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Cover: The parasitic milkweed beetle, *Tetraopes sublaevis*, feeds on the Sonoran desert milkweed, *Asclepias erosa*, after severing latex-secreting canals in the leaves that would otherwise trap the insect in gummy fluid. The plant's sophisticated defense strategy and the beetle's attempts to circumvent it exemplify the evolutionary race between host and parasite. (Photo: Brian D. Farrell)

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Letters

Diamonds are forever

"Diamond Fever" (SN: 8/4/90, p.72) led me to think about the effects of mass-producing a material that is indestructible. Hasn't plastic taught us anything?

I would be interested to know whether the by-products of the CVD process for manufacturing diamonds are harmful to the environment and, if so, what steps will be taken to dispose of them in a nontoxic form. And when I and thousands of others are finished with our diamond-coated items and want to get rid of them, what ecological tragedy will result?

Deborah Feller
New York, N.Y.

Experience with plastic has taught us something, it seems. More and more engineers today try to design materials and structures with a "cradle-to-grave" perspective — that is, with an eye on the sound disposal of their products as well as their manufacturing and service lifetimes.

As for synthetic diamond, a plastics-like envi-

ronmental tragedy seems unlikely. The volume of synthetic diamond would never even approach that of plastics manufactured. For the most part, the new diamond will come in the form of coatings one-millionth of a meter thick. Many environmental problems linked to plastics stem from foam-making agents such as CFCs or from the organic chemicals that make up the polymers. Diamond is virtually nothing but carbon — the same stuff as graphite or charcoal. As with any new technology, however, it would be wise to look very closely at potential sources of environmental threats — such as the organic gases used to make synthetic diamond — that may not be obvious during the technology's development stage but that might possibly loom to tragic proportions later.

— I. Amato

Unpopular population

Years ago, when a large space-debris population was a politically unpopular notion, I had great difficulty convincing NASA that the population of near-Earth debris down to a size of 1

centimeter was 30,000, let alone 150,000 as indicated by radar observations last year ("Tallying Orbital Trash," SN: 7/14/90, p.29). Our research was done by optical means and was sponsored by Kessler's NASA group.

In your article, the statement attributed to Kessler that only 1-meter-diameter objects are visible at geosynchronous distances is wrong. We used to routinely track objects one-tenth that size, making conservative assumptions regarding albedo and phase-function losses.

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