

ASTRONOMY

# Saturn Joins Jupiter

**In May, Jupiter and Saturn will be visible in the evening sky, and Mars, Venus and Mercury in the early morning sky. The year's only eclipse of the moon occurs May 3.**

By JAMES STOKLEY

► JUPITER, NOW shining brilliantly in the southern evening sky, is joined by Saturn, the planet with the rings. As soon as it is dark, if you look toward the south, you will see Jupiter in the constellation of Virgo, the virgin. It is just above Spica, although it exceeds the star in brightness about 18 times.

Saturn is farther east, in Ophiuchus, the serpent-bearer, and a little to the left of Antares, the bright, reddish star in Scorpius, the scorpion. The planet is about half again as bright as the star.

The accompanying maps show the appearance of the skies at about 10 p.m., your own kind of standard time (add one hour for daylight saving time) at the first of May, an hour earlier at the middle of the month and two hours earlier at the end. The stars are the background against which the man-made earth satellites can be seen as they flash briefly across the heavens.

Jupiter is shown on the map of the southern sky, but Saturn does not quite make it. Part of Ophiuchus is shown along with Antares, but Saturn is below the horizon. At the beginning of May it rises about three and one-half hours after sunset. By the end of the month it appears only about an hour after the sun has gone down, before twilight has faded, in fact.

## Arcturus: Conspicuous Star

About the most conspicuous star to be seen on May evenings is Arcturus in Bootes, the bear-driver, which is just about the eastern end of Virgo. Another bright one is Vega, in Lyra, the lyre, which is to the northeast. Just below this group is Cygnus, the swan, with Deneb. Although this star is classed in the first magnitude, it appears a good deal fainter. It is so low in the sky that its light is absorbed by the greater thickness of air through which it has to pass.

Antares, in Scorpius, also appears fainter than it should, for the same reason.

To the right of Virgo, and now in its best position of the year, stands Leo, the lion. This really is in two parts. To the right is a group of stars, not an official constellation, called the "sickle," because of its shape. Regulus, another star of the first magnitude, is at the end of the handle, which points downward. As pictured on the old star maps, the blade of the sickle formed the lion's head, Regulus was in his right shoulder, and the star west of Regulus was in his right paw.

To the left is the triangle of stars which depict the animal's hind quarters. The tail is marked by Denebola. Although this star

is of the second magnitude, Denebola is its commonly used name, which is rather unusual.

However, another second magnitude star with a common name is visible in the west. This is Castor, one of the twins, in Gemini. Just alongside is Pollux, his brother, a star of the first magnitude. Auriga, the charioteer, is to the right of Gemini, and in it is first-magnitude Capella. Canis Minor, the lesser dog, is to the left of Gemini, with brilliant Procyon.

In addition to Jupiter and Saturn, some other planets are visible later in the night. Mars rises about 2:30 a.m., at the first of May. Venus follows about an hour later, and shines in the eastern sky more brilliantly than any other star or planet.

On May 14 Mercury is farthest west of the sun, and rises about an hour before sunrise. By this time, however, the sky will be so bright, and the planet so low, that Mercury will be difficult to observe.

The year's only eclipse of the moon, and the only eclipse of either sun or moon visible in the United States, will occur in the early morning hours of May 3. Unfortunately, it will only be visible in the western part of the nation; in the east the moon will have set before the eclipse occurs.

Even along the Pacific Coast, not a great deal will be visible for this is a rather small partial eclipse.

Both earth and moon are illuminated by the sun, and cast shadows behind them. When the moon passes between the earth and sun, and the lunar shadow falls on this planet, there is an eclipse of the sun. Such an event occurred recently, on April 19, but was visible mainly in Asia. When the moon enters the shadow of the earth, and its light is cut off, there is a lunar eclipse and this is what happens on May 3.

