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Mean sea surface elevation in the North Atlantic, showing the influence of ocean floor topography and the flow of cold and warm currents on surface levels. This image was constructed from data from the radar altimeter of the European Space Agency’s ERS-1 oceanographic satellite, a good example of European scientific collaboration. See page 1742. Beginning on page 1733, this special issue features News reports, Perspectives, and a Policy Forum on science in Europe. [Image: Carel Wakkers]
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Two great issues confront science in Europe today: the gradual evolution of science policy within the European Community and the gradual disintegration of the science base in central and eastern Europe. In this issue, we overview the current state of these affairs and other frontiers of science in Europe. These are matters that have aroused much curiosity and concern, both inside and outside Europe, and Science will continue to monitor and report on them.

Recently, there have been two significant developments in the internationalization of this journal, developments that will allow Science to describe and comment on science in Europe with a new authority. First, the Europe Office opened earlier this year, and second, the Board of Reviewing Editors was expanded, with 14 of the 15 new editors coming from Europe. It might be asked why now, with international telecommunications technology developing rapidly and becoming cheaper, has Science decided to open an office in Europe, and what services can subscribers and contributors expect the office to provide?

European scientists are preeminent in many areas of science and scientists in all countries are increasingly engaged in international collaborations at all levels. Furthermore, Science has always contributed from outside the United States. The number of manuscripts submitted from European laboratories is steadily increasing, and we hope and expect it to increase even more. These factors make an office in Europe desirable, if not mandatory. For authors, there is the obvious advantage of an office keeping European hours, where inquiries regarding the progress of a manuscript can be handled by in-house editors in a timely manner. The presence of editorial staff who are aware of, and sympathetic to, scientists communicating their work in a foreign language is another important feature. And the presence of Europe-based editors will inevitably lead to increases in the number of European scientists involved in the peer-review process. It must be emphasized, however, that our aim is internationalization, not Europeanization. A parallel review system in Europe is not being developed. Rather, procedures for handling manuscripts are truly integrated, so that authors can send manuscripts to either the U.S. or Europe Office. All manuscripts are sent to the most appropriate reviewing editor, whether in Europe, the United States, Asia, or elsewhere, and here modern telecommunications do come into their own. Similarly, manuscripts will be sent to the most appropriate referees in in-depth review, regardless of the nationality of the authors or reviewers.

The functions of the Board of Reviewing Editors have been described in a previous editorial [Science 227, 249 (1985)]. The addition of European scientists to the board adds complexity to our in-house procedures but the motive—a quick review by recognized experts to evaluate on the probability of acceptance, followed by an in-depth peer review if the first appraisal is positive—remains the same. The advantage to the author is that he or she gets the manuscript back quickly for submission elsewhere if the likelihood of acceptance is low, and he or she knows that it has a 50 percent probability of being published if the manuscript is sent out for in-depth review.

The Europe Office also expands Science's news coverage. The existing reporting team has been joined by a News Editor who is setting up a network of contributors across the continent to provide an unrivaled coverage of science news. As with the peer-reviewed research pages, additional news pages have been allocated so that the new material will not require a decrease in coverage of science in the United States.

Scientific exploration has always been an international pursuit, with friendships, collaborations, and rivalries being generated by scientists pursuing a common goal. The intellectual frontiers are continuously expanding, require no territorial conquest, and gain greatly from international cooperation. With the opening of the Europe Office, we apply the same logic to science publishing: The increased involvement of leading European scientists can only enhance our peer review, news gathering, and article solicitation activities, to the benefit of scientists everywhere. Opening an office in Europe is a major step, but by no means a final one, in the internationalization of Science. For the same reasons—scientific preeminence, expanding global scientific exchange, global coverage of science, and service to authors—we have made the opening of an editorial office in Asia a priority.

