

ASTRONOMY

# Planets Race Across the Sky

## Nine First Magnitude Stars Will Light Constellations Of Heavens During Mild May Evenings

By JAMES STOKLEY

THE PLANETARY race is the chief feature of the May evening skies. Through the late winter and early spring the planets Mars and Jupiter have been conspicuous in the evening, first in the east and later in the southeast. During that time the distance separating these two bodies has not changed greatly, and both have been moving slowly westward through the sky.

Such a motion is called "retrograde" and occurs when the more rapidly moving earth moves past the other planets. Last month Mars was stationary among the stars for a brief period; then it started to move directly, that is, eastward. On the tenth of this month Jupiter will also be stationary; then it, too, will start its direct, easterly motion.

In the beginning of the month the two planets will be in the southern sky, Jupiter, the brighter, to the east and a little lower than its companion. At that time they will be about ten degrees apart, a distance which is equal approximately to twenty times the apparent diameter of the full moon. But if you continue to watch them night after night you will soon find that they are drawing together. At the end of the month Jupiter will still be to the east but only about a degree, twice the moon's diameter, away from its neighbor. They will be in conjunction, that is, closest, on the fourth of June when Mars will be about a quarter of a degree to the south. On June 1 the moon, then at first quarter, will pass them about five times its diameter to the south, making a rare celestial spectacle of exceptional interest.

Mars and Jupiter will not be the only planets in this race though the third will be invisible to the naked eye. Between Mars and Jupiter in the first half of May is the planet Neptune, most distant known member of the solar system until the discovery of Pluto a few years ago. Neptune is of the 7.7 magnitude, bright enough to be visible through a small telescope. An instrument with a lens at least three inches in diameter, how-

ever, would be needed to enable the observer to distinguish the difference between it and a star. On May 16 Mars passes about three-quarters of a degree to the north of Neptune. The closest approach occurs in the afternoon at about 4 p. m., Eastern Standard Time, but in the evening they will still be near together. Just after sunset and as soon as it gets dark they will be almost directly south and within a degree of each other.

### Neptune Near Mars

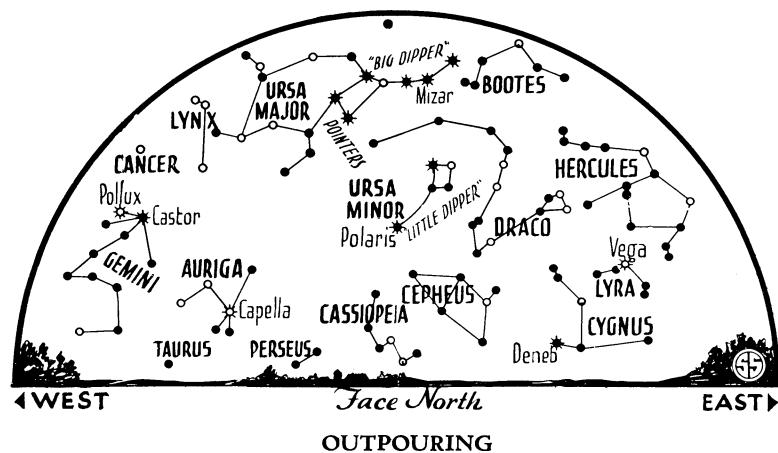
If you have a small telescope and want to try picking up Neptune, you should rest the telescope on a steady support and point it to Mars. About one and a half times the diameter of the moon below it you may be able to see what looks like a star. This is Neptune. There is no star as bright as Neptune in this particular region, so the brightest object that you see is probably the planet. With a larger telescope there should be no difficulty about distinguishing that Neptune has a disc, in contrast to the point of light which the stars present even when examined through the biggest telescope in the world.

Earlier in the month the moon passes close to Mars and Jupiter in its wanderings. On May 4, when it is just two days past first quarter, the moon comes

within about four times its own diameter of that planet, passing to the north. The close approach, called the conjunction, occurs during the day, so in the evening the moon will already have passed the planet and will be between the two, making an attractive sight. Early the following morning comes the conjunction of Jupiter and the moon. Hence on the night of the fifth the three bodies will be nearly in line. On May 15 the moon passes Saturn, which can be seen in the eastern sky in the early morning hours. It is in the constellation of Capricornus.

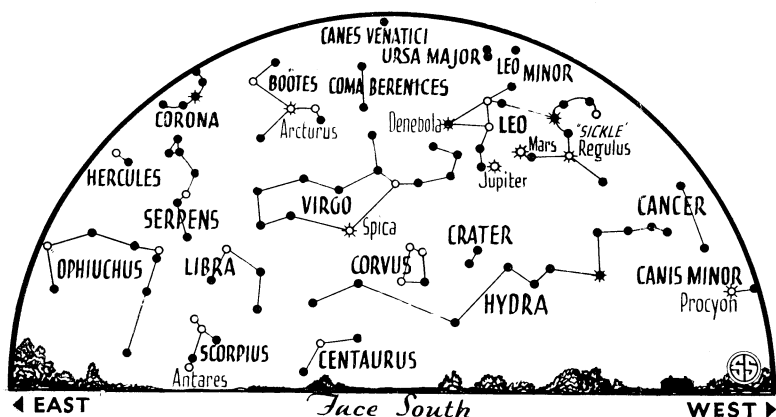
With the moon reaching first quarter on the second, being full on the ninth, going into last quarter on the sixteenth and becoming new on the twenty-fourth, the evenings will be moonlit during the first ten days or so of the month and again at the very end.

