

ASTRONOMY

Jupiter Still Prominent

Giant planet, shining at its brightest, continues to dominate October's evening skies. On Oct. 2 two planets are at their nearest for the year.

By JAMES STOKLEY

► THE BRILLIANT planet Jupiter continues to dominate the evening sky. Indeed, on Oct. 2 it is directly opposite to the sun, which means that it rises as the sun sets and is visible through the night. In other words, on that date both the earth and Jupiter are in the same direction from the sun and the two planets are at their nearest for the year. They are then separated by 366,800,000 miles. Because of this, Jupiter is now at its brightest—of magnitude minus 2.5 on the astronomical scale of stellar and planetary brightness. This is not as bright as Venus appeared when in the evening sky a few months ago, or as it does now in the east in the early morning hours. With the exception of Venus, however, Jupiter is now shining more brilliantly than any other star or planet ever does.

By the time of the evening for which the accompanying maps are prepared (10:00 p. m., your own kind of standard time at the beginning of October and an hour earlier at the middle) Jupiter has climbed high in the southeastern sky, where it is easily located because of its splendor. It is in the constellation of Cetus, the whale. Actually, this is not officially one of 12 constellations of the zodiac, which is the path of the planets as well as of the sun and moon. Pisces, the fishes, directly above, is one of the dozen, and one corner of Cetus, as the constellation was officially delineated by the International Astronomical Union, extends up into it. At present, Jupiter happens to be in this corner.

"Great Square of Pegasus"

Aside from the presence of Jupiter, the best way to locate the fishes is to find part of the constellation of Pegasus, the winged horse, which is right above them. Three of the stars in Pegasus, together with Alpheratz in neighboring Andromeda (the chained lady), form a huge square called the "Great Square of Pegasus," that is marked on our map of the southern sky. Just below the square is a ring of seven or so stars, of which only three are bright enough to be marked on the map, that is called the "circlet of the western fish." Extending from this, toward the east, is a line of stars that was represented on the picturesque old star maps as a ribbon tying the two fishes together. This went down to a supposed knot, indicated by the star closest to Cetus, and then up to the other fish, which is on the eastern side of the square.

None of these stars, in Cetus, Pisces or Pegasus, is of the first magnitude. However, six of at least this brilliance are now visible in the evening sky. Brightest is Vega in Lyra, the lyre, high in the western sky. Its magnitude is 0.1, even brighter than first, which extends from 0.5 to 1.5. It is a little less than a tenth as bright as Jupiter.

Deneb in "Northern Cross"

Above Lyra is Cygnus, the swan, in which stands Deneb. This star is at the northern end of a group of stars that form a well-shaped cross, the so-called "Northern Cross." As a cross it is much more perfect than its famed southern counterpart, though not of as brilliant stars. To the left of Vega we find Aquila, the eagle. These three—Vega, Altair and Deneb—make a large triangle which can be located easily.

Another first-magnitude star appears low in the south, in line with the two stars that make the western side of the great square. This is Fomalhaut, in Piscis Austrinus, the southern fish, which is entirely separate from the constellation of Pisces. Fomalhaut, it will be noted, is shown on our map by the symbol for a star of the second magnitude. The reason is that even though it is now about as high as it ever rises for us in these latitudes, it is still rather low. Consequently, its rays must pass through a considerable thickness of the earth's atmosphere, which absorbs some of its light, and makes it look fainter than if it appeared as high, perhaps, as Pegasus.

Low in the northeast Auriga, the charioteer, is now visible, and in this group shines Capella. To the right of this figure, and just coming into view in the evening for the first time since last spring is Taurus, the Bull, with Aldebaran, another first-

magnitude star that looks fainter than it should because of its low altitude. Unlike Fomalhaut, however, Aldebaran will rise high in the south during winter evenings and will then shine with full glory.

