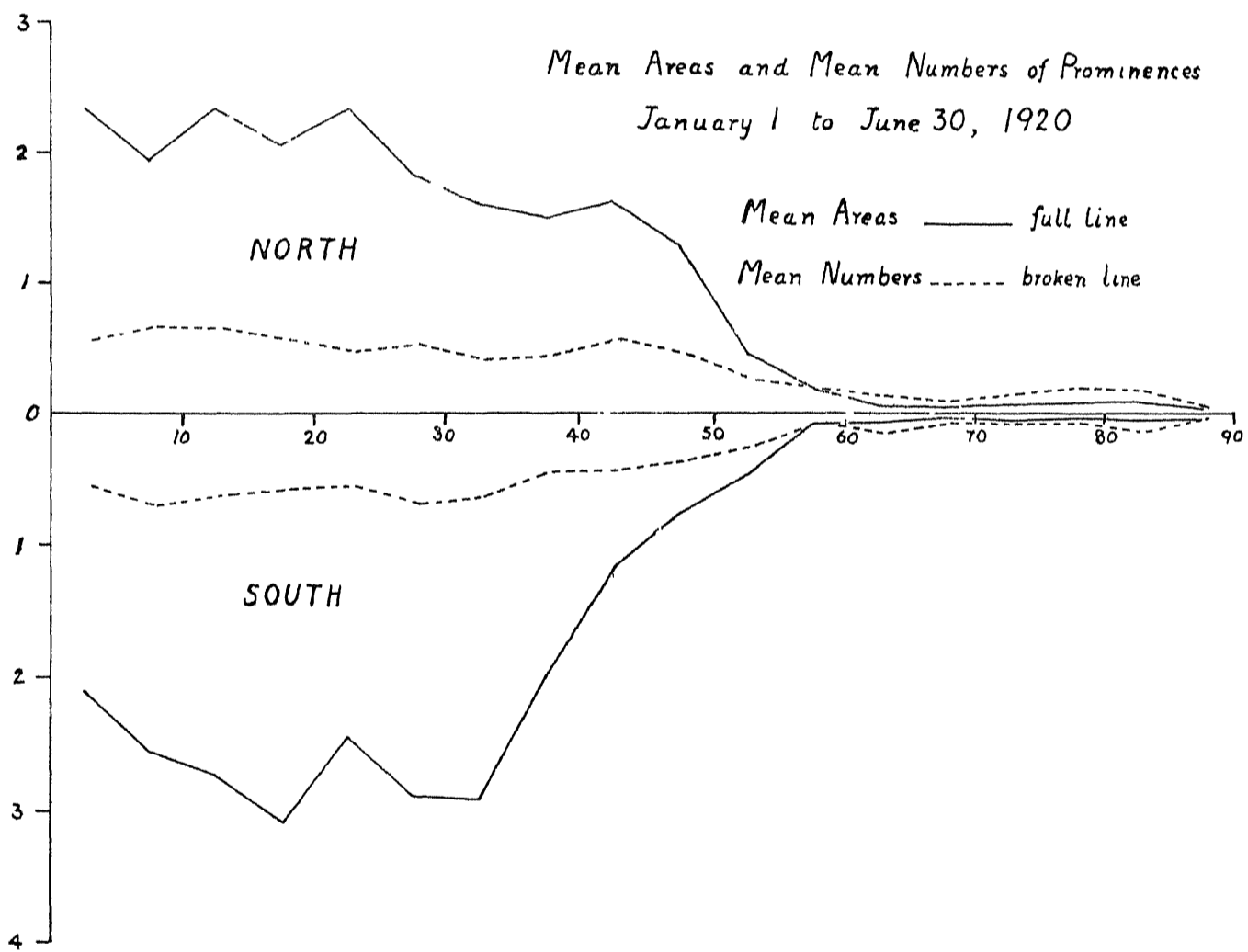


Kodaikanal Observatory.

BULLETIN No. LXV.

SUMMARY OF PROMINENCE OBSERVATIONS FOR THE FIRST HALF OF THE YEAR 1920.

