

## ASTRONOMY

# Spring Star Groups Appear

The lovely star groups of Leo, Virgo and Bootes shine in the April skies, while the first week of April will provide the best opportunity of the year to see Mercury.

By JAMES STOKLEY

➤ WITH THE COMING of April the brilliant constellations of winter are mostly gone from the evening sky, although some can still be glimpsed low in the west.

To take their place, the lovely but less spectacular groups of spring, such as Leo, Virgo and Bootes, have come into view. These are shown on the accompanying maps, which depict the sky as it looks about 10 p.m., your own kind of standard time, at the beginning of April. They look the same an hour earlier in mid-month, and at 8 p.m. at the month's end.

In addition to the stars, there is also the planet Venus, which shines brilliantly in the west until about four hours after sunset. It is in the constellation of Taurus, the bull, one of those which was so prominent on winter evenings. Venus is close to the star Aldebaran, but shines nearly a hundred times as brightly.

## Best View of Mercury

For perhaps a week, around April 7, you will have the year's best evening opportunity to see Mercury, nearest of all the planets to the sun. At that time Mercury will be farthest east of the sun, and will remain in the sky for about an hour and a half after sunset.

By the time twilight has ended, Mercury will be below the horizon, so you have to look for it before the sky is entirely dark. It will be quite low, and a little north of due west. It is not shown on the maps, because it sets before the times for which they are drawn. After April 7, Mercury will again draw toward the direction of the sun. It will pass approximately between the earth and sun on the 27th.

It is in the west and southwest that you can still see some of the winter constellations. In addition to Taurus there is Orion, with the bright star called Betelgeuse, to the left of the bull. Farther left is Sirius,

in Canis Major, the larger dog. Still higher is the smaller dog, Canis Minor, with Procyon.

Above Orion is Gemini, the twins, with Castor and Pollux. And above and to the right of Taurus stands Auriga, the charioteer, with Capella as the brightest star.

But now turn toward the south and east for the groupings of stars that are typical of spring. High in the south stands the lion, Leo, with the first magnitude star named Regulus, at the end of the handle of a smaller group of stars called the sickle. To the left is Denebola, a second magnitude star that marks the lion's tail.

Extending from just below Denebola in Leo, toward the eastern horizon, is Virgo, the virgin. In this group is the bright star Spica. And above the eastern end of Virgo is Bootes, the herdsman, with brilliant Arcturus.

High in the northern sky stands Ursa Major, the larger bear, of which the big dipper (now seen upside down) is part. Below it is the smaller bear, Ursa Minor, with the little dipper and Polaris, the polestar.

It is generally stated that there are five naked-eye planets: Mercury, Venus, Mars, Jupiter and Saturn. These five have indeed been known since ancient times, and it was not until 1781 that William Herschel's discovery of Uranus added to the list. Since then it has been further extended with the discovery of Neptune in 1846 and Pluto in 1930.

Under favorable conditions, the average person can see stars or planets down to about the sixth magnitude on the astronomer's scale of brightness. On this scale, the lower the magnitude number the brighter is the object. Most of the very bright stars are of first magnitude, although a few are even brighter than that. Thus, magnitudes go to zero and on into negative numbers, in order to get lower than unity. Sirius, for example, has a magnitude of minus 1.4, while that of the sun is minus 26.7. A difference of five magnitudes means a hun-

