

ASTRONOMY

Mars Still Prominent

During June the red planet is brighter than any other object in the evening sky. Saturn also visible near Spica in the constellation of Virgo, the virgin.

By JAMES STOKLEY

► ALTHOUGH MARS was closest to earth in May and is now receding, the red planet is still conspicuous in the southern evening sky. It is, in fact, brighter than any other star or planet now visible in the evening.

On the accompanying maps, which depict the sky at about 10:00 p. m. at the beginning of June, or an hour earlier in the middle (add one hour if you are on daylight time), the position of this planet is shown. It is in the constellation of Virgo, the Virgin, just east of the bright star Spica, which it exceeds in brilliance more than six times.

One other planet is now visible in the evening and, as it happens, in the same constellation. This is Saturn, to the west of Spica, which it surpasses only slightly in brightness.

The brightest star to be seen at this time of year is Vega which is high in the east, in Lyra, the lyre. Below this group is the swan, Cygnus, in which appears the northern cross with Deneb as its brightest star. To the right of Cygnus is Aquila, the eagle, in which Altair shines.

Atmosphere Dims Stars' Light

Though both Deneb and Altair are of the first magnitude in brightness, both are so low, as shown on the maps, that their light is appreciably dimmed by the greater distance it has to travel through the earth's atmosphere. Hence both are represented by the symbol for a star of the second magnitude. Later at night, as they rise higher, they will be seen in full brilliance.

Capella, in Auriga, the charioteer, shown just above the horizon in the northwest, is dimmed even more and is indicated here as of the third magnitude. Actually it is the second brightest of the stars that are now visible. As with Pollux in Gemini, the twins, just to the left, this is the last appearance of a winter star.

Arcturus, in the constellation of Bootes, the herdsman, which is high in the south above Virgo, is of the same magnitude as Capella, 0.2, so by comparing these stars the effect of atmospheric absorption is well shown.

Incidentally, a good way to locate Arcturus is to look first in the north for the big dipper, in Ursa Major, the great bear. As is well known, the two stars Dubhe and Merak at the bowl of the dipper are the

pointers which show the direction of Polaris, the pole star, to the right. But if you follow the curve of the dipper's handle, ending with Alkaid toward the south, the first bright star you come to is Arcturus.

Another first magnitude star is Antares, in Scorpius, the scorpion, low in the south. The name of this star means "rival of Mars," doubtless applied because of their similar color. With Mars now only a short distance away, one can easily compare them.

It will not be possible to see Mercury and Venus at all in June. The former is at superior conjunction with the sun (i. e., directly behind it) on June 8, and the latter reaches a similar position on the 24th. Jupiter, which was behind the sun in April, is now well to the west of the sun, so it rises more than an hour before sunrise. It can be seen shining even more brightly than Mars, in the eastern sky at dawn.

Summer Begins Officially

With the coming of June, the official beginning of summer is close at hand. This event comes on Saturday, June 21, at 6:13 a. m., EST. At that moment, called the summer solstice, the sun reaches the northernmost portion of its annual path through the sky. Actually, of course, this movement of the sun is only apparent. As the earth revolves around it, it stands against an ever-changing background of distant stars.

The axis on which the earth rotates is not exactly at right angles to the plane in which it revolves around the sun, but is tilted from the vertical about $23\frac{1}{2}$ degrees, which is why terrestrial globes are usually constructed with such a slant.

This slant is the reason for the seasons,

for if the axis really were perpendicular to the plane of our orbit, all parts of the globe would have the same season continually. On the other hand, if the inclination were much greater than it is, the seasonal changes would be more extreme.

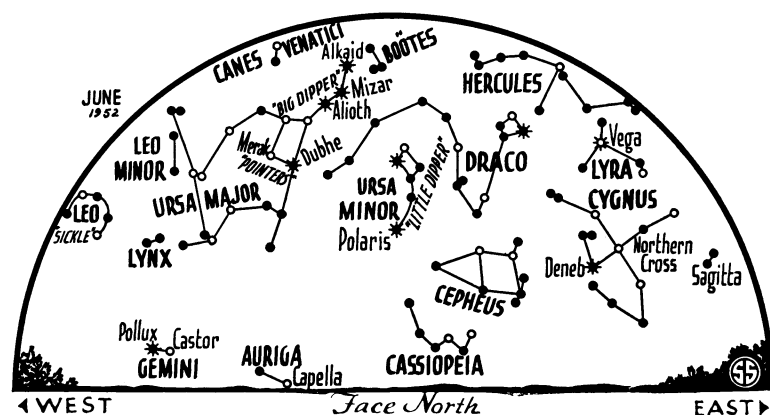
At this time of year, the north pole leans over toward the sun, which thus rises highest for places in the northern hemisphere. Six months from now, just before Christmas, will come the winter solstice. The north pole will lean farthest away from the sun, which will then be far to the south. But at that time the south pole will be leaning sunwards, so for people in the southern hemisphere the sun will rise high in the sky, making our winter solstice the beginning of their summer. Conversely, on June 21, when summer begins for us, winter begins in southern countries.

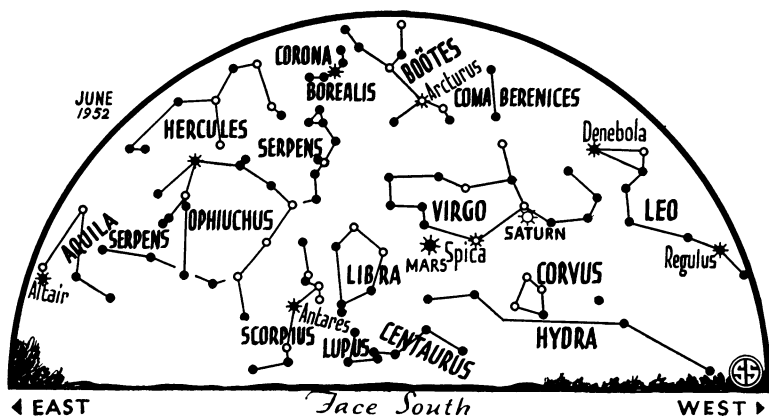
Short Sky Path in December

In December when the sun is far south, it rises south of the east point of the horizon and sets well to the south of the west point. Even its noon-day height is lower than at other times of year, so its path across the sky is a short one.

