

An asteroid hunt finds mysterious object

It took astronomer James V. Scotti several nights before he detected a puzzling pattern in a series of images taken three weeks ago with a telescope atop Arizona's Kitt Peak. These images reveal the motion of a mysterious object that in astronomical terms will come a hair's breadth from Earth on Dec. 5 — passing within 468,000 kilometers, or a little more than the distance between the Earth and the moon.

Could the object, no more than 10 meters across, represent a nearby asteroid? Leftover debris from a space mission? An alien spacecraft? As recently as last week, researchers had ruled out only the last possibility. This week, some say the mystery appears solved.

Brian G. Marsden of the Harvard-Smithsonian Center for Astrophysics in Cambridge, Mass., traced back in time the apparent orbit of the unknown object — dubbed 1991 VG. His calculations indicate that this body probably constitutes a remnant of the rocket that in December 1974 launched Helios-A, a spacecraft that studied the sun.

Scotti calls the conjecture "circumstantial evidence" that will likely remain inconclusive unless researchers can analyze how the body reflects sunlight — no mean feat since the tiny object, though nearby, appears as only a faint speck of light. Irregularly shaped spacecraft debris should tumble faster than an asteroid, he notes, thus exhibiting greater variations in the amount of sunlight it reflects. A natural body would also absorb specific wavelengths of light and thus be distinguishable from metallic debris when viewed through colored filters.

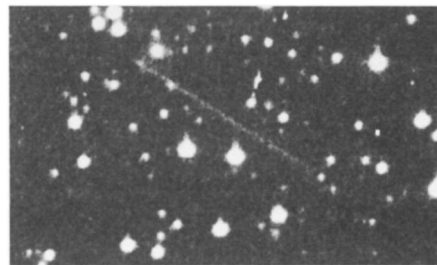
Such analyses may require a larger telescope than the 0.9-meter Kitt Peak instrument called Spacewatch, used since 1990 by Scotti, Tom Gehrels, David Rabinowitz and their colleagues at the University of Arizona in Tucson to automatically scan the sky for fast-moving objects. Indeed, Marsden notes, the European Southern Observatory in Garching, Germany, and several other research groups with large telescopes plan to monitor the body in coming weeks.

Meanwhile, in hopes of identifying the last known orbit for the Centaur rocket that launched Helios-A, NASA has begun delving into its archives. Researchers speculate that the rocket's upper stage might have escaped Earth's tug and begun orbiting the sun. Says Richard Rast, a Lockheed Corp. scientist based at NASA's Johnson Space Center in Houston, "People pay all their attention to the payload and they just totally forget about what happened to the rocket."

Marsden observes that his tentative identification of the mystery object as space debris may seem "boring" compared with the prospect of discovering a

new near-Earth asteroid. "But I think it's brought out the question that we aren't adequately cataloging the artificial junk that's being sent into heliocentric orbit. When something has gone around the sun . . . and has come back to haunt us, I think it's something to think about."

Even if astronomers confirm an earthly origin for 1991 VG, first seen Nov. 6, Spacewatch has already proved its value as an asteroid detector. Last January, astronomers used the telescope, built in 1919, to detect the closest known approach of an asteroid that hasn't crashed through Earth's atmosphere. Known as 1991 BA, that body came within 171,000 kilometers of Earth, or less than half the distance to the moon. Moreover, it measures just 9 meters across, one-tenth the



Asteroid 1991 BA, seen as a streak of light against a background of fixed stars.

Scotti et al

size of any previously detected asteroid. The observation marked the first time that researchers used a sensitive light detector known as a charged-coupled device, routinely employed to image such exotic objects as quasars, to find an asteroid. Rabinowitz and his colleagues report the asteroid's discovery in the Nov. 28 NATURE. — R. Cowen

Antiviral drug could cut chicken pox short

Each year another 3.5 million children in the United States develop the short-lived but intense itching and blistering rash that signals chicken pox. A new research report indicates, however, that immediate drug treatment can free many of these youngsters from traditional therapies — oatmeal baths and those messy applications of calamine lotion — up to three days earlier than usual.

The double-blind study, conducted at 10 university health centers, involved 815 otherwise healthy 2- to 12-year-olds infected with varicella-zoster, the herpesvirus responsible for chicken pox. The researchers, led by Lisa M. Dunkle of St. Louis University, randomly assigned half the children to five days of treatment with oral acyclovir, an antiviral drug best known for its use against genital herpes. The remaining children received a placebo.

Compared with the placebo group, the children on acyclovir developed briefer rashes and fewer chicken pox lesions, the team reports in the Nov. 28 NEW ENGLAND JOURNAL OF MEDICINE. In more than 95 percent of the children treated with acyclovir, the last spots erupted by day 3; all of these youngsters "had completely healed lesions by day 4," the researchers note. In contrast, 80 percent of the children receiving the placebo finished breaking out by day 3, and new spots continued to erupt on most of the remaining 20 percent through day 6. Moreover, fewer of the rash spots ever blistered in the drug-treated group. These children also suffered less fever, malaise, respiratory symptoms and itching than their counterparts in the control group.

Acyclovir may prove useful for early treatment and for treating other chil-

dren in the family, especially if it becomes available over the counter, asserts Philip A. Brunell of Cedars-Sinai Medical Center in Los Angeles. "Untreated, a second child is expected to have a more severe illness than the first child," he notes in an editorial accompanying the research report.

The Food and Drug Administration is now considering whether to permit acyclovir's maker to add chicken pox to the drug's recommended uses — a review undertaken "largely in response to our data," says study coauthor Ann M. Arvin of Stanford University.

The new findings also indicate that children treated promptly with acyclovir may be well enough to return to school several days earlier than the American Academy of Pediatrics (AAP) recommends, notes Dale A. Moore of Pennsylvania State University. On a national scale, such early returns could spell big economic savings, Brunell adds.

At present, the AAP advises parents to keep a child home for six days after the initial rash emerges. With the majority of U.S. parents working outside the home, that can translate into significant wage losses for a parent who stays home to nurse the sick child. More than 95 percent of chicken pox's economic burden in the United States — some \$400 million annually — "is attributable to parents' loss of income from work," Brunell says.

Nor should a child's early return aggravate the infection's spread, Moore says. In the June 1 AMERICAN JOURNAL OF EPIDEMIOLOGY, she presented results showing that nearly all transmission of chicken pox — probably through coughing — occurs before the rash breaks out.

— J. Raloff