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WHAT'S A KOHOUTEK?

David Hurd, Planetarium Scientist, Vancouver Museums and Planetarium Association

It's a comet, that's what. And, if it lives up to all preliminary indications, it should be one of the most spectacular comets of the century. It may get 20 times as bright as Halley's Comet. It was discovered in March of 1973 by Lubos Kohoutek, a German astronomer working at the Hamburg Observatory. The discovery images, on photographic plates taken during an asteroid search, did not indicate the impressive qualities of this travelling space iceberg. It was after 4 weeks of observation that the orbit of this new comet was calculated. The orbit turned out to classify Comet Kohoutek as a member of the "sun-grazers." It will, during its perihelion passage, come within 14 million miles of the sun; 21 million miles inside the orbit of Mercury. At this close distance, solar radiation will form a cometary tail which some experts feel will cover one eighth of the sky.

Incidentally, the discovery of a new comet is not all that surprising; as many as 20 may be found yearly. However, comets which reach a brightness visible to the naked eye are extremely rare. Ones as bright as Kohoutek occur but once in a lifetime.

Comet Kohoutek is presently in the morning sun (diagram 2). It should be visible between mid-November and mid-February. It will pass behind the sun on December 28 and will emerge for its most spectacular apparition in the evening a few days later (diagram 2). The most favorable time for observing should be the first two weeks of 1974 when Kohoutek will remain visible well after sunset. It will remain visible, fading in brightness, until it slips from naked eye visibility sometime in February.

Teachers may use Comet Kohoutek as a method of supplementing the science class, and particularly, the astronomical sections of the curriculum. Only two of many possible observing experiments students may conduct, include:

