User Benefits from Secondary Journals on Microfilm*

STUART M. KABACK
Chemicals and Patent Information Group, Chemicals Corporate Services,
Esso Research and Engineering Co., Linden, N. J. 07036

Received September 17, 1969

The recent availability of secondary journals in 16-mm microfilm form, coupled with the development of convenient cartridge-loading microfilm reader-printers, has provided substantial advantages for the information user. Abstract look-up is faster and more convenient, and it has become easier to take information away from the library. Note-taking can be minimized and often eliminated. Abstracts printed from the microfilm can form the basis of personal information files, and can also be used, as such, in the preparation of bibliographic reports. Copies can often be prepared by a clerk, freeing valuable professional time. Indexes on microfilm also offer considerable promise—especially dual dictionaries, where the printouts facilitate multi-level coordinations. Some refinements in film quality and machine capability are still looked for, however.

At the September, 1965, meeting of the American Chemical Society, B. H. Weil and a group of his colleagues at Esso Research and Engineering Co. presented a paper describing some joint experiments by Esso, the Chemical Abstracts Service, and the American Petroleum Institute, in which a microfilm version of part of *Chemical Abstracts* was used in the Esso Research library.[1] The resounding success of those experiments led directly to today's widespread use of *CA* microfilm.

The traditional resistance of information users to the use of microforms, rather than original hard copy, is a familiar phenomenon. The advent of the modern, cartridge-loaded reader-printer has gone a long way toward overcoming this resistance. It is no longer necessary for the user to thread the film through the machine. Further, he can make photocopies of as many pages as he wishes, right on the spot. Certainly there is still room for improvements in equipment, and several suggested improvements are presented below. Nevertheless, we have found that equipment representing the current state of the art is quite satisfactory and is readily accepted. It should be emphasized that the comments presented here are predicated on the use of a reader-*printer*, which produces copies in a matter of seconds. In the author's opinion, print capability is an essential feature for the effective use of microfilm versions of secondary journals, primary journals, patents, or any other documents.

At Esso Research we use reader-printers exclusively. Our collection of secondary journals on microfilm includes *Chemical Abstracts*, the American Petroleum Institute's abstract bulletins and their dual-dictionary indexes, a large collection of author- and subject-classified abstracts taken from internal abstract bulletins from 1920 through 1963, and several recent, specialized, internal abstract bulletins. We expect soon to add the microfilmed abstracts from *Plasdoc*, a documentation service for polymer patents produced by Derwent Publications, Ltd.

The first point at which user advantages from microfilm show up is in the ease of look-up of the abstracts. Microfilm cartridges are considerably less bulky and easier to handle than are bound volumes. Weil in 1965 presented data on time savings in look-up. These data are certainly in agreement with the experience of the present author, a frequent user of the microfilm. It is certainly easier and quicker to find what you're looking for on the microfilm than it is with something like bound *CA* volumes, especially when a large group of abstracts is involved. The process is made still easier by the various codes available on the microfilm for locating the desired abstracts. My own experience is confined to the Kodak Lodestar equipment that we use, and our chief reliance is on the Kodamatic counting lines. We also have one Lodestar equipped with an IC-3 automatic keyboard, and while this automated machine is relatively popular with users, we do not find that its use results in any appreciable time saving. The more-expensive IC-4 keyboard, or a Miracode apparatus, would probably speed look-up somewhat—but we have not been able to justify their acquisition on the basis of economics.

In fact, it is possible to get rapid look-up using just the Kodamatic lines. Weil's data indicated a look-up time of about 1 minute per abstract. Experience and a healthy propensity for man-*vs*.-machine competition enable this rate to be bettered by a substantial margin. For example, the author was once able to check through a group of 400 references, and print out more than half of them, in the space of four hours and ten minutes—an average of under 40 seconds per abstract for the entire operation, including printing, which takes about 15 seconds per print.

A secondary benefit of the simple microfilm look-up is that it is possible, when a large number of abstracts are

*Presented before the Division of Chemical Literature, Microfilm Forum, 158th Meeting, ACS, New York, Sept. 10, 1969.

desired, to have the copying done by a clerk. This saves quite a bit of professional time, and is frequently done in our organization.

The second big bonus to the user lies in the ease of taking information away from the library. No longer is it necessary to take voluminous notes, and perhaps miscopy some information. Nor is it necessary to make photocopies from bound volumes, which is often clumsy with large volumes, is hard on bindings, and might in some cases be a violation of copyright law. The *CA* microfilm lease, however, includes the right to make copies. Thus, the user may choose to photocopy any abstracts he wants, and can attach them for inclusion in his personal information file.

