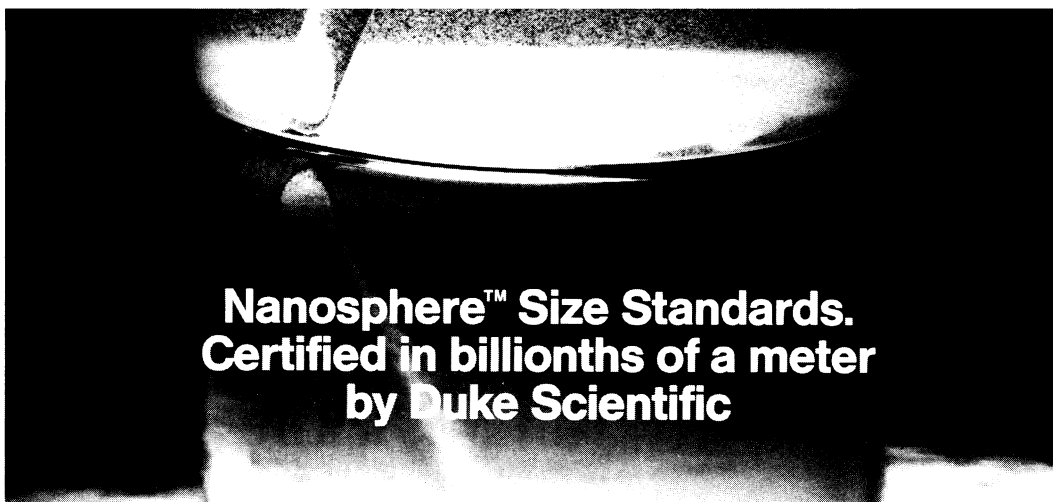


line in figure 1 of (2). Chakraborty and Kidd refer to more than 2000 U.S. court cases that have employed DNA evidence [(2), reference 4]. This is misleading, as the majority are paternity cases in which the DNA types of mother, child, and putative father are usually available for comparison. Chakraborty and Kidd compare binning the variable number of tandem repeat (VNTR) sequences with the grouping of  $A_1$  and  $A_2$  blood type alleles. This comparison is inappropriate because the problem with binning VNTRs is not that alleles are grouped but that sometimes they are assigned to the wrong bin. Their statement that the "worst case" scenario is an equal mixture of Poles and Italians is incorrect—it is actually the best case for their argument. Their statement [(2), p. 1737] that the "arithmetic and underlying principles are identical" for linkage equilibrium and Hardy-Weinberg equilibrium is simply incorrect. In a quote from our article, they also did not include an important qualifier present in our original text [(2), reference 6].

Wills states in his letter that our arguments are based on "old" blood group data. Why Wills would disregard reliable blood group data is unclear, because even Chakraborty and Kidd concede their relevance. Wills also cites a high mutation rate among some VNTRs as the basis of a "mutational churning process" that is "a very large reason for the relative uniformity of allele frequencies from one human group to another. . . ." This hypothesis "explains" what has not yet been shown to exist, as relative uniformity of allele frequencies is precisely the point in dispute. We see no evidence of VNTR "churning" in French and Israelis or in the South American Indian tribes studied by Kidd *et al.* (6) [(1), p. 1749]. Wills also makes much of the observation that one of our subheadings (1) is identical to the title of a 1902 pamphlet by V. I. Lenin. This coincidence has no more relevance to DNA typing than the fact that Wills' letter makes favorable reference to Japanese automobile companies.

