

ASTRONOMY

Venus Now Most Brilliant

The planet Venus, which can be seen during daytime if correct region is viewed, reaches its brightest on May 15. Mars is now brightening.

By JAMES STOKLEY

➤ ALTHOUGH Venus is swinging back toward the sun, the planet is still brightening, and will reach greatest brilliance on May 15.

Thus, it is by far the most prominent star or planet seen on May evenings. As dusk falls, it is toward the west, becoming visible easily even while there is still considerable daylight.

However, this is not the only planet now visible. Mercury, which moves about the sun in an orbit even smaller than that of Venus, makes a brief appearance at the beginning of May. On the second it is farthest east of the sun, setting well after sunset, although before twilight has ended.

This affords the year's best opportunity for a glimpse of this seldom-seen orb. It will be in the constellation of Taurus, the bull, below Venus, but only about a fortieth as bright.

During the first four or five days of May, it will be possible to locate Mercury without great difficulty — provided, of course, you have an unobstructed view toward the west.

Other Evening Planets

The other evening planets are much more easily located. The brightest, after Venus, is Jupiter. This stands in the southwest, in the constellation of Leo, the lion, close to the little group known as the sickle, which is shown on the accompanying maps.

These depict the sky as it appears about ten o'clock, your own kind of standard time, at the first of May, or nine o'clock at the middle of the month. (Add one hour for daylight saving time.)

Low in the southwest we can see Saturn, in Scorpius, the scorpion, which is just coming above the horizon for its summer-time appearance. Saturn is a little fainter than Mercury, although it may seem brighter since it will be visible against a dark sky background.

Among stars of a May evening, the brightest is Vega, in Lyra, the lyre, visible in the northeast. Below Lyra can be seen part of Cygnus, the swan, with the star Deneb, also of the first magnitude.

Despite this, Deneb's low altitude in the sky causes a greater absorption of its light, which makes it appear somewhat fainter. The same thing is true for the star Antares, in Scorpius, the scorpion, which is a little below Saturn.

High in the southwest, at the end of the handle of the sickle of Leo, and just to the left of Jupiter, we find Regulus. Next-door to Leo, toward the left and a little lower, is the figure of Virgo, the virgin, and in it stands the star called Spica. And just above the eastern end of Virgo can be found Bootes, the bear-driver, with brilliant Arcturus.

Another way of locating Arcturus is from the great dipper, part of Ursa Major, the Great Bear, which now is high in the north. If the curve formed by the dipper's handle is followed toward the south, it brings you to Arcturus, and then to Spica.

Two of the bright stars that decorated the winter evening skies are still seen in the west. One is Pollux in Gemini, the twins, the group in which Venus is sojourning. The other is Procyon, in Canis Minor, the little dog, to the left.

Later on May nights the planet Mars appears for a few hours before sunrise, shining brightly in the southeast. This summer it will be seen in the evening sky, getting ready for its close approach to the earth in September.

Because Venus moves around the sun in an orbit that is inside the one in which the earth moves, it sometimes comes between sun and earth, while at other times it is on the far side of the sun. As a result, it changes phase in the same way as the moon.

When Venus is out beyond the sun and its entire sunlit hemisphere is presented to our view, it is seen as a complete circle, like the full moon. But now it is nearer than the sun, and we can see less than half of the hemisphere on which the sun is shining. So, if you were to look at it through a telescope, you would see that

it has a crescent phase, like the moon five or six days after new.

At the same time it is approaching closer and closer. This makes it brighter for a time, but in June, when it comes almost directly between earth and sun, the crescent will become so narrow that it will be dimmed considerably. Maximum brightness comes on May 15, when it reaches magnitude minus 4.2.

See Venus During Day

Under these conditions, Venus can be seen in broad daylight, provided you know just where to look. On May 8 it will be just south of the moon, then a crescent three days old. Look toward the south in the afternoon, and you may be able to locate it.

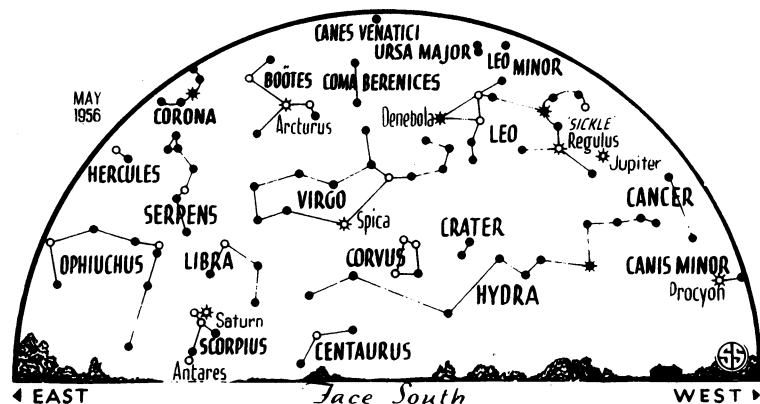
Sweeping back and forth across the sky with a pair of binoculars may help.

