FURTHER MAGNETIC OBSERVATIONS IN SOUTH AFRICA.

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During the years 1910-13 further magnetic observations have been carried out in South Africa with the view of extending our knowledge of the magnetic elements in those parts where as yet their values were unknown, and, in addition, to find the secular change of the magnetic elements in regions already surveyed.*

The parts of South Africa in which observations were made for the first time in this period were the West Transvaal, British Bechuanaland, and Bushmanland. In 1903 magnetic work had been carried on along the railways to the west and to the east of the East Transvaal, and in the summer 1910-11 further determinations were made in the country lying between the railways. A number of observations of the magnetic declination had been carried out in these parts in 1909 by Mr. O. C. Macpherson during the course of a railway survey. The places at which observations were made for secular variation in this region were Klerksdorp (1911), Warrenton (1911-12), Mafeking (1911-12), Pretoria (1908).

A number of observations was also made in the same summer in the eastern part of Cape Colony, two old stations (Alicedale Junction and Coerney) were reoccupied and four new ones established; three of the latter were on the south and one to the north side of a magnetic ridge which had been approximately located by earlier work.†

During the winter of 1911 repeat stations were occupied in the Eastern Province of the Cape, in the Eastern Transvaal, and in the Orange Free State.

The observations in British Bechuanaland were carried out in the summer of 1911-12; the stations were distributed between the railway and the Kuruman Mountains; only a few stations to the west of these mountains were occupied. In addition to the repeat stations, Warrenton and Mafeking, it was possible to occupy a station, Grootfontein, near where the declination was determined by Moorrees and Bosman in 1888.‡

In the winter of 1912 a number of repeat stations was occupied along the railway line from Matjesfontein to Biesjespoort; in the same season three new stations were occupied in the Cape Province, and two in the Western Transvaal.

* The work was supported by a grant-in-aid from the Union Government.

† "Report of a Magnetic Survey of South Africa," by J. C. Beattie, London, 1909, pages 92-93.

‡ See "Report of a Magnetic Survey of South Africa," by J. C. Beattie, London, 1909.

In the summer 1912-13 observations were made in Bushmanland ; in addition, four repeat stations—Van Wyk's Vlei, Kenhardt, Aggennys, and Pella—were reoccupied ; the two latter stations had been first occupied in the summer of 1908-9, and the two former in the summer 1904-5.

The instruments used were a dip circle by Dover No. 142, a unifilar magnetometer by Elliot No. 73, the property of the Royal Society of London, and in the summer of 1910-11 a magnetometer No. 164, lent by Professor A. Ogg to the author pending the arrival from England of No. 73, where it had been sent for repair. The constants for magnetometer 73 are given below. This instrument had been used during 1908 and 1909 in magnetic work between Cape Town and Cairo. At the end of this period the instrument was completely overhauled by the makers, and its constants redetermined at Kew in December, 1910. The previous determination of the constants of this instrument was made at Kew in August, 1902 ; their values at that date are given in the " Report of a Magnetic Survey," already referred to, and are repeated here for the sake of comparison.

Constants of Magnetometer No. 73.

		Temperature Correction <i>t</i> degrees Centigrade.	Induction Coefficient.	Angular Value of one Scale Division.
1902 {	Collimator	$0\cdot000281t + 0\cdot0_5118t^2$	4·730	1'·75
1910 {	magnet 73A	$0\cdot000325t + 0\cdot0_5108t^2$	4·820	1'·75
1902 {	Deflection magnet 73c			{ 60'·4
1910 {				{ 60'·2

Brass Bar 73.

		Apparent Distance from Centre (in cms.) at 0° C.	
		30	40
1902 {	The distances corrected for bending ...	29·993	39·994
1910 {		29·993	39·991

Log $\pi^2 K$.

	0° C.	10° C.	20° C.	30° C.	40° C.
1902	3·47406	3·47416	3·47426	3·47437	3·47447
1910	3·47349	3·47359	3·47370	3·47380	3·47401

Auxiliary Brass Cylinder.

	Length.	Diameter.	Mass.
1902	9·536 cm.	0·995 cm.	62·803 grm.
1910	9·521 „	0·994 „	62·343 „

In addition to the magnetic instruments a 5-inch theodolite, No. 6084, by Cooke and Son, York, and a chronometer—Reid and Son, No. 1078—were used.

The observations taken and the methods of taking them were the same as have already been described at considerable length in connection with previous magnetic work in South Africa.* The only change was in the astronomical observations for azimuth and longitude, where for each pointing on the sun both horizontal and vertical circles on the theodolite were read. The method is described fully by Bauer.†

The values given for the magnetic elements are uncorrected for variation, either secular or diurnal.

SUMMARY OF RESULTS.

Place.	Date.	Latitude.	Longi- tude.	Declina- tion.	Dip.	Horizontal Intensity.
		S.	E.	W.	S.	Gauss.
Abiekwa Put	1912, Dec. 10	30°22'·0	20°46'·0	25°24'·5	59°34'·0	·17803
Aggennys	1912, Dec. 22	29 12·9	18 49·0	25 28·7	58 41·3	·17918
Alexandria	1910, Dec. 13	33 30·0	26 32·4	25 48·0		·16931
Alexandria	1910, Dec. 14	33 30·0	26 32·4		62 17·4	
Alicedale Junction...	1910, Dec. 11	33 18·9	26 02·5	25 44·9		·16921
Alicedale Junction...	1910, Dec. 12	33 18·9	26 02·5		62 18·7	
Beaufort West	1912, July 1	32 20·9	22 34·0	25 48·4	60 48·7	·17371
Beaulieu	1911, Dec. 17	26 14·5	24 13·9	22 05·5	58 02·5	·18739
Biesjespoort	1912, July 3	31 43·8	23 12·0	24 45·6		·17689
Blaauwpoort	1913, Jan. 13	30 39·2	21 42·0	25 14·8	59 49·5	·17729
Boons	1910, Dec. 27	25 57·9	27 18·0	20 50·2	58 38·7	·18801
Brethby	1912, Jan. 7	27 50·1	23 31·3	36 15·5	50 22·5	·20247
Bruwer's Farm	1911, Dec. 15	26 18·7	24 36·2	22 14·5	58 27·0	·18674
Bry Paal	1912, Dec. 31	29 10·0	20 28·0	25 07·9	58 50·6	·18001
Buckwheat	1911, Dec. 11	26 02·7	25 11·4	22 09·5	57 57·9	·18770
Coega	1910, Dec. 17	33 45·4	25 37·7	25 46·5	62 12·8	·17024
Coerney	1910, Dec. 19	33 27·6	25 44·0	25 49·9	62 16·4	·16942
De Neus	1912, Dec. 27	29 11·3	19 39·0	25 03·9	58 42·1	·18100
Dingle	1912, Jan. 5	27 48·9	22 58·5	22 57·6	58 32·0	·18382
Drooge Grond.....	1912, Dec. 30	29 07·3	20 15·0	25 03·5	59 06·6	·17934
East London	1911, July 2	33 00·0	27 56·0	24 57·1	62 29·0	·16867
Eendekuil	1913, Feb. 6	32 41·2	18 52·0	26 48·8	60 00·1	·17521
Elands Put	1911, Jan. 2	25 58·4	26 21·2	21 47·1	58 19·5	·18836
Erasmus	1911, Dec. 27	27 08·0	24 08·0	22 59·3	58 43·0	·18508
Flatlands.....	1912, Jan. 4	27 33·0	22 58·0		58 40·8	·18263
Fraserburg Road	1912, June 29	32 46·0	22 00·0	26 00·6	61 05·4	·17384
Genesa.....	1911, Dec. 23	26 35·4	24 10·4	22 15·7	58 20·9	·18516
Grootfontein	1912, Jan. 9	27 39·0	24 00·0	24 12·8	58 57·1	·18197
Groot Riet	1913, Jan. 1	29 17·5	20 46·0	24 53·4	59 00·2	·17997
Hamburg	1911, Dec. 25	27 01·4	24 16·2	22 43·0	58 47·5	·18459
Harrisburg	1912, July 8	27 09·0	26 23·5	21 33·5	59 19·6	·18307
Hartebeestfontein ...	1911, Jan. 5	26 45·5	26 24·0	21 54·5	59 01·2	·18472
Hoezar West	1912, Dec. 12	30 07·1	20 26·8	25 28·0	59 12·8	·17917
Howmoed	1912, Dec. 18	29 19·3	19 33·0	25 23·0	58 46·7	·18071
Hutchinson.....	1911, June 26	31 29·6	23 15·0	25 34·2	60 31·4	·17596
Kadebis	1911, Dec. 16	26 16·6	24 25·0		58 06·1	·18813
Karree	1911, July 4	28 52·5	26 21·0	21 54·2	60 10·2	·17827

* "Report of a Magnetic Survey," etc., pp. 12-18. The level correction note at the foot of page 12 refers to the azimuth observations.

† "United States Magnetic Declination Tables and Isogonic Charts for 1902," by L. A. Bauer, pp. 90-94, Washington, 1902.

SUMMARY OF RESULTS (*continued*).

