

ASTRONOMY

Mars and Venus Still Prominent

February's brilliant night sky features the constellations of Orion, Taurus, Auriga, Canis Minor and Leo, as well as the planets Venus and Mars, James Stokley reports.

➤ **STILL INCREASING** in brilliance, Venus is now brighter than any other planet, or any star, in the evening sky. You can see it in the west soon after the sun has descended below the horizon, and long before the end of twilight. In fact, it is now so bright that you can even see it in broad daylight—if you know just where to look.

Even though it is now about a month past the time of its greatest brilliance, Mars is still prominent on February evenings. It is in the constellation of Gemini, the twins, high in the south as shown on the accompanying maps. These show the skies as they look about 10 p.m., your own kind of standard time, on Feb. 1; about 9 p.m. at the middle of February; and at 8 p.m. as it comes to an end.

On the astronomer's scale of brightness, Venus has a magnitude of minus 4.2 on Feb. 15. That of Mars is minus 0.1, which makes it about a fortieth as bright as Venus. Only one star is as bright: Sirius, the dog star, in Canis Major, the great dog. Sirius exceeds Mars by more than three and a half times.

Mercury Seen Above Horizon

Because Mercury, the innermost planet, is so close to the sun, it is seldom seen. But on Feb. 6 it will be farthest east of the sun, and so will remain above the horizon for a little while after sunset. Thus, for a few evenings about this time you will be able to see it low in the southwest in the gathering dusk. By the time the sky is dark, Mercury will have set; we can never see it in the nighttime sky.

Higher than Sirius, and a little to the right, stands the notable constellation of Orion, the warrior. The three stars in a row, which form his belt, will help you recognize it. Above the belt is Betelgeuse and below is Rigel; both of these stars are first magnitude.

Still higher and farther right you will see Taurus, the bull. A V-shaped group of stars, called the Hyades, outline the bull's face. Among these is ruddy Aldebaran, which marks his eye.

Directly overhead, at the times for which our maps are drawn, stands Auriga, the charioteer. In it is the bright star called Capella, shown on the northern sky map. Below it, to the south, is Mars, in Gemini, the twins. In this same constellation is the first magnitude star Pollux. And below the Gemini is Canis Minor, the lesser dog, with Procyon.

In no other region of the sky are so many brilliant stars concentrated in so small

an area. It is because they are visible in the evening at this time of year that the winter skies are so magnificent. The added presence of Mars now makes them even more so.

Climbing into view in the east is another first magnitude star, Regulus. It stands in the figure of Leo, the lion.

In the northeastern sky is Ursa Major, the great bear, of which the familiar great dipper is part. The two stars in the bowl of the dipper called the pointers show the way to Polaris, the pole star, which is always in the north. This is in Ursa Minor, the lesser bear.

To the left is Cepheus, the king, and Cassiopeia, the queen. The latter consists of stars arranged to form a letter M, on one side. And above and to the left of Cassiopeia is Perseus, the mythological hero, with the star called Algol. This is a famous variable star. Every 2.86 days this star dims in light as the brighter orb is eclipsed by a darker star that revolves around it.

Twice each year the moon comes between the sun and earth, producing a solar eclipse. When this happens, the tip of the moon's conical shadow may sweep across the earth, along a path a hundred or so miles wide and several thousand miles long. In this

