

ASTRONOMY

# Spring Stars Appear

**On March evenings, Virgo and Leo with the Sickle, come into view. The planets, Venus and Saturn, add beauty to the early evening skies.**

By **JAMES STOKLEY**

► **THE PLANET VENUS**, of which we got a glimpse low in the west at sunset during January and which during February shifted into a better position, has now moved well away from the sun. At the beginning of March it sets about two hours after sunset. It descends behind the western horizon about two and a half hours after the sun at the end of the month. As it is the brightest star or planet in the evening sky, there is little difficulty in finding it.

Another planet has come into visibility during March evenings from the other end. This is Saturn which, during early February, rose late in the evening. By March 1, however, it appears around 7:30, and on the 20th, being directly opposite the sun, comes up in the east just as the sun sets in the west. Then Saturn will be visible all through the night.

As shown on the accompanying maps, Saturn is in the constellation of Virgo, the virgin. These maps depict the sky as it appears around 10:00 p. m., your own kind of standard time, on March 1, an hour earlier at the middle of the month and two hours earlier at the end.

Among the star groups of March evenings, the most conspicuous are still those of Orion, the warrior, and his neighbors, but instead of shining high in the south, as they did during the middle of the winter, they are now descending into the southwest. Orion is easily recognizable by the three stars in a row that form the warrior's belt. A little higher and directly west is Taurus, the bull, with brilliant Aldebaran. Still higher we find Gemini, the twins, with Castor and Pollux, the latter of the first magnitude. High in the northwest is Capella, in Auriga, the charioteer.

**Sirius Brightest Star**

Low in the southwest, to the left of the lower stars in Orion, is Canis Major, the great dog, in which shines Sirius, the dog-star, brightest star that we can see at night. Higher in the sky we come to the lesser dog, Canis Minor, with Procyon. Next to Canis Major, to the left, is the constellation of Puppis, the poop, or stern, of the ship, Argo Navis. This is a large southern constellation, of which the brightest stars do not rise above the horizon for most of the United States or for Canada. Pyxis, the compass, and Vela, the sails, also part of Argo, are indicated, each by a single star.

Over to the east appears Virgo, one of the spring evening constellations now coming into view. In Virgo shines not only Saturn but the bright star Spica, shown near the horizon where it is somewhat dimmed by its low altitude. Above Virgo is Leo, the lion, in which appears the smaller group known as the Sickle. The star Regulus is at the end of the handle of this implement.

Toward the north, the great dipper, part of Ursa Major, the great bear, is climbing high into the sky. In the bowl of the dipper are the familiar "pointers," whose direction leads us to Polaris, the pole star, in Ursa Minor, the lesser bear. The continuation of the curve of the dipper's handle takes us to the constellation of Bootes, the bear-driver, where we can find brilliant Arcturus.

**Mercury at Its Best**

The planet Mercury will be at its best position of the year, when it can be seen low in the western sky just after sunset, in early April. By the last few days of March it may be possible to pick it up, near the horizon at dusk. Mars is nearby, but much fainter and hard to find. Jupiter, which is in line with the sun on March 11, will not be visible at all in March.

An event that all will welcome is scheduled for 5:26 a. m. EST, on Wednesday, March 21, when the sun, moving northwards through the sky, stands directly over the earth's equator. This is the vernal equinox for us, as it marks the beginning of spring. In southern countries, like Australia, South Africa and Brazil, it is the first day of autumn.

On March 7, in the afternoon, the sun

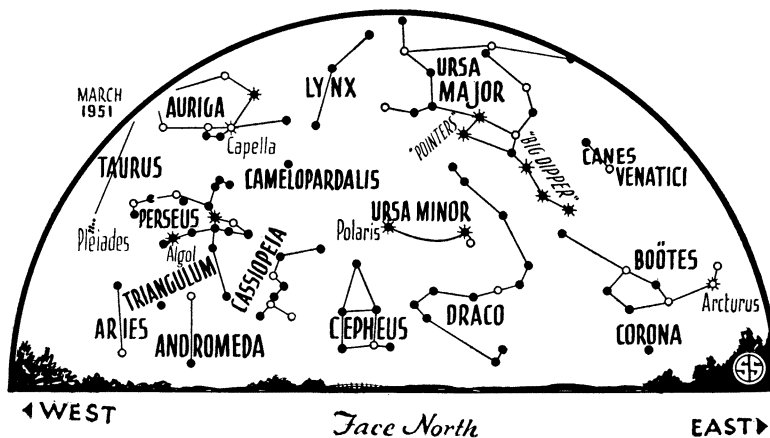
will be eclipsed by the moon. This will be visible as a partial eclipse over southern Ontario and the eastern central and southwestern United States, south of a line running from the vicinity of Milwaukee, Wisc., southwesterly to southern California, near San Diego.

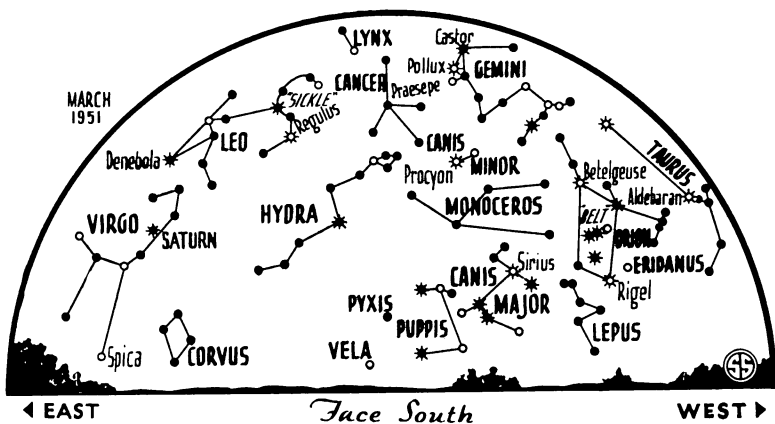
**Eclipse Not Total**

This eclipse is not total at any point on the earth but is annular. That is, even at its best the sun will not be completely hidden. The eclipse occurs when the moon is relatively far, and so appears a little smaller in the sky than the sun does. Thus, along a path starting near New Zealand, crossing that country, the Pacific Ocean, including Pitcairn Island; then Nicaragua, Costa Rica and the Caribbean Sea, there will be a central eclipse, with the moon coming directly in front of the sun. Even here, however, there will remain visible around the dark lunar disk a ring, or "annulus," of the solar disk, from which comes the name of "annular" eclipse.