Place.	Date.	Latitude.	Longitude.	Declination.	Dip.	Horizontal Intensity.
		S.	E.	W.	S.	Gauss.
Keeley	1911, Dec. 14	26°08'·6	24°43'·9	22°41'·9	57°52'·6	·19046
Kenhardt.....	1913, Jan. 4	29 18·0	21 09·0	25 07·2	59 21·8	·18039
Kenkelbosch	1910, Dec. 16	33 30·0	25 52·4	25 40·4	62 09·1	·16952
Khosis	1912, Jan. 6	27 52·9	23 15·6	23 45·3	58 18·0	·18511
Klerksdorp	1911, Jan. 7	26 52·3	26 38·0	22 16·3	59 03·3	·18520
Kliparani.....	1911, Dec. 10	25 59·4	25 22·1	21 58·3	58 11·6	·18812
Koster	1910, Dec. 29	25 58·0	26 57·5	21 01·8	58 30·3	·18780
Kuruman.....	1912, Jan. 1	27 27·9	23 25·1	23 35·2	58 45·5	·18310
Leeuw Kolk	1912, Dec. 8	30 25·3	21 17·0	25 14·4	59 37·2	·17821
Levves Kolk	1912, Dec. 16	29 35·5	19 50·0	25 04·6	58 58·9	·17964
Lichtenburg	1911, Jan. 3	26 10·2	26 06·0	21 55·4	58 38·8	·18661
Louw Zyn Kolk.....	1913, Jan. 10	30 17·4	21 00·1	25 06·5	59 42·7	·17742
Machadodorp	1911, July 6	25 39·9	30 15·0	19 31·3	59 27·3	·18411
Mafeking.....	1911, Dec. 8	25 52·0	25 39·0	21 40·9	58 10·4	·18779
Magaliesburg	1910, Dec. 28	26 00·0	27 37·3	20 56·3	58 43·8	·18768
Maquassi.....	1912, July 9	27 20·0	25 59·3	22 24·4	59 23·7	·18388
Markson's Hotel.....	1910, Dec. 30	25 35·3	26 32·0	21 14·0	58 09·1	·18968
Marokwen	1911, Dec. 20	26 07·8	23 44·0	22 11·8	57 37·3	·18896
Matjesfontein.....	1912, June 25	33 14·2	20 36·0	27 00·7		
Matjesfontein	1912, June 26	33 14·2	20 36·0	27 02·3		·17190
Matjesfontein	1912, June 27	33 14·2	20 36·0	27 01·3	60 57·8	·17208
Matjesfontein	1912, June 28	33 14·2	20 36·0	27 02·5		
Meintjes's Farm.....	1911, Dec. 12	26 04·4	25 01·8	21 57·3	58 21·8	·18657
Murraysburg	1912, July 4	31 56·0	23 43·0	25 07·1	61 16·7	·17238
Namies	1912, Dec. 20	29 09·0	19 12·0	25 37·2	58 19·8	·18187
Nanibies	1912, Dec. 14	29 51·3	20 05·0	25 06·1	59 30·0	·17723
Nelspruit	1911, July 7	25 28·1	30 58·5	19 14·1	59 08·5	·18612
Ottoshoop	1911, Jan. 1	25 44·6	26 08·8	21 38·1	58 07·8	·18852
Pella.....	1912, Dec. 24	29 02·0	19 08·0	25 42·7	58 23·2	·18194
Pofadder	1912, Dec. 26	29 07·0	19 24·0	25 43·7	58 46·6	·18068
Quaggafontein	1913, Jan. 8	29 59·1	20 42·0	25 24·2	59 25·4	·17836
Queenstown	1911, June 28	31 54·0	26 52·0	24 41·7		
Queenstown	1911, June 29	31 54·0	26 52·0	24 36·2	61 46·5	·17271
Richmond C.P.	1912, July 5	31 25·7	23 56·2	24 52·7	61 23·9	·17247
Roodekloof	1910, Dec. 26	25 49·7	27 13·5	20 58·5	58 30·5	·18812
Rumsey's Farm	1911, Dec. 22	26 24·3	24 03·0	22 09·7	58 25·0	·18927
Rustenburg	1910, Dec. 25	25 40·0	27 15·4	20 35·7	58 28·5	·18815
Rystkuil	1912, July 2	32 38·7	22 54·2	25 32·4	60 57·9	·17411
Sandflats.....	1910, Dec. 20	33 20·0	25 57·0	25 48·3	62 17·6	·16942
Schulenburg	1911, Jan. 4	26 25·5	25 57·5	21 54·4	58 44·6	·18608
Swanswani.....	1912, Jan. 8	27 46·6	23 49·5	23 07·2	58 57·2	·18195
Van Wyk's Vlei	1912, Dec. 6	30 22·3	21 50·0	25 37·6	59 55·6	·17584
Warrenton	1911, Dec. 5	28 06·9	24 52·0	23 25·0	59 45·3	·18069
Wessels	1911, Dec. 29	27 23·7	23 39·9	22 56·2	59 06·3	·18464
Zand Gat.....	1912, Dec. 28	29 11·0	19 43·0	25 02·9	58 37·4	·18170
Zand Put.....	1913, Jan. 9	30 05·7	20 49·0	25 21·4	59 34·0	·17744
Zeerust	1910, Dec. 31	25 32·6	25 59·0	22 29·6	58 08·4	·18774
Zonder Huis	1913, Jan. 6	29 40·0	20 54·0	25 19·9	59 16·0	·17876
Zoutpan	1911, Dec. 24	26 48·7	24 13·1	22 44·1		·18581
Zwartkopje	1912, Dec. 17	29 29·0	19 39·0	25 18·7	58 46·8	·18118
A.....	1911, Dec. 21	26 14·7	23 55·8	22 29·4	57 47·2	·18886
B.....	1911, Dec. 18	26 12·0	24 01·0	22 24·2	57 59·3	·18850

SUMMARY OF RESULTS (*continued*).*Macpherson's Observations in 1909.*

Place.	Date.	Latitude.	Longitude.	Declination.
		S.	E.	W.
Rooibdraai	1909, Mar. 7	26°21'	27° 8'	22° 8'
Modderfontein	1909, Mar. 14, 15	26 20	26 59	21 51
Ventersdorp	1909, Mar. 21	26 20	26 50	22 21
Lichtenburg	1909, Sept. 5	26 9	26 10	22 5
Zoetmelksvlei	1909, Apr. 11	26 14	26 10	21 52
Hartebeestfontein	1909, May 16, 19	26 46	26 26	22 6
Barber's Pan	1909, Oct. 12, 13	26 36	25 35	22 41

RESULTS OF OBSERVATIONS.

The method of tabulating is the same as in the "Report of a Magnetic Survey of South Africa" (Appendix E, p. 12). In the present results there is, however, no column showing the value at any particular epoch. No correction for daily variation has been applied in the case of any of the elements.

I have to thank Mr. W. H. Finlay for reducing the observations.

ABIEKWA PUT.—Latitude 30° 22'·0 S.

Longitude 20° 46'·0 E.

Place of observation on east side of graveyard and on opposite side of road. North side of row of houses.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Dec. 10	6.23 a.m.	25° 25'·2 W.	Beattie	73
	8.09 a.m.	25 23·9	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Dec. 10	9.20 a.m.	5	59° 35'·1 S.	Beattie	142
	9.20 a.m.	6	59 32·9	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Dec. 10	6.43 a.m. V	H ₃₀ ·17807	Beattie	73
	7.22 a.m. D	H ₄₀ ·17800	"	"
	7.54 a.m. V			

AGGENNYS.—Latitude $29^{\circ} 12' \cdot 9$ S.Longitude $18^{\circ} 49' \cdot 0$ E.

Place of observation at the mouth of a kloof, 30 paces to the right of a point on road from O'okiep, 110 paces from river-bank towards Pella. Same station as in 1909.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Dec. 22	7.38 a.m.	$25^{\circ} 30' \cdot 0$ W.	Beattie	73
	7.39 a.m.	25 27.4	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Dec. 22	6.09 a.m.	1	$58^{\circ} 41' \cdot 1$ S.	Beattie	142
	6.10 a.m.	5	58 40.7	"	"
	6.10 a.m.	2	58 40.3	"	"
	6.10 a.m.	6	58 43.1	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Dec. 22	7.56 a.m. V			
	8.47 a.m. D	$H_{30} \cdot 17915$	Beattie	73
	9.25 a.m. V	$H_{40} \cdot 17922$	"	"

ALEXANDRIA.—Latitude $33^{\circ} 30' \cdot 0$ S.Longitude $26^{\circ} 32' \cdot 4$ E.

Place of observation in hollow between hill in which railway station is built, and next rise going towards the village. 200 paces from railway station and on right-hand side of road from railway station to village.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1910 Dec. 13	12.54 p.m.	$25^{\circ} 47' \cdot 8$ W.	Beattie	164
	1.57 p.m.	25 48.2	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1910 Dec. 14	8.59 a.m.	1	$62^{\circ} 16' \cdot 6$ S.	Beattie	142
		2	62 18.1	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1910 Dec. 13	10.22 a.m. V	H ₃₀ ·16943	Beattie	164
	11.09 a.m. D	H ₄₀ ·16932		
	11.49 a.m. D	H ₃₀ ·16925	"	"
	12.30 p.m.	H ₄₀ ·16925		

ALICEDALE JUNCTION.—Latitude 33° 18'·9 S.

Longitude 26 02'·5 E.

Same station as in 1900. (See "Report of a Magnetic Survey of South Africa," Appendix, p. 17.)

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1910 Dec. 11	8.14 a.m.	25° 45'·1 W.	Beattie	164
	2.48 a.m.	25 44'·7	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1910 Dec. 12	6.47 a.m.	1	62° 13'·9 S.	Beattie	142
	6.49 a.m.	2	62 17'·8	"	"
	6.49 a.m.	3	62 19'·0	"	"
	6.49 a.m.	4	62 19'·0	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1910 Dec. 11	9.08 a.m. V	H ₃₀ ·16915	Beattie	164
	9.57 a.m. D	H ₄₀ ·16949	"	"
	12.04 p.m. D	H ₃₀ ·16897	"	"
	2.21 p.m. V	H ₄₀ ·16921	"	"

BEAUFORT WEST.—Latitude 32° 20'·9 S.

Longitude 22° 34'·0 E.

Repeat station. (See "Report," Appendix, p. 24.)