The distribution of prominences observed and photographed during the half-year ending 30th June 1920, is represented in the accompanying diagram, in which the full line gives the mean daily areas and the broken line the mean daily numbers for each zone of 5° of latitude. The ordinates represent tenths of a square minute of arc for the full line and numbers for the broken line. The means are corrected for incomplete or imperfect observations, the total of 168 days being reduced to 159 effective days.



The distribution is very similar to that during the second-half of 1919, except that there is a slight reduction in activity in the belt 30° — 40° in the northern hemisphere.

The mean daily areas and numbers corrected for imperfect observations are given below --

			Mean daily areas (square minutes)	Mean daily numbers
North	..	..	1.99	6.76
South	...	..	2.34	6.47
		Total	4.33	13.23

Compared with the previous half-year, areas show an increase of 12 per cent in the southern hemisphere but practically no change in the northern, and numbers show a general increase amounting to 17 per cent. Areas again show a preponderance in the southern hemisphere and numbers in the northern. The southern prominences were also slightly brighter than the northern.

The monthly, quarterly and half-yearly areas and numbers and the mean height and extent of the prominences are given in table I. The unit of area is 1 square minute of arc.

TABLE I — ABSTRACT FOR THE FIRST-HALF OF 1920.

Month	Number of days (effective)	Areas	Numbers	Daily Means		Mean height	Mean extent
				Areas	Numbers		
January	25	109.3	323	4.37	12.9	35.4	2.94
February	29	112.0	394	3.86	13.6	31.8	2.90
March	30	131.8	382	4.39	12.7	32.9	3.55
April	27	126.8	364	4.70	13.5	30.6	3.10
May	28	135.2	386	4.83	13.8	32.1	3.20
June	20	74.1	251	3.70	12.6	31.5	2.87
First quarter	84	353.1	1099	4.20	13.1	33.2	3.13
Second quarter	75	336.1	1001	4.48	13.3	31.4	3.08
First half-year	159	689.2	2100	4.33	13.2	32.4	3.11

Although the mean height and extent show a decrease compared with the latter half of 1919, the increase of 17 per cent in mean daily numbers has resulted in an increase of the mean area.

Distribution east and west of the sun's axis

There is a western preponderance both of areas and numbers but not so large as in the latter half of 1919

1920 January to June	East.	West	Percentage east.
Total number observed	1014	1086	48.29
Total areas in square minutes	335.8	353.4	48.72

The western prominences were also slightly brighter than the eastern.

Metallic Prominences.

Eighty-six metallic prominences were observed in the half-year. Details of these prominences are given in the following table —

TABLE II.—List of Metallic Prominences observed at Kodakaval from January to June 1920.

