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Support of Scientific Journals

Offices of scientific societies and editors of their journals are becoming apprehensive about the future of scientific publication. A system that has served science and society well is moving into a phase of increasing financial stress. The Royal Society has conducted a study of scientific publication in the United Kingdom.* A major conclusion is that "a combination of pressures will very soon put the scholarly scientific publication system of the United Kingdom, as of other countries, under considerable strain. Journals are increasingly dependent on the international library market for their income; libraries are suffering cuts in their budgets and are looking for ways to economize; they have to cancel subscriptions to some periodicals on the assumption that material from them if requested can be obtained as loans or photocopies under some interlibrary cooperation scheme. . . . Scientists themselves assume that the journal and library system will continue and in general do not wish to see restriction on photocopying. Publishers see this as a severe threat to their existence. New specialized journals continue to be launched. . . . These new and often expensive journals intensify the librarian's problems."

Prior to World War II, journals published by scientific societies in the United States received most of their financial revenues from members. Today only a minor fraction are supported in that way. Instead, the burden has been shifted largely to the libraries. An example is the structure of financial support for the *Journal of Biological Chemistry*, sponsored by the American Society of Biological Chemists. This periodical publishes about 12,000 pages a year. It has almost 7000 subscribers, consisting of 5000 nonmembers, who pay \$285 each; 1200 members, who pay \$100; and 650 students, who pay a nominal rate. Authors are charged \$35 a page, but the page charges are not always honored. The result is that nonmembers, mainly libraries, provide about 75 percent of the support. Practices vary among the major societies. A few charge up to \$140 a page; some have no page charges. Almost all have higher subscription rates for nonmembers than for members.

Many scientific journals are owned by commercial publishers. They obtain almost all their revenues from libraries. Subscription rates are high, sometimes thousands of dollars a year. Costs range up to 20 cents per page and more, whereas the scientific societies provide material to libraries at usually no more than 3 cents per page.

For more than a decade, costs of periodicals have increased faster than inflation, while library budgets have usually barely kept up with it. Librarians have sacrificed services and procurement of books to maintain their serial collections. Now many find that they must curtail subscriptions. The libraries cannot be counted on to continue to be the sole or major support for scientific periodicals.

The publication of refereed journals is crucial to the health of science. If present modes of support are curtailed, costs must be reduced or additional revenues obtained from other sources. The best way of cutting costs is to reduce the number of pages printed. Today many scientists give priority to publishing as many items and pages as possible. If the goal were to cram information into a limited space, the number of pages could be reduced by a factor of 2 to 4.

Additional revenues might be obtained from page charges. After all, research is not complete until it is published. The federal government might be asked to support scientific publication directly; at present, there is little chance that it will do so. In the end, it may be necessary for the members of scientific societies to contribute more. They already provide substantial support by refereeing articles, but in the future they may be called on for much larger membership fees.—PHILIP H. ABELSON

*"A Study of the Scientific Information System in the United Kingdom" (Royal Society, London, May 1981).