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 July 1	7.42 a.m.	25° 47'·9 W.	Beattie	73
	8.52 a.m.	25 50'·3	"	"
	10.24 a.m.	25 48'·9	"	"
	12.37 p.m.	25 47'·6	"	"
	1.22 p.m.	25 47'·5	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 July 1	11.18 a.m.	1	60° 50'·2 S.	Beattie	142
	11.18 a.m.	2	60 45·9	„	„
	11.18 a.m.	3	60 50·0	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 July 1	9.08 a.m. V			
	9.39 a.m. D	H ₃₀ ·17377	Beattie	73
	10.10 a.m. V	H ₄₀ ·17365	„	„

BEAULIEU (Walters's Farm).—Latitude 26° 14'·5 S.

Longitude 24° 13'·9 E.

The place of observation was on the north side of the house and of the windmill about 400 yards north north-west of windmill.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Dec. 17	8.41 a.m.	22° 05'·6 W.	Beattie	73
	9.51 a.m.	22 05·5	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Dec. 17	10.57 a.m.	1	58° 03'·1 S.	Beattie	142
	10.57 a.m.	2	58 02·7	„	„
	10.57 a.m.	3	58 01·8	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 17	8.57 a.m. V	H ₃₀ ·18737	Beattie	73
	9.26 a.m. D	H ₄₀ ·18741	„	„

BIESJESPOORT.—Latitude 31° 43'·8 S.

Longitude 23° 12'·0 E.

Repeat station. Left-hand side of railway coming from Cape Town. Road runs alongside railway. Place of observation 150 yards from road opposite goods shed on Cape Town side of Midwidsky's store.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 July 3	7.40 a.m.	24° 43'·8 W.	Beattie	73
	8.50 a.m.	24 46·4	"	"
	10.28 a.m.	24 46·7	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 July 3	9.10 a.m. V			
	9.41 a.m. D	H ₃₀ ·17683	Beattie	73
	10.12 a.m. V	H ₄₀ ·17694	"	"

BLAAUWPOORT.—Latitude 30° 39'·2 S.
Longitude 21° 42'·0 E.

A low range of hills runs east and west on the north side of the farm buildings. The place of observation was on the north side of this range and on the left-hand side of the road coming from Jagd Pan to Blaauwpoort. Dam on the opposite side of the road.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1913 Jan. 13	8.24 a.m.	25° 16'·9 W.	Beattie	73
	10.02 a.m.	25 12·7	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1913 Jan. 13	10.43 a.m.	1	59° 48'·6 S.	Beattie	142
	10.43 a.m.	5	59 50·4	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1913 Jan. 13	8.39 a.m. V	H ₃₀ ·17729	Beattie	73
	9.18 a.m. D	H ₄₀ ·17728	"	"
	9.48 a.m. V			

BOONS.—Latitude 25° 57'·9 S.
Longitude 27° 18'·0 E.

Place of observation on north side of railway line, 250 paces from stationmaster's house.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1910 Dec. 27	6.05 a.m.	20° 48'·6 W.	Beattie	164
	8.16 a.m.	20 51·8	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1910 Dec. 27	9.07 a.m.	1	58° 39'·8 S.	Beattie	142
	9.08 a.m.	2	58 37·6	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1910 Dec. 27	7.10 a.m. V	H ₃₀ ·18799	Beattie	164
	7.45 a.m. D	H ₄₀ ·18803	„	„

BRETBY.—Latitude 27° 50'·1 S.

Longitude 23° 31'·3 E.

Place of observation on west side of road, opposite dam and a little to north of it. In midst of Kuruman hills, rocks highly magnetic.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Jan. 7	6.49 a.m.	36° 20'·3 W.	Beattie	73
	7.35 a.m.	36 10·6	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Jan. 7	5.10 a.m.	1	50° 21'·6 S.	Beattie	142
	5.10 a.m.	2	50 23·4	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Jan. 7	8.11 a.m. V			
	8.53 a.m. D	H ₃₀ ·20242	Beattie	73
	9.22 a.m. V	H ₄₀ ·20252	„	„

BRUWER'S FARM.—Latitude 26° 18'·7 S.

Longitude 24° 36'·2 E.

Place of observation on east side of Bruwer's house and 300 yards from it.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Dec. 15	7.11 a.m.	22° 12'·6 W.	Beattie	73
	8.41 a.m.	22 16·5	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Dec. 15	9.27 a.m.	1	58° 27'·1 S.	Beattie	142
	9.27 a.m.	2	58 27·7	„	„
	9.28 a.m.	3	58 26·2	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 15	7.26 a.m. V	H ₃₀ ·18670	Beattie	73
	8.00 a.m. D			
	8.23 a.m. V	H ₄₀ ·18679	„	„

BRY PAAL.—Latitude 29° 10'·0 S.

Longitude 20° 28'·0 E.

Place of observation three miles on Kenhardt side of Bry Paal at junction of two roads.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Dec. 31	9.01 a.m.	25° 07'·9 E.	Beattie	73

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Dec. 31	9.51 a.m.	1	58° 53'·2 S.	Beattie	142
	9.51 a.m.	5	58° 48'·0	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Dec. 31	9.14 a.m. V	·18001	Beattie	73

BUCKWHEAT (Swan's Farm).—Latitude 26° 02'·7 S.

Longitude 25° 11'·4 E.

Place of observation in hollow on side of dwelling-house and farm buildings away from Mafeking.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Dec. 11	7.54 a.m.	22° 11'·7 W.	Beattie	73
	9.26 a.m.	22 07·3	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Dec. 11	10.54 a.m.	1	57° 58'·4 S.	Beattie	142
	10.55 a.m.	2	57 58·0	„	„
	10.55 a.m.	3	57 57·4	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 11	8.10 a.m. V		Beattie	73
	8.43 a.m. D	H ₃₀ ·18770	„	„
	9.09 a.m. V	H ₄₀ ·18770	„	„

COERNEY.—Latitude 33° 27'·6 S.
Longitude 25° 44'·0 E.

Station of 1902 reoccupied. (See "Report," Appendix, p. 47.)

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1910 Dec. 19	7.04 a.m.	25° 52'·3 W.	Beattie	164
	10.02 a.m.	25 52·1	„	„
	2.09 p.m.	25 45·3	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1910 Dec. 19	12.29 p.m.	1	62° 17'·5 S.	Beattie	142
	12.29 p.m.	2	62 17·1	„	„
	12.29 p.m.	3	62 14·2	„	„
	12.31 p.m.	4	62 16·7	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1910 Dec. 19	8.47 a.m. V	H ₃₀ ·16945	Beattie	164
	9.30 a.m. D	H ₄₀ ·16940	„	„

COEGA.—Latitude $33^{\circ} 45' \cdot 4$ S.Longitude $25^{\circ} 37' \cdot 7$ E.

Place of observation near Bright's Hotel on side away from railway station, on edge of bush 120 paces from kraal and 120 paces from house.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1910 Dec. 17	6.19 a.m.	$25^{\circ} 47' \cdot 1$ W.	Beattie	164
	9.13 a.m.	$25^{\circ} 45' \cdot 9$	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1910 Dec. 17	12.50 p.m.	1	$62^{\circ} 12' \cdot 5$ S.	Beattie	142
	12.51 p.m.	2	$62^{\circ} 13' \cdot 2$	"	"
	12.51 p.m.	3	$62^{\circ} 12' \cdot 6$	"	"
	12.51 p.m.	4	$62^{\circ} 13' \cdot 0$	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1910 Dec. 17	8.02 a.m. V	$H_{30} \cdot 17027$	Beattie	164
	8.43 a.m. D	$H_{40} \cdot 17020$	"	"

DE NEUS.—Latitude $29^{\circ} 11' \cdot 3$ S.Longitude $19^{\circ} 39' \cdot 0$ E.

Place of observation on left-hand side of road going from Pofadder to Kenhardt. On Pofadder side of farmhouse on side of dam nearer road 25 paces from end of stone wall forming dam boundary.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Dec. 27	11.11 a.m.	$25^{\circ} 03' \cdot 9$ W.	Beattie	73

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Dec 27	10.03 a.m.	1	$58^{\circ} 41' \cdot 5$ S.	Beattie	142
	10.03 a.m.	5	$58^{\circ} 42' \cdot 7$	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Dec. 27	11.58 a.m. V	$\cdot 18100$	Beattie	73

DINGLE.—Latitude $27^{\circ} 48' 9''$ S.Longitude $22^{\circ} 58' 5''$ E.

Place of observation on north side of store and about 300 paces from it.

Declination (D).

Date	G.M.T.	D (observed).	Observer.	Instrument.
1912 Jan. 5	6.43 a.m.	$22^{\circ} 59' 1''$ W.	Beattie	73
	8.10 a.m.	$22^{\circ} 56' 1''$	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Jan. 5	5.06 a.m.	1	$58^{\circ} 32' 0''$ S.	Beattie	142
	5.06 a.m.	2	$58^{\circ} 31' 9''$	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Jan. 5	7.00 a.m. V			
	7.37 a.m. D	$H_{30} \cdot 18371$	Beattie	73
	8.03 a.m. V	$H_{40} \cdot 18392$	"	"

DROOGE GROND.—Latitude $29^{\circ} 07' 3''$ S.Longitude $20^{\circ} 15' 0''$ E.

For position of station see sketch in field book.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Dec. 30	6.53 a.m.	$25^{\circ} 05' 5''$ W.	Beattie	73
	8.42 a.m.	$25^{\circ} 01' 6''$	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Dec. 30	5.41 a.m.	1	$59^{\circ} 07' 6''$ S.	Beattie	142
	5.41 a.m.	5	$59^{\circ} 05' 6''$	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Dec. 30	7.10 a.m. V	$H_{30} \cdot 17932$	Beattie	73
	7.58 a.m. D	$H_{40} \cdot 17935$	"	"
	8.29 a.m. V			

EAST LONDON.—Latitude $33^{\circ} 00' 0''$ S.
Longitude $27^{\circ} 56' 0''$ E.

