

## ASTRONOMY

# Venus Becomes More Prominent

Venus will be seen in the evening sky during the month of April and will increase in prominence during the spring, summer and autumn, James Stokley reports.

► DURING MARCH Venus began to appear briefly in the evening sky after sunset, thus ending a period with no prominent evening planets. But in April Venus draws farther to the east of the sun, thus remaining visible after sunset in the west for a longer time. In fact, by the end of April it reaches a position so that it can be shown on the accompanying maps.

These depict the sky as it appears about 10 p.m., your own kind of standard time, at the first of April, an hour earlier at the middle, and two hours earlier at the end.

At the beginning of April Venus sets about an hour and three-quarters after the sun, before twilight is entirely over. However, it is so brilliant (about minus 3.3 on the astronomer's magnitude scale) that you can see it easily even when the sky is still quite bright. Four weeks after that Venus sets more than an hour later in time—or about half an hour longer after sunset. Its position now is shown on the map of the northern sky, in the constellation of Taurus, the bull, near the western point of the horizon.

During the rest of spring, summer and early autumn, Venus will continue to increase in prominence in the evening sky.

## Study Stars to the South

If you want to get acquainted with the stars of April evenings, a good place to start is high in the south with the constellation of Leo, the lion. At the right-hand end of the group are six stars that form the shape of a sickle, as indicated on the southern sky map. At the bottom, i.e., at the end of the handle, is the first-magnitude star, Regulus. The blade of the sickle, by the way, used to be considered as forming the lion's head. Denebola, a star of the second magnitude, which is at the left-hand end of the constellation, marked the tail.

Extending from just below Denebola, downward to the left, you can see the constellation of Virgo, the virgin. Its brightest star, another of the first magnitude, is Spica. Above Virgo stands Bootes, with brilliant Arcturus, which is about two and three-quarters as bright as Regulus.

A few constellations that were conspicuous in the south on winter evenings can still be seen in the west. Some are on the northern map, some on the southern. One of these is Taurus, the bull, in which Venus now appears. The star Aldebaran is near the planet and, although it is another first-magnitude star, it appears considerably fainter because it is so low in the sky. Its light is absorbed by the greater thickness of our atmosphere through which it has to travel.

Above Taurus, to the right, you will see

Auriga, the charioteer, with Capella. To the left are the twins, Gemini. In this figure stands a well-known first-magnitude star called Pollux, and one of the second, which is Castor, the other twin. Obviously, they are not identical, since they differ in brilliance; Pollux is nearly half again as bright as Castor.

To the left of Taurus is Orion, the warrior, shown on the southern map. Betelgeuse lies above the three stars that form Orion's belt. Farther left is Sirius, the dog-star, part of Canis Major, the great dog. The lesser dog, Canis Minor, is higher in the sky, near Gemini. In it is the star Procyon.

Ursa Major, the great bear, shines high in the northern sky, and in it is the familiar great dipper. The pointers are the two stars in the bowl of the dipper which, followed downward, lead to Polaris, the pole star. This is at the end of the handle of the little dipper, which is part of Ursa Minor, the lesser bear.

April's most spectacular display of planets appears in the early morning sky, a little before sunrise. At the beginning of April, about two and a half hours ahead of the sun (i.e., around 3:15 a.m.), Saturn rises, in the constellation of Capricornus, the sea-goat. Its magnitude is 0.9, equal to a bright

first magnitude star. It is dimmed, of course, by atmospheric absorption, when it first appears above the horizon.

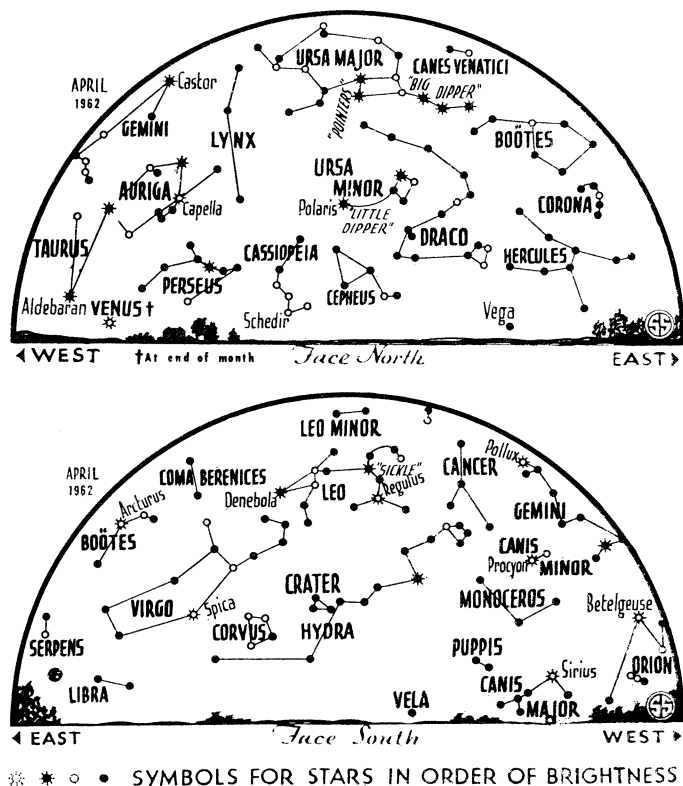
Jupiter follows, about an hour later. It is more than 2.5 times as bright as Saturn—brighter, in fact, than any other planet except Venus. And about half an hour after that, when morning twilight has already started, Mars appears. Somewhat fainter than Saturn, it will be harder to locate. At the end of April Mars will rise about an hour and a quarter ahead of the sun, Jupiter nearly 2.5 hours ahead and Saturn more than 3.5 hours ahead; then they will be even more conspicuous.

