et al.). The other two papers I discussed used phylogenies derived from parsimony analyses, and one of them (by Pierce and Crawford) used a phylogeny derived from morphological data.

However, I know of no recent paper that uses "explicitly nonstatistical methods for inferring patterns of phylogenetic relationship." Apparently, Brower *et al.* are referring to parsimony analyses, which are in no sense "nonstatistical," because inferences are justified and compared with objective optimality criteria. Furthermore, it is difficult to find any recent parsimony analyses that do not assess the relative support for the preferred solution, whether with bootstrapping, jackknifing, likelihood-ratio tests, decay indices, or one of many other methods. It is true that I support this nearly universal standard in science.

If Brower *et al.* are concerned that the criteria to evaluate models of molecular evolution have been poorly defined, then they should welcome the report by Huelsenbeck and Rannala, whose goal was to make criteria for evaluating models of evolution objective and well defined.

I disagree with Brower *et al.* that stable classifications are the only goal of systematics, although that is certainly one important goal. That is why, in addition to pointing out some of the newer uses of phylogeny, I stated, "At the same time, phylogeny has solidified its more traditional role as the criterion for organizing and classifying life."

Not only did I note that large taxonomic problems are becoming more prevalent, I also said that methods besides maximum likelihood were necessary "to relieve the computational burden that prevents the application of likelihood-ratio tests to highly complex phylogenetic problems."

I do not think that "high-profile boosterism" (or even a piece clearly labeled a Perspective) is necessary to "seduce" either nonsystematists or systematists into being attracted to quantitatively oriented methods that provide rigor and reliability. It is common among scientists in general (and systematists in particular) to favor explicit, quantitative assessments over unsupported qualitative assertions. The latter approach (appeal to authority, with no explicit criteria for favoring one tree over another) was what led to the demise of phylogenetics earlier this century. The explicit, quantitative approaches in phylogenetics (including parsimony, maximum-likelihood, and minimum-evolution methods) developed over the past several decades are a major reason for the recent resurgence and success of phylogenetics.

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Evaluating Biologics

I should like to comment on the problems faced by the Food and Drug Administration (FDA) and more particularly on the Center for Biologics Evaluation and Research (CBER) (ScienceScope, 14 Feb., p. 915; Letters, 11 Apr., p. 183). I was on the staff of the National Institutes of Health (NIH) for some years, eight of them as deputy director for intramural research; as such, I became familiar with the work of the CBER. The scientists in this center, which is on the campus of the NIH, were on a par with the rest of the scientists at NIH and were completely integrated into that community. It has been the good fortune of the country that the CBER has been able to attract first-class scientists who spend approximately half of their time in regulatory affairs and the rest of the time doing research. I should note that the evaluation of

biologics is not a simple matter. Whether it be for new vaccines, new cytokines, or tests for new diseases, scientific guidance must be established, and safety and efficacy are not easy to evaluate. To do this properly requires scientists knowledgeable and up to date in the rapidly changing world of molecular biology and biologic tests and therapies. It is essential that the evaluators are personally competent and have hands-on experience. It would not be in the best interests of the American people were the FDA and the CBER to be staffed by desk-bound clerks.

I trust that the Clinton Administration and Congress will act quickly and allow CBER to recruit and retain research scientists able to regulate biologics in a scientific and responsible manner.

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Doctoral Entitlement?

I was astounded to read the letter by Roger Floyd (11 Apr., p. 183) suggesting that an institution that grants a doctoral degree has a responsibility to provide employment for the recipient of that degree. The institution that grants the degree fulfills its responsibility by providing an individual with access to the graduate education, guiding a student's research, providing him the opportunity to study, and examining his work to see whether he is qualified to receive the Ph.D.

Graduate education is not a search for money; it is a search for education, for intellectual achievement, for excellence in study. If advanced study in a field results in more remunerative employment, fine; if it does not, one may enjoy the learning for the sake of being more knowledgeable about life. A Ph.D. is not about getting a better job; it is about an internal feeling of accomplishment.

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Floyd's letter is an affront to hard-working people. To suggest that a person should be guaranteed a standard of living because that person's choice of a career was not a wise one is ludicrous. I and many people have put a lot of years into learning and keeping current with proper work practices. We do get a stipend from the government when times are bad; it is called unemployment.

If someone with a Ph.D. cannot find any work in his chosen field because there is a surplus of talent, then he will have to find a different field of endeavor. That has happened to many Americans in the past 20 years.

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Tenure Tracking

Constance Holden's News & Comment article "Tenure turmoil sparks reforms" (4 Apr., p. 24) summarizes the precarious nature of the institution of tenure at colleges and universities in the United States and describes some of the approaches taken to provide a greater level of accountability for tenured faculty. In spring 1996, the University of New Mexico Faculty Senate drafted and approved a policy of post-tenure review that was ultimately accepted with modification by the Board of Regents. In response to growing concerns over the status of tenure at colleges and universities in New Mexico, we drafted the following resolution, which was approved by the Faculty