

INDUSTRIAL RESEARCH AND DEVELOPMENT IN METROPOLITAN AREAS - THE LIBRARY ENVIRONMENT

George L. Royer

I cannot consider myself an information services specialist, but on the other hand, I cannot deny that I have been associated with the field. From my early days as a working scientist, I have always considered the literature and, therefore, the services supplied by the library to be a very important part of a scientist's professional "tool chest." The scientist cannot truly be creative in any field unless he is knowledgeable about what has gone before, so that he can build on this information and create new ideas and programs. If he does not know the field, he may think that ideas and products which are uncovered by him are brand new, and he will therefore be sadly disappointed when he expresses them as new creations only to find out that the experts in the field have known them all along.

The research laboratory in most companies has grown out of the technical operation. In the chemical industry with which I am best acquainted, the technical activities centered on the production, control and testing of the products being manufactured. In many cases, this know-how was brought to this country from Europe where, most specifically, organic chemical manufacture had started prior to the first World War. After 1918 there was a rapid development in the synthetic chemical industry, and it was at this point that many of our earlier research laboratories were established. During the last forty years there has been a marked increase in research activities and many of our current industries have developed as a result. The first research laboratory was located at the manufacturing plant but its activities gradually became separated from the manufacturing operation. In this separate environment, research scientists were able to develop new products and processes which justified the research expenditures. Before World War II, research had progressed to the point where many of the larger organizations felt that it was desirable to form separate central research laboratories where scientists could devote their time to new products and new areas separate from their current fields of endeavor. Laboratories like that of Cyanamid at Stamford were established completely independent of a manufacturing location. In seeking a site for such a centralized laboratory, locations were investigated which were either close to the corporate

George L. Royer is Administrative Director, Stamford Research Laboratories, American Cyanamid Company, Stamford, Connecticut.

office in a metropolitan area, close to a university, or both. During and after the second World War, there was an additional desire on the part of many large companies to expand their research activities into products related to government activities and also to expand in activities which had come out of work for the government. The laboratories developed mostly around the university or around research centers. Typical of the developments around a university are the laboratories which have been built in the Stanford and Princeton areas and those of the Harvard - MIT complex known as the Route 128 area. Within the last five to ten years, many states have felt they have lost out by not encouraging research to come to their areas and have established research centers. As a result of all this, we now have concentrations of research laboratories around many of our major metropolitan areas. These research activities look to their local area to furnish them adequate library facilities. This is in addition to a community environment which gives satisfactory living conditions for the type of employee being sought, namely, the professional and technical person. The metropolitan library, therefore, must furnish adequate facilities for the professional person to use in his work and also supply him with the library facilities he needs for his own personal and family use. In the New York area, we have been fortunate in having the outstanding New York Public Library as a source. In addition, in specialized fields we have such libraries as The Chemists Club Library, The Engineering Societies Library, and the New York Academy of Medicine Library.

From my viewpoint as a research administrator, I can see the need for better information services and want to report to you some of the developments leading to this goal in our Stamford Research Laboratories, the American Cyanamid Company, the City of Stamford, the State of Connecticut, the New York area, and in the United States as a whole.

Research is big business. I am not going to repeat statistics on its growth during the past few years since the government has become so involved because I know you have read a great deal on the subject. In addition to locating scientific information which has been developed over the years, we must look forward to how we will handle the great quantity of information, both governmental and private, which will be coming out as a result of these large research expenditures. While there will be direct benefits in the form of products and accomplishments as a result of this research, we must be concerned with the indirect information, or fall-out as it is often called, which can be used to advance our knowledge in the same or related fields. Because of the tremendous size and ramifications of current research programs, it has been necessary to specialize so that the individual and groups of individuals can grasp an understanding of a segment and apply it for a fruitful conclusion. In such specialization, there is a

tendency to ignore some of the fundamental developments in other fields. As a result of this, there may be less use of broader concepts which could lead to truly new discoveries and entirely unexpected products. Information services must create techniques which will make possible considerable depth studies which will satisfy the specialist, and at the same time keep the systems broad enough to include enough depth on broad areas of science. For example, we have medical libraries which maintain information services in all medical areas and in more depth as the information relates to the functions of the human being. At the same time, special chemical libraries go into considerable depth in regard to all phases of chemistry. This is likewise true in biology, electrical engineering, mechanical engineering, etc. I do not want to get into a discussion of techniques of which I know very little, but, rather I would like to keep all of you focused on the problems which we face in industry and government, because of the ramifications and costs which might develop in the information services field if some attempt is not made to correlate them.

