ASTRONOMY

See Winter Constellations

Orion, generally considered to be the finest constellation in the sky, has two bright stars with a row of three of medium brightness between them, making it easy to identify.

By JAMES STOKLEY

➤ TO ORION and all the other brilliant winter constellations that decorate the January evening sky there is now added the planet Mars.

Although dimmed to about one-sixteenth of its brilliance in September, when it made a close approach to earth, it is still as bright as a typical star of the first magnitude, very similar to Betelgeuse, the uppermost bright star in Orion.

Mars is now in the constellation of Pisces, the fishes, visible in the southwest at the times for which the accompanying maps are drawn, i.e., about 10:00 p.m., your own kind of standard time at the first of January, an hour earlier at the middle of the month and two hours earlier as it comes to an end.

Many times more brilliant than Mars, however, is one of the stars now visible. Different from the planets, which shine by the sunlight they reflect, Sirius and the other stars are actually far distant suns, shining themselves.

Sirius, often called the dog-star, is in the southeast, in Canis Major, the great dog. The lesser dog, Canis Minor, is above and to the left. In it we find Procyon, another first-magnitude star.

To the right of Procyon, high in the south, is Orion, the warrior, generally considered the finest constellation in the sky.

Its characteristic form—two bright stars with a row of three of medium brightness between them—makes it easy to identify.

Shown on Old Star Maps

As pictured on the old star maps, which drew around the stars the figures the constellations were supposed to represent, the three stars were Orion's belt. Betelgeuse and Bellatrix, a fainter star just to the right, were his shoulders; while Rigel, the bright star below, was in one of his legs.

Above Procyon is the figure of Gemini, the twins, and the brightest stars in this group are Castor and Pollux. The latter is the brighter, for in this case the twins are not identical. Pollux is a star of the first magnitude, while Castor is of the second.

Almost overhead, in Auriga, the charioteer, Capella can be seen.

As we pass from this group toward the south, going to the right of Orion, we come to Taurus the bull, which was shown on the old maps charging upon Orion. In Taurus is a first-magnitude star distinctly red in color. This is Aldebaran, which marks the bull's eye.

Although most of the bright stars of the January evening are in and around the form of Orion, two others are shown on the maps, both somewhat dimmed by reason of their low altitude and the increased absorption of their light by the earth's atmosphere which that causes.

Low in the east is Leo, with the bright star Regulus. In the northwest, still just visible above the horizon, is the upper part of the figure of Cygnus, the swan, with the star called Deneb. A few months ago this was shining brilliantly in the south and southwest.

In fact even now, if you look early in the evening, just after dark, you will see it in a similar position.

Three other planets come up later at night. Jupiter, even brighter than Sirius, is in Virgo, the virgin, and rises just before midnight. Saturn, in Scorpius, the scorpion, comes up about two hours before sunrise, while Venus appears above the southeastern horizon just before dawn.

1957 Astronomical Program

Looking ahead to the astronomical program for 1957 we find that it offers four eclipses—two of the sun and two of the moon—although none of these are visible generally in the United States.

However, another event, much rarer than an eclipse, occurs in May and will be visible generally in North America, all except the extreme eastern part.

This is a transit of Mercury across the face of the sun.

Since that planet and Venus both move in orbits that are smaller than the earth's orbit, both may come between the earth and the sun.

Every 116 days, in the case of Mercury, and every 584 days for Venus, they are in the same general direction from the sun as we are, but normally they are either north or south of the line from the sun to the earth.

Hence there is no transit, and the planet does not pass across the disc of the sun.

It is very rarely that conditions are right to produce a transit of Venus. The last occurred in 1882, while the next will not happen until 2004.

Mercury Transits in May

Transits of Mercury are more common. There was one on Nov. 13, 1953, there is one in 1957 on May 5, and there will be another on Nov. 6, 1960. Mercury is so small that a telescope is needed to see a transit.

