

ASTRONOMY

# Four Planets Appear in Sky

Jupiter and Saturn continue to shine brightly in the September evening skies while Mars and Venus, just barely visible, appear low on the horizon.

By JAMES STOKLEY

► TWO BRIGHT PLANETS, splendid Jupiter and Saturn, shine in the September evening sky.

Their positions—and those of the stars as well—are shown on the accompanying maps as they appear about 11:00 p.m., your own kind of daylight saving time at the beginning of September. They will look the same way at 10:00 the middle of the month and at about 9:00 as it comes to an end.

Jupiter is the brighter of the two, about minus 2.4 on the astronomer's scale of magnitude, or brightness. It is in the constellation of Pisces, the fishes, and rises soon after sunset; after that it is visible through the rest of the night.

Saturn's magnitude is now about 0.6, which makes it a sixteenth as bright as Jupiter, and it is in Capricornus, the horned goat. It rises an hour or so before sunset, and is visible until a little before sunrise. Both planets, at the times for which the maps are drawn, are in the southern sky. Saturn is directly south; Jupiter farther east, i.e., to the left.

## Mars and Venus Appear

Two other planets are also in the evening sky but they are not easy to see. This is especially true of Venus, which is still so nearly in the same direction as the sun. It sets only a few minutes after sunset. And Mars, now quite faint because it is far away, sets in the west just about the time the sky is getting entirely dark.

Brightest star visible on September evenings is Vega, high in the western sky in Lyra, the lyre. Overhead is Cygnus, the swan, with brilliant Deneb. And high in the south, above and to the right of Saturn, you will see Aquila, the eagle, with the bright star called Altair.

These three stars are all of the first magnitude. So are three others now visible, but they are all so low in the sky that they do not shine as brilliantly. At such low altitudes, their light has to pass through a considerable thickness of the atmosphere, which makes them look faint.

Low in the south is Fomalhaut, in Piscis Austrinus, the southern fish. This star is far south, and never rises much higher than it is now. Low in the northwest stands Boötes, the herdsman, with the star Arcturus. During the summer this was high in the evening sky, but is soon to disappear until next year. Low in the northeast stands brilliant Capella, part of Auriga, the charioteer. During coming months it will climb higher and higher. Next winter it will be

in the south, along with the other brilliant stars visible at that time of year.

Using any three stars in the sky, you could draw lines between them and make a triangle. But now you can see one such triangle that is particularly prominent. Sometimes called the "summer triangle" because it is high overhead in that season, it is also visible in early autumn.

Directly overhead at the times for which our maps are drawn is the constellation of Cygnus, the swan; partly on the northern map, partly on the southern. This group is also called the "Northern Cross." At the top, toward the northeast, is the star called Deneb. Just to the west is Lyra, the lyre, with Vega. And toward the south is Aquila, the eagle, with Altair. It is this trio of stars—Vega, Altair and Deneb—that form the summer triangle.

All three of these stars are of the first magnitude, meaning that they are among the brightest stars in the sky. However, they do vary considerably in brightness. Vega is near the head of the list of first magnitude stars. Deneb, however, is near the bottom—just about bright enough to miss classification as second magnitude. Altair comes in the middle.

In common usage, magnitude refers to the size of an object, but in its astronomi-

cal sense it has nothing to do with the actual dimensions of a star. Rather it indicates the brightness, and some relatively small stars are much more brilliant than bigger ones.

