

SCIENCE

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EDITORIAL

Refining the On-Line Scholar's Tools

Three months ago, *Science* began the second phase of our World Wide Web system for distributing information (see *Science*, 3 November 1995). With that issue, users of *Science's* on-line counterpart (at URL <<http://science-mag.aaas.org/science/>>) were given new tools developed in collaboration with HighWire Press of Stanford University. As early as 5:00 p.m. eastern time on the day before the cover date, readers of the *Science* On-Line Web pages could search through the cumulative archives (back to 6 October 1995) of abstracts of all published Articles, Reports, Perspectives, and Policy Forums, as well as summaries of Research News and News and Comment items. Tables of Contents were also viewable back to 23 June 1995, when this digital campaign was launched. Our general objective in developing these features is to exploit the digital media channels and help readers navigate, select from, and organize the seas of information they confront daily.

In the next few weeks, we will be introducing additional tools. Although many of our print readers may still be skeptical that such Web mania can meet their needs in scientific data gathering and analysis, we believe that we can significantly augment the value of the print journal through these new media, especially for readers in locations where mail delivery may be problematic or for whom rapid access to new and past items may be important. Without giving away all of the features under development, we would like to provide enough detail about our future general direction to entice additional readers to sample our digital wares, along with the print offerings.

In the near future, we will be sampling readers' interest in obtaining the full text of our Articles, Reports, News, and other items. We will also be providing more than the full text by delivering information that would not fit in the limited pages of a printed issue of *Science*. Now in active testing are automated software features that will establish hyperlinks to other data and information sources that are relevant to a printed item, a capability that is well beyond what can be done with printed-paper technology. Under consideration is the possibility of allowing authors to link addenda to their papers, so that they can report less formally on subsequent findings related to their original ones and do so well before a new submittal could make its way through our peer review system or that of another journal. Such temporarily evolving searchable threads transcend the usefulness of printed notes. The next steps will also provide some new ways to satisfy the hungers of those who track new books on science-related issues. In addition, we believe that the on-line media may allow more readers to respond with letters to editors and authors, which can later be excerpted for print-only readers. The next set of on-line tools and services has already been thoroughly tested with active lab scientists to ensure that those tools are not only usable but also provide truly useful features, whether a reader wants to search for *Science* papers, news, product ads, or job opportunities. The costs of taking these next steps will initially be borne by leading-edge advertisers who want to bring their name, products, and services to the attention of the Internet-savvy scientific community. The intent throughout the developmental stages has been to keep the advertising informative and accessible.

The electronic channels available to *Science* readers are also facilitating the ways in which we receive, review, and decide on submittals, and in fact helped our dedicated staff survive the blizzard of 1996 and get the 12 January issue out almost undelayed. Staff walked in (one trudged 6 miles), skied in, or endured extremely long commuting times to ensure that a core group was here every day to keep the editorial and advertising pages on schedule for three different issues. Phones, faxes, modems, and e-mail provided a virtual office, allowing many of those stuck at home to work with those who made it in. New electronic procedures still in the test phase proved their worth under fire. These electronic tools, combined with an extremely dedicated and determined staff, allowed us to complete, with considerable improvisation, the final production steps for the 12 January issue. Our publication vendors, Cadmus Journal Services in Richmond, Virginia, and Brown Printing Company in Waseca, Minnesota, pulled out all the stops to overcome any weather-related delays in the production process. In the end, all domestic shipments were on time, with less than a 24-hour delay in shipments to Canada and Europe. It's a new era for both readers and editors. Come try us.

Floyd E. Bloom