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# Comets, the Oort Cloud, and the Kuiper Belt

**by Warren Krug**
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The year was 1909. Reports started appearing in the nation's newspapers about an approaching celestial event of some importance. A well-known comet called Halley's was heading straight for Earth.

In September of that year, the New York Times carried several stories that the comet had been sighted by various observatories. Interest was building.

By the next year excitement about Halley's arrival was beginning to change—into fear. The Times in February of 1910 ran stories about possible fallout from the comet of the poisonous gas, cyanogen.

In April an unusual darkness over Chicago was blamed by some people on Halley's. Some also blamed the comet for the death in April of the famous humorist Mark Twain. Twain had been quoted as saying, "I came in with Halley's Comet in 1835. It is coming again next year, and I expect to go out with it."

Although some people planned "comet parties" and astronomers were trying to reassure citizens that there was no danger from the comet, not everyone was convinced.

In May it was reported that Earth could pass through Halley's tail on the 18th or 19th. All- night services were held on the 18th in churches to pray for deliverance.

On May 21 it was reported by the Times that the tail had passed Earth and may have missed it by 197,000 miles. The excitement and hysteria soon died out.

### The Nature of a Comet

Dirty snowballs! That's how these solid bodies of dust and frozen gases have been described. They are thought to have been around since the beginning of the solar system.

The body of a comet, called the nucleus, is small, ranging in size from only 1 to 30 miles in diameter. As a comet nears the Sun, some of the icy material evaporates and forms an envelope of gas and dust, called the coma, which may grow up to 600,000 miles or more in diameter and which hides the nucleus from view. Solar

wind and radiation pressure from sunlight sweeps this material backward to form the "tail" of the comet. Actually, a comet has two tails, one of electrically-charged atoms called ions and the other of dust. Comet tails can span a distance greater than the distance between the Earth and the Sun and always point away from the Sun.

More than 1,500 comets have been identified, about 150 of them called "short-period" comets because they make an orbit around the Sun in less than 200 years.

How did people in Mark Twain's Day know Halley's comet would make a repeat visit to Earth in 1910? It was Isaac Newton who first proposed that comets revolve in eccentric orbits around the Sun. And it was Edmond Halley who noticed that several comets seemed to make predictable orbits. He suggested that a comet seen in 1531 may be the same one seen in 1607 and which he himself observed in 1682. Halley confidently predicted that "Halley's Comet" would reappear in 1758, which, of course it did. With an interval of 75-76 years, Halley's has made reappearances in 1835, 1910, and 1986.

The visibility of a comet from Earth depends upon the size and composition of the nucleus, how close it gets to the Sun and how far from Earth it is traveling. Thus, to viewers on Earth Halley's Comet was spectacular in 1910 but a disappointment in 1986. In 1986 when the comet was at its brightest, it was on the opposite side of the Sun as Earth.

**Comets and an Old Universe**

Life for a comet traveling through the solar system is dangerous—especially for the comet.

The fact that ice in the nucleus of a comet partially evaporates every time the comet nears the sun means that comets are slowly being destroyed. Many short-period comets have been observed to have grown dimmer each time they have been seen.

A second danger is that comets could be captured by a planet and crash to their deaths. This happened to Comet Shoemaker-Levy which broke apart and smashed into Jupiter in 1994.

Thirdly, comets can have their orbits altered by near-passes to a planet and be ejected from the Solar System.

Creationist astronomers, and evolutionists too, have done their calculations and determined that in a solar system of billions of years there should be no such thing as comets any more. Comets, especially the short-period variety, would have made thousands or millions of their dangerous trips through our neighborhood.

That leaves only two possible solutions: either comets are coming into the solar system from beyond, or within the far reaches of the solar system there is a place where new comets can be born.

Almost no astronomer today believes in interstellar comets. A comet entering the solar system from outside it would be traveling much too fast to go into orbit around the Sun. Also, nobody has ever seen a comet outside the solar system.