Date	Hour		Base.	Latitude		Limb.	Height.	Lines
	I	S T		North.	South.			
1920			°	°	"		"	
January	9	8 42	8		22	W	50	4924 1, 5018 6, b ₁ , 5234 8, 5316 8, D ₁ , D ₂
	12	8 55	8	52		E	50	b ₁ , b ₂ , b ₃ , b ₄ , D ₁ , D ₂
	14	9 2	3	26 5		E	60	b ₁ , b ₂ , b ₃ , b ₄ , D ₁ , D ₂
	15	8 50		30		E	60	4924 1, b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	16	9 20	2		31	E	45	b ₁ , b ₂ , b ₃ , D ₁ , D ₂
	17	8 50		46		E	40	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	17	9 8	3		29 5	E	60	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	18	9 1	3		28 5	E	60	b ₁ , b ₂ , b ₃ , b ₄ , D ₁ , D ₂
	22	9 20	4		10	E	60	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂ , 6677 and 7065
	22	9 35			20	E	30	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	24	8 52	11		3 5	W	50	4924 1, b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂ , 6677 and 7065
	30	8 42	12		18	W	60	4924 1, 5016, b ₁ , b ₂ , b ₃ , b ₄ , 5234 8, 5276 2, 5316 8, 5535 1, D ₁ , D ₂ , 6677 and 7065.
	31	9 10	4		29	W	20	4924 1, b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	31	8 41	2	40 5		W	20	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
February	3	8 51	10	Equator		W	40	4924 1, 5016, b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂ , 6677 and 7065.
	4	9 15	3		22 5	E	40	b ₁ , b ₂ , b ₃ , b ₄ , D ₁ , D ₂
	4	9 18	6		36	E	90	b ₁ , b ₂ , b ₃ , b ₄ , D ₁ , D ₂
	4	8 50			6	W	35	4924 1, b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂ , 6677 and 7065.
	5	9 17	2	12 5		E	50	b ₁ , b ₂ , b ₃ , b ₄ , D ₁ , D ₂
	5	9 20	5		20 5	E	30	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	5	9 25	5		33 5	E	95	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	6	8 52			36	E	70	D ₁ , D ₂
	8	8 50	2	35 5		E	20	b ₁ , b ₂ , D ₁ , D ₂
	8	9 5	2	11		E	60	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	9	8 15	11	5		E	00	4924 1, 5016, 5018 6, b ₁ , b ₂ , b ₃ , b ₄ , 5234 8, 5316 8, 5363 0, 5397 3, 5535 1, D ₁ , D ₂ , 6677 and 7065
	11	9 10	2	21		E	15	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	11	8 56	2		9	W	15	b ₁ , b ₂ , b ₃
	12	9 20	10	Equator		E	50	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	13	8 35	2		31	E	30	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	13	8 22	2	11		W	35	4924 1, 5018 6, b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂ , 6677.
	14	8 25			6	E	10	b ₁ , b ₂ , b ₃ , b ₄ , D ₁ , D ₂
	16	8 23	10		5	E	120	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	17	8 50			7	E	10	4924 1, b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂ , 6677 and 7065.
	17	9 10		20		W	60	b ₁ , b ₂
	18	9 20	3	33		E	35	b ₁ , b ₂ , b ₃
	19	9 10			37	W	10	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	23	8 38	1	9 5		W	15	4924 1, 5018 6, b ₁ , b ₂ , b ₃ , b ₄ , 5234 8, 5276 2, 5284 2, 5316 8, 5363 0, 5535 1, D ₁ , D ₂
	27	8 19		7		E	55	b ₁ , b ₂ , b ₃ , b ₄ , D ₁ , D ₂
	27	8 39	4		30	W	40	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	28	8 55	10		28	W	45	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂ , 7065
	29	8 52	12		30	W	25	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	29	8 40	3	15 5		W	25	4924 1, 5016, 5018 6, b ₁ , b ₂ , b ₃ , b ₄ , 5208 7, 5234 8, 5276 2, 5316 8, D ₁ , D ₂ , 6677 and 7065
March	2	9 8		18		E	30	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	3	8 45	4	15		E	40	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	3	8 35	2		6	W	15	4924 1, b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂ , 6677 and 7065
	6	8 20	4		7	W	65	4924 1, 5016, b ₁ , b ₂ , b ₃ , b ₄ , 5234 8, 5276 2, 5284 2, 5316 8, 5363 0, D ₁ , D ₂ , 6677 and 7065.
	7	8 18	5	14 5		E	25	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, 5363 0, D ₁ , D ₂
	7	9 0			12	W	15	4924 1, 5016, 5018 6, b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	7	9 3			7	W	10	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂

