ANNUAL REPORT OF THE KODAIKANAL OBSERVATORY FOR THE YEAR 1948.

The report of the Kodaikanal Observatory for the year 1948, which has been published recently, shows that systematic observations with photoheliograph, prominence spectroscope, spectrohelioscope and spectroheliographs were carried out satisfactorily throughout the year. Direct photographs of the Sun on a scale of 8″ to the Sun's diameter were obtained on 305 days and disk spectroheliograms in H alpha and K lines were secured on 274 days. In all 466 observations of the heights of prominences were measured—325 in H_α, D_3 and $H\beta$ lines, 99 in H_α and D_3 lines and the rest in H_α line only. The heights of 325 prominences measured in H_α,

D_3 and H_β lines were compared with the corresponding heights obtained from the K– prominence spectro-heliograms. The mean heights obtained were 53".6 in C_a, 48".1 in H_α, 43".1 in D_3 and 38".9 in H_β.

The number of new sunspot groups observed during the different months of year, their distribution in the two hemispheres and the mean daily numbers are given in the following table :—

Month		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Number of new groups.	N.	16	11	10	16	14	14	13	12	11	16	17	17	167
	S.	19	22	14	20	15	13	20	19	16	14	6	17	195
Total ..		35	33	24	36	29	27	33	31	27	30	23	34	362
Mean daily No. ..		7·7	5·6	4 2	9·7	6·9	8·1	7·4	10·0	6·5	6·3	5 6	7·0	7·1

Compared with 1947 the total number of new spot groups shows a decrease of 15·7 % ; the mean daily number also shows a decrease of 12·3 %. There were two days on which the sun's disc was free from spots. The approximate mean latitude of the sunspot groups for the whole year was 14° as against 17° of the previous year.

The mean daily areas and numbers of prominences as derived from the spectro-heliograms taken at Kodaikanal during the year are :—

	Areas (in sqr. minutes).		
	North.	South.	Total.
January - June	2·07	1·75	3·82
July—December	2·08	2·09	4 17

	Numbers.		
	North.	South.	Total.
January—June	6·46	5·80	12·26
July—December	6·30	6·04	12·34

As compared with the previous year's values, the prominence area showed a general decrease while the numbers remained practically unchanged. In the northern hemisphere, the decrease in area was 9%, while it was 31% in the southern hemisphere. The distribution of areas in latitude showed pronounced maxima in the zones 75° – 80°N and 70°—75°S, with secondary maxima at 25°—30° in both hemispheres. In the distribution of numbers, the principal peaks of activity were in the zone 70°—75° in both the hemispheres, with secondary peaks at 20°—25°. The zone of maximum activity indicated a poleward drift in both the hemispheres as compared to last year.

Nineteen metallic prominences were observed during the year with the prominence spectroscope. Ten of these were in the northern hemisphere and 9 in the southern hemisphere ; 11 were seen on the west limb and the rest on the east limb.

Doppler displacements of the H_α line in prominences were observed on 135 occasions with the prominence spectroscope. On 44 of these occasions, the displacements were towards red, in 42 cases towards violet and in the remaining in both the directions.

Observations made with the spectrohelioscope in $H\alpha$ line showed Doppler displacements in prominences and dark markings on 76 occasions, of which 19 were seen towards red, 25 towords violet and the rest both ways.

The mean daily area of $H\alpha$ absorption markings (without applying foreshortening correction) was 3382 millionths of the sun's visible hemisphere, representing a decrease of 27 per cent as compared with the figure for the previous year. The latitudinal distribution in area showed maximum activity in the zones 20° – 30° N and 10° – 35° S with peaks and 25° – 30° N and 30° – 35° S.

During the year one exceptionally intense solar flare was observed on 19th March. One of the brightest comet was observed during November. (A report about this comet has been published in the first issue of this journal).

The Kodaikanal Observatory also carried out satisfactorily its programmes of meteorological and seismic observations during the year. It started taking systematic observations of sky and seeing conditions every night from 1st October. The magnetic observations, which were discontinued in 1923, were resumed from 1st November 1948.

The Observatory also carried out its research programmes and exchanged heliograms, flocculus plates and flocculus photograps with other observatories. Quarterly statements of chrommospheric eruptions observed were sent to Meudon and Greenwich Observatories.

The Assistant Director of the Observatory joined the Survey party which was sent to the Western Himalayas to explore suitable sites for a High Altitude Observatory in June 1948.