ASTRONOMY

Added Attraction, Jupiter and Venus

Evening Skies This Month Are a Vernal Stage Set for the Performance of the Two Brightest of All the Planets

By JAMES STOKLEY

WITH the coming of April, the evening skies take on a typically vernal aspect. Orion, Taurus and the two dogs, Canis Major and Canis Minor, so conspicuous during the winter months, have descended low into the western sky. In their place shine Leo and Virgo in the south, while Vega, in the northeast, heralds the return of Lyra to the evening heavens. And this month there is the added attraction of the two brighest of all the planets.

Look to the south this evening about 9 o'clock. There shines the famous "sickle," with the blade pointing to the west and the handle hanging downwards. This marks the constellation of Leo, the lion, the blade being the animal's head, and the handle his forefeet. His hindquarters are made up of a triangle of stars to the east. The easternmost, and the brightest, of the stars in the triangle, is called Denebola, though it is not of the first magnitude. Just in front of the sickle, in the neighboring constellation of Cancer, is Jupiter, more brilliant than any nearby star.

A little to the south, and close to the horizon, can be seen part of the constellation of Orion. Early in the evening the entire group is visible, but by about nine o'clock only the three stars of the belt, and Betelgeuse, above them, remain. About as high above the horizon, but farther south, is the great dog, Canis Major, with the brilliant Sirius, brightest of all the stars, though its splendor is somewhat dimmed by reason of its being low in the sky, where much of its light is absorbed by the atmosphere. Above Sirius is another bright star, Procyon, which marks the lesser dog, Canis Minor. Just north of Procyon, and above Orion, are Gemini, the twins. Castor and Pollux are the names of the two brightest stars in this group, though only the latter, to the south, is of the first magnitude.

Below Gemini is Taurus, the bull, which, like Orion, has almost completely disappeared behind the horizon. But Aldebaran remains visible, until later in the evening. North of Taurus, and a little higher, is Auriga, the charioteer, with Capella. Between Capella and Aldebaran, and far brighter than either, is the planet Venus.

But now let us turn to the east and see the constellations that are now coming into the evening sky. First look east of Leo and Jupiter, and there you see Virgo, the virgin, of which the brightest star is Spica. To the north of Virgo is Boötes, the herdsman, containing the first magnitude Arcturus.

Will Open Exposition

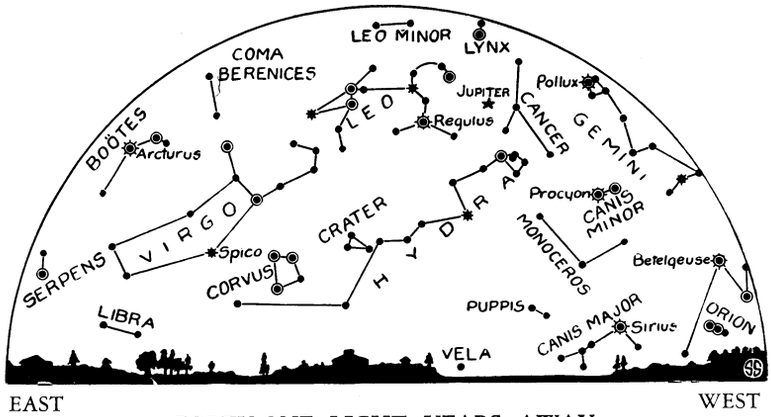
This is the star that will play an important part next year when the Chicago "Century of Progress" exposition is opened by means of its light. Focussed by the lens of the great Yerkes Observatory telescope on a photoelectric cell, the resulting electrical current will be amplified and carried over wires to Chicago, where it will start the exposition. Arcturus was chosen for the purpose because it is approximately 41 light years away, and the light which will reach the earth next year started on its journey when the Columbian exposition was being held in Chicago in 1892. Later in the evening, the star Vega can be seen low in the northeast. This is in the constellation of Lyra, the lyre.

Without a doubt the best known of all the constellations, even though it contains no first magnitude stars, is the great bear, Ursa Major, or rather, the part of the great bear that is usually designated, in the United States, as the "Great Dipper." This famous group is high overhead, a bit to the north of the zenith, now in its best evening position of the year. In other countries these seven stars have different names. The English, for example, refer to it either as "the plough," or "Charles's wain," while the Germans call it "der Wagen." In southern France it has been called "casserole," or saucepan.

As a bear, the handle of the great dipper marks the animal's tail, which is surely extraordinary because no bear, living or dead, ever had such an appendage. To explain this Thomas Hood once wrote, "Imagine that Jupiter, fearing to come too nigh unto her (the bear's) teeth, layde holde on her tayle, and thereby drewe her up into the heaven; so that shee of herself being very weightie and the distance from the earth to the heavens being very great, there was great likelihood that her tayle must stretch. Other reason know I none."

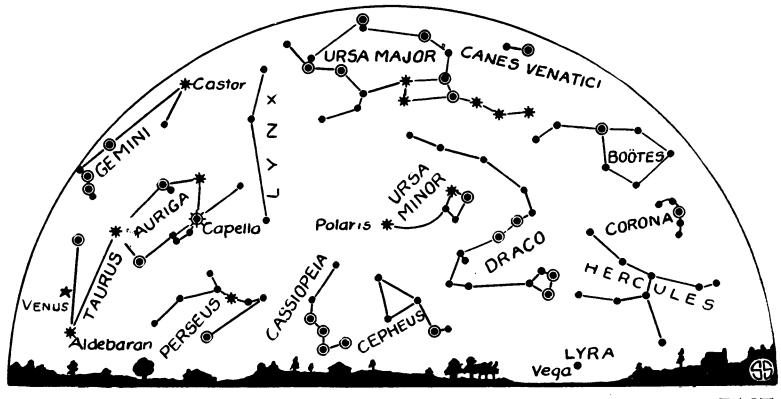
A more scholarly explanation was given in the Century Dictionary. This is that the Sanskrit name for these stars, "Riksha," has two genders, one of which signifies a star and the other a bear. Hence, to a people unfamiliar with the true anatomy of a bear, the names might have become confused.

