

EDITORIAL

Bells and Whistles

After much planning and anticipation, we are launching the electronic version of *The American Journal of Human Genetics* later this year. Beginning with the January 1998 issue, the *Journal* will consist of the current print edition and an on-line edition offering both a PDF display (equivalent to the printed page) and an extensively linked HTML version. There will be no change in cost to member subscribers for this new service, although nonmember subscription costs will increase somewhat, as had been planned for the print version alone. After January 1998, members will have access to the electronic edition through The University of Chicago Website and will require an identification number that will be provided after 1998 ASHG dues are paid. Nonmember and member subscriptions will be “bundled” in that the electronic and print versions will not be available separately, at least at first.

Implementation of the on-line version of *AJHG* has begun, and we can see already that it will require education and adaptability on the part of authors and reviewers, as well as on the part of the editorial office and the publisher. Although our submission process and requirements will not change immediately, we are moving toward an all-electronic submission, review, and production process. We expect that within a year we will accept—and expect—an all-electronic manuscript (text, tables, and figures) at first submission, and we will provide guidelines for preparing electronic files. When the system is fully operational, the manuscript will be made available at a Website by password access to reviewers who can either see the paper on-line or download and print it. Of course, if needed, a hard copy will be available to reviewers.

Once accepted for publication, the manuscript will be typeset at UC Press, as part of the copyediting process; page proofs will be sent to the author with a 48-hour turnaround time; and the paper will be published on-line within about 2 weeks—yes, 2 weeks—of final acceptance, in both PDF and fully linked HTML format. (With such a tight production schedule, it will be crucial for authors to return their page proofs on time.) At this point no pagination will be available, but a document-identification number will permit citation in other pa-

pers and will allow automated updating once pagination is applied. New papers will be added to the on-line edition weekly (on Fridays), with an indication of the print-issue date. The official publication date of an article will be the date of its on-line publication, and the print version will indicate the dates of submission, acceptance, and on-line publication. The final electronic issue will appear about 3 weeks after closure of the issue and will contain complete pagination identical to that of the print version. Letters will be treated in the same manner as full-length articles (just as they are now, including peer review), but book reviews will not appear until the final on-line version is assembled. On acceptance, announcements will be posted on both the ASHG and UC Press Websites and will be included in the final on-line and print versions, as will noncommercial advertisements.

Our current production time (publication date 6 weeks after the last paper accepted for an issue, 11 weeks after the first paper) is about as rapid as most of the fastest monthly journals and is far ahead of some other publications in the field. The changes in publication speed that will accompany production of the on-line version will reflect a new publication process for us and, incidentally, a difference from the production of the on-line versions of other journals. Once we accept a manuscript, it will be typeset at UC Press from the electronic files submitted by the author, copyedited, and proofread by the author. The corrected version will then be converted simultaneously to the PDF file, the HTML file, and the print version. The verity of the HTML links will be confirmed at UC Press, and the two on-line versions will be posted while the print file is prepared for the press. For most other journals, the creation of the on-line edition is the last step in the process and occurs once the full issue has been typeset, so that, other than the linking process, there is little inherent advantage to electronic publication.

Speed is clearly important to authors, but in many ways it is perhaps the least significant advantage to electronic publication. Once all or most journals are published in this manner, publication speed will be determined by the efficiency of the review and revision process, something that continues to depend on human variables. The great advantage of electronic publication is that it offers more than the print version. Electronic editions of journals such as *Science* and *The Journal of Biological Chemistry* demonstrate the considerable value of direct links. They allow the reader to examine the abstract and, in some instances, go directly to the

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full-text version of a referenced paper, as a guide to understanding new data in the paper being read. This reference system will link our papers to a variety of databases in which human-genetics information is stored and represented (e.g., OMIM, Genome Database, Medline, and, in the future, the protein-structure databases).

The ability to move seamlessly from one data source to another, to pull data out of such resources, and to manipulate the data in the course of reading means that any paper is read in a much richer environment. An electronic presentation can provide data in formats that are not possible in a static, print version. Video presentations with sound, color, and graphics probably represent only the beginning of what can be done. Three-dimensional interactive displays of protein structure, protein-DNA interactions, or other molecular models should become standard in a very short time. Sound and video displays of people with genetic disorders will soon be available and will supplement or supplant the static images available in classic texts. In short, the publication environment is changing for the better, but it will take considerable work, intelligence, sensitivity, and evaluation to get the most from the strategies and approaches of electronic publication.

A print document is static. We can, for example, view the Gutenberg Bible now just as it was in the 15th century (except for some changes in paper quality and the color values of decorative embellishment). For historical analysis, such a document is very valuable, but for the scientific community much is gained if a publication can be integrated into the new literature. Traditionally this integration has been accomplished in two forms—backward citation in the new literature and a forward-cita-

tion document, such as *Science Citation Index*, that may take 1–2 years to create. In the electronic environment backward citation remains unchanged, but forward citation makes every paper a living document. As each new paper that contains a backward link is published, that link can be mirrored in the cited paper, to create a forward link. This process requires both continuous updating of the published material and electronic access to the new publications, to create new links that are indistinguishable from the others. It is a formidable task, but a series of agreements among commercial publishing houses and society publishers seems set to facilitate the process, to the benefit of all our readers.

With all this, are there disadvantages to electronic publication? Three issues come to mind. First, many readers will not have access to the electronic formats, at least in the beginning. For them, the richness of the electronic format is not matched by the print version. Second, old habits die hard, and some readers will not immediately accept the electronic version of our journal. Finally, reading the literature, journal in hand, and then searching through the print version of the referenced pieces can lead one on a solitary flight of discovery that will not be easy with the electronic versions. Back issues will not be available at first, and the serendipitous discovery of the next paper forward or backward will be missing, as will the simple pleasures of feeling the paper, admiring the drawings, and sensing the differences in presentation among the older works. Perhaps we should all reserve some time for those rare adventures in science as we also enjoy the new bells and whistles of the current literature.

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Editor