

## ASTRONOMY

# Jupiter Seen in Evening

Venus, departing at end of August, is replaced by Jupiter, only one-sixth as bright. Partial eclipse of sun scheduled Sept. 1 at sunrise.

By JAMES STOKLEY

► CONTINUING AS it has during spring and early summer, the planet Venus is still visible as the brightest object in the evening sky. By the end of August, however, it will have vanished from view, only to reappear soon afterwards in the early morning before sunrise.

But another bright planet is taking its place. This is Jupiter, which rises about two and three-quarter hours after sunset at the first of August, and about an hour and a half after that event at the close of the month. Though Jupiter is only about a sixth as bright as Venus, it is still many times more brilliant than the brightest star. So it can easily be located as it appears in the east in the constellation of Pisces, the fishes, during the late evening hours.

Neither of these planets—nor any other—is shown on the accompanying maps, which depict the appearance of the sky about 10 o'clock, your own kind of standard time, at the first of August, and at nine o'clock at the middle. (Add one hour if you are on daylight time.) Venus is moving through the constellation of Virgo, part of which is shown on the southern sky map, in the west, though the part in which the planet is visible is below the horizon.

Similarly, in the east, one star of the constellation of Pisces, the fishes, is shown, but much of the group, including that occupied by Jupiter, is out of sight. An hour or so later, however, the rotation of the earth has carried us farther east, so that the rest of Pisces has come into view, while Virgo, on the other hand, has gone completely under the horizon.

## Brilliant Summer Star

Among the stars which, unlike the planets, shine by their own light, Vega, in Lyra, the lyre, is brightest. This group stands right at the zenith. Of all the stars in the sky (except the sun) only three others surpass Vega in brilliance, and only one of the trio (Sirius, the dog-star, visible on winter evenings) is generally seen from the United States and Canada.

Just to the east of Lyra, is the figure of Cygnus, the swan, shown partly on each of our two maps. The one for the northern sky shows Deneb, the brightest star in the group. The Milky Way runs right through Cygnus, as it does through Aquila, the eagle, a prominent constellation toward the south. Here can be seen Altair, another star of the first magnitude, which can

easily be identified because of the two fainter stars attending it, one below and to the left; the other above and to the right.

Still farther south is Sagittarius, the archer. This also is in the path of the Milky Way, indeed, the brightest part of this vast swarm of faint stars is in the direction of Sagittarius. The group contains no star of the first magnitude, but nine of the stars in it outline the figure of a teapot, the handle to the left and the spout to the right. Again, the six stars that make the handle and the top of the lid also form a dipper, often referred to as the "milk dipper," no doubt from its position in the Milky Way.

## Red-Colored Antares Visible

To the right of the Archer is Scorpius, the scorpion, the curved row of stars near the horizon forming its tail. A first-magnitude star that is quite red in color, called Antares, is supposed to mark the animal's heart.

One other star of the same magnitude is seen in the west, about a third of the way from the horizon to the zenith. This is Arcturus, in the group called Bootes, the bear-driver. This refers to its proximity to the constellation of Ursa Major, the great bear, which is next to it, lower and toward the right. In it is the well-known "big dipper." Just as one can use the line of the pointers, in the bowl of the dipper, to find Polaris, the pole star, so the curved line formed by the handle, followed toward the south, may be used to locate Arcturus.

As for the other planets, which have not been mentioned, Saturn is also in the evening sky, but not conspicuous. It also is in Virgo. It is in the part not shown on the map, not far from Venus, though only

about a hundred and sixtieth as bright. Around Aug. 3 Mercury will also make a brief visit to the western evening sky, though it will not get far enough away from the sun's glare to be seen easily. Mars, the remaining naked-eye planet, during August will be in the constellations of Gemini, the twins, and Cancer, the crab, rising in the east about two hours ahead of the sun. Of second magnitude, it will not be conspicuous.

