

ASTRONOMY

Another Bright Planet

This Month Jupiter, Nearer Than It Will Be Again For Twelve Years, Takes Place of Mars as Brightest in Sky

By JAMES STOKLEY

CLOSER to the earth this month than it will be again for a dozen years to come, the planet Jupiter is now most brilliant of the stars and planets seen in the night-time sky. Shining in the southeast September evening skies, it is of magnitude minus 2.5 in the astronomer's scale to brightness. This makes it very easy to locate. However, it is indicated on the accompanying maps. In these is shown the appearance of the heavens at 10:00 p. m., standard time, on the first, 9:00 p. m. on the 15th and 8:00 p. m. on the 30th.

Jupiter is nearly three times as bright as Mars, low in the south, in the group of Sagittarius, the archer. A third planet, Saturn, is visible to the left of Jupiter. Though the faintest of the trio, it is still more brilliant than any star now seen, with the exception of Vega, in Lyra, the lyre, high in the west.

Vega is of the astronomer's first magnitude in brilliance, and five other stars of this class are shown on the maps. Nearly overhead is Deneb, in Cygnus, the swan. This figure is probably better recognizable as a cross, and is often called "the northern cross." Deneb marks the top, the northern end. In Aquila, the eagle, we find another bright one. This, south of the southern end of the cross, is Altair, and its recognition is simplified because of the two fainter stars, one above, the other below, that attend it.

Three Near Horizon

The remaining three first magnitude stars are all near the horizon. Low in the northwest we see Arcturus, in Bootes, which, in another month, will set soon after the sun, and be invisible. Another is in the southeast—Fomalhaut, in Piscis Austrinus, the southern fish. This star is now nearly at its greatest height, and it can never be seen much better from these northern latitudes. The third, however, is low now, but will be higher in the evenings a few months hence. Capella is its name, in Auriga, the charioteer, just above the northeastern skyline.

No planets are seen well this month in the morning sky, though Mercury may be glimpsed low in the east at dawn for

the first day or so. After that it draws too nearly into line with the sun to be observed. For the same reason, Venus is not now on view, for it, too, is now in the sun's direction, beyond it.

An important astronomical event occurs on September 23, at 5:50 p. m., E. S. T. Then the sun, journeying southward in the sky, crosses the equator. This is the autumnal equinox, the beginning of autumn.

The second half of this year is proving to be a good one for seeing planets. In July, Mars was at a distance of some 36,000,000 miles, closer than it will be for some years. And now Jupiter, at a mere 367,000,000 miles, is nearer than it will be until 1951. The earth and Jupiter both revolve around the sun, the former at a distance of 93,000,000 miles, the latter at 483,000,000, on the average.

Not in Same Period

Since the two do not go around in the same period the two bodies are sometimes in the same and sometimes in opposite directions from the sun. Thus, in the former event the distance between Jupiter and the earth is the difference between the distances of the two from the sun, or some 390,000,000 miles.

All this would be exactly true if the orbits of earth and Jupiter were perfect circles. As they are not, the two can come even closer than this would indicate. Both move in ellipses.

The earth, for instance, is 3,000,000

miles nearer the sun in January than in July. Jupiter is sometimes about 47,000,000 miles nearer the sun than at others. This means that if Jupiter and the earth are in the same direction from the sun, and at the same time the former is farthest from the sun, the planets are more than 413,000,000 miles apart.

But now, however, the opposite conditions prevail, for Jupiter is almost at its nearest to the sun. This brings it also closest to us, 367,000,000 miles. And this proximity, both to us and to the sun, from which its illumination comes, makes it much more brilliant than usual.