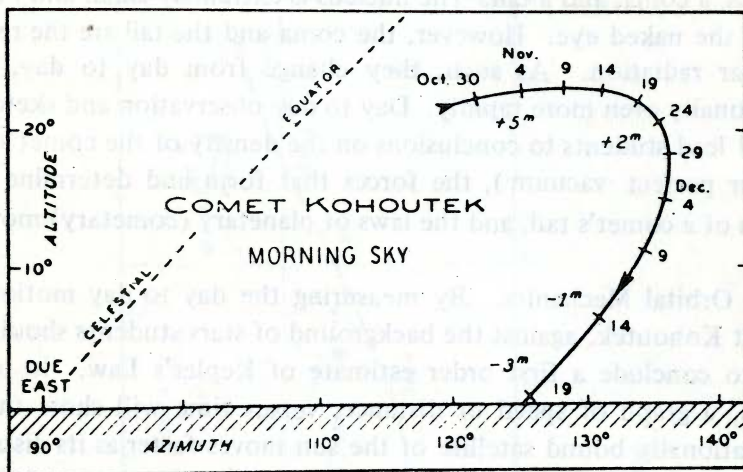


DIAGRAM 1

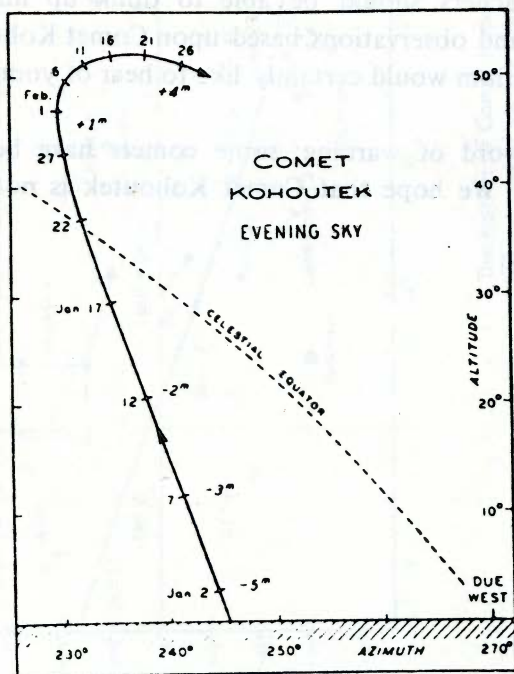


DIAGRAM 2

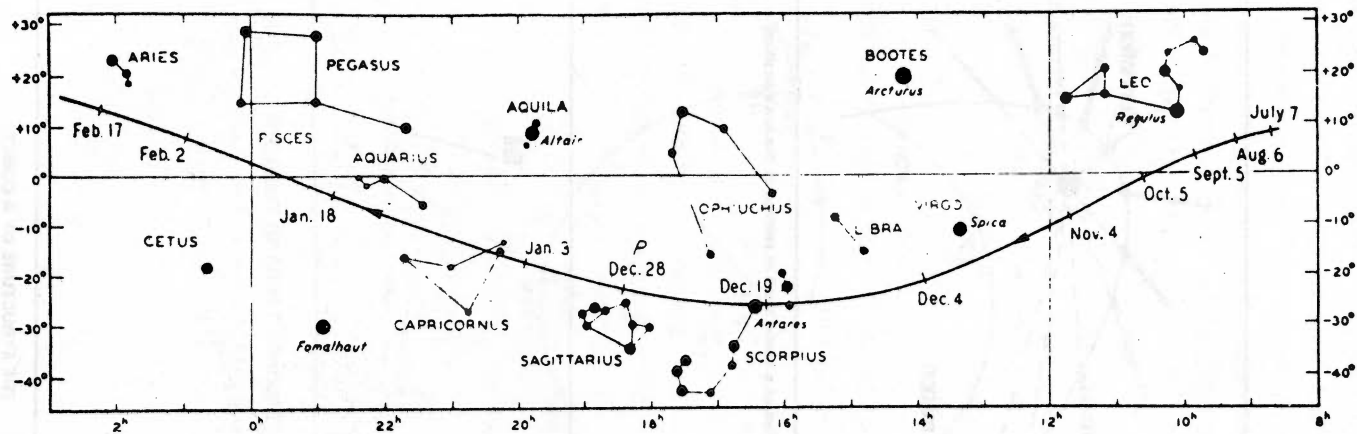
1. The Structure of Comets. Comets have three basic parts; a nucleus, a coma, and a tail. The nucleus is extremely small and invisible to the naked eye. However, the coma and the tail are the result of solar radiation. As such, they change from day to day, and occasionally even more rapidly. Day to day observation and sketches should lead students to conclusions on the density of the comet's tail (a near perfect vacuum), the forces that form and determine the length of a comet's tail, and the laws of planetary (cometary) motion.

2. Orbital Mechanics. By measuring the day to day motion of Comet Kohoutek, against the background of stars students should be able to conclude a first order estimate of Kepler's Law. In other words, a graph of speed or distance, versus time will show that a gravitationally bound satellite of the sun moves faster as its distance from the sun decreases. The exact relationship may not be obvious, but a comparison of the graph to sketches should indicate that brightness is also determined by distance from the sun.

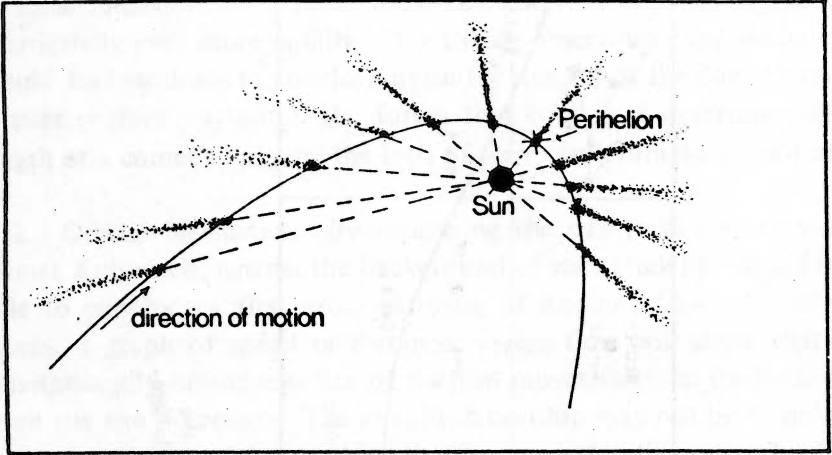
Science teachers should be able to think up numerous other experiments and observations based upon Comet Kohoutek, and, we at the Planetarium would certainly like to hear of your results.

