

## ASTRONOMY

# Springtime Constellations Shine

Arcturus, Spica and Regulus shine brightly in May skies while Deneb and Antares are dim due to low altitude. Jupiter and Saturn are both in Sagittarius.

By JAMES STOKLEY

HIGH IN THE SOUTH on May evenings can be seen a group of constellations that are just as characteristic of this season of the year as Orion and his neighbors are of winter.

These constellations are shown on the accompanying maps, which depict the heavens as they look about 11:00 p.m., your own kind of standard time (add one hour for daylight saving time), at the first of May, an hour earlier in the middle and two hours earlier at the end.

Leo, the lion, shines high in the southwest. This group may easily be identified by the six stars that form the "sickle," with first-magnitude Regulus in the handle of this implement. The blade of the sickle forms the lion's head, according to ancient fancies, while second magnitude Denebola, toward the left, is in his tail.

Farther left, and lower, is Virgo, the virgin, in which Spica shines. And directly above the eastern end of this constellation Bootes, the bear-driver, with brilliant Arcturus, can be seen.

This group extends to the other map that shows the northern half of the evening skies. To the left of this part of Bootes is the bear that he is supposed to be driving. This is the constellation of Ursa Major, the great bear, in which is the well-known "big dipper." At the western end of this group are the "pointers," whose direction, downwards, brings you to Polaris, the polestar. This is in Ursa Minor, the little bear, and it marks the end of the handle of the little dipper.

## Jupiter and Saturn Rise Late

Toward the northeast is Lyra, the lyre, with Vega, another star of the first magnitude. Below it is Cygnus, the swan, with Deneb. This star is actually of the first magnitude but its low altitude makes it look fainter.

Although Orion is gone (except in the early evening) some of his neighbors are still on view in the west. Below the western end of Ursa Major is Gemini, the twins, with Castor and Pollux. To the right of this figure stands Auriga, the charioteer, with Capella, while Procyon in Canis Minor (the little dog) is to the left, in the southwest.

In the southeast, just above the horizon, Scorpius, the scorpion, is coming into view. Here we find Antares; like Deneb, it is greatly dimmed by reason of its low altitude. During summer evenings, however, it shines brilliantly in the south.

As in recent months, no naked-eye planet is visible at the times for which our maps are drawn. However, Jupiter comes up before midnight at the first of May. It is in Sagittarius, the archer, which will then be in the southeast, about where Scorpius is shown. Jupiter's astronomical magnitude is minus 2.1, so it is many times more brilliant than any other planet, or any star, that can now be seen.

Saturn, which is also in Sagittarius, comes up about an hour later. It is about as bright as a typical star of the first magnitude, and is a twelfth as bright as Jupiter. Mars, still fainter and now in the constellation of Pisces, the fishes, rises about two hours ahead of the sun. Venus comes up about half an hour ahead of the sun, so late that it is very difficult to find. Mercury is not visible; it passes behind the sun on May 17.

Although Leo, Scorpius, Orion, and most of the constellations mentioned in these articles are visible in the evening at certain times of year and not others, this is not true of the big and little dippers. They are always in the sky, although not in the same place.

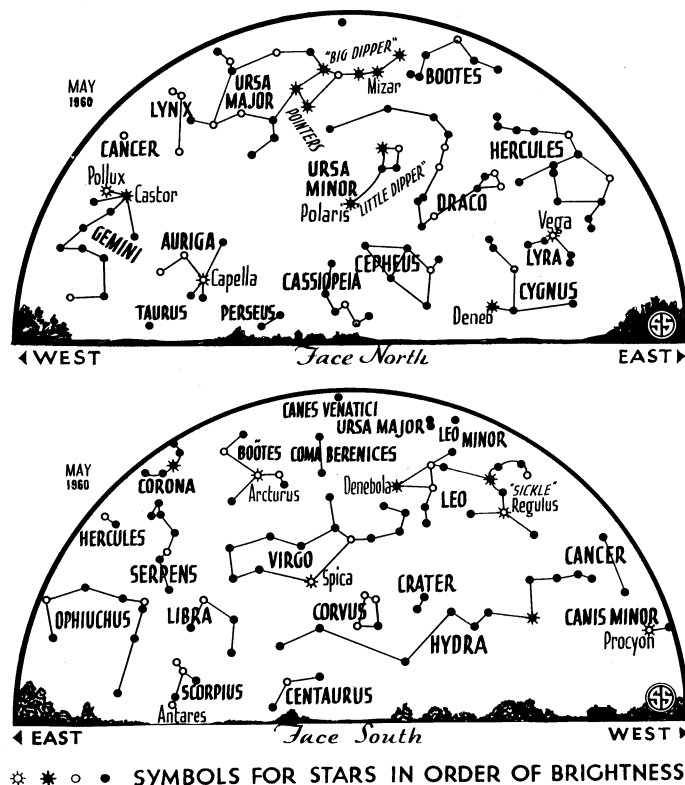
The big dipper is now at its best evening position of the year, high in the north. Six months from now it will still be

visible, just above the northern horizon, about where the W-shaped figure of Cassiopeia now stands. By that time Cassiopeia, which represents a queen seated on a chair, will be where the dipper is now.