Richard B. Gallagher
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Capillary Electrophoresis System I
HIV and AIDS

The article “Keystone’s blunt message: ‘It’s the virus, stupid’” by Jon Cohen (News, 16 Apr., p. 292) describes the state of the art of AIDS research, but also the state of the minds of AIDS researchers (1). Cohen writes that to AIDS researchers it is either a “conundrum,” or “many puzzles,” or a “disparity” that “the immune system collapses despite . . . only minute amounts of HIV . . . .” Yet they reject an alternative explanation as an “anti-HIV hypothesis” and disdains with the slogan “It’s the virus, stupid.” Is a non–HIV-AIDS hypothesis stupid because it is an anti-HIV hypothesis?

The drug-AIDS hypothesis I have proposed is not a puzzle. It predicts AIDS after individuals inject themselves with psychoactive street drugs (as more than 80,000 American AIDS patients have done) and after they inhale mutagenic and toxic nitrites (as many male homosexual AIDS patients have done) for the 10 years that it is said that HIV requires to cause AIDS (1). It also predicts immunodeficiency from the killing of the highly proliferative cells of bone marrow with the DNA chain terminator AZT (2), which is currently prescribed to more than 200,000 HIV-positive people with and without AIDS (1).

Indeed, the recent summit of HIV trackers that Cohen reviews has provided the best alibi yet for HIV: “Using creative new techniques . . . that are much more sensitive than previous methods, several scientists have found that there is far more HIV in infected people than was previously thought.” For example, “quantitative competitive PCR” (polymerase chain reaction) analysis was shown by George Shaw and his colleagues (M. Piatek, Jr., et al., Reports, 19 Mar., p. 1749) “to be as much as 60,000 times more sensitive than culture-based plasma viremia assays at detecting HIV in plasma.” But does it help the emperor to wear clothes that can only be seen with “creative new techniques”?

In my view, Shaw and his colleagues virtually prove, with an impressive and exhaustive collection of new data, that HIV is not the cause of AIDS. (i) During the primary infection, before immunity, there are 10 to 10^3 infectious HIVs and 3 x 10^5 to 2 x 10^6 HIV RNAs per milliliter of plasma. Thus the new technique sees indeed 10^3 to 10^6 times more RNA than infectious HIV. But there is no AIDS, and the T cell counts are normal. (ii) After immunity, there are no infectious HIVs and about 10^8 to 5 x 10^5 HIV RNAs per milliliter of plasma. There is also no AIDS, and the T cell counts are normal or almost normal. (iii) Once immunodeficiency is acquired and AIDS appears, there are no infectious HIVs per milliliter in 5 out of 27 cases, fewer than 25 in 6 out of 27 cases, and 10^2 to 10^5 in 16 out of 27 cases. HIV RNAs range from 3.6 x 10^5 to 9 x 10^5 per milliliter, despite the complete absence of T cells, the presumed source of HIV, in several HIV RNA-millionaires! The fluctuation of infectious HIV from 0 to 10^5 in otherwise identical AIDS patients indicates to me that HIV is not the cause of AIDS, but instead an optional opportunist of immunodeficiency.

If HIV were the cause of AIDS, T cells would drop and AIDS would appear during the primary infection, when HIV titers are high and there is no antiviral immunity. But if it were an opportunist of an immunodeficiency induced by another cause such as drugs, its titer might be either high or low or zero, exactly as Shaw and his colleagues report. Thus HIV appears to be just another AIDS opportunist like Pneumocystis carinii, candida, cytomegalovirus, and so forth. Sound stupid? And are the more than 3000 documented HIV-free AIDS cases (1) stupid too?

