ASTRONOMY

Saturn and Venus Shine

Two bright planets now visible in the early evening, one in the west, the other in east. Brightest star in February evening skies is Sirius, the dog-star.

By JAMES STOKLEY

➤ DRAWING still farther east of the Sun, and thereby setting a longer time after sunset, the planet Venus can be seen during February evenings without great difficulty. It descends below the western horizon about an hour and a half after the Sun, so it will be seen in the gathering evening twilight. It is so brilliant, however, (of magnitude minus 3.3 on the astronomical scale) that it can easily be found if one has a clear view toward the west at dusk. In the early evening of Feb. 7 the narrow crescent Moon, about a day and a half old (i.e., after new), passes close by, actually eclipsing it as seen from some parts of the country.

Because Venus sets so early, it does not appear on the accompanying maps, which give the appearance of the skies about 10:00 p.m., your own kind of standard time, at the first of February; an hour earlier at the middle and two hours earlier at the end. However, the planet Saturn is shown, in the opposite direction, toward the east, just as it is rising. It is in the constellation of Virgo, the virgin, and of magnitude 0.8, equal to that of one of the brighter first magnitude stars. When near the horizon, soon after rising, it does not shine as brightly as it will later after it has climbed higher into the sky. This is because of the greater absorption of its light by the atmosphere of the Earth.

Brightest Star

Brightest star seen these evenings is Sirius, the dog-star, in the constellation of Canis Major, the great dog, shown directly south. Its magnitude is minus 1.6, which makes it about a fifth as bright as Venus.

Above Sirius, toward the right, one sees Orion, the warrior, with three conspicuous stars in a row forming his belt. Over these are Betelgeuse and Bellatrix, in the giant's shoulder. Rigel, below, marks one of the knees.

Above Sirius, toward the left, we find Procyon, in Canis Minor, the lesser dog. Still higher we come to Gemini, the twins, with Pollux as the brightest star. Almost at the zenith, for the times of the maps, is Auriga, the charioteer, with first-magnitude Capella. Just below this group, toward the southwest, is Taurus, the bull, in which Aldebaran, marking the animal's eye, is the brightest star.

High in the east is still another constellation with a first-magnitude star. This is Leo, the lion, and Regulus is the star. It is part of a group called the sickle, Regulus marking the end of the handle, which points downwards.

In the northeast is the great dipper, also with the handle downwards, a figure which is really part of Ursa Major, the great Bear. The two top stars in the dipper are the well-known pointers, whose line, followed to the left, brings one to Polaris, the pole-star. This, in turn, is in Ursa Minor, the lesser bear, and it stands almost directly over the north pole of the Earth. On the opposite side of the pole-star from the dipper we find Cassiopeia, shaped like a Greek letter Sigma, or a W on its side.

Jupiter Near Sun

Two other planets besides those mentioned are also in the evening sky, but they are harder to see though they stand near Venus at this time. Jupiter is one of them, and is about the same brightness as Sirius. Unlike Venus, it is drawing closer to the Sun, thus becoming harder to see. Venus and Jupiter pass on Feb. 11, at 10:00 a.m. EST. Mars is also in the same direction, and of the second magnitude, which will make it very difficult to locate. Venus passes Mars, from west to east, on Feb. 15, at 11:00 p.m. EST. Mercury is not visible at all in February, for it is too nearly in the same direction as the Sun.

When, on the evening of Feb. 7, the narrow crescent Moon passes the brilliant planet Venus, it will be a striking effect for those fortunate enough to see it. For those in the western part of the country, by the time the Sun goes down and the planet and crescent may be seen, the closest approach will already have passed, though they will still be close enough to cause comment.

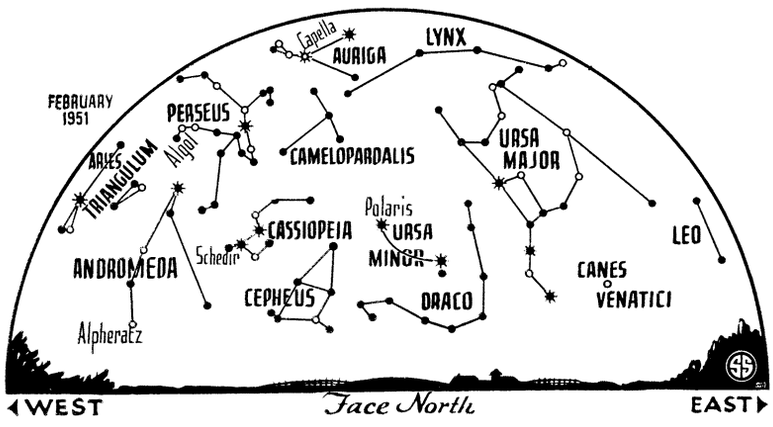
In the northerly and northeastern parts of the country, the Moon will actually pass in front of Venus. Though this a a form of eclipse, that term is generally used for the passage of the Moon in front of the Sun, or of the Moon into the shadow of the Earth. However, the Moon can and often does move in front of a star. More rarely does it hide a planet. Such "eclipses" of stars and planet are called "occultations."