Date	Hour L S T	Base	Latitude		Limb	Height	Lines	
			North	South				
March 1920.	11	8 35	°	°		"	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂	
	12	8 42	5		E	65	b ₁ , b ₂ , b ₃ , b ₄ , D ₁ , D ₂	
	13	8 50	11		E	20	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂	
	13	8 38	16	17	28.5	E	40	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	14	8 29		4		W	50	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	14	8 26			9	E	35	b ₁ , b ₂ , b ₃ , b ₄ , D ₁ , D ₂
	14	8 42	3	17.5		E	35	b ₁ , b ₂ , b ₃ , b ₄ , D ₁ , D ₂
						W	95	4924 1, 5016, 5018 6, b ₁ , b ₂ , b ₃ , b ₄ , 5234 8, 5276 2, 5284 2, 5316 8, 5363 0, 5535 1, D ₁ , D ₂ , 6677 and 7065
	15	8 49	5		5.5	E	70	4922 4, 4924 1, 5016, 5018 6, b ₁ , b ₂ , b ₃ , b ₄ , 5234 8, 5269 8, 5276 2, 5284 2, 5316 8, 5363 0, 5397 3, 5405 9, 5535 1, D ₁ , D ₂ , 6677 and 7065
	15	8 33	4	10		W	120	4924 1, 5018 6, b ₁ , b ₂ , b ₃ , b ₄ , 5234 8, 5276 2, 5284 2, 5316 8, 5363 0, D ₁ , D ₂ , 6677 and 7065
	18	8 39	13	2.5		W	220	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	24	9 22	8		11	W	55	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	25	8 58	1		9.5	W	30	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	28	8 45	17		4.5	W	120	4924 1, 5018 6, b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, 5363 0, D ₁ , D ₂ , 6677 and 7065
30	8 43	2	23		E	15	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂	
30	8 34	2		19	W	30	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂	
April	2	9 22	5	6.5		E	30	b ₁ , b ₂ , b ₃ , D ₁ , D ₂
	5	8 49	6		11	E	40	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	7	8 55			8	E	80	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	10	8 30			4	E	15	4924 1, 5018 6, b ₁ , b ₂ , b ₃ , b ₄ , 5234 8, 5276 2, 5284 2, 5316 8, 5363 0, D ₁ , D ₂ , 6677 and 7065
	10	8 30			9.5	E	20	4924 1, 5018 6, b ₁ , b ₂ , b ₃ , b ₄ , 5234 8, 5276 2, 5284 2, 5316 8, 5363 0, D ₁ , D ₂ , 6677 and 7065
11	8 50		10		W	90	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, 5363 0, D ₁ , D ₂	
22	8 38	2		17	W	30	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, 5363 0, D ₁ , D ₂	
25	8 48			17	W	75	4924 1, b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂	
May	7	8 56	11		13.5	E	65	4924 1, b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂ , 7065
	7	9 2	5		28.5	E	50	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	8	10 36	12		15	E	80	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	8	10 43	3		28.5	E	40	b ₁ , b ₂ , b ₃ , b ₄ , D ₁ , D ₂
	9	9 6	7	20.5		E	60	4924 1, b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂ , 6677 and 7065
	16	8 40		13		W	10	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	16	8 35	5	17.5		W	25	5018 6, b ₁ , b ₂ , b ₃ , b ₄ , 5208 5, 5269 8, 5276 2, 5316 8, 5363 0, D ₁ , D ₂ , 6677 and 7065
	17	8 8			11	W	60	4924 1, 5016, 5018 6, b ₁ , b ₂ , b ₃ , b ₄ , 5234 8, 5276 2, 5316 8, D ₁ , D ₂ , 6677 and 7065
21	9 24	6		13	W	40	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂	
30	8 40	3	22.5		E	20	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂	
30	8 52	1	14.5		E	70	4924 1, 5016, b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂	
June	1	9 35	8	30		E	60	b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂
	11	9 16		11		E	15	b ₁ , b ₂ , b ₃ , b ₄ , D ₁ , D ₂
	12	9 12		14		W	35	5016, b ₁ , b ₂ , b ₃ , b ₄ , 5316 8, D ₁ , D ₂ , 6677 and 7065

The metallic prominences recorded above were distributed in latitude as follows —

—				1°—30°.	31°—60°.	Mean latitude.	Extreme latitudes.
North	..	..	..	29	6	19.6	1 and 52
South	...	...	...	43	6	17.8	3.5 and 37
Equator	...	..	..	2	..	.	.

Fifty were on the east limb and 36 on the west.

Displacements of the hydrogen lines.

