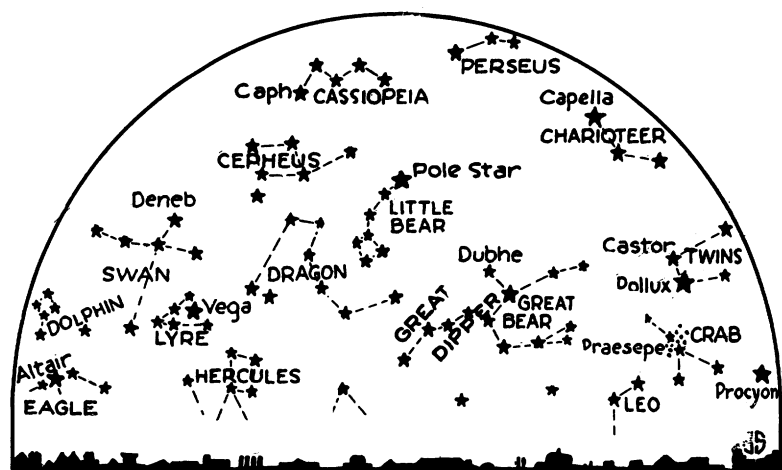
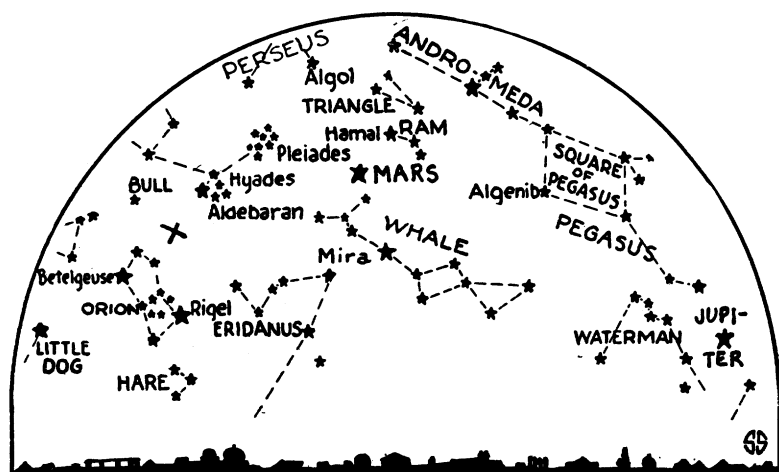


# Now is Your Chance to Photograph Meteors



WEST NORTH EAST



EAST SOUTH WEST

Hold this map in front of you and face north or south. The upper or lower map (depending on which way you face) shows the sky as it appears at 8.30 p. m., local time, on December 1, at 7.30 p. m. on the 15th or at 6.30 p. m. on the 31st. The cross on the lower map near the Bull shows the place to point your camera in order to photograph the Geminid meteors on December 10 to 13.

By JAMES STOKLEY

With the coming of December there comes the best opportunity for the amateur star gazer who is also a photographer to combine his hobbies for the purpose of making meteor photographs, which will not only be of interest to him, but may even be of scientific value to astronomers. This can be done during the meteor shower that occurs about December 10 to 13, known to astronomers as the Geminids, because they seem to come from a point in the constellation of Gemini, the twins.

The Geminid meteors are not as bright as some other showers, when seen with the eye, but they seem to affect the photographic plate more. At the Harvard College Observatory, in Cambridge, Mass., where the skies are photographed every clear night, many meteors have been recorded.

Dr. Willard J. Fisher has been searching over the old files of negatives of the heavens, and has found 281 meteor trails already, but only the Geminids pile up on any one plate. The rest are scattered among various other showers.

Unfortunately, December 10 to 13 is apt to be a time of cloudy weather, and as not even the best telescope can see through the clouds, bad weather has made it impossible to obtain photographs in a number of years. And again, when it is clear, and the moon is full, there is a general illumination of the entire sky which hinders the observer, because long photographic exposures cannot be made without fogging the plates.

This month, however, the moon will be practically out of the way, for it will be at first quarter on the twelfth, which means that it sets at midnight, so that late in the evening the meteors

may be photographed, if weather permits. As it may be clear in one part of the country when it is cloudy elsewhere, Dr. Fisher requests that as many people as possible attempt the photography of the meteors, on any of these nights, from the 10th to 12th.

"For this purpose," says Dr. Fisher, "fast lenses are recommended; lenses slower than f.6 (about the speed of a good "anastigmat" lens) may have luck, but the prospects of success diminish rapidly with small stops. The meteors are not frequent early in the night, and no one is urged to begin before 10 or 11 p. m., local time. Most observers should point their cameras at some definite altitude and fix them there. Exactly overhead, at the zenith, is the most convenient, though the Harvard Geminid trails have been caught mostly between Taurus and Orion. (This point is indicated by a cross in the accompanying map.)

