

ASTRONOMY

Saturn Shines in South

Planet with the famous encircling rings is prominent. Mercury may be glimpsed briefly for a few days around June 27. Longest days and shortest nights are now approaching.

By JAMES STOKLEY

► **HIGH IN** the southern evening sky, June's principal planet may now be seen. This is Saturn, famous for its encircling system of rings that are visible with a telescope of moderate size.

Its position is shown in the accompanying maps, which depict the appearance of the skies about 10:00 p.m., your own kind of standard time, at the first of June, and an hour earlier at the middle. (Add one hour if you are on daylight time.)

Saturn is in the constellation of Virgo, the virgin, just above Spica, the brightest star in this group, which it exceeds in brilliance by about 50%. Virgo is one of the 12 constellations of the zodiac, the part of the sky through which not only the planets, but also the sun and the moon, seem to move.

Other Zodiacal Constellations

Just to the right of this figure is Leo, the lion, another of the zodiacal constellations, with the star called Regulus. It is at the end of the handle of "the sickle," a little group which is shown mainly on our northern sky map, though Regulus itself is in the southern section.

Following the zodiac to the left of Virgo we come to Libra, the scales, which contains no very bright stars. This is not true of the next, Scorpius, the scorpion, for the ruddy star Antares stands within its borders.

Above Virgo is Bootes, the bear-driver, with first-magnitude Arcturus. This star may also be found with the aid of the Great Dipper, which is in the constellation of Ursa Major, the great bear, high in the northwest. At the bottom of the dipper are the pointers.

Following their direction to the right brings one to Polaris, the pole-star, in Ursa Minor, the little bear. The curve of the dipper's handle, if followed toward the south, leads first to Arcturus and then to Spica.

First Magnitude Stars

Toward the east and northeast three more stars of the first magnitude are with us on June evenings. Brightest is Vega, in Lyra, the lyre. Below this group is Cygnus, the swan, with the star Deneb. Some of the stars in this figure form a cross—the Northern Cross—in which Deneb marks the top, now directed downward to the left.

Just to the right of Cygnus is the tiny and inconspicuous constellation of Sagitta, the arrow, and then Aquila, the eagle. This is marked by another bright star, Altair.

Low in the northwest our map of the northern sky shows two more stars actually of the first magnitude, though they are now so near the horizon that their brilliance is greatly dimmed. One is Pollux, in Gemini, the twins—another constellation of the zodiac. Next, to the right, Auriga, the charioteer, with Capella.

These are now making their last stand after shining brilliantly during winter months. Soon they will vanish completely from the evening sky, to reappear next autumn.

Although Saturn, which is visible through the night until a little before dawn, is the only planet easily seen in June evenings, another may be briefly glimpsed for a few days around June 27. This is Mercury, which then will be farthest east of the sun and will set about an hour and a half after that body—before it is completely dark.

Venus Now Morning Star

Venus is now in the morning sky, shining brilliantly after it rises about two and a half hours before the sun. Mars cannot be seen at all in June, nor can Jupiter during the first part. However, by the end of June this great planet will rise more than an hour and a half before the sun, and may be seen low in the east at dawn.

A welcome astronomical event comes at noon, EST, on June 21 when summer commences in the Northern Hemisphere. At that time the sun reaches the northern limit of its annual journey in the sky. For people of countries to the south of the equator this

brings it to its lowest position of the year and thus it marks the beginning of winter.

With the coming of June we in the Northern Hemisphere have the longest days and the shortest nights. At 40 degrees north latitude, for example, it is a little less than nine hours from sunset to sunrise on the day of the solstice, which is the beginning of summer. At more southerly latitudes, the difference between night and day is less, until at the equator the two are approximately equal, as they are throughout the year.

