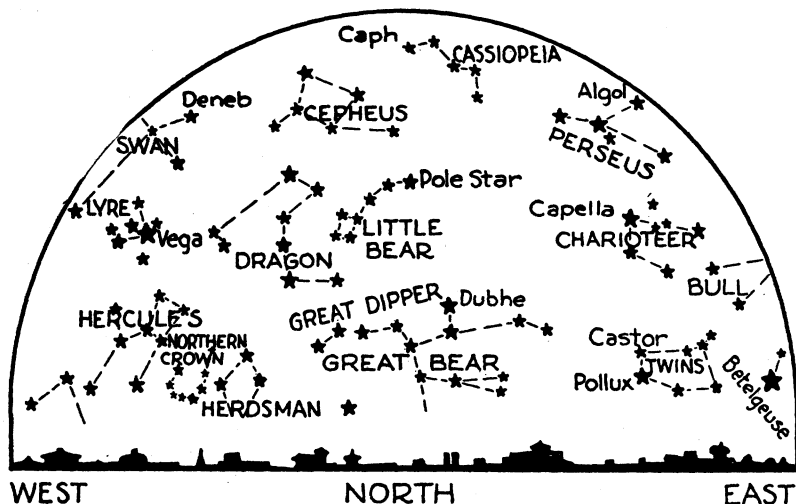


Mercury Crosses Sun and Meteors Visit Earth



By JAMES STOKLEY

November, this year, brings with it two things of interest to the astronomer, but unfortunately one of them will not be visible to the United States. This is a transit of the planet Mercury, which occurs on November 8. Mercury is the nearest of all the planets to the sun—only thirty-six million miles away. The earth is 93 million miles from the sun. Like the earth, however, Mercury revolves around the parent of the solar system, but instead of taking 365¼ days to make its journey it does it in 88 days.

During October, Mercury as seen from the earth was at its greatest distance east of the sun. Then it was visible with difficulty in the evening twilight. Since then it has continued in its orbit, until on the 8th of the month it will be directly between the sun and the earth. This is called a transit of Mercury, and is a rather rare occurrence. Such transits always occur either in May or November. Though at times they may happen only seven years apart, they are usually at thirteen-year intervals.

However, for any one place on the surface of the earth, a transit is not so common. In the case of the one this month, the planet will have crossed the disc of the sun before sunrise in the United States. In Asia it will be seen to enter the sun's disc and to emerge from it; in Europe only the emergence will be seen. The last transit of Mercury with which the United States was favored occurred on May 7, 1924. The next will not come until November 14, 1953. While a transit is not so important as an eclipse and no expedi-

tions will be sent from other countries to Asia to observe it. There are a number of observatories within the region in which it will be visible. They will observe it and from the data they obtain more accurate figures on the motion of Mercury can be secured.

Two Meteor Showers Coming

The second interesting event that November brings us is a pair of meteor showers. On practically any clear night throughout the year a person who watches the sky carefully for an hour or so will be rewarded by the sight of one or more "shooting stars." But some months of the year are especially favored. Meteors, for that is what astronomers call shooting stars, frequently occur in swarms or showers. One well known shower occurred in April and another in August, but two happen in November. The November showers are known as the Leonid

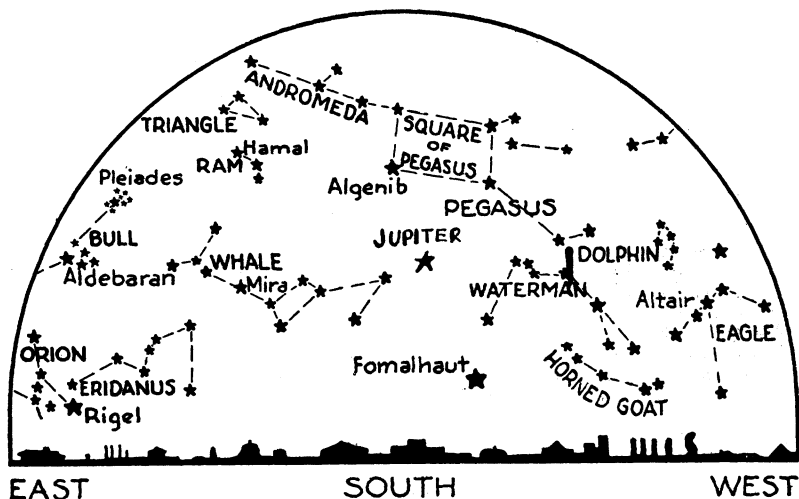
and the Andromedids. On the night of November 14, and the later that night the better, watch the eastern sky. After a few minutes watching you will doubtless be rewarded by seeing some swift streaks of light which seem to come from a point below the horizon. If you wait until the early morning hours, the familiar sickle of stars in Leo will rise in the east. This well-known group has the shape of a question mark. Then you may see meteors going in all directions, seeming to radiate from a point in the sickle. If it were not for the light of the moon they would be even more numerous.

