

its lowest value in 1992. That statement, which was not referenced, can be found in the "Combined DOC/NOAA, DOE, EPA, NASA and NSF comments on the April 1995 draft GAO report on factors limiting the credibility of the GCMs" [Enclosure, letter of 22 May 1995 from Robert W. Corell, Assistant Director for Geosciences (National Science Foundation) and Chair, Subcommittee on Global Change Research] (GAO/RCED-95-164, U.S. General Accounting Office, Washington, D.C., July 1995), p. 30.

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Space Research

I must take issue with the article "Particle physicists take to orbit" by Gary Taubes (Research News, 12 Jan., p. 142). Taubes discusses two new initiatives in space-borne astrophysics, the "GLAST" gamma-ray telescope and the AMS (Alpha Magnetic Spectrometer) instrument, to search for cosmic ray antimatter. The fact that these two proposed missions involve collaborations under leadership by high energy physics groups is taken as a sign of a different culture now entering space astronomy. It is implied that the "expertise, state-of-the-art technology, and culture of large collaborative efforts" of high energy physicists is reinvigorating the field, making it possible "to build satellite experiments more economically than can be done by the traditional NASA method."

There has always been a healthy interaction of "give-and-take" between high energy astrophysics and particle physics. The recent convergence between the two communities is laudable for scientific reasons, but it should be viewed neither as a revolution nor as a one-way street.

Any instrument that takes decades to develop will use technology that may be partially outdated when it is launched. Time durations of this order are not specific to a particular science culture or technology; they are caused by political and funding fluctuations outside the control of the scientific community.

Yes, NASA telescopes have often been constructed by single contractors in the aerospace industry, and the price tags have been high. In some cases, such as the Hubble Space Telescope, it was probably the only way to proceed. However, other instruments have been efficiently and economically assembled under direct scientist control, for instance in university laborato-

ries. The problem now is that NASA (along with other agencies) is continually reducing the support available for technical infrastructure at university laboratories (necessary for the development of complex instrumentation). As a result, only a few institutions are left that would be capable of handling a state-of-the-art space mission. As the universities lose this ability, the opportunities for hands-on training of students and young scientists and engineers in space research disappear. Also, our future in space is endangered.

The AMS project circumvents this problem altogether: it can promise relatively low cost to the U.S. taxpayer by moving most of the hardware activities overseas and by lowering personnel expenses. Thus, on the surface, NASA may have a "cheap" instrument to be put on the space station, but at the price of largely excluding the U.S. science community from hands-on involvement. One hopes this will not become the standard of how the U.S. space science program is to be pursued in the future.

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Corrections and Clarifications

The 1 March ScienceScope item "Fusion backers plead for funds" (p. 1221) incorrectly cited the current Department of Energy fusion budget. The 1996 budget is \$244 million; the 1995 budget was \$366 million.

In the Table of Contents for the issue of 9 February (pp. 734 and 735), the captions for the illustrations at the lower left and the lower right were inadvertently interchanged. "Stretching DNA to the limit" is shown at the lower left, and "DNA bending and transcription" is shown at the lower right.

In the Gordon Research Conferences announcements for Summer 1996 (9 Feb., p. 826), the co-chair of the Lasers in Medicine and Biology session (p. 835), Alfred Vogel, was inadvertently omitted.

Letters to the Editor

Letters may be submitted by e-mail (at science_letters@aaas.org), fax (202-289-7562), or regular mail (Science, 1333 H Street, 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. Letter writers are not consulted before publication.

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