Areas of Long Twilight

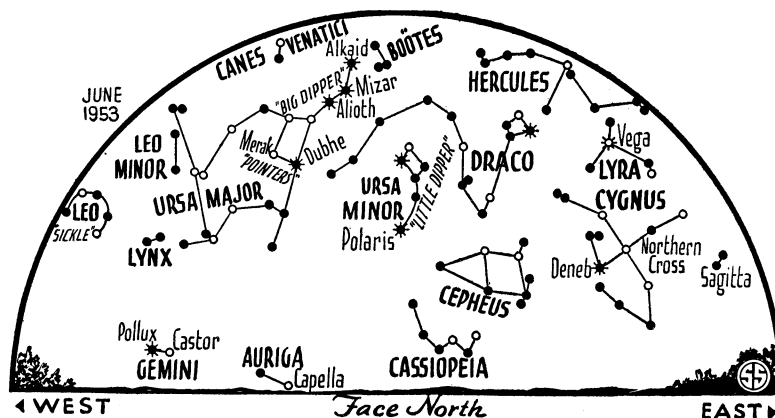
But traveling northwards, the difference becomes still greater. In fact, on June 21 in the entire region from the North Pole to the Arctic Circle, the sun does not set at all. By the same token, in the area from the South Pole to the Antarctic Circle, the sun will not rise on that day.

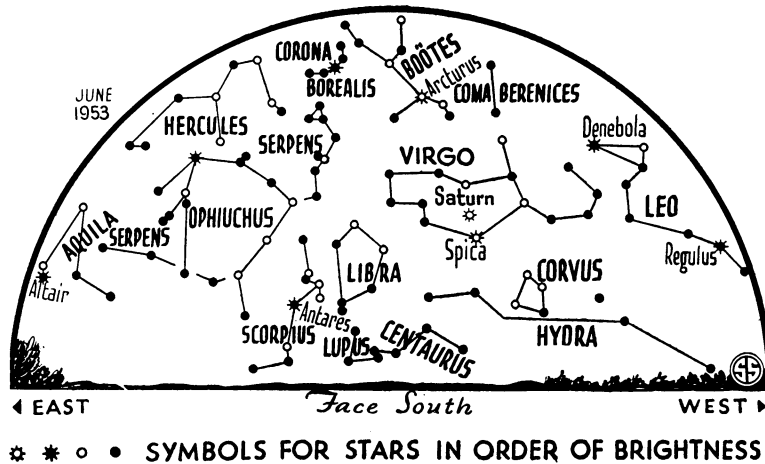
One does not need to go north of the Arctic Circle, however, to find regions where the nights do not get very dark. Twilight, in the astronomical sense, lasts in the evening until the sun is 18 degrees below the horizon, and begins in the morning when it reaches that position on its way toward sunrise.

At the time of the solstice, twilight lasts for a little more than two hours after the sun goes down, and begins about the same period before the sun appears. Thus, even in the United States, around the 20th of June, there are only about five hours of real night, when it is dark enough to see the faintest stars.

Along the parallel of 45 degrees north latitude, which passes across Nova Scotia and Maine, then near Montreal and Ottawa, St. Paul, Yellowstone Park and Salem, Ore., only about three hours and 20 minutes elapse from the end of twilight in the evening until it begins again in the morning.

At the 50-degree parallel, which crosses Canada from Newfoundland to Vancouver





Island, and passes near Winnipeg, Regina and Medicine Hat, the sun never gets as much as 18 degrees below the horizon even at midnight. At this latitude, from June 2 to July 12, twilight lasts all night.

Twilight results from the reflection of sunlight from the upper atmosphere. For some time after the sun has set, as seen from the ground, it would still be visible from an airplane high overhead. Thus the air above us is illuminated well after sunset and still sends us some reflected light until the sun is so far below the horizon that no part of this illuminated air remains in view from the ground.

On the average, when it is 18 degrees below the horizon and the rays of sunlight pass 50 miles overhead, the sky above is so dark that stars of the sixth magnitude—the faintest that can be detected by the naked eye—are visible. This is astronomical twilight, as given above.

However, there are other stages of twilight as well. Civil twilight is considered to end when the sun is six degrees below the horizon. This is about the time that automobile headlights have to be turned on according to the traffic regulations in many states.