Peter Duesberg
Department of Molecular and Cell Biology, University of California, Berkeley, CA 94720

References

Response: Duesberg’s views on the pathogenesis of AIDS (1), responses to his hypothesis from other investigators (2), and comments on the rhetorical approaches Duesberg has employed in presenting his views (3) have been sufficiently documented in the literature to preclude the need for recapitulation here. Suffice to say that, in contrast to the interpretation offered by Duesberg, we believe our results, along with the data presented in recent publications by Pantaleo et al. (4) and Embretson et al. (5), in combination with an extensive body of clinical, epidemiological, and laboratory data accumulated over the past 12 years [reviewed in (6)], are

Letters
1993
AAAS Philip Hauge Abelson Prize
Nominations Invited

The AAAS Philip Hauge Abelson Prize, established by the AAAS Board of Directors in 1985, is awarded annually either to:

• a public servant, in recognition of sustained exceptional contributions to advancing science, or

• a scientist whose career has been distinguished both for scientific achievement and for other notable services to the scientific community.

AAAS members are invited to submit nominations now for the 1993 prize, to be awarded at the 1994 Annual Meeting in San Francisco. Each nomination must be seconded by at least two other AAAS members.

Nominations should be typed and should include the following information: the nominator's name, address, and phone number; the nominee's name, title, address, and brief biographical résumé (please do not send lengthy publication lists); statement of justification for the nomination; and names, identification, and signatures of the three or more AAAS member sponsors.

The winner will be selected by a seven-member selection panel. The Prize consists of a plaque and $2500. The award recipient is reimbursed for travel and hotel expenses incurred in attending the award presentation.

Nominations should be submitted to Stephen D. Nelson, Directorate for Science and Policy Programs, AAAS, 1333 H Street, NW, Washington, DC 20005, for receipt by 1 August 1993.
Within 3 days, the patient’s CD4 cells had rebounded into the normal range, with the CD4 percentage rising from 15% to 36%. Although the effect of one dose was short-lived, it underscores the important role of the immune system in the destruction of CD4 cells and the fallacy of focusing on the virus alone.

Readers interested in the mechanisms by which HIV-stimulated CD8 cells kill CD4 cells may refer to the work of Zarling et al. (3). The main point is that restricting attention to HIV may preclude the development of promising therapeutic approaches, such as those outlined above.

Allen D. Allen
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References
2. W. Leader, personal communication.

During the past decade, several investigators not mentioned by Cohen have emphasized the role of the lymphoid organs as a reservoir for HIV-1, especially the group of Paul Racz and Klara Tenner-Racz in Hamburg, Germany. These investigators put the presence of HIV-1 particles and proteins in the germinal centers into the broader perspective of the physiological function of these anatomical sites (1). They emphasized the follicular dendritic cells (FDCs), which form an intricate network of dendrites in close contact with B cells, and which are the pivotal antigen-presenting cells in the generation and maintenance of B cell memory because they retain immune complexes. Embretson et al. (2) extended this work, using advanced polymerase chain reaction techniques, and several other European and American groups, using similar histopathological approaches, made early crucial contributions (cited in (1)).

The finding that CD8-positive cells infiltrate germinal centers during the development of AIDS, including detailed quantitation of CD8 cells in the germinal centers (3), has been described extensively in these earlier studies. However, clear hypotheses about the role and function of these cells were scarce. Therefore, my colleagues and I postulated that they are involved in cytotoxic activity directed against the FDC network (4). This network progressively degenerates and eventually disappears over the course of HIV-1 infection and the development of AIDS, which leads to the loss of lymphoid architecture and to

in the patient’s suppressor CD8 cells (2).
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dramatically altered immune responsiveness (1). It is possible that the immune complexes which are retained on the membrane of FDCs by Fc- and C3b-receptors during the physiological process of B memory cell formation serve as a target for CD8-positive cytotoxic T cells (4). The abundance of HIV-1 particles and of immune complexes containing HIV-1 antigens in the germinal center may promote access of CD8+ cells to this anatomical site, where these cells are not found in control lymph nodes. Some HIV-1 antigens mimic self-proteins and may provoke autoimmune-like reactions. In addition, the CD8+ cells in the lymphoid follicle may belong to the population of CD8+ cells (4) that secrete a soluble factor which inhibits HIV-1 replication (5).

