Letters

Bridges Committee Procedures

In Barbara J. Culliton's article "NIH misconduct probes draw legal complaints" (News & Comment, 20 July, p. 240), statements by C. David Bridges and his legal counsel were quoted regarding the investigation by the National Institutes of Health (NIH) into his alleged misconduct. In the view of the investigative panel (represented by the undersigned), these statements omitted important elements, and correction of the inaccuracies in the article cited is warranted.

The NIH did not receive allegations of plagiarism against Bridges directly, but rather responded to a document representing an internal review of this matter by the Baylor College of Medicine. The NIH undertook its own investigation because of the strong denial by Bridges of the Baylor committee findings. The panel of scientists appointed by NIH in October 1988 was assigned to investigate possible misuses by Bridges of a privileged communication he had been sent to review for publication. Three of the five members of this investigative panel were scientists recommended by Bridges. This panel was provided with the services of a liaison from the office of Katherine Bick, then in charge of NIH investigations of alleged misconduct, an executive secretary, and a legal counsel (an employee of NIH). Initially the panel was given documents sent to NIH by the Baylor College of Medicine, by Bridges, and by others involved. During its investigations, the panel requested and received numerous additional documents from similar sources and from individuals at Purdue University, to which Bridges had moved. Representatives of the panel went to Baylor College of Medicine to collect verbal statements from personnel there; additional information was also obtained during 2 days of personal interviews in Chicago (a site selected for the convenience of the majority of panel members and of other individuals interviewed). Neither transcripts nor recordings of these meetings, as well as other deliberations of the panel, were kept on the specific advice of the NIH legal counsel. These meetings were question and answer sessions with people having direct knowledge of relevant events. Individuals with whom we met were permitted their own legal counsel, but the interview with an individual was not witnessed by any other who was involved. All personnel from Baylor College of Medicine had an attorney present representing that institution. Likewise, when we spoke with Bridges or any of his colleagues who had accompanied him to Purdue University, an attorney selected by Bridges was present. No accusations were made before or during these proceedings against Bridges or any other participant.

After completion of the personal interviews and acquisition of additional written material to help reconstruct what had transpired, accomplished without the aid of research notebooks which, Bridges stated, had been discarded or stolen, a first draft of our evaluation was composed. Bridges was sent a copy of this draft. Portions of the report were also sent to other parties who had direct involvement. The detailed rebuttals received from all parties were evaluated by the panel, and virtually all were appended to the revised report. A final copy of the panel's report was sent to all individuals and further opportunities provided for submitting additional information, rebuttal, or comments. Bridges responded belatedly to the final report, and the panel evaluated a final set of printed material he sent after the report had gone to NIH officials. The panel concluded that this information could not justify further amendment of the final draft. The report was evaluated by senior officials at NIH, who accepted its findings and forwarded it to the director of NIH. He concurred with the conclusions of the report and the recommendations of the senior NIH officials. The report was then forwarded to the Department of Health and Human Services for further consideration. A hearing to appeal the proposed debarment was held in June 1990 in an administrative court at the Department of Health Services at the request of Bridges' legal counsel.

The allegations by Bridges and his defense counsel that appropriate recourse was denied during the investigative process and preparation of the final report can also be judged from the duly recorded procedures in the appendix of that report, which is readily available through the Freedom of Information Act.

The NIH-appointed panel did not function as a "court" where witnesses were called to the stand, required to take an oath, and subjected to cross examination. Rather, the panel was charged with the responsibility of collecting all the information dealing with the alleged misconduct available, assessing this information as scientific experts and investigators experienced with scientific procedures and ethics, and submitting a final report to NIH.

The Office of Scientific Integrity of NIH was formed after our committee completed its review, and some of the procedures now employed in such investigations have changed. Nonetheless, the philosophy underlying scientific conduct and the role of scientists in assisting funding agencies to evaluate breaches in ethics remain germane to any such investigation.

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Metrification Oversold?

Randy Moore (Letters, 17 Aug., p. 723) laments the slowness with which the United States in general, and federal agencies in particular, are converting to the metric system. He feels that "our reliance on the English system of weights and measures (such as the inch, pound, or pint) compromises our international competitiveness and limits the market for our products." What nonsense!