Turning now to the stars of the May evening sky we find that the month boasts a display of nine of the first magnitude. Leo has already attracted our attention because of the presence in it of Mars and Jupiter, but even without these bodies, it is an interesting constellation. The Sickle is one of the most familiar of the unofficial star groups and it is now hanging high in the southwest, the handle pointing down and the curved blade to the west. The bright star at the end of the handle is Regulus. The rest of the lion is formed by stars to the east of the sickle, three of which shape a little right triangle with the star Denebola at the eastern angle. Denebola, however, is not of first magnitude.



The well-known constellation Ursa Major, "Big Dipper," is up-side-down high in the northern sky where it may be easily seen, even through the glare of city lights.

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



INVISIBLE NEPTUNE HERE

All three planets are close together in the southern skies. Brilliant Mars and Jupiter are plainly visible, but to see Neptune, which is near Mars, you will have to use a small telescope.

Directly west is the constellation of Gemini, the twins, with Pollux, the brighter of the two brothers, of the first magnitude. Castor is the other brother. Near Gemini and low in the northwest is Capella, marking Auriga, the charioteer. To the south of Gemini and also near the horizon is Procyon, the brilliant star that distinguishes Canis Minor.

Leo is one of the zodiacal constellations occupying the ecliptic, path of the sun, moon and planets through the stars. Gemini is also one of these, but between the two is another, Cancer, which is not marked by any stars as brilliant as the first magnitude. Leo's next-door neighbor on the other side is Virgo, the virgin, which contains Spica, the bright star that is almost directly south about ten o'clock in evenings of the early part of the month. Then comes Libra, which also consists of fainter stars, then Scorpius, which is now seen low in the southeast, and in which is found Antares. This star is of a pronounced reddish color, which is enhanced by reason of the fact that it is now seen near the horizon. If you wait until late in the evening, you will see this star riding higher in the sky.

The star Arcturus is one of the most conspicuous stellar objects in May. It is in Bootes, to the southeast of the zenith, and is more brilliant than any star in that part of the sky. Lower and in the northeast is an even brighter star, Vega, which identifies the constellation of Lyra, and just below Lyra is Cygnus, in which can be seen first magnitude Deneb. Unless you wait until later in the evening, however, only part of Cygnus can be seen, and Deneb is not

as conspicuous as it will be a few months from now, when the northern cross, of which it marks the head, will be high in the heavens.

The Great Dipper is now high in the north, the bowl turned downwards. This may be used as a guide to another constellation that is not nearly so well known as it is one of the minor star groups—the hunting dogs, Canes Venatici. At ten o'clock in the beginning of the month and about an hour earlier in the middle, this group is overhead. If you imagine the curve made by the handle of the Great Dipper and the side of the bowl opposite the pointers to be continued into a circle, Canes Venatici will be just at the center.

Named For King

The brightest star in this group is only of the 2.9 magnitude, but it has a proper name, Cor Carolii. This name was given it in 1725 by Edmund Halley, of comet fame, who was then Astronomer Royal of England, in honor of King Charles II. According to the story, Sir Charles Scarborough, the court physician, suggested it to Halley and said that it had shone with special brilliance on May 28, 1660. This was the night before Charles returned to the throne upon the restoration of the Stuarts after the regime of Cromwell had been overthrown.

The usual name of the constellation, Canes Venatici, dates from about the same period. In the earlier star maps, there were several regions of the sky, devoid of very bright stars, which were not occupied by any of the recognized constellations, most of which date back

to antiquity. But in 1687 a Polish astronomer, Johannes Hevelius, of Danzig, published a beautiful set of star maps called the "Firmamentum Sobiescianum," named in honor of the ruling family of Poland. In this he filled up a number of these empty spaces introducing the constellation of the hunting dogs for the first time, along with such other now familiar groups as the Lynx, Leo Minor, Lacerta, the lizard, Vulpecula, the fox, Sextans, the sextant and Scutum Sobieskii, Sobieski's shield. The dogs, chasing the great bear, were held in leash by Bootes.

In the recent days of astronomical photography the constellation of Canes Venatici has gained a new distinction. In it is found one of the finest of the external galaxies, systems of stars beyond the one of which our sun and all the stars we see in the night sky are members. A few years ago these objects were called "spiral nebulae," because of their pinwheel-like structure, but this name is passing out of use since the true nebulae are masses of glowing gas. The researches of the past decade have shown conclusively that these objects are swarms of stars, but so far distant, a million light years or more, that even through the largest telescopes most of them appear as luminous masses without any detail. Two of the closest have, however, been resolved into stars by photographs made with the Mt. Wilson 100-inch telescope. Messier 51, as the galaxy in Canes Venatici is known, is just a little too far for the 100-inch instrument, but doubtless it will be one of the first things studied with the 200-inch telescope that is now being constructed for the California Institute of Technology. Then we may confidently expect that this rather faint constellation will again come into great scientific prominence.

Science News Letter, April 29, 1933

A fishpond 400,000,000 years old was described before the meeting of the American Philosophical Society by W. L. Bryant, director of the Park Museum in Providence, R. I.

This deposit of fish fossils of Devonian age consists of a lens-shaped mass of limestone having every appearance, Mr. Bryant said, of an ancient watercourse filled with sediment. In it were found the remains of primitive fishes and still more primitive fish-like creatures known as ostracoderms. Remains of exceedingly early land plants were also present.