

# Scientific Publishing in the Year 2020: A Report from the AAAS Annual Meeting

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*CBE Views*

A massive electronic archive, with various items linked, offers ready access to articles, books, and more. High-resolution screens allow such comfortable viewing that users rarely print out documents to read. The typical hotel room includes a computer-telephone combination through which guests can check e-mail. People read “compu-books” and “compu-mags” in bed.

Such images were among those presented at the session “The Grand Unified eArchive: Scientific Publishing in the Year 2020”, at the 1999 American Association for the Advancement of Science (AAAS) annual meeting. Organized by R Stephen Berry of the University of Chicago and Mark S Frankel of AAAS, the session included presentations by Ann Okerson, Yale University (“Cybrarians and the eArchive”); Andrew M Odlyzko, AT&T Labs (“The Economics of Electronic Publishing”); Thomas von Foerster, Springer-Verlag (“Peer Review in the Electronic Era”); and Berry (“How We Got Here from There: The Transition from Paper”).

Speakers considered the past as well as the future. Okerson, who has tracked the growth of electronic journals, said that in 1990 there were no more than 10. By 1995, the number had reached about 300. Today, she estimates, there are nearly 10 000 electronic journals,

most of them electronic versions of print journals. She said that all important journals in science, technology, and medicine either are on the World Wide Web or soon will be.

Von Foerster noted that early journals often were named after their founders and contained whatever the founders deemed worth including; what we now consider standard peer review came to dominate only in the latter half of the 20th century. Although concurring with Niels Bohr that “prediction is difficult, especially of the future”, he said that expert review will still exist in the electronic era. In some cases, he indicated, review may retain largely its current form. In others, experts may post on their Web sites items that they consider worthwhile. “Some kind of review”, he concluded, “will be with us as long as we have science.”

Topics of recurrent discussion included archiving to ensure continued access to items over the years. Issues mentioned in this regard included compatibility among electronic modes. Also, Berry said that until other media prove to be long-lasting, perhaps paper should be retained as “the ultimate archiving material”.

Speakers made various other points. Okerson observed that whereas for print journals the unit of purchase has been the annual subscription, for online journals it may be the article. Odlyzko said that preprint systems are more suitable than journals for

establishing priority, in that a paper may be submitted to more than one journal before it is accepted. Berry said that electronic images can aid in obtaining scientific insights, for example by helping scientists to think about more than 3 dimensions. He also said that because government-supported science is a public good and increases in value with use, it is important to be able to distribute the resulting information broadly, as can be done electronically. Other subjects discussed included intellectual-property issues, the roles of libraries and librarians, the costs of converting books into digital form and of operating electronic journals and preprint archives, and the international impact of electronic communication in science.

Odlyzko conceded that although electronic technology facilitates research and publishing, doing science and writing about it remain difficult work. “The hard part is still thinking”, he said. “Our neurons aren’t running any faster than they used to.”

AAAS met 21-26 January in Anaheim, California. Audiotapes of sessions are available from AVEN (Audio Visual Education Network Inc), 10532 Greenwood Avenue N, Seattle, WA 98133; telephone 206-440-7989 or 800-810-8273; fax 206-440-7990; [www.aven.com](http://www.aven.com). 