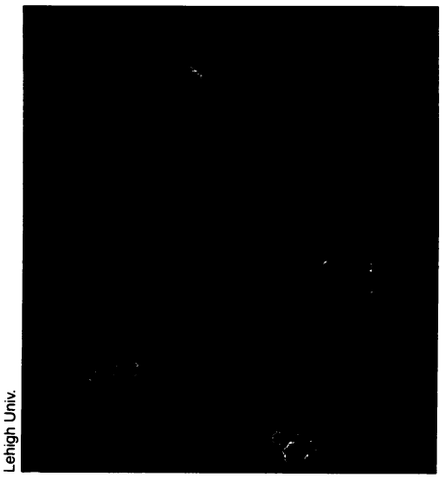
Tracking through prehistory



Lehigh Univ.

Footprints have endured for animals that tramped through prehistoric Pennsylvania and for early human inhabitants of North America. Recent findings of such tracks give investigators an opportunity to learn about the continent's previous inhabitants.

"What we have is an original record preserving a moment in time about 180 million years ago," Donald Baird of Princeton University says of a site discovered by James A. Turner Jr. a few months ago near Bethlehem, Pa. "We have tracks of animals ranging in size from those of little, lizardy animals feeding on insects, to small dinosaurs feeding on lizards, to bigger dinosaurs feeding on anything smaller than they were." The advantage of tracks over fossil bones, Baird says, is that they are not rearranged and redistributed over time.

Among the thousands of tracks at the dinosaur site are lizard-like prints large enough to have been made by the winged, leaping lizard typically associated with the Triassic period and tracks of a crocodile-like animal, *Phytosaur rutiodon*, never before described in Pennsylvania. J. Donald Ryan and students from Lehigh University have also found tracks of a "mystery" animal, a species of Chirotherium that may have been armor-coated and six to eight feet long. Many of the prints have yet to be identified.

More recent tracks, but of humans, have been unearthed by an archaeological team in the Mojave Desert. Dated at least 5,000 years old, the human footprints are the oldest found in North America, says Carol Rector, head of the University of California at Riverside group. Although there is evidence that humans were present on this continent 40,000 years ago (SN: 3/26/77, p. 196), data on early human prehistory is extremely limited.

While excavating a later prehistoric village, Rector and colleagues came across a track of more than 60 human and animal footprints buried about a meter below present ground surface. The human prints, impressed in a silty clay deposited along an ancient channel of the Mojave River, are of five different sizes, ranging from child-size to adult. The animal prints include coyote, racoon and deer or antelope tracks. Artifacts, including a quartz three-sided drill, were discovered near the tracks. The Mojave site is now threatened by planned construction of a wastewater reclamation facility. □

U.S. gears up for test-tube babies

Now that a so-called test-tube baby has been successfully delivered in England and one has reportedly been born in India, test-tube babies will probably also soon see the light of day in the United States. The East Virginia Medical School in Norfolk is setting up a clinic to make lab fertilization and implantation of embryos available to infertile women. The clinic will be headed by a physician husband-wife team, Howard Jones and Georgeanne Seegan Jones. The scientists who pioneered the technique in England — Patrick C. Steptoe and Robert G. Edwards — will serve as advisers. The Joneses expect to be ready to start accepting patients about a year from now.

The reason why the East Virginia Medical School is going ahead with the procedure at this time is that its clinic will be supported by $500,000 in private funds, not by federal money. Any human experimentation in federally funded institutions must first be approved by the Ethics Advisory Board of the Department of Health, Education and Welfare, and the board, formed earlier this year, has only recently begun to review applications for laboratory fertilization of human embryos. Nonetheless, a number of U.S. medical centers with outstanding reproductive biology departments are interested in performing the technique. For instance, Johns Hopkins Medical Institutions in Baltimore are making preliminary plans for doing it, provided that their plans are approved by the HEW Ethics Advisory Board and their own university.

One million American women who are not able to have children because of defective oviducts might be able to profit from the technique. □

Ozone destruction exceeds predictions

A revised estimate released by the World Meteorological Organization puts the eventual destruction of ozone by chlorofluoromethanes at 15 percent, about one and a half times higher than some earlier predictions. According to the estimate, part of a recent report by the WMO, the global average ozone depletion based on 1977 rates of CFC use will reach 5 percent in 20 years, finally reaching a steady state when depletion has reached 15 percent (SN: 9/23/78, p. 212).

The estimate is based on the "best available" numerical model of the atmosphere using the most recent measurements of total ozone, ozone distribution in the atmosphere, and *in situ* measurements of chemical reactions and trace gases, such as NO and NO_2. The report notes that despite bans on the use of CFC's, the removal of the CFC's from the stratosphere is slow and they will continue to accumulate many years after their use is ended. As of December 15 the Environmental Protection Agency and the Food and Drug Administration will ban about 97 of the former uses of CFC's; on October 15 a ban was placed on bulk production of the chemical for nonessential uses. Other findings of the statement, which was prepared by ozone specialists meeting in Switzerland last October, include:

- Confirmation that the current number of supersonic transports flying below 25 kilometers (the height of the maximum ozone layer) will have a "negligible" effect on the ozone layer and even a larger fleet will have an "insignificant" effect.
- There is "no likelihood" of significant near-term change in ozone due to increasing use of agricultural fertilizers, but long-term studies are needed.
- A 15 percent reduction will mean a 30 percent increase in ultraviolet radiation to the earth's surface. The WMO made no statement about the possible biological effects.
- A 15 percent ozone reduction will mean a 10°C rise in the temperature of the upper stratosphere but the effect on climate is uncertain.

The conclusions of the WMO report, as well as those of other yet-to-be-completed studies, will be included in a National Academy of Sciences report on ozone expected to be released early next year. □

Human sexual interest at ovulation

Because each species is biologically primed to perpetuate itself, one would assume that both men and women would be more interested in sex at the time of ovulation than at other times of a woman's cycle. After all, both male and female monkeys, which are nonhuman primates, prefer sex at the time of the female's ovulation (SN: 2/19/77, p. 118).

Well, such an assumption might be true, if it weren't for one confusing variable — human volition about conception. As a result, human sexual behavior at the time of ovulation is much more complex. So report David B. Adams, Alice Ross Gold and Anne D. Burt of Wesleyan University in Middletown, Conn., in the Nov. 23 NEW ENGLAND JOURNAL OF MEDICINE.

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