

Prominences.—During 1940 there has been on the whole a decrease in prominence activity although prominence areas have remained nearly steady and the numbers show a slight increase over the previous year.

The mean daily areas and numbers of calcium prominences as derived from Kodaikanal photographs are as follows:—

				<i>Areas</i>		
				North	South	Total
1940	January to June	...	...	2.48	2.55	5.03 sq. mins.
	July to December	...	...	2.40	2.60	5.00 „
				<i>Numbers</i>		
				North	South	Total
1940	January to June	...	...	7.43	6.87	14.30
	July to December	...	...	7.47	7.07	14.54

Compared with the previous year, there has been practically no change in prominence areas, but the numbers show an increase of 7 per cent. The areas and numbers are equally distributed in the northern and southern hemispheres. The distribution of areas in latitude shows that there are two zones of maximum activity in the northern hemisphere at latitudes 15° and 35° and one in the southern hemisphere near latitude 20° . The distribution of numbers is nearly uniform from the equator to latitude 55° .

Thirty-three metallic prominences were observed during 1940 as against 59 in the previous year. Of these, 15 were in the northern hemisphere and 18 in the southern, and all of them were observed from the equator to latitude 33° . Displacements of the hydrogen line in the chromosphere and prominences observed during the year with the spectroscope numbered 204 as against 451 in 1939. Of these, 112 were towards the red, 85 towards the violet and 7 both ways simultaneously. The largest displacement noticed was 9 A. to violet.

Bright reversals of the $H\alpha$ line on the Sun's disc were observed with the spectroscope in the neighbourhood of sunspots on 744 occasions as against 963 in the previous year. The displacements observed in the neighbourhood of sunspots numbered 44 as against 64 during 1939. Of these, 29 were towards the red, 11 towards the violet and 4 both ways simultaneously. D_3 was observed as a dark line on 676 occasions as against 720 during the previous year.

The displacements observed in prominences with the spectroheliometer numbered 124 as against 282 in the previous year. Of these, 49 were in the northern hemisphere and 75 in the southern, and 57 were on the east limb and 67 on the west limb. Displacements to the red numbered 67 and those to the violet 57. The largest displacement in the prominences observed during the year was 6.4 A. to violet.

Eruptive prominences on the limb were photographed on February 26, March 8 and May 29. The prominence of March 8 rose to a height of about 10' and that of May 29 showed maximum displacements of 6.4 A. to violet and 2.8 A. to red.

The mean daily area of prominences projected on the disc as hydrogen absorption markings was 7912 millionths of the Sun's visible hemisphere as against 9735 in 1939, showing a decrease of about 19 per cent. In the first half of the year its distribution in latitude is similar to that of prominences at the limb, with the peaks very much pronounced. But in the second half of the year its distribution, especially in the northern hemisphere, is irregular with a marked peak near latitude 15° .

A very large absorption marking, the largest for a number of years, was photographed during the first week of April. It extended almost from the east to the west limb on April 5 and 6 and its area was about 14,400 millionths of the Sun's visible hemisphere. The marking disappeared on April 8.

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