ASTRONOMY

Receding Mars Brilliant

Although the "red" planet is drawing away from the earth, it is still the brightest object in the evening sky, except for the moon. Saturn and Venus may also be seen.

By JAMES STOKLEY

➤ ALTHOUGH MARS is rapidly drawing away from its close approach on Sept. 6, when at midnight EST it was only 35,120,000 miles from the earth, the planet still shines brightly in the evening skies of October.

Its position is shown on the accompanying maps, which depict the appearance of the skies as they look about ten p.m., your own kind of standard time, at the first of October, an hour earlier at the middle of the month and two hours earlier at the end. Mars stands in the constellation of Aquarius, the water carrier.

On Oct. 1 it has receded to a distance of about 38,800,000 miles, and because of this it is only about two-thirds as bright as at the closest approach.

By the end of October it will be less than a third as bright as then, for it will be nearly 53,000,000 miles away. Its magnitude of minus 1.3 on the astronomer's brightness scale will still make it brighter than any other star or planet in the evening sky.

Another planet, Saturn, is also in the October evening sky, although it sets earlier than the times for which the maps are drawn. About the first, it goes down two and a half hours after the sun, but at the end of October it follows that body below the horizon by a little more than an hour.

Saturn May Be Seen

Since its magnitude is 0.8, or like a typical first magnitude star, it may be possible to see Saturn if you look low in the west just after it gets dark.

Brightest star of the October evening is Vega, in Lyra, the lyre, high in the west. Directly above it is Cygnus, the swan, with the first-magnitude star called Deneb.

To the left of Lyra is Aquila, the eagle, with the star called Altair. This can easily be identified because it is flanked by two somewhat fainter stars named Alschain (toward the southern horizon) and Tarazed (above). Farther left from Aquila is Aquarius, the water-carrier, in which Mars is now found.

Below Aquarius we see Fomalhaut, a bright star in the constellation of Piscis Austrinus, the southern fish. This is about as high as this star ever climbs, in our latitudes, so it is not advantageously placed.

Above Aquarius stands Pegasus, the winged horse, in which there are four stars forming a group known as the "Great Square." The star in the upper left hand corner, Alpheratz, is in the neighboring constellation of Andromeda.

Looking toward the northeast, we can see Capella, another star of the first magnitude, in Auriga, the charioteer. Immediately to the right of this group is part of Taurus, the bull, with ruddy Aldebaran.

Both Auriga and Taurus are among the brilliant array that shine so brightly in the south on winter nights, so their appearance tells us that season is not far away.

Mars sets well after midnight, but about the same time some other planets have risen in the east.

First comes Venus which, about Oct. 1, rises around 2:00 a.m., in the constellation of Leo, the lion. Of magnitude minus 3.6, it is even brighter than Mars.

Jupiter rises, on the first, about 4:00 a.m. and about 2:30 a.m. on the 31st.

Venus passes closer to Jupiter on the 25th so on that morning, as well as for a few mornings before and after, the two brilliant planets will form a beautiful pair.

Looking toward the northern sky, the familiar "great dipper," part of Ursa Major, the great bear, is seen near the horizon. Extending upwards from it, toward the left, is Draco, the dragon, which leads towards Vega, and also, still higher and to the right, to Cepheus. And to the right of this group is Cassiopeia, shaped like a letter W.

In the middle of this array, about halfway between Cepheus and the big dipper, is Ursa Minor, in which stands Polaris, the pole star.

Six months from now these constellations will still be visible in the northern evening sky, but their positions will be reversed. Ursa Major will be up where Cepheus is now, while Cepheus and Cassiopeia will be down near the horizon.

Draco will be farther right, but the pole star will still be in about the same position that it now occupies.

The reason is that the swinging of the stars around the sky is really due to the turning of the earth on its axis, from west to east, combined with its yearly movement about the sun. Every 24 hours the whole sky seems to turn around, but because the pole star is almost directly in line with the axis, it stays in the same place. In the same way, a wheel may spin, but the axle stays put.

Because of the annual motion of the earth on its axis, the stars we see at night, which are in the direction opposite the sun, gradually change. This means that the evening stars of October are very different from those that appear in April. Since Ursa Major, Draco, Cepheus and Cassiopeia all appear close to the pole star, they never get below the horizon in our latitudes, but are sometimes high, sometimes low with respect to the horizon.

