Implicit in the findings of the studies of Japanese and U.S. high school students is the conclusion that U.S. students need to improve their study habits and scholastic achievements. While improvement would be welcome, it need not be extended to the graduate system. One of the greatest strengths of the American educational system is its post-secondary years. If students are asked to stretch their effort to the extreme during high school, their later efforts might decrease. Many Chinese, Korean, and Japanese students are so exhausted by the time they enter college that they want a period of respite. Their American counterparts, on the other hand, are just beginning to tighten their belts and dig in. I believe the vigor and intensity of U.S. researchers are partly due to the fact that they were not crippled during the high school years.

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Nuclear Structure Research

Michelle Hoffman's Research News article "The cell's nucleus shapes up" (26 Feb., p. 1257) was an interesting and readable overview of some developments in mammalian nuclear structure over the past 20 years, and we commend *Science* for its attention to this subject. On a few points, however, the article appears to attribute to my laboratory contributions from other investigators whose work is clearly referenced in our reports (*1, 2*) in the same issue. First, the fact that the splicing assembly factor SC-35 concentrates in regions enriched in small nuclear ribonucleoproteins was previously demonstrated by X-D. Fu and T. Maniatis (*3*). Hence, the observations we reported concerning the relative distributions of SC-35 and polyadenylate RNA or small nuclear ribonucleoproteins within individual domains were an extension of this primary observation.

Second, the statement referring to the report by Carter *et al.* (*2*) as having shown for the "first" time that messenger RNA transcripts were associated with these regions is misleading. S. Huang and D. Spector (*4*) had previously shown that unspliced c-*fos* transcripts accumulate very close to these regions soon after induction of this gene, and we had previously reported evidence that polymerase II transcripts in general, as detected by poly-adenylate RNA, are most highly concentrated in these regions (*5*).

Finally, we do not agree that our work is the "first" three-dimensional model, as the Research News article states, because several investigators have provided evidence and suggested models for the topological organization of genes and RNA metabolism within the mammalian nucleus, several of whom are referenced in our two *Science* reports (*1, 2*).

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Determining Paleoclimates

The article "Is the geological past a key to the (near) future?" by Elizabeth Culotta in the Special Section on the Evolution of Atmospheres (12 Feb., p. 906) focuses on fossil pollen and marine plankton as sources of paleontological data on paleoclimate and raises questions about whether proxy data are adequate for the task of testing simulations of general circulation models (GCMs). The composition of fossil macrofloras, the shapes and sizes of fossil leaves, and the anatomy of fossil wood have all been used extensively as indicators of continental climate during the Tertiary and Late Cretaceous (*1*). Vertebrate fossils, of both ectotherms (*2*) and endotherms (*3*), provide other independent sources of paleontological data on paleoclimate. In the last 15 years, interpretations of these fossil data have become increasingly quantitative, and the precision and reliability of the estimates have improved greatly (*4*).

It has already been demonstrated that GCM simulations of paleoclimate tend to produce results for continental interiors that are far more seasonal than the multiple lines of fossil evidence indicate (*5*). At least for the Cenozoic, the paleontologists' temperature estimates have standard errors of only a few degrees centigrade for mean annual temperature and cold month mean. This is substantially better than the GCM simulations do even in reproducing *present* conditions for continental interiors. No doubt GCM simulations will improve considerably over the next few years as they get a boost from advances in computer technology, but the current situation is that if you want to know the climate for any time during the last 100 million years, you are better off asking a paleontologist than a modeler.

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Fish Otolith Chemistry

I was pleased to see an aspect of fish otolith chemistry reported in Random Samples (13 Nov., p. 1087). The article was particularly timely given the increasing importance of otoliths to both fisheries and environmental research, as evidenced by the interest in the recent symposium "Fish otolith research and application" held in late January at Hilton Head, South Carolina. However, I must point out that the estimation of water temperatures by the analysis of oxygen isotopes in otoliths is not new. In fact, the application of these data to the estimation of both modern and prehistoric water temperatures was discussed in a report published in *Science* in 1967 (*1*). Other significant contributions to the study of oxygen isotopes in fish otoliths (*2*) should also not be overlooked.

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