ASTRONOMY

# Venus Becoming Brighter

**Mars, Saturn and Jupiter are other planets visible on August nights. Taking a good look at the moon with binoculars or opera glasses is recommended.**

By JAMES STOKLEY

➤ STILL INCREASING in brightness as it swings nearer earth, Venus is the most prominent of the planets now visible.

Soon after sunset, and long before the sky is really dark, it can be seen shining brilliantly in the southwest. In fact, it can even be seen during the daytime, to the east of the sun, if one knows just where to look.

Venus is in the constellation of Virgo, the virgin, and during August its westward motion brings it closer and closer to Spica, the brightest star in that group, which it passes on the last day of the month.

However, the planet, of magnitude minus 3.8 on the astronomical scale, exceeds the star in brightness about a hundred-fold.

The accompanying maps are prepared to show the appearance of the skies about 10:00 p.m., your own kind of standard time, on the first of August, and an hour earlier at the middle. (Add one hour if on daylight time.)

Venus sets before this, about two hours after sunset, so it is not shown, but its prominence makes it easy to identify.

## Mars Remains Prominent

The other prominent planet of our August evenings, only about a tenth as bright as Venus, though still much brighter than any other, is Mars. This is shown to the south, in Sagittarius, the archer. The stars of this group form a very nice little teapot and Mars is just above the spout.

Since Mars is now drawing away from earth, it will dim rapidly during the coming months of autumn.

Another planet shown is Saturn, in the constellation of Libra, the scales. It is considerably fainter, about equal to a typical star of the first magnitude.

Brightest of the stars seen on August evenings is Vega, in Lyra, the lyre, which is directly overhead for the times for which the maps are drawn.

Below it and toward the east is Cygnus, the swan, where we find the first magnitude star Deneb. A little below and to the right of Cygnus may be seen Aquila, the eagle, in which Altair shines.

Toward the southwest, to the right of Sagittarius, is Scorpius, the scorpion. The bright star in this group is Antares, notable for its red color, like that of the nearby planet Mars.

In the northwest can be seen the Great Dipper, part of Ursa Major, the great bear. In the bowl of the dipper are the two pointers, whose direction shows the way towards Polaris, the pole star, in Ursa Minor, the lesser bear.

If the curve of the dipper's handle is followed toward the left, it will bring you to another first-magnitude star, Arcturus, in Bootes, the bear driver.

Late in the night another planet comes into view. This is Jupiter, in Gemini, the twins. It rises about two hours ahead of the sun, and its brightness is about the same as that of Mars.

Familiar as the moon is, it is apt to be neglected some by astronomers, perhaps as a result of its familiarity. Of course, the distant galaxies, which can only be observed with the greatest of telescopes, may be much more glamorous, but there are still many features of the moon that will repay a careful observer.

## Moon Through Binoculars

If you have a good pair of binoculars, magnifying perhaps six or eight diameters, try looking at the moon with them some night. As a matter of fact, even a pair of opera glasses will give a rather surprisingly good view of our satellite.

The best time to look is around the phase of first quarter, which occurs in August on the sixth. Then the sun's light, by which the moon is illuminated, comes from the side, and there are shadows from features in the middle of the disc, throwing them into relief.

When the moon is full, the light is coming from in back of us, over our shoulders, so to speak, and the lighting is much flatter, although even this gives an interesting view. Then the dark markings which are called "seas," even though they are entirely dry, and which make up the features of the "man in the moon," are most apparent.

A view around first quarter will show some of the larger craters, more than a hundred miles in diameter. The lunar craters were formerly thought to be volcanic in origin, like similar objects on earth. Although this theory still has its adherents, it is now more generally believed that they are the result of meteoritic bombardment at some past period.

The modern form of this theory was proposed shortly after World War I by an American physicist, Dr. Herbert E. Ives, who in his war service had been struck by the similarity of aerial bomb craters to those of the moon.