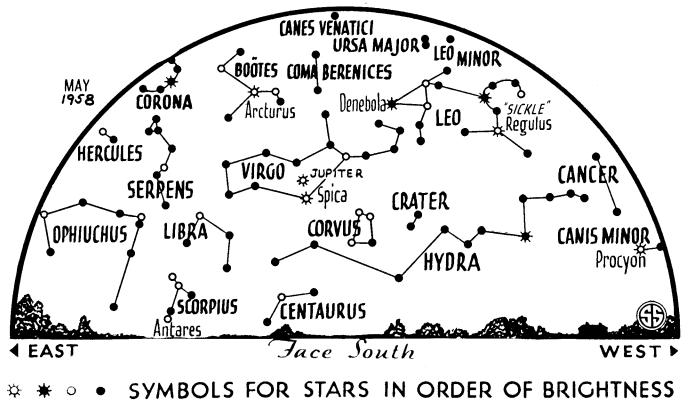
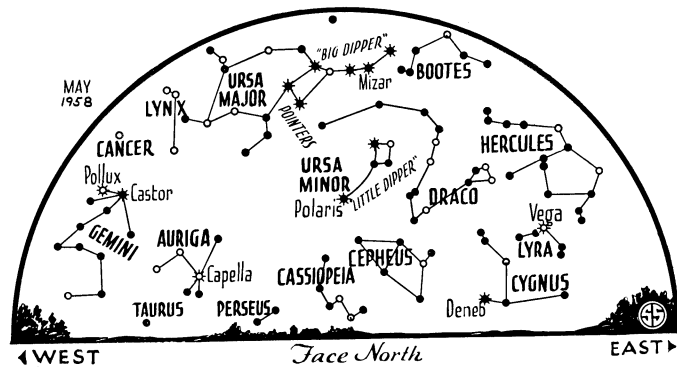
When the moon goes all the way into the terrestrial shadow, the eclipse is total, but this time only the edge of the lunar disc does so. The shadow will cover, at most, only about one and one-half percent of the moon's diameter.

Along the Pacific Coast, the shadow will reach the southern edge of the moon's disc at 4:00 a.m., PST (7:00 a.m., EST) and will leave it at 4:26 a.m. During this period the lower left-hand part of the disc will look a little darker than normal.

But even though only a small part of the country will be able to see the eclipse, we can all see the planet Jupiter which is shining so brilliantly in the southern sky. And when you look at Jupiter you are looking at a powerful radio station.

## Celestial Radio Station

In recent years, particularly since the end of World War II, an important branch of



astronomical research has developed—radio astronomy.

The sun, the moon and many other objects in the universe are sending us radio waves. Many radio telescopes have been built to pick up these waves, and provide data for study and interpretation.

If a piece of iron is heated to approximately a thousand degrees Fahrenheit, it begins to show a dull red glow; at 3,000 degrees, it shines a brilliant white. These waves of visible light range in length from approximately 1/40,000th inch, which give the sensation of red, to approximately 1/70,000th inch, which gives violet. Shorter than red are the infrared, given off by objects much too cool to show any visible glow. The longer waves in the infrared run into the shortest radio waves, and these, too, are given off by objects that are relatively cool, even at temperatures no greater than those of our normal surroundings.

### Jupiter's Lightning

Such waves in the radio region, an inch or so in length, have been detected from the moon, Mars and Venus, resulting from temperatures in the region of zero to 32 degrees Fahrenheit. Jupiter, however, is much colder, and no radiation of this sort has been detected from that planet.

Nevertheless, in 1955 scientists in Washington did pick up waves from Jupiter, some 45 feet in length. Unlike those due to the temperature, these were variable, coming in bursts, and were also much stronger. Each burst may last for a second or more. The static that we sometimes hear on our radio receivers usually comes from distant lightning flashes here on earth.

One theory to explain the bursts of "static" from Jupiter is that there, too, lightning strokes occur in the clouds of methane and ammonia that fill the planet's skies. But the total power of such a Jovian stroke is about a hundred trillion times as great as the average stroke on earth.

Venus, has been found to broadcast somewhat similar signals, but these are much weaker, and shorter, too, lasting only a small fraction of a second. As these waves are studied by the new radio observatories, and others now being built, we will doubtless acquire much new data about the planets, as well as other celestial bodies.

### Celestial Time Table for May

May	EST	
2	1:00 a.m.	Moon nearest, distance 223,400 miles.
	4:21 a.m.	Moon passes Jupiter.
3	7:00 a.m.	Partial eclipse of moon begins, visible in region of Pacific Ocean.
	7:23 a.m.	Full moon.
5	early a.m.	Meteors visible, radiating from constellation Aquarius.
6	5:22 a.m.	Moon passes Saturn.
10	9:37 a.m.	Moon in last quarter.
12	9:58 a.m.	Moon passes Mars.
14	6:00 a.m.	Moon farthest, distance 252,000 miles.
	9:00 a.m.	Mercury farthest west of sun.
	7:25 p.m.	Moon passes Venus.
16	9:16 a.m.	Moon passes Mercury.
18	2:00 p.m.	New moon.
25	11:38 p.m.	Moon in first quarter.
29	9:25 a.m.	Moon passes Jupiter.
30	2:00 a.m.	Moon nearest, distance 226,300 miles.

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

Science News Letter, April 26, 1958

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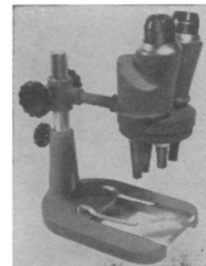
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