

Review Articles

Scientific Information

The Royal Society Scientific Information Conference, 21 June-2 July 1949. Report and Papers Submitted. London, Royal Society, 1948, 723p. 26s.

Since the close of the war the number of articles and publications concerned with the problem of bibliographic control has increased to such an extent that most individuals have felt snowed under. The publication under review, however, is one which contains such a mine of information that it merits consideration and study.

The Scientific Information Conference was the outcome of a recommendation passed by the Royal Society Empire Scientific Conference of 1946 calling for a conference "to examine the possibilities of improvement in existing methods of collection, indexing and distribution of scientific literature and of the extension of existing abstracting services." Some 230 delegates and observers were present from the United Kingdom, the Overseas Commonwealth and the United States. "The Presentation of Scientific Information," pages 26-44, was the principal address at the opening session. Given by Professor E. N. da C. Andrade, it was a scholarly historical treatment of the problem since the earliest times. The conference was organized in four sections to consider and to discuss various aspects of the problem. Editors were appointed some months beforehand to take charge of each section, and they had with assistance from others, prepared and circulated 46 papers for advance consideration. During the conference 16 working parties considered 42 specific topics and later made some 70 recommendations to the Royal Society.

Section I of the *Conference*, under the editorship of Professor J. D. Bernal, dealt with the publication and distribution of papers containing original work. Working Party IA examined the present format of scientific publications, (Paper 14, page 368-69 shows that an examination of 176 botanical journals revealed 102 different sizes) and made recommendations for the adoption of suggested standards in keeping with those then being formulated by the International Standards Organization. Methods of reproduction of

scientific papers were also reviewed and recommendations made. Working Party IB studied the importance of editorial distribution and other factors in relation to the length of scientific communications. (Paper 2, pages 253-58, J. D. Bernal's "Provisional Scheme for Central Distribution of Scientific Publications" drew a storm of protest from many sources.) Working Party IC was concerned with the grouping of scientific communications within existing journals. It was recognized that the scatter of papers on essentially the same subject in journals is very wide. (Paper 46, pages 589-637, dealing with the use of scientific literature, showed that the distribution of reading in various journals was significant: 1821 papers described as carefully read by a group were from 427 different journals; but the distribution of papers consulted among journals varied enormously, one fourth of the papers being found in six journals, one half in 30, three quarters in 100, and the remaining quarter in 327.) This emphasizes the "law of scattering" suggested by Bradford from studies of the actual distribution in journals of papers covering particular topics and shows that his conclusions apply equally strongly to papers actually read. Working Party ID dealt with the question of organization of publication of original papers and mechanisms for their distribution. Working Party IE had the task of exploring delays in publication and in the availability of already published material. The recommendations made to the Royal Society by Section I while embodying no radical changes do indicate what is required for the improvement of the production and distribution of original scientific material.

Section II of the *Conference*, under the editorship of Sir David Chadwick took up the task of what could be done to improve the arrangements for issuing and using abstracts to convey current awareness of the availability and relevance of scientific papers. The keynote of the conference was service to science and the scientific worker. The sole justification for the existence of abstracts is to serve the scientist. Yet preliminary preparation for the conference revealed that there is an almost

complete lack of factual information on how scientific men in the different branches of science actually used abstracts and for what purposes. Factual information was collected from many abstracting agencies and some inquiries were made into the use of abstracts. The whole subject was referred to three working parties. One party was instructed to examine the place of abstracts in the service of scientific workers, their relation to other forms of service—such as reviews, bibliographies, etc.—and to review the existing services. A second party, composed mostly of representatives of the abstracting agencies, compared their methods, techniques, and practices. The third group looked into the future. From information supplied on a small scale, (Paper 20), it would appear that abstracts account for about one third of the inquiries for original papers. One type of user of abstracts seemed to be increasing, that is, the professional searcher of the literature, particularly librarians in commercial organizations. In Britain such an individual is called an "information officer." In the United States we call them "literature specialists" or "bibliographical assistants." A diagrammatic representation of the interrelations of science and the scope of existing abstracting agencies prepared by H. J. T. Ellingham, (Paper 27), showed at a glance present gaps and overgaps in English abstracts. It was found that in general abstracts were of two types: the informative or detailed type, or the indicative or brief type. Further it was brought out that the abstract journals differed in function, type, scope and finances. They are not thus capable of easy recasting or reshuffling. Some overlap between abstract services was held to be desirable, when the services cater to readers having different interests. Such overlap is distinct from duplication. For this reason a single set of abstracts produced by a central office would not suffice for universal use. It was recommended to the Royal Society that it be invited to consult with the various abstracting agencies and to set up a standing consultative committee of abstracting organizations for mutual exchange of views and generally to promote cooperation.

Section III of the *Conference* was concerned with indexing and other library services. These problems include what is normally understood by librarianship, and also go beyond it. Dr. J. E. Holmstrom, general edi-

tor, summarized the scope of the section in his "General Remarks" pages 77-93. Section III dealt with the provision for retrospective searching—that is, the problem of how to arrange literature references in such a way that a searcher will turn up those references that will satisfy the need for any particular request for information. The problem of bibliographic control in the sciences is to make certain that when a scientist needs to know what has already been done and thought regarding any topic whatever, he can be given quickly the pertinent references, not only those for material in his own library, but also for those appearing in any existing publication.

