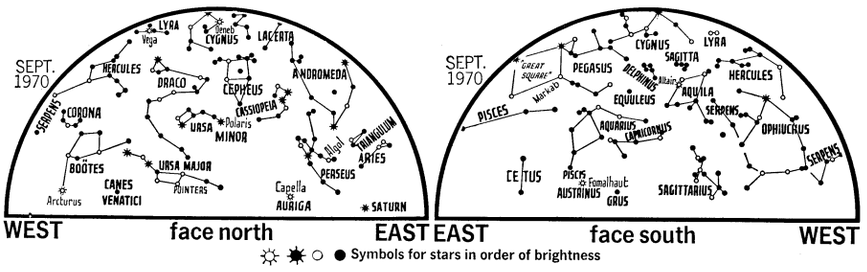

Venus and Jupiter in the western sky

by James Stokley

If it is clear and you look toward the west early on a September evening you will see brilliant Venus. Brighter than any other planet or any star, it is easy to identify.

Soon after Venus appears another bright planet will come into view nearby. This is Jupiter, about a fourteenth as bright as Venus, but four times as brilliant as the brightest star of the September evenings.

During the month these two planets and the moon will make a striking spectacle in the western sky. On Sept. 4, the crescent moon will be just west (to the right) of Venus. During the night, after they have set for residents of North America, the moon will pass south of Venus. Twelve hours later it will pass south of Jupiter. On the evening of Sept. 5 the moon will be east of the planets.

Then, as the moon moves away, Venus will come closer to Jupiter, passing it to the south in the early morning hours of Sept. 14. On the evening of Sunday the 13th Venus will be west of Jupiter; on Monday evening it will be to the east. People in Southeastern Asia will see the two planets when they are closest. Their separation will be about 10 times the apparent diameter of the moon.

Venus revolves around the sun at a mean distance of 67,270,000 miles (the mean distance of the earth is 93 million miles) and takes 225 days to make one circuit of its orbit. But the earth is also encircling the sun, once in 365 days. When Venus passes earth it is said to be in conjunction with the sun. That is, both bodies are in the same direction in space.

By the time Venus returns to the same position, 225 days later, the earth has moved on. Venus does not catch up until 584 days have passed. Then, once more it is in the same direction as the sun. Each time around conjunction occurs twice. When Venus is between the sun and earth it is in inferior conjunction; when it is beyond the sun it is in superior conjunction.

Neither planet is shown on the accompanying maps, which depict the sky as it appears about 11:00 p.m., local daylight saving time, on the first of the month. It appears similarly at 10:00 in the middle of the month and at 9:00 on the 30th.

The maps show a third planet, Saturn, which rises low in the east before 11:00 early in the month and about 8:30 at the end. Less than a quarter as bright as Jupiter, it will appear even fainter. Because of its low altitude, atmospheric absorption of its light will be considerable. Before dawn, however, it will shine in the south with more brilliance.

Mercury, which will appear in the east at dawn at the end of September, revolves around the sun in an orbit smaller than that of Venus. It, too, appears alternately in the morning before sunrise and in the evening after sunset. It is never as far from the sun as Venus is so we never see it before the break of dawn or after dusk.

For a few days, about Sept. 28, Mercury will appear low in the east after the sky begins to brighten with the approach of sunrise. Mars will be nearby. Only a ninth as bright as Mercury it will be harder to locate.

Vega, high in the west in the constellation of Lyra, is the brighest star visible on September evenings.

Farther to the east, directly overhead, is Cygnus, with Deneb. Astronomers rate this star as first magnitude although it is only about a third as bright as Vega. Toward the south shines Altair in Aquila. It is between the other two in brilliance.

Low in the northeast, to the left of Saturn, is the second brightest star shown: Capella, in Auriga. Only about 10 percent fainter than Vega, it is also dimmed on account of low altitude.

Our maps also show two more stars of the first magnitude. One is Fomalhaut, low in the southeast in Piscis Austrinus. On the astronomical magnitude scale Fomalhaut has the same magnitude as Deneb. They are of equal brightness, though they do not seem to be. Once again atmospheric absorption dims the light of the star near the horizon. Comparing the brightness of Fomalhaut and Deneb gives a good demonstration of such absorption.

The other first magnitude star is Arcturus in Boötes, which is low in the northwest. □

CELESTIAL TIMETABLE

Sept.	EDT	
1	3:00 a.m.	Venus farthest east of sun
4	midnight	Moon passes south of Venus
5	noon	Moon passes south of Jupiter
8	4:00 a.m.	Moon passes south of Antares
	3:38 p.m.	Moon in first quarter
12	2:00 p.m.	Mercury between earth and sun
14	6:00 a.m.	Venus passes south of Jupiter
	1:00 p.m.	Moon nearest, distance 222,500 miles
15	7:10 a.m.	Full moon
19	2:00 p.m.	Moon passes north of Saturn
22	5:42 a.m.	Moon in last quarter
23	6:59 a.m.	Vernal equinox; sun over equator, autumn begins in Northern Hemisphere
27	4:00 a.m.	Moon farthest, distance 252,200 miles
	7:00 a.m.	Moon passes south of Regulus
28	10:00 a.m.	Mercury farthest west of sun, visible for a few days around this date low in east at dawn
30	10:32 a.m.	New moon