SEPTEMBER STARS

BY JAMES STOKLEY

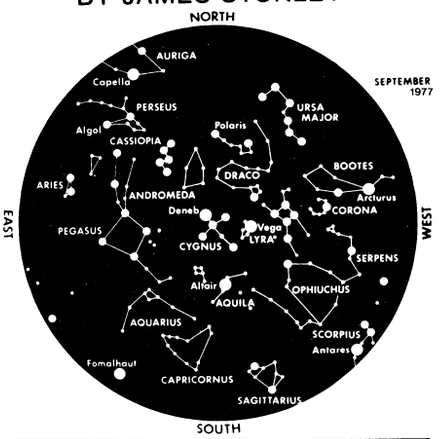
For most of September there will be no prominent planet in the evening sky, but six first-magnitude stars will be on view, Vega being the brightest. This is high in the west, in the constellation Lyra. Look above it for Deneb, in Cygnus, and to the south for Altair in Aquila. Fomalhaut appears low in the southeast in Piscis Austrinus and Capella, in Auriga. And in the northeast is Arcturus in Boötes, dimmed because it is so near the horizon.

Late in the evening at the end of September brilliant Jupiter comes into view. This planet, in Gemini (not shown on the map), will rise in the east about 11:15 p.m., local DST, on the 30th. As sunrise nears, it will be high in the south.

Early morning skies will bring into view the other four naked-eye planets. On Sept. 1, Mars will appear about 1 a.m., followed a few minutes later by Jupiter, about 12 times as bright. Jupiter will pass north of Mars on the fourth and after that will be the first to rise.

Venus, more than four times as bright as Jupiter, will come up about 3:30 a.m. in early September. As it climbs high, it will dominate the eastern sky. Saturn, about as bright as Mars, rises about 5 a.m. on the 1st and 3 a.m. on the 30th. On the 21st, Mercury will be farthest east of the sun, rising about an hour and a half before sunrise.

An interesting early morning event comes on Sept. 27, an eclipse of the moon that reaches maximum at 4:29 a.m., EDT. It will be a full moon and at that time its southern quarter will be noticeably darker than the rest of its visible surface. However, no part will be completely in the earth's shadow, for this is what is called a "penumbral" eclipse.



Sept. 4	6:00 pm EDT	Mars north of Jupiter
		Mercury between sun and earth
5	2:00 am	
	10:33 am	Moon in last quarter
	2:00 pm	Moon farthest
7	3:00 am	Moon south of Jupiter
	5:00 am	Moon south of Mars
10	5:00 pm	Moon south of Venus
11	9:00 am	Moon south of Saturn
13	5:23 am	New Moon
18	5:00 am	Moon nearest
	9:00 am	Venus south of Saturn
20	2:18 am	Moon in first quarter
22	11:30 pm	Sun over equator, fall starts in Northern Hemisphere
27	4:17 am	Harvest Moon penumbral eclipse
		2:18 a.m. to 6:40 a.m., EDT

Any eclipse of the moon occurs when that body passes through the earth's shadow, which has two parts. At the center is the "umbra" (Latin for shadow), in which the earth completely hides the sun. Around it is the "penumbra" (partial shadow). With the moon in the umbra there is a total lunar eclipse. It may enter only partly into the umbra, producing a partial eclipse such as we had last April 3. At that time the curved shadow of earth could be seen on the face of the moon.

This month the moon enters only the penumbra. In its outer part so much sunlight still reaches the moon that darkening is imperceptible. For that reason we don't ordinarily mention penumbral eclipses in this column. But if the edge of the moon comes within 700 miles or less of the umbra some darkening will be apparent to the naked eye.

This time, the minimum distance between the moon and the umbra at 4:29 a.m., EDT, will be only about 150 miles, so you should be able to see the darkening. The visible shading will extend some 550 miles more than a quarter the moon's diameter. It will be visible toward the southern edge, as the moon passes north of the umbra.

On Sept. 22, at 11:30 p.m., EDT, the sun will be directly over the equator, at a point in the Pacific Ocean between the western tip of the New Guinea and the Moluccan Islands. This is called the equinox. In the Northern Hemisphere it marks the beginning of autumn. Seasons are reversed in southern countries so in those parts of the earth it will be the beginning of spring. □