any substantial delays associated with future releases of new cDNA sequence data by TIGR. In any event, throughout TIGR's 5-year history, TIGR has promptly published its research results and made its data available to the scientific community while honoring its obligations to HGS, and TIGR will continue to do so for the remaining few years of TIGR's relationship with HGS. This has made, and will continue to make, TIGR a leader in the worldwide effort to develop a complete set of human genes.

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Marshall reports (News & Comment, 3 Jan., p. 22) that a "subcommittee" of NIH–Department of Energy Working Group on Ethical, Legal, and Social Implications (ELSI) of Genome Research "spends much of its time talking to independent agencies, trying to devise rules on genetic testing." The "subcommittee" Marshall refers to is the Task Force on Genetic Testing. The task force has not spent most of its time talking to "independent agencies." Nor should the role of the task force be deprecated because it is a "subcommittee of a subcommittee." Marshall does not note that the panel whose recommendations were the subject of his article has commented, "The task force approach already has been effectively used, as illustrated by the current Task Force on Genetic Testing." The goals of the task force are to ensure that genetic tests will be safe and effective, performed in laboratories of assured quality, and used appropriately by providers and consumers. Its members represent the biotechnology and insurance industries, consumers, and professional genetics and medical societies, as well as the ELSI Working Group. Representatives of five agencies in the Department of Health and Human Services serve as nonvoting liaison members. NIH has provided financial support. The task force promulgated principles to meet its goals and recently drafted recommendations to implement its principles. (Both are available at http://ww2.med.jhu.edu/tfgtelsi. The proposed recommendations will be published in the *Federal Register* in February 1997.) The task force has spent most of its time gathering information, hearing from the public and the organizations represented on the task force, and debating principles and recommendations. The low position of the task force in the hierarchy of committees should not detract from the commitment of its members and the groups they represent, the importance of its goals, and the seriousness with which its recommendations should be taken.

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Teaching Quality

Kenneth L. Verosub's diatribe against small liberal arts colleges (Letters, 6 Dec., p. 1595) makes little contribution to the subject of how the quality of postsecondary education can be improved. However, he ends his letter with the intriguing suggestion that faculty at small liberal arts colleges should help those at larger institutions to improve the quality of their teaching. On the assumption that faculty at universities are interested in such advice, let me offer some initial suggestions based on 15 years of teaching at both a public research university and a small liberal arts college: (i) hire faculty who have demonstrated their commitment to high-quality teaching; (ii) deny promotion and tenure to faculty who have not demon-

strated excellence in the classroom; (iii) host regular faculty meetings to discuss improved teaching techniques; (iv) have the faculty teach the laboratory sections of their classes; (v) divide single large classes into multiple small classes (this will increase the number of courses taught per year, perhaps bringing it more in line with what is typical at small liberal arts colleges); (vi) increase the amount of writing done by students in each class; (vii) be accessible to students who need additional help; and (viii) insist that departmental budgets allow for adequate laboratory and field courses so that undergraduates gain high-quality hands-on experience. These steps have had a far greater influence on the quality of instruction at small liberal arts schools than has the presence of students "carefully selected for their homogeneity."

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Cosmological Interpretations

As my paper (*1*) has been mentioned in an article by Govert Schilling (Research News, 22 Nov., p. 1305), I should like to make some comments on remarks by theorists quoted there. First, I find it a bit misleading to talk about just "12 cases" of Seyfert galaxies with pairs of strong x-ray sources. The discussion is not about 12 cases out of a million, but 12 cases out of a sample of 26 Seyfert galaxies, a sample that is about 90% complete up to a magnitude of 10, 75% complete to a magnitude of 11, and 50% complete to a magnitude of 12, which makes the finding a robust and significant result. In addition, the pairs analyzed by Halton Arp are only those within a radius of less than 1 degree around the Seyfert galaxies, and only those with clearly identified x-ray blue stellar objects and quasars are counted, omitting even more unidentified pairs.

Concerning the redshift controversy, it is only fair to mention that Arp and others have collected many similar cases in the optical band over the last 30 years, so that the total number of known cases is high enough to be extremely significant. Observations of many other active galactic nuclei are available from the excellent data from the German x-ray satellite Rosat, and any interested astronomer should be encouraged to improve the statistics by working along the lines presented in our pair of papers (*1*, *2*).

One last point: It is true—as Jim Peebles mentions—that observers disagree. However, they do not disagree because the observations are ambiguous, but because they have contradicting theoretical preconceptions that lead to different interpretations. And that is what cosmology is based on: interpretations of interpretations of observations. We should not fall victim to cosmological hubris, but stay open for any surprise.

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References

1. H.-D. Radecke, *Astron. Astrophys.*, in press.
2. H. Arp, *ibid.* in press.

Letters to the Editor

Letters may be submitted by e-mail (at science_letters@aaas.org), fax (202-789-4669), or regular mail (*Science*, 1200 New York Avenue, NW, Washington, DC 20005, USA). Letters are not routinely acknowledged. Full addresses, signatures, and daytime phone numbers should be included. Letters should be brief (300 words or less) and may be edited for reasons of clarity or space. They may appear in print and/or on the World Wide Web. Letter writers are not consulted before publication.