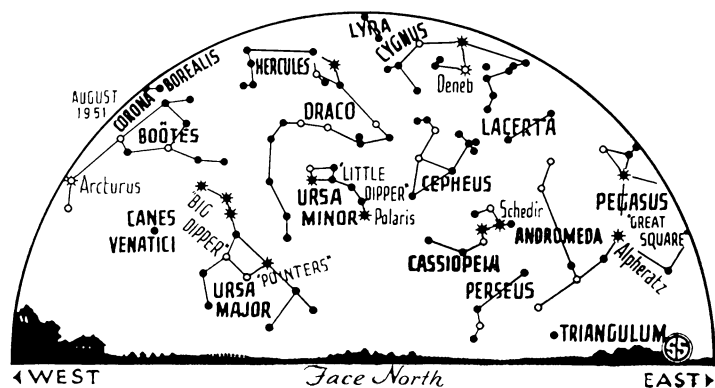
## Annular Eclipse Scheduled

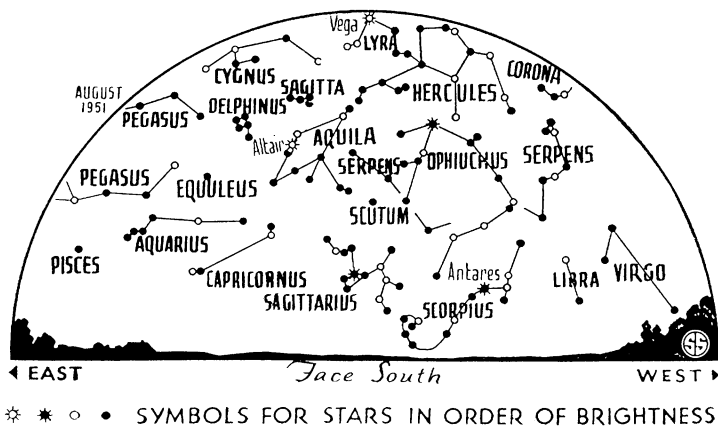
One of the most interesting of the events on the astronomical program for the near future is scheduled for early morning on Sept. 1. If an account of it were left until the appearance of the next of these articles, some readers might find it too late to be of use, so it will be described in this article for convenience.

The event referred to is an annular eclipse of the sun, which will be visible as a partial eclipse over much of the eastern part of the United States and Canada, as well as southwestern Europe and of all Africa.

A solar eclipse occurs when the moon comes between sun and earth. The distance of the sun changes during the year, from about 91,500,000 to 94,500,000 miles. Similarly, the moon's distance changes from 221,463 to 252,710 miles. Thus, the apparent size of these bodies is altered, being largest when they are closest and smallest when farthest away. Sometimes, the moon presents a disk in the sky that is a little larger than that of the sun and then, when there is an eclipse, the latter is completely hidden.

More frequently, however, the moon's disk is a little smaller than the sun's. Then an eclipse cannot be total, even though the moon does come precisely in front of the sun. Even at the middle of such an eclipse, a ring of the sun's surface is visible around the dark disk of the moon. Because "annulus" is the Latin word for "ring," an





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

eclipse of this sort is called an "annular" eclipse, and that is what will happen in the early morning hours of Sept. 1.

The path, along which this annulus will be visible, starts as the sun is rising in southern Virginia and northern North Carolina; passes eastward and then south-eastward across the Atlantic Ocean and Africa, ending as the sun is setting in Madagascar. Over a much larger area including, as noted above, eastern U. S. and Canada, Africa and southwestern Europe, as well as the Atlantic Ocean, southern Greenland and Iceland, the moon will partly hide the sun. The nearer the point to the path of the annular eclipse, the larger will be the area of the sun that will be hidden.

**Eclipse Path Mecca**

The annular path in the United States will be the Mecca of many amateur astronomers, for while such an eclipse is not of great scientific value, it is an interesting and unusual spectacle. This part of the path on land is about 280 miles long, and about 95 miles from north to south. It begins on a line about 30 miles west of Winston-Salem, N. C. Among the places within the path are Winston-Salem, Greensboro, and Durham, N. C., Danville, Petersburg, Norfolk, Virginia Beach and Newport News, Va. Richmond is just on the northern edge, with part of the city within it, while Raleigh, N. C., is just a few miles south of the southern edge.