**The Oort Cloud**

The Dutch astronomer, Jan Hendrik Oort (1900-1992) in 1950 came up with the idea that there is a kind of comet nursery or reservoir of comet nuclei lying far from the Sun, maybe extending three light-years out and a source of long-period comets (orbits of more than 200 years).

The idea is that passing stars, gas clouds, or galactic tides can knock these young comets out of the Cloud and into the inner solar system.

This theory though has problems. First of all, nobody has detected the Oort Cloud. Sagan and Druyan in their book Comets stated "Many scientific papers are written each year about the Oort Cloud, its properties, its origin, its evolution. Yet there is not yet a shred of direct observational evidence for its existence."

In research on the Internet, one can find descriptions of this Oort Cloud on secular sites written with the same degree of certainty as one has for the existence of the moon or the planet Jupiter. Yet other secular sites do use modifiers such as "speculative," "postulated," "no confirmed direct observations," "is thought," and "are said" in discussing the Oort Cloud.

Another problem confirmed by a study in 2001 found a strong possibility that collisions over the hypothetical billions of years could have destroyed most of these Oort Cloud comets (Stern and Weissman, Nature, 409 (6820):589-591, 2001).

**The Kuiper Belt**

If the Oort Cloud is an unscientific explanation for the existence of long-period comets, what about the Kuiper Belt as the answer for the short-period variety?

Named after Dutch astronomer Gerald Kuiper (1905-1973), the Kuiper Belt, said to lie beyond Neptune's orbit, is supposed to be a doughnut-shaped reservoir of billions of comet nuclei.

While many objects (651 as of January, 2003) have been found in this area including the ex-planet Pluto, these objects tend to be much larger than comets. Many astronomers refer to these Kuiper Belt items as Trans-Neptunian Objects rather than as comet nuclei. So, the Kuiper Belt like the Oort Cloud is merely a hypothetical storage area for comets.

**In Summary**

Creationist scientists are often accused of *interpreting* evidence to fit their preconceived ideas. But here we have evolutionist scientists literally *fabricating* "evidence" to explain how short-lived phenomenon like comets could exist in a universe of billions of years. Creationists would rather stick to the Bible and common sense. *LSI*

**Sources:**

en.wikipedia.org
answersingenesis.org
http://www.geocities.com/Athens/Olympus/6745/NYTimesHC.htm

Kuiper Belt, Oort Cloud. Produced by: NASA and A. Feild (Space Telescope Science Institute). Copyright: NASA Copyright Free Policy.Â  The Oort Cloud is a vast shell of billions of comets. The inset diagram compares Pluto's orbit with a Kuiper Belt binary object called 1998 WW31. The Kuiper Belt [the fuzzy disk] extends from inside Pluto's orbit to the edge of the solar system. The Kuiper Belt wasnâ€™t predicted in any meaningful way. Nobody wrote a paper saying, â€œLook here for objects this bright, this big and this manyâ€. But there were speculations.Â  But it turns to be very difficult for Jupiter to capture enough long-period comets from the Oort Cloud and convert their orbits into the short-period type. The Kuiper Belt we know, turns out to supply the short-period comets. And since the Belt is much closer (50 AU instead of 50,000 AU for the Oort Cloud) we can actually observe it directly, instead of just looking at objects deflected out into the near-Earth environment. This is another reason why the KB has made such a big splash in planetary science. Kuiper Belts in Other Star Systems. They come from Oort Cloud and Kuiper Belt. What is the difference between an asteroid and meteoroid? Meteoroids are made from pieces of comets and asteroids and are therefore smaller than asteroids. (Meteoroids are smaller than asteroids). Where do asteroids come from? They come from the asteroid belt between Jupiter and Mars. What is the correct order of a meteoroid falling from space to Earth's Surface? Meteoroid, Meteor, Meteorite.Â  a spherical region that surrounds the solar system, that extends from the Kuiper Belt to the end of our solar system, and that contains billions of comets. +19 more terms. karisatter.