

REPORT ON THE MAGNETIC OBSERVATIONS MADE DURING  
THE TOTAL SOLAR ECLIPSE MAY 17-18, 1901, AT THE  
MAGNETIC OBSERVATORY, WILMELMSHAVEN,  
GERMANY.

BY DR. C. BÖRGEN, DIRECTOR.

I take pleasure in making report herewith on the magnetic observations made by us during the recent total solar eclipse in response to the appeal in Vol. V, p. 166. Readings of the unifilar and bifilar magnetometers were made from minute to minute for the time interval 14<sup>h</sup> to 21<sup>h</sup>, May 17, 1901, Greenwich mean astronomical time; the observers were my assistant, Mr. E. Stück, Captain Capelle, Computer Sperling and Chief Pilot Tietz. The latitude of the Observatory is 53° 31' 52.2'' N., and the longitude 0<sup>h</sup> 32<sup>m</sup> 35.2<sup>s</sup> east of Greenwich. The values of the magnetic elements on January 1, 1901 were:  $D=12^{\circ} 26.1' W$ ,  $I=67^{\circ} 45.8'$  and  $H=18128.0\gamma$ .

To convert the scale readings into absolute measure we have,  $D=13^{\circ} 21.6'+0.744'\times$  scale reading of unifilar and  $H=17855\gamma.0+3.08\gamma\times$  scale reading of bifilar plus temperature correction, which in terms of  $\gamma$  was at 14<sup>h</sup>, -28.2; at 15<sup>h</sup>, -25.2; at 16<sup>h</sup>, -23.4; at 17<sup>h</sup>, -22.8; at 18<sup>h</sup>, -22.3; at 19<sup>h</sup>, -21.4; at 20<sup>h</sup>, -20.2 and at 21<sup>h</sup>, -20.2.

Table I contains the scale readings of the unifilar and bifilar magnetometers and of the temperatures of the dry and wet bulb thermometer. The scale readings (five minute means) converted into absolute measure are given in Table II.

TABLE I.  
SCALE READINGS AND TEMPERATURE READINGS AT  
WILHELMSHAVEN, GERMANY.

