

ASTRONOMY

Summer Constellations

The earth's movement to bring the sun in line with Gemini, the twins, brings Scorpion to July evening skies. High in east are prominent constellations.

By JAMES STOKLEY

►THE MOST familiar movement that we see in the sky is doubtless the daily motion of the sun as it rises in the east, climbs to the meridian during morning hours, then in the afternoon sets to the west. This movement is not, as men once thought, one of the sun itself. It is the earth that turns every day from west to east, carrying us upon it. But since we feel no vibration or other such evidence of this, it looks as if the sky goes around us once a day in the opposite direction. This not only makes the sun move, but the stars, together with the moon and planets when they are visible, also partake of it. The accompanying maps show the heavens as they appear about 10:00 p. m. by your local variety of standard time at the first of the month. But if you are up at midnight you will find constellations have shifted. Those shown low in the west will have disappeared behind the horizon; others, not shown, will have come into view in the east.

Moving Around Sun

In addition to its daily turning on its axis, the earth is also moving around the sun, once every year. On this account the sun at different times of year stands against a different starry background. This month it is in the same direction as the stars of Gemini, the twins, and so they cannot be seen in the solar glare. However, by next New Year's day, when the earth has gone around a half of its orbit, Gemini will be visible again, while the sun will be toward the stars of Sagittarius, the archer, a group indicated on the July maps to the southeast. That is why Sagittarius and its neighbors are typical constellations of the summer evening.

Even more characteristic is Scorpius, directly south, a figure representing a scorpion, with the long curving tail. Higher, in the body, is Antares, a star of the first magnitude with a distinctly red hue. Next to Scorpio, toward the west, we see Libra, the scales, which this month is made more prominent by the presence

of Jupiter, the only planet easily seen at present. Of magnitude greater than any of the stars now seen, one has little trouble in locating it, even without maps. And next to Libra, farther west, is Virgo, the virgin, with Spica, another star of magnitude one.

Constellations in East

High in the east shines a group of prominent constellations, of which Cygnus, the swan, is one. It has the shape of a cross on its side, with Deneb at the top, which is toward the north. Above is a smaller configuration, Lyra, the lyre, with Vega, most brilliant of the stars seen these evenings. Lower than Cygnus, and to the south, Aquila, the eagle, flies. In it is Altair, with a fainter star just below and another about as far above.

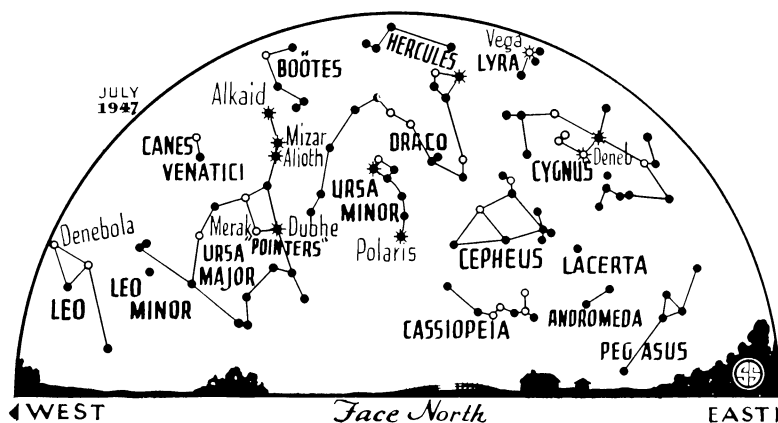
Toward the north the Great Dipper, part of Ursa Major, the great bear, is climbing ever higher, with Merak and Dubhe, the two "pointers" indicating the pole star directly north. Polaris, to use its proper name, is at the end of the handle of the little dipper, which extends upwards. Around it winds the snaky constellation of Draco, the dragon.

If you look low in the west just after sunset you may be able to see the planet Saturn, but it sets soon after the sun. Mars, still quite far away and not very bright, is now in Taurus, the bull, and rises in the east in the early morning. Venus is in Gemini, the same constella-

tion that now holds the sun, so it is difficult to locate. However, it is extremely bright, and perhaps may be glimpsed low in the east at dawn. Mercury is closer to the sun and not visible now, though at the end of July it will be coming into the morning sky.

It is the big constellations—or those containing the brightest stars—to which deservedly we give the most attention. However, there are many smaller ones in the sky, often forgotten, which have interesting stories. For instance, nearly overhead is Corona, otherwise called Corona Borealis, the northern crown. The brightest star, of the second magnitude, is placed in a semi-circle of fainter stars making it easy to locate. According to the mythological stories associated with the heavens, this represents the crown that Bacchus gave to Ariadne, daughter of Minos, second King of Crete. Legend tells us that Theseus, king of Athens about 1200 B. C., was shut up in the Cretan labyrinth, where lived the fierce Minotaur, a monster with the head of a bull who had the unpleasant habit of feeding upon chosen young Athenian men and women sent yearly as tribute to Minos. Theseus slew the beast, and found his way out of the labyrinth with a thread that the lovely Ariadne had given him. Though he married her, the ungrateful king later deserted her. Finally, according to the story as Plutarch tells it, Bacchus became espoused to her and gave her the crown which was placed in the sky after her death.

In the east, just above Altair, three stars are shown marking Sagitta, the arrow. One story associates this inconspicuous figure with the larger group of Her-



Do You Know?

