

very good agreement between his formula (1) and the observations of Holman and others upon various gases.

If the law be assumed, my observations suffice to determine the values of c . They are shown in the table, and they agree well with the numbers for air and oxygen calculated by Sutherland from observations of Obermayer.

Report of Magnetical Observations at Falmouth Observatory for the Year 1897. Latitude $50^{\circ} 9' 0''$ N., Longitude $5^{\circ} 4' 35''$ W.; height, 167 feet above mean sea-level.

The Declination and Horizontal Force are deduced from hourly readings of the photographic curves, and so are corrected for the diurnal variation.

The results in the following tables, Nos. I, II, III, IV, are deduced from the magnetograph curves, which have been standardised by observations of deflection and vibration. These were made with the Collimator Magnet, marked 66A, and the Declinometer Magnet, marked 66C, in the Unifilar Magnetometer No. 66 by Elliott Brothers, of London. The temperature correction (which is probably very small) has not been applied.

The Declination and Horizontal Force values given in Tables I to IV are prepared in accordance with the suggestions made in the Fifth Report of the Committee of the British Association on comparing and reducing magnetic observations, and the time given is Greenwich Mean Time, which is 20 minutes 18 seconds earlier than local time.

The following is a list of the days during the year 1897 which were selected by the Astronomer Royal as suitable for the determination of the magnetic diurnal variations, and which have been employed in the preparation of the magnetic tables:—

January ...	6, 9, 22, 23, 26.	July	1, 9, 13, 18, 26.
February ...	2, 9, 17, 18, 20.	August ...	4, 5, 6, 24, 31.
March	14, 15, 16, 18, 20.	September	13, 18, 19, 26, 28.
April	3, 11, 12, 15, 22.	October	5, 9, 13, 20, 21.
May	8, 9, 12, 16, 28.	November	7, 8, 12, 23, 30.
June	8, 9, 10, 12, 30.	December	8, 13, 26, 27, 28.

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Magnetic Observer.

Table I.—Hourly Means of Declination at the Falmouth
on Five selected quiet Days in

(18° + West.)

Hours	Mid.	1	2	3	4	5	6	7	8	9	10	11
Winter.												
1897.	'	'	'	'	'	'	'	'	'	'	'	'
Jan. ..	43·5	43·7	43·9	44·2	44·0	44·0	43·9	43·8	43·3	43·3	43·9	45·4
Feb. ..	43·0	43·1	43·2	43·5	43·4	43·5	43·0	42·7	42·4	42·2	42·6	43·8
March ..	41·8	42·0	42·2	42·3	42·1	42·0	41·8	41·4	40·0	39·2	40·6	42·9
Oct. ..	40·9	40·8	40·9	41·3	40·9	40·8	40·4	39·9	39·1	38·9	40·2	42·6
Nov. ..	38·9	39·3	39·7	40·1	40·1	39·7	39·6	39·6	39·5	39·1	39·7	41·0
Dec. ..	38·5	38·7	39·2	39·4	39·3	39·3	39·1	39·2	38·9	38·7	39·0	39·5
Means	41·1	41·3	41·5	41·8	41·6	41·6	41·3	41·1	40·5	40·2	41·0	42·5
Summer.												
April..	'	'	'	'	'	'	'	'	'	'	'	'
May ..	43·1	42·9	43·2	42·7	42·5	42·7	42·1	40·8	39·0	38·8	39·9	42·3
June ..	43·4	43·3	43·0	42·9	42·8	42·0	40·8	39·6	38·9	39·7	41·6	44·3
July ..	42·4	42·4	42·0	41·7	41·6	40·2	39·1	39·0	38·5	39·6	41·6	43·6
Aug. ..	42·3	42·0	41·8	41·6	40·8	39·8	38·7	38·9	38·5	38·7	40·7	42·7
Sept. ..	40·8	41·0	40·7	40·6	40·3	39·7	38·7	38·2	38·0	38·5	40·6	43·3
Means	39·6	39·7	39·7	39·6	39·1	39·8	39·5	39·1	38·4	38·8	40·0	42·1
Means	41·9	41·9	41·7	41·5	41·2	40·7	39·8	39·3	38·6	39·0	40·7	43·1

Table II.—Diurnal Inequality of the Falmouth

Hours	Mid.	1	2	3	4	5	6	7	8	9	10	11
Summer mean.												
	-0·5	-0·5	-0·7	-0·9	-1·2	-1·7	-2·6	-3·1	-3·8	-3·4	-1·7	+0·7
Winter mean.												
	-0·9	-0·7	-0·5	-0·2	-0·4	-0·4	-0·7	-0·9	-1·5	-1·8	-1·0	+0·2
Annual mean.												
	-0·7	-0·6	-0·6	-0·6	-0·8	-1·1	-1·7	-2·0	-2·7	-2·6	-1·4	+0·5

Observatory, determined from the Magnetograph Curves
each Month during 1897.

