Editorial & Letters

EDITORIAL

On the Future of Scholarly Journals

Like global tectonic plates moving on a collision course, the world of scholarly journals—made up of authors, readers, librarians, and publishers—is headed for seismic upheavals that must result in major alterations in the landscape. Librarians, hit with declining budgets and escalating journal prices, are canceling subscriptions. Publishers, facing declining subscription levels, raise rates to compensate, and then some. The increase in the output of research papers balloons the size and cost of journals. The vision of meaningful access to current information by scientists in developing countries is further off than ever.

Fortunately, some solutions—in the form of digital publishing—are at hand. We already know the elements of digitally based systems that are essential to handling research reports. But we must still solve their many economic and technical problems. The devil is in the details.

Digital publishing has much to recommend it over print publishing for practical if not for esthetic reasons. Uncomfortable tradeoffs are involved, to be sure, but the gains include ease of access, rapid delivery over great distances, and hypertext links from indexing services and bibliographic citations to the full texts of cited documents. And how better to manage the expanding body of research? This is not to say that electronic publishing will suddenly make journals inexpensive or make printed journals disappear overnight. Journals that switch completely from print to electronic format will save the heavy costs of paper, printing, binding, and shipping worldwide, but they will incur the costs of setting up and maintaining digital archives. Certain other fixed costs such as those associated with peer review will remain. Still, the net effect should be cost savings and far greater accessibility of material.

Who will design, build, and operate these new systems? Inevitably, that will be decided by journal owners. Societies own many journals, but the majority are the property of commercial publishers. Proposals have been floated under which all journal publishers would provide editorial content prepared in a standard digital format to a government agency, or to a new "nonprofit foundation," commissioned to digitally archive journals. But in the U.S. political climate today, funding of the former plan by "big government" appears unrealistic, and the latter raises issues of control and division of revenues.

Sensing opportunity, document delivery companies, or "consolidators," have sprung up seeking to persuade publishers to license them to take on this responsibility, and to offer pay-per-view services. But why pay someone else for what you can do yourself? In the long run, all except small publishers will likely decide to handle the job themselves, alone or via consortia. Indeed, publishers would be foolish not to maintain such archives anyway, if only for security reasons. In any event, libraries would serve as an interface with the journal archives and as service providers. The need for interlibrary loans should fade.

To realize the fullest benefits of electronic publishing for the user, publishers must be willing to open their archives to pay-per-view via the Internet, whether or not the printed versions of the journal continue to exist. Many journals (for example, *Science*) now allow Internet access at nominal cost, but only to those who maintain subscriptions to the printed journal. Fortunately, the price of journals like *Science* is low, thanks to high circulations and advertising revenues. But most scholarly journals have paid circulations of less than 2000 and little advertising and thus rely heavily on library subscriptions. Faced with shrinking library subscriptions, publishers of such journals may gradually abandon print formats altogether and go electronic, developing realistic fee schedules for pay-per-view use. Publishers will insist upon reliable systems that track usage, charge the users, and block access to those not licensed to tap into the archive network. These requirements necessitate the use of new types of archival systems still under development (see www.arl.org/newsltr/194/identifier.html).

A standing committee of publishers, librarians, and information technologists should be formed to decide how a network of multiple archival sites can best be configured. Compatibility is obviously essential. Preservation of the world's scientific heritage in digital form over decades of changing software and hardware is imperative. Such an archive must not be vulnerable to market forces or to shortsighted business decisions. This argues for at least a "repository of last resort," perhaps best kept by the Library of Congress, consisting of off-line storage of abandoned materials.

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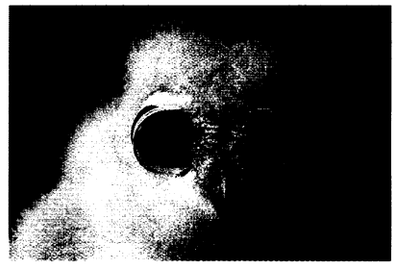
LETTERS

Looking ahead

Two research teams find evidence that the virus that causes Kaposi's sarcoma "can protect [AIDS patients] from ... HIV dementia." The identity of a chimp whose "bipedal locomotion is peculiar" is nailed down. And readers discuss a study on learning in young owls. (Below, juvenile owl in prisms.)



ANNE KNUDEN

Great Expectations in China

In her article "Chemist to lead new science ministry" (News & Comment, 27 Mar., p. 2034), Xiong Lei notes that Chinese Premier Zhu Rongji has promoted Zhu Lilan, a polymer chemist, to head the new Ministry of Science and Technology. Much is expected of the new Cabinet and of Premier Zhu Rongji, especially with respect to strengthening the economy.

