
S. of Selinia Pan	23	27	11				3120
N. of Selinia Pan	23	20	51	26	3	15	3050
Near Hataloklu Vley	23	15	4	26	10	53	3140
S. of Shoshong	23	3	47	26	19	30	3160
Near Shoshong	23	4	0	26	28	0	3310
At stream	23	1	57	26	41	30	3260
Near Mahalapsi river	22	57	41	26	51	15	3240
Chulooan Vley	22	46	0	27	6	30	3010
Palapye	22	37	30	27	18	0	3150
At Lotsani river	22	32	45	27	21	30	2740
At Lotsani river	22	33	58	27	34	0	2480
At Lotsani river	22	32	37	27	46	45	2450
Near Elibi Fort	22	32	55				2300
Near Elibi Fort							2230
At Muralla Vley	22	32	55	28	10	30	2290
Makwenje river	22	26	56	28	21	30	2275
Pakwe river	22	15	20	28	24	15	2400
Marapong river	22	7	38	28	31	0	2230
Matlaputla river	22	3	39				
Maklutsi camp	22	0	42	28	38	15	2010
Maklutsi river	21	58	20	28	41	0	1870
Metsimachokwan river	21	49	55	28	52	0	1920
Semalali	21	53	2	29	0	40	2080
Baobab Spruit	21	53	17	29	14	0	
Fort Tuli	21	55	20	29	20	15	
Ipagi river	21	51	59	29	36	15	
Sigabi river	21	43	53	29	42	30	
'Msingwan river	21	39	7	29	48	15	1720
Umshabetsi river	21	26	22	29	57	15	2140
Mount Yanda	21	21	57	30	6	15	2330
Bubije (Buby) river	21	20	30	30	14	0	2090
Inyamanda	21	11	34	30	23	15	
Mount Host	21	9	10	30	30	20	2250
Near Nwanetsi river	21	5	16	30	38	30	1910
Near Nwanetsi river	20	59	23	30	41	0	1880
Near Mount Ibonda	20	49	49	30	42	0	2130
Lunde river	20	41	6	30	44	45	1970
Near Naka Mountains	20	35	54	30	45	0	2130
Umlala	20	27	9	30	47	30	2580
Tokwe river	20	23	5	30	53	30	2380
Providential Pass	20	11	11	30	57	45	3090

The heights have been obtained with an aneroid, and are only approximate.

