SDI profiles are developed by the user together with an information scientist. The keyword list is used as the basis for every profile, allowing access to the RINGDOC surrogates via controlled "indexing terms," journal names publication dates, profile groups, and thematic groups. Profile terms or synonyms not available in the keyword list may be sought in the text of the title and in the "indexing abstract" portion of the record, as can authors' names. Although text searching does require more computer time per query because of string matching, it is an essential part of the retrieval process and is frequently used. The economy of storing fewer keywords can outweigh the added cost of text searching.

Figure 9 illustrates a straightforward retrospective search query for all citations dealing with "silicon" and "inflammation." Again, the user has specified a customized format for the bibliography. The hits are shown in Figure 10. A specific search was structured for a user with only bits and pieces of a reference (see Figure 11). This query searched keywords, year of publication, journal, author, and title. Figure 12 shows the output for this search. As is shown by query examples, the user is allowed any degree of specificity he needs.

Further details are presented in a paper by Stephen J. Frycki entitled "Information Transfer from Source to User Utilizing a Pharmaceutical Data Base," presented May 8, 1970, at the Seventh Annual National Colloquium (in press).

Personal Use of Industrial Information Services: A Case Study of the Use of Information*

WILLIAM R. RODERICK
Department of Organic Chemical Research, Abbott Laboratories, North Chicago, Ill. 60064

Received March 10, 1971

Question 1: What single tool do you use most in searching the literature?

Chemical Abstracts is the source I use most frequently in searching the chemical literature because it is the most comprehensive in its coverage. Beilstein, however, is a very close second. For information on whether a compound is known, which is one of the most common types of information desired, I look first in Beilstein if I think the compound is likely to be known in the older literature. For such a search, Beilstein has the advantage over *CA* of having a single formula index and one that differentiates isomers, which the early *CA* indexes do not.

Question 2: Where and how do you draw the line between your own literature searching and literature searching done for your by an information person?

Whether I carry out a literature search myself or have it done by an information scientist depends on three considerations. First, this decision has to be made only at institutions where information services are available. Having been a university professor, I am quite used to doing all my own searches.

The second consideration is the nature of the search. Searches which I would assign to any information scientist include:

> Easy but lengthy searches, such as references on a list of specific compounds. In contrast, an easy quick search, as for a single compound, I would do myself so as to have the results immediately.
>
> A well-defined search. The poorly-defined searches and complex ones I would do myself so that I could continuously modify the scope of the search as I became familiar with the literature.
>
> A search not important to me. Searches for patents on classes of compounds or specific compounds constitute the major type. I regard patents as being primarily legal, not scientific, documents, and hence I have little scientific interest in them.

The above examples are searches to be given to any information scientist and exclude the complex and therefore the most important searches. The decision as to who does these types of searches is based upon the third consideration, namely, the relative abilities in searching the literature of the information scientist and of myself. Generally, an experienced information scientist is more skillful than a laboratory chemist in using the tools of literature searching but less knowledgeable in the technical information itself. For the more important and complex searches, therefore, I decide on an individual basis whether I or a specific information scientist is more likely to do the better search.

Question 3: Are any of the current awareness services useful to you?

I have tried most of the current awareness services available to chemists, so that those which I do not use have been consciously rejected.

The services I use are:

> *Current Contents*. This is the one indispensable service for me.
>
> ASCA. This is a very helpful service. Its major deficiency, in my opinion, is that the keywords are taken only from the titles of papers. Since titles often fail to include the most important keywords, ASCA fails to select such papers.
>
> Ringdoc. Presently I use Ringdoc for abstracts on biological activity of organic compounds. The major advantages of

* Presented before the Division of Chemical Literature, 160th Meeting, ACS, Chicago, Ill., Sept. 16, 1970.

Ringdoc are the ready availability of an abstract for reading and for retaining and the indexing of abstracts under keywords which do not have to be in the title of the paper.

There are three current awareness services which I do not use and on which I would like to comment briefly.

Chemical Titles. This service is useless, in my opinion.

CBAC. This service is useless in view of the many superiorities of its competitor, Ringdoc.

Current Chemical Papers. Before the advent of *Current Contents*, I had a personal subscription to CCP, which was then my indispensable service. Although CCP is no longer published, this approach is useful to chemists with a narrow range of interests. Indeed, CCP offered an advantage for such chemists in that it selected and classified the titles by field. I have rather broad interests, both by my approach to science and from the nature of my work in medicinal chemistry, and hence I do not want to see titles of papers only in "new" and "pure" chemistry; but many chemists do.

Question 4: Which information services do you find particularly useful?

My usage of these services, some of which has been indicated in the preceding discussion, may be summarized as follows:

Useful services:	Chemical Abstracts Services Institute for Scientific Information Derwent services Beilstein
Services not needed:	American Institute of Physics Engineering Societies Service American Mathematical Society (I am not familiar with these services)
Services which I might use, but with which I am unfamiliar:	Clearinghouse for Scientific and Technical Information Defense Documentation Center Bioscience Information Service National Library of Medicine

Question 5: What service do you feel would be most useful to you, if available?

Let me introduce my ideas on this point by stating that in my opinion there are two major problems with information services today.

First, information services will say that their function is to provide the users with the services the users want, but in reality they want to provide the users with the services that they, the providers, feel the users need. Hence the user who makes suggestions is rebuffed and told why he needs the service as it is. This characteristic is an example of Parkinson's Law, "that organizations once set up tend to exist for themselves rather than for the mission."

Second, there are too many information services available. No service can guarantee 100% coverage of the literature. Thus the competing services complicate things for the conscientious user, since each new service means another place to look to ensure that one doesn't miss something. The only practical solution is to accept the possibility of missing some papers and make a selection among the information services available.

The most useful service to me would be a combination of the best features of three of the presently available current awareness services: *Current Contents*, with its complete listing of papers for each journal; ASCA, with its computer selection of many papers of interest; and Ringdoc, with its abstracts which can be filed.

Thus, I would like a weekly current awareness service in three parts.

An individualized *Current Contents*, containing the contents pages for journals listed in the user's profile.

An individualized computer listing of papers fitting the user's profile. This would be ASCA modified to include keywords not in the title.

Copies of abstracts available for each *Current Contents* issue. These abstracts should be author abstracts taken directly from the papers and printed on 5 × 8-inch cards with the title on the top line. These abstracts could be ordered (perhaps by author's name) from the institutional library.

Such a system would reduce the time now spent in using information services to find papers to read and thereby increase the time available for reading papers and abstracts.

Question 6: Where do you feel government money should be placed to best serve the interests of the information user?

Perhaps in efforts directed toward combining present services and in research to find out how useful various services really are.

Question 7: What do you think about the extension of the concepts of National Libraries and National Information Centers?

From my limited knowledge of these national services and my preference for centralization, I am in favor of these approaches.

Question 8: Where did you learn your abilities as a literature information user?

My abilities as a user of literature information were acquired entirely on my own. No literature course was available to me either as an undergraduate or as a graduate student. In addition to trial and error learning of skills, I have read several books on literature searching and taught several people how to use the chemical literature, which helped me to organize my own techniques.

Question 9: Should a course in scientific literature be required of students in chemistry?

Yes, but I believe the course should be restricted to chemical literature, which is a large enough field. Such a course would best be taught by an active user of the literature, not by a librarian. An information scientist actively engaged in making literature searches would be best. The course should have credit commensurate with the work involved—that is, not 1 credit for work equivalent to 3 hours credit, as commonly done. Finally, I am not sure whether the course should be required or elective.

END OF SYMPOSIUM