TABLE II.  
FIVE MINUTE MEANS OF  
D AND H

Minute	Declination: $-50^{\circ}$							Horizontal Intensity $90^{\circ} +$							Gr <sup>h</sup> M. T. May 17, 1901.	Temper- ature		Gr. M. T. May 17, 1901.	D $12^{\circ}$ W. +	H 18000 +	Gr. M. T. May 17, 1901.	D $12^{\circ}$ W. +	H 18000 +			
																Dry Bulb	Wet Bulb									
	14h..	15h..	16h..	17h..	18h..	19h..	20h..	14h..	15h..	16h..	17h..	18h..	19h..	20h..												
0	d	d	d	d	d	d	d	d	d	d	d	d	d	d	h m	C	C	h m	'	10 <sup>y</sup>	h m	'	10 <sup>y</sup>	h m	'	10 <sup>y</sup>
1	2.3	3.8	5.8	7.0	7.3	6.1		12.3	11.7	10.1	7.8	3.7	0.5		16 10	6.2	4.4	14 00			19 00	19.53	222			
2	2.2	3.7	5.5	7.0	7.2	6.1		12.2	11.2	10.0	7.7	3.6	0.5		15 15	6.3	4.4	05	23.47		05	19.60	214			
3	2.0	2.2	3.8	5.3	6.9	7.2	6.0	12.2	11.8	9.9	7.7	3.6	0.5		20 04	4.4	4.4	10	23.32	436	10	19.60	202			
4	2.0	2.2	3.8	5.6	6.9	7.2	6.0	12.2	11.3	9.8	7.6	3.5	0.4		25 04	4.4	4.4	15	23.17	435	15	19.68	191			
5	2.0	2.2	3.9	5.8	6.9	7.2	6.0	12.1	11.4	9.9	7.6	3.5	0.4		30 04	4.4	4.4	20	23.25	444	20	19.68	183			
6	2.0	2.2	4.0	5.9	6.9	7.2	6.0	12.0	11.8	9.8	7.5	3.4	0.3		35 04	4.4	4.4	25	23.40	446	25	19.75	175			
7	2.0	2.2	3.8	5.9	7.0	7.2	6.0	11.8	11.9	9.8	7.5	3.3	0.4		40 04	4.4	4.4	30	23.47	440	30	19.68	179			
8	2.1	2.3	3.9	5.9	7.0	7.3	6.0	11.9	11.9	9.8	7.5	3.4	0.5		45 04	4.4	4.4	35	23.55	427	35	19.75	170			
9	2.1	2.4	3.9	5.9	7.0	7.3	5.9	12.8	12.0	9.7	7.3	3.3	0.3		50 04	4.4	4.4	40	23.40	433	40	19.95	156			
10	2.1	2.5	3.9	5.9	7.0	7.2	5.9	12.7	12.0	9.7	7.3	3.1	0.3		55 06	4.4	4.4	45	23.17	435	45	19.98	148			
11	2.2	2.6	4.0	6.0	7.1	7.2	5.9	12.7	11.9	9.8	7.2	3.0	0.2		17 00	6.6	4.4	50	23.10	444	50	20.05	143			
12	2.2	2.7	3.9	5.9	7.1	7.1	5.9	12.8	11.8	9.7	7.1	2.9	0.2		05 06	4.5	4.5	55	23.10	437	55	20.35	137			
13	2.3	2.9	3.9	5.9	7.0	7.1	5.9	12.5	11.8	9.7	7.0	2.9	0.3		10 06	4.6	4.6	15	23.25	449	20	20.42	135			
14	2.4	3.0	4.0	5.9	6.9	7.1	5.9	12.6	12.0	9.6	6.9	2.8	0.5		15 06	4.7	4.7	05	23.32	442	05	20.50	129			
15	2.4	3.0	4.1	5.9	6.8	7.1	5.8	12.7	11.9	9.7	7.0	2.8	0.4		20 06	4.7	4.7	10	23.03	440	10	20.57	126			
16	2.4	3.0	4.0	5.8	6.9	7.1	5.8	12.6	12.0	9.5	6.9	2.6	0.3		25 06	4.6	4.6	15	22.73	445	15	20.64	129			
17	2.3	3.0	3.9	5.9	6.9	7.1	5.8	12.7	12.1	9.4	6.9	2.6	0.4		30 06	4.6	4.6	20	22.73	436	20	20.64	138			
18	2.3	3.0	4.1	6.0	6.9	7.1	5.8	12.6	11.8	9.5	6.8	2.4	0.5		35 07	4.6	4.6	25	22.73	441	25	20.72	138			
19	2.3	3.0	4.2	6.0	7.0	7.1	5.8	12.6	11.9	9.4	6.8	2.3	0.6		40 08	4.6	4.6	30	22.65	439	30	21.09	142			
20	2.3	3.0	4.4	6.1	7.0	7.1	5.8	12.8	11.7	9.5	6.7	2.3	0.6		45 08	4.8	4.8	35	22.58	429	35	21.17	151			
21	2.2	3.0	4.3	6.1	7.0	7.1	5.7	12.9	11.9	9.5	6.7	2.3	0.6		50 08	4.8	4.8	40	22.21	427	40	21.24	151			
22	2.2	3.0	4.8	6.2	7.1	7.1	5.7	12.8	11.8	9.3	6.6	2.2	0.6		55 08	4.8	4.8	45	22.13	435	45	21.31	157			
23	2.2	3.0	4.9	6.3	7.2	7.1	5.7	12.7	11.7	9.2	6.5	2.2	0.7		18 00	6.9	4.6	50	22.21	436	50	21.61	163			
24	2.1	3.0	5.0	6.4	7.2	7.0	5.7	12.7	11.8	9.2	6.4	2.1	0.6		05 09	4.6	4.6	55	22.13	435	55	21.84	163			
