SOLAR ACTIVITY (CONTD.)

Prominences, 1941.—During the year 1941 there has been a considerable decrease in prominence activity as shown both by areas and numbers.

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

	Areas			*Numbers*		
	North	South	Total	North	South	Total
1941 January to June ...	2·49	1·58	4·07 sq. mins.	7·27	5·88	13·15
July to December ...	1·94	1·59	3·53 „	6·96	5·39	12·25

There has been a decrease of 24 per cent. in areas and 11 per cent. in numbers when compared with the figures for the previous year. Both the areas and numbers show a preponderance in the northern hemisphere. The distribution of areas in latitude shows maximum activity between 20° and 45° in the northern hemisphere and 15° and 30° in the southern. The distribution of numbers is nearly uniform from the equator to latitude 50° in both the hemispheres.

Twenty-six metallic prominences were observed during the year as against 33 in the previous year. Of these, 11 were in the northern hemisphere and 15 in the southern and all of them were observed from the equator to latitude 35°. Displacements of the Hα line in the chromosphere and in prominences observed during the year with the spectroscope numbered 54 as against 204 in 1940. Of these, 26 were towards red and the same number to violet and 2 both ways simultaneously.

Three hundred and sixty-four bright reversals of the *H*α line on the Sun's disk in the neighbourhood of sunspots were observed with the spectroscope as against 744 in the previous year. The displacements observed in the neighbourhood of sunspots were 7 as against 44 during the previous year. Of these, 5 were towards the red and 2 towards red and violet simultaneously. D_3 was observed as a dark line on 276 occasions as against 676 in 1940.

The displacements observed in prominences with the spectrohelioscope were 65

as against 124 in the previous year. Of these 32 were in the northern hemisphere and 33 in the southern; 42 being on the east limb and 23 on the west. Displacements to the red numbered 37 and those to the violet were 28.

An eruptive prominence photographed on the west limb of the Sun on February 28 reached a maximum height of 10′ and had an area of nearly 11 square minutes.

The mean daily area of prominences projected on the disk as absorption markings (without foreshortening correction) was 3117 millionths of the Sun's visible hemisphere as against * 4480 in 1940, showing a decrease of 30 per cent. The distribution in latitude is nearly similar to that of prominences at the limb.

The largest absorption marking of the year, photographed on December 10, covered an area of about 4225 millionths of the Sun's visible hemisphere.

Prominences, 1942.—During the year 1942 there has been a further decrease in all forms of solar activity.

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

Areas

	North	South	Total
1942 January to June	1·79	1·88	3·67 sq. mins.
July to December	1·04	1·56	2·60 ,,

Numbers

	North	South	Total
1942 January to June	6·21	6·08	12·29
July to December	4·61	6·01	10·62

There has been a decrease of 16 per cent. in areas and 10 per cent. in numbers when compared with the figures for the previous year. Both the areas and numbers show a preponderance in the southern hemisphere. The distribution of areas in latitude shows maximum activity between 20° and 35° in both the hemispheres. The distribution of numbers is nearly uniform from equator to latitudes 40° and 50° in the northern and southern hemispheres respectively.

Twenty-six metallic prominences were observed during the year, being the same as in the previous year. Of these, 15 were in the northern hemisphere and 11 in the southern, and all of them were situated from equator to latitude 30°. Displacements of the $H\alpha$ line in the chromosphere and in prominences observed during the year with the spectroscope numbered 84 as against 54 in 1941. Of these, 41 were towards the red, 39 towards violet and 4 both ways simultaneously.

295 bright reversals of the $H\alpha$ line on the Sun's disk in the neighbourhood of sunspots were observed with the spectroscope, as against 364 in the previous year. The displacements observed in the neighbourhood of sunspots were 9 as against 7 during the previous year. Of these, 6 were towards the red and 3 towards red and violet simultaneously. D_3 was observed as a dark line on 185 occasions as against 276 in 1941.

The displacements observed in prominences with the spectrohelioscope were 210 as against 65 in the previous year. Of these, 104 were in the northern hemisphere and 106 in the southern, 107 being on the east limb and 103 on the west. Displacements to red numbered 119 and those to violet 91. The largest displacements observed were 5·5 A. to red and 5·5 A. to violet in an eruptive prominence on March 7.

An eruptive prominence photographed on May 1 on the east limb of the Sun reached a maximum height of nearly 8′·5.

The mean daily area of prominences projected on the disk as absorption markings

(without foreshortening correction *) was 2888 millionths of the Sun's visible hemisphere as against 3117 in 1941, showing a decrease of 7 per cent. The distribution of areas in latitude shows maximum activity between equator to latitude 20° in both hemispheres.

The one absorption marking worth noting was that photographed on February 2 which covered an area of about 5160 millionths of the Sun's visible hemisphere, stretching to a length of nearly 150° in both the hemispheres. A. L. NARAYAN