Letters

Quick Publication Schemes

Boffey's article (27 Feb., p. 1228) about the National Information System for Psychology (NISP) did some injustice to my position. I maintain that after all the money is spent, the result of NISP will be that less information will be transmitted. Granted that more messages are sent already than any research worker can listen to, which is the present problem, information retrieval depends on the signal-noise ratio. If editors are any good at all, circulating unedited papers will diminish the signal-noise ratio, hence decrease information retrieval. Also omitted was my concern for second order effects. If anything goes, poorer research will be done.

The NISP proposal is only a little worse than proposals made for other disciplines, like PIE for physics. Several factors unite to make the situation in psychology more disastrous. The American Psychological Association has opened its doors to many who are not primarily research workers, including psychologists in industry, schools, and private practice. The NISP proposal carries the systems approach to the logical extreme of "cost per unit readership" as criterion of efficiency. Combine these two facts and you see that control will slip away from research workers for whom the journals now exist as a communications medium.

Psychology is more vulnerable, too. Little of it is mathematically exact; meticulous formulation of ideas is of the essence of progress, hardly encouraged by legitimizing the flood of unedited preprints. Whole schools of education have been recast in the wash of prematurely published studies that apparently cannot be replicated, again a measure of our vulnerability.

Pressure for instituting an "information system" in various disciplines has emanated from the National Science Foundation, as Pasternack pointed out in *Physics Today* [**19**, 38 (1966)]. One of the least objectionable systems is currently in operation in mathematics. A mathematician who himself assigns descriptors to articles for the system states that he often is not interested in the articles which he is sent, and he often does not receive those in which he is interested. A deeper understanding of research would have warned of this result. The best research is novel. How do you program in advance and set up prior descriptors for novelty?

The real culprit is a philistine conception of science. The pedestrian bits of data that information systems whip back and forth across the country are a minor part of science. The big advances are the deep-going original ideas. Every system is hostile to originality, the more elaborate and formalized the system, the more hostile. All of the proposed information systems I believe make the discovery and dissemination of a truly original scientific idea at least a little less likely than does the current anarchic situation. Only the NISP proposal, however, makes it almost certain that an original idea by an unknown investigator will not even be considered of archival quality, hence never printed.

Since the NISP proposal is only an extreme example of a widespread trend, I hope *Science* will continue its investigation, including the part that NSF has played in generating pressure for these systems. Millions of dollars that are being spent, at best nonproductively, at worst debasing the conception of science, could go to support hard-pressed young research workers.

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Boffey's article on the literature problems of the psychologists is indeed worth examining by all scientific disciplines, but it seems to me that the discussions of both the APA and the author are wide of the mark when related to the general problem of scientific literature.

Although the society's problems of in-groups versus out-groups are also of general interest, I believe the APA "technicians" attacked the wrong problem if the question of effective and speedy dissemination of information is the goal. In common with many "informal" systems in other fields, the scheme focused on the one stage in a two-stage process which is usually rather rapid and chose to ignore the slow, conventional, and costly step—the production of a printed magazine, whose individual subscribers consider themselves lucky if they are interested in 10 percent of the material.

Those who have observed the rise in "page charges" from about $10 to $80 or more, while the subscription price increases by astronomical factors, need no reminding that something has gone wrong. When an editor can attempt to justify an increase in charges or a crackdown on nonpayers by a brief financial statement, he (and his readers) should take heed of the fact that the costs of production (letterpress, and so forth) comprise close to 60 percent of the total cost. At the same time, privately printed journals proliferate, dividing science into ever smaller chunks. This is justified because the publisher feels he has a captive audience—the thousands of technical libraries and universities.

Many people have addressed themselves to this question and the solutions range from the one proposed in the APA scheme: distribute unedited manuscripts immediately (and relegate the carefully printed elegant magazine to the archives until the hard-pressed librarian has to store it in a musty cellar, if he is lucky enough to have such storage space)—to computerized information retrieval systems where subscribers have their "interest-profiles" on file and accordingly, get monthly sets of reprints which are adequate until they develop new interests.