Austad concedes the validity of our arguments, but points out that DNA typing is certainly better than polygraph results, so why all the fuss? His argument seems to be that new sources of scientific evidence should be held to a standard of reliability no greater than methods currently in use. We would make a fundamental distinction between the intrinsic limitations of a technology and limitations imposed by the use of false assumptions, particularly when simple alternatives are available. For example, although polygraph examinations have a high intrinsic error rate, we suppose that Austad would object to a test in which an electrical short in the machine produced additional



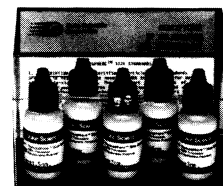
## Nanosphere™ Size Standards. Certified in billionths of a meter by Duke Scientific

Nanosphere Size Standards are calibrated in billionths of a meter (nanometers) and are available in 22 sizes from 21 to 900nm—all traceable to the National Bureau of Standards. Nanospheres are part of our complete line of spherical particles from 0.02 to 2000 micrometers in diameter. They are used as standards for instrument calibration, quality control, filter checking, and in numerous biotechnology applications. At Duke Scientific—established in 1971—we have the expertise and resources to meet any of your requirements for microspheres and particles. Call us today for information.



**Duke Scientific  
Corporation**

1135D San Antonio Road, Palo Alto, CA 94303, Toll Free  
(800) 334-3883, in CA (415) 962-1100, Fax (415) 962-0718



Circle No. 34 on Readers' Service Card

erratic readings. Our view is that erroneous assumptions about genetic uniformity among ethnic groups are no more necessary to DNA typing than electrical shorts are necessary to polygraph machines.

We would finally like to emphasize that this dispute is not about the use of DNA evidence in the courtroom. DNA typing is a very powerful procedure. We regard it as "possibly the most powerful innovation in forensics since the development of fingerprinting in the last part of the 19th century" [(1), p. 1746]. All we ask is a basic degree of candor in reporting the statistical significance of a match. With databases as large as  $x = 10,000$ , why not use  $1/x$  as a conservative estimate of the probability [(1), p. 1749]? After all, 0.0001 is already a pretty small number. Why invoke unsupported assumptions in order to obtain a still smaller probability that is exaggerated and unreliable? Perhaps it is because the organizations whose interests are served by numerical exaggeration have also been in charge of choosing the statistical procedures.

RICHARD C. LEWONTIN  
*Museum of Comparative Zoology,  
Harvard University,  
Cambridge, MA 02138*

DANIEL L. HARTL  
*Department of Genetics,  
Washington University School of Medicine,  
St. Louis, MO 63110*

### REFERENCES

1. R. C. Lewontin and D. E. Hartl, *Science* **254**, 1745 (1991).
2. R. Chakraborty and K. K. Kidd, *ibid.*, p. 1735.
3. *U.S. v. Yee*, 129 Federal Rules Decisions 629 (Northern District of Ohio, 1990).
4. F. M. Salzano and S. M. Callegari-Jacques, *South American Indians: A Case Study in Evolution* (Oxford Univ. Press, New York, 1988).
5. R. Chakraborty *et al.*, *Am. J. Hum. Genet.* **50**, 145 (1992).
6. J. R. Kidd *et al.*, *Human Biol.* **63**, 775 (1991).

*Erratum:* In the abstract and in the text (line 35 in the middle column of page 185) of the report "Electrical resistivity and stoichiometry of  $K_xC_{60}$  films" by G. P. Kochanski *et al.* (10 Jan., p. 184), the minimum resistivity was given incorrectly as 2.2 microhm-cm. The correct value is 2.2 milliohm-cm.

*Erratum:* In the News & Comment article "Is homosexuality biological?" by Marcia Barinaga (30 Aug., p. 956), it was suggested incorrectly that the suprachiasmatic nucleus is not part of the hypothalamus.

*Erratum:* The Table of Contents for the issue of 31 January 1992 (p. 508) incorrectly listed a letter by J. Bello as appearing in the Letters section beginning on page 514. The letter appeared in the issue of 14 February on page 784.

*Erratum:* In figure 1 (p. 1509) of the Research Article "Radar images of Mars" by D. O. Muhleman *et al.* (27 Sept., p. 1508), the Mars longitude of the sub-Earth point was mislabeled in each of the six snapshot radar images of Mars. None of the labels should have contained a decimal point. The values of  $\lambda$  in the labels should have been 78, 92, 104, 120, 133, and 147, respectively.