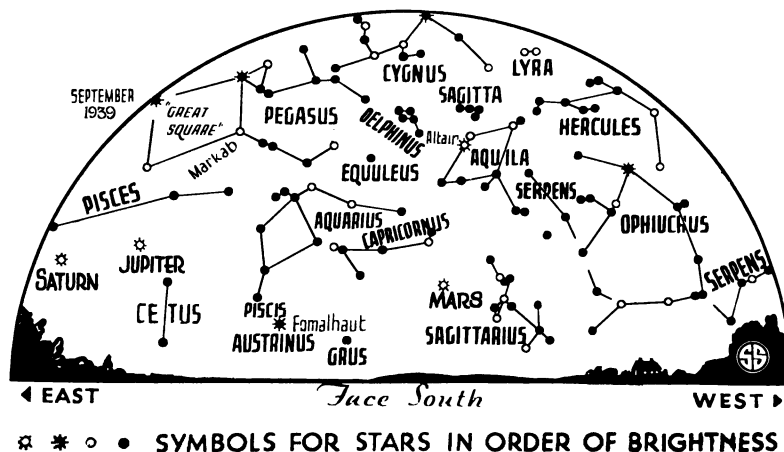
It was for a reason exactly similar that Mars was so close, and so bright, during July and August.

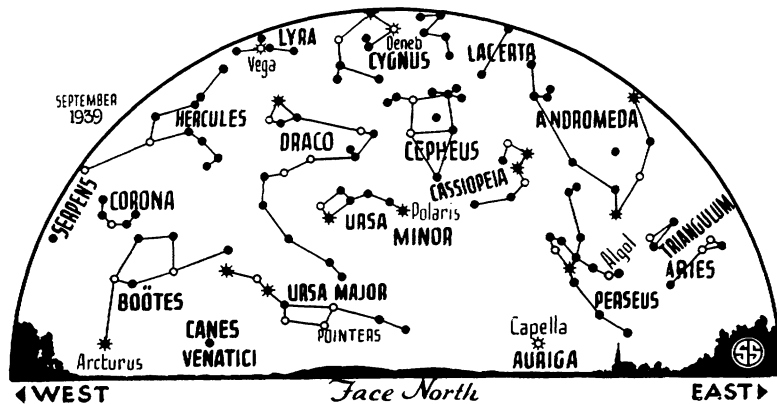
Telescopes Turned

The near approach of Mars made it the object of careful astronomical study, and now many telescopes are turned on Jupiter. The planet's diameter is 88,640 miles, about ten times that of the earth.

Telescopes show frequent changes in its appearance, which could hardly occur if we were looking at some solid surface. Instead, it is believed, the visible part of Jupiter is the top of a thick layer of clouds which perpetually surround it. These clouds, however, are not the kind we have on the earth, but are of solid particles of methane and ammonia, substances which are gases, and highly poisonous ones, on earth.

Underneath these clouds of frozen gases there may be a deep ocean of ice, and at the center a rocky core, though if this is the case, it is difficult to explain the great changes that occur in the





clouds. The most usual appearance these present is of a series of belts, varying in width and number. But often other spots develop, sometimes with great rapidity, which suggests some sort of activity underneath.

So we must admit that Jupiter still is a great problem, one of the many to challenge the astronomers of today and of tomorrow.

Celestial Time Table for September

Friday, Sept. 1, 11:14 a. m., Moon passes Jupiter. Sunday, Sept. 3, 6:00 a. m., Mercury nearest sun; 9:23 a. m., Moon passes Saturn. Tuesday, Sept. 5, 3:00 p. m., Venus

in line with sun. Wednesday, Sept. 6, 3:24 p. m., Moon at last quarter. Tuesday, Sept. 12, 1:00 p. m., Moon nearest earth—222,500 miles. Wednesday, Sept. 13, 6:22 a. m., New moon. Sunday, Sept. 17, 1:00 p. m., Mars nearest sun. Wednesday, Sept. 20, 5:34 a. m., Moon in first quarter. Friday, Sept. 22, 9:00 a. m., Mercury in line with sun. Saturday, Sept. 23, 3:05 a. m., Moon passes Mars; 5:50 p. m., Autumn commences. Monday, Sept. 25, 4:00 a. m., Moon farthest—252,200 miles. Wednesday, Sept. 27, 2:00 p. m., Jupiter nearest—367,000,000 miles. Thursday, Sept. 28, 9:27 a. m., Full moon; 10:53 a. m., Moon passes Jupiter. Saturday, Sept. 30, 12:19 p. m., Moon passes Saturn.