I suggest that what is needed most is a system that would come close to meeting all the needs of the scientific community and be compatible with computerization and miniaturization, as follows:

1) Eliminate almost all bound volume issues as soon as feasible. Library storage in microfilm is long overdue. I suggest that a major reason is our continued refusal to face the publication problem.

2) Individual authors would submit ar-

ticles to the same journals as now. Journals would be available in libraries on microfilm. Exceptions could be made for remote libraries if necessary. Editorial processing and refereeing would be conducted as it is done now until the article is in acceptable form. At this point, the manuscript would be typed on a justifying typewriter, then copied on microfilm, and these micro copies would be mailed to all library subscribers who must store the whole journal.

3) Titles and brief abstracts or keyword lists would be printed in an inexpensive format on newsprint and sent to individual subscribers. This weekly newspaper would contain all journals under broad headings, such as "Physical Sciences," "Biological Sciences," "Earth Sciences," and so forth. The divisions can be as general or restricted as practical. Each weekly would contain a numbered postcard for ordering papers by circling appropriate numbers. The individual gets only those articles he wishes to keep, and he can store them to suit his personal needs—by subject, author, journal, or what-have-you.

4) The individual subscriber would pay in advance for the information service, which can include a small number of papers at no extra cost and the right to order larger numbers in advance at an extra charge. If the selection of articles is done by perforating a computer card, the charges can be based on the number of pages ordered, by appropriate coding at the publishers. Excess orders can be billed as "arrears" on next year's subscription form, in the same manner as we pay for gas and electricity.

5) For libraries which cannot store microfilm, it should be possible to order bound sets of articles corresponding to an issue. If these are presented in a plastic clamp binder, the cost of ultimate bookbinding might be slightly less than at present.

If publication were carried out on this basis, the individual subscriber would get just what he paid for, the use of paper would correspond exactly to the need, bookshelves would be less cluttered, publication charges to authors' institutions could be reduced about 50 percent, and subscription costs to individuals and libraries might be substantially reduced. Subscribers' computerized interest profiles could be introduced as soon as the demand warranted and would be available at an extra charge (I don't believe any scientist should be deprived of the joy of getting a research idea by the chance juxtaposition of two titles or abstracts as he searches the current journals. If the literature has become so voluminous that we have no time to browse, we could at least let our fingers browse through our weekly abstracts).

Some of the mechanisms for adopting such a scheme are already here. *Current Contents* sends out a weekly list of published papers giving authors' addresses. This has the major drawback in that it appears *after* the article has gone through the lengthy processes of typesetting, proofreading, lockup and makeready of letterpress, and mailing. The above procedure would have the title and keywords or abstract in the readers' hands within a few weeks of acceptance by the editor, so they could read an edited and refereed copy of the paper within 2 or 3 months of its submission in most cases. If the reviewing process is inordinately long, the reader should probably be glad he doesn't have to read the original unrefereed manuscript.

A system almost identical to the above was proposed to me and to all his friends and acquaintances by my late colleague, Isador Fankuchen, about 15 years ago. The trends were clear even then, and unless we wish to be buried under a dual mound of unedited trash and elegant and unread archives, we had better all get together soon and do something about it. I have talked to many people about it and found that scientists range from mild interest to enthusiasm, but I have yet to meet a publisher's representative who favors it.

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Egg Fanciers

Reynolds' letter "Well-rounded egghead" (16 Jan.) prompts me to swiftly remind your readers that, while the rounded end of a macroscopic egg indubitably "has in it the most stuff," to a considerable extent the "stuff" consists of a pocket of gas. This may be readily noted when a hard-boiled hen's egg is peeled. In addition, the quantity of gas increases with the age of the egg.

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Reynolds is correct in stating that eggs "have two ends, a rounded one and a pointy one," but he is mistaken in saying that the latter gets there first (when laid). I have observed many bantam hens in the act of oviposition and the rounded end appears first just about as often as the pointy one.

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