Although science and technology are essential for China's success, democracy is another player to whom Zhu Rongji might give an important role. Many Western-educated Chinese have long believed that science and democracy are key characters in China's future.

The mentor of Minister Zhu Lilan is Qian Renyuan (not Wenyuan, as his name was spelled in the article). Having graduated from Zhejiang University, "an oriental Cambridge," Qian Renyuan may be the best-known living polymer scientist in China.

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Owls and Early Learning

In her News & Comment article "Owl study sheds light on how young brains learn" (6 Mar., p. 1451), Marcia Barinaga extrapolates from the results of an animal study to human de-

velopment. Although the research that Barinaga discusses (E. Knudsen, "Capacity for plasticity in the adult owl auditory system expanded by juvenile experience," Reports, 6 Mar., p. 1531) may well add support to the idea of plasticity in the young brain in general, it says little about what the brain should learn.

Barinaga concludes by stating, "It all reinforces what Hillary Clinton and the news magazines have been telling us: that exposing our kids to more experiences at a young age may make them smarter adults. Indeed, it may physically lay down the pathways for achievement later in life." This conclusion could be read as supporting any and all kinds of stimulation aimed at infants and young children.

The owls appear to have learned at an early age because they were motivated to do so in order to survive. A young child may well have the capacity to learn a foreign language, but likely has no motivation to do so if the language is not spoken in his or her home or by the parents. The fallacy in leaping from brain to behavior is that behavior is determined by many factors other than brain capacity. A natural athlete may never realize his or her potential because of lack of motivation, whereas a less-gifted athlete may win medals thanks to sheer energy and drive.

Not all stimulation is necessarily good for young children—witness the newly imported British television program "Teletubbies," aimed at 1-year-olds, and computer programs for 6-month-olds. Brain and behavior are at such different levels of analysis and measurement that we need to be cautious in leaping from one to the other. Overstimulation of infants and young children can endanger healthy development.

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In her article about the splendid report by Knudsen, Barinaga states that the owl's eyes are "fixed in their sockets." An owl's eyes do in fact move—not a great deal, just enough for two papers (*1*). The phrase "nearly immobile" would be more accurate.

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References

1. M. J. Steinbach and K. E. Money, *Vis. Res.* **13**, 889 (1973); M. J. Steinbach, R. G. Angus, K. E. Money, *ibid.* **14**, 745 (1974).

Natron Trade, 2000 B.C.

In her article "Yemen's Stonehenge suggests Bronze Age Red Sea culture" (Research News, 6 Mar., p. 1452), Heather Pringle states that the al-Midaman culture of 4000 years ago may have acquired wealth by trading in natron because it is a key ingredient in soap. Natron was also used in large quantities in the mummification process in order to remove water from the body before it was wrapped. This would be another use for natron in trade with the Egyptians.

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Kaposi's Sarcoma and Protection from HIV Dementia

In their report "Angiogenic and HIV-inhibitory functions of KSHV-encoded chemokines" (10 Oct., p. 290), C. Boshoff *et al.* found that Kaposi's sarcoma (KS)–associated herpesvirus (KSHV) encodes chemokine-like proteins (vMIPs) that block infection of human immunodeficiency virus–type 1 (HIV-1) on the surface of cells from a CD4-positive cell line that expresses the chemokine receptor CCR3. Because CCR3 is a receptor for HIV-1 entry into microglia, Boshoff *et al.* suggest that patients with KS or high loads of KSHV might be less prone to HIV infection of microglia cells and thus less likely to develop HIV-related dementia.

We examined the relation between KS and HIV dementia in 229 deceased AIDS patients from Oslo, Norway, treated at Ullevål hospital (*1*). The sample corresponds to 91% of registered dead AIDS victims in Oslo from 1983 to 1996. The autopsy rate was 73%, and in this group the occurrence of HIV encephalitis could be studied.

HIV dementia develops gradually. The clinical diagnosis of definite and possible dementia was based on the staging described by Price and Brew, their stage 2 or more corresponding to definite dementia (*2*). The diagnosis of HIV encephalitis at autopsy was based on the presence of multinucleated giant cells (MGCs) in the brain tissue, while diffuse damage of white matter may indicate a less advanced stage of brain infection.

Among the 22 KS cases, one case of definite clinical dementia (4.5%) and three with possible dementia (13.6%) had been diagnosed. Among 207 non-KS cases, 52 had definite dementia (25.1%) and 51 had possible dementia (24.6%). Treating the numbers as a 2 × 3 table with ordered categories (definite dementia, possible dementia, and no