

## ASTRONOMY

# Four Planets Now Seen

Mars joins planetary company of Venus, Jupiter and Saturn. Difference between constellations and signs of the zodiac explained.

By JAMES STOKLEY

► TO THE planetary company of Venus, Jupiter and Saturn, which have been visible in the evening sky for the past month or more, there will be added another planet during May. This is Mars, now making an approach to the earth which will soon bring it the closest in 13 years.

The accompanying maps show the appearance of the skies about 10:00 p.m., your own kind of standard time, at the first of May and an hour earlier at the middle. (Add one hour if you are on daylight time.)

Two of our planetary quartet are shown on them. Jupiter is seen low in the northwest in Taurus, the bull, just below the constellation of Gemini, the twins. Saturn appears to the south in Virgo, the virgin.

Venus, like Jupiter, is in Taurus, but in a part of that constellation which has descended below the horizon by the times for which the maps are prepared. At the beginning of May, it sets about two hours after the sun, about the time that twilight is ending. Its great brilliance, exceeding any other planet or star, makes it easy to identify as it blazes in the western sky.

Mars rises at the first of May about midnight, but is rapidly moving toward the sun, so that by the end of May it is rising in the east at about the same time that Venus is setting in the west.

Although Mars is about a fifth as bright as Venus, it is still brighter than anything else in that part of the sky, except the moon, and its red color makes it quite conspicuous.

## Winter Stars Still Visible

As for the stars of a May evening, we can still see in the west some of those that were prominent during winter months. In Gemini, just above Jupiter, is first-magnitude Pollux, and Castor, a little fainter.

To the right is Auriga, the charioteer, in which Capella shines. Canis Minor, the lesser dog, is to the left, with Procyon, another star of the first magnitude.

Higher in the west is Leo, the lion, which contains a smaller group called the sickle. The star Regulus is at the end of the handle. On the old star maps, which depicted the constellation figures around the stars, the blade of the sickle marked the lion's head. Farther to the left is Denebola, a second-magnitude star in his tail.

Just below Denebola is the western end of the constellation of Virgo, in which Saturn can now be found. This group also contains a bright star, Spica. Below the left-

hand end of Virgo is the figure of Libra, the scales, in which there are no very bright stars, but below them we see Scorpius, the scorpion, making its appearance.

It is marked by the first-magnitude star Antares, which is so near the horizon that its light is considerably dimmed by the great thickness of air which it has to penetrate. By the evenings of July, however, it will be prominent in the south.

In the northeast we can see Lyra, the lyre, with brilliant Vega, and below it Cygnus, the swan, of which Deneb is part. This, like Antares, is dimmed by its low altitude. On September evenings it shines overhead.

## Centaurus Partly Seen

Stretching across a wide expanse of sky, from just above Procyon in the west to near Saturn in the south, is the huge constellation of Hydra, the water snake. Just below the left-hand end of this figure, the tail, are indicated three stars of Centaurus, the centaur, about all that is ever visible from these latitudes of a prominent constellation.

Alpha Centauri, the brightest star in this group, which is also the closest star to our solar system, does not get above the horizon in most of the United States, but can be seen now from more southerly parts of the world.

A reader of these articles recently wrote in regard to a supposed discrepancy in the position given for Saturn. Perhaps others, like him, may have been confused from time to time by the difference between the constellations and the signs of the zodiac.

Astronomers use the former and seldom have occasion to refer to the signs, which are employed by astrologers, who purport to foretell the future by the positions of the planets among them.

As the earth revolves around the sun every year, it seems as if the sun itself moves around the sky, from west to east. Its path is called the ecliptic. All the planets, except Pluto, move around the sun in nearly the same plane as the earth does, so their apparent paths across the sky are close to the ecliptic, never straying from it more than eight degrees.

Thus, there is a belt around the sky, 16 degrees wide, in which we must look to see the sun, moon and planets. This is called the zodiac, and it goes through 12 principal constellations: Aries, the ram; Taurus; Gemini; Cancer, the crab; Leo; Virgo; Libra; Scorpius; Sagittarius, the archer; Capricornus, the horned goat; Aquarius, the water carrier, and Pisces, the fishes.

