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ASTRONOMY

New Comet Visible in Evening Sky



THE LAST BRIGHT COMET. Halley's Comet as it appeared on May 29, 1910, when it was photographed at the Yerkes Observatory by the late Prof. E. E. Barnard

By **JAMES STOKLEY**

The Skjellerup Comet, discovered on December 3 by J. F. Skjellerup, amateur astronomer of Melbourne, Australia, will soon be visible in the evening sky, according to Dr. Amir O. Leuschner, of the University of California. Prof. Leuschner and his students make a specialty of keeping track of these celestial wanderers.

By Sunday, December 18, it will be only 28 million miles from the earth, and will then be visible in the evening western sky just after sunset. For perhaps as long as a week, or until Christmas, it should be visible to the naked eye, and then for several weeks after that it should be easy to pick it up in a small telescope.

An orbit of the comet, calculated by Dr. H. E. Wood of the Union Observatory, Johannesburg, South Africa, and communicated to Dr. Leuschner through the Harvard College Observatory, shows that the comet had already passed the sun when it was discovered. On December 1 it was

in perihelion, as its closest approach to the sun is called, and was then 55 million miles away from that body. Hence, it is unlikely to get any brighter than the third magnitude, its brilliance at the time of discovery. A very interesting feature of its path, says Dr. Leuschner, is that it is inclined seventy-two degrees to the ecliptic, or the path on which the sun moves.

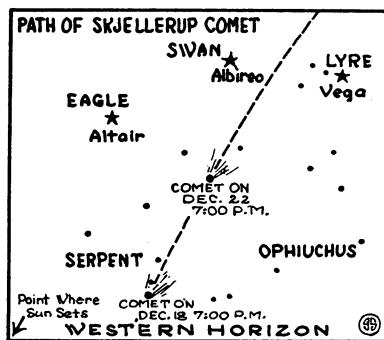
According to calculation by Katherine Prescott and Charles Krieger, two of Dr. Leuschner's students, it is

moving north and to the east. On December 18, it will be in the constellation of Serpens, the serpent, which is almost directly west about 7:00 P. M. on that date, and not far above the horizon. The comet should appear as a faint patch of light with a tail pointing upwards and to the left, or away from the sun. The tail will probably be about four or five times the diameter of the full moon. It will be a little fainter than the pole star, which is of the second magnitude.

On successive evenings it will gradually mount higher and higher in the evening sky. On Thursday December 22, it will be in the constellation of Aquila, the eagle. This group is characterized by the bright star Altair, seen low in the western evening sky. Then it will keep on moving in the general direction of the pole star, gradually getting too faint to be seen without a telescope.

Comets Champion Lightweights

Though only a few of the stars
(Just turn the page)



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Comet Visible

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visible in the sky exceed in brightness the Skjellerup comet, which is now near the earth and of naked eye visibility, the comet is really an "airy nothing." Even if it should land on the earth, as it will not, it would probably not do any particular damage. Some comets have been bright enough to be seen in full daylight, and to stretch their tails half-way across the sky. But even these have not contained enough material to make a first-class asteroid, or little planet, the largest of which are not over a hundred miles in diameter. It has been estimated that Halley's comet, one of the most famous of these visitors, contained about a twentieth of the material excavated in digging the Panama Canal. It has also been said that the brightness of Halley's comet would have been what it was if it were made up only of a dozen bodies as big as small marbles in a cubic mile of comet!

Even the head of a comet is transparent enough for stars to shine through it. Probably, as it approaches the sun, it consists of a clump of tiny meteorites, which is seen, if at all, by reflected sunlight. Then it is drawn closer to the sun by the latter's gravitational attraction, the tiny cometary particles having just about enough gravitational effect to hold the swarm together. Then it gets nearer the sun, and warmer. The heat causes gases that have been carried in the meteoric material to come out, carrying with them much finer particles, or dust. These are so small that the light from the sun exerts a pressure on them and so they travel away from the sun, to form the tail. When approaching the sun, the tail is behind the comet, but after it has passed around the sun and moves out into distance space again, the tail comes first, the head trailing along behind. Finally, it returns to pretty much the same state as when it entered the influence of

the sun, but with some of its material lost to it forever.

The brightness of the comet when near the sun is partly reflected sunlight and partly a glowing of the gases in the tail, under the influence of the rays of the sun. In this respect it is something like the aurora. The sun is sending out, besides visible light, numerous electrons, or "cathode rays." These cause a luminescence of various gases when highly rarefied, an experiment that can be duplicated in the laboratory. The very thin gases in the comet's tail, or in the upper atmosphere in the case of the aurora, are made to glow by these rays.

After the comet has passed the sun, it may go out into space to be lost to us forever. But many of the cometary orbits are ellipses, so that the comet returns again and again, in a period varying from a few years to many millennia. Sometimes the comet may approach within a short distance of one of the large planets, especially Jupiter. The great gravitational attraction of the planet will then put a considerable kink in its orbit, so that when it returns again near the earth it may be almost unrecognizable as the same comet.

Not Same as Star of Bethlehem

Though these calculations of astronomers show that the week preceding Christmas and possibly Christmas eve itself will reveal a naked eye comet in the western sky, it will probably not be the same sort of phenomenon that has been recorded in the Bible as the "Star of Bethlehem." The suggestion has been made that this was really a bright comet, even Halley's comet, which returned in the year 12 B. C., about eight years before the birth of Christ. Astronomers generally believe, however, that it was not a comet. The famous astronomer Kepler thought that it was due to a close conjunction of the planets Jupiter and Saturn, which happened in 7 B. C.

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