

ASTRONOMY

Innermost Planets Visible

Mercury and Venus can both be seen in the evenings of late April. Jupiter and Saturn are also visible in the evenings, and Mars appears in the early morning hours.

By JAMES STOKLEY

➤ **MERCURY AND VENUS**, the two planets nearer to the sun than earth, will both be visible in the west during evenings toward the end of April.

Two of the other five naked-eye planets will also be seen on April evenings, while the last will appear in the early morning hours.

Venus continues to dominate the evening sky, and on April 12 sets about four hours after the sun. As darkness falls, it appears high in the southwest, in the constellation of Taurus, the bull. Of magnitude minus 4, it far exceeds any star in brilliance.

All month Venus will be seen, but only in the last few days of April will it be joined by Mercury, innermost of all the planets of the solar system, only 36,000,000 miles from the sun.

At the end of April Mercury will set about an hour and a half after sunset, and this means that it will have gone down before the sky is entirely dark. However, if there is a clear view toward the west, you should be able to see it in the gathering dusk, close to the horizon and many times fainter than Venus.

Venus Outshines Jupiter

Second only to Venus is Jupiter, which is almost an eighth the brightness of the more brilliant orb. It is seen high in the south in Leo, the lion, near the star Regulus.

Around 10:30 p.m., about the time that Venus is setting, Saturn rises in the southeast, in Scorpius, the scorpion. It is about as much fainter than Jupiter as that planet is fainter than Venus.

Finally, about 2:30 a.m. at the first of April and an hour earlier at the end of the month, Mars appears in the southeast, about the same brightness as Saturn.

Both Venus and Jupiter are shown on the accompanying maps, which depict the skies for about 10:00 p.m., your own kind of standard time, at the first of April, an hour earlier at the middle and two hours earlier at the end.

These also show the background of distant stars, against which the planets appear to move.

Some of the bright constellations of the winter evenings are still present, but are descending in the west. Sirius, in Canis Major, the greater dog, is low in the southwest, and to the right of this star most of Orion remains visible.

This great constellation, known as the warrior, is characterized by the three stars in a row (just under the word Orion on the map) that form his belt. Betelgeuse is above. Still higher is Procyon, in Canis Minor, the lesser dog, and Pollux, in Gemini, the twins.

Low in the northwest, to the right of Orion, we find Aldebaran, in Taurus, the bull, the group in which Venus is standing. Above and to the right of this figure stands Auriga, the charioteer, with first-magnitude Capella.

Turning to the north, the great dipper, which is part of Ursa Major, the great bear, is seen high in the sky. The dipper is inverted, with the pointers to the left. These indicate the position of Polaris, the pole-star, which is below.

Dipper Guide to Arcturus

If you follow the curve of the dipper's handle around toward the south, you will come to two more bright stars—Arcturus, in Boötes, the bear-driver, and Spica, in Virgo, the virgin. This group is to the left of Leo, and a little lower.

One more first magnitude star is shown on our maps, although it is so near the horizon that its brightness is considerably dimmed. This is Vega, in Lyra, the lyre, near the northeastern horizon.

During the coming months it will become much more conspicuous, and will shine overhead on August evenings.

On April 17 Jupiter reaches another stage in a series of maneuvers it has been engaged in for recent months. Anyone who has been watching this planet is getting a good idea of the way it moves through the sky in a series of loops.

Last fall Jupiter, then a morning star,

was moving from day to day in an easterly direction in the sky, and early in November it passed close to Regulus. On Dec. 18, however, this motion ceased; it started moving toward the west, passing Regulus again at the end of January. But on April 17, this movement halts momentarily, and the planet again starts eastward.

This will take it past Regulus again in early July. Its easterly motion will continue until Jan. 17, 1957, when it will be in the constellation of Virgo, and it will start back to the west once more. Then it will back up until May 19, when it will again be in Leo, but not as far as Regulus.

The reason for this is that the planets are all moving around the sun, and so are we, on the earth. Thus the movement they seem to take in the sky is a combination of their motion and that of the moving platform on which we are located.

All the planets go around the sun toward the east, and the farther out they are, the more slowly they move, in miles per second. The earth's speed is about 18.5 miles per second, while that of Jupiter is only 8.1 miles per second. Thus, when earth and Jupiter are both in the same direction from the sun, we dash past at more than twice the speed of the other planet.