Also parts of other constellations, especially Ophiuchus, the serpent holder; Orion, the warrior; Cetus, the whale, and Auriga are within the band.

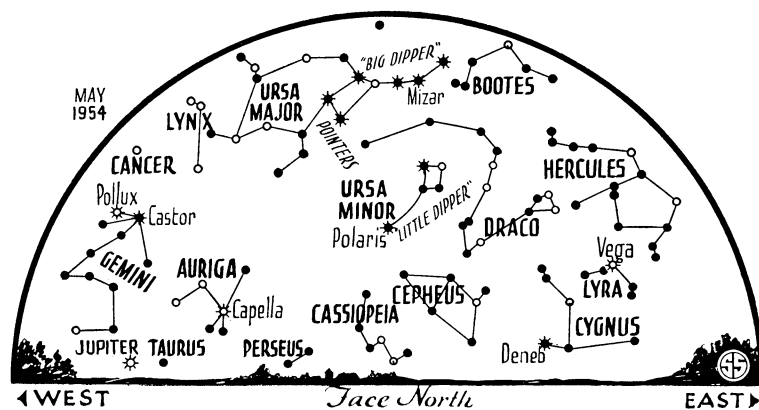
The ancient star-gazers, several thousand years ago, found it convenient to divide the zodiac up into 12 equal parts, which they called signs, so they could give the location of a planet by the one which it occupied. Each of these signs was 30 degrees in length, and they were named after the constellations with which they approximately coincided.

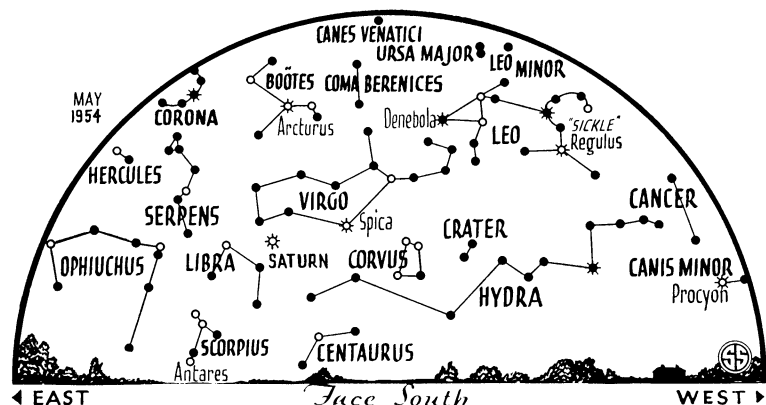
## Slow Heavenly Movement

However, there is a slow movement of the heavens by which the constellations slide completely around the zodiac in 25,800 years. At the vernal equinox, on March 20, when spring commences, the sun is entering the sign of Aries, just as it did several thousand years ago. It was then also in the constellation of that name, but now this part of the sky is in the constellation of Pisces.

Not until about a month later does the sun actually get into a position against the background of stars that form the constellation of Aries.

Likewise Saturn is now, as it has been for





◊ \* ○ • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

some months, in Virgo, but it is in the sign of Scorpius, and not until some time in 1956 will it actually be in the latter constellation.

So if you should come across a reference, perhaps in some almanac, to a planet being in a certain sign, remember that you will not find it in the star-figure of that name. It is most likely to be in the one next door, to the west.

**Celestial Time Table for May**

May	EST	
2	2:00 a.m.	Moon nearest, distance 222,200 miles.

3:22 p.m.	New moon.
4	7:51 a.m. Moon passes Venus.
5	3:10 p.m. Moon passes Jupiter.
8	6:00 p.m. Mercury directly beyond sun.
9	1:17 p.m. Moon in first quarter.
14	9:00 p.m. Moon farthest, distance 252,300 miles.
16	2:17 a.m. Moon passes Saturn.
17	4:47 p.m. Full moon.
21	3:22 a.m. Moon passes Mars.
23	7:09 a.m. Venus passes Jupiter.
25	8:49 a.m. Moon in last quarter.
30	8:00 a.m. Moon nearest, distance 224,200 miles.