It is probable that glimpses of Venus under such conditions have given rise to, and kept alive, the ancient and mistaken notion that stars can be seen in daylight by looking at the sky from the bottom of a well or a high chimney. Such a belief is very widely held among laymen, and even by some scientists, and it has been traced back to the time of Aristotle.

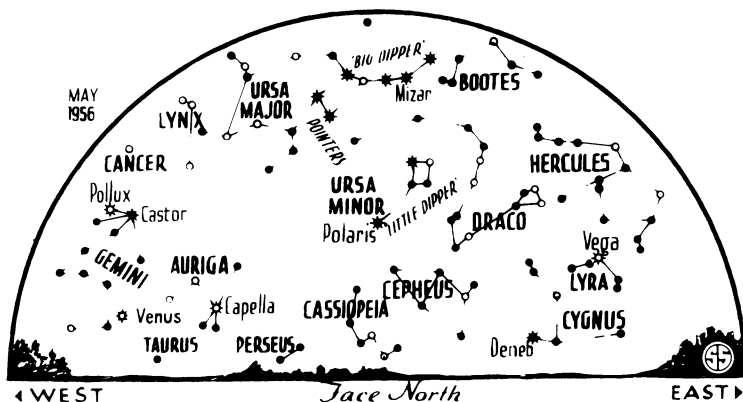
In 1950, when Vega passed directly over Columbus, Ohio, Dr. J. Allen Hynek, professor of astronomy at Ohio State University, took a group of his students into an unused chimney 235 feet high. All they saw was the bright spot of sky, with no sign of the star.

Even more elaborate experiments were made in 1954 by Dr. Alex G. Smith of the department of physics at the University of Florida. He made brightness measurements and took photographs from the bottom of a 157-foot chimney and also, for comparison, from the open at about the same time.

At night we see a star because it is much brighter than the dark sky background, but in the daytime the sky itself



◊ * ○ • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS



is so bright that the additional brilliance of the star makes no appreciable difference.

It would still be conceivable that, with the eyes shielded from the glare of surrounding light, they might become more sensitive to contrasts in brightness, and that this might help.

However, numerous experiments by psychologists have shown that the eyes are actually less sensitive to such contrasts, when viewing a small luminous area surrounded by darkness. They are most sensitive when the surroundings are as bright as the area of the test.

Dr. Smith, in fact, found that, when the star Pollux was visible overhead at twilight, it was harder to see when he observed it from the bottom of the chimney than when he was outside!

Thus, he concludes in a report of his work published in the *Journal of the Optical Society of America* (June, 1955), "the common belief in the daylight visibility of stars through such a shaft is without real foundation." (See SNL, July 9, 1955, p. 24.)

Celestial Time Table for May

May	EST	
2	5:00 p.m.	Mercury farthest east of sun—visible around this date low in west just after sunset.
	9:55 p.m.	Moon in last quarter.
	11:19 p.m.	Moon passes Mars.
10	8:04 a.m.	New moon.
12	8:00 p.m.	Moon nearest, distance 226,300 miles.
13	8:11 a.m.	Moon passes Venus.
15	9:00 p.m.	Venus at greatest brilliance—magnitude minus 4.2.
16	9:59 p.m.	Moon passes Jupiter.
17	12:15 a.m.	Moon at first quarter.
20	9:00 a.m.	Saturn at closest for year, distance 832,300,000 miles.
24	3:34 a.m.	Moon passes Saturn.
	10:26 a.m.	Full moon; partial eclipse of moon as it enters partly into earth's shadow, visible in Asia, Australia and Antarctica.
25	7:00 p.m.	Mercury between earth and sun.
28	4:00 p.m.	Moon farthest, distance 251,900 miles.

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

Science News Letter, April 21, 1956

CHEMISTRY

Fats Not Used for Soap Are Source of Chemicals

➤ FATS, which become too plentiful as detergents displaced soap on the market, are now in increasing demand as chemical sources in manufacture of surface coatings, plastics, lubricants, cutting oils and even detergents themselves.

Treatment with nitric acid changes fats to materials taking an active part in a wide variety of chemical processes, making such products a "master key to the great variety of their industrial outlets."

Such applications were explained to members of the American Chemical Society meeting in Dallas, Tex., by Dr. Miles R. McCorkle of Armour and Co., Chicago. Dr. McCorkle spoke at a symposium on industrial applications of fatty acids.

At the same meeting, Dr. Waldo C. Ault, Eastern Regional Research Laboratory, Philadelphia, told of the availability, cost and composition of animal and vegetable fats and tallow oil as chemical raw materials.

Dr. Ralph H. Potts, Armour Chemical Division, McCook, Ill., described continuous processes, automatically controlled, for converting fats from such sources into a variety of chemical products. He stressed the proper materials to be used in these automatic plants to avoid corrosion by the fatty acids formed.

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