LETTERS

Electronic Publication

William J. Broad reports (News and Comment, 28 May, p. 964) a proposal to distribute original research reports by electronic means, without the usual process of review and revision. Surely the only surprise should be that the proposal has elicited such a startled response. For is this development not a predictable consequence of the degeneration in the quality of scientific communication in recent years? The legitimate concerns expressed about this present scheme therefore should not divert attention from more fundamental problems.

On some important issues, the view presented by Broad of traditional publications is extreme. It is misleading to compare electronic distribution with a 6- to 8-week delay to journals with a 15-month delay. Some journals directly reproducing typescripts already publish accepted articles in less than 6 weeks; the more prestigious journals typeset and publish papers in less than 3 months; many others are not much slower. Material in need of rapid publication (which is not necessarily true of every scientific paper) generally can find an appropriate forum. The months or years spent on a research project make it incongruous, if not unseemly, to regard as significant a difference of between 2 and 3 months in publication time. The laggardly quality of slow journals usually owes less to the mechanics of publication than to slothful editorial process. Increased efficiency could render trivial many of the advantages of electronic distribution.

Several current problems may be amenable to less drastic change than eliminating the bound book or journal. Escalation in the number and price of journals (and books) has indeed reached ludicrous proportions. But the greed of some publishers should not be confused with historical inevitability. There are many—dare one say more significant?—journals whose publishers' determination to contain price has led to a more reasoned response to inflation. Is it fair to tarnish all with guilt by association with extreme cases of abuse? To raise the hoary specter of the price differential between individual and institutional subscriptions is also no service; often the individual rate is a concession to make the journal affordable by individuals. Its elimination would serve no purpose other than to increase the institutional rate even further.

Libraries are squandering resources on the innumerable proceedings of symposia, now multiplying like the plague. What purpose is served by a volume consisting exclusively of unreviewed and preliminary research reports, often obtained by pressure on the authors, much of the contents of which will have been superseded by complete publication elsewhere even before the symposium proceedings are off the presses? (One exempts from such castigation the minority of established symposium series that provide the valuable and traditional function of publishing complete reports and often extensive reviews of a field.)

Rather than bemoan the proffering of unpalatable alternatives, I appeal to both journal editors and librarians to consider actions that might be taken before the present situation deteriorates further.

Editors can have great impact by enforcing a rule that their journals should contain only original material. Prior submission of a paper to any other forum—be it the electronic distribution of Comtex or a symposium volume—should preclude publication of the same data elsewhere. Who will submit material to these dubious means of distribution if the consequence is exclusion from the major literature? Also, one should consider whether material in principle available only to those with particular on-line connections should constitute a legitimate citation.

Librarians should show increased efforts to be more discriminating; it is past time for a consumer revolt. Symposium volumes should be purchased only in the exceptional case when there is some assurance that the material is unique. Journals will continue to proliferate unnecessarily until libraries cease subscribing to the picayune (not to be confused with the scholarly). Unfortunately, lack of demand is the only way to quench the supply. Surveys of readership should be used stringently to identify journals that remain unread. The high expense of many publications primarily reflects the publishers' determination to maintain profit in spite of lack of readers. The spiral of price increase and decline in circulation is familiar by now and makes expensive journals prima facie candidates for cancellation.

We all pay for the dilution of resources by insignificant journals and redundant symposium proceedings; consider the difficulties in establishing now the rare new journal that is merited or in publishing a scholarly monograph. Unless we put our house in order, the traditional view of the purpose of the research journal and scholarly book will indeed be vulnerable to electronic and other onslaughts, especially to the McLuhanesque trap of confusing the problem with the medium. We should not be distracted by current sensation from considering seriously the consequences for traditional journals and books of alternative means of communication, in particular control of entry to the data base. Otherwise, the same abuses will simply recur in different guise; and you can't read an electronic journal in the bath.

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William J. Broad, in his article about the anxiety among editors of print publications over the prospect of on-line journals being set up in competition, makes one point that deserves elaboration. A substantial proportion of scholarly publication, he says, is intended, at least in part, to bring "professional certification, career advancement, and personal gratification." These goals, unrelated to the need to communicate information per se, must be considered in evaluating all media—print, electronic, and whatever is to come.

Seeking to establish the quality and extent of this factor from another viewpoint, that of academic power brokers (the chairs and deans who allocate the rewards of publication), we queried a sample of more than 700 in the United States (*1*). In general, 52 percent of our respondents considered electronic publication at least the equivalent of print, and 1 percent even thought it superior.

Of the respondents at schools that they themselves classified as devoted primarily to teaching, 62 percent rated on-line systems as equal or superior to print journals; at schools classified by the respondents as oriented toward research, only 42 percent expressed the same view. Presumably, the researchers know more than the teachers about the vagaries of computer systems, for regular self-described users voiced acceptance at the rate of 50 percent compared with 54 percent for nonusers. Interestingly, reservations about humanists employing electronic publication to communicate among themselves came more from the natural scientists and social scientists than from the humanists.

