fact, "primitive," that line of argument puts him right into a quandary. After all, the proponents of the gorilla-chimp connection base their argument on another anatomical similarity: knucklewalking. Why wouldn't knuckle-walking be just as good a measure of relatedness as the cranial features Begun analyzed? Begun's response is that knuckle-walking doesn't necessarily group gorillas and chimps in their own category because there is no evidence to prove the ancestors of A. *afarensis* didn't also walk on their knuckles. The fossil record, he notes, is particularly incomplete from 10 million to 4 million years ago, and it's possible that somewhere in there is a human ancestor who did just that. "I don't know how you can analyze fossils and come up with a conclusion about what their ancestors did," says Begun.

Begun is on stronger ground with his other claim—that the Hungarian apes were closely related to the common ancestor of the African apes and humans. The leading contender to date for the nearest relative to the common ancestor has been *Sivapithecus*, a Miocene ape found in Pakistan and the Middle East. But as evidence has built that *Sivapithecus* was ancestral to the orang, it became clear that another Miocene ape must be a closer relative to the ancestor of the African apes and humans. Begun thinks he has found a better candidate in the Hungarian specimens, which show a complex of facial and dental features that are ancestral for the African apes. But *Dryopithecus* has a competitor for the role of closest human ancestor. A 10-million-year-old fossil, known as *Ouranopithecus macedoniensis*, which was found in 1989 in Greece by French and Greek paleontologists, also shows similarities with the African apes and humans, and could be a closer relative of their common ancestor, says Delson.

Whether Begun's claims ultimately become part of the consensus or not, even his critics applaud him for providing a new way of looking at the question of how to break up the human-chimpanzee-gorilla triad. At the least, he has identified another set of characters that can be used to compare different species. At the most, it may help the morphologists inch a little closer to the molecular systematists' view, without abandoning their approach to solving the problem.

–Ann Gibbons

PLANETARY SCIENCE

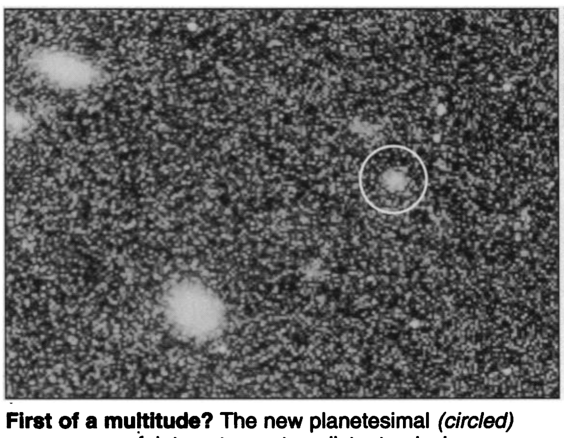
Planetesimal Found Beyond Neptune

Not since the 1801 discovery of the first member of the asteroid belt have planetary astronomers garnered this kind of prize. The 30 August detection of a 200-kilometer object 1.6 billion kilometers beyond Neptune offers the first direct evidence for a belt of dark, icy bodies lying in cold storage on the fringes of the solar system—surplus materials from the formation of the planets. If this discovery proves to be the first of many similar objects, says codiscoverer David Jewitt of the University of Hawaii, astronomers could study "the primordial building blocks of the planets; that would be really neat."

The discovery would be a posthumous triumph for the late planetary astronomer Gerard Kuiper, who predicted the belt of icy bodies, and a feather in the cap of celestial mechanicians who 4 years ago gave quantitative support to Kuiper's gut feeling (*Science*, 18 March 1988, p. 1372). In 1951 Kuiper surmised that when a disk of gas and dust condensed to form the sun and planets, some icy debris could have survived just beyond Neptune. And 30 years later, Kuiper's debris belt was just what theorists needed to explain the origin of comets with relatively short orbital periods—200 years or less.

Comets had all been thought to wander in from a much more distant dumping ground: the spherical Oort cloud, populated by debris flung outward by Neptune and Uranus. But in 1988, theorists Martin Duncan of Queens University in Kingston, Ontario, and Thomas Quinn and Scott Tremaine of the University of Toronto argued that short-period comets had to come from a close-in ring of planetesimals, orbiting the Sun at just 30 to 100 times the Earth-Sun distance (30 to 100 astronomical units, or A.U.)—the same icy belt that Kuiper had predicted. Duncan and his colleagues envisioned a belt of perhaps a billion potential comets, still adding up to a total mass much less than that of Earth.

With the 14 September announcement by Jewitt and Jane Luu of the University of California, Berkeley, that their on-and-off 5-year search had revealed a smallish object at about 41 A.U., the theorists seemed to have just what they were looking for. But the excitement is being tempered by the remaining uncertainties. The only thing known for certain about the object, temporarily named 1992 QB1, is that it's reddish, at least to the sharp eye of astronomical instruments. The reddish tint suggests that its surface is rich in the kinds of primordial organic matter that to the human eye stain comet nuclei as black as coal. With so dark a surface, the object would have to be something like 200 kilometers across—huge by comet standards—to account for its measured brightness.


D. JEWITT AND J. LUU

First of a multitude? The new planetesimal *(circled)* appears as a faint spot near two distant galaxies.

But a single body doesn't amount to a Kuiper Belt. Indirect evidence that QB1 is just one of a multitude should come from the shape of its orbit, something that isn't known yet because the object's apparent motion against the stars is so slow. If the orbit is roughly circular and lies near the orbital plane of the planets, the body could be a representative of the Kuiper Belt, but an inclined, highly elliptical orbit could mark it as a lone interloper from the distant Oort Cloud. Observations of the object's motion during the next few months should decide the question. "I'm reserving judgment until we get a better orbit," says Tremaine. But if it is reasonably circular, "I'll bet there are a lot more of these out there and this is the Kuiper Belt."

Even before then, more direct support for the existence of the Kuiper Belt could come in the form of additional planetesimals. Using the 2.2-meter telescope on Hawaii's Mauna Kea and the latest in charged-coupled-device detectors, Jewitt and Luu searched 1 square degree of the sky—the area of four full moons—with enough sensitivity to detect objects as faint as 25th magnitude. According to earlier estimates, such a search should turn up between one and five of the largest Kuiper Belt planetesimals. Jewitt and Luu got their one, but they have not yet fully inspected their images, leaving the possibility that more planetesimals are lurking in the data.

In the meantime, there is the matter of a permanent name for 1992 QB1. The first asteroid to be discovered was named Ceres, after the patron saint of Italy. Jewitt and Luu may take a different tack with the first member of the secretive Kuiper Belt. "We want to call it Smiley, after George Smiley, the spy in John Le Carré's books," says Luu. "We both like the character and were talking about him at the telescope." If, as astronomers suspect, the Kuiper Belt includes thousands of planetesimals as big as this one, many a stealthy character may yet be immortalized.

–Richard A. Kerr