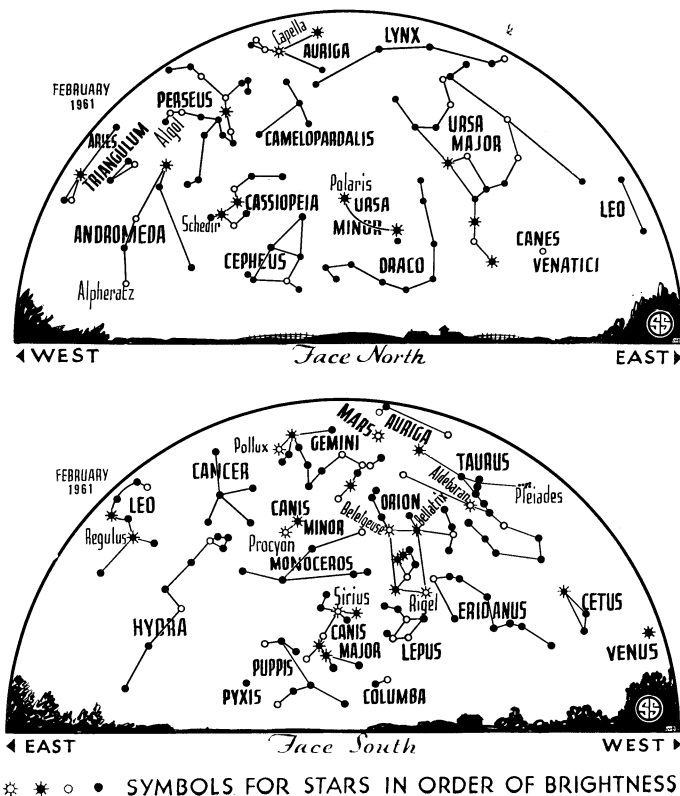
"path of totality" the moon completely hides the sun's globe and the surrounding corona comes into view for a few minutes. When this happens, astronomers can make many observations possible at no other time.

The eclipse track often passes over distant parts of the world, or over large areas of ocean in which there are but a few scattered islands. Many eclipse expeditions have been organized, at great trouble and expense, to get to the places where the eclipse can be seen. Sometimes all these efforts are frustrated by clouds in front of the sun during the crucial minutes.

Eclipse Comes to Astronomers

Since an eclipse path may reach any part of the earth, occasionally it may happen to go over a well-populated region, even one with many permanent observatories. Then the astronomers do not have to go to the eclipse—it comes to them.

This will happen on Feb. 15, when the sun will be hidden for millions of people in southern and eastern Europe. The path of totality starts in the Bay of Biscay as the sun is rising. Then it sweeps over southern France, Italy, Yugoslavia, Rumania, Bulgaria and the U.S.S.R. It ends as the sun is setting in northern Siberia, near the Taimyr Peninsula. At the beginning of the path, in the Bay of Biscay, it is 130 miles wide, and at the middle the width is 164 miles.



In southern Russia, at Rostov-on-Don and Stalingrad, the eclipse occurs around the middle of the day. The sun will then be about 27 degrees above the horizon and it will be hidden for two minutes 45 seconds. Farther west, in France and Italy, the sun will be lower, and the total eclipse will last about two minutes.

The path crosses the Riviera and persons wintering there will have an unusual spectacle to watch on the morning of the 15th. Watching the sun, with adequate protection for the eyes, they will see the dark disc of the moon slowly creep across the sun's face.

Then will come totality, the corona will flash into view, and the brighter stars, and Venus, will be visible. Then a sliver of the sun's disc will again appear, slowly widening as the moon moves away, and the eclipse ends. Over all of Europe, northern Africa and much of Asia, there will be a partial eclipse, with the moon hiding only part of the sun. The nearer a person is to the path of totality, the greater will be the area of the sun that is covered.

Fortunately for the astronomers, there are many observatories along the path. Near Ancona, Italy, is the Arcetri Observatory, equipped with special instruments for solar observations. At St. Michel, in southern France, is the Haute Provence Observatory, with a 76-inch reflector that is the largest telescope in Europe.

There is another large observatory on Mt. Gros, near Nice. Russian astronomers will be able to watch the eclipse from their large observatory at Simeis in the Crimea. With at least a dozen observatories along the path, this should be one of the best observed of all eclipses. If the weather is good, these observations should lead to many important new scientific data.

Celestial Time Table for February

Feb.	EST.	
4	3:42 a.m.	Algol (variable star in Perseus) at minimum brightness
6	7:00 a.m.	Mercury farthest east of sun, visible low in west after sunset for a few days about this date
7	12:31 a.m.	Algol at minimum
8	11:50 p.m.	Moon in last quarter
9	9:20 p.m.	Algol at minimum
12	12 noon	Uranus nearest earth, distance 1,614,000,000 miles
13	1:00 a.m.	Moon passes Jupiter (visible low in east before sunrise)
	2:00 a.m.	Moon passes Saturn
14	6:00 a.m.	Moon nearest, distance 222,600 miles
15	3:11 a.m.	New moon; eclipse of sun visible in Europe, Africa and Asia
18	10:00 a.m.	Jupiter passes Saturn
21	7:00 p.m.	Mercury passes between earth and sun
22	3:35 a.m.	Moon in first quarter
24	12 noon	Moon passes Mars
25	12 noon	Pluto nearest earth; distance 3,028,000,000 miles
26	4:00 p.m.	Moon farthest; distance 252,200 miles
27	2:16 a.m.	Algol at minimum

