Spring Constellations Now in Sky

Astronomy

By James Stokley

Spring has come, and astronomically we are made aware of that fact by the presence in the eastern evening sky of the kite-shaped constellation of Bootes, the Bear Driver, with the brillliant, creamy-white Arcturus; while towards the south, in the constellation of Virgo, the Virgin, shines another first magnitude star, Spica.

Arcturus is of special interest to astronomers because of its large "proper motion," which is the name given to the movement of a star across the heavens. To most of us the stars, and their groupings in the constellations, are symbolic of unalterable permanency, an idea which has been employed by the Mormons in Salt Lake City, who have placed the figure of the Great Dipper on the west wall of their Temple.

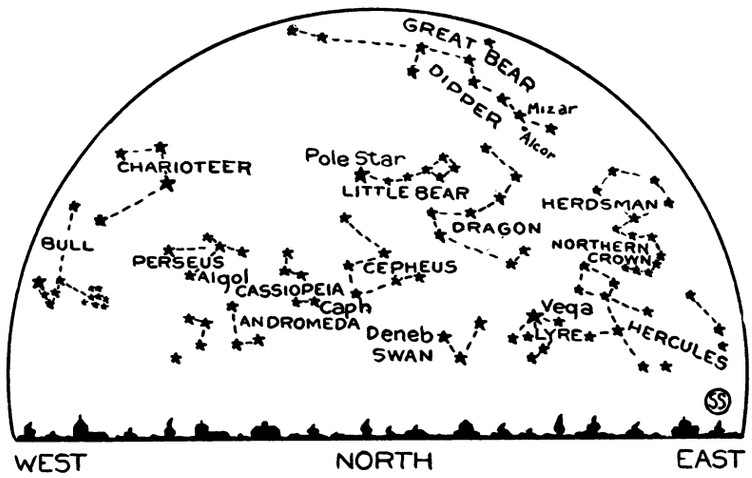
However, the stars are actually moving in the sky with varying speeds; most of them, it is true, so slowly that in a lifetime the keenest observer could not detect any change with the unaided eye, but in a few thousand years the Dipper, Orion, and other familiar star groups will no longer have the shape we see them in at present. Likewise, if present man had been on earth 20,000 years ago, in the time of the Cro-Magnon race, the constellations would have looked strangely distorted.

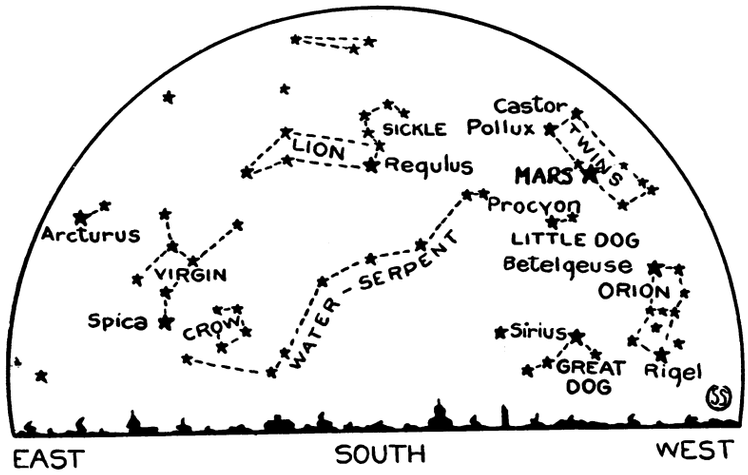
Astronomers measure this proper motion by the apparent distance that a star will travel in a year, using a second of arc for their unit. An idea of the size of a second may be gained from the fact that the moon's disc is about half a degree, or thirty minutes, or 1800 seconds, of arc in diameter. Of the stars whose proper motions have been measured, only about two hundred are known that move more than one second in a year, and as Arcturus travels about two and a quarter seconds annually, it is really a "runaway star." The star with the fastest known motion is too faint to be seen with the unaided eye. It was discovered by the late Prof. Barnard, of the Yerkes Observatory, and travels at the enormous speed of more than ten seconds a year.

Since the stars are so far away from the earth, the actual motion of such a body as Arcturus compared to the sun, for example, is enormous, in this case something like ninety miles a second, if one of the best estimates of its distance is used. Arcturus is also an exceedingly brilliant star, for if we were as far from it as we are from the sun, it would look 130 times as bright.

