



ASTRONOMY

Jupiter Still Prominent

Jupiter, again the brightest light in the evening sky, shines in the northwest while Arcturus is most prominent in the south—By James Stokely

► WITH THE COMING of May, the planet Jupiter continues to be the most prominent star or planet visible in the evening sky. It is the first to appear in the northwest as the sky darkens after sunset. It then moves toward the western horizon to set—about four hours after sundown on May 1, two hours earlier on the 31st.

Jupiter's position in the constellation of Gemini, the twins, is shown on the accompanying maps. These maps depict the sky as it looks about 11:00 p.m. (your own kind of daylight saving time) on May 1, 10:00 at mid-month, and 9:00 at the end.

Among the stars, the most prominent is Arcturus, shown high in the south in Bootes, the herdsman. Below it is Virgo, the virgin, with Spica, another star of the first magnitude. Above and to the right of Virgo shines Leo, the lion, with a star of similar brightness, Regulus.

Low in the southeast stands part of Scorpius, the scorpion. The star close to the horizon, named Antares, is also of the first magnitude. At such a low altitude, however, so much of its light is absorbed by the earth's atmosphere that it appears considerably fainter.

In Gemini, where Jupiter now stands, is Pollux, another first magnitude star, and nearby are two others of the same degree of brightness. One is Capella, to the right in Auriga, the charioteer; the other is Procyon, toward the left in Canis Minor, the lesser dog. These stars shine brilliantly in the winter evening sky, but are not visible on summer evenings.

To take their place, however, two stars are rising in the northeast that will become very prominent on summer evenings. One is Vega, in Lyra, the lyre; the other is Deneb, in Cygnus the swan. Like Antares, which will also

become more conspicuous in summer evenings, Deneb is considerably dimmed because it is so low on the horizon.

High in the north shines Ursa Major, the great bear, which includes the familiar Big Dipper. Here are the two pointers, whose direction indicates the north star, Polaris, which is part of Ursa Minor, the little bear—and also of the Little Dipper.

Venus and Saturn Appear

Two more planets, Venus and Saturn, appear later in the night toward dawn. On May 1, they rise together, about two hours before sunrise. During daylight hours in the U.S. on May Day, Venus passes Saturn to the north, at a distance about twice the apparent diameter of the full moon. If you look to the east as dawn is breaking, you will see Venus long before you see Saturn, for it is more than 100 times brighter.

Mercury and Mars—the other two planets that are sometimes visible to the naked eye—will not be seen in May. They are too close to the sun for observation. Mars is now far out beyond the sun, but will soon start moving toward the earth for a relatively close approach in April 1967. The distance of Mars at the first and 31st of May is given in the table at the end of this article, as are similar data for the other naked-eye planets.

There will be two eclipses in May: one of the moon, the other of the sun—but neither will be visible in North America.

The eclipse of the moon on May 4, is a penumbral eclipse, when earth's natural satellite enters the outer part of earth's shadow, called the penumbra. This is the region where the

spherical earth partly hides the sun. The inner shadow, called the umbra, is the region where the earth's shadow completely cuts off sunlight from the moon.

This eclipse occurs a little after midnight in North America (0h 19m DST) while the moon is below the horizon. But even in the parts of Europe and Asia where it will be visible, the eclipse will hardly be noticeable. Even with some of the sun's illumination cut off, enough light will remain to make it appear like an ordinary full moon to the casual observer.

Some two weeks later, on May 20, comes the annular solar eclipse, visible mainly over Europe, Asia and northern Africa as a partial eclipse. That is, people in these regions will see the moon come partly in front of the sun. More of the sun will be hidden the nearer they are to the central eclipse path. The eclipse path starts as the sun is rising in the middle of the narrow section of the South Atlantic Ocean between the bulges of South America and Africa.

Central Eclipse Path

The central eclipse path then crosses Africa, the Mediterranean and Aegean Seas, Turkey, the USSR and China. It ends as the sun is setting on the Fen Ho River, about 250 miles southwest of Peking.

Even along this path, however, the moon will not totally eclipse the sun, since this is an annular eclipse. The distance of the moon from earth varies during the month. On the 20th the moon will be far enough away so that it will not look quite as large as the sun. Thus, when it comes right in front of the sun, as it will along the central

eclipse path, a bright ring of direct sunlight will be visible around the black lunar disk. The Latin word for ring is "annulus," which is why this is called an annular eclipse.

Celestial Timetable for May
MAY EDT

1	10:00 a.m.	Moon nearest, distance 227,600 miles
	2:00 p.m.	Venus passes north of Saturn
4	5:01 p.m.	Full moon (penumbral eclipse not visible in North America.)
12	7:19 a.m.	Moon in last quarter
13	9:00 a.m.	Moon farthest, distance 251,300 miles
15	5:00 a.m.	Moon passes south of Saturn
16	1:00 p.m.	Moon passes south of Venus
20	5:43 a.m.	New moon (annular eclipse of sun, not visible in North America)
22	7:00 p.m.	Moon passes north of Jupiter
27	3:00 a.m.	Mercury behind sun
	4:51 a.m.	Moon in first quarter
	10:00 a.m.	Moon nearest, distance 229,800 miles

Subtract one hour for CDT, two hours for MDT, and three hours for PDT.

Distance of Visible Planets

	May 1	May 31
Mercury	97,200,000 miles	121,700,000 miles
Venus	81,400,000 miles	102,300,000 miles
Mars	228,000,000 miles	231,000,000 miles
Jupiter	537,000,000 miles	564,000,000 miles
Saturn	958,000,000 miles	919,000,000 miles

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METEOROLOGY

Long Gun Being Tested For Air Measurements

► PROJECTILES launched from a gun 118 feet long are being tested as an inexpensive method for making high-altitude measurements.

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The program to probe the upper atmosphere using gun-fired projectiles is known as HARP, for High Altitude Research Project. Under the program, five-inch projectiles have been sent to heights of 42 miles and 16-inch projectiles have been placed 80 miles above Barbados in the West Indies.

The 118-foot gun has a smooth bore and weighs 200 tons. The projectiles it launches spread trimethyl aluminum high in the atmosphere. The luminous trails this chemical leaves enable scientists to measure winds at great heights.

Charles H. Murphy of Aberdeen Proving Ground, Md., Gerald V. Bull of McGill University, Montreal, and Howard D. Edwards of Georgia Institute of Technology, Atlanta, reported details to the American Meteorological Society meeting in Los Angeles.

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