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

Science News Letter, April 24, 1954

**GEOGRAPHY**

# Cultural History Hint

► **DESCRIPTIVE TERMS** in place names like the "brook" of New England and the southern "branch" or "run" can tell us a great deal about the cultural backgrounds of this country, Dr. Wilbur Zelinsky of the University of Wisconsin told the meeting of the Association of American Geographers in Philadelphia.

Such terms have survived only from those pioneer groups who established their dominance at an early date and managed to keep it for a considerable period, Dr. Zelinsky explained. There is no trace, he said, in place names of the brief Swedish occupancy of the lower Delaware or of the Spanish tenure of Georgia.

Many of our terms have come from England, but many have undergone radical changes in meaning when they moved to the new world. The word "creek," for example, in England was used to apply to salt-water inlets or tidal estuaries, but in this country, except along the New England coast, the term is applied to small fresh-water streams.

The word "brook," which originally in England meant a torrent, became the designation for any small stream in New England and later traveled far into the northern Middle West.

In the South, the place of "brook" is taken by the term "run." The use of this

word in the homeland was quite infrequent and limited to a few areas in Scotland and the north of England. The question of how this obscure word became so widespread in this country is a major enigma, Dr. Zelinsky said.

In other cases, the distribution of the use of terms is puzzling. "Hill" is a nearly universal word in the United States, but there is a notable concentration of "hills" in New England. "Knob" is limited to the Southern Appalachians and, ironically, is seldom used in the unusually knobby New England terrain.

What is a "notch" in New England becomes a "gap" in the Southern Appalachians. A "glen" or a "gully" in New York and New England may be called a "draft" in Virginia.

A small crossroads hamlet in New England may have "corners" as part of its name, while in Virginia it will have "forks."

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The male *prairie chicken* has a wind sac on his throat with which he makes a booming call.

More than half the earth's surface is covered by sea, but only about one percent of the *food* for the earth's 2,500,000,000 people comes from this huge water area.

**BIOCHEMISTRY**

## Bone Marrow Gives Radiation Protection Clue

► **BLOOD PLASMA** and bone marrow, where blood cells are formed, are giving new leads to possible protection against radiation, whether from A- and H-bombs or X-rays.

Blood plasma transfusions given before exposure to fatal amounts of radiation will protect mice from death, Drs. Agnes N. Stroud and Austin M. Brues of Argonne National Laboratory, Chicago, reported at the meeting of the American Federation of Societies for Experimental Biology in Atlantic City, N. J.

Injections of bone marrow after exposure to high doses of X-rays prevents or retards destruction of body tissue proteins that usually comes with such X-ray doses, Dr. Julius White and associates at the U. S. National Cancer Institute reported.

The plasma transfusions would not be practical for protecting humans from A- or H-bomb death, the Argonne scientists declared. For one thing, enormous transfusions would be needed in the critical five to 30 minutes before the radiation came.

However, the material in plasma, perhaps a globulin, that is protective might be isolated and show scientists what kind of chemical could be made for radiation protection. So far the Argonne scientists have not isolated the material, although they think they are on its track. Gamma globulin, used for polio, has some of the protective material, but less of it than other globulins in blood.

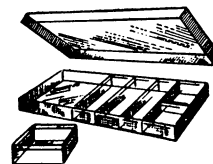
The bone marrow findings are considered important because they give the first sign that tissues other than blood cells are affected by radiation. Heretofore, radiation death has been chiefly attributed to blood cell destruction.

Previously, the late Dr. Egon Lorenz of the National Cancer Institute had shown that bone marrow injections given after radiation significantly reduced mortality in guinea pigs.

The National Cancer Institute studies give support to the idea that the material which protects against radiation circulates in the body, probably outside the cells, and may be a chemical made by cells in the bone marrow.

Science News Letter, April 24, 1954

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