Stations.	Latitude.			Longitude.			Heights.
	°	'	"	°	'	"	
Fort Victoria	20	7	53	31	0	0	3380
Zimbabwe	20	16	30	31	7	30	3340
Umsagasho river	20	3	40	..	..	..	3200
Makori	19	38	29	30	58	30	4200
Chekato	19	38	49	31	3	0	4100
Gona	19	36	52	..	..	..	4350
Umsingana	19	31	30	..	..	..	3650
Kutimasinga's	19	34	19	31	37	0	3250
Lutile	19	34	12	..	..	..	3600
Matindela	19	30	23	31	51	45	3350
Near Mount Wizinge	19	17	0	..	..	..	3250
Near Mwairari river	19	14	56	32	2	45	2900
Mukubu river	19	8	45	32	4	15	2700
Sabi river	19	7	40	32	1	30	2900
Ampai river	19	6	41	..	..	..	2950
Zamopera	19	0	17	31	39	15	3660
Mafusaire's	18	56	26	..	..	..	3950
East of Smet's kraal	18	51	25	..	..	..	..
West of Kwende's kraal	18	48	25	31	25	45	4220
'Mtigesa's	18	48	30	31	16	45	4570
Fort Charter	18	35	40	31	9	45	4408
Umfuli river	18	18	35	31	5	30	4080
Near stream	18	10	15	31	10	15	..
S. of Hanyani river	18	0	22	31	3	15	4800
Fort Salisbury	17	49	30	31	4	15	4820
Fleming's camp, Mazoe river	17	32	48	30	56	0	..
Yellow Jacket mine, ditto	17	28	32	31	4	15	4030
Madelaywa's	17	48	30	31	12	0	..
Musungaukwa's	17	52	33	31	20	15	5010
Nora river	17	55	13	31	29	0	4470
Kunzi's	17	53	40	31	33	0	4400
Yandoro's	17	47	0	31	41	45	4720
Bambabashla's	17	40	30	31	48	0	4410
Mahume river	17	31	0	31	57	45	3420
Near Lutsa	17	23	30	32	9	0	3450
Near Mtoko's	17	23	50	32	14	0	3900
Inyandea river	17	32	5	32	8	30	3600
Inyamashupa river	17	39	22	32	2	15	3900
Near Mount Masungwai	17	50	12	31	54	15	4350
Yaungurukwe river	17	59	25	31	45	45	4700
Mangwendi's P.S.	18	6	42	31	39	30	4870
Nyanger Mountain	18	15	20	31	46	0	4850
Chikamondi river	18	21	6	32	56	30	4810
Mount Ruanda	18	22	30	32	7	30	4830
Chipunza's	18	27	30	32	10	15	4450
Near Chigono's	18	33	50	32	17	0	4450
Near Yanya Mountains	18	45	0	32	22	45	3620
Odsi river drift	18	45	50	..	..	..	3420
Umtasa's	18	44	30	32	29	0	4170
Umtali, our camp	18	53	30	32	32	45	3600
Massikessi (Port. camp)	18	53	45	32	44	30	2200
Mineni river	18	56	30	32	50	30	2140
Lusika river	18	59	27	33	2	0	2000
Yundusi river trib.	18	59	10	33	13	0	2000
Near Chimoi's	18	59	0	33	20	0	2140
Zombana river	18	57	15	..	..	..	1930
Makumbese river	19	2	10	..	..	..	120
Vley	19	8	35	..	..	..	100
Motuchiri river	19	16	40	..	..	..	50
'Mpanda's	19	23	30	34	32	30	20

The following discussion ensued after the reading of Mr. Bent's and Mr. Swan's papers :—

Mr. E. A. MAUND: Having recently traversed Mashonaland, I have listened with extreme pleasure to the admirable address of Mr. Bent. A year ago I had the honour of addressing you on Mashonaland and Matabeleland when Mr. Bent was going out to visit these ruins; Mr. Bent then speaking of the archaeological value of the photographs displayed, said that I was a little bold in speculating that they were possibly Phœnician, because a gold industry was connected with them; he, I recollect, considered that they were probably Persian: he has now been, seen, conquered, and come to tell us that they are Arabic. When up country I visited these ruins myself, and saw the great work that Mr. Bent had gone through with the limited means at his disposal. There can be no doubt that Mr. Bent has shown that this building was connected with the great gold industry, the roasted quartz hidden away in the cave, the crucibles, crushing-stones, and other implements all point to this; but, besides this, all accounts of Monomatapa in the 16th century speak of it as a great gold-producing country. The natives traded their gold with the Arabs at Sofala for Indian goods. Now, at Victoria, within 15 miles of these ruins, rich gold discoveries have been made, though, as Mr. Bent said, there were no gold-bearing reefs within the immediate vicinity of the ruins. I visited the various gold-fields in Mashonaland, Hartley Hills, Umswezie, Mazoe, and Umtali fields, and it is astonishing to see the amount of work done by the ancients; millions of tons have been overturned, and thousands of slaves have been employed, for it can have been nothing else but slave labour, as is evident from the crushing-stones. These stones are often found in rows close to the mines, as if the natives had been chained to their work, and close alongside in the watercourses you will find the rice holes which fed the ancient population. Now, in the country I have traversed with Mr. Williams, a mining engineer, there are splendid evidences of rich reefs; little mining prospecting has been done, but where it has been done there have been rich finds. The country has been visited by politicians, experts, and travellers, and they have all brought back their stories, but the country is not certainly advanced enough yet for politicians or experts. I see no reason to go back one jot or tittle from my statement made here last year, whatever may be the reports of those gentlemen who go there and do not find the country cut and dried to their hands. With the country generally Mr. Bent has not dealt in his paper, which has been exclusively archaeological; but the magnificence of these rolling plains, the valleys with splendid watercourses of permanent water, capable of great agricultural development, and the wood-clad hills, are to my mind, both on the plateau towards the north-east and down towards Matabeleland in the south-west, inferior to nothing in South Africa. I won't detain you longer than to say that I travelled down with Mr. and Mrs. Bent, and must compliment Mrs. Bent upon her pluck and endurance in overcoming the immense difficulties which many a tenderfoot has come back to England and dilated so much upon as being impossible for them to overcome, and therefore they have to a great extent condemned the country; however, within a year we hope a railway, or the first stage of a railway, will pass over this difficulty, and then I believe Mashonaland will speak for itself as to its richness.