Particulars of the displacements observed in the chromosphere and prominences are given in the following table :—

TABLE III

Date	Hour L S T		Latitude		Limb.	Displacements			Remarks
			North	South		Red.	Violet	Both ways	
1920	h	m	°	'		A	A	A	
January	9	8 10	53		E	Slight			
	9	8 33		27	E	1	0.5		To red at top, to violet at base 1 A to violet at 8 ^h 51 ^m Not seen at 8 ^h 51 ^m
	10	8 31	82.5		W		Slight		
	10	8 31	84.5		W	Slight			
	12	8 40	61.5		W		Slight		
	13	8 35	79		W		Do.		
	14	8 48	47.5		E	1			
	14	9 15		66.5	E		Slight		
	14	8 42	34		W		1.5		
	14	8 40	53		W		Slight		No prominence.
	15	8 58	7		E	2			
	15	8 45		11	W		0.5		
	16	8 58	31		W		Slight		
	17	8 31	84.5		E		0.5		
	17	8 52	35.5		E		1		At top
	18	8 10	10		W	1.5			Do
	18	8 35	61.5		W		Slight		
	20	8 44	59.5		W		0.5		
	22	9 20		11	E	1.5			
	22	9 2	83.5		W	0.5			
	23	8 21		20	W		2		
	24	8 44	78.5		E	0.5			
	24	9 3		40	W	2			At top.
	24	8 52	1.5		W	3			
	27	9 13	8		W	1			
	27	9 10	58.5		W	1.5			At base
	28	8 50	7.5		W		1		Do
	29	9 10		16	W		0.5		
	29	9 0		11.5	W		1.5		
	30	8 30		18	E	1			
	30	8 12		19	W			Slight	
31	9 10		29	W		1.5		At base	
February	2	8 38		32	W		Slight		
	3	9 10		8	W	1.5			
	3	8 51	Equator		W	3	2		To red at top, to violet at base 5 A to violet at base at 9 ^h 15 ^m . To red at top, to violet at base At top.
	3	8 50		5	W	3	1.5		
	4	8 50		6	W	2			
	4	8 41	13.5		W	1.5			
	4	8 10	56.5		W		Slight		
	5	8 55	77.5		E		Do.		
	5	9 6		7.5	W	3	0.5		To red at top, to violet at base The violet displacement was 2 A at 9 ^h 10 ^m .
	5	8 58	43.5		W	1			
	6	8 49		22	E	Slight			
	7	8 47	8		E	Do.			
	8	8 42	70		W		Slight		
	9	8 31	18		E	Slight			
	9	8 45	5		E			0.5	
	9	8 50		21.5	E		1.5		
	10	8 33	75.5		W	Slight			
11	8 40	65		E	Do.				
11	8 45	82		W	1				
12	8 58	35.5		E	Slight			At top.	
12	9 20	Equator		E	2.5				
13	8 35		31	E		2		Do.	
13	8 45		40	W		1.5		Do.	
13	8 22	11		W	2	1		To red at top, to violet at base.	
13	8 16	25		W		0.5			