One last word of warning; some comets have been known to "fizzle out." We hope that Comet Kohoutek is not one of these.

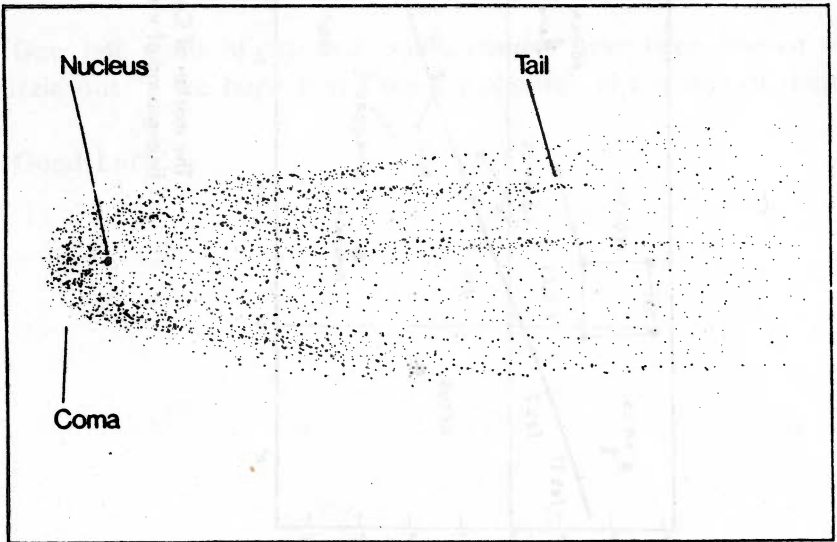
Good Luck!



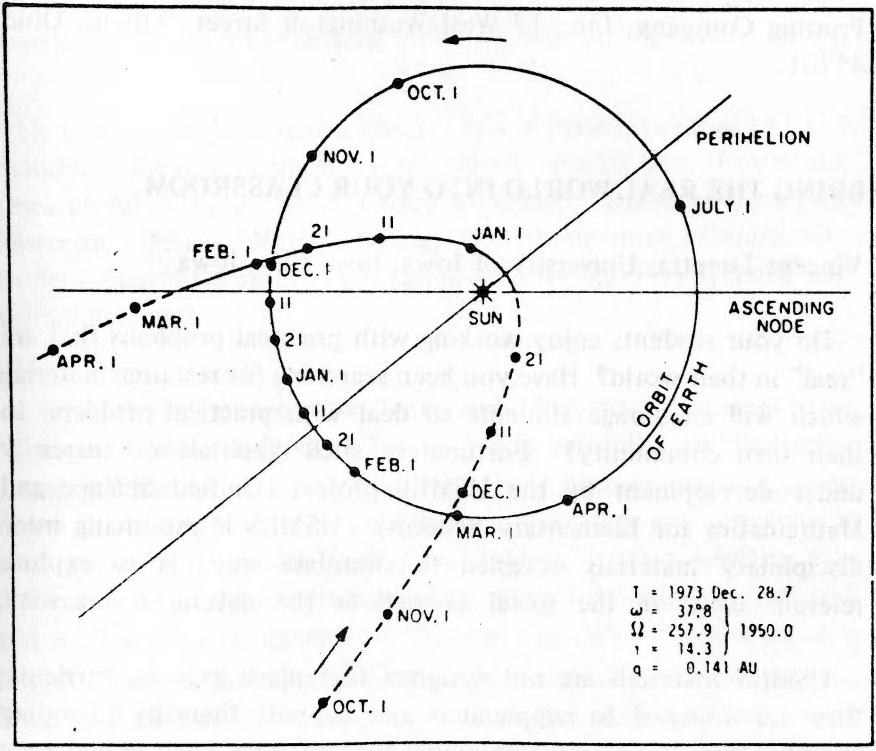
The motion of Comet Kohoutek against the background of visible stars and constellations.



The direction of a comet's tail in relation to the sun's position



THE STRUCTURE OF A COMET



THE ORBIT OF COMET KOHOUTEK