Jon D. Laman
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References

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Sorry, Doctor

I was appalled to learn of the new layers of bureaucracy established at the National Institutes of Health (NIH) for controversial proposals (News & Comment, 26 Mar., p. 1820). The establishment of the protocol implementation review committees (PIRCs) and a second-tier "panel to review the research further" has significant, adverse consequences for many clinical and basic researchers. Doesn't the premier research institution in the world know that research, by definition, is controversial?

Just think of the potential "good" such a bureaucracy could serve. Fetal tissue research? Nope, can't fund it. Too controversial. Research about children's knowledge about sex and birth control? Nope, can't fund it. Has offensive language in the questionnaire and it's too controversial. Racial violence research? Nope, can't fund it. Might upset certain minority groups. Animal research? Nope, can't fund it. The animal rights lobby is too strong. Besides, it's too controversial. Cochlear implants for deaf infants and children? Nope, can't fund it. A few deaf advocacy groups think that
it's OK to be deaf and it's too controversial. Well, what about research on digestion in the earthworm? Nope, can't fund it. Doesn't have immediate health relevance to humans, it's too theoretical, and besides, it's controversial.

Please tell me of just one research area that isn't controversial!

L. E. Leguire
Ophthalmology Department, Children's Hospital, Columbus, OH 43205-2696

Drug Development: Serious Questions

I would like to comment on the ScienceScope item “Scientist's salary remark raises hackles” (26 Mar., p. 1815), which discusses my Wall Street Journal editorial (1). I did not “criticize ... [President] Clinton for attacking drug company profits.” In fact, I stated that “[t]here are questions about the prices and availability of drugs and vaccines that are serious and must be discussed.” I called for a “reasoned dialogue with the pharmaceutical industry about the public decision that will affect its future.” My editorial was not primarily about government salaries for scientists. My brief mention of my own “salary” (less than one sentence) was not intended to imply that the claim of a salary gap between federal scientists, academia, and industry was “much ado about nothing.”

Concerning the relative contributions of the pharmaceutical industry and government in the drug discovery and development process, in my editorial, I emphasized the importance of the government’s contributions to biomedical research, especially in supporting “basic ... nontargeted” research. I am still of the opinion that the National Institutes of Health’s (NIH’s) precious funds should be directed, for the most part, to such research activity and not to “high-risk” drug discovery efforts (a job better suited to the pharmaceutical industry). I did not state that the pharmaceutical industry provides a “better atmosphere for drug discovery.” However, if “atmosphere” refers to the considerable resources “needed to develop specific drugs and take the high risks of bringing them to market,” then, in general, I believe this to be the case. This is not to say that the government’s contributions to the development of useful drugs have not been significant. In my opinion, some of the best examples have resulted from a close working relationship between industry and government. The issue of “what can and cannot be done in the public sector” is a timely one and, in the spirit of fostering a more productive relationship between government and industry, should be explored further by the NIH community and representatives of the pharmaceutical industry.

S. M. Paul
Lilly Research Laboratories, Eli Lilly and Company, Indianapolis, IN 46285

References

Corrections and Clarifications

The figure accompanying the 28 May Perspective “Apoptosis in AIDS” by M.-L. Gougeon and L. Montagnier (p. 1269) contained some errors. A corrected figure appears below.
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24. The class II enzyme from Rhizobium meliloti was reported to prefer ribonucleoside diphosphates as substrates (J. R. Cowles and H. J. Evans, Arch. Biochem. Biophys. 127, 770 (1968).
33. R. Eliasson, E. Pontis, P. Reichard, unpublished results.
35. Supported by the Swedish Medical Research council, the European Community, and AB Astra.
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The effectiveness of breast cancer screening by mammography in younger women, Elwood JM, Cox B, Richardson AK, 1993 Feb 25

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Searching the Online Journal of Current Clinical Trials for "old" documents, Huth EJ, 1992 Jul 14

Will publication bias vanish in the age of online journals?, Berlin JA, 1992 Jul 8

The publisher's perspective, Nicholson RN, 1992 Jul 1

Is the medical world ready for electronic journals?, Huth EJ, 1992 Jul 1

MMWRs


Morbidity and Mortality Weekly Report 05 February 1993, Centers for Disease Control and Prevention, 1993 Mar 17 (Vol. 42, No. 4)


CLINICAL ALERT

Important therapeutic information on treatment of HIV infection in HIV-infected patients who are intolerant of or have failed zidovudine therapy: NIH clinical alert, February 1, 1993, National Institutes of Health, 1993 Mar 5
This symposium explores basic developments in molecular and cell biology in neuroscience, cancer and genetics in normal and disease states.

