ASTRONOMY

Brightest Night-Time Star

Along with an unusually brilliant planet, Jupiter, you can see brightest star, Sirius, in southern sky on December evenings.

By JAMES STOKLEY

➤ THE BRIGHTEST star of the night-time sky appears along with an unusually brilliant planet in the evenings of December.

Toward the southwest in the constellation of Pisces, the fishes, shines the planet Jupiter. With magnitude minus 2.1 on the astronomical scale, it considerably exceeds any rival object, except for the moon.

The star, which is about two-thirds as bright, is Sirius, in the constellation of Canis Major, the great dog, and it stands low in the southeast. Because of its low altitude, it does not shine as brightly as it will later in the night when it has risen higher in the southern sky, though its brilliance leaves one with no doubt as to its identity.

Both Jupiter and Sirius are shown in the accompanying maps, which depict the appearance of the skies about 10:00 p.m. your own kind of standard time, at the beginning of December, an hour earlier at the middle of the month and two hours earlier at the end.

Vega Is Next Brightest

After Sirius, the next star in order of brightness, of those now visible, is Vega, in Lyra, the lyre, but this is very close to the horizon in the northwest and only equals a star of the second magnitude.

However, directly above Sirius, we can see the assemblage of bright stars that make the skies of winter so brilliant. The brightest of these is Rigel in the figure of Orion, the warrior, and to the right of the row of three stars that mark his belt.

Above and to the left of the belt is the next, Betelgeuse, part of the same constellation. Still higher than Orion in Taurus, the bull, is Aldebaran, next in brightness.

About as high as Betelgeuse and farther to the left (so that it is shown on the map of the northern sky) we find Gemini, the twins, in which there are two rather bright stars, Castor and Pollux. Only the latter, however, is classed as first magnitude. This is the lower of the pair.

Below Gemini is Canis Minor, the lesser dog, with the star called Procyon. Going upwards from Gemini we come to Auriga, the charioteer, with Capella.

Finally, the last of the first magnitude stars that are shown is low in the northwest —Deneb, in Cygnus the swan. This group is above Vega and, as with that star, the atmospheric absorption on account of its low altitude makes Deneb appear considerably fainter than the first magnitude star that it is.

The other planets to be seen on December nights do not come up until after midnight. Soon after that hour in the constellation of Virgo, the virgin, Saturn rises, of magnitude 1.0. Nearby is Mars, slightly fainter. At the start of the month Mars is to the west, but it is moving eastward. On Dec. 19 at 8:00 a.m. EST, when the planets are not visible because of the daylight, Mars passes about a third more than the moon's diameter to the south of Saturn.

Venus Rises in Early Morning

About 3:15 a.m. at the beginning of December, Venus rises in the southeast. By the time that it gets as high, it shines nearly five times more brilliantly than Jupiter. Finally, at the very end of the month, it should be possible to get a glimpse of Mercury very low in the southeast a short time before the sun rises.

At the middle of December, Jupiter is about 431,800,000 miles from earth, approximately four and two-thirds the distance of the sun. Because Jupiter is so big, being the largest of the planets, it has a lot of surface to reflect sunlight to us and this makes it look so bright. Also it has a high "albedo," i. e., Jupiter reflects more than half of the light that falls upon it. Seen from out in space, the earth would reflect only about 29%.

The position of Jupiter in December helps us find one of the important points in the sky, the vernal equinox, which is where the sun stands at the beginning of the spring season. It is just a little below and to the right of Jupiter at present.

The importance of the vernal equinox is in the fact that it is the point from which astronomers measure right ascension, which corresponds to longitude on the earth and is one of the two principal coordinates of the sky.

Declination Corresponds to Latitude

Corresponding to latitude is declination which, like its terrestrial counterpart, is measured from the equator. By this, of course, is meant the celestial equator which passes through the sky directly over the equator of the earth.

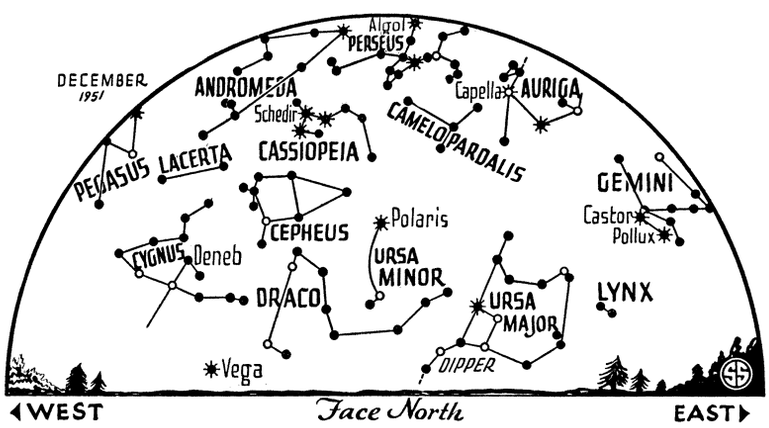
On earth we measure longitude from the meridian which passes through Greenwich, the former site of the British Royal Observatory. The vernal equinox performs a similar function in the sky, but there is one important difference. Longitude is measured in degrees, minutes and seconds, east or west of Greenwich.

