THE LITERATURE SCIENTIST IN INDUSTRY

By

CHARLES E. KIP[1]

The literature scientist may perform a variety of services in an industrial organization. He may search the technical literature, prepare bibliographies and surveys, translate, index, abstract, devise and evaluate both mechanized and non-mechanized information retrieval systems, write special technical articles for management, advise research personnel on search techniques and new sources, and keep abreast of new developments by visiting outside information centers and by attending society meetings. Instead of being part of the library organization, he may be part of a technical information section of which the library is a component part.

At Chemstrand Research Center, the literature chemist provides literature searches and surveys for management and for research personnel to assist them in planning new research programs, carrying out established research programs, and establishing favorable positions. Stated differently, the literature chemist selects and transfers pertinent written information in an acceptable form to the requester in the shortest possible time.

If it is assumed that the literature chemist knows his internally available sources well, then it would appear that he needs to become involved in the development of at least three areas of activity in an attempt to keep pace with the ever-increasing demands on his services. These areas are: (1) his own conventional techniques of information transfer, (2) his company's formalized information retrieval system, and, (3) information retrieval methods of outside information centers whose subject interests overlap those of his own company.

At Chemstrand, the development of a company-wide information retrieval system is the responsibility of others and should properly be reported by them. In passing, however, it may be said that since the literature chemist is a very interested user of the developing system, his opinions are often sought on input, processing, output, and overall efficiency of the system.

IMPROVEMENT IN CONVENTIONAL TECHNIQUES

In the normal procedure, the literature chemist will consult secondary information sources, such as *Chemical Abstracts,* and transfer selected abstracts by hand, photocopy, or other methods on to separate cards, which then can be arranged in some logical order. These may be given to the requester for his immediate use. Later, when the survey report is written, the abstracts must be edited, classified to insure proper position of reference in the report, rearranged into alphanumerical order, and retyped for the "annotated bibliography."

A new method, especially useful when there are numerous abstracts (more than 50), consists of dictating abstracts from primary or secondary sources onto dictabelts and then transcribing the information directly onto IBM cards, which, when properly arranged and modified, become copy for the final report. The details of the impoved techniques were worked out with S. E. Blankinship, also of the Chemstrand Technical Information Staff.

1. Mr. Kip is literature chemist, Chemstrand Research Center, Durham, N. C.

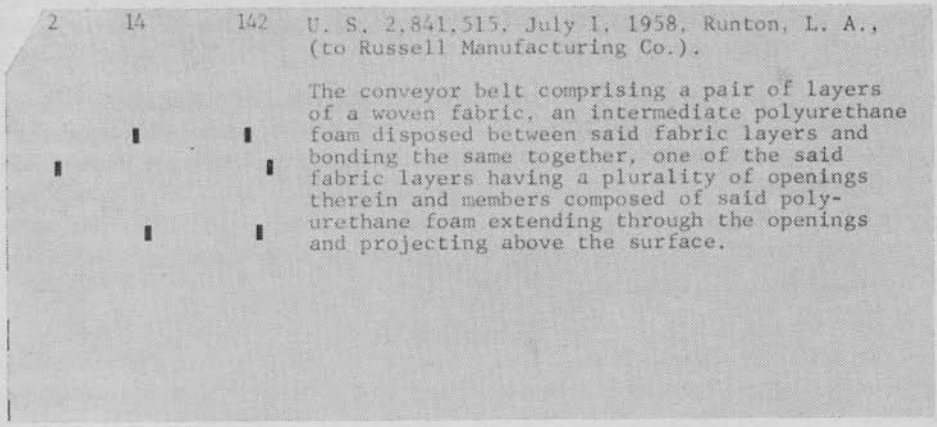


Fig. 1. Abstract Card, Punched for Sorting.

For dictating, a small portable dictaphone (Interviewer Travel-Master) is especially useful. This battery-operated model may be carried right to the source. In fact, dictation in the library stacks causes no disturbance to others. As each dictabelt is completed, each item is transcribed by the typist onto the right five inches of an IBM card as shown in Fig. 1 (the punchings are explained later).

