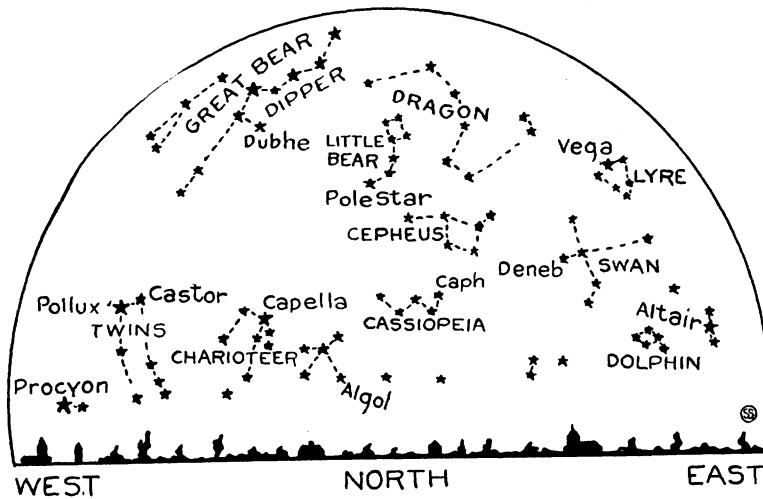


June Brings Evening Planets

Astronomy



By JAMES STOKLEY

There is one event that June always brings that is welcome to most people. This is the beginning of summer, with which come the year's longest day. But June, 1928, also has some other features. Early in the month the planet Mercury, which comparatively few people have ever observed, was seen in the evening sky; Saturn, the ringed planet, is an all-night visitor for practically the entire month. Then there is also an eclipse of the sun.

The eclipse is a poor one. In the first place, it is not total, but merely partial; at no place on the earth's surface does the opaque moon completely cover the lunar disc. It is not even almost total, but from the vicinity of the Shetland Islands, south of Cape Horn, early in the afternoon of June 17, one edge of the sun will be covered for a few minutes. The sun, then, will look like a round cracker from which a timid bite has been taken. Such an eclipse is completely without scientific importance, and no astronomers will travel to see it.

However, with such important objects as the sun and the moon, the astronomers have to keep continual track of their wanderings, and so even if the eclipse does not amount to anything, they have to figure it out, just as if it were a total eclipse of long duration. One interesting thing about this eclipse is that it is the second in a month.

On May 19, the sun was just barely covered by the moon, and there was a very short total eclipse, also only visible in the extreme south. Since then the moon has

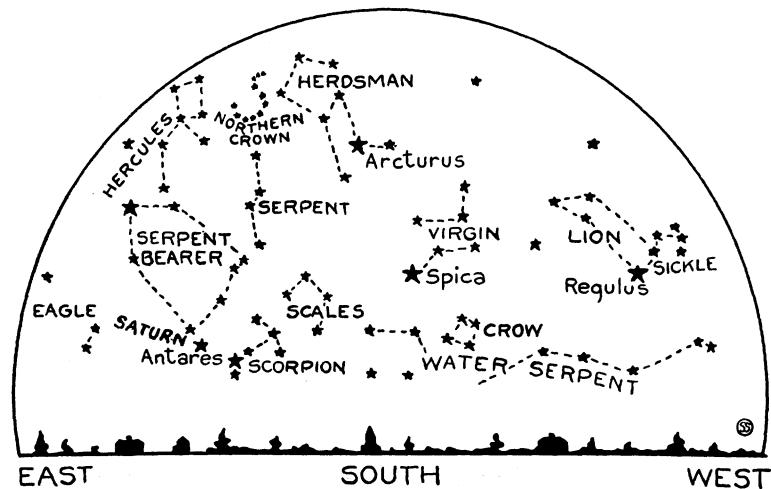
made a complete circuit around the earth, and on the 17th of June, once again comes partly in front of the sun. On its way around the earth, the moon also gets in the earth's shadow, thus producing a lunar eclipse, on June 3. This is total, which means that the moon is completely engulfed in the earth's shadow. But it happens that the eclipse occurs at about 7:00 a. m., when, for most American observers, the moon has set in the west, and so we shall see nothing of it.

This combination of three eclipses, one of the moon, and two of the sun, within a single month, is not common, though it has happened as recently as 1924, and will occur again in 1931. Unfortunately for astronomers who are anxious for the fleeting moments of a total eclipse to make observations impossible at other times, the solar eclipses at

such times are never satisfactory ones. If the shadow of the moon fully hits the earth, by the time it comes around again the earth will be missed completely.

