



The editor of *Nature Medicine* writes to clarify the journal's reply policy. Support is offered for a review of the Environmental Protection Agency's planned airborne particulate matter program. Funding of a "Great Ape Phenome Project" is proposed to complement a "Great Ape Genome Project": "Not to do so would be like funding the Human Genome Project without supporting much of the rest of the National Institutes of Health," say a group of letter writers. Reform in scientific education is discussed by prominent physicists and a biologist. And evidence is offered that the Tyrolean Iceman may have had acupuncture treatments!

Nature Medicine's Reply Policy

Allen D. Roses (Letters, 18 Sept., p. 1805) answers critics who have suggested that he may have a conflict of interest in supporting genetic testing for Alzheimer's disease, since as an inventor of one such test he stands to profit from its widespread use. Roses asserts that those who have argued against such widespread testing are not expert enough to judge the value of such tests and cites a recent *Nature Medicine* article (1) in which they made their case. Roses states that *Nature Medicine* "does not entertain responses," implying that we denied him the opportunity to respond to the article.

We would like to correct his statement regarding *Nature Medicine*'s policy on responses. We do not offer injured or otherwise interested parties a right to reply, but we do extend an open invitation to reply. Indeed in this case, during a face-to-face discussion, a *Nature Medicine* editor specifically invited Roses to respond, and he declined to do so, making his comments regarding our policy on responses all the more surprising.

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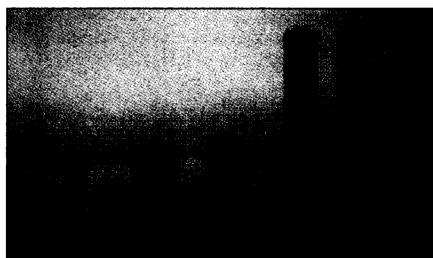
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1. L. M. McConnell *et al.*, *Nature Med.* **4**, 757 (1998).

Airborne Particulate Matter

Philip H. Abelson's editorial "Airborne particulate matter" (11 Sept., p. 1609) raises timely questions about the Environmental Protection Agency's (EPA's) proposed standards regarding airborne particulate matter (PM). The EPA is preparing an expensive program to sample and weigh particulates having a size of less than 2.5 micrometers (PM 2.5) at 1500 locations (1). Chemical analysis of particulates will be performed at only 300 sites. As observed by Abelson, the weight of sampled particulates reveals nothing about their composition and origin. Thus, considerable inequities will arise when the

EPA begins to enforce its proposed PM regulations. For example, almost daily aerosol optical thickness measurements from South Texas since 1989 reveal various particulate events of distant origin superimposed on the seasonal cycle. These events, which are confirmed by satellite images, include haze from the south central United States, volcanic eruptions, significant smoke from Mexico and Central America, and dust events from Africa,



Will particulate matter be measured accurately?

China, and Mexico.

During May 1998, smoke from major forest fires in Mexico caused severe air pollution over much of Texas and other states. The smoke, which at my site caused significant optical depth (4.2 at 540 nanometers on 14 May) and reduced visibility (less than 1.5 kilometers on 14 May), was associated with increased tropospheric ozone, a phenomenon that caused violations of EPA air-quality standards in San Antonio and elsewhere. Although tropospheric ozone increases have been observed during burning seasons in Africa (2) and Brazil (3), officials in Texas have thus far failed to persuade the EPA to discount the ozone violations over which Texas cities had no control. How will a single national PM 2.5 standard affect communities that have no control over the particulates that arrive from distant sources? Will Florida and Texas be penalized by the EPA when dust arrives each spring from the Sahara? Will Hawaii and the western states be penalized when dust arrives from the Gobi desert? Will Texans

be penalized when smoke arrives from Central America? In short, will citizens downwind of forest fires, volcanic eruptions, dust storms, and coal-fired power plants be penalized for PM 2.5 violations beyond their control?

When the lives and commerce of citizens are regulated by scientific measurements, the citizens and businesses who are taxed to pay for such observations have every right to expect that the science behind the measurements will be appropriate. As Abelson observes, the EPA's plan to measure PM 2.5 particulates is inadequate. It is time that Congress follows Abelson's suggestion that the National Academy of Sciences address the matter.

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1. Overview of National PM 2.5 Network, 1998 (Environmental Protection Agency, Washington, DC, 1998, www.epa.gov/ttnamti1/supsites.html).
2. A. M. Thompson *et al.*, *J. Geophys. Res.* **101**, 23,793 (1996).
3. J. Fishman, V. G. Brackett, E. V. Brownell, W. B. Grant, *ibid.*, p. 24,069.

Great Ape Phenome Project?

We applaud the notion recently highlighted by Ann Gibbons (News Focus, 4 Sept., p. 1433) about "Pushing a primate genome project." There is much to be learned by comparing human genomic sequences with those of other primates, particularly those of our closest evolutionary cousins, the great apes. This information can also be obtained by noninvasive methods that would not harm these individuals. However, part of the value of the Human Genome Project lies in interpreting genomic data in the context of the large body of existing information about humans, ranging from the biochemistry of cells to the physiology of organ systems to the functional output of complex systems like the brain. In contrast, the corresponding information about the great apes is limited. We suggest that the funding of such a Great Ape Genome Project should be complemented by a "Great Ape Phenome Project," which would support comparative studies of humans and apes at all levels, from expression patterns of messenger RNA, to biochemistry and cell biology, all the way to neural systems and cognitive functions. Not to do so would be like funding the Human Genome Project without supporting much of the rest of the National Institutes of Health. Indeed, with the exception of gross deletional or nonsense mutations, the significance of most genomic sequence differences found between humans and apes will not be obvious unless such a detailed comparative phenotypic database is also available. Notably, such a database could be obtained without undue harm to the pri-