It is convenient for the typist to use the 8½-inch "Continuous Strip Card Form" in which the cards are held together by perforated tabs. With a trained typist few mistakes are made. The cards are then sent to the requester for his immediate use and for his feedback comments.

As the cards are returned from the requester, they are arranged in order to form a master file. When all the cards are completed, they are reviewed and classified as desired for the final report. A general heading is assigned a "1-punch" in a specific column, while sub-headings are assigned other numbers in the same column. Non-reproducing blue pencil is used to mark number codes on each abstract card. Table I shows a sample report organization with codes.

TABLE I.

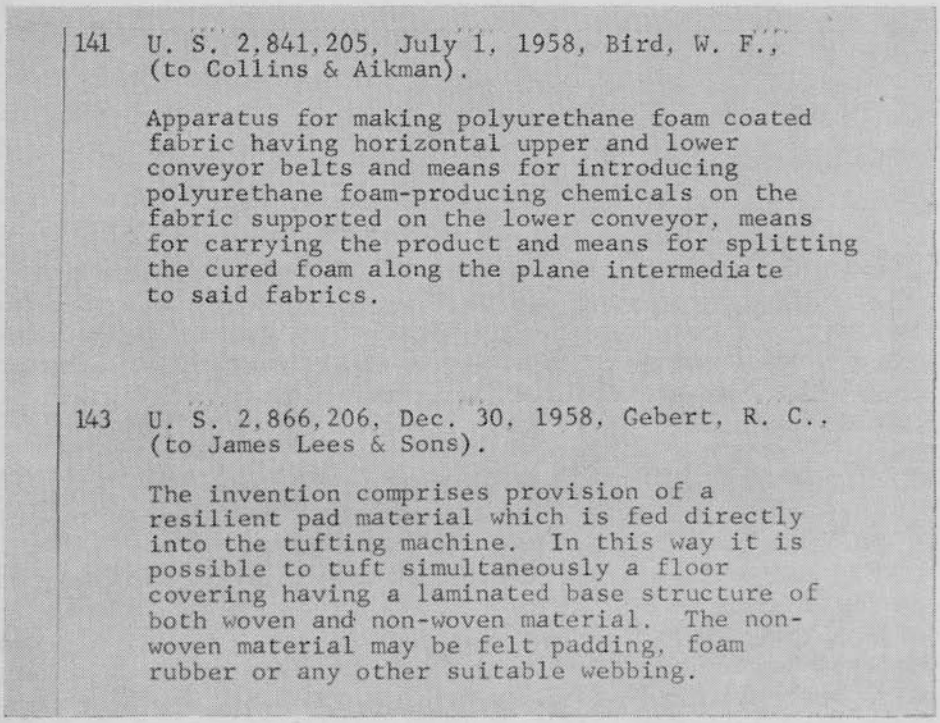
SECTION OF REPORT ORGANIZATION WITH CODES

Report Outline	*Code*
A. Review Papers	2 - 1
B. Foam Composition	3 - 1
1. Polyurethanes	3 - 2
2. Polyolefins	3 - 3
3. Acrylics	3 - 4

As shown, (2-1) will be marked on all cards referring to general articles on foam-textile laminates. Cards marked (3-1) will contain information on foam composition in general, while those specifically dealing with polyurethanes are designated (3-2). A card-punch operator, following the blue markings, then punches the proper organization codes on each card. In Fig. 1, the "2" in column "3", the "1" in column "10" and the "4" in column "11" indicate that this particular reference contains information on laminates made from polyurethane foam, bonded in an unusual manner to form an industrial

product. The "142" in columns "20", "21" and "22" indicates the abstract number in its proper alpha-numeric order.

To make final copy, the deck of cards is cut vertically just left of the abstract numbers. A clerk then pastes the abstracts in order on large sheets which can be photographed to make a duplication master. This arrangement is shown in Fig. 2. While the use of IBM cards for references has long been known, (1) it is doubtful that the cards have been used for final copy.