In the individual research laboratory, it is desirable to have as large a working library as is possible to cover the immediate needs of the research organization. As the laboratory grows in size, the library must also grow if it is to meet the needs of the various professional people who are hired to carry out the research work. At all times it must be the responsibility of the librarian to supervise the requests of the staff and determine when it is most economical to have the source material in house and when to go to another collection.

I will describe some of the techniques which we have used to guide us at Cyanamid. We have four major research locations, each of which has an information services staff to aid the researchers at their location. Each of them has a budget which is established by their local management to cover the areas of specialization at their location. From the over-all corporate point of view, there is an information services committee composed of representatives from each of the four major locations which meets quarterly to coordinate and report on information practices which might concern all locations. In addition, this committee sponsors an annual meeting attended by the majority of the library personnel of the company, at which time outside specialists present papers on areas of interest. Thus, an attempt is made through the individuals concerned to maintain relationships which can help serve each other, and do so at the lowest corporate cost.

The City of Stamford, Connecticut, has been designated by its government to be "The Research City" because of the number of research laboratories located there. In order to have a good environment for research, our managements know that we must have good

public library facilities, good educational facilities, and good living conditions for professional personnel in addition to the libraries established by our specific industries. Therefore, several years ago, the Management Council of Southwestern Connecticut sponsored a Library Group consisting of the staff of the various libraries in the area, not only business and industrial libraries, but also public and at least two academic libraries. This group has been meeting regularly and has established relationships for the exchange of their own collections and helped to create, at the Stamford public library, a central means for the duplication and distribution of material of interest to all members. An article in Connecticut Industry (July 1965, p. 35) describes this group and two of its major projects. First is the preparing of a title list of periodicals in alphabetical order for the use of member companies. The second project is the purchase of microfilms of major journals and periodicals not now available in member company collections. By this cooperative effort, library costs of individual organizations can be minimized and quicker service can be obtained than from sources in New York.

Several years ago, Governor Dempsey of Connecticut realized the importance of research to the future economy of Connecticut. He established committees to study research and library facilities. The legislature now has authorized a Connecticut Research Commission which has funds and a staff to advance research activities within the State. Walter Brahm, our State Librarian, made the following statement concerning the Connecticut Library facilities: "Connecticut's approach to the solution of its library problems, particularly in the science-information area, may have special meaning for industry's top management as well as for metropolitan librarians. The 1965 General Assembly, in legislation reorganizing library service at the State level, specifically instructed the State Library Committee to plan a research center. The Library Committee has established a department of planning, headed by a librarian with many years of experience in the science information field. What kind of library 'research center' evolves from this planning remains to be seen but the approach perhaps is unique among the States."

With these steps being taken, the State of Connecticut should be ready to accept the provisions of the State Technical Services Act of 1965 recently passed by Congress. The preamble states that this Act provides funds to states which can match them with state funds "To promote commerce and encourage economic growth by supporting State and interstate programs to place the findings of science usefully in the hands of American enterprise."

As mentioned earlier, in the metropolitan New York area, research personnel are fortunate in having the New York Public Library. During my own scientific career I used it on many occasions. Cyanamid's libraries have also used its excellent collections for

photostat service. In my own field of chemistry, the Chemists Club Library provides a more intimate service and easier access to the stacks. The Library Committee of the Club, whose members are mostly chemical company executives, has for a number of years organized annual symposia to discuss not library techniques, but relationships between the library and other parts of the company such as research, sales, market research, etc. These symposia offer the opportunity for the librarian and management to exchange ideas to advance the usefulness of information services. The participating research laboratories of the metropolitan New York area thus benefit from this cooperative activity.