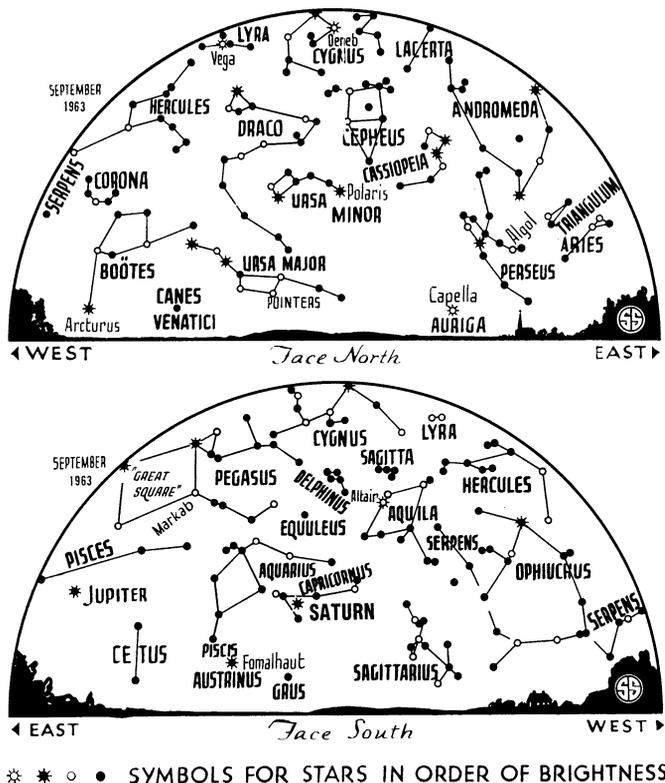
About two centuries B.C. a Greek astronomer named Hipparchus first classified stars in this way. The brightest he called first magnitude and the faintest that he could see with the naked eye (for the telescope had not yet been invented) he called sixth. This system is still used, though with some modifications. A first magnitude star is 100 times as bright as one of the sixth magnitude; one of any magnitude 2.512 times as bright as the next fainter.

## Deneb Most Luminous

Of course, the term generally refers to the apparent brightness of a star. It may look bright because it really is; or because, though faint, it is relatively close to earth. Of the three stars in the triangle, Deneb is by far the most luminous; it is actually about 16,000 times as bright as the sun. But it is at a distance of about 1,600 light years. (One light year—the distance light travels in a year—is about six trillion miles.)

Vega is 26.5 light years away and about 50 times the sun's brightness. Altair is a fairly close neighbor—only 16.5 light years from us—and about 9.5 times as bright as the sun.

To take care of such differences astronomers also classify stars by their absolute magnitude. This is what the magnitude would be, if the star were at a standard



distance of 32.6 light years. Thus, the absolute magnitude of Altair is 2.2, of Vega 0.5. For Deneb it is minus 7.1, which means that it is more than 1,500 times the brilliance of a first magnitude star.

### Celestial Time Table for September

SEPT.	EDT	
2	1:00 a.m.	Moon passes Saturn
3	3:34 p.m.	Full moon
6	3:00 a.m.	Moon passes Jupiter
	12:00 noon	Moon nearest; distance 226,800 miles
10	7:43 a.m.	Moon in last quarter
17	4:51 p.m.	New moon
20	10:00 p.m.	Moon passes Mars
22	9:00 a.m.	Moon farthest; distance 251,900 miles
23	2:24 p.m.	Sun over equator; autumn commences in Northern Hemisphere
29	8:00 a.m.	Moon passes Saturn

Subtract one hour for CDT, two hours for MDT, and three hours for PDT.

• Science News Letter, 84:122 Aug. 24, 1963

### ZOOLOGY

## Mice Drink More Alcohol Before Nine Weeks Old

► MICE APPEAR to lose their taste for alcohol when they are about nine weeks old.

Young mice given a choice between tap-water and a ten percent alcohol solution chose the alcohol solution about one-third to one-half the time, on the average. Older mice chose the alcohol solution less than one-fifth of the time.

Two different sets of tests were conducted, one in which independent groups of mice ranging in age from three to 20 weeks were used, and one in which the same group of mice was tested at four weeks and 16 weeks of age.

Results from both tests indicate that the young mice have a much higher preference for alcohol than do the older mice, and the three-to-20-week test indicated that the change occurs about the ninth week.

However, no significant differences due to sex were discovered. Dr. Gerald E. McClearn and Miss Ryoko Kakihana of the department of psychology of the University of California, Berkeley, reported in *Nature*, 199:511, 1963.

• Science News Letter, 84:123 Aug. 24, 1963

## Do You Know?

Fish protein is easily digested, making it ideal for special diets of children and older citizens.

Astronauts on long-range trips may become sleepy from living in a gravity-free environment, according to some experts.

Overweight is the most frequent physical abnormality found in the general population of the United States.

If a car is going 30 miles an hour, an impact will create a force 30 times the strain of gravity.

• Science News Letter, 84:123 Aug. 24, 1963

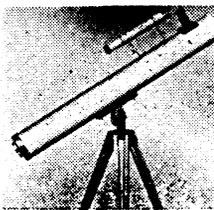
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