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COVER: A variety of research approaches are bearing down on the bacteria responsible for dental decay. Innocuous bacteria, vaccines, antiseptics, controlled release devices and artificial sweeteners are all being investigated in the hope of eliminating cavities as a major health problem. See p. 394. (Drawing: John R. Ellis)

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LETTERS

The next ice age

Briskin and Harrell's discovery of a 413,000-year cycle in the earth's climate (SN: 11/10/79, p. 324) not only confirms the Milankovitch theory that ice ages are due to variations in the earth's orbit, but has important implications regarding the time of occurrence of the earth's *next* ice age. At present, we are experiencing a warm interval that started about 10,000 years ago. In trying to determine when this interglacial interval will come to an end, climatologists have looked to see how long these intervals have lasted in the past. They found that the last three warm intervals only lasted about 10,000 years each, which implies that the next ice age is almost upon us.

This new discovery, however, implies that we should look for our model not at the last few interglacial intervals, but at the interval which occurred approximately 400,000 years ago. Indeed, the most accurate available calculations of orbital motion, by A. L. Berger, show that the strongest oscillation in the orbital eccentricity is the one with a period of 413,000 years, not the more commonly known ones with periods of approximately 100,000 years.

Looking back at the paleoclimatic data of Hays, Imbrie and Shackleton (SN: 12/4/76, p. 356) one finds that the interglacial interval 400,000 years ago lasted for nearly 25,000 years! It appears, therefore, that the next full-blown ice age may not be upon us for another 15,000 years.

This does not, of course, say anything about shorter-term periodicities in climate, as the methods of Hays et al. do not allow the resolution of periods under 6,000 years. Other work, however, indicates a 2,500-year period, which was responsible for the "Little Ice Age" a few centuries ago, but is not due again for another 2,000 years.

George Fergus
Schaumburg, Ill.

Re: "Ice Ages: As the World Turns" (SN: 11/10/70, p. 324). Your report on Briskin and Harrell's research supporting Milutin Milankovitch's 1920 extraterrestrial cause for ice ages suggests so well two points:

1) The cyclic nature in the evolution of scientific theories, as also seen in the case of Darwin's theory on the evolution of oceanic islands.
2) The continuing slaughter of a fine Serbian name — Milankovitch. Substituting a *b* for a *v* one would expect only from his peer opponents years ago, not from the pen of such a well-edited magazine as SCIENCE NEWS!

Whitman Cross II
Philadelphia, Pa.

Praising CESR

Re: "Beams In PEP" (SN: 11/10/79, p. 330): I was most disturbed that this article made no mention whatever of CESR, the electron-positron colliding beam facility at Cornell's Wilson Synchrotron Laboratory.

Although work is currently being done in the region of the Upsilon (slightly less than 5 GeV per beam), CESR is currently designed to range up to 8 GeV per beam with a capability of extension to 10 GeV per beam. This certainly falls in the energy range (5-19 GeV) mentioned by Mr. Thomsen as being accessible only to PETRA and in the near future to PEP.

Further, CESR is already operational, having first stored beams early this past summer and becoming truly operational in early September when hadronic events were first observed.

Work is now in progress on bringing the luminosity up to the design level of $10^{32} cm^{-2} sec^{-1}$, and increasing the capabilities of CLEO (the main detection system) by groups from Cornell, Harvard, Rochester, Rutgers, Syracuse, Vanderbilt and others.

Geoffrey G. Parkhurst
Rochester, N.Y.

A nudge for NASA

When I first saw the story about NASA's plans for Halley's comet in the Wall Street Journal of October 23rd, it contained what to me was the chilling line, "At the end of the ion-driven spacecraft's look at the comet Tempel 2, the machine may give the comet's head a physical nudge just to see what happens."[!]

SCIENCE NEWS's story says, "...perhaps even ending with a final impact on the comet's presumably icy nucleus."

I don't expect NASA (or the Wall Street Journal) to have an institutional memory. But SCIENCE NEWS?

Remember Skylab?

Not to mention that the space shuttle should some time ago have been operating.

Or, NASA's brilliant idea to dump needles in the stratosphere, which succeeded in messing up communications.

Perhaps someone (preferably in an editorial) should "nudge" (or "Impact [up]on") NASA.

Bert Cowlan
New York, N.Y.

Faulty placement

Loved your photos of new Stanford Linear Accelerator — especially how you showed everything mounted on adjustable jack screws. Hard to imagine delicately aligning over 2 km. of ring to absolute accuracy!

BUT WHY DID THEY BUILD IT RIGHT NEXT TO THE SAN ANDREAS FAULT?

Edward M. Roberts
Glen Head, N.Y.

(They built it right across the San Andreas fault. That act has had its share of criticism, but the same claim is made for SLAC as is made for San Francisco's two bridges: Its alignments are earthquake proof. Readjustments could be quickly made by these jackscrews, etc. — Ed.)