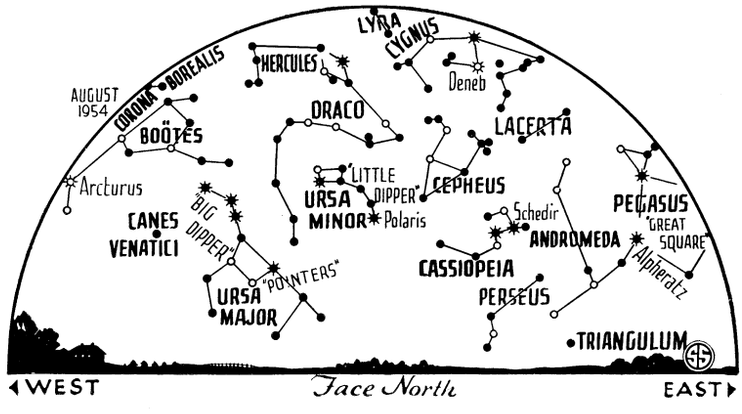
## Bombing by Meteorites

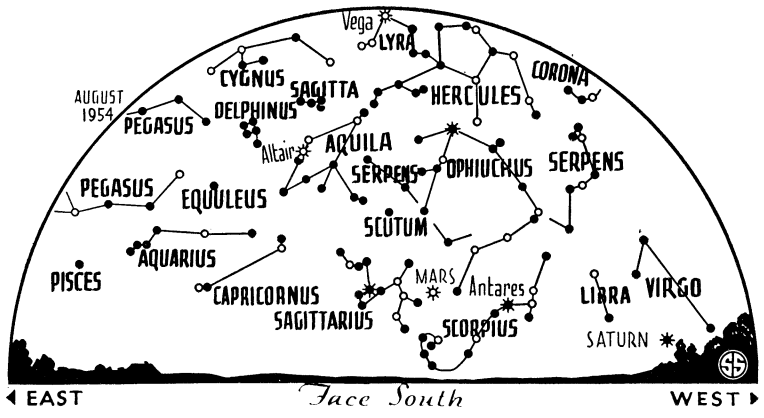
He pointed out that a meteorite hitting the moon would be like a bomb. As it approached the moon, it would have tremendous speed, which would give it enormous energy. But when it hit the surface, it would be quickly stopped, and its energy of motion would be converted into heat, enough to vaporize the mass of the meteorite itself, as well as much of the surrounding surface.

This rapidly expanding gas would produce a violent explosion, so it is not surprising that the craters resemble bomb craters.

Perhaps the best evidence for this sort of an origin is found in what is known as Schroeter's rule, discovered by a German astronomer a century and a half ago and fully confirmed by later work. It states that the material in the upraised wall around the crater is approximately equal in volume to the hole below the general level, in the middle.

This is just what would happen with a bomb-like explosion, for the wall is formed of material blasted out of the center. The two volumes should be equal, since the bomb itself, or the meteorite, contributes very little additional material.






☼ ✷ ○ • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

With a volcano, on the other hand, the upwelling of lava from underground piles up, and the wall is ordinarily far bigger than the depression inside the crater.

That even important lunar discoveries can still be made by an amateur astronomer with a small telescope was strikingly shown last year. On July 28 John J. O'Neill, a Long Island amateur astronomer and science writer, was observing the moon with a telescope equipped with a lens four inches in diameter, using a power of 200 diameters.

At the eastern border of the dark area known as the Mare Crisium, Sea of Crises, he noticed what seemed to be a natural bridge, spanning two capes about two miles apart. He could observe the light shining under the bridge, which showed that it was not merely a ridge.

This was so extraordinary that he naturally wanted some confirmation, so he wrote to Dr. H. Percy Wilkins, an English astronomer and authority on the moon. As Dr. Wilkins described it later before a meeting of the British Astronomical Association:

"On Aug. 26 I began to observe, firmly convinced that I was about to debunk the whole affair! I used powers up to 300 on my 15-inch telescope and . . . well, there it was! At least, there was the appearance of a bridge with the sunlight streaming under it, and with the shadow of the arch cast upon the plain."