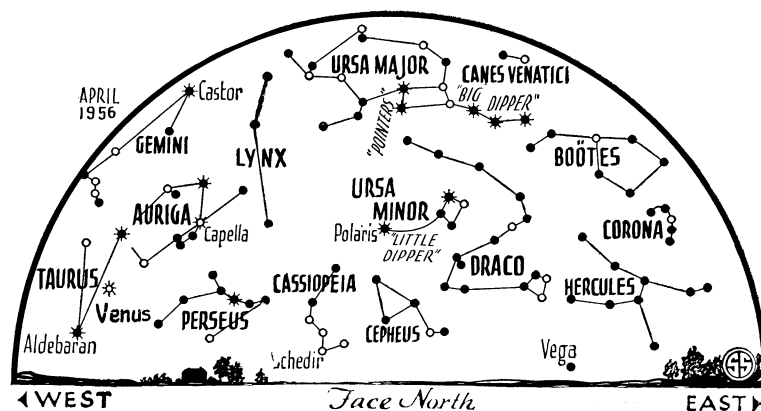
Retrograde Motion

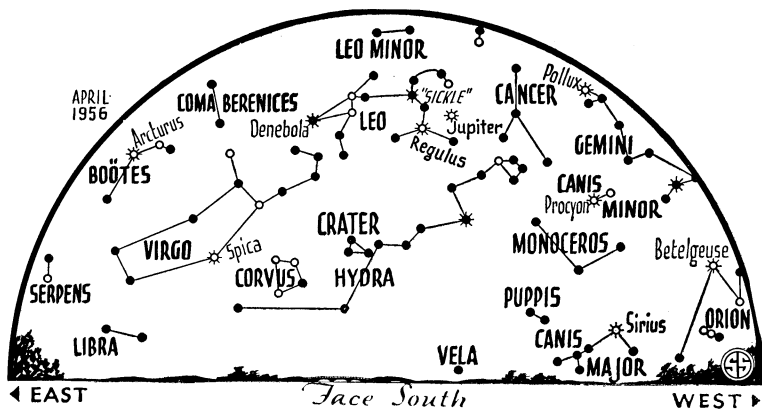
Jupiter seems to retrograde, or move backward, toward the west. That is what began last Dec. 18, and ends on April 17.

A very similar effect can be noticed if you are on an express train that passes a slow local on the next track. Even though both are going in the same direction, to passengers on the express the local train seems to be going the opposite way.

Venus is now so prominent because it is farthest east of the sun on April 12, and then sets the longest time after sunset.

Since the orbit of Venus is within that of the earth, it can never get far enough away from the sun in the sky to be seen in the opposite direction. It swings first to one





◊ * ◦ • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

side of the sun and then to the other. When toward the east, as now, it follows the sun across the sky in its daily motion, and remains visible after sunset.

On the other hand, when west of the sun, it rises ahead of that body and is then a morning star, seen in the east before sunrise.

The same is true of Mercury, but its orbit is within that of Venus, so it remains still closer to the sun. In fact, it can never get far enough away to be seen in a really dark sky, but appears in the east, at dawn, or in the west, at dusk.

On May 2 it will be at its farthest east position, called greatest eastern elongation, and for a few days before and after this will be seen in the evening sky.

Celestial Time Table for April

April EST		
3	3:06 a. m.	Moon in last quarter
	5:00 a. m.	Moon farthest, distance 251,000 miles
	11:56 p. m.	Moon passes Mars
10	9:39 p. m.	New moon
12	1:00 p. m.	Venus farthest east of sun
14	9:01 a. m.	Moon passes Venus
15	5:00 p. m.	Moon nearest, distance 229,300 miles
17	2:00 p. m.	Jupiter halts westerly movement and resumes eastward motion among the stars
	6:28 p. m.	Moon in first quarter

19	2:15 p. m.	Moon passes Jupiter
24	8:40 p. m.	Full moon
26	11:51 p. m.	Moon passes Saturn

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

Science News Letter, March 24, 1956

GENERAL SCIENCE

Easter Lilies and Bunnies Are Easter Symbols

See Front Cover

► THE HAPPY YOUNGSTER shown on the cover of this week's SCIENCE NEWS LETTER is looking at the cuddly white rabbit he has received for Easter, along with the lily he will give his mother.

Both the lily and the bunny are a part of Easter today and both symbolically have roots deep in the early festivals held by the pagans about this time of the year.

Science News Letter, March 24, 1956

GENERAL SCIENCE

Population of Future Will Follow the Sun

► IN THE SEARCH for ways to trap the energy of sunlight to power our mechanical civilization, the world may again see some of the great population shifts that have occurred from time to time as mankind has settled one new area after another.

Although no doubt fortunes will be made in today's thickly populated temperate zones on inventions using the sun's priceless fuel, the present drive toward use of solar energy comes from fear of looming poverty.

Long before man appeared on this planet, the sun's energy was invested in growing a great quantity of plant life. The carbon compounds locked up in these plant structures accumulated to form treasure hoards in underground deposits of coal and oil.

Millions of years' accumulation of this treasure has been tapped to fuel our high-energy civilization, but in less than two centuries we have nearly used it up. Although it is true that some oil is forming daily, this drop-in-the-bucket rate is not going to save us from a change in our way of living.

With the ingenuity already developed by experience in building machines to use fossil fuels, and whetted by the recent applications of nuclear energy to producing useful power, mankind will probably solve the problems inherent in use of solar energy before our heritage of fossil fuel runs out.

As soon as sunshine-using devices become at all practical, the ancient semi-tropical river valleys where civilization first began will probably see a new spurt of immigration by gadget-minded people.

Science News Letter, March 24, 1956

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