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

• Science News Letter, 79:58 January 28, 1961

SOCIOLOGY

Specialists Lead Society

► THE TRAINED "SPECIALIST" has replaced the local "aristocrat" in community leadership, a study of the Syracuse metropolitan area by Syracuse University sociologists has shown.

They found that technically trained persons are natural candidates for community leadership roles, because of the complexity of today's problems.

Community leadership patterns have been forced to keep pace with the physical growth and expansion of cities. In Syracuse, once ruled by a single clique, the sociologists found that the diverse problems of the community were handled by many persons, technically trained in specific fields.

Highlights of study's results:

1. The old "aristocracy" is no longer dominant. Although the "aristocrat" still exerts some influence and is active in the community, he no longer is automatically a leader.

2. The trained professional has become a force in the community. Technically trained persons become involved according to their interests and abilities. Engineers handle problems of city planning, finance men tackle the city budget, and public

relations men administer the Community Chest.

3. The community leader of today is often nonlocal. Specialists tend to change locations with job promotions or changes. Because of their specific knowledge, the specialists tend to be community decision-makers, despite the previous assumption that leaders are always "local."

4. A very small segment of the population is involved in leadership. In the Onondaga County area of 395,000 people, less than three-tenths of one percent of the citizens participated in a direct way in the making of community decisions.

Although leaders share similar social characteristics, such as social position and education, a potential leader need not have this background. If a man has the necessary administrative or technical skills, he has access to leadership positions.

By use of the factor analytic technique, the team of sociologists studied patterns of participation in decision-making on 39 selected community problems. The participants, all community leaders, were then contrasted with a random sampling of the population.

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PSYCHIATRY

Parents Foster Violence

► CHILDREN AND ADOLESCENTS who commit murder or make murderous attempts do so through parental fostering.

Consciously or unconsciously, one or both parents of eight boys studied for a year by Drs. William M. Easson and Richard M. Steinhilber, Mayo Clinic, Rochester, Minn., fostered and condoned murderous assault.

The patients were all from socially acceptable "normal" families but all eight acted violently with parental permission and approval, conscious or not, the psychiatrists say.

One of the eight shot and killed his music teacher, a middle-aged spinster friend of his mother. The ten-year-old boy, son of a lawyer, had collected and gloried in guns, and even after murder had been committed he was allowed to keep his gun collection.

The age of the boys ranged from eight to 16. Most of them had collections of knives and guns that they were allowed to retain and in some cases to increase even after several violent and menacing acts.

The psychiatrists say that no murder is without motive. In each case the child was repeatedly given to realize that his parents expected him to be physically violent and antisocially aggressive, even to the point of murder.

They say the boys were identified with their mothers in a hostile fashion and that the fathers either rejected them brutally or failed to play a definite masculine role in the family.

In one case, the father's murderous out-

bursts toward his boy were barely controlled, and in the child's own violent aggression, the psychiatrists pointed out, he was identifying with his father. Both parents condoned his behavior.

The study is reported in the American Medical Association's Archives of General Psychiatry, 4:1, 1961.

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GENERAL SCIENCE

Ford Foundation Grants Total \$1.3 Billion

► THE FORD FOUNDATION made grants totaling more than \$1.3 billion during its first ten years as a national organization.

During 1960, the Foundation granted more than \$160,000,000 to educational institutions, research organizations and hospitals. The 1960 total was the highest since 1956 when the Foundation made the bulk of its capital grants for faculty salaries, hospitals and medical schools.

Nearly half of the money spent over the ten-year period went to formal educational programs. Other major categories included arts and sciences, and hospital and medical schools.

Educational institutions again received a major portion of the grants in 1960.

The statistics were published in the 1960 Annual Report.

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