Noon	1	2	3	4	5	6	7	8	9	10	11	Mid.
Winter.												
'	'	'	'	'	'	'	'	'	'	'	'	'
46·6	47·2	46·5	45·6	45·1	45·2	44·6	44·3	43·8	43·6	43·4	43·6	43·8
45·7	47·0	46·9	46·1	45·3	44·7	44·5	44·2	43·8	43·5	43·1	42·9	42·9
45·8	48·1	48·8	47·9	46·1	44·3	43·3	42·7	42·7	42·6	42·4	41·9	42·0
44·6	45·2	44·7	44·1	42·6	42·2	41·8	41·1	41·3	40·9	40·8	40·9	40·9
42·5	42·9	42·5	41·6	41·2	41·0	40·2	40·1	39·8	38·9	38·3	38·3	38·5
40·3	40·7	40·5	39·7	39·6	39·2	38·9	38·6	38·5	38·1	38·1	38·2	38·5
44·3	45·2	45·0	44·2	43·3	42·8	42·2	41·8	41·7	41·3	41·0	41·0	41·1
Summer.												
'	'	'	'	'	'	'	'	'	'	'	'	'
45·5	48·3	49·0	47·7	46·5	45·0	43·9	43·2	43·8	43·7	43·7	43·4	43·1
47·0	47·8	48·3	46·5	45·0	44·3	43·9	43·6	43·6	43·6	43·5	43·3	43·4
45·5	46·4	46·8	46·2	45·2	44·1	43·9	43·3	43·0	42·9	42·9	42·1	42·0
45·4	46·3	46·6	46·0	44·8	43·2	42·3	42·2	42·2	42·1	42·4	42·0	42·0
46·0	47·5	47·5	45·4	44·6	42·8	41·6	41·2	41·2	41·3	41·2	41·0	41·0
44·0	45·6	45·4	44·7	43·7	42·8	42·7	42·2	41·3	41·0	40·8	40·8	40·4
46·7	47·0	47·3	46·1	45·0	43·7	43·1	42·6	42·5	42·4	42·4	40·1	42·0

Declination as deduced from Table I.

Noon	1	2	3	4	5	6	7	8	9	10	11	Mid.
Summer mean.												
'	'	'	'	'	'	'	'	'	'	'	'	'
+4·3	+4·6	+4·9	+3·7	+2·6	+1·3	+0·7	+0·2	+0·1	0·0	0·0	-0·3	-0·4
Winter mean.												
'	'	'	'	'	'	'	'	'	'	'	'	'
+2·3	+3·2	+3·0	+2·2	+1·3	+0·8	+0·2	-0·2	-0·3	-0·7	-1·0	-1·0	-0·9
Annual mean.												
'	'	'	'	'	'	'	'	'	'	'	'	'
+3·3	+3·9	+4·0	+3·0	+2·0	+1·1	+0·5	0·0	-0·1	-0·4	-0·5	-0·7	-0·7

Table III.—Hourly Means of the Horizontal Force at Falmouth
on Five selected quiet Days in

0·18000 + (C.G.S. units).

Hours	Mid.	1	2	3	4	5	6	7	8	9	10	11
Winter.												
1897.												
Jan. ..	578	578	578	580	582	583	584	584	581	576	569	567
Feb. ..	580	579	578	578	579	580	581	581	580	576	571	569
March ..	584	585	585	585	585	586	588	589	584	574	566	565
Oct. ..	607	605	603	603	605	605	606	603	598	589	583	584
Nov. ..	598	598	599	600	602	604	605	603	603	597	591	590
Dec. ..	587	588	586	589	592	594	596	595	595	594	588	585
Means	589	589	588	589	591	592	593	593	590	584	578	577
Summer.												
April ..	596	596	594	593	593	595	599	597	591	581	571	563
May ..	597	596	596	596	596	596	592	587	580	573	571	574
June ..	604	603	601	602	602	599	596	592	587	582	581	586
July ..	610	611	609	608	608	606	603	599	593	588	581	579
Aug. ..	613	613	612	612	611	609	606	603	595	589	589	593.
Sept. ..	604	606	604	604	604	604	604	601	595	587	582	586
Means	604	604	603	603	602	602	600	597	590	583	579	580

Table IV.—Diurnal Inequality of the Falmouth

Hours	Mid.	1	2	3	4	5	6	7	8	9	10	11
Summer mean.												
	+·00004	+·00004	+·00003	+·00003	+·00002	+·00002	·00000	·00003	·00010	·00017	·00021	·00020
Winter mean.												
	·00000	·00000	·00001	·00000	+·00002	+·00003	+·00004	+·00004	+·00001	·00005	·00011	·00012
Annual mean.												
	+·00002	+·00002	+·00001	+·00002	+·00002	+·00003	+·00002	+·00001	·00005	·00011	·00016	·00016

Observatory, determined from the Magnetograph Curves
each Month during the year 1897.

Noon	1	2	3	4	5	6	7	8	9	10	11	Mid.
Winter.												
568	573	579	578	579	581	583	585	584	583	581	580	579
571	576	576	578	577	579	579	580	583	581	583	583	582
566	572	576	578	582	583	585	590	591	592	590	590	588
590	596	600	602	602	603	607	608	609	609	610	610	609
590	591	594	592	597	600	602	602	603	601	601	602	601
588	591	594	593	592	592	593	596	596	595	593	593	592
579	583	587	587	588	590	592	594	594	594	593	593	592
Summer.												
566	572	575	587	595	599	599	603	604	604	604	605	605
579	588	595	598	600	605	609	608	609	604	603	605	603
591	593	593	597	600	605	608	612	613	612	612	610	607
584	591	596	605	609	614	617	618	620	618	616	614	612
595	598	600	605	612	617	618	621	621	620	618	617	616
589	595	599	602	606	604	607	611	613	611	611	611	611
584	590	593	599	604	607	610	612	613	612	611	610	609

Horizontal Force as deduced from Table III.

Noon	1	2	3	4	5	6	7	8	9	10	11	Mid.
Summer mean.												
-00016	-00010	-00007	-00001	+00004	+00007	+00010	+00012	+00013	+00012	+00011	+00010	+00009
Winter mean.												
-00010	-00006	-00002	-00002	-00001	+00001	+00003	+00005	+00005	+00005	+00004	+00004	+00003
Annual mean.												
-00013	-00008	-00005	-00002	+00002	+00004	+00007	+00009	+00009	+00009	+00008	+00007	+00006