DISCUSSION OF SOME ASPECTS IN THE PUBLICATION OF GOVERNMENT RESEARCH

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CREATION and dissemination of knowledge are twin processes. Dissemination is the mechanism through which the results of research are made effective over a greater sphere of human endeavor; it makes possible the application of new knowledge to human welfare and to the creation of more or sounder knowledge in the laboratory.

The question of form of publications both primary (in the sense of new contributions to knowledge) and secondary (in the sense of interpretations or organization of knowledge) has received the attention of scientists, publishers, editors and librarians for many years, and yet no complete answer to the many complex problems involved has been discovered.

Bibliography, as an art, was first practiced by scholars whose aim was to combine into one easily digested capsule all the world's knowledge relating to a subject in hand.

Dr. Atherton Seidell's recommendation of the publication of narrowly limited subject periodicals by the Federal Government is, therefore, in the classical tradition, and it looks toward the filling of one of the many lacunae in the dissemination of knowledge. In so far as it groups like knowledge together, it is an aid in the organization of knowledge and in the provision of ready access to more of the results of research.

If it is considered as a substitute for other publications, then this proposal has a number of implications for future research, and implementation of research through publication, that require serious consideration.

The grouping of all the governmental research output into a limited series of subject publications has been under some consideration by official sources as an economy measure. Obviously, the only way to cut printing expenditures, if unit printing costs are kept constant, is to publish less of the results of research, and that measure, although necessary to a certain extent in wartime, is not desirable, and will, I believe, result in waste rather than in economy in the long run.

Even the view that time in searching will be saved by consolidation of those products of governmental research which actually do now appear in government publications into subject journals is open to question, because only a fraction of the federal research output is now published at government expense, and it would still be necessary for specialists to consult the other journals in which federal research in their fields is printed.

If it were attempted to overcome that by printing all the results of federal research in such journals, then printing funds would have to be increased enormously, and even that would not achieve the utopia of one book only for each specialist, because there would still be the necessity for scanning the great mass of publications reporting the research of state agencies, associations, private groups and foreign governments.

All this consideration is, of course, based on the assumption that we have achieved specialization to an extent such that each scientist works exclusively in a narrowly delimited subject field. The interdependence of research in various fields is, in fact, so great that almost no one can afford to neglect developments in related fields.

As a case in point, look at any recent number of any indexing or abstracting journal. In a recent issue of the *Experiment Station Record,* for example, under "Animal Production" you will find: papers read before the American Institute on Nutrition, reports published in the various series issued by the state experiment stations, books, articles in journals issued by various federal agencies, general science journals such as SCIENCE, applied chemistry journals, such as *Industrial and Engineering Chemistry,* foreign governmental research journals, medical veterinary journals and many others, almost all of which treat this one subject from differing points of view.

Looking at this question from still another point of view, it must be noted that most of the government journals are now subject journals. The difference that now exists between such specialized publications as the *Journal of Agricultural Research* (which, as Dr. M. C. Merrill pointed out, is limited to certain segments of the limited field of agriculture) and the still more narrowly limited specialized journals that Dr. Seidell recommends, is merely a matter of degree. In fact, if cancer research develops at the rate that we all hope it will, the *Journal of the Cancer Institute* may itself be a general journal in its field ten or twenty years from now.

Still another factor that might well be considered is the effect of a drastic change in government publishing policy upon the fortunes of association, scientific, trade and technical journals which are an important link in the chain of dissemination and interpretation of scientific knowledge. As noted in Dr. Merrill's paper, these journals assume a very large share of the task of publishing the results of government research. Such

publications as these, if duplicated by federal journals on heredity or on phytopathology or on what you will, would lose not only their generally shaky financial stability, but would also lose one of their main sources of research publications. It seems doubtful that science, the government or society has much to gain from competition with these useful publications. Any plan for federal publication of subject journals, if it is to improve dissemination of knowledge, must be designed to supplement rather than to supplant these valuable self-supporting journals.

A considerable number of papers reporting results of research can not now find space in all the existing channels combined. These contributions are now published only by deposit in libraries, which then make them available in microfilm or photostat copies. This indicates that such subject journals as Dr. Seidell recommends might be added to the channels of publication, where they do not duplicate other existing channels, with very profitable results.

Regardless of the form of organization of publications as physical objects, the key to giving publications power is the organization of the information contained in the articles or books.

There is a wide variety of techniques for this purpose. In addition to general indexes, abstract journals, and the like, there are specialized tools such as the Index-Catalogue of the Surgeon General's Library, or the Plant Science Catalog of the Department Library, the Bibliography of American Economic Entomology, the Bibliography of Agriculture, the Experiment Station Record, the Index-Catalogue of Medical and Veterinary Zoology and our many special subject bibliographies, which attempt to organize knowledge for use.

Effective use of such tools requires that the literature they list be made available to all scientists throughout the world. To this end, the Department Library, with the aid of Mr. Watson Davis, of the American Documentation Institute, and Dr. Atherton Seidell, has developed its microfilm service, which now provides some twelve thousand articles a year to workers at a distance. In one recent month our Bibliofilm Service supplied film copies of more than sixty thousand pages.

The need for better guides to the content of the world's literature is clearly shown by the classic case of Mendel's work, which was lost to science despite the fact that it was actually published, because it was not published in one of the journals in general circulation, and it was not brought out in a generally distributed index.

Existing indexing and abstracting journals in our fields regularly cover only a small fraction of the 11,500 periodical and serial publications regularly received in the Department Library, and we do not receive all the periodicals in our field of work. Thus a very large percentage of knowledge that is created in laboratory and field all over the world is not readily available to those who should have it. Furthermore, there is a considerable amount of duplication among indexes. It seems to me that serious consideration should be given to the problem of organizing the *content of publications* so that all pertinent knowledge, no matter how written, where published or in what language it is printed, may be promptly and readily available to all men working in any scientific endeavor.

I hope that we may work together with scientists, publishing agencies and librarians of other countries to effect this end after the war is won.

OBITUARY

ALBERT LLOYD BARROWS

1883–1942

FOR more than twenty years the National Research Council has been largely the lengthened shadow of Albert Lloyd Barrows, who was its executive secretary. His death makes it possible to say this. He would have denied the statement vigorously. Over many years' association I have never heard him say that *he* had done a particular task. The task was done only when some one else took responsibility, applied a signature, called a meeting or set the terms of a policy. He would have thought that he had failed if his views were put forward by himself. He was engaged in an associative enterprise. It was his self-imposed task to find the institution or the man who would establish a new current or pool of interest or drive forward with new energy toward an agreed objective.

He had an unlimited faith in that great American institution which we call the huddle: the habit of agreeing, after debate, on a decision that all could sustain. How often we, his associates over many years, have said, "More than any one else, Barrows is the NRC"! Not the least part of him was his devotion to high scientific standards. He was elected to Phi Beta Kappa and Sigma Xi. He had a well-trained and well-informed mind inspired by the ideal of national service and duty.

Thousands will bear witness to-day to these conclusions. He never thought of himself, served himself or spared himself. To the representatives of more than seventy affiliated organizations and to successive