

ASTRONOMY

# Venus Now "Evening Star"

This planet exceeds by about 110 times the brilliance of the bright star Aldebaran, and becomes visible before any other star or planet comes into view.

By JAMES STOKLEY

► EXCEPT for the moon, the most brilliant object to be seen in the sky on April evenings is the planet Venus, which is now the "evening star." Its position is shown on the accompanying maps, which give the appearance of the sky about 10:00 p.m. at the beginning of the month and an hour earlier at the middle. Venus is in the constellation of Taurus, the bull, almost directly west, and a little north of the bright star Aldebaran. However, the planet exceeds the star in brilliance about 110 times, so it is visible long before any other star or planet comes into view.

Though brightest, Venus is not the only planet seen at present in the evening. Two others are high in the south, to the right of the hook-shaped group of stars in the constellation of Leo, the lion, known as the sickle. The one to the left, reddish in color, is Mars, which was so bright when it approached the earth in February. Now it is receding from our part of the solar system and is rapidly becoming fainter, so in April it is just about equal to Saturn. The latter, by the way, is just across the border, in the next-door constellation of Cancer, the crab.

## Stars of First Magnitude

Several stars of the first magnitude appear in the April evening skies. Aldebaran, in Taurus, has already been mentioned. Another is Regulus, which is in Leo, at the end of the handle of the sickle. To the southwest there is Sirius, in Canis Major, the greater dog, near the horizon. Directly west is Orion, the warrior, with Betelgeuse, and above him we find Gemini, the twins, with first-magnitude Pollux. Below and to the left one sees Canis Minor, the lesser dog, with Procyon.

Across the southeastern sky there spreads the large constellation of Virgo, the virgin, of which Spica is the brightest star. Just above it is Bootes, the bear-driver, in which Arcturus shines. Low in the northeast Vega, in Lyra, the lyre, is just beginning to appear. Though this also is of the first magnitude, it does

not seem so. Because it is so low, the earth's atmosphere absorbs much of its light, and it looks much fainter. Later in the night, however, or later in the year during the evening, Vega is seen at full brilliance high overhead.

The big dipper, in the north, is now in its best position of the year. This familiar group is part of Ursa Major, the great bear. Below it, as indicated by the "pointers," is Polaris, the pole star, part of the little dipper, which in turn, is part of Ursa Minor, the lesser bear.

## Jupiter Brighter than Mars

Another planet, Jupiter, rises in the east in the constellation of Sagittarius, the archer, about midnight. It is about nine times as bright as Mars or Saturn, though much fainter than Venus.

If you have been watching the skies attentively during the last few months, you recall that late last fall Venus first appeared in the western evening twilight, shining brightly there but setting soon after the sun. Since then she has been setting later and later, and all the time was increasing in brightness. On April 14 the planet will be farthest east, and will remain in the sky for about four hours after the sun has departed. After that it will start approaching the sun again, and by the end of June will be gone from the evening sky completely. During July, however, one will see it in the east, just before sunrise, and it will shine, as the "morning star," dur-

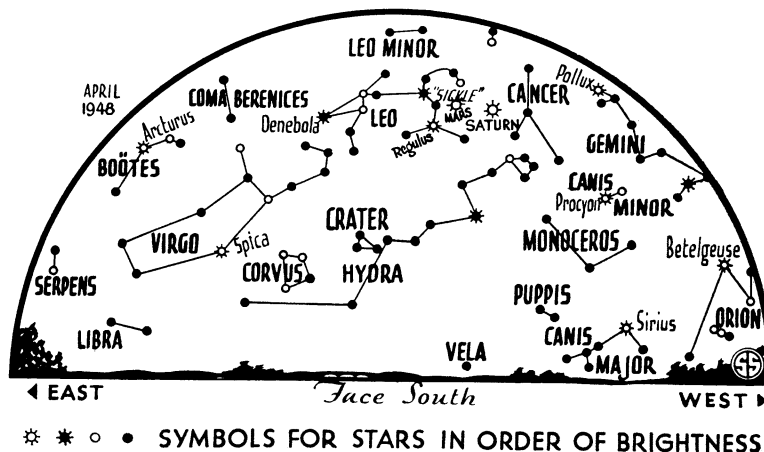
ing the rest of the year. On Sept. 3 it will be at the greatest distance west of the sun, and will then rise longest before sunrise.

After that Venus will again draw toward the sun, though much more slowly, and a year from now it will be completely out of sight. But in the summer and autumn of 1949 it will repeat its behavior of recent months, again coming into brilliant view in the evening.