Date.	Hour I.S.T.		Latitude.		Limb.	Displacements.			Remarks.
			North.	South.		Red	Violet.	Both ways	
1920.	h.	m.	°	°		A	A	A	
February	15	9 6		6	W	1.5	1		To red at top, to violet at base.
	16	8 18	18		E	0.5			
	16	8 10	57.5		W		Slight		
	17	8 50		7	E	2			
	17	9 15	78.5		W	0.5			
	18	8 50	61		W	Slight			
	19	8 48	57.5		E		Slight		
	20	9 15		13.5	E	1			
	20	9 3	7		W	1.5			
	20	8 48	17		W	2.5			At top
	21	8 33	49.5		E		1		
	21	8 33	74.5		W		Slight		At base
	22	8 23		18.5	E		Do		
	22	8 18		7	W	Slight			
	23	8 31		1	W	1			
	24	8 40	69		E		Slight		
	24	8 50		17	E	1.5			At top
	24	8 46	20		W	1.5			Do
	26	8 30	47		E	1.5			Do
	26	9 37		13	W		2		Do
	27	8 32	Axis				Slight		
	27	8 46	32.5		E	0.5			
	27	8 38		22.5	W	0.5			
	28	8 42	78.5		E	1.5			
	28	8 38	69		E		Slight		
	28	8 35	44.5		E		Do		
	28	8 45	60		W	Slight			
March	2	8 36	67		E	1			
	2	9 0		64	W		0.5		
	3	8 28	74.5		E	Slight			At top.
	3	8 45	17		E		0.5		At base
	3	8 35		6	W		1.5		
	4	8 30	70		E	Slight.			
	6	8 20		7	W		Slight		
	7	8 36	82		E	1			
	7	9 8	4.5		E	5			At top
	7	9 0		12	W	2			At base.
	8	9 0		64	W		Slight		
	9	8 52	54.5		W		Do		
	10	8 36		78.5	E	0.5			
	10	8 27	13.5		W	Slight			
	11	8 45	52.5		W		Slight		
	12	8 26	82		E		Do.		
	12	8 34	41		W		0.5		
	12	8 32		6	W	Slight			
	13	8 46	40.5		E	Do			
	13	8 47	19		E	Do			
	14	8 33	55		E				Slight
	14	8 27		9	E		0.5		
	14	8 36	7		W		Slight		
	14	8 42	10		W	2			
	15	8 49	Equator		E		2		
	15	8 49	4		E	0.5	2		To red at top, to violet at base.
	15	8 33	13		W			2	
	16	8 40		4	E			1.5	
	16	8 36		32.5	E		0.5		
	16	8 44	74.5		W	1	1.5		To red at top, to violet at base.
	17	8 22	83		E		Slight		
	17	8 32	6.5		E	0.5			At top.
	17	8 34		4.5	E				Slight
	18	8 23		73	W	Slight			
	18	8 38		2	W		Slight		At top
	19	8 15	46.5		E		Do		
	19	8 34		22	E	2			
	19	8 26		11	W		Slight		At top
	21	8 27	30		E	Slight			

Date	Hour LST		Latitude		Lamb.	Displacements			Remarks
			North	South		Red.	Violet	Both ways.	
1920.	H	M	°	'		A	A	A	
March	21	8 25	2		E	Slight			
	21	8 35	81.5		W		Slight		
	22	8 56	75.5		E		Do		
	22	8 55	58		E		Do.		
	23	9 15	10.5		E	1			
	24	9 10	42.5		E	1	1.5		To red at top ; to violet at base
	25	9 15	11		E		1.5		At top
	26	8 42	47.5		E		Slight		
	26	8 53		7	W	5	1		To red at top , to violet at base
	27	8 13	16.5		E			Slight	
	27	8 20		45.5	E		0.5		
	27	8 22		60.5	E	0.5			
	27	8 13		16	W			Slight	
	27	8 31		5	W	Slight	Slight		To red at base and top and to violet over the middle of prominence
	27	8 28	2.5		W	2	1		To red at top , to violet at base.
	28	8 38	69		E		1		
	28	8 40		4.5	W	3	2		To red at top , to violet at base.
	30	8 18	Axis		...		Slight		
	30	8 15	41		E	0.5			
	30	8 46	11.5		E	1.5			At top.
30	8 48		14.5	E	0.5	1.5		To red at base , to violet at top.	
30	8 26	9		W	0.5			At top.	
30	8 22	75.5		W		2		At top.	
April	1	9 0		8	E		0.5		
	2	9 6		6	E	Slight			
	5	8 46	10		W		Slight		
	5	8 40		11	E		Do.		At top.
	5	8 31	26		W		Do		
	5	8 30	47.5		W			0.5	
	6	8 31		5	E		2		
	6	8 27		50.5	E		2		
	6	8 38	33		W	Slight			
	7	8 35	82		E		0.5		
	7	8 55		5	E	2	1.5		To red at base ; to violet at top.
	7	9 3		27	E	1.5			At base.
	9	8 54		45.5	W		Slight		
	9	8 50	23		W			Slight	
	10	8 30		9.5	E		Slight		
	10	8 21		45.5	E	Slight			
	11	8 38	81.5		E		Slight		
11	9 8	6		E	2				
11	8 50	14		W	1	1.5		To red at top ; to violet at base.	
11	8 50	10		W		1.5		At base.	
11	8 42	58.5		W		Slight			
12	8 39	10		W	0.5				
13	8 8		41	W	Slight				
15	8 40	71		E		0.5		At base.	
16	8 50		43	W		0.5			
18	8 36	44.5		W		Slight			
26	8 52	54.5		W		0.5			
27	8 45		26	W	1.5	1		To red at top ; to violet at base.	
May	3	9 11		10	E	1.5			
	5	9 22		38	W		1		
	6	8 50	11.5		E		1		At base.
	7	8 33	65		E				Do.
	7	8 42	83		W		0.5		
	9	9 6	20.5		E	1.5			At base.
	9	9 10		21	E	2			
	9	8 56		2.5	W		0.5		At base.
	11	8 32	59		E	0.5			
	12	8 40	71		E	Slight			
	14	8 38	19		W		Do.		
15	8 54	8		E			Slight		
15	8 58	16		W	3				