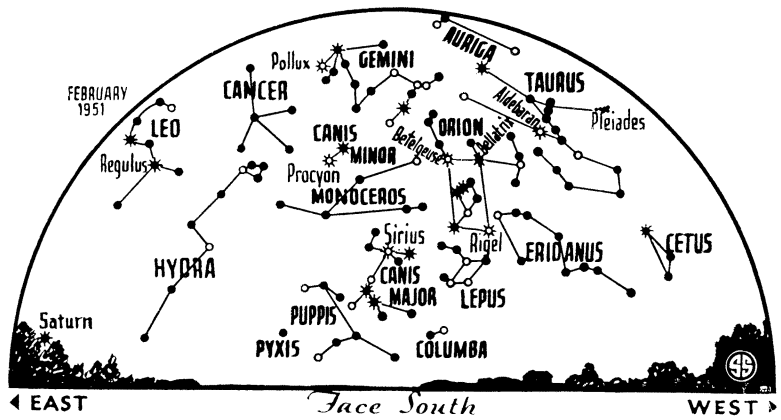
Visible in Massachusetts

On the seventh the line marking the region where the occultation will be seen passes from the vicinity of New York southwesterly across the country. It will not be observed from Washington, but from a point in western Massachusetts the planet goes behind the Moon at about 6:13 p.m., EST, which is shortly after sunset. Here the Moon has set before the planet reappears.

Farther west, in southern Illinois, the disappearance is at 4:49 p.m. CST, before sunset, and the reappearance at 5:36, about the time of sunset. In southern California the whole affair takes place in the afternoon, with the planet hiding at 1:53 p.m. PST, and emerging at 3:20 p.m., so it will not be visible there, except with telescopic aid.

Since the Moon is moving from west to east when it overtakes Venus, and since the bright edge of the Moon is toward the Sun, or toward the west, the planet is hidden by the Moon's dark edge. When such an occultation of a star or planet occurs, the occulted body is seen clearly right up to the lunar edge. This is taken as good proof that the Moon has practically no atmosphere. If it did, the occulted body would gradually be dimmed as it approached the lunar edge, because its light would then be absorbed





☼ ✱ ○ ● SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

by passage through a greater thickness of the layer of air.

There may, however, be a very slight atmosphere on the Moon, comparable with that 50 miles or more above the surface of the Earth, which is estimated to be about a twenty-thousandth as dense as the air at sea level. Such a concentration would be a fair vacuum.

One piece of evidence in favor of this is the fact that in all the vast number of hours that astronomers have spent observing the Moon through their telescopes, they have never seen a meteorite hit its surface. Such a collision, especially as it hit the dark side of the Moon, should make a flash that would be easily visible through a telescope. With the number of meteorites that reach the Earth—millions each day—it seems that the nearby Moon would be similarly bombarded. If they do not hit the surface something must stop them.

We know what keeps most of them from hitting the Earth's surface. It is the atmosphere, which causes such friction that they burn up in the flash of light we call a "shooting star," or "meteor." As a result, all but a very minute proportion are consumed while still 50 miles or more above the ground. Thus, it seems possible that the Moon might have an atmosphere comparable with that of the Earth's at such an altitude. It would still stop most of the meteorites, but would be thin enough that it would not cause appreciable absorption of a star's light as it was occulted.

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Celestial Time Table for February

Feb.	EST	
3	10:00 a. m.	Moon nearest, distance 226,700 miles
6	2:54 a. m.	New moon
7	2:00 p. m.	Moon passes Jupiter
	5:11 p. m.	Moon passes Venus
8	12:07 a. m.	Moon passes Jupiter
	12:34 a. m.	Moon passes Mars
	1:00 a. m.	Planet Pluto nearest, distance 3,253,700,000 miles
	1:10 a. m.	Algol (variable star in Perseus) at minimum
10	9:59 p. m.	Algol at minimum
11	10:00 a. m.	Venus passes Jupiter
13	2:55 p. m.	Moon in first quarter
	6:49 p. m.	Algol at minimum
15	5:00 a. m.	Moon farthest, distance 251,400 miles
	11:00 p. m.	Venus passes Mars
21	4:12 p. m.	Full moon
23	10:19 p. m.	Moon passes Saturn
28	5:59 p. m.	Moon in last quarter

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

Science News Letter, January 27, 1951

INVENTION

Bag Shrinks To Fit

➤ A BAG for packaging and preserving perishable foodstuffs, that can be shrunk to fit the food closely after being applied, brought patent 2,538,025 to Garnett V. Moore and Carroll R. Irons, Midland, Mich. The patent has been assigned to The Dow Chemical Company of the same city.

This flexible bag is made of about 73% vinylidene chloride and 27% vinyl chloride. After the food, such as meat, fresh fruit and vegetables, is put in the bag air is evacuated and the opening sealed with a hot iron or otherwise. Then bag and contents are submerged in water close to but not up to the boiling point. The bag shrinks tightly about its contents.

Preserving bags made of this material are claimed to be superior to similar bags of other materials in that they have no tendency to shrink at any temperature encountered in shipping. At temperatures between 85 and 100 degrees Centigrade, however, they will shrink from 30% to 50%. They are clear and transparent. They are capable of being stored for prolonged periods at freezing temperature without becoming brittle.

Science News Letter, January 27, 1951