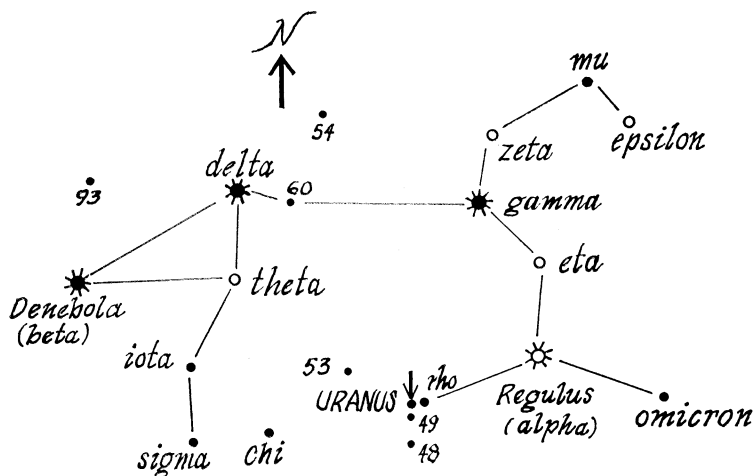
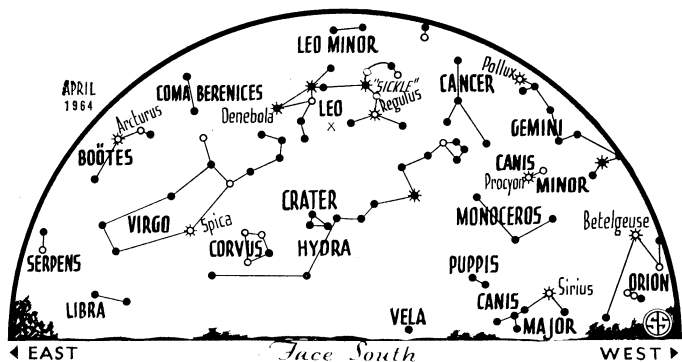
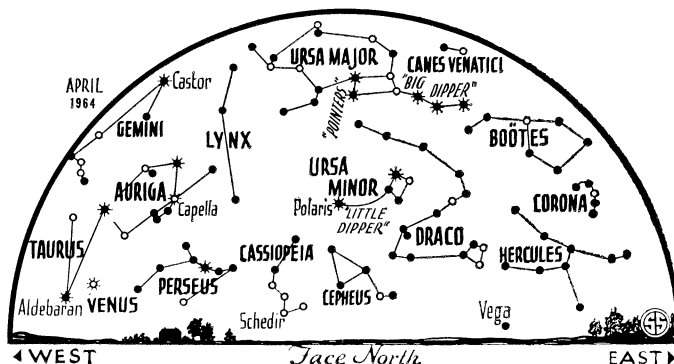


FIGURE I



☉ \* • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS



dred-fold difference in brightness. That is, a star of the first magnitude is 100 times brighter than one of the sixth; and 10,000 times brighter than the eleventh.

The magnitude of Uranus is about 5.7, which makes it a little brighter than the faintest object that can supposedly be seen with the naked eye. But the sixth magnitude is by no means a precise limit to naked eye visibility. Some persons, with very keen eyesight, can see objects considerably fainter than this. Sky conditions also vary. With the generally hazy atmosphere around a big city, and the glare of its lights, even the keenest-eyed person might find it hard to see a fifth magnitude star.

During 1964 Uranus is in the constellation of Leo. Its distance in April from earth is about 1,638 million miles. An X on the map of the southern skies shows its position.

Start with first magnitude Regulus. A little to the left is a fourth magnitude star with no special name but designated as rho Leonis. Farther left are two other stars of similar brightness, one above the other. The upper is iota Leonis and the lower sigma Leonis.

### Uranus Near Rho

In this same region there is another fourth magnitude star chi, and one of fifth magnitude, 53 Leonis. Uranus, however, is closest to rho, although only about a fourth as bright. These are all shown in Fig. 1, which is a more detailed map of Leo.

If you cannot find Uranus with the naked eye, try your binoculars on this region, and you should be able to find it easily. Still better is a telescope, but it should have some firm support. The planet will seem to have a light that is steadier than that of the twinkling stars.

Uranus was discovered by Herschel, a German musician who settled in England and took up astronomy as a hobby. On March 13, 1781, he first observed the planet, which was then in Gemini, the twins. It must be a comet, he thought at first, but as he and other astronomers continued to watch it—and plot its orbit—they realized that it was a new planet.

The discovery brought many honors to Herschel, including knighthood and appointment by George III as "King's Astronomer." This carried a pension, so he was able to devote his full time to the science and become probably the leading astronomer of his period.

Uranus is about 1,782 million miles from the sun, which it encircles once every 84 years. Its diameter is 29,200 miles, about 3.7 times that of the earth. The time it takes to spin on its axis (its "day") is only 10 hours 49 minutes.

