ROYAL ASTRONOMICAL SOCIETY OF CANADA
Standing Committee on Observational Activities
Programme for Solar Eclipse of July 20, 1963

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Basic Observation Programme
Section C. Visual Observations

This section of the basic observation programme covers visual observations made during the total phase either with the naked eye or with telescopic aid and with the emphasis on drawings or sketches, supplemented by verbal descriptions of detail seen.

Dark Adaptation. It is common knowledge that our ability to see dim light is proportional to the length of time that the "rod" cells of the eye's retina remain unstimulated. To see fine detail during the brief period of totality, the eye must first become dark adapted, a process that takes at least twenty minutes. The gradual darkening of the sky during the partial phase is not sufficient to produce the desired effect, and the following methods of dark adaptation are suggested.

(1) The observer is blindfolded during the approach of totality. This rather drastic measure deprives him of the thrill of seeing the sudden transition from partial to total phase when the corona shines forth in all its beauty. True, he can watch the end of totality and the subsequent partial phase but it is not as spectacular as the approach.

(2) The observer can wear dark red goggles during the approach of totality, for it has been found that the rods are practically unstimulated by the red end of the spectrum. This method allows activity during the period of adaptation. Care must still be taken to provide adequate protection for the eyes when looking directly at the sun.

(3) The observer can wear a black patch over his "observing" eye, watching the approach of totality with the other and removing the patch only after the beginning of totality. This method is particularly suitable for those making telescopic observations for most observers invariably use the same eye at the eyepiece.

1. CORONA

Regardless of the number of photographs taken, visual observations of the solar corona will be useful, for the human eye, if properly dark adapted, can see fine detail that is difficult to photograph without over-exposing other areas. The problem, of course, in making visual observations is to record faithfully the detail that one sees - the shape and extent of the corona, the variations in intensity - and to do this in a very limited period of time. The observer should not trust to memory but should complete his drawing from actual observation during the period of totality. This is a tall order and it is suggested that the observer practise beforehand, making drawings from projected slides of the solar corona. For the sake of uniformity it is suggested that a two inch circle represent the sun's disk. A verbal description, recorded immediately after totality, should supplement the drawing. As mentioned in Bulletin No. 4, at sun-spot minimum it is expected that the corona will have long equatorial streamers and short polar plumes. Observations can be made with the naked eye or with a telescope. The report form should give details of equipment used. The telescopic observer has the disadvantage that, since no filters are used during totality, he must be ready to stop a few seconds before the end of totality to avoid the possibility of injury to his eyes.

2. SOLAR PROMINENCES

Drawings of solar prominences are made in the same manner as those of the corona except that telescopic aid is definitely required. The same care must be taken in recording accurately all detail seen and there is the same problem in getting this done in a limited time. In fact, if there are numerous prominences, it may be impossible to record them all. The report should then indicate which areas of the drawing are incomplete. For solar prominences, it is especially important that the drawing be properly oriented.

3. AURORA

It is suspected that daytime aurora might be visible during a total eclipse but one has not yet been observed. In the search for aurora only naked eye observations are required. Since this is a minimum eclipse the likelihood of auroral activity is small but nevertheless possible. It is suggested that this observation be assigned to an experienced aurora observer who would complete a regular aurora report form. He must, of course, be dark adapted before totality.

4. STARS VISIBLE DURING TOTALITY

The purpose of this observation is to determine the extent to which the sky is darkened by the eclipse and here again the need for dark adaptation is obvious. The observer is provided with a chart showing stars down to third magnitude in the vicinity of the sun. Those visible during totality are noted by the observer. He also plots the position of any fainter stars he can see. No optical aid should be used and it is preferable to have more than one observer since some have keener eyesight than others. For the July 20th eclipse, Venus and Mercury will be in the vicinity of the sun. If the observer is fortunate enough to spot a comet, then he should concentrate on it!

5. EFFECTS ON BIRDS AND ANIMAL LIFE

As the sky darkens, the observer notes the effect this has on birds and animals who mistake the eclipse for nightfall. The ability to recognize various species will, of course, be helpful. The observer should record any unusual happenings, noting the time of each, such as the first cock crow after totality.

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Eclipse Photography In Bulletin No. 4, we said that the Kodak booklet on "Solar Eclipse Photography for the Amateur" was out of print. We have now been advised by Eastman Kodak that they are preparing a revised edition which should be available by the end of this month. As there may be some delay in getting our supply, it might be quicker for you to get a copy from your nearest Kodak dealer.

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