

## ASTRONOMY

# Orion Enters Fall Skies

The celestial warrior can be seen in the east on November evenings. Jupiter is visible, and the planet Saturn may be seen late at night.

By JAMES STOKLEY

► FOR the first time since April, our maps of the evening skies show the constellation of Orion, the warrior. With the possible exception of the Great Bear, Ursa Major, of which the big dipper is a part, Orion is probably the most familiar of constellations.

On winter evenings it stands high in the south, with the three stars in a row that mark the warrior's belt and the collection of bright stars around it all combining to make it conspicuous.

At the times for which the accompanying maps are prepared (10:00 p.m. standard time on Nov. 1, an hour earlier on the 15th and two hours earlier at the end of the month), Orion is just appearing above the eastern horizon, with the belt stars forming a vertical row. To the left is Betelgeuse, marking one of Orion's shoulders. Rigel, in one of his legs, is to the right, for as we now see him, he is on his back. But as we watch him climbing higher and higher with the passage of time, he straightens into an upright position.

## Taurus, the Bull

Above Orion is Taurus, the bull, with the bright and ruddy star Aldebaran. Taurus gazes balefully towards Orion, who according to the old pictures that used to be drawn around the stars, is represented with an upraised club as protection from the charging beast.

Toward the northeastern horizon, to the left of Orion, are Gemini, the twins, the brightest star of which is called Pollux. Above this group we find Auriga, the charioteer, with still another star of the first magnitude, named Capella.

Another aggregation of first-magnitude stars can be seen toward the west, but these are not bright orbs of the winter just making their entrance on the celestial stage. Three, at least, are stars that were conspicuous on summer evenings, now making their last bow before leaving our sight for several months.

Brightest of these is Vega, in Lyra, the lyre, in the northwest. Above it is the Northern Cross, now upright and with Deneb at the top. This cross is part of Cygnus, the swan. Directly west is another heavenly bird, Aquila, the eagle, of which Altair is the brightest star. Vega, Deneb, Altair—these are the three stars that shone so brilliantly overhead on evenings of late summer.

The last of the eight brightest stars now seen is one that belongs to the far southern constellation of Piscis Austrinus, the southern fish. It is called Fomalhaut and comes into view for a few months about early autumn. It now shows in the southwest.

## Jupiter in South

But a little above and to the right of Fomalhaut is a far brighter object, the only planet easily visible at this time. It is Jupiter, whose motion around the sky, taking 12 years to complete, has now brought it into the constellation of Aquarius, the water carrier. At sunset Jupiter is high in the south; it sets in the west about midnight.

One other planet can be seen earlier, in the west. This is Mars, which sets about two and a half hours after the sun. Now approaching the part of its orbit farthest from the earth on the opposite side of the sun, which it will reach next spring, it is increasing in distance and getting fainter. However, it is still equal in brightness to a star of the first magnitude. Because it is moving rapidly through the sky toward the east, for the next couple of months it will continue to set about as long after sunset as it does at present.

Late at night the planet Saturn may be seen, in the constellation of Virgo, the virgin, rising about four hours ahead of the sun. Both Mercury and Venus are now so nearly in line with the sun that they are not visible.

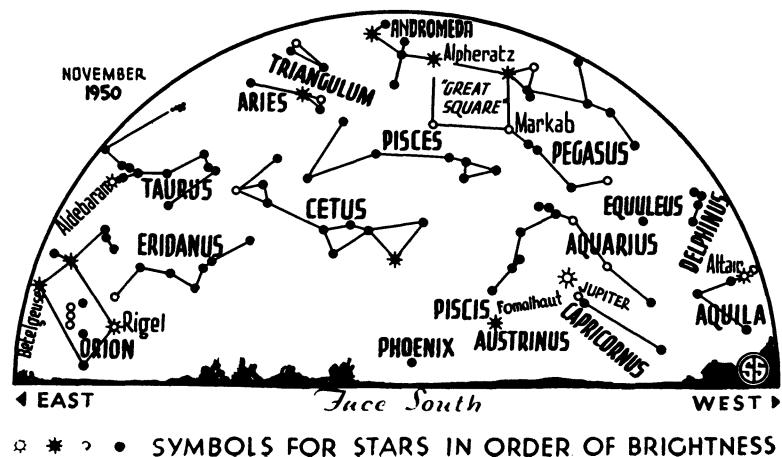
A less conspicuous but nevertheless important constellation—one that is now best for evening viewing—is Andromeda, the chained princess. This constellation is directly overhead at the times for which our maps are prepared. Below her, toward the northern horizon, is her mother Cassiopeia. To the left and a little lower in the sky, as measured from the queen, is the King, Cepheus. To the right is Perseus, the great champion who, in the mythological story, rescued Andromeda from the monster who was about to devour her.