Previous station at East London behind Beach Hotel, no longer suitable on account of various iron structures which have been erected near it. New station to the east of the Beach Hotel beyond the last of the tramway poles; to reach this station go from Beach Hotel along main road past end of tram-line, turn off the road just before reaching the bush land, cross the stream by a bridge and go along the road towards the destructor until a green patch is reached surrounded by bush on all sides except the north-west; place of observation on south-east side of this patch alongside bush.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 July 2	8.00 a.m.	$24^{\circ} 56' 0''$ W.	Beattie	73
	9.59 a.m.	24 58.2	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 July 2	10.45 a.m.	1	$62^{\circ} 28' 7''$ S.	Beattie	142
	10.45 a.m.	2	62 29.3	"	"
	10.45 a.m.	3	62 29.0	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 July 2	8.18 a.m. V	$H_{30} \cdot 16863$	Beattie	73
	9.01 a.m. D	$H_{40} \cdot 16871$	"	"
	9.34 a.m. V			

EENDEKUIL.—Latitude $32^{\circ} 41' 2''$ S.
Longitude $18^{\circ} 52' 0''$ E.

The place of observation is reached by going 15 paces from mile-post 128 away from Cape Town, and then at right angles to railway across river-bed about 15 paces from river-bank.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1913 Feb. 6	8.32 a.m.	$26^{\circ} 54' 0''$ W.	Beattie	73
	10.27 a.m.	26 48.6	"	"
	1.22 p.m.	26 46.2	"	"
	2.01 p.m.	26 46.5	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1913 Feb. 6	7.43 a.m.	1	59° 59'·7 S.	Beattie	142
	7.44 a.m.	5	59 61·4	„	„
	7.44 a.m.	2	59 59·9	„	„
	7.44 a.m.	6	59 59·4	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1913 Feb. 6	8.52 a.m. V	H ₃₀ ·17528	Beattie	73
	9.31 a.m. D	H ₄₀ ·17527	„	„
	10.9 a.m. V		„	„
	12.14 p.m. V	H ₃₀ ·17511	„	„
	12.42 p.m. D	H ₄₀ ·17518	„	„
	1.10 p.m. V			

ELANDS PUT, OUTSPAN.—Latitude 25° 58'·4 S.

Longitude 26° 21'·2 E.

Place of observation on left-hand side of road going from Ottoshoop to Lichtenburg, farmhouse about a mile away on the same side of the road. Water between road and farmhouse.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Jan. 2	8.32 a.m.	21° 47'·1 W.	Beattie	164

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Jan. 2	10.52 a.m.	1	58° 19'·2 S.	Beattie	142
	10.53 a.m.	2	58 19·9	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Jan. 2	9.07 a.m. V	H ₃₀ ·18840	Beattie	164
	9.38 a.m. D	H ₄₀ ·18831	„	„

ERASMUS.—Latitude 27° 08'·0 S.

Longitude 24° 08'·0 E.

Place of observation on opposite side of road to Erasmus's smithy on Kuruman side of clump of trees about 60 paces from the road going from Geluk to Kuruman.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Dec. 27	7.30 a.m.	22° 59'·4 W.	Beattie	73
	8.55 a.m.	22 59·3	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Dec. 27	9.31 a.m.	1	58 43'·0 S.	Beattie	142
	9.31 a.m.	2	58 42·9	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 27	7.45 a.m. V	H ₃₀ ·18503	Beattie	73
	8.17 a.m. D		„	„
	8.42 a.m. V	H ₄₀ ·18513	„	„

FLATLANDS.—Latitude 27° 33'·0 S.

Longitude 22° 58'·0 E.

Place of observation on right-hand side of house and garden coming from Kuruman.

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Jan. 4	8.47 a.m.	1	58° 40'·5 S.	Beattie	142
	8.47 a.m.	2	58 41·1	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Jan. 4	9.16 a.m. V	H ₃₀ ·18263	Beattie	73
	9.47 a.m. D	H ₄₀ ·18263	„	„

FRASERBURG ROAD.—Latitude 32° 46'·0 S.

Longitude 22° 00'·0 E.

Repeat station. (See "Report," Appendix, p. 66.)

Place of observation in bed of river on right-hand side of road going from station eastwards and near bank farther from railway.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 June 29	8.52 a.m.	26° 03'·1 W.	Beattie	73
	11.01 a.m.	26 02·1	"	"
	12.51 p.m.	25 58·5	"	"
	1·31 p.m.	25 58·5	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 June 29	12.11 p.m.	1	61° 06'·0 S.	Beattie	142
	12.12 p.m.	2	61 06·8	"	"
	12.12 p.m.	3	61 03·3	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 June 29	9.18 a.m. V		Beattie	73
	9.50 a.m. D	H ₃₀ ·17390	"	"
	10.13 a.m. D	H ₄₀ ·17377	"	"
	10.44 a.m. V		"	"

GENESA.—Latitude 26° 35'·4 S.

Longitude 24° 10'·4 E.

Place of observation north of Edmond's Store and east of Wesleyan Mission.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Dec. 23	7.07 a.m.	22° 18'·3 W.	Beattie	73
	8.36 a.m.	22 13·1	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Dec. 23	9.25 a.m.	1	58° 20'·4 S.	Beattie	142
	9.26 a.m.	2	58 21·6	"	"
	9.26 a.m.	3	58 20·8	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 23	7.21 a.m. V		Beattie	73
	7.58 a.m. D	H ₃₀ ·18515	"	"
	8.22 a.m. V	H ₄₀ ·18516	"	"

GROOTFONTEIN.—Latitude $27^{\circ} 39' 0''$ S.Longitude $24^{\circ} 00' 0''$ E.*Declination (D).*

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Jan. 9	8.44 a.m.	$24^{\circ} 09' 1''$ W.	Beattie	73
	10.08 a.m.	24 16.4	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Jan. 9	5.40 a.m.	1	$58^{\circ} 57' 5''$ S.	Beattie	142
	5.40 a.m.	2	58 56.7	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Jan. 9	8.58 a.m. V		Beattie	73
	9.31 a.m. D	$H_{30} \cdot 18187$	„	„
	9.55 a.m. V	$H_{40} \cdot 18207$	„	„

GROOT RIET.—Latitude $29^{\circ} 17' 5''$ S.Longitude $20^{\circ} 46' 0''$ E.

On Kenhardt side of river. Right-hand side of road coming from Kenhardt to Pofadder under large thorn-tree.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1913 Jan. 1	7.49 a.m.	$24^{\circ} 55' 1''$ W.	Beattie	73
	9.39 a.m.	24 51.7	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1913 Jan. 1	10.15 a.m.	1	$58^{\circ} 61' 7''$ S.	Beattie	142
	10.16 a.m.	5	58 58.7	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1913 Jan. 1	8.05 a.m. V		Beattie	73
	8.32 a.m. D	$H_{30} \cdot 17999$	„	„
	9.27 a.m. V	$H_{40} \cdot 17995$	„	„

FARM HAMBURG.—Latitude $27^{\circ} 01' 4''$ S.
Longitude $24^{\circ} 16' 2''$ E.

Place of observation on edge of clump of trees between Hamburg and Potgieter's Farm and on side of clump away from Hamburg.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Dec. 25	6.54 a.m.	$22^{\circ} 44' 5''$ W.	Beattie	73
	8.55 a.m.	22 41.5	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Dec. 25	9.39 a.m.	1	$58^{\circ} 46' 9''$ S.	Beattie	142
	9.39 a.m.	2	58 48.4	„	„
	9.38 a.m.	3	58 47.3	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 25	8.14 a.m. D	$H_{30} \cdot 18453$	Beattie	73
	8.40 a.m. V	$H_{40} \cdot 18465$	„	„

HARRISBURG.—Latitude $27^{\circ} 09' 0''$ S.
Longitude $26^{\circ} 23' 5''$ E.

Place of observation on northern side of railway and on opposite side of store to railway ; on the left-hand side of the road coming from railway and 300 paces from the store.

Declination (D.)

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 July 8	10.49 a.m.	$21^{\circ} 34' 4''$ W.	Beattie	73
	12.13 p.m.	21 32.8	„	„
	1.44 p.m.	21 33.4	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 July 8	9.50 a.m.	5	$59^{\circ} 20' 5''$ S.	Beattie	142
	9.50 a.m.	6	59 18.7	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 July 8	11.09 a.m. V		Beattie	73
	11.33 a.m. D	H ₃₀ ·18308	„	„
	11.59 a.m. V	H ₄₀ ·18305	„	„

HARTEBEESTFONTEIN.—Latitude 26° 45'·5 S.
Longitude 26° 24'·0 E.

Place of observation on outspan under thorn-trees 300 paces from road
150 paces from police camp.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Jan. 5	7.35 a.m.	21° 54'·5 W.	Beattie	164

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Jan. 5	9.53 a.m.	1	59° 01'·2 S.	Beattie	142
	9.53 a.m.	2	59 01·2	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Jan. 5	8.07 a.m. V	·18472	Beattie	164

HOEZAR WEST.—Latitude 30° 07'·1 S.
Longitude 20° 26'·8 E.

The direct road from Onderste Doorns to Nanibies crosses a road leading from Hoezar West to Hoezar East at a point about 11 miles from Onderste Doorns. The place of observation was on the direct road on the Nanibies side of the cross-roads on the top of the first rise.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Dec. 12	7.01 a.m.	25° 28'·7 W.	Beattie	73
	8.54 a.m.	25 27·3	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Dec. 12	9.47 a.m.	5	59° 13'·6 S.	Beattie	142
	9.46 a.m.	6	59 12·0	„	„

Horizontal Intensity (H.)