**Rises Partially Eclipsed**

From places within this path, the sun will already be partly eclipsed as it rises on Sept. 1, and the annular eclipse will occur shortly afterwards. The farther east one is, the higher it will be, and the better in general will be one's chance of making a satisfactory observation. Vacationers at Virginia Beach, with hotel rooms facing the ocean, will find themselves in a very fortunate position for a good view of the phenomenon. From this location the annulus will appear at 5 hours 57 minutes 37 seconds a. m., EST, and will remain visible for 2 minutes 36 seconds. From

Winston-Salem, the annular eclipse will start at 5:57:21 a. m., and will last 2 minutes 21 seconds.

The following table gives the time and extent of the partial eclipse for a number of American cities. Only at Orono, Maine, will the beginning of the eclipse occur after sunrise. Where no time is given for the middle, this also occurs before sunrise, and the magnitude of the eclipse, the percentage of the solar diameter that is covered by the moon's disk, is that for the sun at the time of rising. These data have been calculated in the Nautical Almanac Office of the U. S. Naval Observatory. (Times are local standard times.)

City	Middle A. M.	%	End A. M.
Albany, N. Y.	6:02	82	7:10
Ann Arbor, Mich.	79	7:06	
Atlanta, Ga.	75	7:03	
Boston, Mass.	6:02	83	7:12
Buffalo, N. Y.	6:02	80	7:08
Chicago, Ill.	71	6:05	
Cincinnati, Ohio	86	7:05	
Cleveland, Ohio	6:01	90	7:06
Des Moines, Iowa	36	6:04	
Harrisburg, Pa.	6:01	88	7:08
Kansas City, Mo.	26	6:04	
Little Rock, Ark.	32	6:02	
Louisville, Ky.	79	6:04	
Madison, Wis.	62	6:05	
Minneapolis, Minn.	43	6:04	
Nashville, Tenn.	68	6:03	
New Haven, Conn.	6:02	86	7:10
New Orleans, La.	34	6:00	
New York, N. Y.	6:01	87	7:10
Orono, Maine	6:04	81	7:14
Philadelphia, Pa.	6:01	89	7:09
Pittsburgh, Pa.	6:01	88	7:07
Raleigh, N. C.	5:58	95	7:06
Richmond, Va.	5:59	96	7:07
St. Louis, Mo.	52	6:03	
Tallahassee, Fla.	68	7:01	
Washington, D. C.	6:00	92	7:07

In watching the eclipse, precaution should be taken. That is, one should never gaze directly at the sun without some protection for the eyes. A piece of very dense, exposed photographic negative film makes a good eyeshield. Ordinary sun glasses should not be used.

**Celestial Time Table for August**

Aug.	EST	
2	5:39 p. m.	New moon
3	2:00 p. m.	Mercury farthest east of sun
4	4:00 p. m.	Jupiter, which has been moving eastward among stars, turns around and starts moving toward west
5	1:45 a. m.	Moon passes Mercury
	3:54 p. m.	Moon passes Venus
6	8:37 p. m.	Moon passes Saturn
10	7:22 a. m.	Moon in first quarter
12	early a. m.	Meteors visible radiating from constellation of Perseus
14	11:00 p. m.	Moon nearest, distance 225,000 miles
16	9:59 p. m.	Full moon
20	3:58 p. m.	Moon passes Jupiter
24	5:20 a. m.	Moon in last quarter
26	10:00 p. m.	Moon farthest, distance 251,600 miles
29	6:56 p. m.	Moon passes Mars
31	3:00 a. m.	Mercury between earth and sun

Sept. 1 sunrise Annular eclipse of sun  
 Subtract one hour for CST, two hours for MST, and three for PST.

Science News Letter, July 28, 1951

**VETERINARY MEDICINE**

**Anesthesia for Animals Successful in First Use**

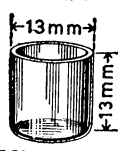
► FIRST SUCCESSFUL use of gas for general anesthesia of large animals is reported by Dr. S. A. Peoples of the department of pharmacology in the University of California's School of Veterinary Medicine, Berkeley.

Cyclopropane, the compound used in the experimental studies on cows, bulls, horses, and sheep, acts speedily and permits rapid recovery without dangerous side effects, he said.

The anesthetic may prove a distinct contribution, particularly in work with horses and bulls which present special problems, Dr. Peoples predicted in his preliminary report.

Already successful in the laboratory, the gas will be tested for practical use in further trials at the University of California, with the cooperation of clinical departments in the School of Veterinary Medicine.

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