For the information specialist, these copies can be used to prepare bibliographies. It is convenient to cut up the copies, arrange the abstracts in any desired format, and make single or multiple xerox copies for distribution to laboratory or management personnel. This technique often allows the inclusion of peripheral information in an information report at minimal expense, where the time involved in transcribing and digesting the information would not be justified.

One of our constant hopes has been for the availability of *CA* subject indexes on microfilm. By marking up a copy of an index printout to indicate entries selected for look-up, one can provide a useful permanent record of a search and its strategy. The possibility of transposition errors is also diminished. Recently, the Chemical Abstracts Service provided an experimental set of microfilmed indexes for testing in several libraries, including ours. As expected, we found legibility problems with some of the very small print used in the indexes, and could not term the experiment an unqualified success. At present, the best alternative is to prepare xerox copies from bound indexes, although this gives some problems, especially with print near the binding.

Microfilms of API abstracts are handled in a manner similar to that used with *CA*. A special benefit accrues, however, for the indexes to the API abstracts. These are coordinate indexes, arranged in a dual-dictionary format. By preparing prints of the index entry pages, it is possible to carry out multiple-level coordinations in a single step. An example of a simple coordination is shown in Figure 1.

The subject here is the thermal cracking of methane to give acetylene, ethylene, or both as products. The first step is to identify the relevant search terms—here, methane, thermal cracking, acetylene, and ethylene—and to make copies of the listings from the microfilmed index. The most important term is selected as the base, and here methane was chosen. Where terms are judged to be of equal importance, the most heavily posted term is usually selected. Each of the other terms is then coordinated against the base, using a different marking for each term, and using the base photocopy as a work sheet. In this way, one readily determines which documents were indexed by all of the terms and are thus most likely to be relevant, but one also identifies the documents indexed by two or more (but not all) terms, with a somewhat lower relevance probability. Depending on the yield of "most relevant" documents, one can decide whether or not to consult the "less likely" documents.

In the sample shown in Figure 1, 24 documents were indexed by methane and at least one other term. Five of these were immediately eliminated on the basis of the assigned role indicators. Of the remaining 19 documents, three were indexed by two other terms in addition to

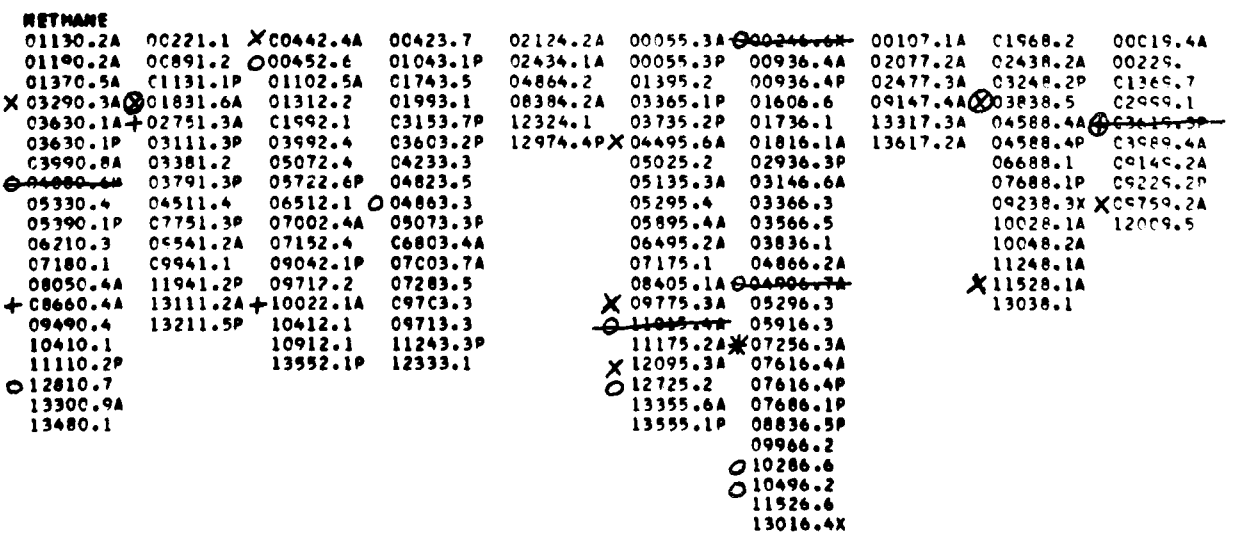

Figure 1. Multi-level coordination using a microfilm printout from a coordinate index

Subject: Thermal cracking of methane to ethylene and/or acetylene

Terms coordinated: Thermal cracking (+)
Acetylene (×)
Ethylene (o)

Relevant documents: 1831, 3838, 7256 (3 terms coordinated)
442, 3290, 4495, 9775, 11528, 12095 (2 terms coordinated)

Marginal documents: 2751, 8660, 9759, 10022 (2 terms coordinated)

Note: "Hits" eliminated by role indicators have been crossed out

methane, and all three were relevant. The other 16 were indexed by methane and one additional term. Of these, six were relevant, four were marginal, and six were not relevant.