Eastern Standard Time throughout.

Science News Letter, September 2, 1939

ANTHROPOLOGY

Anthropologist Sees Russians Becoming One Physical Type

Dr. Hrdlicka, Back from Russia, Calls Neandertal Child Important Link in Prehistory; Describes Stone Age Venus

BACK HOME from studying "Man" ancient and modern in the Soviet Union, Dr. Ales Hrdlicka of the Smithsonian Institution finds that Russians today are becoming one physical type, marked by sturdiness.

"It is almost as if they were all made in the same mold," declared the anthropologist, interviewed on his arrival in Washington, D. C. "I am told that there is already an increase in stature. Thousands of them exercise in broad streets of Moscow and other cities, and the children are kept out of doors in parks and woods. I saw few malformed people, and only one child with the crooked legs that are a sign of rickets."

A likeness of present day Russians in stockiness and vigor is emphasized, the anthropologist noted, by the abbreviated

clothing worn. Even exotic types, minus old-style long beards, have become indistinguishable in the crowds.

An effort to have Soviet scientific discoveries made known more fully to scientists of other countries was initiated by Dr. Hrdlicka, and he was assured that means of doing this would be attempted. Young Soviet scientists—most of the elders have died off—are conducting so many expeditions that Dr. Hrdlicka fears his memory of the number would sound like gross exaggeration. In no other country can an anthropologist—with an eye out for museums—find so many. Yet, scientific reports rarely are translated from Russian for foreign use.

A small ivory Venus carved by an Old Stone Age craftsman more than 10,000 years ago, recently unearthed in Siberia,

was examined by Dr. Hrdlicka and is pronounced most unusual in having an attractive braided hair dress, and "nothing ugly about it." Stone Age Venuses to which scientists are accustomed, from previous finds, are generally over-fat images that speak badly for the aesthetic sense of the Old Stone Age. The images, including the Siberian find, are usually believed to be fertility charms.

Great importance for understanding human history is ascribed by Dr. Hrdlicka to the discovery last year of a child's skull in Siberia. The crushed object, which Dr. Hrdlicka found meticulously restored by expert care, is the remnant of a Neandertal child, of the physical type that inhabited many parts of the earth some 60,000 years ago and that may have had a long career of development before that.

"This child's skull," declares the anthropologist, "bridges the gap between the prehistoric East and West."

The skull, he explained, differs from the head of a modern child in having beetling eyebrow ridges, large teeth and receding lower jaw. These were typical facial traits of the Neandertal era. Yet, the foreshadowing of modern man is detected in the Neandertal child by the anthropologist.

"Everything we know now points to man changing from this type into the modern type," he concludes. "The steps can even be seen. Finding this typical Neandertal child in Siberia, between Europe and the Far East, makes it seem very likely that Peking Man is a variant of that same human family, which lasted for a very long time. There is no good reason to doubt that modern man is descended from that phase."

Despite an injury on shipboard while en route to Europe, Dr. Hrdlicka was able to spend two busy months in the Soviet country, even taking active part in archaeological excavations at four sites.

A skull of a Siberian of the New Stone Age, presented to Dr. Hrdlicka for the Smithsonian's collection, is being shipped via diplomatic mail pouches for greater safety. It will serve as evidence for the scientific view of the Siberian origin of America's Indians. Placed among Algonkian Indian skulls, this Siberian type would be indistinguishable, even to experts, the anthropologist said.

Science News Letter, September 2, 1939

Chemists are seeking industrial uses for pecan shells.

Salmon and trout have pink or orange colored flesh because of coloring matter in the oil.