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Dec. 12	7.17 a.m. V	H ₃₀ ·17921	Beattie	73
	8.09 a.m. D	H ₄₀ ·17913	"	"
	8.42 a.m. V		"	"

HOWMOED.—Latitude 29° 19'·3 S.

Longitude 19° 33'·0 E.

Place of observation to south of wind pump and about 150 paces from it.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Dec. 18	8.27 a.m.	25° 23'·0 W.	Beattie	73

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Dec. 18	9.36 a.m.	1	58° 46'·7 S.	Beattie	142

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Dec. 18	8.42 a.m. V	·18071	Beattie	73

HUTCHINSON.—Latitude 31° 29'·6 S.

Longitude 23° 15'·0 E.

Previous station reoccupied. (See "Report," Appendix, p. 87.)

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 June 26	8.56 a.m.	25° 36'·7 W.	Beattie	73
	11.21 a.m.	25 31·7	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 June 26	1.20 p.m.	1	60° 32'·2 S.	Beattie	142
	1.20 p.m.	2	60 30·5	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 June 26	9.16 a.m. V		Beattie	73
	10.02 a.m. D	H ₃₀ ·17599	"	"
	10.41 a.m. V	H ₄₀ ·17593	"	"

KADEBIS.—Latitude $26^{\circ} 16' \cdot 6$ S.Longitude $24^{\circ} 25' \cdot 0$ E.

Place of observation, in front of Esterhuysen's house.

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Dec. 16	9.03 a.m.	1	$58^{\circ} 07' \cdot 7$ S.	Beattie	142
	9.03 a.m.	2	58 04.4	"	"
	9.08 a.m.	3	58 06.1	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 16	9.43 a.m. V	18813	Beattie	73

KARREE.—Latitude $28^{\circ} 52' \cdot 5$ S.Longitude $26^{\circ} 21' \cdot 0$ E.

Same station as in 1903. (See "Report," Appendix, p. 95.)

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 July 4	10.34 a.m.	$21^{\circ} 54' \cdot 4$ W.	Beattie	73
	10.54 a.m.	21 54.0	"	"
	11.14 a.m.	21 54.2	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 July 4	9.09 a.m.	1	$60^{\circ} 09' \cdot 1$ S.	Beattie	142
	9.09 a.m.	2	60 10.6	"	"
	9.09 a.m.	3	60 10.9	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 July 4	10.14 a.m. V		Beattie	73
	10.46 a.m. D	H_{30} 17826	"	"
	11.19 a.m. V	H_{40} 17827	"	"

KEELEY'S FARM, FAITH.—Latitude $26^{\circ} 08' \cdot 6$ S.Longitude $24^{\circ} 43' \cdot 9$ E.

Place of observation on east of kraal and between it and police camp, about 300 paces from the kraal.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Dec. 14	7.04 a.m.	22° 42'·0 W.	Beattie	73
	9.26 a.m.	22 41·8	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Dec. 14	4.54 a.m.	1	57° 53'·1 S.	Beattie	142
	4.55 a.m.	2	57 51·9	"	"
	4.55 a.m.	3	57 52·7	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 14	7.18 a.m. V	H ₃₀ ·19045	Beattie	73
	8.06 a.m. D		"	"
	8.30 a.m. V	H ₄₀ ·19046	"	"

KENHARDT.—Latitude 29° 18'·1 S.

Longitude 21° 09'·0 E.

Previous station reoccupied. (See "Report," Appendix, p. 96.)

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1913 Jan. 4	7.11 a.m.	25° 08'·4 W.	Beattie	73
	8.47 a.m.	25 06·0	"	"

Dip (θ)

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1913 Jan. 4	5.44 a.m.	1	59° 21'·7 S.	Beattie	142
	5.44 a.m.	5	59 22·0	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1913 Jan. 4	7.28 a.m. V		Beattie	73
	8.01 a.m. D	H ₃₀ ·18035	"	"
	8.34 a.m. V	H ₄₀ ·18043	"	"

KENKELBOSCH.—Latitude 33° 30'·0 S.

Longitude 25° 52'·4 E.

Place of observation on right-hand side of railway Barkly Bridge to Alexandria. On right-hand side of road going south from railway line 50 paces from road and 250 paces from railway station.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1910 Dec. 15	7.21 a.m.	25° 40'·4 W.	Beattie	164

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1910 Dec. 15	8.34 a.m.	1	62° 10'·5 S.	Beattie	142
	8.35 a.m.	2	62 08·3	"	"
	8.36 a.m.	3	62 08·1	"	"
	8.36 a.m.	4	62 09·4	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1910 Dec. 15	11.30 a.m. V	H ₃₀ ·16983	Beattie	164
	12.47 p.m. D	H ₄₀ ·16979	"	"
	1.36 p.m. D	H ₃₀ ·16927	"	"
	2.7 p.m. V	H ₄₀ ·16919	"	"

KHOSIS.—Latitude 27° 52'·9 S.

Longitude 23° 15'·6 E.

Place of observation under trees to south of water-hole ; Griffin's Store about half a mile further south.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Jan. 6	6.48 a.m.	23° 49'·3 W.	Beattie	73
	8.19 a.m.	23 41·3	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Jan. 6	5.13 a.m.	1	58° 18'·0 S.	Beattie	142
	5.13 a.m.	2	58 18·0	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Jan. 6	7.03 a.m. V		Beattie	73
	7.36 a.m. D	H ₄₀ ·18511	"	"
	8.04 a.m. V		"	"

KLERKSDORP.—Latitude $26^{\circ} 52' 3''$ S.Longitude $26^{\circ} 38' 0''$ E.

Place of observation same as in 1903. (See "Report," Appendix, p. 98.)

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Jan. 7	5.00 a.m.	$22^{\circ} 14' 6''$ W.	Beattie	164
	5.47 a.m.	22 15.6	"	"
	8.12 a.m.	22 18.6	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Jan. 7	9.13 a.m.	1	$59^{\circ} 03' 3''$ S.	Beattie	142
	9.13 a.m.	2	59 04.2	"	"
	9.13 a.m.	3	59 02.8	"	"
	9.13 a.m.	4	59 02.7	"	"

Horizontal Intensity (H.)

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Jan. 1	6.51 a.m. V	$H_{30} \cdot 18530$	Beattie	164
	7.45 a.m. D	$H_{40} \cdot 18510$	"	"

KLIPARANI.—Latitude $25^{\circ} 59' 4''$ S.Longitude $25^{\circ} 22' 1''$ E.

Place of observation alongside main road from Mafeking to Swan's Farm, Buckwheat.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Dec. 10	7.21 a.m.	$21^{\circ} 59' 3''$ W.	Beattie	73
	8.50 a.m.	21 57.4	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Dec. 10	10.53 a.m.	1	$58^{\circ} 12' 3''$ S.	Beattie	142
	10.54 a.m.	2	58 11.4	"	"
	10.53 a.m.	3	58 11.2	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 10	7.37 a.m. V		Beattie	73
	8.11 a.m. D	$H_{30} \cdot 18812$	"	"
	8.33 a.m. V	$H_{40} \cdot 18812$	"	"

KOSTER.—Latitude $25^{\circ} 58' 0''$ S.Longitude $26^{\circ} 57' 5''$ E.

Place of observation on left-hand side of railway, Krugersdorp to Zeerust; on Zeerust side of store and half-way between it and the farm.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1910 Dec. 29	6.49 a.m.	$21^{\circ} 02' 5''$ W.	Beattie	164
	8.34 a.m.	21 01.1	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1910 Dec. 29	9.17 a.m.	1	$58^{\circ} 30' 7''$ S.	Beattie	142
	9.17 a.m.	2	58 29.9	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1910 Dec. 29	7.30 a.m. V	$H_{30} \cdot 18777$	Beattie	164
	8.06 a.m. D	$H_{40} \cdot 18782$	„	„

KURUMAN.—Latitude $27^{\circ} 27' 9''$ S.Longitude $23^{\circ} 25' 1''$ E.

Place of observation on west side Dr. Beare's house and 350 paces from it.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Jan. 1	7.05 a.m.	$23^{\circ} 35' 5''$ W.	Beattie	73
	8.23 a.m.	23 34.8	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Jan. 1	5.33 a.m.	1	$58^{\circ} 45' 7''$ S.	Beattie	142
	5.33 a.m.	2	58 45.3	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Jan. 1	7.21 a.m. V	$H_{30} \cdot 18308$	Beattie	73
	7.54 a.m. D		„	„
	8.18 a.m. V	$H_{40} \cdot 18312$	„	„

LEEuw KOLK.—Latitude $30^{\circ} 25' \cdot 3$ S.

Longitude $21^{\circ} 17' \cdot 0$ E.

Place of observation on west side of trees and about 50 paces from them, on north side of willows and 250 paces from them, on left-hand side of road going from farm to Onderste Doorns.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Dec. 8	6.44 a.m.	$25^{\circ} 17' \cdot 3$ W.	Beattie	73
	8.34 a.m.	25 11·5	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Dec. 8	9.19 a.m.	5	$59^{\circ} 37' \cdot 5$ S.	Beattie	142
	9.19 a.m.	6	59 36·8	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Dec. 8	7.03 a.m. V	$H_{30} \cdot 17827$	Beattie	73
	7.45 a.m. D	$H_{40} \cdot 17814$	„	„
	8.21 a.m. V			

LEVVES KOLK.—Latitude $29^{\circ} 35' \cdot 5$ S.

Longitude $19^{\circ} 50' \cdot 0$ E.

