

ASTRONOMY

Dog Star Shines in South

While none of the five planets usually visible to the naked eye can be seen on February evenings, there are a number of first magnitude stars visible, Sirius the brightest of all.

By JAMES STOKLEY

► **BRIGHTEST STAR** of the February evening sky is Sirius, which shines in the south in the constellation of Canis Major, the great dog. Because of this, Sirius is often called the dog star. Also, it is associated with the so-called "dog days" of mid-summer. About that time of year the sun passes rather close to Sirius. Ancient peoples thought, mistakenly, that the rays of this star combined with the heat of the sun to produce the sultry weather which, they supposed, caused dogs to go mad.

Sirius is shown on the accompanying maps, which give the appearance of the skies at about 10:00 p.m., your own kind of standard time, at the beginning of February, an hour earlier at the middle of the month and about 8:00 p.m. as it comes to an end.

Around Sirius are the other bright stars of the winter evening. Above and right you can see the constellation of Orion, the warrior, with two first magnitude stars: Betelgeuse and Rigel. Between these are the three stars named Anilak, Alnitak and Mintaka, that form the warrior's belt. A little higher is Bellatrix, in his shoulder.

Still higher and farther right we come to Taurus, the bull. In this group stands red Aldebaran, another star of the first magnitude.

Auriga, the charioteer, is directly overhead, with brilliant Capella. Below this group, toward the southeast, you come to Gemini, the twins. In it are two prominent stars, Castor and Pollux, which were the names of the twins, favorite gods in the ancient Roman mythology. However, only Pollux is of the first magnitude; Castor, a little fainter, is of the second. And below the twins, in the direction of the big dog, we come to Canis Minor, the lesser dog, in which Procyon stands.

Still another first magnitude star appears to the east, in Leo, the lion. This is Regulus, at the end of the handle of the "sickle," a smaller star group. The blade of the implement curves around the word "Leo" shown on the map.

Planets Invisible in February

No planets are visible to the naked eye on February evenings. Mercury is nearly in the same direction as the sun, and cannot be seen at all in February. Venus, which shone so brightly in the evening sky until a few weeks ago, is now passing in front of the sun and is similarly invisible. By the end of February, however, it will appear low in the southeast just before sunrise. In brightness, it will be of magnitude minus

4.3, making it the brightest object in the sky. Hence, Venus will continue to be visible even after the sky has gotten quite bright, and other stars and planets have vanished.

Around midnight the planet Jupiter, now slightly brighter than Sirius, will rise in the east, in the constellation of Virgo, the virgin. This group is not shown on the maps, but it is next to Leo, and appears after that group has risen higher. For a few hours before sunrise Mars can be seen low in the southeast, in Sagittarius, the archer. This planet is considerably fainter than those already mentioned; it is about 1.5 magnitude, or a little brighter than the stars of Orion's belt.

Saturn also rises in the early morning hours, even ahead of Mars, and is in Ophiuchus, just east of red Antares, which is in Scorpius, the scorpion. In brightness Saturn is about equal to a typical first magnitude star.

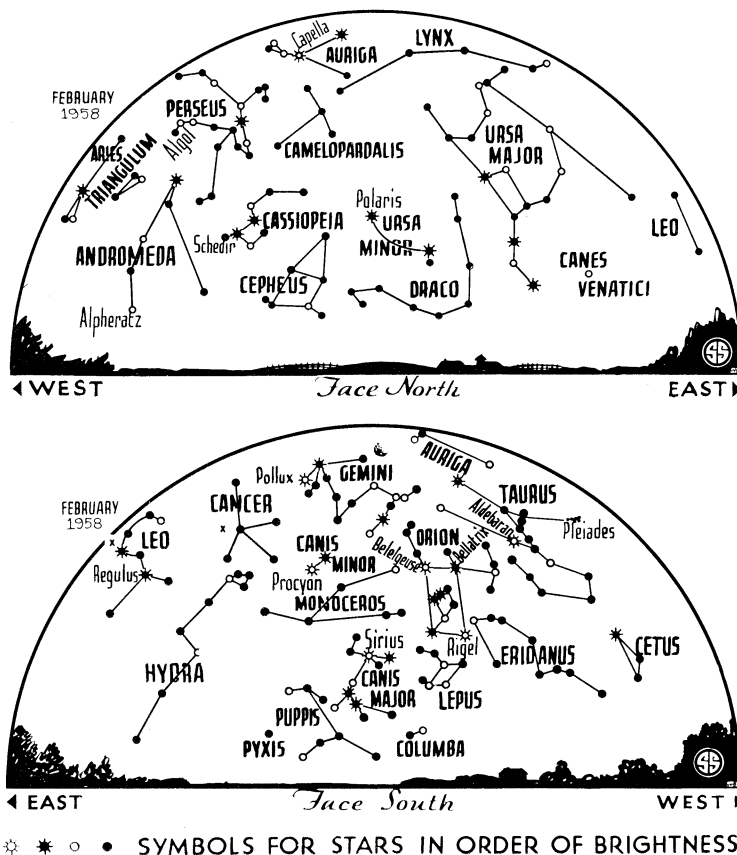
Although none of the five planets that are visible to the naked eye—Mercury, Venus, Mars, Jupiter and Saturn—are now in the evening sky, two of the other three are there, and may be seen with a telescope

