

present in coffee plantations with legume and other tree shade cover, very likely providing an ample food supply for insectivorous birds. What is especially notable about these patterns is the high numbers of cicadas emerging in Costa Rica's premier coffee-growing zone within the pronounced tropical dry season, a period corresponding to the winter season of the northern hemisphere. Therefore, dry-season cicadas undoubtedly comprise a portion of the diet for migratory bird species inhabiting these areas temporarily as well.

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#### Approaches to AIDS Research

The enormous attention paid to the problem of AIDS has included much discussion

about funding: How much federal money should be spent on AIDS relative to other research endeavors? What are the gaps in our knowledge that need to be filled? How much spending should be for targeted research and how much should be investigator initiated? There has been little discussion, however, of the institutional formats under which AIDS research can be done.

I recently attended an opening celebration for a new research floor at the Aaron Diamond AIDS Research Center (ADARC) in New York and was reminded of the numerous significant advances made by their team of investigators. I doubt that the research progress of these same investigators would be anywhere near as spectacular if they were individually placed in major universities around the country. The key is the institutional setting. A highly competent group of faculty-level investigators with complementary disciplines and interests has been brought together by a strong leader, David Ho, to focus on several discrete aspects of the AIDS problem. As with any good sports team, the total is much greater than the sum of the individual parts.

The formation of ADARC was made possible by the hard work and financial backing of the Aaron Diamond Foundation. While the continued operation of

ADARC is dependent on the cooperation of the Diamond Foundation, Rockefeller University, and the city of New York, most of the operating costs are borne by federal grants. We need more of these focused research centers if we are to optimize our spending in the fight against AIDS. I second the challenge of Secretary of Health and Human Services Donna Shalala to philanthropic organizations to use their financial power toward this end. Other societal problems—drug abuse and gun control, to name a few—could also benefit enormously from this approach.

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#### Swedish Biomedical Research Funding

In Jon Cohen's News & Comment article of 25 October (p. 491), a table lists changes in the public funding for basic biomedical research in various countries between the years 1996 and 1997. The figures appearing

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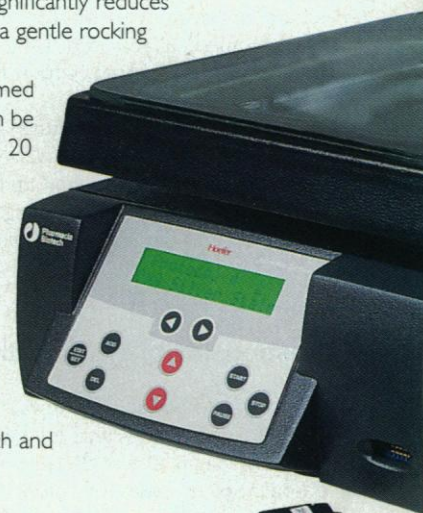
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in the table indicate cuts in public funding for basic biomedical research in Sweden.

Government appropriations for research and development (R&D) in Sweden amount to 1.2% of the gross domestic product. In Sweden, as in many other industrialized nations, public spending is currently under great pressure, and research budgets as well as other sectors of public funding are subject to cuts. Biomedical research is in no sense targeted in this respect. Generally speaking, research and education are priority areas and therefore among the least affected sectors.

The volume of funding indicated in the table seemingly corresponds to the total research funds of the Swedish Medical Research Council (MRC) plus some additional funds for related research from other sources (other research councils, foundations, and so forth). The MRC accounts for only about 10% of Swedish public funding for biomedical research. Even within the definition of "basic" biomedical research, faculty operating grants should be considered. The combined funds for the research council and the medical faculties amount to \$198 million (U.S.) in 1996 and \$193 million (U.S.) in 1997—for a cut of less than 3%.

