Letters

Monte Verde

In his report "Skepticism fades over pre-Clovis man" (Research News, 9 June, p. 1140), Roger Lewin remarks that I have not been enthusiastic about C. Vance Haynes' idea that a team of outside investigators should visit the Monte Verde archeological site to assess it. Neither Haynes nor anyone else has approached me about such a visit. I am very much in favor of obtaining outside opinions about our research at Monte Verde. In fact, I have always encouraged other scientists to visit both the site and my laboratory at the University of Kentucky where most of the artifacts and site documentation on loan from the Chilean government are housed. So far, only two archeologists have visited the site and none has come to the university.

Lewin also mentions that I have traveled across the country since 1976 trying to convince archeologists that Monte Verde was a valid site. I gave the first public talk on the site in 1982 at Cornell University.

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Preventing Fraud

Growing concern about the integrity of biomedical research and the publication in peer-reviewed journals of a few articles subsequently found to be fraudulent has prompted critics to demand that editors and reviewers assume more responsibility for the detection of fraud.

Fraudulent research is best discovered by the miscreant's co-workers and supervisors in the laboratory *before* it is submitted for publication. It may also be suspected *after* publication, if other workers in the field are unable to confirm the results. Of course, the optimal solution is prevention, and this is the primary responsibility of sponsoring institutions, which should insist that senior scientists pay more attention to the education and supervision of their junior coworkers.

We believe, however, that scientific journals could make a useful contribution toward the elimination of fraudulent manuscripts by instituting a relatively simple change in editorial policy. We suggest that editors require all coauthors of multiauthored papers—which nowadays means virtually all papers—to sign a covering letter stating that each coauthor has not only read and approved the submitted manuscript but is prepared to take responsibility for it. The known cases of fraud in science have been the work of one individual. If each coauthor were made accountable for the integrity of the work being submitted for publication, research teams would pay closer attention to each member's work, and the likelihood of individual fraud would be reduced. Coauthors who are not willing to accept such responsibility should perhaps reconsider the appropriateness of their coauthorship. Although coauthors may legitimately make their greatest contributions in only one or another aspect of a study, they should be sufficiently familiar with the entire work to share not only in the credit for the published work but also in the responsibility for its honesty.

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Response: We print this letter because the opinion of two highly responsible scientists with regard to such an important matter deserves serious consideration. *Science*'s policy and its "Information for Contributors" already state that all authors are responsible for a manuscript that they coauthor. This editor, therefore, believes that a second statement essentially saying, "We mean what we said," dilutes the force of our instructions and is not likely to deter those intent on ignoring the rules.

—DANIEL E. KOSHLAND, JR.

MIT's Industrial Liaison Program

Mark Crawford, in his article "MIT-industrial links draw congressional attention" (News & Comment, 9 June, p. 1136) comments on the behavior of the faculty of Massachusetts Institute of Technology (MIT) who participate in the Industrial Liaison Program (ILP). As one of those participants, I offer the following comment.

Crawford suggests that the ILP provides an "advance look at key technologies." However, in approximately 40 industrial interactions per year over the past dozen years initiated through the ILP, I cannot remember ever giving any company, foreign or domestic, any data or information from my research that was not either (i) already published in the open literature or (ii) so general as to be totally separate from my research. Visits by companies, both foreign and domestic, tend to fall into several categories. The first type of visitor is the "friendly colleague" who requests a tour of the laboratory and a general discussion of my research. I host such visitors equally whether their visit is arranged through the ILP or whether they contact me directly. It is simply a matter of scientific courtesy that any researcher provides to another. I receive the same treatment when I visit another university or an industrial company's research laboratories. No amount of government regulation could or should prevent me from meeting with my colleagues in this manner.

Another type of visitor is the research manager on a "fishing expedition." He is usually too far removed from science or engineering to know or even care about the details of my research. He is looking for general areas of mutual interest that might lead him to fund a research project, hire a consultant, or place a visiting scientist or student in our laboratory. Occasionally one receives a visit from the "salesman." This is a person who has a new idea or a new product and has come to advertise his development. Sometimes they are merely seeking approval and are asking for a professorial "blessing." In other instances they are looking for applications or markets. In these cases the technology transfer is primarily from industry to the university. Personally, I learn a great deal about the technological sophistication of different industries in different countries from these visits. The vast majority of international visits fall into these three categories.

