

SCIENCE

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LETTERS

The Missing AIDS Science

The special section on scientific problems in AIDS (acquired immunodeficiency syndrome) research (28 May, p. 1253) is a generally excellent review of the current state of research on HIV (human immunodeficiency virus) vaccine development and on treatments for HIV infection. The most striking feature of the section, however, is the neglect of behavioral and social science aspects of AIDS research. HIV is transmitted through a limited number of well-identified behaviors. The determinants and modifiers of those behaviors are amenable to scientific investigation, and the resulting knowledge can be incorporated into systematic behavior change programs to reduce HIV transmission.

Many of the top problems in behavioral and social research also have the potential to contribute to scientific understanding beyond AIDS. To cite only three examples: Why are even those adolescents who know the risks unlikely to practice safer sex? Why is the injection of illicit drugs, with its risk of HIV infection and other health problems, spreading so rapidly in so many industrialized and developing countries? How can we effectively communicate health risks?

The neglect of behavioral and social sciences in *Science* reflects an unfortunate but pervasive misperception about the relative quality, value, or prestige of different disciplines. Perpetuating ignorance of the behavioral and social sciences, especially the fact that present knowledge can be used to guide effective interventions, contributes greatly to the relative unwillingness of political leaders to implement programs to reduce AIDS risk behavior.

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The recent special section "AIDS: The unanswered questions" was extremely informative, and it encouraged positive social and scientific attitudes. I was particularly impressed with Michael H. Merson's policy forum "Slowing the spread of HIV: Agenda for the 1990s" (p.

1266) and his calls for (i) the use of prevention as "the key to curtailing the ultimate impact of AIDS"; (ii) a "nonstigmatizing approach to groups who often face discrimination (such as homosexual and bisexual men)"; (iii) a lifting of sexually transmitted disease care from its "traditionally coercive context"; and (iv) a need to acknowledge "the existence of risk behaviors, such as sex among young people." Sadly, the statistics on single and multiple exposure categories in adult and adolescent AIDS cases through December 1992 in the United States reveal that one in five cases was associated with intravenous drug use, which was also an exposure category for 54% of Puerto Rican Hispanics (1). Future issues of *Science* that investigate AIDS and its prevention should include serious discussions of the need to destigmatize the human beings who choose to inject drugs, the efficacy of educational programs in preventing the spread of HIV among intravenous drug users and their sexual partners, and the benefits to be gained from needle-exchange programs and the decriminalization of the possession and use of syringes, needles, and currently illicit injectable drugs.

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References

1. *HIV/AIDS Surveillance* (Centers for Disease Control, Atlanta, GA, 1993), tables 14 and 16.

Hubble Telescope Research

Faye Flam's article "NASA PR: Hype or public education?" (News & Comment, 4 June, p. 1416) had the potential to be a substantive look at the complex task of publicly presenting scientific research derived from such a high visibility project as the Hubble Space Telescope. Instead your readers were given a jaundiced and prejudicial picture of the Hubble public communication effort. Flam's caricature of a cynical, scheming NASA "publicity machine" maligns those of us engaged in a serious attempt to communicate Hubble scientific results to the public.

In the absence of substantiation, Flam appears to be making the case for "Hubble-hype" with innuendo, implying conspiracy and quoting from a few scientists who may not have read the actual Hubble press releases or attended the news briefings.

Our office strives for honesty, accuracy, and clarity in translating Hubble results for the news media. We also work to visualize astronomical research to further educate the public. Besides incorporating this work into our own educational materials (video animation, posters, newsletters), we also work closely with textbook authors who readily incorporate Hubble's scientific results into their latest editions.

I can state unequivocally that press releases about Hubble research are derived from genuine enthusiasm and excitement over the results. These releases undergo many levels of review and scrutiny by co-investigators, program scientists, and project managers. To belittle this process as an exercise in hype or misinformation demeans the research of those astronomers who have gone to the extra effort to share their results with the public.

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I fear that Flam's article "NASA PR: Hype or public education?" may leave readers with the impression that NASA and astronomers have deceived the media and the public concerning my analysis of Hubble Space Telescope obser-

ventions of the deuterium abundance in the universe. Flam correctly explains that the ratio of deuterium to ordinary hydrogen only measures the density and thus the gravitational force of ordinary matter in the universe. In my statements to the press at the January 1992 meeting of the American Astronomical Society in Atlanta, I made it clear that if there were no missing or "dark matter," then the universe would expand forever, but that there is dynamical evidence for much dark or exotic matter, perhaps enough of it to halt the expansion eventually. The other participants at the press conference supported this conclusion, and the subsequent articles in the *New York Times*, *Washington Post*, and elsewhere cited this important point. While it is unfortunate that the NASA press release included the words "endless universe" in its title, the text made it clear that dark matter could eventually halt the expansion. Contrary to Flam's assertion, NASA's press release made it clear that this result was not a "new discovery," but rather a far more accurate measurement that agrees with previous results obtained, for example, with the Copernicus and International Ultraviolet Explorer satellites. In this case it appears that some members of the media overstated my conclusions and what was actually said in the NASA press release.

In my experience, many reporters are primarily interested in "newsworthy" results, which they consider to be only those extraordinary observations that definitively refute or spectacularly confirm previous ideas or suggest entirely new directions for scientists to pursue. Alas, such results are rare.

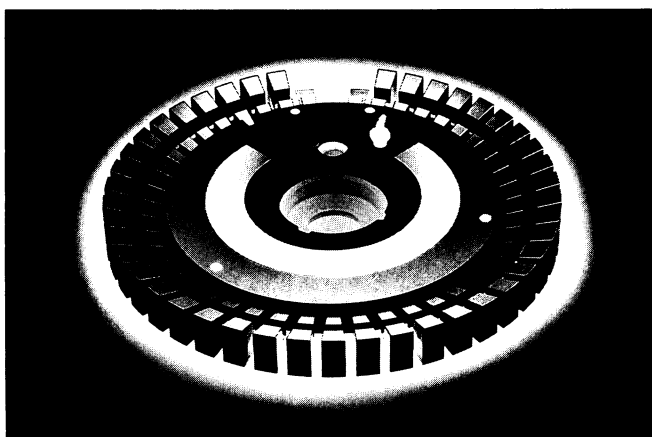
I believe the public would be better served, and scientists would be more comfortable, with media people who describe most important scientific results as what they really are—incremental steps in the evolution of scientific understanding.

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Earth's Early Mantle

I was surprised by Richard A. Kerr's report of the favorable reception given at the recent meeting of the American Geophysical Union (AGU) to V. Rama Murthy's theory about the siderophile element abundances in Earth's mantle (*Research News*, 18 June, p. 1724). My impression was that most geochemists remained skeptical. The "barely constrained outrage" with which geochemists



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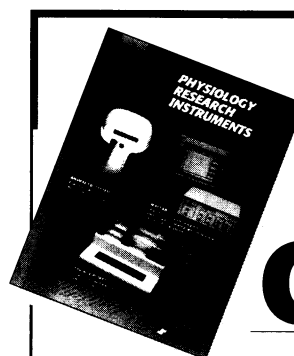
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