

ASTRONOMY

# Leo and Virgo Herald Spring

Virgo, the virgin, Leo, the lion, and Bootes, the herdsman, rise on the eastern horizon in March while winter constellations vanish in the west, James Stokley reports.

➤ WITH THE ARRIVAL of March and the beginning of spring on March 20, the evening skies begin to assume the appearance characteristic of this season. Constellations that were so prominent in the south on winter evenings are now beginning to vanish in the west. And toward the east we see new ones appearing that tell us spring is nearly here.

On the accompanying maps you can see the way the constellations are arranged at about ten p.m. (your own kind of standard time) on March 1, nine o'clock at the middle of the month and eight at the end.

Shining brilliantly in the south is the brightest of the nighttime stars, Sirius, in Canis Major, the greater dog. Above is the lesser dog, Canis Minor, with Procyon. To the right (in the southwest) is Orion, the warrior, with two stars of the first magnitude. Above is Betelgeuse; below is Rigel. Between them is a row of three somewhat fainter stars that mark the warrior's belt. And still farther to the right, directly west as it is shown, is Taurus, the bull, with brilliant Aldebaran, distinctly ruddy in hue.

A little higher and farther right, shown on the map of the northern skies, is Auriga, the charioteer, in which stands bright Capella. And below this group is Perseus, the champion, location of the famous variable star called Algol. In a cycle of a little less than three days it drops from its normal brightness of second magnitude to third, as a dark body passes in front of the bright star and eclipses it.

## Mars Visits the Twins

Above Orion is the figure of Gemini, the twins, with two well-known stars, Castor and Pollux. The latter is first magnitude, the former second. But there is another bright object in this constellation: the planet Mars. It is still of the first magnitude, but it has faded considerably since December, when it was more than five times as bright as it is now. The cause of this diminution in light is that it is now receding rapidly from the earth.

Over in the eastern sky three prominent constellations of spring evenings are now coming into view. The highest is Leo, the lion, with a smaller grouping of stars called the sickle. Regulus is the star at the end of the handle. Below Leo is Virgo, the virgin, which contains the star Spica. Because it is so low, and there is so much absorption of its light by the atmosphere, it looks fainter than normally, although it is of the first magnitude also. And to the left of Virgo is Bootes, the herdsman, with Arcturus as the brightest star.

One of the bears that Bootes is sup-

posed to be driving is represented by the constellation of Ursa Major, which means "great bear." This is higher and farther left. In it is the familiar great dipper, with the two stars in the bowl called the pointers. Following their direction downwards you come to the pole star, Polaris, which is in Ursa Minor, the other bear.

Earlier in the evening than the times for which our maps are prepared you can see another planet in the west, one which outshines any other. This is Venus, with a magnitude of minus 4.2, which is about 80 times as bright as Mars. Venus is so bright that it comes into view well ahead of other stars or planets. At the beginning of March it remains in the sky until after nine but on March 31 it sets about 8:00 p.m. By mid-April it will be gone entirely from the evening sky.

Jupiter and Saturn, two other planets, are both in the constellation of Capricornus, the sea-goat, and appear low in the east just before sunrise. Mercury will be farthest west of the sun on March 20, and may be seen near the eastern horizon as dawn is breaking.

March brings the second eclipse of the year, a partial lunar eclipse, which will be visible from many parts of the United States to those who get up early enough.

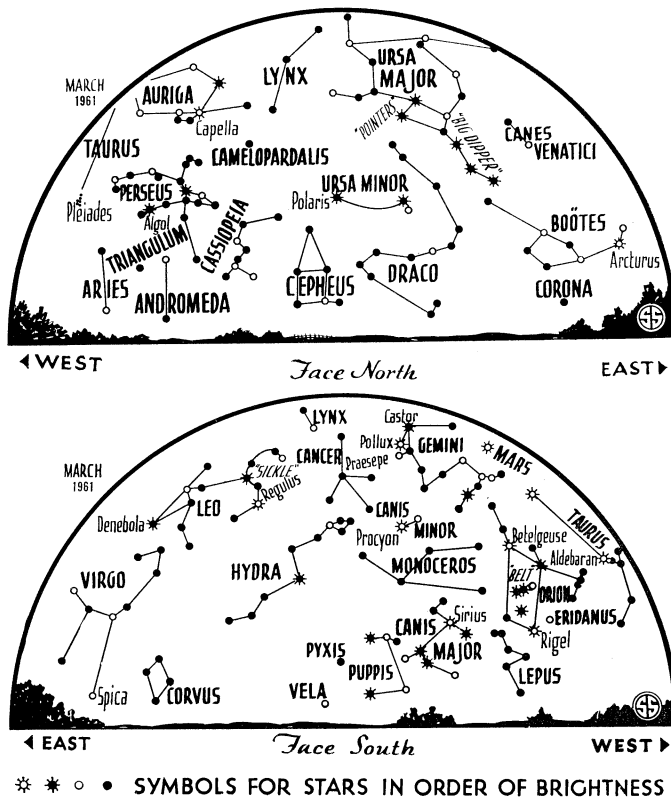
This eclipse of the moon occurs a little before sunrise. In the eastern part of the country, in fact, it happens as the sun is rising.