There is something else that the sun does this month, and that astronomers have taken as a convenient milepost with which to begin the season of summer. That happens at 11.07 a. m., Eastern Standard Time, on Thursday, June 21. Then the sun reaches its farthest north position of the year. At noon that day, at a point on the tropic of cancer, the sun is directly overhead. At such places a curious effect is observed in that vertical posts or poles cast no shadows, an effect that some of the ancient Aztecs in Mexico used to time one of their important religious festivals. They referred to it as "the sun god descending to earth."

We of countries farther north than the tropic of cancer never observe the sun god to thus "come to earth." We do, however, at that time, the summer solstice, as the event is called, have the longest period of sunshine of the year. "What is so rare as a day in June," sang the poet, but on the 21st we will have over fifty per cent. more daylight than we will have on December 22, when the year's shortest day will arrive. On the longest day the sun, at latitude 40 degrees north, will rise at 4:31 a. m., and will set at 7:32 p. m., local time. (For daylight saving time, it would rise at 5:31 and set at 8:32.) There are thus more than 15 hours of daylight on the day of the summer solstice. (*Turn to next page*)



HOLD THESE MAPS IN FRONT OF YOU on a June evening. The upper will then show the stars you see when you face north, and the lower those visible when you face south

June Evening Skies—Continued

These figures refer to the actual setting of the sun itself. Of course, twilight continues for several hours after sunset, and begins several hours before sunrise. This is an effect of the earth's atmosphere. While the sun is below the horizon for a person on the surface of the earth, the air above him may still be illuminated. If we lived on an airless planet, Mercury, for example, this would not happen. Darkness would come immediately at sunset, and the day would come exactly at sunrise. As it is, with evening twilight lasting at the time of the solstice until 9:35 p. m., as the astronomer reckons it, and morning twilight beginning at 2:27 a. m., there are only about 4 hours and 52 minute of real darkness on the night of the 21st of the month.

Farther north, as in the British Isles, darkness does not come at all at this time of year, but morning twilight begins before the evening twilight has ended. And then if one goes still farther north, to North Cape, for instance, the sun does not set at all, and one sees the strange

phenomenon of the midnight sun. On the other hand, at 40 degrees south latitude, the parallel of which passes through New Zealand, they are now enjoying their winter months. There, at our summer solstice, they have the winter solstice, and the times of sunrise and sunset are just about the same as they will be for us on the 22nd of next December, as given above.

Mercury, the nearest of all planets to the sun, is visible at the beginning of June, but it is never conspicuous, and seldom visible at all in the evening sky. The result is that even some great astronomers have rarely if ever seen it, while most laymen have never observed it. This is because Mercury is so close to the sun, around which it revolves once in 88 days at a distance of 36 million miles. Mercury always closely accompanies the sun, the two rising and setting at nearly the same time. But on certain occasions it reaches its distance farthest to the east of the sun, and then may set as much as an hour or two later. This is called greatest eastern elongation, and

happens on the 2nd of June. At this time, and for a few days afterwards, Mercury should be seen as a bright star, low in the west just after sunset. But Mercury quickly, as becomes the messenger of the gods, passes on, and by the 29th of June he is between the sun and the earth, and well on his way to becoming a morning star, visible in the morning twilight.

The other planetary decoration of the June evening sky is Saturn. It is in the constellation of the Scorpion. Saturn is seen during the evening in the southeast, close by and to the left of the red star Antares, the eye of the Scorpion. Saturn itself shines even more brightly, but is of a yellowish color. With a small telescope, magnifying perhaps 50 diameters or more, the circular appendages, or "rings" of Saturn are revealed.

As it has been for the last few months, the June evening sky is occupied by an unusually large number of bright stars. Almost directly overhead is Arcturus, in the constellation of Bootes, the Charioteer. Arcturus is one of the brightest stars in the heavens, for of all the stars that we can see, it is only exceeded in brilliance by Sirius, Vega and Capella. Sirius was visible in the winter sky. It has now departed, but Vega can be seen high in the eastern sky, in the constellation of Lyra, the Lyre. Capella is low in the northwest in Arcturus, hardly visible because it is so near the horizon, though during the past few months it was better placed.

Below and to the right of Vega is Altair, in the constellation of Aquila, the eagle. Pollux, one of the two twins, Gemini, is low in the northwest not far from Capella. Spica, in Virgo, the Virgin, is in the southwest, while to the west, at the end of the handle of the "Sickle" in Leo, the lion, is Regulus. The ruddy Antares, in Scorpius, is in the southern sky, near Saturn, as was mentioned before. The "Northern Cross" in Cygnus, the Swan, is in the eastern sky, with the cross lying on its side, and with the bright Deneb at the northern end.

Science News-Letter, June 2, 1928

The human body contains copper, zinc, tin, manganese, iron and aluminum, but none of these metals except iron has any known usefulness to the body.



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