

A moon for Metis?

In recent years, a number of astronomers have cited observations suggesting the possibility that some asteroids may have moons. None of the cases has been conclusively proved, but the list of tantalizing candidates continues to grow. The latest addition is the asteroid 9 Metis, reported in the current ICARUS (46:285) by a group of Chinese researchers.

From December 1979 through February 1980, Metis was photographed several times through the 1-meter reflector at the Yunnan Observatory in Kunming and the 60-centimeter reflector at Purple Mountain Observatory in Nanjing. On six of the resulting plates, according to Wang Sichao and colleagues from the two facilities, the image of Metis showed an "elongation," or bulge, such as might represent a nearby object that simply could not be seen as separate from Metis itself in the atmospherically blurred photos. Although they are subtle features, the bulges do not seem to be due to defects in the film emulsion, since they all point in the same direction. Nor were they caused by motions of the telescopes, since stars on the same plates were still "round." Having also checked the Palomar Sky Survey for a possibly overlooked dim star, the authors "suggest that there is a possible satellite orbiting 9 Metis."

Calculations indicate that the satellite, if such it is, orbits about 1,100 kilometers from its host-asteroid. Assuming similar surface reflectivities for the two objects, and a previously reported diameter for Metis of 153 km, the satellite would be about 60 km across, orbiting Metis every 4.61 days.

Further (though still inconclusive) evidence comes from observations made in December 1979 in Venezuela, where astronomers had gathered to view the passage of Metis between the earth and a star. The asteroid itself is not seen in such studies, but its size can be determined by timing the period over which it blocks out the star's light. In some cases, observers have noted "secondary occultations," or additional blinks of the starlight, as could be caused by other objects in the way. According to David Dunham of the International Occultation Timing Association, the Metis observations were accompanied by just such a secondary event, suggesting a possible object about 65 km across with an orbital period of 4.59 days—similar to the results calculated by the Chinese researchers.

Meteorites from Mars?

Although it may be many years before spacecraft are sent to collect samples of Mars (SN: 7/18/81, p. 42), a researcher believes that at least two pieces of the red planet may already be on earth. They are meteorites, found in Antarctica in 1977 and 1979, representing a rare type known as shergottites.

The rocks appear (from isotopic dating) to have crystallized from a molten state no more than 1.2 billion years ago. Most other meteorites are believed to have formed about 4.5 billion years ago at the time of the solar system's formation, when there was a supply of short-lived radioisotopes available to heat them. The more recently molten examples could instead have been heated volcanically, but that, according to Harry Y. McSween of the University of Tennessee, would seem to suggest that they came from an object larger than most asteroids, commonly proposed as meteorite "parent bodies." Mars is not only larger, but closer to earth than most asteroids, and it has been proposed that eruptions through water-rich Martian permafrost could have generated steam that helped accelerate the ejecta to escape velocity. Finally, other researchers have reported (A. K. Baird and B. C. Clark, ICARUS 45:113) that Viking-lander analyses of Martian surface material indicate a composition very similar to shergottites if one subtracts certain elements that could have been deposited there as volcanic gases.

Newborns may recognize own cries

Parents who cringe at the wail of their newborn may be surprised to learn of the latest pacifier from Georgia: a tape of the child's own cries. Researchers noted a decade ago that calm infants cry in response to the crying of other infants, demonstrating what psychologists call "empathetic distress." Curious about whether the response was innate or learned, Grace B. Martin of Armstrong State College in Savannah, Ga., and Russell D. Clark of Florida State University carried the experiment a step further and found that babies less than 35 hours old stop crying when they hear recordings of their own protests, but cry harder when they hear another infant's cries. "It is recognition [by the baby of its own voice] at some level," Martin says. "But I am personally convinced that it is affective and not cognitive."

Martin and Clark tested 36 boys and 34 girls in a Savannah hospital nursery by playing a 4-minute tape of cries to either "calm" or "crying" babies. (Those infants who cried more than 3 of the 4 minutes prior to the test were designated "crying," while those who were alert but vocalized less than 1 minute in the pretest were labeled "calm"). In addition to the finding in crying babies, the data showed that a calm infant who heard a tape of its own voice did very little crying compared to a baby who heard the cry of another infant. Tapes of an older child crying, and the tape of a distressed infant chimpanzee elicited "almost no response at all" from the newborns, indicating that the infants were reacting to the sound of a newborn cry and not merely to an aversive noise, Martin says.

Lest parents of older children rush out to buy tape recorders, Martin warns that the soothing effect vanishes as the child ages, perhaps as early as 6 months after birth.

Convincing consumers to conserve

A review of attitudes about energy conservation since the 1974 oil embargo indicates that although more than half of all those surveyed believe that the energy problem is real and serious, "Belief in the energy crisis is not sufficient by itself to generate acceptance of conservation policies, and may even backfire into rejection of such policies if the situation is seen as virtually hopeless."

In a report in the Spring JOURNAL OF SOCIAL SCIENCES, Marvin E. Olsen of Washington State University also noted that a diffuse sense of obligation to conserve is not nearly as salient to the consumer as is a personal event (for example, waiting in a long gas line, or cutting heating costs after home insulation).

Convincing consumers that conservation is important is only half the battle say Stuart W. Cook and Joy L. Berrenberg of the University of Colorado in the same journal. Motivating people to act on such beliefs requires additional behavioral incentives such as knowledge of how to conserve and involvement in community conservation issues. Financial incentives, although commonly employed, often are not large enough to significantly change behavior, the researchers say, and financial disincentives, such as fines for excess consumption, risk alienating the consumer who may temporarily suppress a behavior, but not eliminate it.

Work thwarts fatherly execs

Do corporations mean what they say when it comes to their perceptions of who takes care of children? Eighty-three percent of the 374 companies that responded to a recent survey said they believe that more men than ever before are feeling the need to share parenting responsibilities. Only 9 percent of the companies, however, offer paternity leave, reports the Catalyst Career and Family Center in New York City.