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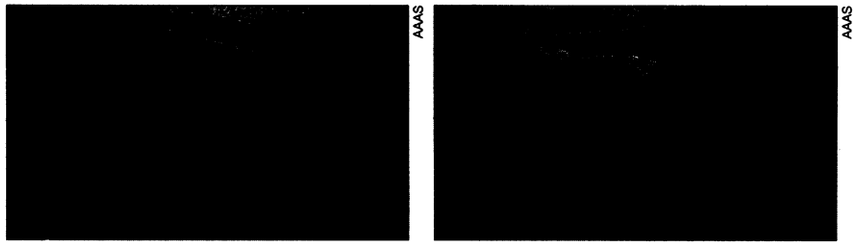
LETTERS

Hard questions

The environmental effects of dioxin-contaminated herbicides such as Agent Orange, sprayed by the U.S. military during the Vietnam War (mangrove forests south of Ho Chi Minh City in 1970, left, unsprayed; right, after spraying), have long been the subject of debate. A letter recommends follow-up study of those effects. Other letters discuss electronic publishing, the academic job market, and fusion.



Dioxins in Vietnam

With reestablishment of full diplomatic recognition of Vietnam by the U.S. government finally accomplished, it seems appropriate to ask why no studies of the environmental effects of dioxin [TCDD (tetrachlorodibenzodioxin)] in Vietnam have been undertaken by the U.S. government. In fact, the National Academy of Sciences in 1974 recommended that studies "be started immediately" (*1*). This apparent lack of concern on the part of our government contrasts with actions of Canada, Japan, and other countries. Canada has an extensive pilot program operating in the south of Vietnam helping to assist and further train Vietnamese scientists in methods of assessing degrees of dioxin contamination. The Canadians calculate that Vietnam, a country one-third the size of British Columbia, was subjected to annual environmental loadings of dioxin more than 150 times greater than annual worst-case loadings to the British Columbia environment as a result of pulp mill discharges (*2*).

As a recent editorial (*3*) stated

> Many in the United States may feel a special responsibility to join the ongoing research efforts by inadequately funded investigators from Europe and other countries, especially those from France and the World Health Organization. It is also the case that scientific information about TCDD effects gleaned from studies in Vietnam will help industrialized nations to deal with widespread contamination by dioxin in their own environments.

We believe the AAAS would contribute to a truly significant follow-up to the work of its Herbicide Assessment Commission (*4*) by urging Congress to fund a full-scale study of dioxin in Vietnam, offering its good services as desired.

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2. Hatfield Consultants, Ltd., personal communication to E. W. Pfeiffer.
3. J. Dwyer and D. Flesch-Janyo, *Am. J. Publ. Health* **85**, 476 (1995).
4. J. D. Constable, R. E. Cook, M. Meselson, A. H. Westing, *Science* **186**, 584 (1974); AAAS Herbicide Assessment Commission, *Congr. Rec.* **118**, 6806 (3 March 1972).

Electronic Publishing

In their editorial " 'Wired' science or whither the printed page?" (4 Aug., p. 615), Shmuel Winograd and Richard N. Zare state that the scientific community must ask "some very hard questions" about electronic publishing. One point made by Winograd and Zare may lead readers to believe that electronic publishing precludes peer-review and that this results in rapid publishing. The speed of dissemination of electronic journals comes not from bypassing the peer-review process, but from

bypassing the print process; it can save on the order of 3 to 6 months.

This new medium allows for strictly refereed journals as well as free-wheeling discussion groups. Hence, the Web contains reviewed journals such as *Psycholoquy* (**http://www.princeton.edu/~harnad/psyc.html**), which is reviewed to standards most print journals are hard-pressed to meet, and preprint journals, such as the high energy physics e-print archive (http://xxx/lanl.gov/), which dominates its field because of rapid dissemination and universal free access.

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My colleagues and I in the American Society for Biochemistry and Molecular Biology (ASBMB), which publishes the *Journal of Biological Chemistry*, welcome the timely editorial on electronic publication by Winograd and Zare. We share both the enthusiasm and the concerns expressed in the editorial about issues such as quality control, authorship, intellectual property and archivability. We also agree that technical capabilities, while impressive, are an insufficient guide to electronic presentation of scientific information. It is for this reason that our successful efforts to publish the *Journal of Biological Chemistry* electronically (**http:/www-jbc.stanford.edu/jbc/**) have required a truly collaborative effort between the ASBMB, the scientist-editors of the journal, the Stanford University Libraries, Stanford Academic Information Resources, and Cadmus, publisher of the print version of the journal.