Most of the cuts in direct government funding of biomedical research in Sweden will most likely be compensated for by intervention of the research foundations that were created out of the Collective Wage Earners Funds by the former government. One of these foundations is already planning to increase the volume of funding in bioscience from \$8.9 million (U.S.) in 1996 to \$18.8 million (U.S.) in 1997, a substantial part of which is targeted for biomedical research.

The Swedish science system also contains private research foundations, some of which are important contributors in specific areas of biomedical research. One example is the Cancer Foundation, which builds on charitable donations.

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## Responsibility of Co-Authors

I am concerned about the views expressed by Charles F. Wooley and by Paul de Sa and Ambuj Sagar about the responsibility of co-authors in cases of scientific fraud (Letters, 6 Dec., p. 1593). Holding all authors fully responsible for all aspects of a scientific paper would inappropriately in-

crease the risks associated with collaboration, both within and between laboratories. This is particularly evident when a collaboration brings together scientists in different specialties, for they cannot be expected to assess each other's work in depth. Must they therefore publish separately? Even for scientists in the same field, it will not always be possible for a co-worker with expertise and good intentions to uncover clever fabrications before publication.

Scientists cannot work effectively in isolation: specialization and division of labor are as important in science as in any other complex endeavor. Each collaborator must be fully responsible for his or her own contribution and should also be responsible for overseeing and critiquing the work as a whole according to commonly accepted standards of prudence. To ask more is unreasonable and potentially damaging.

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De Sa and Sagar propose that responsibility for the contents of a paper be shared by its authors. This amounts either to banning all papers with more than one author or enshrining a kind of chivalry where scientists agree to destroy their own careers if they happen to work in the same lab as a scientist who commits fraud. Writing papers, no less than any other communal activity of civilization, depends on ethical behavior on the part of the participants. When lapses occur, they must be punished, but removing the dependence on ethics is only possible by making a prison.

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Relying on slogans like "if you haven't done the work, don't put your name on the paper" or catch phrases like "collective responsibility" is not the way serious matters should be decided. How about a paper in particle physics carried out at, say, Fermilab or CERN accelerators, with 500 co-authors? Each co-author works hard—perhaps full-time for years—on a limited aspect of the giant system. Each deserves his or her name on the paper. Yet it is ridiculous to think that each co-author can or should be able to vouch for each of the others.

Rules should be flexible. And scientists

should always remember that we haven't thought of all possible situations.

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If marriage partners are not held liable for the actions of their spouses, why would we assume that scientific collaborators are liable? In both cases, liability would be tantamount to an assertion of omniscience, and an omniscient scientist would probably be in no need of collaborators.

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## Corrections and Clarifications

In the Research News article "The case of the missing migrants" by Laura Tangley (22 Nov., p. 1299) the "Baltimore" oriole (*Icterus galbula*) in the top photograph is actually a male Bullock's oriole (*Icterus bullockii*).

In the Research News article "Glimpsing myelin's protein glue" by Marcia Barinaga (20 Sept., p. 1657), the second full paragraph on page 1658 should have made clear that the spacing at the extracellular appositions (from lipid headgroup to headgroup) in native myelin can be accurately measured by x-ray diffraction of freshly dissected nerves (not by electron microscopy, as stated in the article). This was shown by H. Inouye and D. A. Kirschner [*Biophys. J.* 53, 235 (1988)].

In the Perspective "High-resolution imaging of the self-assembly of organic monolayers" by S. Chiang (24 May, p. 1123), credit for the figure should have been given to G. Poirier, National Institute of Standards and Technology.

In figure 3B (p. 1169) of the report "Prognosis in HIV-1 infection predicted by the quantity of virus in plasma" by J. W. Mellors *et al.* (24 May, p. 1167), the median CD4 count corresponding to the lower curve should have read, "299," not "229."

## Letters to the Editor

Letters may be submitted by e-mail (at science\_letters@aaas.org), fax (202-789-4669), or regular mail (*Science*, 1200 New York Avenue, 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. They may appear in print and/or on the World Wide Web. Letter writers are not consulted before publication.