

ASTRONOMY

Summer Stars Begin to Appear

Mars is the only planet visible in the June evening skies in which Vega shines forth brilliantly and the summer constellations are beginning to appear.

By JAMES STOKLEY

▶ **ALTHOUGH SUMMER**, in the Northern Hemisphere, does not begin until June 21, when the sun reaches farthest north in its annual circuit of the sky, the evening skies already are beginning to show the summer constellations.

One of these is the scorpion, Scorpius, which appears low in the south. You can see its position on one of the accompanying maps, which show the skies as they look about 11:00 p.m., your own kind of daylight saving time (10:00 p.m., your own kind of standard time), at the first of June, and an hour earlier at the middle of the month.

Scorpius Partially Visible

In Scorpius is the bright star called Antares, which is distinctly red in color. Not all of the constellation is visible at the hours for which this map is drawn. Next month, however, it will be entirely in view.

The name Antares means "rival of Mars," doubtless given because both the star and planet are red. If you wish, you can compare them, because Mars is the only planet now visible in the evening hours. It is toward the west, in Leo, the lion, a constellation shown partly on the northern sky map and partly on the southern. Actually Antares is considerably brighter than Mars is now, but it is dimmed on account of its low altitude. The earth's atmosphere absorbs much of its light. Also in Leo is the star Regulus, which Mars passes about June 1. The planet's position is shown for the middle of June.

To the left of Leo is Virgo, the virgin, with a first magnitude star called Spica. Higher is another bright one, Arcturus, in Bootes, the herdsman.

Turning toward the eastern sky you can see the brilliant Vega, the brightest star visible on summer evenings. It is in Lyra, the lyre. Underneath it stands Cygnus, the swan. Some of the stars in this constellation form the "northern cross" with the one called Deneb at the top, now directed downward and to the left. Both Deneb and Vega appear on the northern map, but just to the right, appearing on the chart for the southern skies, is Altair, in Aquila, the eagle. These three stars—Altair, Vega and Deneb—form a large stellar triangle that is conspicuous on mid-summer evenings.

Just above the northwestern horizon our map shows parts of Gemini, the twins, and Auriga, the charioteer. These are all that remain visible of the brilliant constellations of the winter evening. The stars Pollux and Capella are both of the first magnitude but

are greatly dimmed when they are so low.

Four other planets now appear later in the night. Saturn rises in the east about midnight, in Capricornus, the sea-goat. Jupiter is now in Pisces, the fishes, and comes up about two hours ahead of the sun. It is more brilliant than any other star or planet that is then visible. Venus, which is still brighter, rises about an hour before the sun, when the eastern sky has begun to brighten with the coming of dawn. And around June 13 Mercury is farthest west of the sun. It rises about the same time as Venus, but is only about a fortieth as bright, so it will be difficult to see.

In the scale of stellar magnitudes, the lower the number, the brighter is the star or planet. Thus first magnitude is brighter than second and magnitude 1.5 is the dividing line between the two classes. Mars is now of magnitude 1.4, so it barely qualifies as first. Back in February it was about eight times as bright, because it was then only about 62 million miles from earth. Now it has receded to 150 million miles, and is still drawing away from us.

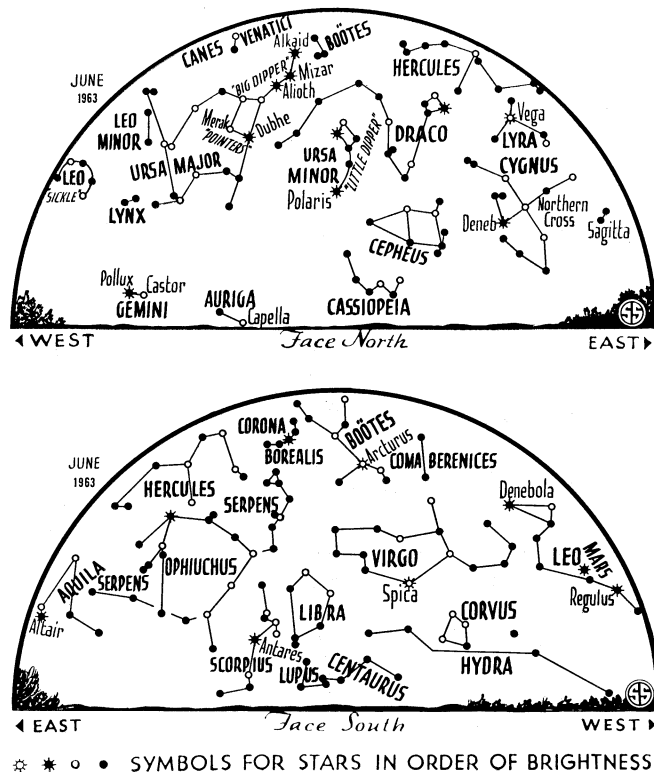
As noted above, Mars passes close to Regulus (which is similar in brightness) on June 1. On June 5 it passes about half a degree (the diameter of the full moon) north of the planet Uranus. This occurs

during daylight hours in the U.S. and Canada so that by that evening Mars will be a little farther east. However, if you pick up Mars with a pair of binoculars, it should be easy to locate the other planet below. The magnitude of Uranus is about sixth, which is considered the limit of naked-eye visibility under very favorable conditions. It is far beyond Mars—about 1,700,000,000 miles away at the present time.