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- Gerald Rubin
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- Richard Axel
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October 8, 1993

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interesting volume is that there is not much agreement over what constitutes a national versus an international scientific program. Hoch and Platt in a study of migration of scientists get all tangled up in overdefining the terms. They conclude that distinctive migratory (that is, highly original scientists) bring their own ideas, whereas lesser lights bring “national” science. Thus (to introduce an example of my own) Einstein would not have represented German “national” science in the United States, but his assistant Walther Mayer would have. Einstein, of course, was as much a bearer of German science, not to mention its professional culture and the disciplinary culture of German theoretical physics, as was Meyer. Internationalization in the context of this chapter simply means “diffusion,” and the new term adds nothing to our understanding of this process.

Although a case is certainly made here for an intensification of international and transnational scientific activity, it is not at all clear that it is, in the editors’ words, “gaining the upper hand,” particularly as regards the cognitive structure of science. Although the latter has had (putatively, at least) an international dimension since the Scientific Revolution, distinctive national and disciplinary cultures seem likely to structure scientific activity for a good time to come.

**Thomas F. Glick**
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### Books Received


**Lu Gwei-Djen.** A Commemoration. Pentland, Durham, United Kingdom, 1993. xii, 32 pp., illus. Paper, $9.50.


**Sex and Russian Society.** Igor Kon and James Riordan, Eds. Indiana University Press, Bloomington, 1993. viii, 168 pp., illus. $29.95; paper, $10.95.


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**Vignettes: Design and Intervention**

Concentration on causation can resolve old misgivings about the term “natural selection”—. A student today who objected that the term implicitly ascribes intentions to nature would likely be told that it is not the intentions alone of the human breeder that make her selective breeding causally efficacious in changing a herd or flock. If the farmer merely looks over the gate and intends then nothing happens; it is what she does physically, in separating certain animals or killing or castrating them or whatever, that makes the difference causally. The appropriate-ness of the term selection as applied to nature is, therefore, due not to any mimicking by nature of the farmer’s intentions but to the occurrence in the wild of causal interventions that are equivalent in their consequences to the physical interventions the farmer makes in a physical course of events on the farm.

—M. J. S. Hodge, in *Keywords in Evolutionary Biology* (Evelyn Fox Keller and Elisabeth A. Lloyd, Eds.; Harvard University Press)

One afternoon, having landed far down the river with a companion and walked about through a quantity of *Desmodium* (m. *lanydicum* or *rigidum*, which have roundish joints) by the shore there, we found our pantaloons covered with its seeds to a remarkable and amusing degree. These green scale-like seeds densely covering and greening our legs . . . amounted to a kind of coat of mail. It was the event of our walk, and we were proud to wear this badge, regarding each other with a little envy from time to time, as if he were the most distinguished who had the most of them on his clothes. My companion betrayed a certain religion about it, for he said, reproving me, that he thought it would not be right to walk intentionally amid the *Desmodium* in order to get more of the ticks on us, nor yet to pick them off, but they must be carried about till they were rubbed off accidentally. The consequence was that when he reappeared for a walk a day or two after, his clothes were nearly as well covered as at first. I saw that Nature’s design was furthered even by his superstition.

—Henry D. Thoreau, in *Faith in a Seed: The Dispersion of Seeds and Other Late Natural History Writings* (Bradley P. Dunn, Ed.; Island Press/Shearwater Books)
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