Mr. H. H. HOWORTH: I only wish to add one or two words on the archæology of this district. One of my friends, Mr. Henry Tait, who has lived a long time in the country, has discovered some curious remains of an old settlement under the sand on the Sofala coast, which doubtless belong to the same period as the ruins discovered by Mr. Bent. I should also like to refer to some wonderful bowls of Chinese celadon, which have been found in the kraals of some chiefs on the Sofala coast. Sir John Kirk has got quite a number of these bowls, which were hung up in

huts of the chiefs, who, although they know nothing whatever about them, consider them as heirlooms. This is of supreme interest in connection with the archæology of this particular region. One of the most interesting discoveries made by Mr. Bent was that of similar fragments of Chinese celadon and Persian porcelain among the ruins. We know that the same kind of bowls have been found in Borneo, a long way from Sofala, but the fact of their being found in both places makes it nearly certain that no other race but the Arabs of the ninth and tenth centuries can have brought them, for we can approximately date the particular fragments when there are no other means of dating the objects. It appears clear that these particular fragments date from about the ninth century, when the materials for the tale of Sinbad were being collected. There can be no doubt, however, that the ruins themselves, the sculptured figures and towers, belong to a period before Muhammed. It would have been impossible in Muhammedan times for these Arab emigrants to have carved figures of animals so absolutely contrary to all their principles, and this points no doubt to a great age, perhaps to the early voyages of the Phœnicians and the people of Punt, who supplied Egypt and Palestine with African products; but the point I meant to draw attention to is that the Arabs must have been there down to the end of the ninth century, because we know the two first Arabs who landed in China and brought back the first intelligence the Arabs had of the Chinese, made their voyage about that date. Their report has been edited by Renaudot; so, by means of this porcelain, we are able approximately to fix the later date of the history of these ruins.

The PRESIDENT: This is very much the largest meeting that we have had since the great gathering to welcome Stanley in the Albert Hall. You came expecting a great deal from Mr. Bent; you have not been disappointed, and I know that I have your mandate to return your most sincere thanks to him and also to Mrs. Bent, who was so excellent an assistant to him, and to whom we owe a great deal of the pleasure of this evening, for I understand Mrs. Bent did all the photographs. You are also, I know, obliged to the various gentlemen who followed Mr. Bent and took part in the discussion.

Mr. BENT, in acknowledging the vote of thanks, said he was much obliged to Mr. Howorth, whose remarks were most valuable, as he fixed a date that had been to Mr. Bent a great difficulty. Mr. Bent could throw the ruins back to a pre-Muhammedan period, but then came the difficulty; in all probability, considering the different styles of architecture in the ruins, they were centuries older, but that question he left for future speculation. When he said that he had found them to be Arabian and pre-Muhammedan, he had done what they required of him.

The Orientation of the Buildings at Zimbabwe.

By ROBERT M. W. SWAN, Esq.

THE evidences of orientation and of an observance of the motions of the sun in the temples at Zimbabwe, Matindela, and the Lunde river are such as might be expected when we consider the nature of the worship carried on in these temples, and, at the same time, are such as would enable the people to mark the recurring phenomena of the solar year. They required something to tell them of the passage of the seasons, and in satisfying this necessity of their life they used much symbolism