Alpha Centauri

Next to the sun, at a mean distance of about 93 million miles, the closest star is one in the constellation of Centaurus, the centaur. It has no special name, but is usually referred to as alpha Centauri, indicating that it is the brightest star in that group. Its distance is about 25 trillion miles, a distance which light traverses (traveling 186,000 miles per second) in 4.3 years. Thus astronomers often give its distance as 4.3 light years.

Alpha Centauri is not visible from most of the United States, although it barely gets above the southern horizon at the south end of Florida and of Texas. It is seen easily from Puerto Rico. From South America and other southern regions, it rises high overhead. But the centaur is a large constellation, and a few of its northernmost stars do come into view even in the central part of the nation. These are shown on the map, low in the south. Alongside is a similar part of Lupus, the wolf, which is next to the centaur. In fact the old star maps,



which pictured the figures around the stars, showed the human part of the centaur spearing the wolf.

Celestial Time Table for June

JUNE	EDT	
3	10:00 a.m.	Moon farthest, distance 252,100 miles
5	3:00 p.m.	Mars passes Uranus
7	4:31 a.m.	Full moon
9	3:00 a.m.	Mercury passes Venus
12	11:00 a.m.	Moon passes Saturn
13	2:00 a.m.	Mercury farthest west of sun
14	4:54 p.m.	Moon in last quarter
16	3:00 a.m.	Moon passes Jupiter
19	4:00 a.m.	Moon nearest, distance 225,500 miles
	9:00 p.m.	Moon passes Venus
21	7:46 p.m.	New moon
	11:04 p.m.	Sun farthest north, summer begins in Northern Hemisphere
26	3:00 p.m.	Moon passes Mars
28	4:24 p.m.	Moon in first quarter

Subtract one hour for CDT, two hours for MDT, and three hours for PDT.

• Science News Letter, 83:330 May 25, 1963

Science Fair Awards

(Continued from p. 326)

Chow, 16, Maryknoll H. S., Honolulu, Hawaii; David Clark, 18, Harlingen H. S., Harlingen, Texas; Winston Clark, 18, Marion Sr. H. S., Marion, Va.; Edward Cohen, 15, James A. Garfield H. S., Seattle, Wash.; Eddy Cordes, 16, St. Mary's H. S., Lawton, Okla.; Dennis Crouse, 16, Marion Independent H. S., Marion, Iowa; Dennis Crouse Jr., 16, Clintonville Sr. H. S., Clintonville, Wis.; Stanley Dayan, 17, White Plains H. S., White Plains, N. Y.; Barbara Descoteaux, 17, Mt. St. Michael H. S., Hyde Park, Reading, Pa.; Robin DeVore, 17, Highland H. S., Albuquerque, N. Mex.; Susan Doherty, 16, Wichita H. S. East, Wichita, Kans.; George Fargher, 16, La Porte H. S., La Porte, Ind.; Dewey Garrett, 17, Richmond H. S., Richmond, Mo.; Roger Glade, 17, Benjamin Franklin H. S., New Orleans, La.; Richard Gomberg, 17, Immaculate Conception Academy, Mayaguez, Puerto Rico; Jerrold Grochow, 16, Stuyvesant H. S., New York, N. Y.; G. Leigh Gunnell, 17, Jordan H. S., Sandy, Utah; Alice Hardin, 17, Lawrence County H. S., Moulton, Ala.; Robert Hawley, 16, Falfurrias H. S., Falfurrias, Texas; Linda Hayes, 18, Andrews H. S., Andrews, Texas; Judith Herr, 17, Northeast H. S., St. Petersburg, Fla.; Margaret Hill, 17, Wichita H. S. East, Wichita, Kans.; Charles Hohmann, 17, Tottenville H. S., Staten Island, N. Y.; Judy Hopkins, 18, Washington-Wilkes H. S., Washington, Ga.; Cecilia Huala, 17, St. Vincent Ferrer H. S., New York, N. Y.; Henry Jaffin, 16, Bethesda-Chevy Chase H. S., Bethesda, Md.; David Johnson, 17, Richmond Sr. H. S., Richmond, Ind.; James Johnston, 17, Washington H. S., Milwaukee, Wis.; Rhea Keller, 17, New Haven H. S., New Haven, Ind.; David Kerns Jr., 18, Leon H. S., Tallahassee, Fla.; Chester Kessler, 17, Lebanon Sr. H. S., Lebanon, Pa.; Douglas Koppes, 18, Luckey H. S., Manhattan, Kans.; Joel Liebman, 15, James Madison H. S., Brooklyn, N. Y.; Bonnie Lievan, 16, (Continued on p. 332)

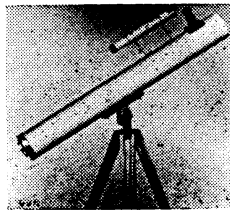
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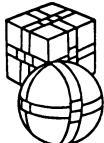
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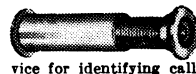
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