The conversion of our classified abstract files of about 2,000,000 cards to microfilm allowed the removal of many space-consuming cabinets from our library. However, microfilmed files such as this are not ideal for the user, since they are by nature browsing files. Microfilm is well-adapted to use for look-up of identifiable abstracts, much less so for browsing through abstracts as they move by sideways; this leads to considerable eyestrain.

It would be incorrect to assume that all of the problems relating to the use of microfilm for secondary journals have been solved. The image on the screen is quite good in the equipment that we use, but leaves room for better resolution and brilliance. More important, the focus is not always uniform over the whole screen. This problem became especially noticeable in our tests with the *CA* indexes, though it is not a major problem with *CA* abstracts themselves.

As noted above, the Kodamatic lines on the microfilm make possible relatively rapid look-up, although expensive equipment such as IC-4 keyboards or Miracode apparatus can probably speed this somewhat. It would obviously be desirable to have less-expensive equipment to do this, but again, the problem is certainly not acute.

We often find that microfilm quality is variable. In particular, there can be substantial variation from cartridge to cartridge in the film exposure and contrast, and this requires considerable adjustment of print controls. It is often difficult to obtain a set of prints with consistent quality, and this poses a problem when one wants to make second-generation xerox copies. Cartridges substantially off the norm are returned and replaced, but in practice one tends to live with moderate variation. Nevertheless, more-uniform film quality would certainly be desirable.

Occasionally, the page image on the film is so high that the top of a *CA* page is cut off in the print. This can cause the loss of column numbers and volume number, and a control which would allow the image to be raised or lowered on the screen would help here. Zoom lenses, not available on Kodak or 3M reader-printers, would probably help in handling very small print such as is found in *CA* indexes. Finally, the Kodak machines produce a damp copy that curls badly if it is not placed face down until it dries, and is hard to write on while damp. The 3M machines are less objectionable in this respect, but their prints have less contrast, which makes them less adaptable to the preparation of xerox copies. There is certainly room for a cartridge machine which would produce a completely dry copy with good contrast, on uncoated paper which is easy to write on.

But while these problems do exist they are, as I have indicated, relatively minor ones. They are far outweighed by the various user benefits associated with microfilm, and the whole pot is sweetened by various economic advantages. It is certainly reasonable to expect considerable expansion in the use of microfilmed editions of secondary journals.

LITERATURE CITED

(1) Weil, B. H., W. G. Emerson, Shirley W. Bolles, and G. F. Lewenz, "Esso Research Experiences with *Chemical Abstracts* on Microfilm," J. CHEM. DOC. 5, 193–200 (1965).

Patents and Patent Guides on Microforms*

JAMES G. VAN OOT
Central Patent Index, Information Systems Division, Secretary's Department,
E. I. du Pont de Nemours & Co., Wilmington, Del. 19898

Received September 17, 1969

To those of you concerned with or responsible for patent activities in your organization, it is no secret that the U.S. Patent Office issues around 70,000 patents each year.[6] Unless the scope of your technical interests is rather narrow, chances are that someone in your organization has to scan more than 1300 patent abstracts or main claims in the *Official Gazette* of the U.S. Patent Office each week. By April 1970, the number of U.S. patents issued is expected to be at least 1600 per week. This rate is expected to continue for about two years into fiscal 1972, until an accumulated printing backlog is exhausted. The rate will then fall to about 1450 per week, with subsequent increases in keeping with increased filings.[12]

If your organization has any sales or manufacturing activities outside the United States, someone in your organization probably maintains a current knowledge of the patent situation with respect to your products in those countries. Around the world, almost three-quarters of a million patent applications are filed each year. Of these, just under half a million issue as patents.[1] Several countries publish patent applications before patents are granted, and these published applications constitute part of the "prior art" that patent people must be concerned with.

To make matters worse, changes in the patent laws in Germany, France, and Japan now, or will soon, provide

*Presented before the Division of Chemical Literature, Microfilm Forum, 158th Meeting, ACS, New York, September 10, 1969.