
The Institute

Research on Publishing Problems in Physics

FOLLOWING the lull in the publishing of research results that occurred during World War II it was commonly accepted among physicists that there would have to be some temporary increase in the sizes of physics journals so that declassifiable wartime results might be included in the open literature. The fact that in 1949 the archive journals published by the American Institute of Physics contained twice as many pages as they did in 1945 was considered neither surprising nor alarming, although it had been found advisable in 1949 to effect changes in type face, line spacing, and margin width to make room for more material per journal page. Publishing costs were rising. Printing and other production bottlenecks were commencing to be troublesome. The rapid growth in the number and output of physicists working in freshly developed areas of research suggested that steps would soon have to be taken to satisfy their special publishing needs.

In 1958, roughly 8000 additional yearly journal pages later, the Institute's publishing problem in physics has unmistakably become a serious matter, and considering the relentless multiplication of the world's scientific and technical literature the problem is not simply a local one. The alternative to journals too bulky for convenient reading would appear to be an increase in the number of highly specialized journals, although it is a familiar complaint that there are too many already. Prompt and efficient abstracting is the approved method for achieving peaceful coexistence with such problems, but the abstracting services have themselves become heavy contributors to the overabundance of necessary reading matter for scientists.

In the United States, however, there has developed a somewhat compensating shortage of trained manpower—not in this instance a shortage of physicists to pour out the research papers that must be written, but of monotype keyboard operators skilled in setting mathematical expressions in type for letterpress printing. While the flow of physics journals has not yet been throttled, printing delays have developed and the Institute's future publishing program may be in jeopardy unless a solution can be found.

In the light of what is known or can be anticipated, the AIP has undertaken a long-range program of research on publishing problems in physics which is designed to find the promptest and most economical means of producing physics journals and to provide for the systematic study of other aspects of communicating information in physics. With the support of a

grant from the National Science Foundation, the Institute has moved to establish a "Research Department" that will be free of production responsibilities so that its efforts can be devoted to a broad study of the publishing and other communication needs of physics. The production cost of the journals published by the AIP for itself and its Member Societies now amounts to more than one million dollars annually. It seems imperative that an amount equal to a small percentage of that cost should be spent each year to be sure that the needs of physicists are well understood and are being fully met, that the process of communication is efficient and economical, and that full advantage is taken of technological developments in the graphic communication arts and in machine methods for storage, retrieval, and distribution of information.

A tentative outline of the study has been approved by the Institute's Committee on Publishing Problems and is expected to serve as a blueprint for the program. As itemized in that outline, the objectives of the physics publishing program should be to:

1. Provide adequate facilities for the publication of all "good" research results in physics.
2. Publish such results in the minimum time consistent with accuracy and reasonable cost.
3. Distribute research reports to the maximum number of physicists in this country and abroad.
4. Reproduce research reports in a form most useful to physicists in furthering their research.
5. Provide critical reviews, abstracts, indexes, summaries, compendia of data, and general information valuable to physicists.

To make certain that these objectives can be met in the future, the Institute's new publications research department will systematically investigate a variety of factors known to influence publishing operations in physics. Among its tasks will be the following:

1. To obtain quantitative information on the growth of the physics literature (words, articles, abstracts), the growth of the physics profession, and the growth of funds for the support of physics research.
2. To study the way in which the field of physics is covered in terms of past and present needs and possible future trends.
3. To undertake financial studies of production costs, sources of income, etc., based on the experience of the AIP and of other publishing organizations.
4. To analyze journal production procedures.
5. To make a comparative study of various printing and reproduction processes in terms of speed, cost, availability, and other considerations.
6. To determine whether present indexing is adequate or requires modification.
7. To study adequacy, promptness, and expense of abstracts.
8. To review need for English translations of research information published in Russian and other languages.
9. To consider data-handling methods and possible mechanizing of subscription-handling procedures.
10. To examine the manner in which information sources are or could be used by physicists in their work.