

ASTRONOMY

Venus Returns

With the coming of the New Year, the brightest of all planets may be seen in the Western evening skies. Jupiter and Saturn also visible.

By JAMES STOKLEY

► WITH THE OPENING of a new year, we can begin to get in the evening sky a glimpse of the brightest of all the planets. This is Venus. During most of 1942 she has been a morning star, shining in the east before sunrise, for the benefit of early risers—or confirmed night owls. But now Venus, in her own journey around the sun, has swung around behind that body. A few months ago she was to the west of the sun, hence rose before it. But now she has come around to the east, and remains visible after sunset. Still so close to the sun that she sets during twilight, January brings us only a momentary view of her. But if you look to the southwest just after the sun goes down, especially toward the end of January, and see a brilliant point of light near the horizon, you'll know that you're looking at Venus. Keep on watching her, night after night, for in the coming months she will stay up later and later, and become increasingly brighter.

Because the accompanying pair of semi-circular maps depict the sky's appearance at 11:00 p.m., local war time, at the beginning of January, and about 10:00 p.m. on the fifteenth, Venus does not appear upon them. But two other planets do. These are Jupiter and Saturn which have been with us for many weeks. Jupiter is the brighter of the two—brighter indeed than any star or planet now visible after dark. He is high in the east, just to the right of Pollux, the more brilliant of the twins, Gemini. To the south, in Taurus, the bull, above and to the right of Aldebaran, is Saturn, the other planet, still exceeding in brilliance any of the stars except Sirius.

Nearest Star

This star, known also as the dog star, can easily be found in the southeast, in Canis Major, the great dog. This is the nearest naked-eye star visible from most of the United States, 8.7 light years away.

Between Saturn and Sirius is the mag-

nificent constellation of Orion, the great warrior. This figure, perhaps, can be most easily recognized by three stars in a row which form Orion's belt. Above it is Betelgeuse, below it is Rigel. To the right of Betelgeuse is Bellatrix.

The twins, Gemini, have already been mentioned, the other twin, upper and fainter, being Castor. Between Gemini and Canis Major is Canis Minor, the lesser dog. In this shines Procyon, another brilliant star.

Practically over head at the times of the maps is Auriga, the charioteer, with first magnitude Capella. In addition, there is one other star now visible which rates as bright. This is Deneb, in Cygnus, the swan, low in the northwest. Because of its low altitude, however, much of its light is absorbed by the earth's atmosphere. That is why it is represented with the symbol of a much fainter star.

Other Planets

As for the other planets, not shown, Mercury is in the evening sky, near Venus, though considerably fainter and not visible. Mars is in Scorpius, the scorpion, which rises in the southeast about three hours ahead of the sun. It is so far away that it is scarcely brighter than a second magnitude star.

If you were to fill the whole hemisphere of sky with disks the size of the full moon, how many do you suppose

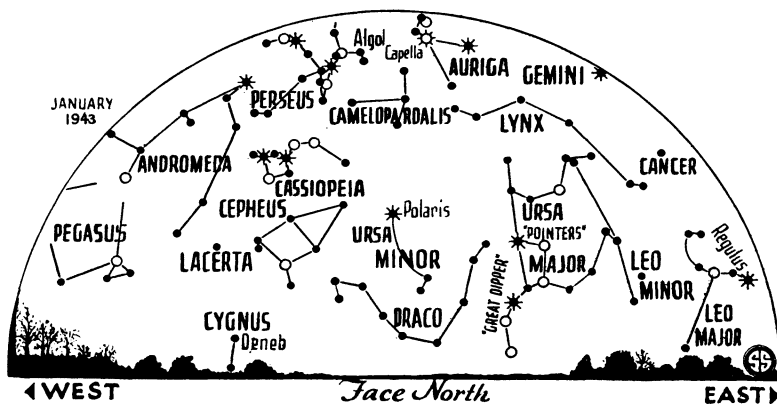
would be required to fill it? The answer is about 103,130 and at this rate about 41, on the average, would be required to cover a single naked-eye star. Thus, the chance of a disk like the moon covering a bright star is very much rarer. However, in the course of its wanderings, the moon does occasionally eclipse, or "occult," a bright star, and sometimes these occultations occur in series. This month we have another in the series of occultations of Aldebaran, in Taurus, which is the most brilliant star that can hide behind the moon.

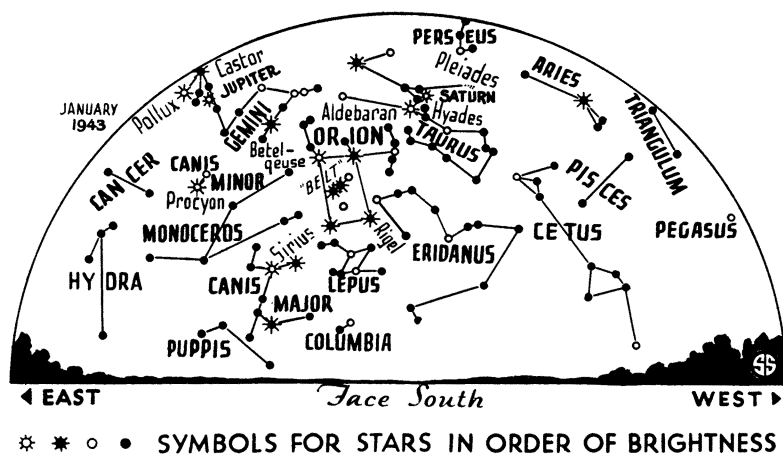
Ephemeris Gives Times

This takes place on the evening of January 16. In the American Ephemeris, which is the bible of the astronomer, published each year at the U. S. Naval Observatory in Washington, the times of such occultations are given, not only for Washington, but for three other locations. These are (1) a point in western Massachusetts near Pittsfield; (2) one near Quincy, Ill., and (3) one near Bakersfield, Calif. In the table below are given the times at which, on Jan. 16, Aldebaran is hidden and the times it reappears.