141 U. S. 2,841,205, July 1, 1958, Bird, W. F., (to Collins & Aikman).

Apparatus for making polyurethane foam coated fabric having horizontal upper and lower conveyor belts and means for introducing polyurethane foam-producing chemicals on the fabric supported on the lower conveyor, means for carrying the product and means for splitting the cured foam along the plane intermediate to said fabrics.

143 U. S. 2,866,206, Dec. 30, 1958, Gebert, R. C., (to James Lees & Sons).

The invention comprises provision of a resilient pad material which is fed directly into the tufting machine. In this way it is possible to tuft simultaneously a floor covering having a laminated base structure of both woven and non-woven material. The non-woven material may be felt padding, foam rubber or any other suitable webbing.

Fig. 2. Abstract Cards After Cutting and Pasting to Form Final Copy.

The above streamlined technique has been successfully used on several recent literature survey reports, each of which contains well over 100 abstracts.

OUTSIDE INFORMATION CENTERS

Another phase of the literature chemist's job that is becoming increasingly important is his knowledge of outside libraries and information centers which process information of interest to his own company. It is not only valuable to observe how others perform literature searches, but it is sometimes possible to cooperate with them in developing their retrieval systems, which ultimately helps both organizations. Two examples will illustrate the cooperative approach.

One information center of considerable interest to Chemstrand is that located at the Institute of Textile Technology at Charlottesville, Va. At a meeting of the Advisory Committee on Information Retrieval, which the literature chemist attended, copies of a new thesaurus for the textile processing field and a computer-produced KWIC index for the January, 1966 *Textile Technology Digest* were distributed. Using these two items for

discussion, a lively three-hour meeting produced many ideas for the future development of the retrieval system.

Each month the Institute mails experimental KWIC cumulative indexes to *Textile Technology Digest* to interested representatives. Two members of the Chemstrand Technical Information staff review these indexes regularly, check their effectiveness in uncovering items of interest in *Textile Technology Digest,* and spot-check the thesaurus for accuracy and logic. The feedback of comments from Chemstrand and from other industry representatives furthers the development of the system. Eventually it should be possible for the Institute to perform mechanical searches in the textile-processing field.

Another cooperative effort was made with the North Carolina Science and Technology Research Center, located in the Research Triangle Park. This information center specializes, at present, in NASA information. Since there is some overlapping in subject coverage (high temperature polymers and textiles), this information center is also of interest to Chemstrand.

As an interested user, the literature chemist was able to make direct comments on the relevance of the items found which allowed them to experiment with alternate methods of computer programming and to improve the selectivity process. The joint efforts resulted in benefits to both organizations.

SUMMARY

To make his job in industry more effective, it is suggested that the literature scientist become involved in the development of at least three areas of activity; his own conventional techniques of information transfer, his company's own retrieval system, and the retrieval system of outside information centers which process information of interest to his own company.

REFERENCES

1. Kirschner, S., "A Simple, Rapid System of Coding and Abstracting Chemical Literature using Machine-Sorted Punched Cards," *Journal of Chemical Education, 34,* 403-405 (1957).

AN INDUSTRIAL LIBRARIAN LOOKS AT AUTOMATION

By

Alice F. Laubach[1]

A short history of American Enka Corporation is necessary to understand the problem of retrieving technical material requested by the various units of the company.

American Enka Corporation is a subsidiary of Algemene Kunstzijde Unie (AKU), a Dutch textile combine which also has affiliates in Germany, Mexico, Ireland, Italy, and Spain as well as several plants in Holland. In 1929, AKU purchased a tract of land in the vicinity of Asheville, North Carolina, and established American Enka to manufacture rayon. The company prospered, particularly during the war years when tire yarn was in short supply. In 1948, on a site in Lowland, Tennessee, about 40 miles northeast of Knox-

1. Miss Laubach is librarian, Business & Technical Library, American Enka Corporation, Enka, N. C.