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The examples cited by Winograd and Zare as electronic publication of scientific journals online that are "already a reality" (*Journal of Biological Chemistry* and *Astrophysical Journal Letters*) are both actually expensive demonstration projects, offered free to all Internet users to evaluate the delivery technology. More realistic examples of online publications can be found at the OCLC Electronic Journals Online server (**http://www.oclc.org/oclc/promo/ejo_list.htm**), where users must be paying subscribers. A critical evaluation of the history of the *Online Journal of Current Clinical Trials* (sold last year by the AAAS, the publisher of *Science*, to Chapman and Hall) would be a valuable lesson in how economics affected a technically excellent electronic publication.

As the U.S. government involves itself with the fledgling electronic publication efforts (*1*), those of us attempting to make economic sense of an evolving market can only wonder what its long-term role will be.

The most important issues are no longer about technology or quality, but economics. Of the thousands of peer-reviewed research serials published in the world, only a few dozen are available in an electronic format, most on CD-ROM. Many publishers balk at spending even a small fraction of their printing budgets on the production of electronic versions and fear that electronic subscriptions will further erode revenues from their declining subscriber base. Thus, they postpone making a closer evaluation of the survival value of their product in a changing marketplace.

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Notes

1. For example, the National Science Foundation's (NSF's) grant to theoretical physicist Paul Ginsparg and his colleagues at Los Alamos National Laboratory to maintain a server of high energy physics data, the NSF grant of $450,000 to launch *Astrophysical Journal Letters* online, and the funding of the Mosaic program by the National Center for Supercomputing Applications.

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Worthy Pursuits

In his editorial "Degrees of freedom" (18 Aug., p. 903), Don S. Doering eloquently describes the plight of new Ph.D. researchers who, in trying to adapt to a tight academic job market, face a strong prejudice against any career other than academic research. To answer his question, "How do we fix a system that . . . has produced many more Ph.D.'s than the market can bear?" I suggest that academic scientists who espouse that prejudice be limited to training only enough Ph.D.'s to replace themselves (or even fewer, if budgets in their field are shrinking). How can they ethically train any more than that, when they knowingly condemn the additional ones to a professional life they regard as inferior?

Academic scientists typically supervise Ph.D. theses from their thirties to their sixties; allowing for those who die early, switch to administrative positions, or otherwise leave the field sooner, each needs to train a replacement no more than once every 20 years or so. When the issue is put to academic scientists this way, some will stand by their beliefs and ease the imbalance on the supply side. The others, faced with giving up most of their cheap labor supply, will probably come to realize that for a student to pursue a career outside the academy maybe isn't so unworthy after all.

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Asymmetrical Ability

Oliver Sacks (Letters, 5 May, p. 621) suggests that the development of exceptional musical abilities in some individuals with neurodevelopmental disorders such as autism and Williams syndrome constitutes a "savant" talent and as such might represent a "neuromodule." He speculates that the exaggerated leftward asymmetry of the planum temporale area of the brain recently reported in a group of professional musicians by Gottfried Schlaug *et al.* (Reports, 3 Feb., p. 699) may reflect the neuromorphological substrate of such a neuromodule.

In fact, we have carried out analyses (*1*) of the planum temporale in individuals with Williams syndrome. The surface area of the left and right planum temporale of four subjects was measured with magnetic resonance images (MRI) with the same anatomical criteria used by Schlaug *et al.* The planum temporale asymmetry for these individuals with Williams syndrome was on par with that of the group of musicians studied by Schlaug *et al.* (mean, −0.23; standard deviation, 0.24). Three of the four individuals with Williams syndrome had greater asymmetry than that of the musicians, but less than that of musicians with perfect pitch. In contrast, five normal control subjects had an asymmetry coefficient that was consistent with the nonmusician control group in the study by Schlaug *et al.* (mean, −0.34; standard deviation, 0.14). In addition, subjects with Williams syndrome did not differ from normal subjects in total planum temporale surface area (1000.8 versus 962.1 square millimeters, respectively), despite significant overall reduction of cerebral volume reported in subjects with Williams syndrome (*1*), suggesting dispro-