

ASTRONOMY

Venus and Jupiter Prominent

An annular eclipse of the sun will occur early in April, a month that will have two planets prominent in the evening skies.

By JAMES STOKLEY

► SHINING FOR THREE hours after sunset, the planet Venus now dominates the western evening sky. More than 60 times as bright as a typical star of the first magnitude, it appears long before any other star or planet, so there is no doubt of its identity.

Hardly has Venus descended below the western horizon, before another planet, only slightly less brilliant, rises in the southeast. This is Jupiter, a quarter as bright as Venus, and still overpowering any star.

At the beginning of April Jupiter rises, in the constellation of Scorpius, the scorpion, a little more than an hour after Venus sets. On April 12 there is no interval between the setting of one and the rising of the other. The new actor appears on the celestial stage just as the old one is exiting. By the end of April it will be possible to see both in the sky at the same time.

Mars Receding

A third planet is also visible. This is Mars, still receding from the earth. At the middle of April its distance is about 161,000,000 miles, and because of this it has faded from its brilliance of a few months ago. In fact, it is just on the borderline between first and second magnitude.

The accompanying maps show the appearance of the skies about 10:00 p.m., your own kind of standard time, at the beginning of April, an hour earlier at the middle of the month and two hours earlier at the end. Venus is seen near the horizon, toward the northwest, in Taurus, the bull, and to the right of the bright star Aldebaran. Mars is higher, in Gemini, the twins, in which there is the first-magnitude star called Pollux. Castor, the other conspicuous star in this group, ranks only in the second magnitude. Jupiter does not show on the maps, but Scorpius, in which it stands, is just below Libra, the scales, which is shown near the southeastern horizon.

Directly west, and near the horizon, is Orion, the hunter, which was so conspicuous in the south on winter evenings. Here is seen the star called Betelgeuse. Toward the left, in Canis Major, the great dog, is brilliant Sirius. Above this is the lesser dog, Canis Minor, with Procyon.

High in the south these evenings is Leo, the lion. The right hand part of this group, which is supposed to form the animal's head and shoulder, make a smaller group called the sickle. The first magnitude star Regulus is at the end of the handle. Deneb-

ola is a second magnitude star in the lion's tail.

Next to Leo, toward the left and a little lower, is Virgo, the virgin, for which Spica is the brightest star. And above Virgo, in Bootes, the bear-driver, is Arcturus. Part of Bootes is shown on the map of the southern sky, and part on the northern, where it comes close to the end of the handle of the Big Dipper, which is not a constellation in its own right, but a part of Ursa Major, the great bear.

The dipper is now high in the northern sky, in about its best evening position of the year. In the bowl of the dipper are two stars best known as the pointers, because a line drawn through them leads to Polaris, the pole star, which is now below them. Polaris is at the end of the handle of the little dipper, and this, in turn, is part of Ursa Minor, the lesser bear.

Low in the sky, toward the north, is Perseus, the champion; Cassiopeia, the queen, and Cepheus, the king. Also, low in the northeast, the map shows the star Vega, all that is visible of Lyra, the lyre. But later at night it climbs higher into the sky, as it will in the evenings later in the year. By midsummer, in fact, Vega is almost directly overhead in the evenings.

In addition to Venus, Mars and Jupiter, there are two other planets that can sometimes be seen with the naked eye.

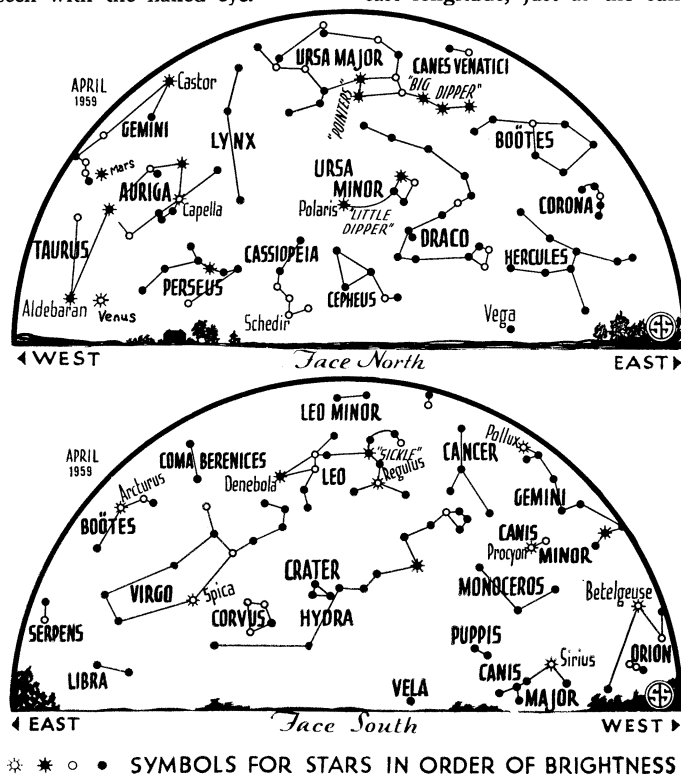
One of these is Saturn, which is now in Sagittarius, the archer. It comes up about 1:00 a.m. at the first of April and about 11:00 p.m. at the end. Mercury is the other. On April 26 it will be farthest west of the sun, and will rise a little ahead of that body, becoming visible low in the east at dawn for a few days. This, however, will not be a very favorable time to see this planet.