Probably its structure is similar to that of the other giant planets—Jupiter, Saturn and Neptune. According to one astronomer who has studied this problem it seems to have a core of rock, 14,000 miles in diameter. Around this is a layer of ice 6,000 miles thick and on top a gaseous layer, or atmosphere, some 3,000 miles deep. The atmosphere seems to consist mainly of hydrogen and methane.

The temperature at its visible surface (the top of the atmosphere) is about minus 310 degrees Fahrenheit, so it would not be a hospitable refuge for space travelers!

(Continued on p. 205)

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## Spring Star Groups

(Continued from p. 203)

### Celestial Time Table for April

APRIL	EST	
2	7:00 a.m.	Moon farthest from earth, distance 251,500 miles
5	12:46 a.m.	Moon in last quarter
7	1:00 p.m.	Mercury farthest east of sun (visible for a few days around this date low in the west after sunset)
8	3:00 p.m.	Moon passes Saturn
10	4:00 a.m.	Venus farthest east of sun
12	7:38 a.m.	New moon
14	5:00 a.m.	Moon nearest earth, distance 224,900 miles
15	1:00 p.m.	Moon passes Venus
18	11:10 p.m.	Moon in first quarter
22	9:00 a.m.	Jupiter behind sun
26	12:50 p.m.	Full moon
27	5:00 a.m.	Mercury between earth and sun
29	9:00 p.m.	Moon farthest, distance 252,100 miles

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

• Science News Letter, 85:202 March 28, 1964

### ASTRONOMY

## Supernova Spotted In Bowl of Big Dipper

➤ A SUPERNOVA, a star that suddenly blazed forth with the brilliance of 20 million or more suns, has been spotted in a remote galaxy that appears near one of the stars in the bowl of the Big Dipper.

Despite its high brightness, the supernova is too faint to be seen without a large telescope because of its great distance of millions upon millions of light years. It appears near the bottom star nearest the handle in the Big Dipper's bowl. Actually, the exploding star is so remote that the galaxy in which it was found is nameless.

The supernova is magnitude 14 on the astronomer's scale. It was found by M. Lovas of Konkoly Observatory, Budapest, Hungary.

News of the supernova's discovery has been telegraphed to astronomers by Harvard College Observatory, Boston, clearing house for astronomical information in the Western Hemisphere.

• Science News Letter, 85:205 March 28, 1964

## Do You Know?

Heavy *smoking* during pregnancy increases likelihood of premature birth.

The Ambrosia *beetle* transmits a deadly fungus that kills cacao trees in the jungle.

A clothes dryer saves the average *home-maker* 20 eight-hour work days and 40 miles of walking in a year.

Physicists have discovered a new state of the *electron* in which electrons occupy an unusual class of unstable orbits for the relatively long time of a few millionths of a second.

Victims of power lawn *mowers* in 1963 lost 50,000 toes and 18,000 fingers.

• Science News Letter, 85:205 March 28, 1964



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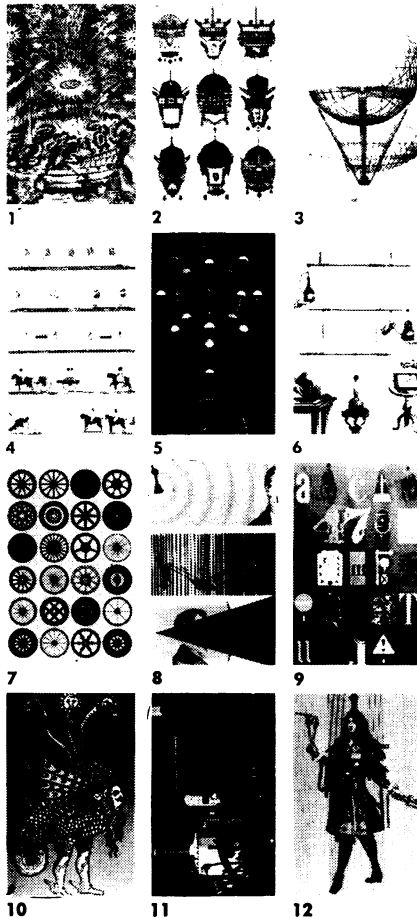
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