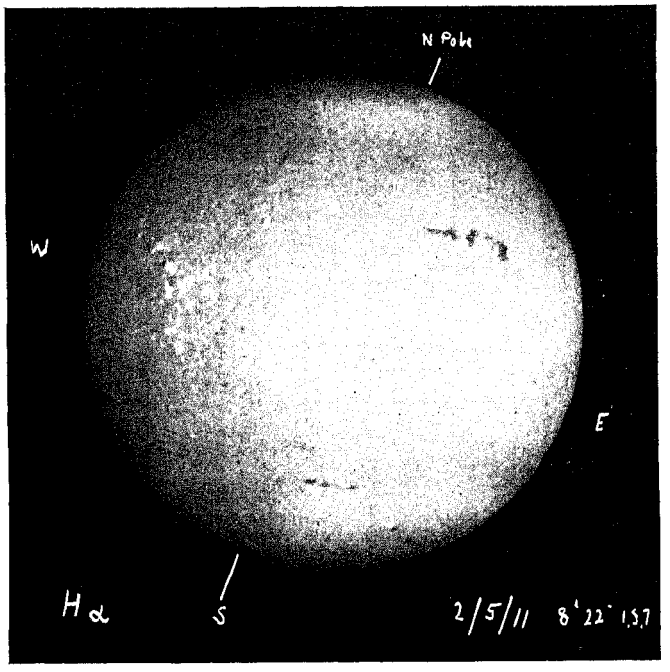
Photographs of the sun taken at the Kodaikanal Observatory,
and kindly communicated to the Society
by the Director.



The solar disc photographed in the H $_{\alpha}$ line on 2nd May 1911
h. m.
8-22 1st and under number 8.

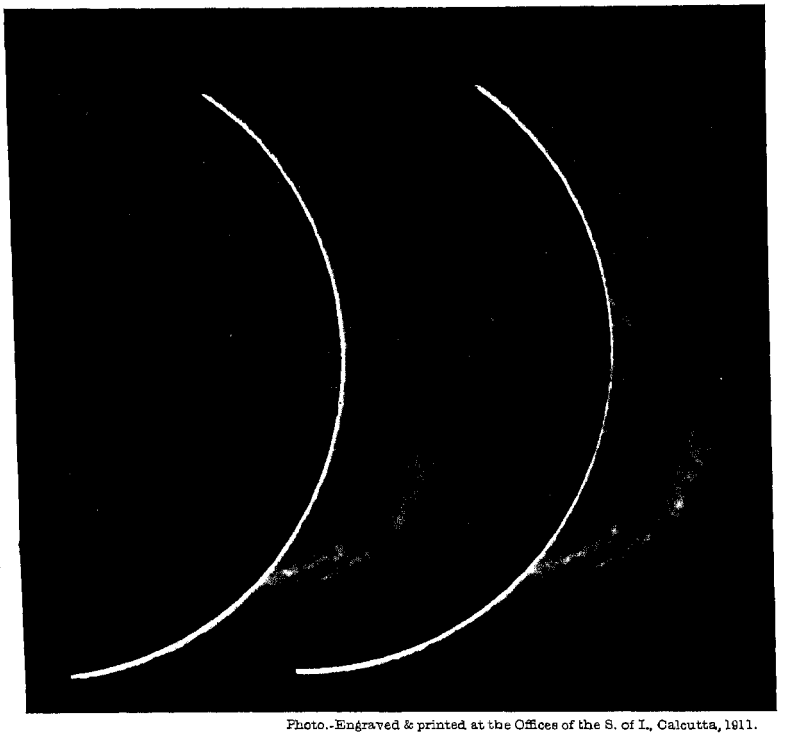


Photo.-Engraved & printed at the Offices of the S. of I., Calcutta, 1911.

h. m. *h. m.*
Solar Prominences taken in the K line at 10-9 and 10-12 on the

(*i*) Alais in France.
(*ii*) Colddel Bokkenveldt, South Africa.
(*iii*) Grazac, France.
(*iv*) Qudarch, Caucasia, Russia.
(*v*) Kaba, Hungary.
(*vi*) Mighie, Russia.
(*vii*) Nagaya, Argentine.
(*viii*) Orgeuil, France.

Solar Prominences.

BY DR. E. P. HARRISON.

After describing the photographs of the Sun sent from Kodaikanal, Dr. Harrison said :—

The phenomenon of absorption of light which is responsible for the appearance of the dark prominences may be illustrated by analogy in some such way as this. Suppose a bridge of boats stretched across a river. Suppose also a series of waves to be travelling down the river towards the bridge of boats. Those boats whose natural vibration period corresponds to any particular set of waves among the advancing group, will be set into more violent oscillation than their neighbours by the passage of the waves. Only those waves which have a period nearly equal to a boat's period will affect the oscillation in this way. Waves of lengths other than the particular length suitable to the boats' own period will pass on past the bridge of boats. The set which *is* suitable, however, will give up their energy to the swaying boats, increasing the oscillations of the latter and themselves becoming wiped out. Let us apply this process by analogy to the light waves which come from the lower part of the hot prominences in the sun. A series of waves of the same type emerge from the neighbourhood of these heated gases; as these light waves pass outwards towards our telescopes, they, in many cases, encounter masses of somewhat cooler gas in the outer portions of the prominences. The light waves give up their energy to the atoms of this cooler gas of the same type and consequently become wiped out, and we perceive the outline of a *dark* prominence. This process is analogous to the behaviour of the water waves and the bridge of boats. The water waves represent the light waves from the hot base of the prominences, while the bridge of boats represents the atoms of somewhat cooler gas above, in the outer portion.