25	2.1	3.0	4.9	6.5	7.3	7.0	5.7	12.8	11.8	9.3	6.3	2.0	0.6		10 09	4.6	4.6	16 00	22.13	448	21 00	22.06	175			
26	2.1	3.0	4.8	6.3	7.3	7.0	5.6	12.7	11.8	9.2	6.2	2.0	0.7		15 09	4.7	4.7	05	21.98	451						
27	2.1	3.0	4.8	6.2	7.3	7.1	5.4	12.6	11.9	9.1	6.1	2.0	0.8		20 09	4.9	4.9	10	21.98	452						
28	2.0	3.0	4.7	6.1	7.3	7.1	5.4	12.7	11.8	9.2	5.9	2.0	0.7		25 09	4.9	4.9	15	21.69	441						
29	2.0	3.0	4.6	6.1	7.3	7.1	5.3	12.7	11.8	9.1	5.8	2.0	0.9		30 09	4.9	4.9	20	21.31	435						
30	2.0	3.1	4.8	6.1	7.3	7.1	5.2	12.5	11.7	9.0	5.7	2.1	0.7		35 09	5.0	5.0	25	21.39	430						
31	1.9	3.1	4.9	6.1	7.3	7.0	5.2	12.4	11.7	9.0	5.6	2.0	0.6		40 09	5.0	5.0	30	21.31	433						
32	1.9	3.2	5.0	6.1	7.3	7.0	5.1	12.2	11.7	9.0	5.4	2.0	0.6		45 09	5.0	5.0	35	21.17	431						
33	1.9	3.2	4.9	6.1	7.3	7.0	5.1	12.2	11.6	9.0	5.3	2.0	0.7		50 09	5.0	5.0	40	21.24	425						
34	1.9	3.2	4.9	6.1	7.3	7.0	5.1	12.1	11.5	8.9	5.3	1.9	1.0		19 00	7.2	5.0	50	21.17	413						
35	1.9	3.2	4.9	6.2	7.3	7.0	5.1	12.0	11.3	8.8	5.3	1.8	1.0		05 09	7.4	4.9	55	21.09	410						
36	1.9	3.3	4.9	6.2	7.3	7.0	5.0	11.9	11.3	8.9	5.2	1.7	1.1		10 09	7.4	5.0	17 00	20.64	405						
37	2.0	3.4	5.0	6.3	7.3	7.0	5.0	12.0	11.2	8.8	5.1	1.6	1.0		15 09	7.5	5.0	05	20.57	396						
38	2.0	3.6	5.0	6.3	7.3	6.9	5.0	12.1	11.2	8.8	5.0	1.6	1.1		20 09	7.6	5.2	10	20.50	393						
39	2.1	3.7	5.1	6.3	7.3	6.8	5.0	12.2	11.3	8.7	5.0	1.4	1.1		25 09	7.5	5.1	15	20.64	388						
40	2.1	3.7	5.1	6.4	7.3	6.7	5.0	12.1	11.2	8.7	5.0	1.3	1.0		30 09	7.5	5.1	20	20.42	388						
41	2.2	3.8	5.1	6.5	7.3	6.6	5.0	12.3	11.2	8.7	5.0	1.2	1.1		35 09	7.4	5.1	25	20.12	382						
42	2.2	3.8	5.1	6.6	7.3	6.6	5.0	12.2	11.3	8.7	4.8	1.1	1.1		40 09	7.5	5.1	30	20.42	373						
43	2.2	3.8	5.1	6.7	7.3	6.6	5.0	12.1	11.3	8.6	4.9	1.1	1.1		45 09	7.6	5.0	35	20.35	368						
44	2.3	3.8	5.1	6.8	7.4	6.7	4.9	12.0	11.4	8.6	4.8	1.0	1.2		50 09	7.8	5.2	40	20.20	365						
45	2.4	3.8	5.0	6.8	7.4	6.7	4.9	12.1	11.4	8.5	4.8	1.0	1.2		55 09	7.7	5.0	45	19.90	360						
46	2.5	3.8	5.1	6.5	7.4	6.6	4.8	12.2	11.5	8.4	4.6	0.9	1.2		20 10	7.8	5.3	50	19.98	354						
47	2.5	3.8	5.1	6.4	7.4	6.6	4.8	12.3	11.4	8.4	4.4	1.0	1.3		05 10	7.8	5.3	55	19.83	342						
48	2.6	3.8	5.1	6.3	7.4	6.6	4.7	12.3	11.4	8.3	4.3	0.9	1.4		10 10	7.7	5.3	18 00	19.75	339						
49	2.6	3.7	5.2	6.6	7.4	6.6	4.7	12.2	11.5	8.3	4.3	0.8	1.5		15 10	7.6	5.2	05	19.83	330						
50	2.5	3.7	5.1	6.7	7.5	6.6	4.5	12.3	11.4	8.3	4.3	0.8	1.4		20 10	7.8	5.4	10	19.68	322						
51	2.5	3.7	5.2	6.5	7.5	6.6	4.3	12.1	11.2	8.3	4.2	0.7	1.4		25 10	8.0	5.8	15	19.83	313						
52	2.5	3.7	5.1	6.5	7.5	6.4	4.2	12.1	11.2	8.1	4.2	0.7	1.5		30 10	8.0	5.6	20	19.75	307						
53	2.5	3.7	5.2	6.5	7.4	6.4	4.2	11.8	11.2	8.1	4.1	0.6	1.4		35 10	8.2	5.9	25	19.53	295						
54	2.5	3.8	5.2	6.8	7.4	6.2	4.2	12.0	11.2	8.0	4.1	0.6	1.4		40 10	8.4	5.9	30	19.53	278						
55	2.5	3.8	5.2	6.9	7.4	6.2	4.2	12.0	11.3	7.9	4.0	0.6	1.4		45 10	8.4	5.9	35	19.53	266						
56	2.6	3.9	5.8	6.9	7.3	6.2	4.1	11.9	11.2	7.9	4.0	0.6	1.5		50 10	8.3										