Date	Hour I S T.		Latitude		Limb.	Displacements			Remarks
			North	South.		Red.	Violet.	Both ways.	
1920	h	m.	°	°		A	A	A	
May	16	8 40	13		W		1		At base
	16	8 35	17.5		W	2	1		
	16	8 32	52		W	1			
	17	8 14	10		E		Shght		At top
	17	8 8		11	W			Shght	
	21	9 24		11	W		Shght		
	24	8 15	48		E		1.5		
	28	8 28	38		E		Shght		
	29	8 38	13.5		E			Shght	
	30	8 40	22.5		E	2			At base
30	8 52	14.5		E	1.5			Do	
June	1	9 25	57		W	Shght			
	9	8 15	11		E		Shght		
	10	11 10	57		W	Shght			
	11	9 18		74	E	1			
	12	9 20		58	W		Shght		
	14	8 55		6	E	1.5	1		To red at base, to violet at top
	14	9 0		72	W	1			At base
	16	8 57		50	E		Shght		
	25	8 46	85.5		E		0.5		
	25	9 2	14		E	1.5			At base.
	25	9 15		62	E		1		
	25	9 15		82	E	1			At base
	25	9 15		82	E	2.5			At top
25	8 57		66	W		Shght			
26	8 18	35		E	Shght			At base.	
26	8 13	6		E	Do				
27	8 34	10		E	Do,				

The total number of displacements was 215, of which 3 were on the equator and the rest were distributed as follows.—

	Latitude	North.	South	
	1°—30°	52	53	
	31°—60°	41	15	
	61°—90°	39	12	
	Total	132	80	
East limb	...	...	...	108
West limb	...	...	...	105
Central meridian	...	...	...	2
	Total	...	...	215

One hundred and eleven were towards the red, and the same number towards the violet; these include 19 occasions when the displacements were seen to the red and to the violet in different parts of the same prominence. Twelve displacements were both ways simultaneously.

Reversals and displacements on the disc.

One hundred and sixty-four bright reversals of the $H\alpha$ line, 56 dark reversals of the D_3 line and 110 displacements of the $H\alpha$ line were recorded during the half-year all of which represent an increase on the latter half of 1919. Their distribution is shown below.—

	North.	South.	East	West
Bright reversals of $H\alpha$	88	76	82	82
Dark reversals of D_3	24	32	25	31
Displacements of $H\alpha$	55	55	63	47

Seventy-nine of the displacements were towards the red, 28 towards the violet and 3 both ways simultaneously.

