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This Week

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Cover: Neandertals may have used stone points, like these found in the Near East, as spear tips. Some Neandertals may have hunted regularly and invented a distinct style of jewelry. **Page 72** (John J. Shea, State University of New York at Stony Brook)

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Letters

Craters off target

In "Target Earth" (SN: 5/16/98, p. 312), the three craters were determined to be parallel to the Earth's equator and therefore deemed to have been parts of a single astrophysical event. However, if they indeed were part of a single event, wouldn't their craters have been aligned 23.5° from the Earth's equator, in the plane of the ecliptic [Earth's orbit], the most likely source of such asteroids?

Elliot H. Pearl
Brainardsville, N.Y.

No. The orientation of this sort of crater chain should be parallel to Earth's equator at the time and not parallel to the plane of the ecliptic. Think of shooting a fixed gun at a globe. If the globe is stationary, all the shots will hit the same point. If the globe is spinning, the shots will hit at various points on a line parallel to the equator. It doesn't matter whether the gun is aimed horizontally or tilted at an angle of 23.5°, *a situation analogous to an asteroid or comet originating in the plane of the ecliptic.*
—R. Monastersky

Who says the comet or asteroid has to first be in Earth's orbit (or be fragmented by a close pass of planet Earth) in order to form a crater chain on Earth? An alternative scenario would be the following: An object from deep space passes near Jupiter, becomes fragmented by Jupiter's gravitational field gradient, and is deflected towards Earth. This is certainly possible for a weakly constructed object originating in the Kuiper belt.

Naturally, the probability of such an interaction would be low. But my intuition is that a gravitational deflection of an object's orbit is more likely than a gravitational capture of the object. Plus, with the 4.5 billion year history of our solar system, even a low probability event becomes possible.

Bob Brazzle
University City School
University City, Mo.

An object could get fragmented on a pass by Jupiter, but the pieces would drift too far apart by the time they reached Earth or another planet, says William Bottke of Cornell University. "By the time they get close enough to hitting a planet, they're so far dispersed that they don't create a crater chain." Although one of the fragments may hit, the other ones would be so far ahead or behind that they would completely miss Earth.
—R. Monastersky

What type of spray?

Dubbing the new microbe-containing spray Preempt a drug ("Spray Guards Chicks from Infections," SN: 3/28/98, p. 196) is misleading and underestimates the power of such microecologic antibiotic approaches. Indeed, such apparently novel approaches were employed by Eli Metchinkoff and others in the 1890s. This patriarch of bacteriology employed lactobacillus as a treatment to "crowd out" virulent bacteria in the preantibiotic era. Many bacteria have already become resistant to antibiotics. As we approach our own *fin du siecle*, we may be using products such as Preempt more and more frequently. Such products should better be called "probiotics," rather than "antibiotics."

James A. McGregor
Professor of Obstetrics and Gynecology
Denver Health Medical Center
University of Colorado School of Medicine
Denver, Colo.