of sufficient power. One of these is Uranus, which is now in Cancer, the crab, a group between Leo and Gemini. The approximate position of Uranus is shown by a small X, under the letter "A" in the name of the constellation. At present its magnitude is 5.8, which makes it less than a sixtieth of the brightness of Regulus, standing nearby.

It is generally considered that stars as faint as the sixth magnitude can just be seen with the naked eye, under the most favorable conditions of a clear, dark sky. Theoretically, it is thus possible to see Uranus without a telescope, but this is very difficult, unless you are far from the city's glare and smoky atmosphere.

Uranus' Discovery

Uranus was discovered in 1781 by an English amateur astronomer, William Herschel. When he first saw it, with a telescope that he had made himself, equipped with a concave mirror 6.5 inches in diameter, he realized that it did not look like a star. A few days later, when he saw it again, Uranus had moved a little, so he concluded that he had found a new comet—and so announced it. Computations showed it to be another planet, more than 19,000,000 miles from the sun, about twice as far as Saturn. It revolves around the sun in 84 years and turns on its axis in 11



hours. Uranus has five moons, visible only through large telescopes. Herschel himself discovered two, which he named Titania and Oberon. Two more, Ariel and Umbriel, were found in 1851 by another English astronomer. The last, Miranda, was first detected by Dr. G. P. Kuiper, an American astronomer, at the McDonald Observatory in Texas in 1948.

During the early years of the 19th century astronomers found Uranus was not moving according to their predictions, and decided there must be another planet still farther out, which was pulling on it. Neptune was responsible. It was found in 1846, close to the place where it was expected to be.

At present Neptune is in the constellation of Virgo, not far from Jupiter, and rises about midnight. Neptune is about 2,791,000,000 miles from the sun, which it goes around in 165 years, and it has two satellites: Triton, discovered in 1846, and Nereid. The latter was also discovered by Dr. Kuiper, in 1949.

The most distant known planet is Pluto, discovered by C. W. Tombaugh, at the Lowell Observatory at Flagstaff, Ariz., in 1930. Its average distance from the sun is 3,671,000,000 miles; it goes around in 248 years. Probably it is no larger than the earth, and no satellites have yet been discovered. At present it is in the evening sky, in Leo, alongside the sickle. Its position also is shown by a small X on our map. However, only a very large telescope will reveal this planet, which is about the 15th magnitude. It has been suggested that Pluto was originally formed as a satellite of Neptune, then later escaped.

On Feb. 19 at midnight, Pluto and the earth will be lined up in the same direction from the sun. It is then said to be in opposition with the sun, i.e., Pluto and the sun are in opposite directions from the earth. At such a time an outer planet is closer to the earth than at any other time during the year. Pluto will then be 3,095,000,000 miles away.

Celestial Time Table for February

Feb. EST

1	11:23 p.m.	Algol (variable star in Perseus) at minimum brightness.
4	3:05 a.m.	Full moon.
	8:12 p.m.	Algol at minimum.
5	6:00 p.m.	Moon nearest; distance 224,200 miles.
9	8:45 a.m.	Moon passes Jupiter.
10	6:34 p.m.	Moon in last quarter.
13	3:59 a.m.	Moon passes Saturn.
14	6:49 a.m.	Moon passes Mars.
18	10:38 a.m.	New moon.
19	midnight	Pluto in opposition and nearest earth; distance 3,095,000,000 miles.
21	10:00 a.m.	Moon farthest; distance 252,300 miles.
22	1:08 a.m.	Algol at minimum.
24	9:57 p.m.	Algol at minimum.
26	3:51 p.m.	Moon in first quarter.

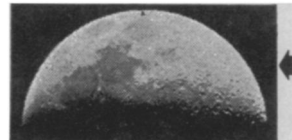
Subtract one hour for CST, two hours for MST, and three for PST.

Science News Letter, January 25, 1958

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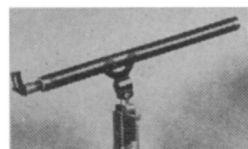
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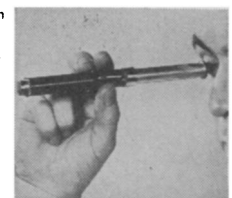
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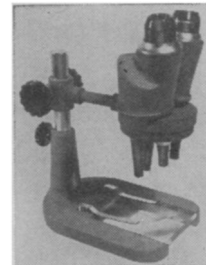
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