The other bright star in the eastern sky, Spica, or alpha Virginis, as the astronomers call it, is also an interesting orb. Though to the naked eye, and even with man's most powerful telescopes, it seems to be a single body, astronomers know that it is really double. The bright star that is seen is accompanied by a dark and invisible attendant about 12,000,000 miles from the bright body. Every four days they revolve around each other and together they weigh more than 15 times as much as the sun. The amount of light that they give out is more than 4,000 times as much as the sun and they are so far away from us that this light, though travelling fast enough to encircle the earth seven times in a second, takes more than three hundred years to reach us.

All these facts about this heavenly couple, half of which is invisible, have been learned through the fact that the light from the bright member of the pair carries its message to earth. When the light from a star is analyzed with the spectroscope, the astronomer can tell not only what it is made of, but also a great deal about its motion. The dark and bright lines which appear in the spectrum photograph carry this message in their position, for if a star is moving from the earth the lines are displaced in one direction, and if the star is approaching the earth they are (*Turn to next page*)





THESE MAPS show the evening stars as they appear these April evenings. Hold them in front of you and face north or south and the upper or lower is a picture of the sky in front of you

April Star Story—*Continued*

shifted to the other. These lines in the spectrum of Spica move back and forth, because, as the bright and dark members of the pair rotate around each other, the bright one is at one time approaching us, while at another it is receding. Thus the presence of the invisible body and the time of the rotation is made evident.

The ancients considered astronomy largely as astrology, a pseudo-science that has now been thoroughly discredited, for we know that the stars have no occult influence on our daily lives, as was formerly supposed. But as a result of these old ideas the constellations through which the sun passes were associated with the time of the year when it was in them. The sun, moon and planets move along a path called the zodiac, which is a belt traversing the sky along an imaginary line called the ecliptic. Constellations in this belt are called zodiacal constellations and the ancient astrologers represented them by what are known as the signs of the zodiac.

The sun enters Virgo in August, and so the constellation was associated with the harvest time. This is shown by the ancient star maps, for there she is represented as a woman with wings, walking, and carrying some heads of wheat, or sometimes ears of corn. According to the ancient poets, she represented Astraea, the goddess of justice; the constellation of Libra, the scales, nearby, being the balance in which she weighed the good and evil deeds of men.

Mars is the only planet left in the sky all evening. Venus, which was so brilliant a few months ago, is now close to the sun. On April 20, it is directly between the sun and the earth, and within a few weeks after that it will reappear in the early morning sky before sunrise. Jupiter is also approaching close to the sun, though in the early part of the month it can be seen in the western twilight, setting about two hours after the sun. Saturn can be seen in the eastern morning sky, rising about midnight.

Ten first magnitude stars are now visible. Low in the southwest is Sirius, in the great dog. Above it is Procyon, in the little dog. Low in the west is Aldebaran, in Taurus, the bull, while above it and to the north is Capella, in Auriga, the charioteer. South of Aldebaran is Betelgeuse, in Orion, while above it is Pollux one of the twins. Regulus, in Leo, the lion, is high in the south. Low in the northeast, just rising, is Vega, in Lyra the lyre. Arcturus, in Bootes, is high in the east, and, with Spica, in Virgo, completes the list.

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Critique of Behaviorism

Psychology

LEE WILSON DODD, in *The Great Enlightenment* (Harper's):

Rats in a maze are Watson's data. That's
Why Watson in a Maze observing rats
Strikes me as mildly comic. Not that he
Confesses to bewilderment like me,
Tho' we are tropped in the same Mystery!
No, Watson solves all mysteries with ease,
And in the face of God's infinities
Finds Life—*a Reflex sniffing round for Cheese.*
To which there is but one reply, and that's—
RATS. . . .

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Do You Know That

A peculiar kind of Chinese fish is a carp which has eyes set slantwise and low in the head, so that the fish can watch for danger from below while feeding at the surface of the water with its upturned mouth.

A recent report states that Russian institutions for the mentally diseased can care for only 21,000 cases, whereas the public health authorities estimate that there are five times that number in need of hospital treatment.

The commercial air transportation companies of most European countries belong to the International Air Traffic Association, which publishes a joint time table and makes arrangements for rapid and smooth-working exchange of traffic.

Patients suffering from nervous and mental diseases spend about 50 per cent more time fidgeting during their night's rest than normal people do, according to an investigation under the auspices of the Mellon Institute of Industrial Research.