Place	Disappears	Reappears
Washington—		
EWT	10:19 p.m.	11:46 p.m.
1—EWT	10:28 p.m.	11:55 p.m.
2—CWT	8:47 p.m.	10:18 p.m.
3—PWT	6:00 p.m.	7:15 p.m.

Taking the times for the station nearest you, it will be possible for you to get some approximate idea of the time





that the occultation will take place where you are. The moon will be in a gibbous phase, three days after first quarter. Since the dark edge of the moon is the one away from the sun, and since the moon moves through the sky from west to east, it is the dark limb that is ahead.

Consequently, the star disappears behind the moon's invisible edge, and does so instantaneously, because of the fact that the moon has no appreciable atmosphere. This makes it particularly interesting to watch. When it reappears, it comes out from behind the moon's sunlit limb, and with the glare it may be a bit difficult to see. A pair of binoculars will be a help, however.

Astronomers are particularly interested in observing occultations and timing them accurately, because they make it possible to check up on the moon's motion. It might seem easy to predict the wanderings of the moon for years to come, but to do it with great precision

is one of astronomy's most difficult problems, because the moon is pulled by so many different bodies. Consequently, these calculations have to be checked from time to time and occultations, not only of bright stars, but of fainter ones as well, offer an excellent opportunity of doing so.

Celestial Time Table for January

Jan.	EW T	
2	1:00 a.m.	Earth nearest sun; distance 91,447,000 miles.
4	6:06 a.m.	Moon passes Mars.
6	8:00 a.m.	Moon nearest, distance 221,600 miles.
	8:37 a.m.	New moon.
7	6:58 a.m.	Moon passes Venus.
	6:00 p.m.	Moon passes Mercury.
8	5:00 p.m.	Mercury farthest east of sun.
13	3:48 a.m.	Moon in first quarter.
16	3:23 p.m.	Moon passes Saturn.
	Evening	Occultation of Aldebaran; see text.
19	7:00 p.m.	Moon farthest, distance 252,510 miles.
20	8:19 a.m.	Moon passes Jupiter.
21	6:48 a.m.	Full moon.
29	4:13 a.m.	Moon in last quarter.

Subtract one hour for CWT, two hours for MWT, and three for PWT.

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NUTRITION

"Oranges for Victory"

➤ "ORANGES FOR VICTORY" might be adopted as a new slogan by citrus fruit growers and nutritionists after reading the eight military uses of vitamin C including treatment of T.N.T. poisoning reported by Dr. Harry N. Holmes, of Oberlin College (*Science*, Oct. 23).

Vitamin C, or ascorbic acid, of course, is found in many other fruits and vegetables besides oranges, and is also made synthetically. Annual output in the United States of the synthetic ascorbic acid may soon reach 100 tons, with our allies getting much of this, Dr. Holmes reports.

Latest military use for ascorbic acid is in treatment of T.N.T. poisoning. The physician in charge of a T.N.T. plant in Britain has reported confidentially to Dr. Holmes that tests have convinced him that T.N.T. destroys vitamin C and that he has successfully treated 57 cases of severe poisoning with rapid response to treatment. A number of T.N.T. plants in this country are now following Dr. Holmes' advice to give daily doses of vitamin C to their workers to prevent poisoning. Results have not yet been reported.

Poisoning due to tetryl used as booster charge in shells is now causing medical

concern. Dr. Holmes suggests tests to determine whether workers exposed to tetryl have lowered amounts of vitamin C in their bodies. If so, daily doses of the vitamin should be given, Dr. Holmes advises.

The zinc oxide fume given off when brass is melted is causing symptoms somewhat reminiscent of lead poisoning which, Dr. Holmes states, suggests that vitamin C in the workers' bodies is being destroyed. He and Dr. Kathryn Campbell some years ago found that dust of lead and its compounds destroyed vitamin C in the bodies of workers and that daily doses of this vitamin in most instances resulted in great improvement in health.

Value of vitamin C in preventing heat prostration, to which soldiers in the tropics and North Africa as well as war industry workers are exposed, has already been reported.

Shock from injury and surgical operations, allergic shock as in hay fever patients, and benzene and toluene poisoning are other military and war industry conditions that might be effectively warded off by vitamin C.

The vitamin plays a part in promoting healing of wounds, lessens some of the uncomfortable effects of arsenical treatment of syphilis and has recently given good results in treatment of insomnia. This last use of the vitamin mentioned by Dr. Holmes as of military value was reported by Dr. Louis J. Karnosh of Western Reserve Medical School.

Science News Letter, December 26, 1942

MEDICINE

Frequent Short Vacations Advised for Test Pilots

➤ TEST PILOTS should be given frequent short vacations with at least one week of rest in each seven weeks, to prevent chronic exhaustion, Dr. Jan H. Tillisch and Dr. Maurice N. Walsh, of Rochester, Minn., urge in a report to *War Medicine* (Dec. 4), published by the American Medical Association in cooperation with the Division of Medical Sciences of the National Research Council.

Chronic exhaustion occurs more often in test pilots than in transport pilots, these doctors discovered, a finding which they point out is not surprising in view of the nature of the test pilot's work.

Most common symptoms of chronic exhaustion in the test pilot are: chronic fatigue, a feeling of inward tension and