Over a much larger area than this path there will be a partial eclipse, with the moon partly covering up the sun. The nearer one is to the path mentioned, the more of the sun will be covered. The following table gives the time of the beginning and end of the partial phases for some of the principal cities where it will be seen, as well as the percentage of the sun's diameter that will be covered:

City	%	Begins P.M.	Ends P.M.
Albany, N. Y.	11	5:14	set
Atlanta, Ga.	34	4:54	6:32
Austin, Texas	34	3:45	5:31
Boston, Mass.	13	5:12	set
Buffalo, N. Y.	9	5:16	set
Chicago, Ill.	7	4:18	5:06
Cincinnati, Ohio	17	5:06	6:20
Cleveland, Ohio	12	5:13	6:13
Des Moines, Iowa	4	4:22	5:01
Flagstaff, Ariz.	3	3:11	3:53
Kansas City, Mo.	10	4:10	5:12





☼ \* ○ • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

Little Rock, Ark. ....	26	3:56	5:27
Louisville, Ky. ....	20	4:04	5:22
Nashville, Tenn. ....	25	3:59	5:26
New Haven, Conn. ....	16	5:09	set
New Orleans, La. ....	41	3:46	5:36
New York, N. Y. ....	17	5:08	set
Omaha, Nebr. ....	3	4:23	4:59
Philadelphia, Pa. ....	19	5:06	set
Pittsburgh, Pa. ....	17	5:09	set
Raleigh, N. C. ....	31	4:58	set
Richmond, Va. ....	26	5:01	set
Santa Fe, N. Mex. ....	10	3:05	4:07
Tallahassee, Fla. ....	44	4:48	set
Washington, D. C. ....	22	5:04	set

"Set" indicates sun sets eclipsed. Times are local standard times.

The data in this table are taken from a more complete listing in the "American Ephemeris and Nautical Almanac" for 1951, a volume which is prepared annually at the U. S. Naval Observatory in Washington, and is published by the Government Printing Office. For the cities in the northeast where no time of ending is given, the sun sets before the partial eclipse is completed. For all these points, the moon's disk will cut across the southern edge of the sun, moving from west to east.

**Protect Your Eyes**

Since one should not, ordinarily, look directly at the sun, those in the places where the eclipse may be seen should use some protection for the eyes to see the partial eclipse. This may be the traditional smoked glass, a dense photographic film negative, or a pinhole in a card. However, along the Atlantic seaboard the eclipse occurs near sunset, and dust and haze in the atmosphere might dim the sun's light enough that it may be seen without any protection.

In case completely cloudy weather prevents any view of this eclipse, those who live in the eastern part of the country will have another chance on Sept. 1. Instead of occurring late in the afternoon, that will occur in the early morning, with the sun rising partly eclipsed.

**Celestial Time Table for March**

March EST		
1	11:48 p. m.	Minimum of Algol (variable star in Perseus)
2	2:00 a. m.	Moon nearest, distance 229,800 miles
4	8:38 p. m.	Algol at minimum
7	3:50 p. m.	New moon; eclipse of sun visible over large area
	5:27 p. m.	Algol at minimum
9	4:36 a. m.	Moon passes Mars
10	1:01 a. m.	Moon passes Venus
15	1:00 a. m.	Moon farthest, distance 251,200 miles
	12:40 p. m.	Moon in first quarter
20	5:00 a. m.	Saturn opposite sun and nearest, distance 788,600,000 miles
21	5:26 a. m.	Sun crosses equator, beginning of spring in northern hemisphere
22	1:33 a. m.	Minimum of Algol
23	2:54 a. m.	Moon passes Saturn
	5:50 a. m.	Full moon
24	10:22 p. m.	Algol at minimum
27	4:00 a. m.	Moon nearest, distance 228,600 miles
	7:12 p. m.	Algol at minimum
30	12:35 a. m.	Moon in last quarter

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

Science News Letter, February 24, 1951

**GENERAL SCIENCE**

**Security Clearances Slow Defense Program**

➤ THE TIME that it takes to get security clearances for everyone handling classified material in the accelerating defense program is slowing down progress in many cases.

Before the Korean war an FBI investigation could be completed in a couple of months. But now the number of additional employees has piled the load on the investigators until it takes up to six months.

There are several kinds of investigations and clearances, simplest of which are loyalty checks such as anyone in the government, even those not working on con-

fidential or secret projects, must have.

As the secret nature of the project becomes greater, the necessary procedures become correspondingly more rigorous and timetaking.

Even when the help of some expert is needed urgently, it is very difficult to give him an emergency security clearance on the say-so of some official, no matter how high.

Because the Department of Defense and the Atomic Energy Commission each have to have their own clearances, there may be delay before, for example, an army officer or scientist would be allowed to work with a contractor on a top secret joint Defense-AEC project. The Army representative already fully cleared in his own organization would have to get one of the famous Q clearances of the AEC done by the FBI and he can not get in the line-up until he does.

This is required by the atomic energy act passed by Congress and the dual clearances seem to make no one, particularly the military, very happy.

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