At 40 degrees latitude on the day of the winter solstice, the sun is above the horizon for only 9 hours 20 minutes. In contrast, on June 21, the time from sunrise in the northeast to sunset in the northwest will be 15 hours.

This is part of the reason why we are now coming to the warmest weather of the year, for with the sun's rays shining on us so much longer, we are bound to get hotter. But even more important is the greater height of the sun. If it were directly overhead, a beam of sunlight a yard square would cover exactly one square yard of the ground. At no point in the United States does it come exactly to the zenith but, at 40 north latitude, it comes within $16\frac{1}{2}$ degrees of it, so the solar radiation is still quite concentrated.





◊ * * • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

Compare what happens on Dec. 21. Then the sun, at its highest for 40 north latitude, is 63½ degrees from the zenith; that is, it is only 26½ degrees from the horizon. Our yard-square beam of sunlight is then spread over about 2¼ square yards, so its heating effect is less than half as great. This, combined with the shorter duration of sunshine, accounts for the small amount of heat the northern hemisphere gets in winter.

If it were just a matter of the heat coming from the sun, however, we would have warmest weather at the summer solstice, and coldest at the one of winter. But, for some weeks after the summer solstice, the ground gets more heat during the day than it can give up during the night.

Each day is a little warmer than the day before, until the last half of July, when maximum temperatures may be reached. A similar effect, in reverse, accounts for the fact that the coldest weather comes not at Dec. 21, but in January. Not until then does

the earth begin to gain during the day as much heat as it lost during the preceding night, and thus permit general temperatures to increase.

Celestial Timetable for June

June	EST	
3	4:14 a. m.	Moon passes Saturn
4	8:22 p. m.	Moon passes Mars
8	12:07 a. m.	Full moon
10	2:00 a. m.	Moon nearest, distance 225,000 miles
14	3:28 p. m.	Moon in last quarter
18	8:46 a. m.	Moon passes Jupiter
21	6:13 a. m.	Sun farthest north, summer commences in northern hemisphere
22	3:45 a. m.	New moon
25	6:00 p. m.	Moon farthest, distance 252,000 miles
30	8:11 a. m.	Moon in first quarter
	1:12 p. m.	Moon passes Saturn

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

Science News Letter, May 31, 1952

MEDICINE

Men Need to Be Cancer Alerted

➤ MANY MEN have the wrong notion that cancer is a woman's disease. Many others refuse to think about cancer because they have the idea, again a wrong one, that if they get cancer "they're done for."

Actually, as many men die of cancer as women. But very many of them can be saved, just as is the case with women. Most of the cancers that affect men are more difficult to detect than those that affect women. Consequently, if a man wants to be saved from cancer death, for his own sake and his family's, he should be particularly alert to cancer. And remember that pain is not an early symptom of cancer, so don't wait for pain to send you to a doctor to see whether you have cancer.

Things a man can do to protect himself, as given by the American Cancer Society, are the following:

First: Have a thorough checkup (including a rectal examination) by your family physician once a year. This is especially important if you are in the danger period—from age 40 on. Pick a regular time, such as the week before your birthday.

Second: Learn the seven danger signals which may mean cancer—

1. Any sore that does not heal.
2. A lump or thickening in the breast or elsewhere.
3. Unusual bleeding or discharge.
4. Any change in a wart or mole.
5. Persistent indigestion or difficulty in swallowing.
6. Persistent hoarseness or cough.
7. Any change in normal bowel habits.

Third: Don't take home remedies for persistent indigestion instead of seeing your doctor. This symptom (especially after age 40) is always serious and you should immediately learn the cause. A persistent cough or hoarseness should always be investigated. Give your teeth and mouth good care. Don't smoke too much.

Science News Letter, May 31, 1952

MEDICINE

Aid Brucellosis Treatment

➤ TREATMENT OF brucellosis is from two to ten times as effective when patients are given desensitizing and immunizing shots along with an antibiotic drug such as chloromycetin. Drs. Alberto P. Leon, C. Cano and M. E. Vergara of the Institute of Public Health and Tropical Diseases, Mexico City, find.

Brucellosis, also called undulant fever and Malta fever, is a long drawn-out, weakening sickness with the fever coming and going. It is acquired chiefly by drinking raw milk from cows that have the disease.

Chloromycetin and other antibiotics such as streptomycin, aureomycin and terramycin give prompt but not lasting results in treatment of patients with brucellosis. Dr. Leon and associates point out that relapses come because the body has not built up resistance to the germs during the time they are being held at bay by the antibiotic drug.

Their treatment is designed to increase this resistance.

Brucellosis germs cause an allergic reaction as well as infection, so immunizing shots must be given in small, progressively increasing doses to desensitize the patient to the material so that enough can be given to produce immunity.

Dr. Leon and associates have now treated almost 500 patients by this method. In 79 reported on in detail in the journal SCIENCE (May 23), they state that fever disappeared in an average of three days and other symptoms in "some weeks."

There were only 6.3% relapses over a period of 11.4 months, compared to relapses of 12% to 66% reported by other doctors who used chloromycetin without the sensitizing and immunizing shots used by Dr. Leon and his co-workers.

Science News Letter, May 31, 1952

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