Opposite the handle of the dipper are the two stars commonly known as "the pointers," at the side of the bowl. If you imagine a line drawn from these



FORTY-ONE LIGHT YEARS AWAY

To the east in southern evening skies this month can be seen Arcturus. This is the star which will open up the Chicago Fair next year. Light from Arcturus, which started earthward in 1892, the date of Chicago's Columbian Exposition, will be focussed on a photoelectric cell thereby generating an electric current.



NORTHERN SKIES DURING APRIL

The best known of all the constellations, even though it contains no first magnitude stars, is the Great Bear, Ursa Major, part of which is generally designated as the Big Dipper. This famous group is high overhead now and in its best position of the year.

two stars, it will pass close to Polaris, the pole star, and the brightest orb in the constellation of Ursa Minor, the lesser bear.

By far the most brilliant object in the April evening skies, except, of course, the moon, is the planet Venus, now shining so brilliantly in the west. Venus, like the earth, and all the other planets, revolves around the sun. But the orbit of Venus is within that of the earth. We are approximately 92,900,000 miles from the sun while Venus averages only 67,170,000 miles. That means that it can never be seen far from the sun. It seems to oscillate about that body, sometimes appearing east, and sometimes west. When almost in line with the earth and the sun, either between the two, or on the side of the sun opposite the earth, it is invisible. This month, on the nineteenth, it is farthest east, and on that day it will set latest in the evening. Afterwards, it will start moving towards the sun, to disappear from view in a few months, only to reappear on the western side, and to be visible in the east before sunrise during the autumn months.

Once Every 584 Days

On June 29, when just halfway between its disappearance from the evening sky, and its reappearance in the morning, Venus will be almost directly between the sun and earth, at what astronomers call inferior conjunction. This happens once every 584 days. Usually, when it happens, Venus does not pass across the face of the sun, but above or below it. At rare intervals, however, the planet comes directly between the sun and us, and then Venus can be seen as a black spot moving across the solar disc. This is called a transit of Venus, and is a very rare astronomical event, far rarer than a total eclipse. The last occurred on December 6, 1882, while the next will not be until June 7, 2004.

Another occurred on June 3, 1769, and is particularly important in astronomical history because it was observed in the United States by David Rittenhouse, the pioneer American astronomer, in Philadelphia. This was done with the cooperation of the American Philosophical Society, of which he was later president, and which had been founded by Benjamin Franklin. Some of the observations were made from a platform erected in Independence Square, as it is now called, immediately in back of the old State House, or Independence Hall. It is said that this platform remained there for some years, and in 1776, when the Declaration of Independence was first given to the public, the speaker stood on this vantage point to read it.

During this present month of April, 1932, there is being celebrated the two hundredth anniversary of the birth of Rittenhouse. It was on April 8, 1732, that David was born in a house that is still standing on Lincoln Drive, in Philadelphia. Thus he was born the same year as Washington, and it is interesting to note that two of his greatest astronomical contemporaries, Maskelyne, who was to become Astronomer Royal of England, and Lalande, who occupied a similar post in France, were also born in 1732.

Rittenhouse spent his boyhood and early manhood at Norriton, near Norristown, Pa., where he became interested in things scientific and mechanical, and by 1749 he was already established as a clock maker. In addition to a number of clocks, of which the most elaborate is now at the Drexel Institute, in Philadelphia, he made two famous orreries, or models to show the motions of the heavenly bodies. The first of these went to Princeton University, and is no longer in existence, but the second, the more elaborate, has been carefully preserved by the University of Pennsylvania, for whom it was made. It has been loaned to the Franklin Institute. Restored to its original working order, it will be one of the main features of the new Franklin Institute Museum. One part of the orrery showed the date, time, place and duration of eclipses of the sun, for a period of 5000 years before and 5000 years after it was constructed. No other instrument ever conceived has been capable of this.

In addition to his observations of the transit of Venus in 1769, which made possible a more accurate determination of the distance of the earth from the sun than had previously been made, Rittenhouse also made the first careful observation of an eclipse in the colonies. This was on June 24, 1778, the last total eclipse visible from the region of Philadelphia.

Rittenhouse was also known as a surveyor, and determined practically the whole boundary of Pennsylvania, laying the foundation for the work of Mason and Dixon in 1766. Also active in affairs of state, he deservedly ranks as one of the greatest men of his time.

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ORNITHOLOGY

Japanese Beetle Has Foes In Sparrow and Starling

ENGLISH SPARROW and European starling, much berated as pests of the first order, have at least one use in the world, says Dr. Thomas E. Winecoff of the Pennsylvania Game Commission, in a report to the headquarters of the National Association of Audubon Societies. They are destroyers of a much worse pest, the Japanese beetle.

Not many birds will eat Japanese beetles, Dr. Winecoff says, but sparrow and starling are joined in their attack by two of our commonest song-birds, themselves occasionally looked upon as nuisances by orchardists: robin and purple grackle. And down on the ground an introduced game bird, the ringnecked pheasant, lends a helping hand, or rather beak, in the good work of beetle destruction.

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