The United States became the leader in world trade under the English system, long before there was any talk of metrification. We lost that leadership not because we failed to metrify but because we became fat, dumb, and critical of our own affluence. Among other things, we failed to employ the principles of statistical quality control developed at Bell Laboratories by Walter Shewhart and spread as gospel to the Japanese by William Denning. As a direct result, and because of Japanese diligence, their products are world class today. We will regain leadership if and when we are willing to work harder and honor our own country's prophets. Using centimeters has nothing to do with it.

We should use whatever units are best for the job at hand. If I were a sailor whose captain needed to know the depth of the sea, I probably would tell him how many reaches of my outstretched hands—how many fath-

oms—measured the wet line to its end. The Roman generals thought in miles because this told them how many thousand paces (mille passus) their soldiers would have to tramp before reaching camp and thus how many weary hours lay ahead. I like miles for the same reason. When driving at 60 miles per hour, all road signs tell how many minutes ahead the towns are. I find multiplying by one easier than multiplying by 0.62, especially when driving.

Actually, the ease of decimal conversion between derived units (kilometers, centimeters) and the parent unit (meter), so dear to metric buffs, is only a tiny part of the story. Nature is full of constants—Boltzmann's constant, Planck's constant, the charge and mass of the electron, to name a few—that just don't come out in simple powers of 10 in the metric or any other commercial system. Even the speed of light is only approximately 3×10^8 meters per second. Once you've learned to handle these on your calculator, multiplying by 12 or 36 or 5280 is just as simple as multiplying by 10. We are being asked to go metric when its sole advantage has lost its importance.

Much more important to me is to have a wealth of units to choose from—some tiny, some huge, and most with social and historical overtones. I use the metric system a lot; I do so when I feel it is appropriate. But I don't want to be legislated into having to use it all the time. Why am I any better off with a liter of milk than a quart, or a half-kilo of flour rather than a pound? There's too much of Big Brother in this for my taste. Soon I'll have to forget my past, forget that a pint's a pound the world around. Soon a miss will be as good as a kilometer and, if I'm still alive, I'll be centimetering my way to success.

One thing seems certain: strict adherence to metric units would diminish the ability of the scientist to dramatize the grandeur of nature. Tell me that a supernova releases 10^{51} ergs and I yawn. But tell me that in its fiery death it outshines a galaxy of 100 billion stars and I come alive. Then tell me that supernova Bethlehem is still shining in the skies of worlds 2000 light-years farther from it than we were, and I begin to share your excitement. Finally, tell me that the diameter of that sphere of worlds is only one-tenth the diameter of our galaxy, and I catch a faint glimmer of the size and age of the cosmos. Try that in cgs or mks units and see how far you get.

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Minority Sciences?

In an otherwise excellent Policy Forum on "Minorities at majority institutions" (31 Aug., p. 989), J. H. Wyche and H. T. Frierson, Jr., propose a program to enhance minority involvement in science through minority undergraduate research support (MURS). Then they state, "The fields of undergraduate study would include biology, chemistry, physics, and mathematics." Where are *geology, oceanography,* and *meteorology*? Humanity-induced changes to the global environment threaten to disturb the delicate equilibrium of the thin wafer of habitability within which we live: we pollute the air we breathe and the water we drink; we have not solved the problem of disposal of the wastes we create; we consume many natural nonrenewable resources without sufficient plans for the future; and we continue to inhabit new areas without sufficient regard for the availability of water or the problems of natural hazards ranging from floods to earthquakes. These are subjects of primary concern to the *natural sciences*. For minority students, these sciences also provide significant opportunities for productive careers. Let's not forget the importance of the minority *sciences* when we discuss the education of minority scientists.

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Erratum: In the report "A plant leucine zipper protein that recognizes an abscisic acid element" by M. J. Guiltinan *et al.* (12 Oct., p. 267), figure 2 (p. 269) was incorrectly printed. The legend was correct. The correct figure appears below.