Place of observation on west side of line joining farmhouse and well about 300 paces from house and from well.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Dec. 16	6.33 a.m.	$25^{\circ} 04' \cdot 5$ W.	Beattie	73
	8.39 a.m.	25 04·6	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Dec. 16	5.07 a.m.	1	$58^{\circ} 57' \cdot 5$ S.	Beattie	142
	5.07 a.m.	5	58 60·3	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Dec. 16	6.53 a.m. V	$H_{30} \cdot 17964$	Beattie	73
	7.52 a.m. D	$H_{40} \cdot 17964$	„	„
	8.26 a.m. V			

LICHTENBURG.—Latitude $26^{\circ} 10' \cdot 2$ S.
Longitude $26^{\circ} 06' \cdot 0$ E.

Place of observation between dorp and native location. Left-hand side of road going to latter; in hollow, probably flooded in wet weather.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Jan. 3	8.01 a.m.	$21^{\circ} 55' \cdot 4$ W.	Beattie	164

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Jan. 3	9.27 a.m.	1	$58^{\circ} 38' \cdot 7$ S.	Beattie	142
	9.27 a.m.	2	58 38.9	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Jan. 3	8.28 a.m.	18661	Beattie	164

LOUW ZYN KOLK.—Latitude $30^{\circ} 17' \cdot 4$ S.
Longitude $21^{\circ} 00' \cdot 1$ E.

Place of observation on right-hand side of road coming from Zand Put, 50 paces from road, 300 paces from the stable.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1913 Jan. 10	11.11 a.m.	$25^{\circ} 06' \cdot 4$ W.	Beattie	73
	12.58 a.m.	25 06.5	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1913 Jan. 10	10.15 a.m.	1	$59^{\circ} 42' \cdot 6$ S.	Beattie	142
	10.15 a.m.	5	59 42.9	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1913 Jan. 10	11.47 a.m. V	$H_{30} \cdot 17745$	Beattie	73
	12.15 p.m. D	$H_{40} \cdot 17738$	„	„
	12.45 p.m. V		„	„

MACHADODORP.—Latitude $25^{\circ} 39' 9''$ S.
Longitude $30^{\circ} 15' 0''$ E.

Same station as in 1903. (See "Report," Appendix, p. 111.)

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 July 6	9.02 a.m.	$19^{\circ} 33' 4''$ W.	Beattie	73
	11.05 a.m.	19 32.3	"	"
	1.35 a.m.	19 28.2	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 July 6	11.57 a.m.	1	$59^{\circ} 26' 9''$	Beattie	142
	11.57 a.m.	2	59 26.6	"	"
	11.57 a.m.	3	59 28.3	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 July 6	9.22 a.m. V	$H_{30} \cdot 18407$	Beattie	73
	10.03 a.m. D	$H_{40} \cdot 18415$	"	"
	10.40 a.m. V		"	"

MAFEKING.—Latitude $25^{\circ} 52' 0''$ S.
Longitude $25^{\circ} 39' 0''$ E.

Previous station reoccupied. (See "Report," Appendix, p. 112.)

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Dec. 8	5.56 a.m.	$21^{\circ} 39' 1''$ W.	Beattie	73
	7.06 a.m.	21 41.0	"	"
	8.54 a.m.	21 42.5	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Dec. 8	10.04 a.m.	1	$58^{\circ} 10' 9''$ S.	Beattie	142
	10.04 a.m.	2	58 09.8	"	"
	10.04 a.m.	3	58 10.4	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 8	7.21 a.m. V		Beattie	142
	8.09 a.m. D	H ₃₀ ·18781	"	"
	8.35 a.m. V	H ₄₀ ·18777	"	"

MAGALIESBURG.—Latitude 26° 00'·0 S.

Longitude 27 37'·3 E.

Place of observation on right-hand side of railway, Krugersdorp to Zeerust, on high ground behind railway station and 200 yards from latter.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1910 Dec. 28	6.48 a.m.	20° 56'·3 W.	Beattie	164

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1910 Dec. 28	2.35 p.m.	1	58° 43'·9 S.	Beattie	142
	2.36 p.m.	2	58 43·7	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1910 Dec. 28	7.37 a.m. V	H ₃₀ ·18772	Beattie	164
	8.37 a.m. D	H ₄₀ ·18765	"	"

MAQUASSI.—Latitude 27° 20'·0 S.

Longitude 25° 59'·3 E.

Place of observation on south side of railway, and on other side from township, south-west of Cherry's Store opposite water-tank. On Warrenton side of station.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 July 9	8.26 a.m.	22° 25'·7 W.	Beattie	73
	9.56 a.m.	22 25·4	"	"
	1.28 p.m.	22 22·0	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 July 9	11.03 a.m.	5	59° 23'·5 S.	Beattie	142
	11.03 a.m.	6	59 23·9	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 July 9	8.42 a.m. V		Beattie	73
	9.10 a.m. D	H ₃₀ ·18379	"	"
	9.40 a.m. V	H ₄₀ ·18398	"	"

MARKSON'S HOTEL (P.O. Wonderfontein,
Marico, West Transvaal).—Latitude 25° 35'·3 S.
Longitude 26° 32'·0 E.

Place of observation on top of hill on which hotel is built, about 150 paces from house on side opposite to railway line.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1910 Dec. 30	12.27 p.m.	21° 14'·0 W.	Beattie	164

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1910 Dec. 30	7.17 a.m.	1	58° 08'·9 S.	Beattie	142
	7.17 a.m.	2	58° 09·3	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1910 Dec. 30	8.38 a.m. V	H ₃₀ ·18960	Beattie	164
	9.18 a.m. D	H ₄₀ ·18977	"	"

MAROKWEN.—Latitude 26° 07'·8 S.
Longitude 23° 44'·0 E.

Place of observation between Stewart's Store and London Mission Station about 200 yards from store.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Dec. 20	6.20 a.m.	22° 11'·1 W.	Beattie	73
	8.15 a.m.	22 12·4	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Dec. 20	4.50 a.m.	1	57° 38'·3 S.	Beattie	142
	4.49 a.m.	2	57 36·2	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 20	6.37 a.m. V	H ₃₀ ·18896	Beattie	73
	7.25 a.m. D		„	„
	7.52 a.m. V	H ₄₀ ·18896	„	„

MATJESFONTEIN.—Latitude 33° 14'·2 S.

Longitude 20° 36'·0 E.

Repeat station. (See “Report,” Appendix, p. 119.)

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 June 25	1.01 p.m.	27° 00'·8 W.	Beattie	73
	1.41 p.m.	27 00·6	„	„
1912 June 26	7.17 a.m.	27 01·8	„	„
	9.01 a.m.	27 05·6	„	„
	10.41 a.m.	27 03·6	„	„
	12.10 p.m.	27 00·7	„	„
	1.38 p.m.	27 00·8	„	„
	2.30 p.m.	27 01·4	„	„
1912 June 27	12.00 noon	27 01·6	„	„
	1.29 p.m.	27 00·9	„	„
1912 June 28	8.30 a.m.	27 00·9	„	„
	8.55 a.m.	27 03·4	„	„
	9.21 a.m.	27 03·1	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 June 27	8.00 a.m.	1	60° 57'·0 S.	Beattie	142
	8.02 a.m.	2	60 57·6	„	„
	8.02 a.m.	3	60 56·6	„	„
	9.11 a.m.	4	60 56·8	„	„
	9.12 a.m.	5	60 58·8	„	„
	9.12 a.m.	6	61 00·2	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 June 26	9.50 a.m. V	H ₃₀ ·17196	Beattie	73
	9.55 a.m. D	H ₄₀ ·17207	"	"
	10.26 a.m. V		"	"
	12.26 p.m. V		"	"
	12.56 p.m. D	H ₃₀ ·17176	"	"
1912 June 27	1.24 p.m. V	H ₄₀ ·17179	"	"
	12.16 p.m. V	H ₃₀ ·17211	"	"
	12.44 p.m. D	H ₄₀ ·17206	"	"
	1.15 p.m. V		"	"

MEINTJES'S FARM.—Latitude 26° 04'·4 S.

Longitude 25° 01'·8 E.

Place of observation about 300 yards east of dwelling-house.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Dec. 12	7.01 a.m.	21° 55'·3 W.	Beattie	73
	8.35 a.m.	21 59·3	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Dec. 12	9.42 a.m.	1	58° 22'·5 S.	Beattie	142
	9.43 a.m.	2	58 21·2	"	"
	9.43 a.m.	3	58 21·6	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 12	7.14 a.m. V	H ₃₀ ·18665	Beattie	73
	7.52 a.m. D	H ₄₀ ·18648	"	"
	8.17 a.m. V		"	"

MURRAYSBURG.—Latitude 31° 56'·0 S.

Longitude 23° 43'·0 E.

Place of observation on south side of village and at east end of football field in line with goal-posts and about 60 yards from nearer posts.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 July 4	8.18 a.m.	25° 05'·7 W.	Beattie	73
	9.25 a.m.	25 08·4	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 July 4	10.06 a.m.	1	$61^{\circ} 15' \cdot 1$ S.	Beattie	142
	10.06 a.m.	2	61 19.3	"	"
	10.51 a.m.	5	61 15.7	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 July 4	8.30 a.m. V	$H_{30} \cdot 17241$	Beattie	73
	9.00 a.m. D	$H_{40} \cdot 17234$	"	"

NAMIES.—Latitude $29^{\circ} 09' \cdot 0$ S
Longitude $19^{\circ} 12' \cdot 0$ E.

Place of observation between two gardens on east side of line joining beacon on hill to north with west end of school boarding-house.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Dec. 20	2.04 p.m.	$25^{\circ} 37' \cdot 2$ W.	Beattie	73

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Dec. 20	12.06 p.m.	1	$58^{\circ} 18' \cdot 9$ S.	Beattie	142
	12.06 p.m.	5	58 20.8	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Dec. 20	12.43 p.m. V	$H_{30} \cdot 18187$	Beattie	73
	1.10 p.m. D	$H_{40} \cdot 18187$	"	"

NANIBIES.—Latitude $29^{\circ} 51' \cdot 3$ S.
Longitude $20^{\circ} 05' \cdot 0$ E.