April also brings an eclipse of the sun, the first of two this year, but this one will not be visible from the United States, or any part of North or South America. It will, however, be seen over a large area, including Australia and New Zealand, and much of the Indian Ocean and the southwestern Pacific.

Solar Eclipse Due

This is what is called an annular eclipse. Any eclipse of the sun occurs when the moon comes in front of it, and hides it, more or less, from view. But the distance of the moon varies each month, from perhaps 222,000 to 252,000 miles. When farthest, it does not appear as large as when it is nearer. In fact, it is then not large enough to cover the sun's disc completely. Then, even though it may come precisely in front of the sun, a ring-shaped area of the solar surface can be seen around the black disc of the moon. This is called the annulus, from the Latin word for ring, and so we have the name annular eclipse.

From a ship in the Indian Ocean, at about 42 degrees south latitude, 72 degrees east longitude, just as the sun was rising



in the east on April 8, the beginning of this annular eclipse could be seen.

The path over which the ring may be seen goes northeastward to Perth, Australia; then traverses that continent to Cape Melville on the northeastern coast; crosses the Pacific Ocean, and Guadalcanal and San Cristobal in the Solomon Islands. The path comes to an end as the sun is setting, at about ten degrees south and 168 degrees west, which is in the southwestern Pacific Ocean.

The eclipse will be at its maximum where the path crosses northern Australia; there the annulus will be visible for seven minutes 26 seconds.

Over a much larger area, including the rest of Australia, New Zealand, part of Antarctica, Borneo, the Celebes and New Guinea, there will be a partial eclipse. In this region the moon will partially cover the sun, with a larger portion hidden the nearer the place is to the path of the annular eclipse.

A curious feature of this eclipse is that it ends the day before it starts!

This is because, in progressing from west to east, it crosses the International Date Line, at 180 degrees longitude, the place where the day changes. In the Indian Ocean, as in Australia, it will be Wednesday, April 8. But after it crosses the Date Line, which it does in the late afternoon, it will be in a region of the earth where it is still Tuesday, April 7.

Few Eclipse Observations

Although astronomers often travel long distances to observe eclipses of the sun, as they did last October to Danger Island, also in the South Pacific, where a total eclipse was to be visible, few if any will make much effort to observe the Australian eclipse.

Most of the observations made by eclipse expeditions require that the sun be completely covered. Even the narrow ring of the solar disc left visible at an annular eclipse prevents such work. However, it is likely that many amateur astronomers, and even some professionals, who are located near the path of visibility, will take advantage of their opportunity to see a rare and interesting phenomenon, even though it is of relatively little scientific value.

Celestial Time Table for April

April EST	
7 10:29 p.m.	New moon, annular eclipse.
10 6:00 p.m.	Moon farthest, distance 252,300 miles.
11 1:24 a.m.	Moon passes Venus.
14 5:31 a.m.	Moon passes Mars.
16 2:32 a.m.	Moon in first quarter.
23 12:13 a.m.	Full moon.
1:00 p.m.	Moon nearest, distance 222,100 miles.
24 6:59 p.m.	Moon passes Jupiter.
26 5:00 a.m.	Mercury farthest west of sun, visible low in east before sunrise around this date.
9:00 a.m.	Neptune opposite sun and nearest earth; distance 2,724,000,000 miles.
27 8:33 a.m.	Moon passes Saturn.
29 3:38 p.m.	Moon in last quarter.

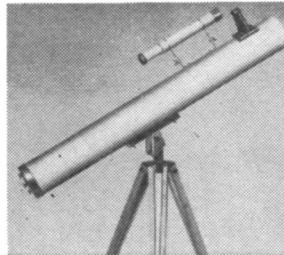
Subtract one hour for CST, two hours for MST, and three for PST.

Science News Letter, March 28, 1959

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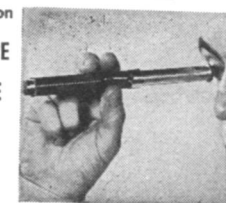
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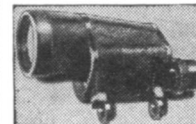
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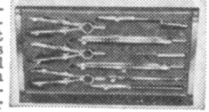
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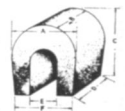
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