D. A. Schon, Director of the Institute of Applied Technology, Department of Commerce, and William T. Knox of the Office of Science Technology of the Executive Department, held a conference with industry representatives in Washington on June 18, 1965, to discuss matters of scientific and technical information. In the Federal Government, interest in technical information has been the concern of Congress, an interest expressed often by former Senator Humphrey, Senator McClellan, and Representatives Elliott, Daddario, and others. In the Executive Office of the President, several actions have been taken: (1) the establishment of a Committee on Scientific and Technical Information (COSATI), (2) the establishment of a staff member of the Office of Science and Technology for scientific and technical information, (3) the creation of the NASA regional technology transfer centers, and (4) the creation of the Department of Commerce Clearinghouse for Federal Scientific and Technical Information. Congress and many panels of the executive branch have emphasized the need to study national (as opposed to Federal) scientific and technical documentation and information systems, and to work out appropriate public-private division of responsibilities in the design of such systems.

The Task Group of COSATI is addressing itself to questions that include the following:

- Division of responsibility between industry, government and the professional societies.
- Federal support of non-federal activities.
- Legislative requirements, if the role of national libraries is to be expanded.
- Costs of information services, in relation to benefits.
- New technologies in information handling, and policy questions raised (e.g., copyright).
- Standards and compatibility.

The COSATI group is now awaiting a report from a consulting organization which has been contracted to make a preliminary study. It has also promised to report back and continue to work with various

professional, scientific, and industrial representatives in order to bring government and industry together to discuss issues of importance to both.

These efforts being made toward the solution of information problems on company, city, state, and national level, must be carried out with understanding from the viewpoint of the professional librarian, the federal and state government, and industrial management. The profit nature of industry and the society responsibility of government both must be kept in mind by the information specialist if his advice and recommendations are truly professional. We must not build a system for the sake of building the best possible system. We must build what is needed today to solve our problems at a reasonable price. This does not mean that we should not look forward to tomorrow. This is research, and what we build today must be the foundation of what is to come. As an example, I always think of our telephone system—the hand-cranked, many-party, rural phone must be able to be connected by proper equipment to the latest electronic pushbutton phone in the most modern telephone exchange. In the future information system, the individual scientist must be able to relate to the most recent scientific discoveries and also to those of the past.

All this coordination and development of information services is of no value if the results are not used by research management or the research scientist. Maybe you as librarians think you are not concerned with this as long as you do your part and make the services available. I know this is not true because you are just as anxious to make your contributions needed as we in research management are to have our efforts succeed in making the research scientist more effective by his working together with the information specialist. We both have the same problem of effective motivation of the scientist by the proper use of information. I agree with a recent statement by J. M. Leathers, who said in Chemical Engineering Progress (July 1965, p. 28), "I feel that the problem of early mental retirement by professional people in large organizations will become an increasing problem, and will continue to do so until upper management recognizes that individuals, and not systems or organizations, make projects tick."

In the information area we must reach the individual scientist. Library and technical information service is one important factor in preventing him from becoming obsolete. We are not satisfied with the use our scientists make of our information services. We find our better scientists in the library area frequently, correlating their experimental work with that published by others. The poorer ones, who need information most, do not seem to recognize their needs and frequent the library very little. William T. Knox, in a talk at a joint meeting of the American Documentation Institute, American Medical Writers Association, Society of Technical Writers and Publishers,

and Special Libraries Association on March 15, 1965, stated that our big problem is, "creating in the mind of the consumer the idea that use of information services ranks among the most desirable, the most valuable functions of the professional man. Frankly, there are few scientists and engineers who share this view today. The 'image' of the user of information services, and of those providing information services is not one calculated to attract others. This is true although the average professional man values highly a good book or journal article. In my opinion, he doesn't normally extend his value judgment about a specific information service, such as a good book, to the broad spectrum of information services. The training most scientists and engineers receive emphasizes experimentation, and sometimes explicitly, sometimes implicitly downgrades the value of using the literature." If this is a big problem, and I believe it is, then the information specialist and management should get together and help solve it.

In closing, may I say that casual users of the library are not aware of the problems of the information explosion and the need to make effective use of existing knowledge. A recent issue of Time (September 3, 1965, pp. 52,57) brings out various aspects of the problem as it applies to the public library, school, college, industry and government. It describes some of the current ideas being tried and projected to solve some of the problems, and concludes with a significant statement by Jesse Mills of the University of Pennsylvania: "All the money in the world isn't going to get a computer to judge what is worth storing and what is not." This judgment will continue to be more valuable than any technical breakthrough and emphasizes the importance of the professional ability of the librarian.