that a bogus context was provided." In no way does this prove anything. Of course the artifacts are less than 5000 years old. Cresson is said to have collected them from the Piedmont surface as well as from the narrow estuarine plain. He never said that he found the Holly Oak pendant in immediate stratigraphic context with the other artifacts. Many were collected from spoils along Naaman's Creek several kilometers away. The only true assemblage that we know of is that created in museum drawers (*7*). Furthermore, the artifact assemblage from Naaman's Creek is consistent with other local assemblages of certain provenience, contrary to the statements by Sturtevant and Meltzer (*8*).

All of the above begs the question. If an answer of fraud or truth is ever to be found, it must be based on the artifact itself. Contrary to suggestions in the letter, many "experts" have examined the specimens over the past two to three decades and expressed the opinion that the artifact was of genuine antiquity (*1*).

At least three scientists have requested permission to have carbon-14 or amino acid dates made from a portion of the specimen. These requests have been denied on the basis that previous chemical treatment might render the dates invalid. Surely the issue is one of validating the pendant. Scientific methodologies applied to the specimen would provide a definitive answer. But in their reference 6, Sturtevant and Meltzer reject these methodologies as a possible answer to the dilemma of the Holly Oak pendant, thus precluding debate based on deduction from fact. We suggest that *trying* geochemical and other scientific and statistical methodologies is better than repeatedly arguing the same points without clear definition.

In our opinion, the letter restates an old story. The authors substitute opinions or circumstances for "evidence" and reach a conclusion based on few, if any, "facts." Let us hope that this potential national treasure will be well preserved until such time as scientists will be allowed to apply scientific methodologies such as geochemistry and scanning electron microscopy, as well as statistical pattern analysis. Then, indeed, we may prove or disprove the antiquity of the Holly Oak pendant.

JOHN C. KRAFT
Department of Geology,
University of Delaware,
Newark 19716

JAY F. CUSTER
Center for Archaeological Research and
Department of Anthropology,
University of Delaware

References and Notes

1. J. C. Kraft and R. A. Thomas, *Science* **192**, 756 (1976).
2. J. F. Custer [in *Delaware Prehistoric Archaeology* (Univ. of Delaware Press, Newark, 1983)] succinctly discusses the many aspects of Paleo-Indian peoples' occupancy of Delaware and their environments and presents references to proboscidian megafauna and late Pleistocene–early Holocene dates within 100 to 200 kilometers of Holly Oak.
3. F. C. Whitmore, K. O. Emery, H. B. S. Cooke, D. U. P. Swift, *Science* **156**, 1477 (1967). Custer (*2*, p. 46) refers to mastodon and mammoth occurrences in New Jersey, Pennsylvania, and New York 10,000 to 12,000 years ago.
4. Did a barrier exist along what is now the Delaware border? Could not mammoths have walked 100 to 200 kilometers to see our lovely state? Did not Paleo-Indian peoples walk? Surely, of all American Indians, the megafaunal hunters must have traveled rapidly and great distances. H. A. Semken [in *Late-Quaternary Environments of the United States*, vol. 2, *The Holocene*, H. E. Wright, Jr., Ed. (University of Minnesota Press, Minneapolis, 1984), p. 185] presents documentation for up to 11 proboscidian finds from the early Holocene 5,000 to 10,000 years ago and explains the statistical sense of extinction when taken from the fossil record. One could even argue that the "last mastodon to die" has not yet been found and may have died in the late Holocene, but that of course would only be speculation.
5. J. F. Custer, *Practicing Environmental Archaeology: Methods and Interpretations*, R. Moeller, Ed. (American Indian Archaeological Institute, Washington, Conn., 1982); R. A. Thomas and N. Warren, *Bull. Archaeol. Soc. Del.* **8** (1970); see also (*2*).
6. True peats are rare in Delaware; however, organic marsh muds, often referred to as "peat," are not rare.
7. The conclusion of fraudulent intent does not stand even if Cresson thought that the large number of artifacts he collected in northern Delaware and southeastern Pennsylvania's Piedmont and estuarine plain *were* penecontemporaneous. It only shows his limitations as an archeologist given the state of the art in the mid- to late 19th century.
8. J. Swientochowski and C. A. Weslager, *Bull. Archaeol. Soc. Del.* **3**, 2 (1942); J. F. Custer, *ibid.* **13**, (1982); C. Kier and K. Calverly, *Pa. Archaeol.* **27**, 2 (1957); R. A. Mounier, *Bull. Archaeol. Soc. N.J.* **32**, 1 (1975); D. Cross, *Archaeology of New Jersey* (Archaeological Society of New Jersey, Trenton, 1941), vol. 1; *ibid.* (1956), vol. 2; R. M. Stewart, *Shady Brook Site* (New Jersey Department of Transportation, Trenton, 1981). These sites date from various time periods, but they show that Sturtevant and Meltzer are not correct when they say that the artifact assemblage composition itself proves a "bogus context."

Animal Research Guidelines

As scientists we have a duty to society to continue to make progress in advancing knowledge, in saving lives, and in alleviating suffering. This duty necessitates the continued use of animals in those areas of research where alternatives are not yet available.

The ethical principle of reverence for life demands, however, that any gain in knowledge be achieved at the cost of the least possible suffering to the fewest possible animals. The New York Academy of Science's Animal Research Committee is working with representatives of several scientific societies and industry toward this goal. We have initiated a program to develop a set of interdisciplinary standards and guidelines for the use of animals in research and education. The primary focus of these standards and guidelines is the use and treatment of animals in experiments, and the emphasis will be on those procedures which minimize pain or distress. Once established, these standards and guidelines will form the basis of an educational program directed toward student-scientists and others involved in animal research.

A system of voluntary regulation of biomedical and behavioral research by scientists will ensure the moral stewardship of experimental animals without prejudicing the scientific method. Our program takes a first step toward the implementation of such a system.

We would appreciate hearing from scientists about procedures for animal experiments which have been developed to minimize pain and distress. We urge them to contact any member of the committee at the address listed below.

JERI SECHZER
*Ad Hoc Animal Research Committee,**
New York Academy of Sciences,
2 East 63 Street, New York 10021

*Jeri Sechzer, chair; other members are Doreen Berman, Barbara Carter, Bruce Ewald, Nancy Geller, Anne Griffin, Phyllis Grodsky, Leon Lewis, Brian Morgan, Robert Scala, Philip Siekevitz, Philip Sechzer, and Dennis Stark.

"Implausible" Inventions

I would like to comment on the issues raised by R. Jeffrey Smith in his article "An endless siege of implausible inventions" (News and Comment, 16 Nov., p. 817). Many of the really profound inventions in use today, such as the airplane, electric motor and generator, telescope, microscope, and so forth, grossly violated the best theories of their day. They were also developed by persons outside the pale of orthodoxy. The second law of thermodynamics notwithstanding, some of today's physical theory will probably also be overthrown by new inventions that require new theory to explain them. To proclaim modern theory immune to major change is historically unjustifiable. Joseph Newman's motor may or may not work as he claims, but the patent examiners do the public a disservice in assuming a priori that it cannot.

JAMES DEMEO
Department of Geography-Geology,
Illinois State University, Normal 61761

Erratum: In the next-to-last paragraph of the letter from Adrian R. Morrison and Peter J. Hand (31 Aug. 1984, p. 878), the first sentence was incorrectly punctuated. It should have read, "On the basis of knowledge we have gained as expert witnesses for the defense in two court trials, an appeal before a Public Health Service board, and the HHS meeting, we can make one thing immediately clear."