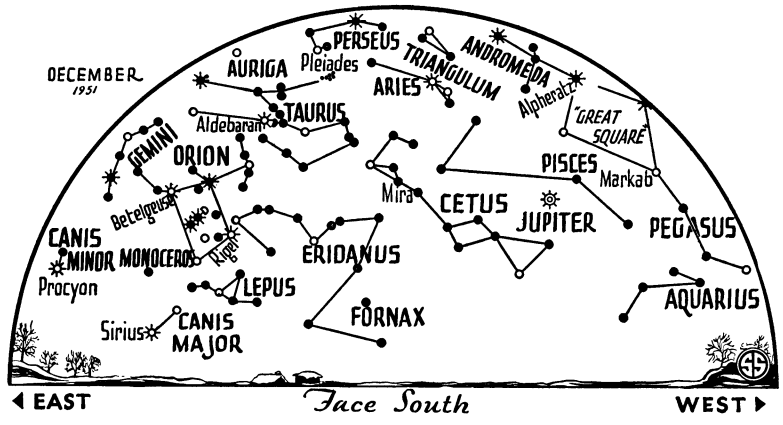
Right ascension is measured in hours, minutes and seconds, completely around the sky. There are 24 hours in the complete circle, so one hour equals 15 degrees. Similarly, minutes and seconds of time, as thus used to measure sky distances, are 15 times as big as the minutes and seconds of arc.

Vernal Equinox Changes

Another name for the vernal equinox is the "first point of Aries." High in the southern sky, as shown on the map, is the figure of Aries, the ram. At the right-hand end of the figure are three stars forming a little triangle. These have the typical Arabic names of Hamal, Sheratan and Mesarthim.

There was a time, many thousands of years ago, when the vernal equinox stood in the constellation of Aries, instead of Pisces, the fishes, where we see it today.





☼ ✱ ○ ● SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

But owing to a slow movement of the skies, called "precession," which takes nearly 26,000 years to complete, the equinox slips around the heavens toward the west. However, the name "first point of Aries," was given when it really was in that group, and has been retained in spite of the fact that this is no longer true.

This, incidentally, is one of the reasons why astronomers completely reject the claims of the astrologers that the position of a planet in the sky exerts some mysterious influence upon the earth, particularly upon people born at the time. What the astrologers use are the "signs," which are the places where the constellations used to be, not the positions where they are at present.

Surely if there were any influence of the planets, depending on what distant background of stars they happened to stand against, it would be reasonable to suppose that it would be the stars actually in the background and not those that would have been there many thousands of years ago.

Celestial Time Table for December

Dec.	EST	
5	11:20 a. m.	Moon in first quarter
7	5:26 a. m.	Moon passes Jupiter
	11:35 p. m.	Algol (variable star in Perseus) at minimum
10	8:24 p. m.	Algol at minimum
12	early a. m.	Meteors visible radiating from constellation of Gemini
13	4:30 a. m.	Full moon
	5:13 p. m.	Algol at minimum
15	10:00 p. m.	Moon farthest, distance 252,400 miles
16	10:00 p. m.	Mercury between earth and sun
19	8:00 a. m.	Mars passes Saturn
21	9:37 a. m.	Moon in last quarter
22	11:01 a. m.	Sun farthest south, winter commences
	6:27 p. m.	Moon passes Saturn
	9:37 p. m.	Moon passes Mars
25	8:48 a. m.	Moon passes Venus
28	6:43 a. m.	New moon
	6:00 p. m.	Moon nearest, distance 221,900 miles
30	10:08 p. m.	Algol at minimum

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

Science News Letter, November 24, 1951

MEDICINE

Debate Milk's Cancer Role

➤ WHETHER HUMAN breast milk carries a cancer-causing virus, as mouse milk can, is still an unanswered question, it appears from reports at the New York Academy of Sciences conference on viruses as causative agents of cancer.

Numerous sphere-shaped, submicroscopic particles that might be cancer virus were found on electron microscope examination of breast milk from mothers with a record of cancer in some member of the family, Drs. Ludwik Gross and Kenneth S. McCarty of the Veterans Administration Hospital, Bronx, N. Y., and Dr. Albert E. Gessler, of Interchemical Corporation, New York, reported.

Mothers from families apparently free of cancer had these particles in some samples of their milk, but not in almost all as the cancer-family mothers did.

These particles may be normal components of human milk, but "it may well be," the scientists point out, that "some of them, at least," are disease agents, including perhaps a cancer agent.

More of such particles were found in material extracted from breast cancers and from breast milk of women with breast cancer than in milk from apparently healthy women, Drs. L. Dmochowski and R. D. Passey of the University of Leeds, England, reported.

The number of specimens they examined, 38 in all, is too small, the English scientists state, "to permit any final conclusions."

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