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LETTERS

A Reader's Response

In his editorial "The reader response: Oyvey" (21 May, p. 1055), Daniel E. Koshland, Jr., discusses recent reader surveys in *Science* and the trouble that some readers have had with them. Koshland argues that despite the lack of proper statistical survey sampling techniques, the numbers generated by a reader survey are still valuable as a "gauge of the opinions of [*Science*'s] most committed readers." Wrong. I, a mere unemployed planner, a tired housewife, know better. What is gained is no useful information. Because the correct method for survey sampling was not used, one cannot say *what* the data mean. One does not know whether the data are in any way a gauge of reader opinion.

Is criticism of *Science*'s lack of professionalism the "ultimate compliment?" No. Survey results (unlike anecdotal responses) should be reliable no matter what the source—newspapers, popular magazines, or *Science*.

If *Science* is not using statistical methods properly, it is wasting time, generating useless numbers, and encouraging what I have sadly come to call the "dumbing of America."

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Response: Even editors have a limit to their patience. We invented new nomenclature to distinguish reader responses (a self-selected response, an "oyvey") from an accurate statistical opinion survey, but we refuse to accept that a tabulation of reader responses contains "no useful information." Information of any sort can be useful as long as it does not pretend that it is more extensive or more important than its intrinsic worth. We encourage reader responses, many of which are original and illuminating, with no pretense that they were collected from an accurate, random selection of our readers.

Statisticians should remember they did not invent the word "survey," which, according to *Webster*'s dictionary, can be used without mention of statistical analysis. Scientists can claim rights to "gene," "pimeson," and "nylon" because they invented these terms, but they cannot redefine a word in general usage and demand that only their own interpretation be used. We went along with the statisticians as a courtesy and contribution to their wishes. Mutual understanding would be desirable.

—**Daniel E. Koshland, Jr.**

Dental Institute Report

Richard Stone's article "Dental institute report has NIH down in the mouth" (News & Comment, 21 May, p. 1069) quotes a few people who are unhappy with certain aspects of the report of the Blue Ribbon Panel on Envisioning the Future of the NIDR [National Institute of Dental Research] Intramural Research Program. I chaired this panel and would like to address their concerns.

A key recommendation of the panel is that

> In keeping with the vision of its founders, [NIDR's] intramural research program should conduct research of ultimate relevance to dental, oral and craniofacial health. This should include basic research as well as the rapid transfer of research discoveries to clinical practice and public knowledge.

Nowhere in the report does the panel recommend a sharp shift toward applied research. The panel did not presume to prescribe specific research projects for the program, but did develop a list of categorical themes based on its assessment of the needs and challenges that lie ahead. Responsibility for developing and pursuing particular projects must lie with the program's new director and its senior scientists and, as the report points out, they must select carefully because the program cannot possibly cover all areas identified.

The NIDR has an excellent long-range research plan for the 1990s, in which both intramural and extramural scientists have critical roles to play. Our panel recognized the substantial strengths and potential of scientists in the intramural program and attempted to develop recommendations that would help them achieve their full potential. This would involve fundamental as well as clinically oriented research. I urge those interested to read the report (which is relatively brief). Copies are available from NIDR's Office of Planning, Evaluation, and Communications (telephone 301-496-6705, FAX 301-496-9988).

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Stone provides a balanced review of the unfortunate events at NIDR, but he does not parse the value of the points of view expressed. As a former member, and for the

years 1990 through 1992 chairman, of its Board of Scientific Counselors, I feel compelled to raise this issue.

Intramural research and the postdoctoral training that goes with it have flourished at the NIDR because Abner Notkins, the deposed scientific director, is a person of a major stature in science. He not only has created a prime laboratory of his own but also has raised the standards of all the other laboratories in the institute. The research portfolio of the NIDR—in proportion to its size and budget—has been on a par with those of its larger and richer sister institutes at the National Institutes of Health (NIH). The list of its former trainees is no less impressive. Without exaggeration or hyperbole, one can classify the NIDR as a prime scientific enterprise to which the NIH can point with pride.

Why then should a scientific leader with so meritorious a record be removed by the very person who originally appointed him? I disagree with the argument posited by the director, Harald Löe, in support of his decision that the NIDR's research needs to be more sharply focused on dental concerns. Setting up some criteria of relevance a priori is a prescription for mediocrity!

Much of the research that is conducted at the NIDR is clearly relevant to dental—or in Notkins' view—oral health, and it is of high quality. Notkins, whose contributions to science have been recognized internationally and who has been a devoted and loyal servant of the NIH for the past 30 years, appears to have been fired for a contrived reason.

I am deeply concerned by the anti-intellectual aura that the quest for the so-called dental focus has created. The recent events at the NIDR are nothing short of a tragedy. The Philistines are on the march, and the only relevance to dentistry that has been achieved is a gnashing of teeth by those of us who are helpless as we watch the damage being inflicted.

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Dendrimer Development

In his Research News article "How to drive nucleic acids up a tree" (23 Apr., p. 491), Ivan Amato discusses the intriguing paper by Robert H. E. Hudson and Masad J. Damha "Nucleic acid dendrimers: Novel biopolymer structures," which recently appeared in the *Journal of the American Chemical Society* (*1*). Amato quotes Donald Tomalia as saying that Hudson and Damha's report constitutes "the first time that biological polymers have been synthesized in this architectural form." Polymers we refer to as branched DNAs (bDNAs), not "bRNAs," were reported by us in 1989 (*2*). We described the synthesis of bDNAs, including "forked" structures and a proposed "outburst" approach, in some detail.

Amato also cites Tomalia as saying that "dendrimers based on RNA or other nucleic acids could be designed as diagnostic tools." In fact, they have been. We have reported methods based on the use of bDNA for signal amplification for the detection of *Chlamydia trachomatis*, *Neisseria gonorrhoea*, β-lactamase, and tetracycline resistance (*3*). More recently, we and our colleagues have developed research assays for the detection and quantification of hepatitis B DNA, hepatitis C RNA, and human immunodeficiency virus RNA (*4*). The bDNA design we currently use consists of 15 branches of 66 nucleotides and a single 3′ sequence for 1068 bases total. Indeed, Amato's proposal that biological polymers "might serve as selective fishing hooks capable of snagging those [RNAs]" is correct.

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2. T. Horn and M. Urdea, *Nucleic Acid Res.* **17**, 6959 (1989).
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Supersymmetry Predictions

Some comments are needed on the worthwhile article "Practicing the poor man's brand of particle physics" by Faye Flam (Research News, 30 Apr., p. 622). I strongly endorse the importance of carrying out the experiments looking for electric dipole moments of neutrons and of atoms as a way of getting possibly very significant information about the fundamental questions of particle physics. I also fully agree that supersymmetry is the "physicists' current best hope for extending their understanding of particles and forces."

The article suggests that supersymmetry predicts an electric dipole moment just around the corner, but for rather subtle reasons that is probably not so. More precisely, our present knowledge of the theory does not yet allow us to determine its predictions in these areas, although this is a