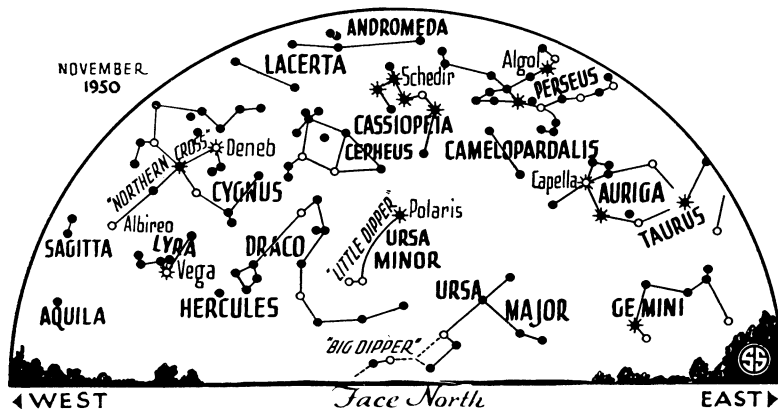
In Perseus, incidentally, is the curious star Algol, the original Arabic name of which means "the demon." Algol is one of the numerous binary stars. These, though they look like a single body, really consist of two globes revolving around the center of the system. In the case of Algol it happens that one of the stars is much fainter than the other and that the plane in which they revolve is nearly in the direction of the earth.

## Revolutions of Algol

Thus every revolution, which takes two days and 21 hours, the dark one partially eclipses the bright one and the object we see in the sky gets fainter. In five hours it loses some two-thirds of its light. Then in the next five hours it returns to normal brilliance, that of a typical second-magnitude star. It is interesting to watch Algol night after night. The celestial time-table at the end of this article gives the times during the month at which the minimum brightness is reached during evening hours.

The distance of Algol from the solar system is such that its light, travelling 186,000 miles every second, takes about a century to reach us. And from the changes that occur in its light, astronomers have





been able to learn a considerable amount of data about the two bodies. The brighter member of the pair is 3.12 times the diameter of the sun, which makes it some 2,670,000 miles. The fainter star is a little larger, 3.68 solar diameters, or 3,180,000 miles. Their centers are 6,520,000 miles apart. The brighter is 160 times the luminosity of the sun, while the fainter is only 13 times the sun's brilliance. But even this is not the whole story, for there is a third star in the system, around which the eclipsing pair revolves every 1.9 years.

**Time Table for November**

Nov.	EST	
1	12:00 noon	Mercury on far side of sun
2	8:00 p. m.	Moon in last quarter
6	1:38 p. m.	Moon passes Saturn
9	6:25 p. m.	New moon
10	8:00 a. m.	Moon nearest, distance 222,000 miles
12	10:34 p. m.	Moon passes Mars
13	12:39 a. m.	Algol at minimum
	6:00 p. m.	Venus on far side of sun
15	9:28 p. m.	Algol at minimum
16	early a. m.	Meteors visible radiating from constellation of Leo
	10:06 a. m.	Moon in first quarter
	6:03 p. m.	Moon passes Jupiter
18	6:17 p. m.	Algol at minimum
24	10:14 a. m.	Full moon
	7:00 p. m.	Moon farthest, distance 252,600 miles

Subtract one hour for CST, two hours for MST, and three for PST.  
 Science News Letter, October 28, 1950

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Science News Letter, October 28, 1950

**MEDICINE**

**Streptomycin Chief One Of 38 Anti-TB Chemicals**

➤ SCIENTISTS have discovered 38 chemicals produced by molds, bacteria and fungi which are active against the tuberculosis germ, Dr. Selman A. Waksman of Rutgers University declared at the third annual meeting of the Detroit Institute for Cancer Research.

Streptomycin, however, is the only one of the 38 which is extensively used in the treatment of tuberculosis. The others are either too weakly active against the TB germs or too toxic to the human body or too new to be used in treatment of the disease.

Streptomycin is not always curative, especially in the more common types of tuberculosis of the lungs. Its value as a remedy is also limited by development of resistance to it on the part of disease germs and by the fact that it sometimes causes disturbances in the hearing mechanism.

The most significant contribution of streptomycin, Dr. Waksman said, is that it opened a way to the treatment of tuberculosis by chemicals and showed that chemical treatment of this disease, as in the case of most other germ-caused diseases, is possible.

Science News Letter, October 28, 1950

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