GOVERNMENT NOTIFICATION.—No. 199.

The following Magnetic Observations made during the Year 1885 are published for g information.

By Command,

FREDERICK STEWART
Acting Colonial Sec

Colonial Secretary's Office, Hongkong, 29th May, 1886.

MAGNETIC OBSERVATIONS MADE DURING THE YEAR 1885.

The observations of Declination and Horizontal Force were all made with the Kew p Unifilar Magnetometer Elliott Brothers No. 55. The dip observations were made with the dip- Dover No. 71, partly with two new steel needles, No. 5 and No. 6, the axes of which I caused made of chilled bell metal in 1884. There is no doubt, that by selecting proper pieces of this the maker could produce axes turned as accurately as those made of steel, and I can recommend needles for use on expeditions and in damp climates. Observations were made also with needle 1 and No. 2, after they had been repaired and furnished with new axes by Dover.

The circle-reading on the Unifilar Magnetometer corresponding to true north was determin observations of Polaris reflected from the speculum. Observations of the Sun near the first ve looking alternately towards and away from the Sun, were found to agree with the observati Polaris but were discontinued as being less accurate than the latter.

The observations of Horizontal Force are expressed in C. G. S. Units (one centimete gramme, one second) but the monthly synopsis exhibits X, the Horizontal, as well as Y, the Ve and the Total Forces (which latter have been computed by aid of the observed Dips): also in E Units, (one foot, one grain, one second) and in Gauss's Units (one millimeter, one milligramm second). The value of log π^2 K at 20° Cent. adopted was 3.44973 in January and 3.44904 in D ber. The values for the intermediate months have been interpolated. The Induction-coeffici 4.917. The reduction of m, the magnetic moment of the vibrating magnet at a temperature of t° to the freezing point of water is: $+0.000\,260t + 0.000\,002\,44t^2$.

The distances between the centres of the deflecting and the deflected magnets are expressed i centimeters and the value of the constant P employed in the formula of reduction: $\frac{m}{X} = \frac{m'}{X'}\left(1 - \frac{P}{r^5}\right)$ is: +8.3424.

The times of vibration exhibited in the table are each derived from 12 observations of the time occupied by the magnet in making 100 vibrations, corrections having been applied for rate of chronometer and arc of vibration.

The mean value of the magnetic moment of the vibrating magnet was 0.51644 in English Units and 674.25 in C. G. S. Units.

OBSERVATIONS OF MAGNETIC DECLINATION AND DIP.

1885.	H. K. M. T.	Declination, East.	Observer.	H. K. M. T.	A.	B.	Dip, North.	Needle.
January, ...	17d 3h 0m p	0° 45′ 36″	W.D.	24d 3h 50m p	32° 28′.36	90° 0′.00	32° 28′.36	No. 5
				24 4 15 p	32 28 .39	„	28 .39	6
February, ...	15 2 3 p	0 46 13	„	13 3 46 p	32 21 .25	„	21 .25	5
	17 2 40 p	0 45 29	„	13 3 46 p	32 26 .75	„	26 .75	6
				17 3 30 p	32 23 .12	„	23 .12	6
March, ...	17 2 25 p	0 45 34	„	15 3 0 p	41 44 .40	42 6 .40	24 .79	5
				15 3 0 p	41 50 .30	41 55 .75	22 .71	6
April,.....	18 2 55 p	0 41 45	„	12 4 0 p	32 23 .15	90 0 .00	23 .15	5
				18 4 10 p	32 28 .67	„	28 .67	6
May, ...	18 2 50 p	0 43 45	F.G.F.	16 3 15 p	32 27 .85	„	27 .85	5
				16 4 0 p	32 29 .93	„	29 .93	6
June,.....	16 2 50 p	0 43 55	„	17 3 17 p	32 26 .50	„	26 .50	5
				17 4 5 p	32 30 .35	„	30 .35	6
July, ...	15 2 55 p	0 45 56	„	16 3 47 p	32 25 .15	„	25 .15	1
				16 4 35 p	32 27 .61	„	27 .61	2
				17 4 5 p	32 22 .52	„	22 .52	5
				17 4 45 p	32 28 .08	„	28 .08	6
August, ...	...	...	...	31 3 50 p	32 28 .02	„	28 .02	1
				31 4 35 p	32 28 .41	„	28 .41	2
September, ...	1 3 27 p	0 44 44	„	...	...	...	...	...
October,.....	17 3 8 p	0 45 49	„	17 4 5 p	32 26 .92	„	26 .92	1
				17 4 47 p	32 27 .42	„	27 .42	2
November,.....	17 3 0 p	0 47 46	„	16 3 25 p	32 27 .37	„	27 .37	1
				16 4 15 p	32 26 .34	„	26 .34	2
December,.....	15 2 40 p	0 45 23	W.D.	14 2 36 p	32 23 .67	„	23 .67	1
	17 2 20 p	0 45 8	„	14 3 14 p	32 22 .44	„	22 .44	2
				16 3 29 p	32 22 .08	„	22 .08	5
				16 3 29 p	32 22 .72	„	22 .72	6

OBSERVATIONS OF HORIZONTAL MAGNETIC FORCE.