Unconstant Constant Symbol

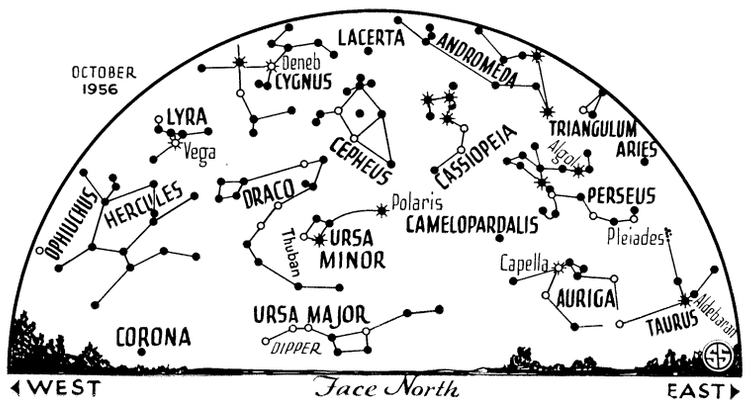
On account of this, the pole star has become a symbol of constancy. In Julius Caesar, Shakespeare has Caesar say, just before he is stabbed: "I am constant as the northern star."

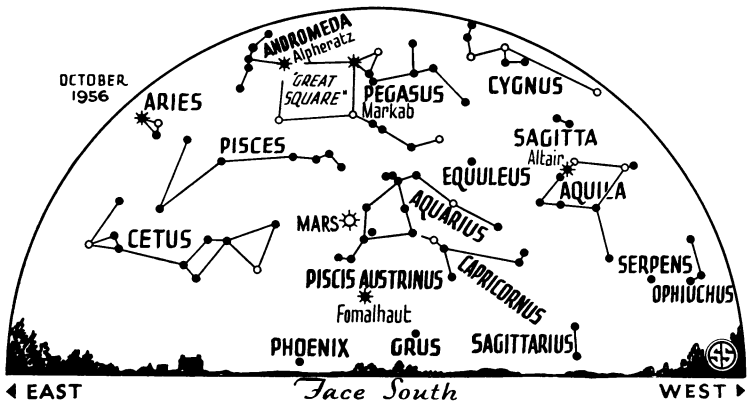
Actually, however, Polaris is not as constant as it might appear. In fact, it has not always been the pole star nor will it always remain so.

In ancient Epypt, when the pyramids were being built, this post of honor was occupied by Thuban, a star in Draco, which is indicated on our maps. And about the year 14,000 Vega, in Lyra, will be the pole star. Actually, Polaris is still moving closer to the pole, traveling about the diameter of the moon every century, and in the year 2102 it will be closest.

Aside from its motion, however, Polaris itself is not constant, as Elizabeth Roemer of the University of Califorina points out in leaflet No. 328 of the Astronomical Society of the Pacific.

For one thing, Polaris is a variable star, of a type known as cepheid, which increases in brilliance rather quickly, and then more gradually dims to its former brightness. In





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a period of about four days, it increases nearly 20% in its light.

In addition, like many of the orbs in the sky, Polaris is a double star. Even through a moderately large telescope there can be seen nearby a star of the ninth magnitude, too faint for the naked eye, which is really a companion. In a period of many thousands of years these revolve around each other.

Even this is not the whole story, for there is a third body that cannot be seen through any existing telescope. Its presence is revealed by the spectroscope, which shows the motion of Polaris as it waltzes around this companion, once in 30 years.

Thus it is known as a spectroscopic binary, one of many in the sky.

Truly, as Miss Roemer says, "the phrase, 'constant as the North Star' does not take into account either the precession of the equinoxes or the real character of Polaris."

Celestial Time Table for October

Oct.	EST	
2	1:19 p.m.	Moon passes Jupiter.
3	11:24 p.m.	New moon.
7	2:58 p.m.	Moon passes Saturn.
11	1:44 p.m.	Moon in first quarter.
	9:00 p.m.	Mercury farthest west of sun, visible for a few days around this date low in east just before sunrise.
12	6:00 p.m.	Moon farthest, distance 251,300 miles.
16	10:29 a.m.	Moon passes Mars.
19	12:24 p.m.	Full moon—Hunter's Moon.
25	9:00 a.m.	Venus passes Jupiter.
26	1:02 p.m.	Moon in last quarter.
27	1:00 a.m.	Moon nearest, distance 230,000 miles.
30	6:25 a.m.	Moon passes Jupiter.
	3:35 p.m.	Moon passes Venus.

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

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HEMATOLOGY

Blood Plasma Treatment Dangerous to Bleeders

➤ A POTENTIAL HAZARD to bleeders suffering from the hereditary disease, hemophilia, exists in treatment with blood plasma, Dr. Martin C. Rosenthal of New York reported at the International Society of Hematology meeting in Boston.

The hazard is that they may become refractory to plasma so the treatment that once helped no longer does them any good. The reason is that, during the plasma treatment, they develop an anti-clotting substance, which binds the anti-hemophilic globulin in normal blood and plasma, thus keeping the plasma from being effective.

A lack of corrective effect from plasma was found in six out of 100 hemophilia victims. Apparently this was acquired and not part of the hereditary background. One patient in the course of a short period of intensive plasma treatment went from complete responsiveness to complete refractoriness. During the refractory state this patient developed the anti-clotting substance that Dr. Rosenthal believes causes the trouble in plasma refractoriness.

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