All the constellations circle around a point near Polaris, which is called the north celestial pole. This appears to be directly over the North Pole of the earth. That is, at the North Pole, Polaris would be at the zenith, or 90 degrees above the horizon. However, at the earth's equator, Polaris would be on the northern horizon, at zero degrees altitude. Thus, as a person travels northward from the equator, the celestial pole climbs higher, its height always equal to your latitude. In the United States its altitude is about 40 degrees. Since Polaris is so close to the pole, its height is roughly equal to the latitude.

## Circumpolar Stars

Polaris goes around the pole in a small circle, while those stars that form the bowl of the little dipper go in larger circles. The circles made by the big dipper, and Cassiopeia, are still larger. But they are less than 40 degrees from the pole so, at 40 degrees latitude, they cannot go down far enough to go below the horizon. Thus, there is a circular area of the sky in the north, with its center at the pole and its edge at the northern horizon, containing the "circumpolar" constellations, which



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

never set. This circle gets larger as you go to the north, and at the North Pole no constellation ever sets. At the equator, on the other hand, they all rise and set.

As for the great dipper itself, this is probably the best known of all star groups, but everyone does not call it a dipper. To the English, it is Charles's Wain (wagon), the name referring to Charlemagne. The bowl of the dipper is the wagon, and the handle the horses pulling it. Another common name in England is the plough. Because it consists of seven stars, Latin writers called it Septentriones (septem being the Latin for seven). And because of the direction of this group, septentrional became a synonym for north.

On the face of a dollar bill, where the words "Washington, D.C." appear, is the seal of the U.S. Treasury. Around it is the inscription "Thesaur Amer Septent Sigil," an abbreviated form of the Latin words meaning "Seal of the Treasury of North America." So, on this very familiar piece of currency, there is a reference to the seven stars that form the great dipper.

### Celestial Time Table for May

May	EST	
3	8:01 p.m.	Moon in first quarter
5	9:00 p.m.	Mercury passes Venus (neither easily visible)
11	12:43 a.m.	Full moon
12	1:00 p.m.	Moon nearest, distance 224,000 miles
13	8:00 p.m.	Moon passes Jupiter
14	10:00 p.m.	Moon passes Saturn
17	10:00 a.m.	Mercury behind sun
18	2:55 p.m.	Moon in last quarter
20	5:00 p.m.	Moon passes Mars
25	7:27 a.m.	New moon
27	11:00 p.m.	Moon farthest, distance 252,400 miles

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

Science News Letter, April 23, 1960

## Do You Know

The states which did not have an increase in *population* during 1959 were Arkansas and West Virginia, which showed decreases, and Vermont, which was stable.

The male *whooping crane* stands five feet tall and has a wing spread of seven feet.

*Winged ants*, often mistaken for termites, have "pinched in" waistlines, while the termite has a thick waistline.

## Questions

**ASTRONOMY**—How far away is the Andromeda galaxy? p. 263.

**BOTANY**—What liquids were used for freezing twigs to minus 423 degrees? p. 265.

**CHEMISTRY**—How was the sugar heptose first isolated? p. 262.

**Photographs:** Cover, NASA-Weather Bureau; p. 259, Hughes Aircraft Company; p. 261, Bell Aircraft Corporation; p. 263, Mt. Wilson-Palomar Observatories; p. 270, Ruder & Finn.

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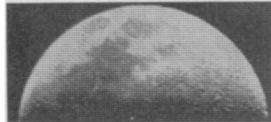
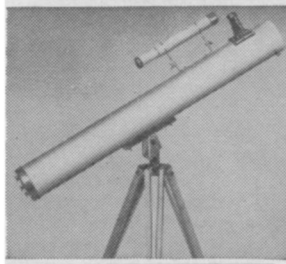
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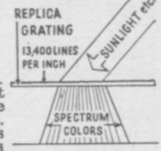
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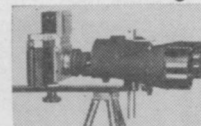
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