

Amateur's Aid Desired In Study of Eclipse Features

**Weather Conditions, Temperature Changes and Data
On Exact Edge of Path Should Be Recorded If Possible**

TO THE AMATEUR astronomer who wants to aid his professional brethren will come an opportunity to be of service with the total eclipse of the sun. While many of the world's greatest astronomers will be located in the eclipse track, equipped with instruments large and small, there are many ways in which the amateur can assist, either with very simple apparatus, or with no equipment at all. But whether or not one makes any such experiments, the eclipse is interesting enough in itself. It is a majestic spectacle that, once seen, can never be forgotten. And even snapshots, made with a small camera, will provide one with a permanent record of the event.

One particularly interesting way to make a photograph is to include all the partial phases in the same picture as the total eclipse. To do this, the camera,

which can be an ordinary kodak, should be set on some firm support, preferably a regular camera tripod. Begin the series at about 2:20, Eastern Standard Time, as the partial eclipse begins. Set the camera so that, as you look down in the finder, the sun is in the upper right hand corner. In other words, the sun will photograph in the upper left hand corner of the finished picture, since the finder reverses right for left. Thus, as the sun moves to the right and downwards, it will stay in the range of the lens.

Of course, a picture taken right into the sun would be vastly overexposed, if the usual exposures were given. Stop the lens down to its smallest diaphragm opening, and give the shortest exposure the shutter provides. Then you will probably get a fairly well exposed image. If you have time, it might be well to devote a couple of films to a trial of different speeds some days before the eclipse, by taking actual pictures of the sun, and then having them developed to see what you get. A color filter will help reduce the light if the exposure is still too long. Better still is a neutral filter which one of the photographic companies (Eastman Kodak Co.) is providing for the purpose. When this is over the lens, a correctly exposed image of the sun is obtained in 1/25 of a second with the stop F. 16.

Start at 2.15 P. M.

With the camera set and the shutter and lens adjusted, take a shot of the sun at 2:15 p. m., Eastern Standard Time, just before the eclipse starts. Then, without moving the camera, take another five minutes later, and so on, at regular intervals, as the dark disc of the moon covers the sun. The sun moves its own diameter in two minutes, so each image will be clear of its predecessor. If you find that it is moving out of the finder, reset the camera, being sure to change the film. As totality approaches, about 3:30, open the diaphragm all the way, and try to catch the Baily's beads, the spots of light which appear around the moon at the beginning of totality. During totality, re-

move the filter, and photograph the corona, with an exposure of several seconds. If you wish, you might try several exposures, with times varying from a half second to five or ten seconds, changing the film between each. When totality is over, try to catch the Baily's beads when they reappear, and continue the five-minute exposure as the moon uncovers the sun.

Such a picture will probably be of more value as a personal memento than a scientific record, for the images of the sun will be very small.

Ways in which the amateur can assist the professional include observations of the exact edge of the moon's shadow. If you are near the edge of the eclipse path, astronomers would like to know the answer to these questions:

Questions for Amateurs

Was the bright disc of the sun hidden at any time? If so, for how many seconds?

Did you see the corona, consisting of white streamers around the moon?

If it was dark where you were, did you notice any place in the distance where it still seemed to be sunlit, to the west, if you were on the western edge of the path, or to the east, if you were near the eastern side?

If you reported any of these things, what was your exact location at the time?

You can also make observations of the shadow bands, the bands of light and shade that sometimes appear before and after an eclipse. If you see them, you should report how they were moving, their direction, the distance between them, and how long you saw them. A large white area, such as a bed sheet, is the best surface on which to see them. You might even try to photograph them, though so far this has not been accomplished. A record of them with a motion picture camera would be especially valuable.

Another simple observation is of the temperature changes. With a good thermometer, placed in the shade, take temperature readings at regular intervals as the eclipse advances, perhaps every five minutes, except the period which includes totality, and then every minute, noticing especially the lowest temperature achieved. And if you get any of these records, don't keep them to yourself. Send them to Science Service, 2101 Constitution Ave., Washington, D. C., and the most effective use possible will be made of them.

Science News Letter, July 30, 1932

S. A. Mitchell's ● ECLIPSES OF THE SUN

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