Since there is no way of knowing which of the millions of items already published or being published are likely to be needed, it is necessary to devise economical techniques for the mass processing of literature references in order to give access to specific information. Holmstrom lists four specific methods now being used:

1. Indexing the names of subjects in alphabetical order, e.g., L.C. subject headings or Index to Chemical Abstracts.

2. Classifying the subjects under symbols which serve to pinpoint their positions in a logically constructed map of knowledge, e.g., L. C. or Dewey, or the U.D.C.

3. Coding the subjects under symbols which can then be mechanically selected, e.g., punched cards, Bush-Shaw Rapid Selector, or UNI-VAC.

4. Coding the shapes of certain classes of objects under symbols which can be mechanically selected, e.g., the Dyson or Gordon-Kendell Davison systems of chemical notation.

Six working parties discussed the work of Section III under the following headings: (1) Classification, (2) Methods of reproduction, (3) Mechanical indexing, (4) Training and employment in information work, (5) Guides to the literature, and (6) Translations. In this connection two new and interesting developments were brought before the conference. One was an adaptation of punched cards invented by Dr. J. Samain of Paris. This involves a typewriter-like keyboard whereby up to 24 six-letter words can be punched directly in a single card and a selector able to pick out those cards which carry any desired word or combination regardless of the position or sequence in which these occur on particular cards. The second was a method

of reproduction—a Dutch process of semi-dry diazo printing, pages 147-49. This method, already in operation for the dissemination of abstracts on "fiches" (folded index slips) has implications for publishing and for card production in libraries.

Section IV under the editorship of H. Munro Fox considered "Reviews," "Recent Advances," and "Annual Reports of Progress." It was pointed out that there are two main purposes for these types of publications. The first is to gather together and present for the specialist the progress which has been made in a whole subject during a period of time or to review the state of knowledge in a particular branch of a subject. The second is to provide scientists with knowledge of what has been going on, not so much in their own field but

in other fields. Reviews may well be written to suit several levels of interest. For example, a review of a particular aspect of physical chemistry may be written for physical chemists, for chemists in general, in a simpler form for other scientists or even in a still simpler form for the intelligent layman.

The whole conference points up the fact that scientists have evolved in the course of years a remarkably effective system for providing themselves with information, but the system is suffering from strain and requires renovating and strengthening. In order to do this there needs to be more research into how scientific information is used.—*Thomas P. Fleming, College of Physicians and Surgeons and School of Library Service, Columbia University.*

Source Material on Meteorology

Meteorological Abstracts and Bibliography, Vol. 1, no. 1. Boston, American Meteorological Society. January 1950. \$3.00 per year.

The important role played by military aviation in the settlement of the last world conflict awakened much interest in aeronautics and allied sciences. Meteorology, in particular, rose to a position of great significance in the field of applied science. College and research librarians were besieged by demands for comprehensive source material in meteorology.

Professional meteorologists realized that the poorly organized material was a definite handicap in the pursuit of basic research and in the exchange of ideas in their field. Technical librarians soon recognized the gaps in their reference collection: (1) There was no comprehensive meteorological bibliography being published anywhere in the world, and (2) there was no meteorological abstracting service comparable to those existing in nearly all the other fields of science.

Meteorological Abstracts and Bibliography vol. 1, no. 1, dated January 1950, sponsored by Geophysical Research Directorate, A.F.C.-R.L. and the American Meteorological Society, with the cooperation of the Library of Congress, is the latest of many sincere attempts to provide a comprehensive, international, bibliographic and abstracting service for meteorology.

Each issue will contain: (1) A review of 20 to 30 scientific journals, part of an asymp-

totic plan to evaluate the contribution to meteorology of some 15,000 technical journals; (2) approximately 150 abstracts from material of current interest; (3) a cumulative annotated bibliography on a special phase of meteorology [vol. 1, no. 1, Atmosphere Pollution (240 entries), Aerobiology, Artificial Precipitation, Hail, Tornadoes, etc. to follow.]

M. K. Rigby, outstanding American bibliographer, editor, and Dr. C. E. P. Brooks, dean of British meteorologists, corresponding editor, have done a creditable job on their first issue. Important features of this journal are: international coverage; objective evaluation of periodicals in the light of their contributions to the field of meteorology; succinct annotations; and an excellent index.

The *MAB* subject heads each bibliographic entry. It is the only permanent international abstracting journal to have such a feature. These subject headings, however, are too specific for the small and medium-sized libraries, and the large and highly specialized libraries will have to make a conversion before integrating *MAB* subject headings with their catalogs. These subject headings are also inconsistent, some are qualified by the term "meteorology." Others that obviously should be qualified are not. This failing and other problems, e.g., the magnitude of the field to be covered, and the journal's lack of that prestige which comes only with age and tradition, will be solved with the passage of time.