Station on the south side of the homestead, and on south—left-hand side of the road going to Howmoed. Windmill west side of homestead and tent in a line, tent about 300 paces from the homestead. There are two homesteads on the farm Nanibies, one about four miles farther from Onderste Doorns than the other. The observations were taken at the one more distant from Onderste Doorns.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Dec. 14	5.32 a.m.	25° 04'·8 W.	Beattie	73
	6.42 a.m.	25 07·4	"	"
	8.44 a.m.	25 06·0	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Dec. 14	9.35 a.m.	5	59° 30'·2 S.	Beattie	142
	9.34 a.m.	6	59 29·7	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Dec. 14	6.58 a.m. V	H ₃₀ ·17721	Beattie	73
	7.57 a.m. D	H ₄₀ ·17724	"	"
	8.27 a.m. V		"	"

NELSPRUIT.—Latitude 25° 28'·1 S.

Longitude 30° 58'·5 E.

Place of observation on opposite side of railway line to position occupied in 1903; about 70 paces perpendicular to railway starting from blind end of siding. (See "Report," Appendix, p. 136.)

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 July 7	2.43 p.m.	19° 14'·1 W.	Beattie	73

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 July 7	11.02 a.m.	1	59° 07'·4	Beattie	142
	11.02 a.m.	2	59 09·5	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 July 7	11.42 a.m.	H ₃₀ ·18622	Beattie	73
	12.14 p.m.	H ₄₀ ·18602	"	"
	12.43 p.m.		"	"

OTTOSHOOP.—Latitude 25° 44'·6 S.

Longitude 26° 08'·8 E.

Place of observation on left-hand side of road, Zeerust to Ottoshoop, 300 paces south-east of McLoughlen's Hotel.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Jan. 1	1.04 p.m.	21° 37'·0 W.	Beattie	164
	1.45 p.m.	21 39·2	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Jan. 1	9.01 a.m.	1	58° 07'·4 S.	Beattie	142
	9.00 a.m.	2	58 08·2	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Jan. 1	12.07 p.m.	H ₃₀ ·18843	Beattie	164
	12.38 p.m.	H ₄₀ ·18860	„	„

PELLA.—Latitude 29° 02'·0 S.

Longitude 19° 08'·0 E.

Place of observation to right of road from Aggennys, midway between two large kameeldoorn-trees, at a point 412 paces from church and 538 paces from middle of river-bed. Same station as in 1909.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Dec. 24	7.00 a.m.	25° 44'·8 W.	Beattie	73
	9.38 a.m.	25 44·6	„	„
	11.55 a.m.	25 40·0	„	„
	12.44 p.m.	25 41·5	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Dec. 24	5.39 a.m.	1	58° 22'·2 S.	Beattie	142
	5.39 a.m.	5	58 24·2	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Dec. 24	7.56 a.m. V	H ₃₀ ·18188	Beattie	73
	8.28 a.m. D	H ₄₀ ·18200	„	„
	9.25 a.m. V		„	„

POFADDER.—Latitude 29° 07'·0 S.

Longitude 19° 24'·0 E.

Place of observation on west side of river.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Dec. 26	7.18 a.m.	25° 44'·4 W.	Beattie	73
	9.26 a.m.	25 43·0	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Dec. 26	5.50 a.m.	1	58° 46'·3 S.	Beattie	142
	5.50 a.m.	5	58 46·8	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Dec. 26	7.35 a.m. V		Beattie	73
	8.34 a.m. D	H ₃₀ ·18066	"	"
	9.14 a.m. V	H ₄₀ ·18071	"	"

QUAGGAFONTEIN.—Latitude 29° 59'·1 S.

Longitude 20° 42'·0 E

Place of observation on left-hand side of road coming from Stof-Bakjes to house at Quaggafontein, near a shallow narrow vley which has water after rain.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1913 Jan. 8	7.39 a.m.	25° 24'·9 W.	Beattie	73
	8.07 a.m.	25 23·6	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1913 Jan. 8	5.23 a.m.	1	59° 25'·2 S.	Beattie	142
	5.23 a.m.	5	59 25·6	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1913 Jan. 8	9.10 a.m. V	·17836	Beattie	73

QUEENSTOWN.—Latitude 31° 54'·0 S.

Longitude 26° 52'·0 E.

Place of observation on northern prolongation of Cathcart Road over the bridge on west side of road in municipal ground. Magnetometer placed about 30 paces to magnetic north of wooden lamp-post. Same station as in 1902.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 June 28	2.08 p.m.	24° 41'·7 W.	Beattie	73
June 29	7.52 a.m.	24 32·8	"	"
	9.57 a.m.	24 39·6	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 June 29	12.34 p.m.	1	61° 47'·5 S.	Beattie	142
	12.34 p.m.	2	61 47·5	"	"
	12.34 p.m.	3	61 44·5	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 June 29	8.12 a.m. V	H ₃₀ ·17268	Beattie	73
	8.54 a.m. D	H ₄₀ ·17274	"	"
	9.34 a.m. V		"	"

RICHMOND, C.P.—Latitude 31° 25'·7 S.

Longitude 23° 56'·2 E.

Place of observation on south side of village. Left-hand side of road coming from Murraysburg to Richmond. Magnetometer at intersection of lines joining church steeple and high kopje and joining grandstand and small house.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 July 5	8.14 a.m.	24° 52'·5 W.	Beattie	73
	9.42 a.m.	24 52·9	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observed.	Instrument.
1912 July 5	11.05 a.m.	1	61° 23'·8 S.	Beattie	142
	11.04 a.m.	5	61 24·9	"	"
	11.06 a.m.	6	61 23·0	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 July 5	8.29 a.m. V		Beattie	73
	8.58 a.m. D	H ₃₀ ·17250	"	"
	9.26 a.m. V	H ₄₀ ·17244	"	"

ROODEKLOOF.—Latitude $25^{\circ} 49' \cdot 7$ S.Longitude $27^{\circ} 13' \cdot 5$ E.

Place of observation at Roodekloof on Esterhuysis Farm; south side of farmhouse on side of cattle kraal nearer Boons and about 60 paces from east corner of kraal.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1910 Dec. 26	6.42 a.m.	$20^{\circ} 59' \cdot 7$ W.	Beattie	164
	8.39 a.m.	$20^{\circ} 57' \cdot 4$	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1910 Dec. 26	9.31 a.m.	1	$58^{\circ} 30' \cdot 8$ S.	Beattie	142
	9.31 a.m.	2	$58^{\circ} 30' \cdot 1$	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1910 Dec. 26	7.36 a.m.	$H_{30} \cdot 18817$	Beattie	164
	8.17 a.m.	$H_{40} \cdot 18806$	"	"

RUMSEY'S FARM.—Latitude $26^{\circ} 24' \cdot 3$ S.Longitude $24^{\circ} 03' \cdot 0$ E.

Place of observation east of house and of windmill, and on left-hand side of road to Genesa.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Dec. 22	6.26 a.m.	$22^{\circ} 10' \cdot 0$ W.	Beattie	73
	8.18 a.m.	$22^{\circ} 09' \cdot 4$	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Dec. 22	5.12 a.m.	1	$58^{\circ} 24' \cdot 8$ S.	Beattie	142
	5.12 a.m.	2	$58^{\circ} 25' \cdot 1$	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 22	6.41 a.m. V		Beattie	73
	7.33 a.m. D	$H_{30} \cdot 18932$	"	"
	8.04 a.m. V	$H_{40} \cdot 18921$	"	"

RUSTENBURG.—Latitude $25^{\circ} 40' \cdot 0$ S.Longitude $27^{\circ} 15' \cdot 4$ E.

Place of observation near native location between it and Culbert's stables.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1910 Dec. 25	7.12 a.m.	$20^{\circ} 35' \cdot 7$ W.	Beattie	164
	9.32 a.m.	20 35·6	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1910 Dec. 25	5.31 a.m.	1	$58^{\circ} 29' \cdot 0$ S.	Beattie	142
	5.31 a.m.	2	58 28·1	„	„
	5.31 a.m.	3	58 27·9	„	„
	5.31 a.m.	4	58 29·0	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1910 Dec. 25	8.30 a.m. V	$H_{30} \cdot 18813$	Beattie	164
	9.04 a.m. D	$H_{40} \cdot 18817$	„	„

RYSTKUIL.—Latitude $32^{\circ} 38' \cdot 7$ S.Longitude $22^{\circ} 54' \cdot 2$ E.

Place of observation 30 miles from Beaufort West along Willowmore Road. Tent with magnetometer on Beaufort West side of farmhouse. Right-hand side of road going towards Willowmore.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 July 2	8.07 a.m.	$25^{\circ} 31' \cdot 8$ W.	Beattie	73
	9.27 a.m.	25 32·9	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 July 2	10.02 a.m.	1	$60^{\circ} 58' \cdot 2$ S.	Beattie	142
	10.02 a.m.	2	60 57·6	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 July 2	8.22 a.m. V	$H_{30} \cdot 17414$	Beattie	73
	8.49 a.m. D		„	„
	9.13 a.m. V	$H_{40} \cdot 17408$	„	„

SANDFLATS.—Latitude $13^{\circ} 20' 0''$ S.Longitude $25^{\circ} 57' 0''$ E.

Place of observation in Bruton's field behind hotel on right-hand side of railway Port Elizabeth to Cradock.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1910 Dec. 20	7.53 a.m.	$25^{\circ} 48' 3''$	Beattie	164

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1910 Dec. 20	10.27 a.m.	1	$62^{\circ} 18' 2''$	Beattie	142
	10.26 a.m.	2	$62^{\circ} 17' 0''$	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1910 Dec. 20	8.37 a.m.	$H_{30} \cdot 16950$	Beattie	164
	9.25 a.m.	$H_{40} 16934$	„	„

SCHULENBURG.—Latitude $26^{\circ} 25' 5''$ S.Longitude $25^{\circ} 57' 5''$ E.