The final category consists of companies looking for advice. These are mainly domestic companies who use the faculty member as a consultant during a 1-hour visit. These "consulting visits" contain the greatest level of technical discussion, although they rarely fall directly into my area of research. The interaction here is no different from that of any faculty member doing normal consulting, except that I am "paid" by MIT rather than the company directly. If the consultation exceeds 1 hour in duration, the company is usually asked to arrange a formal consulting agreement directly with the professor.

As can be seen, most of the ILP industry-faculty contacts of which I have knowledge have been identical to those that would be provided to any person who knows who to contact at MIT. In my experience, the ILP has not provided any privileged access to information, but has merely facilitated the flow in information already available.

The scientific interactions that I have had

through the ILP have differed in no way from the interactions I had when I served for 13 months as a liaison scientist with the U.S. Office of Naval Research–Tokyo in 1984–1985. How can Congress praise that program as a model of international scientific interaction, yet condemn the interaction when I do the same thing as an MIT faculty member through the ILP?

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NASA and Intellectual Quality

I was appalled to read in the 18 August issue of *Science* (Research News, p. 699) a statement, attributed to unnamed members of the astronomical community, that the intellectual quality at NASA centers is "mediocre at best." If these unnamed astronomers have the courage to identify themselves, I will personally invite them to visit the NASA-Ames Research Center to explain their point of view in face-to-face discussions with our outstanding scientific staff. We would point out in these discussions that many scientists here at Ames—and elsewhere within NASA—have passed up opportunities to join or remain on university faculties in favor of less well-paying civil service positions in which our efforts are largely devoted to developing new scientific opportunities for the entire astronomical community.

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Animal Experimentation: Context of a Quote

My attention has been called to a letter by Brandon P. Reines (11 Aug., p. 583) citing a statement of mine that seems to align me with the antivivisection movement.

I did publish an article in 1979 (*1*), giving a history of the development of our knowledge of hepatitis and pointing out how much was learned by clinical observation alone. Reines plucked out these words: "progress by the study of man is by no means unusual, in fact, it is more nearly the rule." Of course I stand by that, but its use in the context of his letter is a distortion of my belief and my practice. As I said in another section of the same article, clinical observations may provide leads and these may need to be pursued by disciplines other than pure clinical observation. Most of the research I have engaged in over the past half century has involved use of experimental animals (mice, rats and rabbits).

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REFERENCE

1. P. B. Beeson, *Am. J. Med.* **67**, 366 (1979).

Erratum: In the legend of figure 3 (p. 1437) in the Research Article "Synthetic amphiphilic peptide models for protein ion channels" by J. D. Lear *et al.* (27 May 1988, p. 1177), the holding potential for the $(LSLLLSL)_3$ peptide should have read, "−150 mV" instead of "−120 mV." In the same legend, the duration intervals of the plots in C, E, and F should have been given as 20 msec, 0.5 msec, and 20 msec, respectively.

Erratum: In the legend of figure 4 in the Research Article "Identification of the cystic fibrosis gene: Cloning and characterization of complementary DNA" by J. R. Riordan *et al.* (8 Sept., p. 1066), the oligonucleotide sequence "5′-GTTTTCCTGGATTATGCCTGGGCAC-3′" [error is italicized] should have read "5′-GTTTTCCTGGATTATGCCTGGCAC-3′"; one extra G residue was inserted in error. The same error appeared in note 35 (p. 1079) of the Research Article "Identification of the cystic fibrosis gene: Genetic analysis" by B. Kerem *et al.* (8 Sept., p. 1073). In addition, the first amino acid residue displayed in figure 2 of the paper by Kerem *et al.* should have been K (for lysine) instead of L; the N and the CF(ΔF) sequences were also mislabeled. The correct sequence should have read, "KENIIFGV" for N and "KENIIGV" for CF(ΔF).