A week later, on the nights of November 20 to 23, the second of the November showers appears. This one will be more easily observed. These meteors will seem to radiate from a point in the constellation of Andromeda. It is from this constellation that they get their name. The Andromeda meteors are of a different character from that of the Leonids. The former seem to move more slowly and their paths are shorter. Also at this time the moon will arise so late that the entire night will be dark and the meteors will shine against a jet-black background.

Meteor Paths Parallel

In the case of both of these showers the shooting stars seem to emerge from one definite point in the sky. This is only an optical illusion. In reality these meteors are moving in parallel paths. Imagine a railroad where there are several rows of tracks together. Imagine also that you are on the signal bridge above

(Just turn the page)



HOLD THESE MAPS IN FRONT OF YOU and face north or south. They will thus show the stars as they appear to you in the sky

November Skies

(Continued from page 293)

the tracks. As you look into the distance the rails seem to come together at a point miles away. Now imagine several trains coming toward you on adjoining tracks. Far in the distance, they will appear as a single spot and then as they come closer they appear to get bigger. The individual trains can be distinguished and they too will seem to radiate from a point in the distance.

The case of the meteors is very similar to this. The earth is the signal bridge from which we observe their approach. Like the trains they are moving along together. As they move through outside space they are invisible because they shine with no light of their own. But when they get to the gaseous layer or atmosphere which surrounds the earth, friction generates a tremendous amount of heat and they glow brilliantly. As they hit the outer layer of the atmosphere they correspond to the train in the far distance. They come closer to us and so seem to spread out. But like the trains they are moving in parallel routes. If we were high over the railroad track in an aeroplane, we would see that they were not radiating from a point at all. Likewise if we could get high enough above the earth and see the meteors approaching we would see that they too are parallel.

These meteors are, like the planets, members of the solar system. Myriads of them hover around the sun together. Their paths and the path of the earth cross at one point. This happens to be the part of the earth's orbit that it occupies in November, and so as we go through them in

that month they become evident, although they were really there all the time. In some amusement parks there are places where a constant gush of air is blown out at such a height as to move the hat of the unwary passerby. Like the meteors, the air is moving across the path of the victim before he gets there, but without his knowledge. When he gets to the part of his orbit that happens to cross that of the air blast he feels the effect. Occasionally the meteors are much more numerous than at other times. In 1901, for example, as many as 800 were seen in a single hour by an experienced observer. But it was in the years 1833 and 1866 that the most remarkable display occurred. In the latter year they were so numerous that the effect was described as that of a huge celestial umbrella with luminous ribs; millions of them must have been visible to a single observer within a few hours.

As these great exhibitions were thirty-three years apart, it was supposed that in 1899 another great shower would be seen.

However, November 14, 1899, came and went with scarcely a meteor being seen. The next two years did see an unusually large number of them, but nothing to compare with the displays of 1833 and 1866. Apparently at some part of the meteor swarm they are gathered together into huge clumps. In 1833 and 1866 one of the densest of these happened to cross the orbit of the earth. In 1899, however, the clump probably missed us, much to the disappointment of thousands of people who had been led to expect some celestial fireworks.

Perhaps Pieces of Comets

The Andromeda meteors are also especially numerous during some years. It was 1852, 1885, and 1898 that they were especially well seen. The Andromedids, however, are of particular interest because their path seems to be the same as that of Biela's Comet. This comet reappeared several times and then completely vanished. But after it had ceased to appear as a comet, the meteor displays began. As their orbit was so close to that of the comet, it is pretty strong circumstantial evidence that in the meteor swarm we have the remnants of a comet which has gone to pieces.

Jupiter Only Evening Planet

Jupiter is the only planet that is left in the evening sky. Its position is indicated on the map. Venus,

however, shines brilliantly in the east before sunrise. At the end of the month it will be joined there by Mercury. The stars are now assuming their winter aspect. Taurus, the Bull, is in the eastern sky, red Aldebaran, the bull's eye, serves as a good means of identifying it. To the northeast is the pair of heavenly twins, Castor and Pollux. Above them is Auriga, the Charioteer, with the brilliant Capella. To the southwest we have the great square of Pegasus. All these and others are shown on the map.

Science News-Letter, November 5, 1927

The best time to seed a lawn is in late summer.

The cloudiness and mists of the British climate are a handicap in the motion-picture industry there.

During the past 25 years, only 37 countries have taken an agricultural census. This represents only about 30 per cent. of the world's population.

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