Date.	H. K. M. T.	Time of one vibration.	Temperature, Cent.	Log m X	Value of m	H. K. M. T.	Distance in centimeters.	Temperature, Cent.	Deflection.	Log $\frac{m}{X}$ Mean.	Value of X	Observer.
1885.												
January 16,	2h 37m p	3s.3812	15°.6	2.39213	684.26	2h 38m p	30	15.°6	8° 7′ 4″	3.27832	0.36050	W.D.
							40		3 23 47			,,
February 16,	3 14 p	3.3846	15.4	2.39135	682.62	3 13 p	30	15.8	8 5 59	3.27701	0.36072	,,
							40		3 22 57			,,
March 16,	2 24 p	3.3917	18.85	2.39000	682.70	2 24 p	30	17.6	8 6 46	3.27846	0.35956	,,
							40		3 23 42			,,
April 17,	3 46 p	3.3972	27.4	2.38997	681.71	4 20 p	30	25.6	8 3 4	3.27722	0.36007	,,
							40		3 22 44			,,
May 15,	3 15 p	3.4042	29.5	2.38848	679.39	4 7 p	30	28.5	8 0 40	3.27577	0.36005	F.G.F.
							40		3 21 52			,,
June 16,	3 9 p	3.4102	29.9	2.38696	676.61	4 7 p	30	29.0	7 58 19	3.27372	0.36027	,,
							40		3 20 51			,,
July 15,	3 20 p	3.4194	33.4	2.38518	673.77	4 11 p	30	30.9	7 55 57	3.27184	0.36031	,,
							40		3 19 45			,,
September 1,	3 52 p	3.4312	29.7	2.38140	668.67	6 1 p	30	27.75	7 53 16	3.26903	0.35990	,,
							40		3 18 52			,,
October, 15,	3 16 p	3.4408	28.55	2.37866	664.34	4 1 p	30	27.1	7 50 40	3.26611	0.35998	,,
							40		3 17 24			,,
November 14,	3 5 p	3.4416	24.15	2.37762	662.02	3 47 p	30	22.5	7 49 45	3.26413	0.36037	,,
							40		3 16 45			,,
December 15,	2 57 p	3.4435	24.3	2.37707	660.68	3 39 p	30	23.35	7 48 30	3.26291	0.36064	W.D.
							40		3 16 2			,,

RESULTS OF MAGNETIC OBSERVATIONS IN 1885.

Month. 1885.	Declination, East.	Dip, North.	MAGNETIC FORCE.								
			English Units.			Metric Units.			C. G. S. Units.		
			X	Y	Total Force.	X	Y	Total Force.	X	Y	Total Force.
January, ...	0° 45′ 36″	32° 28′ 22″	7.8186	4.9758	9.2676	3.6050	2.2943	4.2732	0.36050	0.22943	0.42732
February, ...	45 51	23 43	7.8233	4.9639	9.2653	3.6072	2.2887	4.2721	.36072	.22887	.42721
March, ...	45 34	23 45	7.7982	4.9480	9.2355	3.5956	2.2814	4.2583	.35956	.22814	.42583
April, ...	41 45	25 55	7.8090	4.9619	9.2520	3.6007	2.2878	4.2660	.36007	.22878	.42660
May, ...	43 45	28 53	7.8087	4.9712	9.2568	3.6005	2.2922	4.2682	.36005	.22922	.42682
June, ...	43 55	28 26	7.8134	4.9728	9.2612	3.6027	2.2929	4.2702	.36027	.22929	.42702
July, ...	45 56	25 50	7.8143	4.9649	9.2582	3.6031	2.2892	4.2688	.36031	.22892	.42688
August, ...	45 20	27 2	7.8099	4.9660	9.2550	3.6010	2.2897	4.2673	.36010	.22897	.42673
September, ...	45 17	27 42	7.8064	4.9659	9.2519	3.5994	2.2897	4.2659	.35994	.22897	.42659
October, ...	45 49	27 10	7.8073	4.9648	9.2520	3.5998	2.2891	4.2660	.35998	.22891	.42660
November, ...	47 46	26 51	7.8156	4.9690	9.2615	3.6037	2.2911	4.2703	.36037	.22911	.42703
December, ...	45 23	22 44	7.8217	4.9598	9.2617	3.6064	2.2868	4.2704	.36064	.22868	.42704
Mean, ...	0 45 10	32 26 22	7.8122	4.9653	9.2566	3.6021	2.2894	4.2681	0.36021	0.22894	0.42681

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Hongkong Observatory, 20th January, 1886.