Snowflakes, caught in the air in a quickly drying plastic solution, are preserved for scientists studying snow-crystal forms.

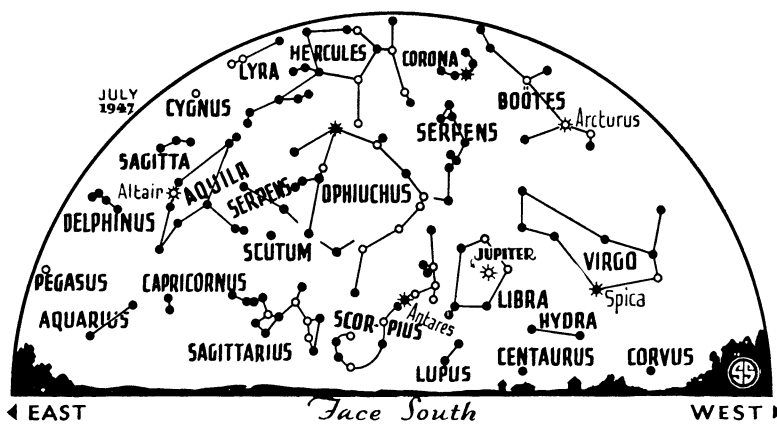
American *steel* industry depends largely on iron ore from the Mesabi region in Minnesota; this high-grade ore, used to produce about 85% of the steel made, is shipped by water from western Lake Superior to Lake Erie ports.

Calcium cyanamide, which is made in one process of fixing atmospheric nitrogen to manufacture fertilizer and explosives, was produced in Germany at low cost by a continuous rotary furnace process.

When tomatoes are raised to make *catsup*, high acid content is desirable to give sprightly flavor; potash applied as a fertilizer to the growing crop will increase the acid in the tomatoes produced.

Wartime developments in the use of *aluminum* have boosted it into a position of the second-rating metal of peacetime industry in terms of volume produced; iron, including steel, is number one.

Among American common *vegetables*, cabbage, carrots, beets, peas, cucumbers and cantaloupes are of Old World origin; potatoes, tomatoes, green peppers, pumpkins, and most squashes and beans were originally New World products.



☼ * ○ • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

cules, just west of Lyra. Hercules, you will recall, performed twelve classic labors, of which the fifth was to kill the birds of Lake Stymphalis. Aquila is sometimes considered to represent one of these birds, and Sagitta is the arrow he used, still shown in flight towards its prey. However, it has also been made the arrow of Cupid!

On the opposite side of Aquila, just above Sagittarius, one star is shown marking the shield, Scutum. This is a relatively modern constellation, having first been shown on the star maps published in 1690 by the Polish brewer and amateur astronomer, Johannes Hevelius. He called it "Sobieski's Shield," to honor the third John Sobieski, king of Poland. A distinguished soldier, he commanded the troops who freed Vienna from the Turks in 1683, so it is not surprising that the loyal Hevelius seven years later honored him with a constellation to fill a part of the sky which up to then had been empty.

Another of Hevelius' constellations is

that of Canes Venatici, the hunting dogs, in the curve formed by the handle of the Great Dipper. Also to him we must give credit for Lacerta, the lizard, now seen in the northeast, and represented on the maps by a single star; Leo Minor, in the northwest, and several others not shown.

* * *

Celestial Time Table For July

July	EST	
3	5:38 a. m.	Full moon
	10:00 p. m.	Moon farthest, 252,500 miles
5	5:00 a. m.	Earth farthest from sun, 94,451,000 miles
11	5:54 a. m.	Moon in last quarter
14	1:00 p. m.	Mercury passes sun
	11:56 p. m.	Moon passes Mars
17	12:40 a. m.	Moon passes Venus
	6:00 p. m.	Moon nearest, 222,000 miles
	11:15 p. m.	New moon
18	9:50 p. m.	Moon passes Saturn
22	4:00 a. m.	Mercury passes Venus
24	5:54 p. m.	Moon in first quarter
26	1:41 a. m.	Moon passes close to Jupiter
28	early a. m.	Meteors of delta Aquarid shower visible
31	1:00 a. m.	Moon farthest again, 252,400 miles

Subtract one hour for CST, two hours for MST, and three for PST.
Add one hour for the corresponding Daylight Saving Time.

Science News Letter, June 28, 1947

BIOLOGY

Diatoms Collect Copper

➤ COPPER is collected by one-celled sea plants known as diatoms in concentrations that are scores of times strong enough to kill them—in theory at least.

Analysis of these microscopic vegetable junkmen made by an English scientist, N. Ingram Hendeby of the Admiralty Central Metallurgical Laboratory, shows that several different species contain anywhere from 31 to 164 parts per million of copper by weight. By way of contrast, Mr. Hendeby mentions that one-half part of copper per million is considered to kill the plants' freshwater relatives that sometimes make trouble in

city water systems. The sea water in which the specimens were collected for analysis contained only seven parts per billion of copper.

What these micro-plants do with their copper collections has not yet been determined. Mr. Hendeby suggests that it may either be chemically shelved as a precipitate or coagulate, or that it may have some functional role in the plant-cells' pigment bodies.

In his communication to *Nature*, (May 10), Mr. Hendeby does not mention a possible connection between this copper-

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