chronologists, combined with an IHO Board majority loyal to Johanson and antagonistic to BGC's friendly relations with Getty, appear to be the principal factors. BGC scientists have enriched IHO in many ways over the past 5 years. Results of their activities are still being used for fundraising in the private sector by IHO.

BGC simply wants to get back to doing science. A significant body of research by BGC staff, and dozens of collaborators around the world, has hung in the balance. More than 30 different projects funded by NSF, the Cal Space Institute, the U.S. Geological Survey, the National Geographic Society, and the L. S. B. Leakey Foundation have been disrupted by IHO's refusal to allow BGC to use the facilities historically funded through the efforts of its staff and constructed, applied, and maintained by them.

This is the legacy of the IHO breakup.

Paul R. Renne
President,
Berkeley Geochronology Center,
2455 Ridge Road,
Berkeley, CA 94709, USA

Anyone reading about the funding troubles of the Institute for Human Origins ("Clash with billionaire costs anthropology institute dearly" (News, 27 May, p. 1247) might receive the impression that participating in a NOVA mini-series is damaging to the interests of scientific research. That is very regrettable. To fulfill the extremely ambitious demands of NOVA's three-part series "In Search of Human Origins," Don Johanson dedicated many months of his time, remunerated at extremely modest public television levels. But in terms of furthering public understanding of science, the effort has paid off handsomely. More than 17 million PBS viewers watched the series, which was the first serious exploration of human evolution on television in 15 years, and that number will continue to grow as the series is repeated over the next several years. In addition, the series with its related teaching materials will have a long life in the schools.

Perhaps because Johanson *has* spent so much time raising public support for paleoanthropology, he understands the importance of returning the fruits of their investment to the public. If more scientists felt as Johanson does, perhaps the public would be better informed about scientific research and it would be less difficult to find the resources to support it.

Paula S. Apsell
Executive Producer, NOVA
WGBH-TV,
125 Western Avenue,
Boston, MA 02134, USA

UV-B and Ozone Observations

In their Technical Comment "Analyzing ultraviolet-B radiation: Is there a trend?" (27 May, p. 1341), Patrick J. Michaels, S. Fred Singer, and Paul C. Knappenberger state that I did not claim as a trend observations of a summer ozone minimum (230 Dobson units) and alpine-level ultraviolet-B radiation (UV-B) at South Central Texas on 23 June 1993 associated with tropical storm Arlene (*1*). However, my unpublished paper also describes record low ozone and correspondingly high UV-B after Arlene and during the entire summer of 1993. The regional nature of these observations is established by simultaneous observations with two identical ozonometers of record low ozone at Seguin and four other Texas cities.

Michaels *et al.* also incorrectly state that I used an instrument "similar to the Toronto instrument" used by Kerr and McElroy (*2*). The observations were made with two Total Ozone Portable Spectrometers (TOPS) (*3*). Although these instruments are considerably less sophisticated than the Brewer instrument used at Toronto, they measure direct UV-B and ozone sufficiently well to have detected a drift of several percent in an extrapolated calibration of the Nimbus-7–Total Ozone Mapping Spectrometer some 6 months before the drift was confirmed by the world-standard Dobson spectrophotometer (instrument 83) at Mauna Loa Observatory in Hawaii (*4*).

Forrest M. Mims III
Sun Photometer Atmospheric Network,
433 Twin Oak Road,
Seguin, TX 78155, USA

References and Notes

1. F. M. Mims III, in preparation.
2. J. B. Kerr and C. T. McElroy, *Science* **262**, 1032 (1993).
3. The TOPS ozonometer is a two-channel version of the UV-B radiometer I described in 1991 [*Sci. Am.* **263**, 106 (August 1991)].
4. F. M. Mims III, *Nature* **361**, 505 (1993).

■

Nitric Oxide Toxicity and Poly(ADP-Ribose)Polymerase

In their report "Nitric oxide activation of poly(ADP-ribose) synthetase in neurotoxicity" (4 Feb., p. 687) (*1*), Jie Zhang *et al.* incorrectly state that a paper of ours (reference 21) (*1*) deals with macrophage cytotoxicity. The paper did not deal with macrophages, but showed that inhibitors of poly(ADP-ribose) polymerase (PARP) prevented nitric oxide (NO)–mediated toxicity.

One major caveat of our and Jie Zhang *et al.*'s studies is that the evidence is only indirect, based on the effects of pharmaco-

logical inhibitors of PARP enzyme activity. These inhibitory compounds have other, additional effects on cells (*2*), and therefore it is not established beyond a doubt that NO toxicity occurs by means of PARP activation. The issue will be resolved by the use of cells with disrupted PARP gene.