Place of observation on south side of willows about half a mile west of the dam, and on the side of the wire fencing away from the house.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Jan. 4	8.37 a.m.	$21^{\circ} 54' 4''$ W.	Beattie	164

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Jan. 4	9.26 a.m.	1	$58^{\circ} 44' 9''$ S.	Beattie	142
	9.26 a.m.	2	$58^{\circ} 44' 4''$	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Jan. 4	5.27 a.m. V	$H_{30} \cdot 18616$	Beattie	164
	6.18 a.m. D	$H_{40} \cdot 18601$	„	„

SWANSWANI.—Latitude $27^{\circ} 46' \cdot 6$ S.Longitude $23^{\circ} 49' \cdot 5$ E.*Declination (D).*

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Jan. 8	7.04 a.m.	$23^{\circ} 10' \cdot 2$ W.	Beattie	73
	8.40 a.m.	23 04.3	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Jan. 8	5.18 a.m.	1	$58^{\circ} 57' \cdot 5$ S	Beattie	142
	5.19 a.m.	2	58 56.8	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Jan. 8	7.18 a.m. V	$H_{30} \cdot 18197$	Beattie	73
	7.55 a.m. D		„	„
	8.24 a.m. V	$H_{40} \cdot 18193$	„	„

VAN WYK'S VLEI.—Latitude $30^{\circ} 22' \cdot 3$ S.Longitude $21^{\circ} 50' \cdot 0$ E.

Station occupied in 1904 could not be reoccupied. New station on left-hand side of road going north from Van Wyk's Vlei, about 220 paces from Gerber's Store and on the north side of it.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Dec. 6	6.06 a.m.	$25^{\circ} 37' \cdot 2$ W.	Beattie	73
	8.46 a.m.	25 38.0	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Dec. 6	9.01 a.m.	5	$59^{\circ} 57' \cdot 0$ S.	Beattie	142
	9.01 a.m.	6	59 54.2	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Dec. 6	7.00 a.m. V		Beattie	73
	7.45 a.m. D	$H_{30} \cdot 17593$	„	„
	8.19 a.m. V	$H_{40} \cdot 17575$	„	„

WARRENTON.—Latitude $28^{\circ} 06' \cdot 9$ S.Longitude $24^{\circ} 52' \cdot 0$ E.

Same station as in 1903. (See "Report," Appendix, p. 206.)

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Dec. 5	5.50 a.m.	$23^{\circ} 24' \cdot 4$ W.	Beattie	73
	6.56 a.m.	23 24·3	"	"
	8.56 a.m.	23 26·2	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Dec. 5	10.02 a.m.	1	$59^{\circ} 45' \cdot 7$	Beattie	142
	10.02 a.m.	2	59 45·6	"	"
	10.02 a.m.	3	52 44·7	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 7	7.12 a.m. V		Beattie	73
	8.06 a.m. D	$H_{30} \cdot 18072$	"	"
	8.32 a.m. V	$H_{40} \cdot 18066$	"	"

WESSELS.—Latitude $27^{\circ} 23' \cdot 7$ S.Longitude $23^{\circ} 39' \cdot 9$ E.

Place of observation a mile and a half to east of homestead on Vryburg road, about 15 miles from Kuruman.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Dec. 29	7.06 a.m.	$22^{\circ} 54' \cdot 2$ W.	Beattie	73
	8.42 a.m.	22 58·2	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Dec. 29	9.34 a.m.	1	$59^{\circ} 06' \cdot 4$ S.	Beattie	142
	9.34 a.m.	2	59 06·3	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 29	7.22 a.m. V		Beattie	73
	8.00 a.m. D	$H_{30} \cdot 18463$	"	"
	8.26 a.m. V	$H_{40} \cdot 18465$	"	"

ZAND GAT.—Latitude $29^{\circ} 11' 0''$ S.Longitude $19^{\circ} 43' 0''$ E.

Place of observation 250 paces south-east of farmhouse.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Dec. 28	7.06 a.m.	$25^{\circ} 03' 3''$ W.	Beattie	73
	9.02 a.m.	25 02.4	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Dec. 28	5.50 a.m.	1	$58^{\circ} 37' 5''$ S.	Beattie	142
	5.50 a.m.	5	58 37.2	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Dec. 28	7.27 a.m. V	$H_{30} \cdot 18165$	Beattie	73
	7.58 a.m. D	$H_{40} \cdot 18176$	„	„
	8.42 a.m. V		„	„

ZAND PUT.—Latitude $30^{\circ} 05' 7''$ S.Longitude $20^{\circ} 49' 0''$ E.

Place of observation on left-hand side of road coming from Blok Zyn Kolk on side of dam away from farmhouse.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1913 Jan. 9	8.58 a.m.	$25^{\circ} 22' 5''$ W.	Beattie	73
	10.29 a.m.	25 20.3	„	„

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1913 Jan. 9	11.42 a.m.	1	$59^{\circ} 34' 2''$ S.	Beattie	142
	11.42 a.m.	5	59 33.8	„	„

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1913 Jan. 9	9.40 a.m. V	$H_{30} \cdot 17743$	Beattie	73
	10.09 a.m. D	$H_{40} \cdot 17746$	„	„

ZEERUST.—Latitude $25^{\circ} 32' 6''$ S.Longitude $25^{\circ} 59' 0''$ E.

Place of observation on west side of village on prolongation of main street beginning from end where Mafeking main road starts. Three hundred paces from sluit alongside path running at right angles to Mafeking road.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1910 Dec. 31	6.47 a.m.	$22^{\circ} 32' 5''$ W.	Beattie	164
	9.02 a.m.	22 26.6	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1910 Dec. 31	9.15 a.m.	1	$58^{\circ} 08' 2''$ S.	Beattie	142
	9.17 a.m.	2	58 08.5	"	"
	9.17 a.m.	3	58 07.4	"	"
	9.17 a.m.	4	58 09.6	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1910 Dec. 31	7.59 a.m.	$H_{30} \cdot 18783$	Beattie	164
	8.34 a.m.	$H_{40} \cdot 18765$	"	"

ZONDER HUIS.—Latitude $29^{\circ} 40' 0''$ S.Longitude $20^{\circ} 54' 0''$ E.

Place of observation amongst lemoen-trees on left-hand side of road coming from Kenhardt.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1913 Jan. 6	7.15 a.m.	$25^{\circ} 22' 2''$ W.	Beattie	73
	9.24 a.m.	25 17.6	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1913 Jan. 6	5.59 a.m.	1	$59^{\circ} 16' 1''$ S.	Beattie	142
	5.59 a.m.	5	59 15.9	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1913 Jan. 6	7.33 a.m. V	$H_{30} \cdot 17876$	Beattie	73
	8.35 a.m. D	$H_{40} \cdot 17876$	"	"
	9.12 a.m. V		"	"

ZOUTPAN.—Latitude $26^{\circ} 48' \cdot 7$ S.Longitude $24^{\circ} 13' \cdot 1$ E.

Place of observation on road from Genesa to Geluk about 3 miles from homestead at place where road bifurcates, one branch going to farm the other to Geluk. About 16 miles from Genesa.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Dec. 24	7.53 a.m.	$22^{\circ} 45' \cdot 2$ W.	Beattie	73
	9.44 a.m.	$22^{\circ} 43' \cdot 0$	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 24	8.07 a.m. V		Beattie	73
	8.07 a.m. D	$H_{30} \cdot 18587$	"	"
	9.31 a.m. V	$H_{40} \cdot 18575$	"	"

ZWARTKOPJE.—Latitude $29^{\circ} 29' \cdot 0$ S.Longitude $19^{\circ} 39' \cdot 0$ E.

Place of observation to south-east of wind pump and on south side of a small dam about 300 paces from the wind pump.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1912 Dec. 17	6.23 a.m.	$25^{\circ} 17' \cdot 3$ W.	Beattie	73
	8.28 a.m.	$25^{\circ} 20' \cdot 0$	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1912 Dec. 17	5.09 a.m.	1	$58^{\circ} 46' \cdot 8$ S.	Beattie	142
	5.11 a.m.	5	$58^{\circ} 46' \cdot 8$	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1912 Dec. 17	6.48 a.m. V		Beattie	73
	7.44 a.m. D	$H_{30} \cdot 18119$	"	"
	8.15 a.m. V	$H_{40} \cdot 18117$	"	"

A.—Latitude $26^{\circ} 14' \cdot 7$ S.Longitude $23^{\circ} 55' \cdot 8$ E.

Place of observation on road from Marokwen to Genesa about 12 miles from the former.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Dec. 21	8.16 a.m.	22° 29'·4 W.	Beattie	73

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Dec. 21	9.18 a.m.	1	57° 47'·6 S.	Beattie	142
	9.18 a.m.	2	57 46·7	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 21	8.32 a.m. V	·18886	Beattie	73

B.—Latitude 26° 12'·0 S.

Longitude 24° 01'·0 E.

Place of observation from Beaulieu to Marokwen about 13 miles from Beaulieu.

Declination (D).

Date.	G.M.T.	D (observed).	Observer.	Instrument.
1911 Dec. 18	7.27 a.m.	22° 24'·6 W.	Beattie	73
	7.59 a.m.	22 23·9	"	"

Dip (θ).

Date.	G.M.T.	Needle.	θ (observed).	Observer.	Instrument.
1911 Dec. 18	8.40 a.m.	1	57° 59'·8 S.	Beattie	142
	8.40 a.m.	2	57° 58·8	"	"

Horizontal Intensity (H).

Date.	G.M.T.	H (observed).	Observer.	Instrument.
1911 Dec. 18	7.41 a.m. V	·18850	Beattie	73

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