When asked to list their reservations about electronic publication, only 20 percent of the respondents offered the fear of lowered standards. The remainder of their concerns centered on such practical matters as unavailability of terminals or the unreliability of the computers. Implicit in this information is the assump-

tion that the customary safeguards will continue to operate as the video screen starts to replace the printed page: committees of experts will evaluate and editors will exercise judgment.

To be truly attuned to the potential of microprocessor-based technology, an electronic journal must be more than printed pages on a screen. The full potential of data-base techniques must be realized if this expensive, still-clumsy system is to be recognized as an improvement over the print medium that has served us so splendidly for more than 500 years and is far from being superseded.

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Editors are rightfully concerned about the quality of manuscripts published in electronic journals without appropriate peer review and evaluation. Their fear that the speed of publication may entice scientists away from traditional journals is also not unfounded. Whether traditional editors are happy or not, the electronic journal, in one form or another, will become a reality. Given this simple fact, it behooves those concerned about the future quality of scientific and technical publications to establish a suitable peer review process for these journals.

The technology itself contains the seeds of a potentially powerful "quality filter for information" (*1*) in the form of electronic "letters to the editor." If, while the manuscript is on-line, every reader could immediately enter his or her comments, then, upon editorial approval, those comments could be seen by every subsequent viewer of the manuscript. What better quality filter than the combined (and edited) comments of the readers? It can also be foreseen that hardcopy compendia of the best on-line manuscripts would be published.

While it is true that scientists may opt for quick publication to establish priority for what they may deem to be original ideas, results, and so forth, the same scientists will not want to read everything but will continue to favor manuscripts published in high-quality journals, electronic or otherwise. To meet the competition of speed of publication, traditional journals may opt to publish, in electronic form, editor-approved, but otherwise unrefereed articles, including tabular data. After publication of a refereed article, the corresponding unrefereed publication may be removed, but the tabular data could, nonetheless, remain in electronic form.

As is often the case when new technology has an impact on traditional activities, perceived problems can be resolved by other applications of the same technology.

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Health Problems of Colonists

I would like to comment on some of the observations on the public health problems among colonist populations along the Transamazon Highway presented by N. J. H. Smith in "Colonization lessons from a tropical forest" (13 Nov, p. 755). In reference to the colonization program, Smith states, ". . . human modification of the landscape favors disease transmission." In fact, the deforested areas served as protective barriers to the colonists from vectors of many tropical diseases, for example, leishmaniasis (*1*). Smith also writes that, ". . . the most important public health problems have been introduced by colonists" and that "Few of the zoonoses in the forest have actually infected settlers." There is no evidence that pathogens introduced by the colonists became a significant public health problem, while serological surveys and epidemiological studies provided conclusive evidence that colonists were subjected to a wide variety of endemic health hazards, including Altamira hemorrhagic fever, leishmaniasis, Mayaro fever, Mucambo virus, Guaroa virus, and Oropouche fever, with hunters and forest workers at greatest risk (*2*).

Since malaria was a significant problem in the Transamazon region before the colonization program, Smith's statement that it was imported into the area by the colonists is not correct (*3*). Smith also states that *Anopheles darlingi* was implicated as a major vector of malaria along the highway and implies that alterations of drainage systems along the highway resulted in a proliferation of *A. darlingi* breeding sites. In fact, actual field data from 2 years of entomological surveillance in the areas discussed by Smith revealed *A. darlingi* populations at only two isolated sites (one near the Aratú river and one at Gleba 3/5, near the Xingú river) (*1, 4*). At all other sites sampled along approximately 800 kilometers of highway road-front, representing predominantly upland forest ecology, there was no evidence of *A. darlingi* (*1*). Furthermore, the age-sex distribution of malaria cases within the colonist population was compatible with exophilic transmission, that is, malaria generally was transmitted out-of-doors by secondary vector species (*5*).

Smith speculates that the DDT spray applied to colonists' houses was ineffective as a malaria control measure along the Transamazon Highway and cites as support two published works, neither of which includes data on the impact of DDT on the indoor biting activity of the malaria vectors. Evidence that colonists became infected with malaria does not demonstrate that the DDT spray program was ineffective. In this respect, one should consider what the malaria problem might have been had there been no malaria control effort. Ironically, after Smith criticizes the Transamazon colonization program, he proposes that future colonization take place along the river systems. Since the principal vector (*A. darlingi*) is a riverine species, such a colonization scheme might well take place under high-risk circumstances for malaria transmission.

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Correction

In the briefing "OSHA's new thoughts on cancer policy" (News and Comment, 2 July, p. 35), Philip Landrigan was incorrectly identified. Landrigan is director of the Division of Surveillance, Hazard Evaluations, and Field Studies at the National Institute for Occupational Safety and Health.