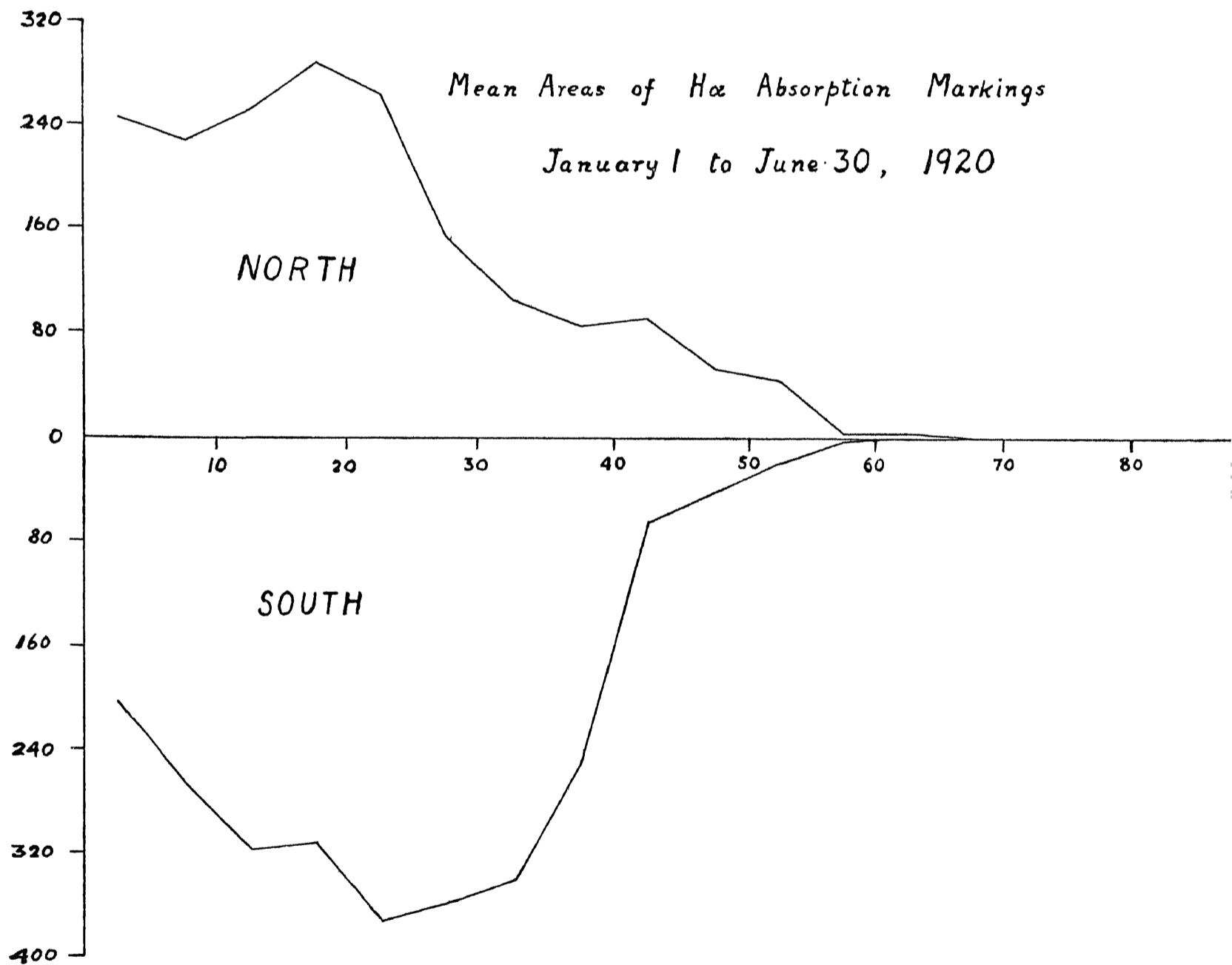
Prominences projected on the disc as absorption markings.

Photographs of the sun's disc in $H\alpha$ light were obtained on 154 days counted as 146 effective days. The mean daily areas in millionths of the sun's visible hemisphere, corrected for foreshortening, and the mean numbers are given below --

	Areas	Numbers
North	1820	118
South	2555	139
Total	4375	257

As in the case of prominences, absorption markings show an increase on the latter half of 1919; the increase is greater for the southern hemisphere than for the northern.

The distribution in latitude is represented in the accompanying diagram.



The activity is small in latitudes higher than 60° as in the case of prominences ; the maximum of activity near 20° has broadened in the southern hemisphere and narrowed in the northern compared with the distribution in the latter half of 1919.

There is now a preponderance of markings at the western limb in agreement with prominences at the limb, the percentage east being 48.28 for areas and 49.13 for numbers.

KODAIKANAL OBSERVATORY,
18th August 1920.

T. ROYDS,
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