On Feb. 15 there was an eclipse of the sun when the moon came between the sun and earth. In places where the moon's shadow reached, the sun was totally eclipsed.

About two weeks later, March 2, the moon has made half of its monthly trip around the earth, and it enters into the earth's shadow, producing an eclipse of the moon. It will not be completely eclipsed; at the maximum, about 80% of the lunar diameter will be shaded. But this area will not be completely dark. It will shine with a dull, coppery-red glow, illuminated by light from the sun which the earth's atmosphere has bent around into its shadow. Such light is reddened because passage through the atmosphere absorbs much of its blue part, while that which is red gets through with less diminished intensity.

## Lunar Eclipse Seen in U. S.

The eclipse is at its height at 8:29 a.m. EST (7:39 a.m. CST; 6:29 a.m. MST; and 5:29 a.m. PST). By then, in the eastern part of the country, the sun will have risen and the moon (in full phase, as it must always be when it is eclipsed) has set. Farther west, however, in the United States and Canada, the partially eclipsed moon will be visible low in the western sky,



about the time that the morning twilight begins in the east.

On Monday, March 20, at 3:32 p.m. EST (2:32 p.m. CST; 1:32 p.m. MST and 12:32 p.m. PST) the sun crosses the equator. Thus, on this day, it rises due east and sets due west. Then, neglecting some effects of the atmosphere that make it appear a little higher than it really is in the sky, it is above the horizon for 12 hours and below for 12 hours. Day and night are equal, so this is the equinox, which means "equal night."

For us who live in the Northern Hemisphere, this marks the beginning of spring, but in countries south of the equator it is the beginning of autumn. Their noonday sun was highest last December, when for us it was lowest and winter was starting. And next June 21 the solstice occurs, when the sun is highest for us, and summer will officially begin. But in the countries in the Southern Hemisphere it will be lowest, and winter will be starting. The seasons are reversed in the two hemispheres.

### Celestial Time Table for March

March EST

1	11:05 p.m.	Algol (variable star in Perseus) at minimum brightness
2	8:35 a.m.	Full moon and partial eclipse of moon
4	7:55 p.m.	Algol at minimum
5		Venus at greatest brilliancy
9	9:58 p.m.	Moon in last quarter
12	3:00 p.m.	Moon passes Saturn
	7:00 p.m.	Moon passes Jupiter
14	1:00 p.m.	Moon nearest; distance 225,300 miles
16	1:51 p.m.	New moon
18	2:00 p.m.	Moon passes Venus
19	4:01 a.m.	Algol at minimum
20	3:00 p.m.	Mercury farthest west of sun
	3:32 p.m.	Sun over equator; spring commences in Northern Hemisphere
22	12:50 a.m.	Algol at minimum
23	9:49 p.m.	Moon in first quarter
24	1:00 p.m.	Moon passes Mars
26	10:00 a.m.	Moon farthest, distance 251,600 miles

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

• Science News Letter, 79:122 February 25, 1961

## Do You Know

Sixty percent of the *scientists* employed in the United States have advanced degrees, with the doctorate accounting for 37%.

The Aztec solar *calendar* was composed of 18 months of 20 days, and an unlucky five-day period at the end of the year.

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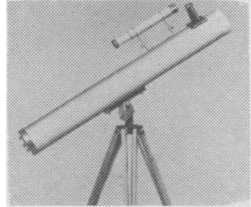
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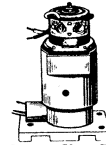
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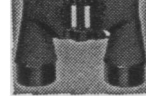


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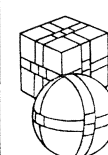
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