optics systems at the Keck Observatory in Hawaii and the twin Gemini Observatory telescopes in Hawaii and Chile have a shot at resolving the pinprick infrared glows of newly coalesced gas giants in the outer parts of planetary systems around the Beta Pic stars, says astronomer Thomas Greene of NASA's Ames Research Center in Mountain View, California.

Still, Greene maintains, the group's provenance needs more study. Uncertainties in the stars' positions and velocities make it hard to trace their motions back in time to determine whether they shared a birthplace. "If the original cloud was big enough, it could have formed several small clusters with age differences of 5 or 10 million years," he says. It does seem clear that Beta Pic's cluster was a low-mass, loosely bound assemblage that scattered once the stars formed, unlike the tighter Pleiades cluster, Greene says. NASA's Full-sky Astrometric Mapping Explorer, tentatively scheduled for launch in 2004, should track the stars with enough precision to settle the issue, he adds.

In the meantime, Zuckerman and Song believe that further scouring of nearby stars will turn up more relatives. Already, their list contains two stars more massive than the group's namesake. Beta Pic, it appears, is no longer the pick of its own litter.

–ROBERT IRION

ARCHAEOLOGY

Questions Arise Over Second Japanese Site

TOKYO—A team of archaeologists has cast strong doubts on claims that a cave in western Japan contains evidence concerning the extent of early human habitation of the archipelago. The accuracy of the cave findings is also the subject of a suit filed this month by the family of the site's lead scientist, who killed himself after a Japanese news magazine reported that the findings might be bogus. It's the second time in a year that the veracity of an archaeological dig has made headlines in Japan (*Science*, 10 November 2000, p. 1083).

Archaeologist Mitsuo Kagawa led excavations in 1961 and 1962 of the Hijiridaki Cave in Oita Prefecture, on Kyushu Island in western Japan. The digs produced human and animal bones and stone artifacts, some of which Kagawa and his colleagues concluded date back 10,000 years or more. Although the dating has always been controversial, Hijiridaki made its way into Japanese textbooks because it was the only site in Japan where stone tools and human bones have been found together. The cave site was revisited in December 1999 by a research team studying the origins of the Japanese people. After examining both previously and newly collected artifacts, the team issued a lengthy report in June that will be summarized this month in the Japanese journal *Paleolithic Archaeology*.

The report concludes that the bones and charcoal found in the cave are no more than 600 to 700 years old, based on radiocarbon dating. The report does agree that some of the artifacts recovered both in the early 1960s and in the recent excavation are from the late Paleolithic period. But it points to several anomalies. Artifacts ranging from 2000 to 20,000 years old were found mixed together, and in a stratum above the one yielding material that is 600 to 700 years old. The artifacts are made of obsidian, almost certainly from a distant part of Kyushu Island and unlike the chert and rhyolite artifacts found in the area around the Hijiridaki Cave. "The results of the 1999 excavation," the paper concludes, "indicate that the recovered artifacts were not part of the original cave, but were rather the result of a secondary intrusion."

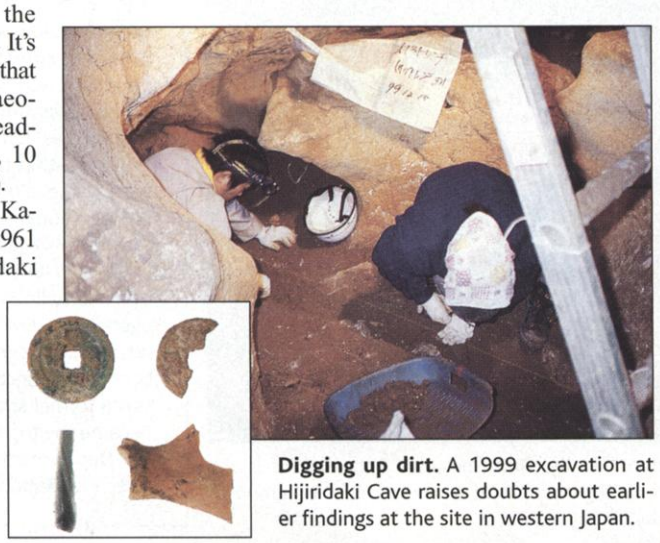
Hideji Harunari, an archaeologist at the National Museum of Japanese History in Sakura City, near Tokyo, and one of the organizers of the recent investigation, believes that "the best explanation for these conditions is that [the 1960s findings] are fake." But Masanobu Tachibana, the team leader and an archaeologist at Beppu University, says he cannot rule out more benign explanations. It is clear, he says, that medieval people used the cave and could have brought in the collection of stone implements for their own purposes: "There are explanations other than Harunari's."

The paper does not speculate further on how the artifacts may have ended up in the cave. And even Harunari says he does not believe that Kagawa was at fault, noting that Kagawa has long held that the Hijiridaki findings needed to be reexamined.

Speaking at an archaeological conference in August 2000, Harunari called the placement of the artifacts "very unnatural." But his comments went unreported until newspaper reporters caught amateur archaeologist Shinichi Fujimura planting artifacts at a second, unrelated archaeological dig in northern Japan last November. *Shukan Bunshun*, a weekly news magazine, ran four articles between January and March of this year suggesting that Hijiridaki might be another example of archaeological fraud. Although the magazine did not identify a culprit, it said that Kagawa was the leader of the 1960s excavations. Kagawa hanged himself on 9 March, leaving a note saying that he was acting "to protest articles alleging our discoveries were faked."

On 1 November his family filed a suit in Oita District Court against *Shukan Bunshun*'s publisher, editor, and the reporter who wrote the stories. The family is seeking $460,000 in compensation and a published apology, claiming that the articles defamed Kagawa and inflicted mental trauma. A written statement from the magazine expresses surprise. "We did not mention an individual's name or print anything defamatory [about Kagawa]," says Seigo Kimata, *Shukan Bunshun*'s editor in chief.

–DENNIS NORMILE



Digging up dirt. A 1999 excavation at Hijiridaki Cave raises doubts about earlier findings at the site in western Japan.

CREDITS: H. HARUNARI

MICROBIAL GENOMES

Sequences Reveal Borrowed Genes

New data emerging from microbial genome sequences are so perplexing that "we can no longer comfortably say what is a species anymore," says Daniel Drell, who manages the Department of Energy's (DOE's) microbial genomes program. Two bugs in particular, described at a recent meeting,* seem to have nabbed enough genes from other organisms that they no longer resemble their supposedly closest relatives—raising fascinating questions about how and why they obtained these new traits.

The genome data may have practical applications as well, notes Drell: Because both microbes also play key roles in geochemical cycles, they may suggest opportunities for cleaner energy sources, more effective pol-

* The Ninth International Conference on Microbial Genomes, 28 October to 1 November, Gatlinburg, Tennessee. *R. palustris*: www.jgi.doe.gov/JGI_microbial/html/rhodopseudomonas/rhodops_content.html; *M. mazei*: www.g2l.bio.uni-goettingen.de/methano.html