## Largest Constellation Is Faint

On earth, the biggest land area is not necessarily the most important. Similarly in the sky, the largest constellation is not the most prominent. In fact, the largest is now visible in its entirety in our southern sky, but you will have to make a special effort to locate it. This is Hydra, the water-snake. The head is between Regulus and Procyon. The end of the tail is below Spica.

Sizes of constellations are measured in the unit called a square degree, i.e., a square one degree on a side. There are 90 degrees from the horizon to the zenith. And the apparent diameter of the full moon is half a degree; thus the side of our unit square is equal to two lunar diameters. Hydra covers about 1,303 square degrees in the sky, more than any other constellation.

Virgo, also visible these evenings, ranks



second in area, with 1,294 square degrees, and the third is Ursa Major, with 1,280 square degrees. Fourth is Cetus, the whale, which is not now visible, with 1,231, and the fifth is Hercules, now visible in the northeast, with 1,225. Leo ranks 12th among the 89 constellations in the whole sky, with 947 degrees; Bootes 13th, with 907; and Auriga 21st, with 657. Orion is in 25th place, with 594 and Canis Major 43rd, with only 380 square degrees.

Crater, the cup, which is resting on Hydra, is in 53rd place, with 282. Near the end of the tail, just to the right of Spica, is a quadrilateral of stars marking Corvus, the crow. Its area of 184 square degrees puts it in 71st place.

The smallest of the constellations is one that we cannot see from most parts of the United States, but is one of the best known of all in the skies visible from the Southern Hemisphere. This is Crux, the southern cross. It is in 89th place, with an area of only 68 square degrees.

### Celestial Time Table for April

APRIL	EST	
1	6:00 p.m.	Moon passes Jupiter
2	6:00 p.m.	Moon passes Mars
3	4:00 p.m.	Moon nearest, distance 222,800 miles
4	2:45 p.m.	New moon
5	5:00 p.m.	Moon passes Venus
11	2:51 p.m.	Moon in first quarter
16	2:00 a.m.	Moon farthest, distance 252,100 miles
19	7:34 p.m.	Full moon
27	8:00 a.m.	Moon in last quarter
4	4:00 p.m.	Moon passes Saturn
29	10:00 a.m.	Moon passes Jupiter

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

### Know the Sky to Watch Satellites

These star maps showing the positions of stars and planets can help you locate satellites when they flash briefly across the sky. Familiarity with the constellations and their relative positions makes locating artificial moons much easier whenever they are visible from your area.

• Science News Letter, 81:186 March 24, 1962

### GENERAL SCIENCE

## Engineering Student Percentage Drops Again

► THE PERCENTAGE of college freshmen enrolled in engineering has dropped for the third year in a row.

Statistics released by the U.S. Office of Education show that the percentage has steadily declined from 8.2% of the total fall enrollment in 1959 to 7.3% in 1960, and reaching the low point of 6.6% last fall. Total freshmen engineering enrollment last fall was about 67,600.

Another sobering statistic was the drop in the number of engineering degrees for the third successive year. The only bright light in the survey was the rise in enrollment among graduate engineers.

The importance of the statistics was underlined by a recent National Science Foundation study that showed how Russians are graduating about three times as many engineers as the United States.

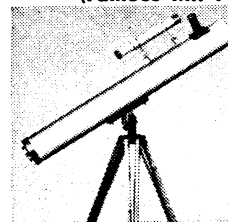
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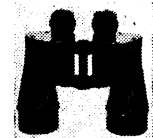
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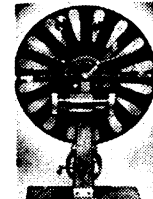
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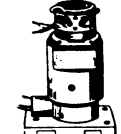


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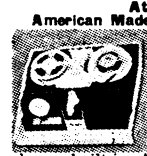
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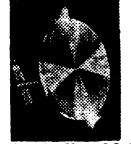
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