

The Scientist, the Science Library and the Public

科学者と科学図書館と一般の人びと

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チャールズ・W・シリング

要 旨

科学の研究の成果が産業の開発進歩をもたらし、さらにその結果 GNP の増大となる。従って各国は科学の基礎研究を援助し、研究結果が産業開発に従事する人々に伝えられるよう努力している。歴史的に図書館は知識の宝庫であったが、単に知識の貯蔵庫であるだけでは十分でないし、その図書館資料をた易く入手しうるようにしてもまだ十分ではない。その蓄積された情報を積極的に処理することが必要となってきた。あつかう主題分野の情報量が少なく範囲がせまければ事は簡単であるが、主題分野が大きく研究成果が膨大になると専門情報センターが必要となってくる。

これらの専門情報センターの問題点、すなわち、その専門主題分野の決定、主題分野をカバーする文献の選定、二次資料の調査、利用者の要求調査、情報処理システムの設計などについてそのあらましを述べ、科学者や経営管理者や学生や一般の人びとに科学の世界で何が起っているかを知らしめるためにはこの種のセンターの活動が絶対に必要であることを力説している。

情報を積極的に処理することによって、科学は人々に理解され、国家の発展に役立つことが可能となるが、図書館学科はその卒業生に科学研究が国家にとって重要であることを認識させ、一般の人々の理解を促進させなければならぬ。

(T. S.)

The results of scientific research have often led to development and industrial progress which, in turn, leads directly to an increase in the gross national product. Thus, it behooves every nation to support basic research and to make every effort to see that the results of such research are rapidly communicated to those individuals interested in the transfer of technology into industrial development.

For basic research to flourish it is necessary to have both public understanding and public support. At the present time, on a worldwide basis, there appears to be at least a partial disenchantment with research, and with science and scientists. It is not the province of this paper to discuss the many reasons for this; however, it is germane to this discussion to point out that communication between the

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scientific community and public must be enhanced if progress is to be achieved. The question is how this shall be done.

Historically the library has been the storehouse of knowledge. However, this stored knowledge must be identified, and processed in such a way that the information is readily available to various information media and thus to the public. At one time, and even now in some places, libraries are kept under lock and key for use only by the senior professor and his immediate associates. However, in the present day in the more advanced communities the public libraries and the university libraries are open to everyone. The librarians have come a long way in developing a social consciousness. They realize that being a repository is not enough. But even making the library holdings easily available is not enough either. It is imperative that we have active processing of the stored information.

There are a number of ways that the problems can be handled. If the subject matter is small in volume and restricted in scope a critical review for the scientist and an interpretive analysis for the layman may be all that is needed. The scientist must be willing to work with the science writer or the TV script writer to develop an accurate and yet interesting and convincing report for the public. At the same time the librarian with the stored information at hand must be part of the team. But if the subject field is large and the research results extensive then it would be wise to consider a "specialized information center" backed by library holdings in depth, but operated jointly with a scientific group doing research in the particular subject area of the specialized center.

In the United States there are over a hundred truly specialized information centers. One has been in operation since 1964. These centers cover a large variety of subject areas. Some of those in the author's biomedical area of interest are: Laboratory Animal Information Center; Isotope Information Center; Nuclear Safety Information Center; Military Entomology Information Service; Hibernation Infor-

mation Exchange; Parkinson's Information Center; Brain Information Service; Information Center for Vision, Blindness, and Diseases of the Eye; Information Center for Hearing, Speech, and Disorders of Human Communication. Almost all of these are operated by a university with a sizable library from which to draw information. But most importantly they are operated in conjunction with a scientific research and education group actively working in the subject field.

In his now famous report, "Science, Government, and Information,"¹⁾ Dr. Alvin Weinberg urged the establishment of more and better specialized information centers with these words: "We believe that the specialized information center, backed by large central depositories, might well become a dominant means of transfer of technical information... Specialized information centers, to be fully effective, must be operated in... The activities of the most successful centers are an intrinsic part of science and technology."

However, one must agree with Bloomfield²⁾ as he stresses the role of the library by saying: "It is evident that an information center must rely on the resources of a technical library. The library's collection of books and periodicals provides the information center with its primary source." Strong support also comes from Weinberg³⁾ on this point for he says that the information center not only uses the tools of the librarian, but that it cannot function without support of librarians.

Much has been written on the problems associated with the development of specialized subject oriented information centers. Some of the problems are briefly presented. The first is to describe the subject area for which the information center is being developed. This will require careful determination of the parameters and a very carefully developed set of terms or descriptors. This terminology control frequently takes the form of a thesaurus which Kent⁴⁾ says: "... is an alphabetic or otherwise arranged listing of words, listed alongside which are either considered to be synonymous or otherwise related in meaning to the original

words. In a sense, a thesaurus can be considered a cross reference system for words."

Another one of the early tasks in developing the background information for a specialized information center is to determine the literature coverage of the subject area selected. Recently BIOSIS⁵⁾ said that "there are, worldwide, between 25,000 and 30,000 primary publications covering the fields of science." How many of these 30,000 primary publications carry at least 50% of their scientific content in the field or specialty you are considering? In a study conducted by our group⁶⁾ we found that in the field of marine biology and limnology that there are 1,627 journals that carry at least 50% of their scientific content in this special field. So the person who thinks he keeps up with the field by reading ten or fifteen journals is fooling himself rather badly.

In the field of biochemistry and endocrinology⁷⁾ we found 261 journals meeting the criterion of 50% content in these special fields.

In developing background information it is equally important to determine the secondary coverage of your selected field. What abstracting services or bibliographic references cover the specialty? Is the special field adequately covered or do you need a special abstracting service?

One of the real problems encountered is to make an indepth study of the possible USERS of your proposed center. Are there scientific societies who will take an active interest? How many individual USERS will there be and how many services do they wish or need—a new journal, an abstracting service, a bibliographic service, or a newsletter? Will your group want special service in the form of hard copy delivered to their desk based on selective dissemination of information matched against a predetermined PROFILE? SDI was first developed by the late Peter Luhn.⁸⁾ These services can be individual and very detailed and can be sent on a continuing basis or upon demand.

One of the most difficult problems to decide is the whole detail of procurement of information, its processing, and its storage and

retrieval. Cost, of course, is an overriding imperative and a feed back mechanism must be built in order to keep the system up to date.

This is a mere skeleton of the considerations necessary in planning for specialized information centers. However, it is the thesis of this paper that it is this type of activity that is absolutely essential to keep the scientist, the administrator, the student, and the public informed of what is going on in science. Even with a properly functioning information center it is still necessary to see that reports get to the interested groups. This active processing of information in a number of different forms suitable for the various groups it serves will do much toward furthering the understanding of science and its role in national developmental progress.

Every library school should make certain that their graduates realize the national importance of research and should understand their role in helping further public understanding.

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