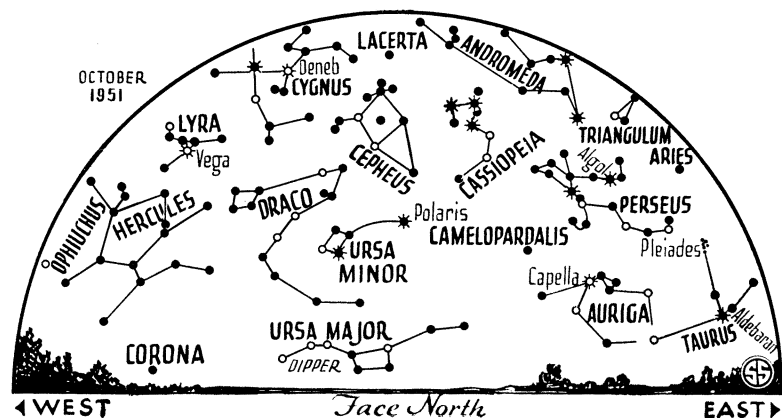
As mentioned above, Venus, which was seen in the evening until mid-August, has now moved to the morning sky, and shines brilliantly in the east before sunrise. It is now moving through the constellation of Leo, the lion, and is at its greatest brilliance on Oct. 10, with a magnitude of minus 4.3. This is about 5.25 times as bright as Jupiter. The planet Mars is in the same part of the sky, though many times as faint. Moving toward the east, on Oct. 3 it passes within a degree, or about twice the apparent diameter of the full moon, of the star Regulus. Mars has now started to swing towards the earth. It will come closest on May 8, 1952, when it will be of magnitude minus 1.5 or nearly 23 times as bright as it is at present.

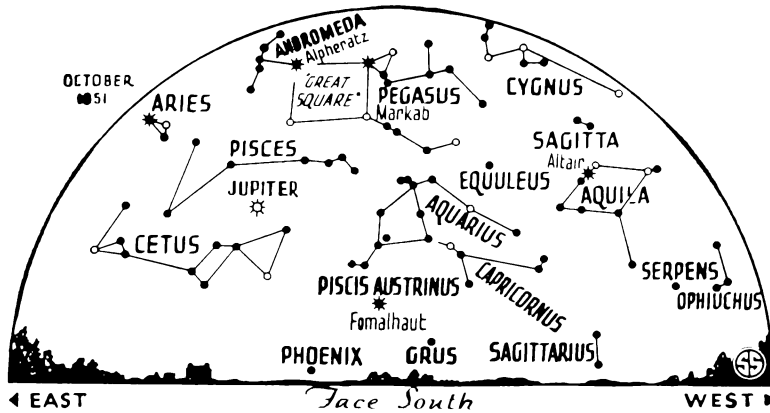
Jupiter Biggest Planet

One distinction of the planet Jupiter, which is now so prominent in the evening, is its great size. With a mean diameter of 87,000 miles, or 11 times that of the earth, it has 1,312 times the volume of our planet. However, being of lower density than earth, it has only 318 times as much mass, or "weight." Big though it is, it is still small compared to the sun, whose diameter is 109 times that of earth. In mass, the sun is about 1,047 times that of Jupiter.

Another distinction of this giant planet is its extensive retinue of satellites, more than of any other planet. The four biggest were discovered in 1610 by Galileo with his little telescope, and they represent actually the first astronomical discovery with the aid of that instrument. Since then seven more have been found, and American astronomers accounted for all but one of these.

In 1892, E. E. Barnard, at the Lick Observatory in California, found the fifth, a





◊ * ◦ • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

far smaller body than those of Galileo. They range from 2,000 to 3,200 miles in diameter, while V, as Barnard's is usually designated, is probably about a hundred miles in diameter. In 1904-5 C. D. Perrine, at the same observatory, found VI and VII, the former with a diameter about the same as V, and the latter perhaps about 40 miles.

Then England scored, when in 1908 P. J. Melotte, at the Royal Observatory at Greenwich, found number VIII, which also has a probable diameter of 40 miles. Lick Observatory made the next discovery, in 1914, when Dr. Seth B. Nicholson, while searching for VIII, came across a new one, called IX. This has a diameter around 20 miles.