Hubert Kolb
Diabetes Research Institute,
Auf'm Hennekamp 65,
D-40225 Düsseldorf, Germany

References

1. J. Zhang, V. L. Dawson, T. M. Dawson, S. H. Snyder, *Science* **263**, 687 (1994).
2. B. Kallmann, V. Burkart, K.-D. Kröncke, V. Kolb-Bachofen, H. Kolb, *Life Sci.* **51**, 671 (1992).
3. M. Shimoyama *et al.*, *Physiol. Chem. Phys.* **7**, 125 (1975); M. Nowicki, C. Landon, S. Sugawara, G. Dennert, *Cell. Immunol.* **132**, 115 (1991); J. Hoshino, S. Schalge, B. Drevenstedt, H. Kröger, *Biochem. Int.* **20**, 135 (1990).

Response: Indeed, Kolb's paper (*1*) did deal with nitric oxide (NO) as mediating the toxicity elicited by macrophages in the pancreas. Our study, by contrast, dealt with NO mediating the neurotoxicity of glutamate by damaging DNA and activating poly(ADP-ribose) synthetase (PARS or PARP). Kolb points out that studies using drugs as probes are not necessarily definitive. Because of this, we did not use a single agent, but instead used four distinct PARP inhibitors and showed that their relative ability to prevent neuronal death after stimulation of the glutamate-NMDA receptor closely paralleled their potency in inhibiting PARP. Three of these agents are benzamides in which very small structural changes provide major differences in potency in inhibiting PARP and neurotoxicity.

In addition, we showed that novobiocin, which block mono-ADP-ribosylation, but not PARP, did not provide protection. Our study elucidates the mechanism whereby NO elicits this toxicity, as we directly demonstrated that NO damages DNA, which in turn activates PARP. Besides blocking NO neurotoxicity, PARP inhibitors blocked the toxicity elicited by stimulating glutamate-NMDA receptors, reflecting the neurotoxicity that occurs in vascular stroke. These findings provide a persuasive, if not definitive, case that excitotoxicity acts through NO activation of PARP with attendant depletion of energy stores.

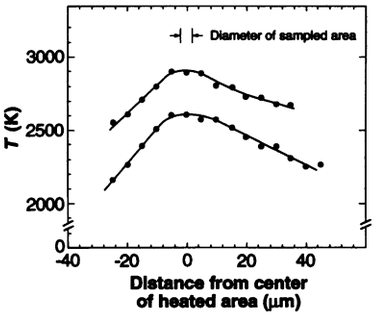
Solomon H. Snyder
Department of Neuroscience,
Johns Hopkins University
School of Medicine,
725 North Wolfe Street,
Baltimore, MD 21205–2185, USA

References

1. B. Kallmann, V. Burkart, K.-D. Kröncke, V. Kolb-Bachofen, H. Kolb, *Life Sci.* **51**, 671 (1992).

Perovskite Temperature Profile

In our response of 8 April (p. 280) (*1*) to a comment by D. L. Heinz *et al.* (*2*) about our report of 22 October 1993 (*3*) on the melting of $(Mg,Fe)SiO_3$-perovskite to 625 kilobars, an incorrect curve for the temperature profile in figure 2 (*1*, p. 280) was provided. An already-drafted profile for Ar-laser–heated iron was mistakenly chosen and put on a scale that represented that for most of the CO_2-laser heating profiles that we have. Two actual subsolidus temperature profiles for CO_2-laser–heated perovskite at a pressure of 32 gigapascals are shown below. The profiles are slightly



asymmetric because of the incidence angle of the laser beam in the perovskite melting experiment. This change in figures does not affect the results on the melting temperatures of $(Mg,Fe)SiO_3$-perovskite (*3*) in any way. The original figure 2 in our response was shown to illustrate that temperatures from the heated samples were directly measured from small areas with a diameter of 3 to 5 μm and that the temperature gradients in the center of the heated spot were negligible.

R. Boehler
A. Zerr
Max-Planck-Institut für Chemie,
Postfach 3060,
55020 Mainz, Germany

References

1. R. Boehler and A. Zerr, *Science* **264**, 280 (1994).
2. D. L. Heinz, E. Knittle, J. S. Sweeney, Q. Williams, R. Jeanloz, *ibid.*, p. 279.
3. A. Zerr and R. Boehler, *ibid.* **262**, 553 (1993).

Corrections and Clarifications

In the News article "Finding 'sustainable' ways to prevent parasitic diseases" by Rebecca Kolberg (24 June, p. 1859), mention is made of nylon gauze that is being distributed worldwide free of charge to filter Guinea worm larvae from drinking water. The cloth is donated by E. I. Dupont de Nemours & Company, Inc., and Precision Fabrics Group for distribution by Global 2000, Inc.