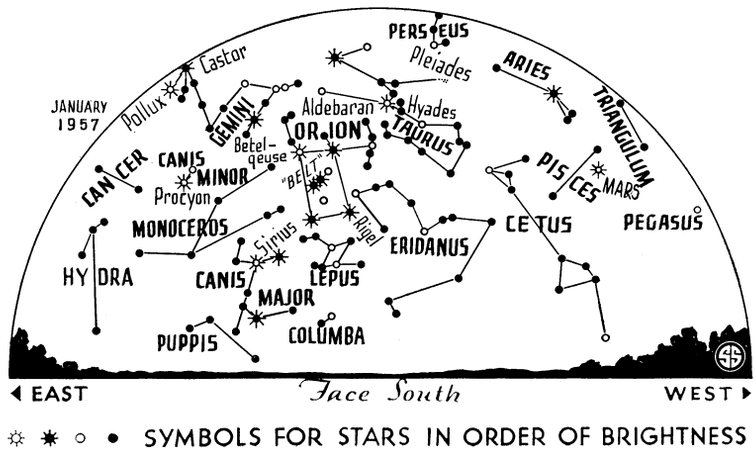
Venus is larger, and when it is in transit only some protection for the eye, to enable the observer to look at the sun, is needed to show it as a tiny spot on the sun's face.

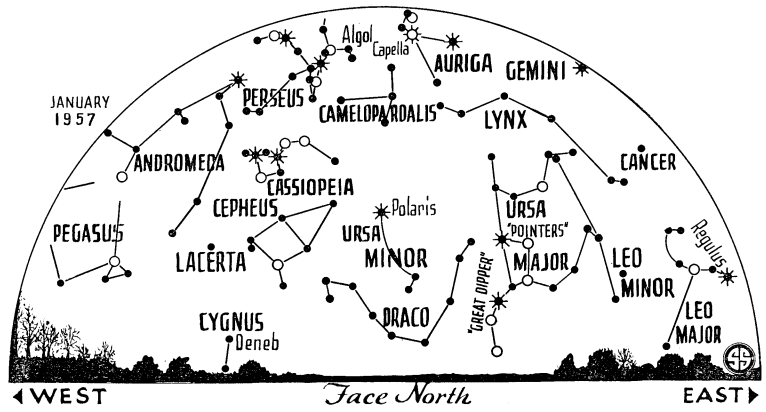
The year's first eclipse will come on April 29. Along a curved path in the Arctic regions north of Europe, the moon will be seen to come in front of the sun. It will not hide it completely, however, as this is what is called an annular eclipse, which happens when the moon is far enough away that it appears a little smaller than the sun.

Hence, even though it comes in front of that orb, a ring of the solar surface will remain visible around the lunar disc. Almost all of Asia, as well as Alaska, western Canada and the northwestern United States, will see a partial eclipse of the sun.

Two weeks later, on May 13, the moon will enter the shadow of the earth, producing a total lunar eclipse, visible generally over Europe, Asia, Africa, Australia and Antarctica. Before it is over the moon will rise along the eastern coast of North America, so this region will see the concluding phases.

Then, on Oct. 23, comes another eclipse of the sun, total this time, although few will see it. For only in a small region off the





coast of Antarctica, south of the Atlantic Ocean, will the total eclipse be visible.

The southern tip of Africa, Madagascar, most of Antarctica, and a large area of the Indian Ocean will have a partial eclipse.

Nov. 7 brings another total eclipse of the moon. This time the beginning is visible generally over North America, except for the eastern part, the region that saw the end of its predecessor. Asia, Australia, Alaska and the Pacific Ocean with its adjacent areas will be the part of the world where this eclipse will be visible.

Celestial Time Table for January

JAN.	EST	
3	1:00 a.m.	Earth nearest to sun, distance 91,347,000 miles.
4	3:00 a.m.	Moon farthest from earth, distance 252,400 miles.
5	3:36 a.m.	Algol (variable star in Perseus) at minimum brightness.
8	12:26 a.m.	Algol at minimum.
9	2:06 a.m.	Moon in first quarter.
	3:45 a.m.	Moon passes Mars.
10	9:15 p.m.	Algol at minimum.
13	6:04 p.m.	Algol at minimum.
16	1:21 a.m.	Full moon
	5:00 p.m.	Moon nearest, distance 222,000 miles
20	2:51 p.m.	Moon passes Jupiter.
22	4:48 p.m.	Moon in last quarter.
25	6:38 p.m.	Moon passes Saturn.
28	2:10 a.m.	Algol at minimum.
29	12:53 a.m.	Moon passes Venus.
30	4:24 p.m.	New moon.
	11:00 p.m.	Algol at minimum.
31	9:00 a.m.	Moon farthest, distance 252,700 miles.