Unfortunately, Mr. O'Neill died last autumn, before he had heard from Dr. Wilkins of this confirmation of his discovery. Other astronomers have also observed it, so "O'Neill's bridge" has become a recognized lunar feature, a memorial to its discoverer, and an excellent proof that there is still much we do not know about the moon!

## Celestial Time Table for August

| Aug. | EST | |
|---|---|---|
| 2 | 1:18 p.m. | Moon passes Venus. |
| 5 | 10:00 p.m. | Moon farthest, distance 251,200 miles. |
| | 10:08 p.m. | Moon passes Saturn. |
| 6 | 1:50 p.m. | Moon in first quarter. |
| 10 | 2:32 a.m. | Moon passes Mars. |
| 12 | early a.m. | Meteors of Perseid shower, apparently radiating from constellation of Perseus visible, but bright moonlight will interfere with the display. |
| 14 | 6:03 a.m. | Full moon. |
| 18 | 1:00 a.m. | Moon nearest, distance 228,200 miles. |
| 20 | 11:51 p.m. | Moon in last quarter. |
| 21 | 3:00 p.m. | Mercury beyond sun. |
| 24 | 8:08 p.m. | Moon passes Jupiter. |
| 28 | 5:21 a.m. | New moon. |

Science News Letter, July 24, 1954

NUTRITION

## Forced Eating May Cause Child's Loss of Appetite

➤ A CHILD'S appetite, when unhampered by illness or mental conflict, will usually be governed by need, Dr. Robert Ulstrom, University of California at Los Angeles pediatrician, advises.

"We seldom see a young baby who is physically well that does not eat well," he has found. "As his growth rate slows markedly, about age two years, he fails to increase his food intake. His eating habits become quite erratic.

"Because the parents cannot understand this tremendous variation of intake from meal to meal, the child may be prodded or forced to eat more than he wants. The rebellion of the child may be so great to this prodding and anxiety of his parents that he may become truly malnourished because of loss of appetite."

Dr. Ulstrom concludes that if the problem is anticipated or caught early, no special measures of correction, other than understanding, are necessary.

Science News Letter, July 24, 1954

GENERAL SCIENCE

# Many Scholarship Honors

➤ WINNING FIRST place this year in the Science Talent Search, one of the toughest scholarship competitions, has brought more than $30,000 in scholarship offers to a high school senior, Alan F. Haught, 17, of Bethesda, Md.

He has refused all 30 of the college offers to carry out his original plan to attend Amherst College. Since need is the basis for scholarship awards at Amherst, he will have none from that college.

Alan, who graduated near the top of his class of 402 at Bethesda-Chevy Chase High School, intends to finish a liberal arts degree before he specializes in physics at Massachusetts Institute of Technology.

In the Thirteenth Annual Science Talent Search he was named, from 16,344 seniors who competed from every state, to receive the $2,800 Westinghouse Grand Science Scholarship. He will use this at Amherst.

His work on a project of basic research in pure science, summarized in a highly technical report, entitled "Spectrographic Determination of Intermediate Products in Catalytic Reactions," helped to win him the Westinghouse Scholarship last March.

It also brought him a prized summer assignment at the National Bureau of Standards where he is student-aide to Dr. Wallace Brode, associate director. Dr. Brode is an authority in the field of chemical spectroscopy.

Of the 40 winners in the 1954 Science Talent Search, nine others are working at the Bureau this summer, getting their first taste of scientific research on a large scale. Like Alan, all the winners have had many offers of scholarship assistance, which they are accepting according to their financial need. Most of them have summer employment in line with their scientific specialties.

Thousands of boys and girls, who will graduate from high schools in 1955, are seeking to emulate these accomplishments. Many of them are using their summer holiday to prepare for the Fourteenth Annual Science Talent Search for the Westinghouse Science Scholarships.

Vacation leisure is giving them a chance to carry out reading, research and experiments in their chosen scientific fields.

Science News Letter, July 24, 1954