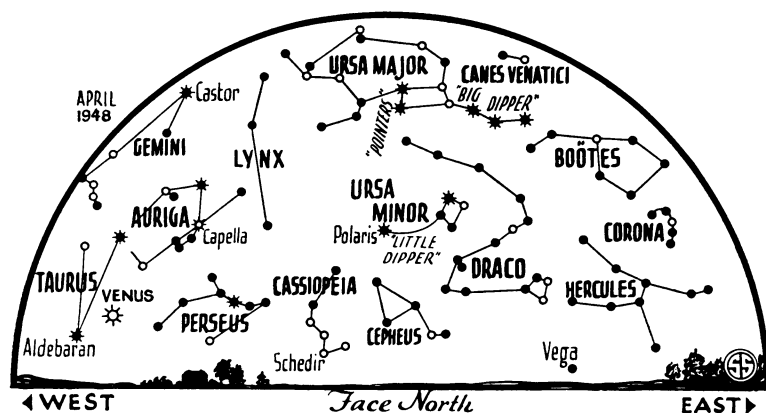
The reason for this is that Venus moves around the sun in an orbit that is smaller than that of earth. Whereas our average distance from the sun is about 93,000,000 miles, that of Venus is only 67,200,000 miles. It goes around the sun once in 225 days, where we take 365. When Venus, earth and sun are in line we say that Venus is in conjunction with the sun, calling it inferior when the planet is on this side of the sun and superior when it is on the farther side. It will be in inferior conjunction on June 24, and superior conjunction April 16, 1949.

## Venus Having Change in Phase

After it passes behind the sun, it swings to the east of that body, and then remains in the western sky after sunset, as at present. It sets latest when, as on April 14, it reaches greatest distance from the sun in the sky. At the same time, as shown by a telescope, it is undergoing a change in phase, just like the moon. Like all the planets, Venus has no light of its own, but shines by reflected sunlight. When out beyond the sun, the entire sunlit hemisphere is visible and we can see it in full phase. Then, as it swings away



◀ EAST Face South WEST ▶  
✱ \* ○ • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS



from the sun and towards us, more and more of the sunlit hemisphere is turning away, so it reaches a "half-moon" phase and then a crescent.

Unlike the moon, however, as it becomes a crescent it comes closer to earth, and thus appears bigger in the sky. This makes it brighter, even though we cannot see as much of the illuminated part as before. The brightest time of all comes when it is a crescent similar to that of the moon five days after it is new. It will be that way on May 18.

One reason that Venus is so bright is that it is constantly covered with clouds, which reflect from their tops about 50% of the sunlight falling on them. In contrast, the moon, of which we can see the true surface, reflects only about 7%. Because of this constant layer of clouds, we cannot tell by observation what the surface of Venus looks like. It has not been possible to tell exactly how long the day of Venus is—that is, how long it takes to turn on its axis. That it is about 30 of our days seems the most reasonable estimate at present.

Since it has clouds, Venus obviously has an atmosphere and studies made with the spectroscope, attached to large

telescopes, have given us some notion of its constitution. It contains no appreciable oxygen, or water vapor, but a great deal of carbon dioxide can be detected above the clouds. Since this gas is heavier than our air, where it is present in about three parts in 10,000, it is probably even denser on Venus below the clouds, so that life such as ours would probably be suffocated there. Thus, science fiction writers to the contrary notwithstanding, it seems very unlikely that there is any life on Venus.

#### Time Table for April

April EST	
1	5:25 a. m. Moon in last quarter
	6:00 a. m. Neptune nearest, distance 2,721,000,000 miles
4	1:00 a. m. Moon farthest, 251,800 miles
9	8:16 a. m. New moon
13	3:09 a. m. Moon passes Venus
14	11:00 p. m. Venus farthest east of sun
16	2:42 p. m. Moon in first quarter
17	8:40 p. m. Moon passes Saturn
18	4:50 a. m. Moon passes Mars
19	8:00 p. m. Moon nearest, 228,000 miles
23	8:28 a. m. Full moon (a very slight partial eclipse of the moon will be visible at this time from the extreme western and northwestern parts of North America and much of the Pacific Ocean, Asia and Australia).
27	12:57 p. m. Moon passes Jupiter
30	11:48 p. m. Moon in last quarter

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

Science News Letter, March 27, 1948

#### MEDICINE

## Surgery Aids Mentally Ill

➤ A NEW brain operation which has restored 20 out of 24 helplessly sick mental patients to health was announced at a meeting at the New York Academy of Medicine.

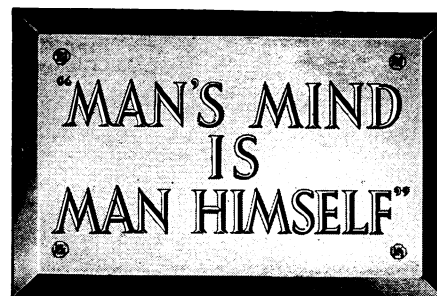
The operation consists in cutting away certain areas of the frontal lobes of the brain. It is done for patients who are hopelessly depressed and show symptoms such as anxiety, obsessions, compulsions, and marked emotional tension.

A team of 100 psychiatrists, surgeons, psychologists and other medical scien-

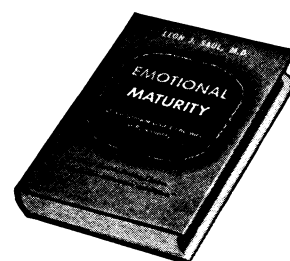
tists worked to develop the new operation. They are associated with Columbia University College of Physicians and Surgeons in New York, the New Jersey State Hospital at Greystone Park, and the New Jersey State Department of Institutions and Agencies at Trenton. Because they feel that the results were due to their work as a team, they refuse to reveal any of their names.

Of the 24 patients operated on, 11 have left the hospital and are back at home and 10 are back at work.

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