Spotted by Large Telescope

After that came an intermission, but in 1938 Dr. Nicholson, by that time a member of the staff of the Mt. Wilson Observatory, found X and XI with the aid of the 100-inch telescope, at that time the world's largest telescope. The diameters of these tiny bodies has been estimated at about 15 miles. Perhaps there are still more, but if so they are undoubtedly small and faint and will be most difficult to locate.

Incidentally, after 1938, no more discoveries of satellites of any planets were made until ten years later. In 1948 Dr. Gerard Kuiper, of the Yerkes Observatory and the MacDonald Observatory, which are operated together as a joint project of the Universities of Chicago and Texas, found a new satellite of Uranus, raising that planet's known attendants from four to five. He named his discovery Miranda. The following year he scored again with Nereid, a new moon of Neptune, which only had been credited with one up to then.

Aside from the moon, there are 29 satellites now known belonging to the various planets of the solar system, and U. S. astronomers have accounted for 12 of these. England comes next with eight. For next place, Italy and France are tied, with four each, while Holland is last with one. Of all the planets that have satellites, U. S. astronomers have discovered at least one for each.

Celestial Time Table for October

Oct.	EST	
2	11:00 p. m.	Earth and Jupiter in same direction from sun, Jupiter 366,800,000 miles from earth
7	2:00 a. m.	Moon nearest, distance 229,900 miles
	7:00 p. m.	Moon at first quarter
10	2:00 p. m.	Venus, visible in east before sunrise, at greatest brilliancy
13	11:18 p. m.	Moon passes Jupiter
14	7:51 p. m.	Full moon
21	noon	Moon farthest, distance 251,300 miles
22	early a. m.	Meteors visible radiating from constellation of Orion, visible in east after midnight
	6:55 p. m.	Moon in last quarter
25	6:04 a. m.	Moon passes in front of Regulus, bright star in constellation of Leo. (This is visible in most of U. S.) Times given are for Washington, and will be earlier in West.
	7:22 a. m.	
26	11:49 a. m.	Moon passes Mars
	6:24 p. m.	Moon passes Venus
30	8:54 a. m.	New moon

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

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PUBLIC HEALTH

Housecleaning for Health and Safety

➤ WITH THE children back at school, many homemakers turn now to fall housecleaning and renovating. This tiresome job if properly done can contribute to the health and safety of the family as well as to the appearance and comfort of the home.

Cleaning out trash and other litter from cellar, attic, cupboards and closets reduces a fire and accident hazard and removes good nesting spots for mice that may spread disease.

You want to avoid accidents during the cleaning period and while you are doing the cleaning you may find many ways to make home safer for the rest of the year.

Begin with the stepladder used for reaching high shelves, ceilings, high curtain rods and the like. Be sure a stepladder is used, and not the edge of a chair, box or table which might slip or collapse and bring the climbing cleaner crashing in a bone-breaking or possibly killing fall. Also make sure the stepladder itself is safe.

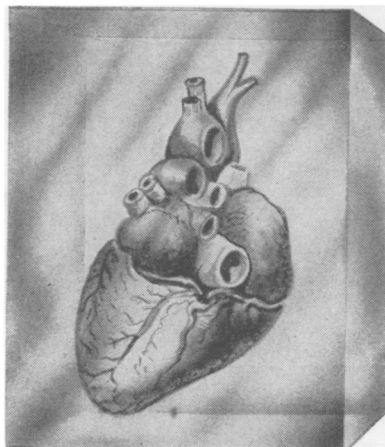
Then see to it that pails, mops and other articles used in the cleaning are put in their proper places when not actually in use, so there is no chance of their tripping the unwary. If this practice is started during the fall housecleaning, it should be easy to remember and follow it on the daily or weekly light cleaning periods.

Besides getting the home clean, you may at this period be getting it into good repair for the coming season. This includes checking electrical equipment and its wiring, furnaces, stoves, heaters and other mechanical appliances.

Broken chairs, railings, loose treads or stair carpets, frayed edges of rugs and the like should be repaired. Make a light inspection of your home. More light in the halls or on the stairways may save someone in your family from a dangerous accident.

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