"The camera should be firmly fixed, so as not to be shaken by the wind. The diaphragm should be opened wide, and the focusing should be careful. Set the shutter on T ("Time"), and open at a moment noted by the watch, which should be recorded immediately. Let the exposure go on for an hour, then close the shutter, noting the time; change the plate or film, open at a noted moment, expose for an hour, close at a noted moment, and so on until dawn."

Even if you are not enthusiastic enough to continue this until dawn, as Dr. Fisher suggests, you might at least try it for one or two hours, and you may catch something. Develop the films or plates, or have them developed, in the ordinary manner, and then examine them for curved trails made by stars, or straight trails made by meteors. "If you send the developed films or plates to the Harvard Observatory," says Dr. Fisher, "they will be carefully searched. Address 'Meteors, Harvard College Observatory, Cambridge, Mass.,' and send a letter stating the place where the exposures were made, the region of the sky aimed at, and the time of opening and closing the shutter for each negative." In this way, you may help astronomers learn something more about these fiery bullets that are continually being shot at the earth from outer space.

An interesting object now visible can be seen in the southern sky. That is Mira, "The Wonderful," known sci-

(Just turn the page)

# Have You A Few Friends

who do not know the  
SCIENCE NEWS-LETTER?

As a subscriber to the most unusual scientific magazine of the hour you are, we hope, enthusiastic. We know you appreciate obtaining scientific news months before it can possibly be printed in book form.

The tastes of your friends harmonize with your own—send us the names of several men and women who will be interested in obtaining scientific NEWS.

We shall be glad to send, free to your intimates, a copy of the weekly SCIENCE NEWS-LETTER.

(Kindly state whether you wish your name mentioned in the sending of sample copies.)

M \_\_\_\_\_

M \_\_\_\_\_

M \_\_\_\_\_

**SCIENCE SERVICE**  
21st and B Sts.  
Washington, D. C.

## Photographing Meteors

(Continued from Page 149)

entifically as Omicron Ceti, in the constellation of Cetus, the whale, shown on the accompanying map. If we watch this star regularly, we will find out why it is called "The Wonderful." In August, 1596, an amateur astronomer by the name of Fabricius saw in Cetus a star that he had not noticed before, but it soon faded from view. He supposed that it was a nova, a "new star" such as occasionally flashes out from previous obscurity. Though it did reappear, unlike a nova, it was not until many years later, as a result of observations made between 1648 and 1662, that the Polish astronomer Hevelius solved the mystery, and showed that the star was a variable—one that more or less regularly becomes alternately bright and faint. Since that time many variable stars have been discovered and are regularly watched by a large band of amateur astronomers, but Mira remains perhaps the most famous.

When near its maximum brightness, which occurred in November, Mira can be seen with the unaided eye, but when it is at the minimum, it can only be seen with a large telescope, for then it is of the tenth magnitude, far beyond the reach of even the keenest eye. Next May, when, however, it will be too near the sun to be seen anyhow, it will be at minimum, and then next October, eleven months after the last maximum, it will be at maximum, again. As the period in which it varies is about a month shorter than a year, about every decade the times of greatest brightness occur when it is too near the sun to be seen, and the minima occur when it is in a more favorable position. As a result, several years at a time will go by, during which it is never visible except through a large telescope.

Among the planets, Mars is still prominent in the evening sky, while Jupiter can be seen low in the west. On the fifteenth, Mars is directly south at 8:34 p. m., local time. It has already receded considerably from the earth since it was closest in October, for on this date it is 60,920,000 miles from us. But it is still well placed for observation, and astronomers are now busy watching it, as they will for many months.

On December 22 at 9:34 a. m., eastern standard time, is the winter solstice, when the sun enters the zodiacal sign of Capricornus, and winter officially commences.

Science News-Letter, December 4, 1926

(150)

# Tune In On Our Science Radio Talks!

In cooperation with leading broadcasting stations, Science Service presents a weekly radio talk on

**"SCIENCE NEWS OF  
THE WEEK"**

These are given from  
the following stations:

- KUOK University of Arkansas, Fayetteville, Ark.
- WEAO Ohio State University, Columbus, Ohio.
- WCAD St. Lawrence Univ., Canton, N. Y.
- WDAE Tampa Daily Times, Tampa, Fla.
- WDBO Rollins College, Winter Park, Fla.
- WEBW Beloit College, Beloit, Wisc.
- WEEI Edison Elect. & Illuminating Co., Boston, Mass. (In cooperation with the Boston Transcript.)
- WGBX University of Maine, Orono, Me.
- WHAS The Courier-Journal, Louisville, Ky.
- WHAZ Rensselaer Poly. Inst., Troy, N. Y.
- WMAL The Washington Radio Forum, Washington, D. C.
- WMAQ Chicago Daily News, Chicago, Ill.
- WOO John Wanamaker, Philadelphia, Pa.
- WRAV Antioch College, Yellow Springs, Ohio.

Watch the program of the station nearest you to see what time these talks are given. If no station near you gives them, write us, suggesting any station that you think might give them.

**SCIENCE SERVICE**  
21st & B Sts.  
Washington, D. C.