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

Science News Letter, December 29, 1956

PSYCHOLOGY

Score Absentee Workers

➤ WORKERS with "child minds in adult bodies" who cannot face up to adult responsibilities account for a great part of the country's time lost from work, Dr. N. Gillmor Long, Lumbermens Mutual Casualty Company, reports in *Industrial Medicine and Surgery* (Dec.).

These "drone bees of society" cost industry and the public an estimated $180,000,000 per year, Dr. Long reports.

His list of "drone" type workers, those that came under the title of "goldbricks" in the army, includes those who hate society in general, those who are occupationally square pegs in round holes, and those who are emotionally inadequate through frustration either at home or with fellow workers. They get relief by taking a day off now and then, reports Dr. Long.

One large group is made up of workers who feel they are not paid enough or are "too good for the job," Dr. Long reports. Another type of absentee is one whose wife and unmarried family members bring in a substantial income. This type will "knock off" a day occasionally to go fishing, says Dr. Long.

By careful charting he has also found a group of Monday or Friday offenders, who think the company owes them an extra day or so.

One absentee worker can ruin a whole department, Dr. Long believes. Fellow workers quickly get dissatisfied when they see their co-worker "flitting about town on his self-selected extra days off."

Science News Letter, December 29, 1956

PHYSICS

Zero Power Reactor Now in Operation

➤ A NUCLEAR REACTOR with practically no power output has gone into operation at the Argonne National Laboratory, Lemont, Ill., in order to make possible studies on fundamental principles of future reactors for power purposes.

ZPR-V, meaning No. 5 in a series of zero power reactors, contains two zones, one that produces "slow" or thermal neutrons, which then pass into the fast section to cause fission in enriched uranium. The entire unit, containing uranium fuel and control rods, is in a five-foot diameter tank.

Science News Letter, December 29, 1956

PSYCHOLOGY

Mentally Ill Cannot See Proverbs' Meaning

➤ AN UNDERSTANDING of the meaning of proverbs differentiates mentally sound persons from those with the common mental illness, schizophrenia.

This handy method for picking the mentally ill from the normal, found in research at the Veterans Administration Center, Baylor University, is reported in the *Journal of Consulting Psychology* (Dec.) by Dr. Donald R. Gorham.

Here is a sample proverb with four possible meanings to select from:

The sun shines upon all alike.

a. It's the same sun everywhere.
b. All are created equal.
c. The sun shines on everybody.
d. People that do the same things are alike.

The normal person, Dr. Gorham points out, is able to handle abstractions. The schizophrenic is limited to thinking concretely. Normal subjects, even as young as fifth graders, are able to score well on proverb tests.

Dr. Gorham tried the test on 332 Air Force basic airmen and 232 hospitalized schizophrenic veterans. From these groups he selected 100 Air Force men and picked 100 chronic schizophrenics to match them in sex, education and intelligence.

The proverbs test was found to separate correctly 80% of the normal subjects and 75% of the schizophrenic patients.

The test was not so effective, however, when used on paranoid patients.

If the test were used to sort out a group, only one percent of whom were schizophrenic, the test would not be so satisfactory, Dr. Gorham warns. However, if it is used on a clinic group of persons seeking assistance for mental and emotional problems, its value would be much greater.

Science News Letter, December 29, 1956

PUBLIC HEALTH

Rodents, Lizards May Carry Valley Fever Germ

➤ RODENTS, lizards and fish could be reservoirs for the organism that causes coccidioidomycosis (valley fever) in humans.

Twelve species of mammals, including rodents, skunks and rabbits, and such cold-bloods as crayfish, goldfish and lizards, were inoculated with *Coccidioides immitis,* the valley fever organism.

All the mammals died from the disease and the crayfish, goldfish and lizards developed lesions in which living organisms were present.

This is one of the few instances known in which organisms that attack humans also act similarly on cold-blooded animals such as fish and lizards. It was found in research by Drs. Frank E. Swatek and Orda A. Plunkett of the botany department at the University of California at Los Angeles.

Science News Letter, December 29, 1956