Then there is also nautical twilight, which ends when the sun has gone down 12 degrees. During this time the brightest stars can be seen, but the sea horizon is still visible, so the navigator of a ship can measure their altitude with his sextant to determine his position.

To get to places where civil twilight lasts all night, one has to go considerably farther north—to Sweden or Alaska, for example.

Celestial Time Table for June

June	EST	Event
4	12:35 p.m.	Moon in last quarter.
5	9:00 a.m.	Moon nearest, distance 229,700 miles.
8	3:22 a.m.	Moon passes Venus.
11	9:55 a.m.	New moon.
18	4:00 p.m.	Moon farthest, distance 251,100 miles.
19	7:01 a.m.	Moon in first quarter.
21	10:34 a.m.	Moon passes Saturn.
	12:00 noon	Sun farthest north, summer commences in Northern Hemisphere.
22	5:00 a.m.	Venus farthest west of sun.
26	10:29 p.m.	Full moon.
27	12:00 noon	Mercury farthest east of sun.
30	7:00 p.m.	Moon nearest, distance 228,300 miles.

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

Science News Letter, May 23, 1953

ZOOLOGY

Animal "What's What" Lists Unusual Names

► "SO YOU think you know the animals?" asks Francis H. Elmore, park naturalist at Yellowstone National Park.

To prove that you may not, as he found out he did not, Mr. Elmore collected a four-page listing of the male, female, neuter and young names applied to animals besides their regular "family" names.

Try yourself out on a few. Maybe you are a better naturalist than you think. (Answers are found following all the questions.) Name the animals whose young are sometimes called: (1) stirk; (2) scrod; (3) eyas; (4) bullhead; (5) squealer; (6) brit; (7) stot; (8) kit; (9) graul; (10) teg. (Answers: (1) cattle; (2) cod, haddock; (3) falcon; (4) bullfrog, toad; (5) grouse, partridge, quail, pigeon; (6) herring; (7) horse, ox; (8) muskrat, mink; (9) salmon; (10) sheep.)

What is the name of the young of: (1) chimpanzee; (2) jackrabbit; (3) green turtle; (4) whale?

(Answers: (1) infant; (2) kitten; (3) chicken; (4) calf.)

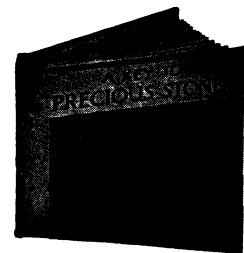
What do you call a: (1) female falcon; (2) female fish; (3) female owl; (4) male red deer; (5) male sandpiper; (6) female swan; (7) male terrapin?

(Answers: (1) haggard; (2) hen; (3) jenny howlet; (4) hart; (5) ruff; (6) pen; (7) bull.)

Did Mr. Elmore make his point?

Science News Letter, May 23, 1953

Taste panels have been able to spot water containing one tablespoon of salt in 10 gallons.



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FORESTRY

Oak Wilt Spreading

► TEN YEARS ago, the death-dealing fungus causing oak wilt, now known as *Endoconidiophora jagacearum*, had been spotted only in three states, Wisconsin, Iowa and Minnesota. Today it has fanned out over 18 states, in some areas killing over 50% of large oak stands.

If left unchecked, oak wilt may eventually spread over the entire eastern half of the United States, declares Marvin E. Fowler, forest pathologist with the U. S. Department of Agriculture.

Losses would be tremendous if the disease managed to spread through the great oak forests of the Ozarks, lower Mississippi valley and the East, Mr. Fowler warns.

The most effective control for oak wilt is the complete destruction of infected trees by ruthless cutting and burning. Underground transmission of the disease by root contact must be halted by poisoning all healthy oaks within 50 feet of an infected tree. Oak wilt attacks the red oak group more rapidly than it does the white oaks. However, no native oak species is known to be immune to the disease. Trees of all ages and sizes succumb to wilt.

Wilt-infected trees can be readily spotted from low-flying planes, simplifying greatly the task of locating and destroying centers of infection.

Science News Letter, May 23, 1953