

## CURRENT COMMENTS

### Introducing PRIMATE™

—Personal Retrieval of Information

by Microcomputer And Terminal Ensemble

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On several occasions I've suggested that the rapid decrease in cost of minicomputers would have a great impact on all existing methods of retrieving information,<sup>1-2</sup> including on-line systems like *Sci-search*® and Medline.

A. E. Cawkell, ISI®'s Director of Research,<sup>3</sup> has been working on a microcomputer retrieval system called PRIMATE. The essay which follows is an effort on my part to do some market research for him. We would like to know if there is any serious interest in personal search systems.

After you scan *Current Contents*® each week, you write for reprints, make photocopies in your library, or order tear sheets from ISI. When the reprints arrive, you scan most of them quickly. Then, if you are like most readers, you "file" them. Or you may just note the article in the library and file an abstract.

I've said a great deal about reprints in the past. But I've avoided a discussion of methods of retrieving or storing reprints.

The literature is overloaded with articles on all sorts of filing systems.

It is precisely because of this that I am not citing any of them here.

Some people have undoubtedly succeeded in setting up and maintaining elaborate filing systems. Perhaps one of the most elaborate is the system established by Hans Selye in Montreal.<sup>4</sup> And I have seen many large indexed files of reprints collected by individual scientists. Some of these were developed over a 40-50 year period.

Many teachers maintain file folders of broad general categories corresponding to lectures they give. Reprints are added to these folders as acquired. They are reviewed when the appropriate lecture has to be prepared.

But while there are numerous well-organized reprint collections, most scientists lose their initial enthusiasm. They wind up filing reprints alphabetically by author. Still other scientists and especially physicians start out with the best intentions, but in the hustle and bustle of everyday research or clinical practice, they abandon any attempt to be systematic. They never seem to put their reprints into any kind of file. Their reprint "files" cover their

least a 16K-byte CPU (Central Processing Unit), 9" CRT (Cathode Ray Tube) display, double-density dual "floppy" magnetic disc, mass storage device, and a keyboard. It would be able to store information on 10,000 papers, indexed by up to ten terms per paper.

But the key to an effective PRIMATE system is software. I use

them in the loose-leaf binders.

Alternatively, you could command PRIMATE to display an indexing term along with the number of articles you have stored under it. If you have used authors' names as indexing terms, you could let PRIMATE tell you whether the file includes papers by a particular author and if so, how many. You could then display

them in your binders.

PRIMATE is a rather straightforward, simple system of personal information retrieval. But it could provide several sophisticated functions which are needed for an effective and convenient system.

For example, suppose you display the indexing term "virus". You find out there are 35 papers indexed under this term. When you put the first virus-related paper in your file, "virus" was an adequate indexing term. But now it is too general for your needs. So you review the 35 titles on the CRT screen and assign more specific terms, such as adenovirus, RNA virus, etc. To do this, you simply type in the new indexing terms. PRIMATE reorganizes itself so that your next search can be more specific. Since they are filed by number (or by author), the papers themselves do not need refileing.

Searches could be very specific, both as to subject matter and chronology. For example, you could ask to see adenovirus papers published after or before 1977.

We are also considering an optional updating service called ASCAMATE. This would help keep you aware of new articles pertaining to your interests. You give us a profile (made up of key words, citations, authors' names, etc.). ISI's computer will match the profile against our weekly file of new articles.

As we do in our ASCA® service now, we would periodically send you descriptions of pertinent current articles. But instead of print-

disc." You plug the disc into PRIMATE, observe the records on the screen, and place those of interest in temporary store. You can then obtain the reprints of the articles you want by writing authors. Or you may obtain them from your local library or from our OATS® library service. When the reprints arrive, you would number them serially and file them in numerical order. You would then recall the appropriate records from computer store, add your indexing terms, and send them automatically to main storage.

Although I have discussed PRIMATE in terms of retrieving *articles*, it is probably apparent that you can use it for filing books, letters, drawings, etc. And if your collection of information includes many different types of documents located in different places, you can create a numbering system which will tell you where and what something is. For instance, the numbers 1-3000 could be reserved for reprints, 3000-4000 might indicate books in the department library, and 4000-5000 would be correspondence, etc.

Undoubtedly many readers will think that PRIMATE is a fine idea. But from experience they realize that effective indexing can be a problem. How would a computerized system overcome that difficulty? The answer is that the system may not but an ISI information specialist can.

At the time of the system's delivery, one of our specialists would call upon you to describe

discussing your retrieval needs, the specialist would recommend appropriate indexing procedures.

I could suggest that the simplest title-word indexing would be as effective as most controlled vocabulary systems in existence. Most of you would not believe me. And yet that is precisely what we do with our Permuterm® system. On the other hand, title-word indexing can be easily augmented by "enrichment." We do this for the humanities literature. Or you might prefer to use author-assigned indexing terms, as emphasized by such journals as *Proceedings of the National Academy of Sciences* or *Tetrahedron*. The subtleties of indexing are the subject of thousands of papers in the literature of information science. Eventually, if you would use a system like PRIMATE, you would have to select *some* indexing system. That may be the hardest decision of all. I remember the dozens of scientists who were interested in our ASCA system, but were never willing to prepare a profile.

Once you do decide on a preferred indexing philosophy, you would enter a limited number of papers into the system. Retrieval on this small file would be tested to identify peculiarities or problems. When you decided the system was working effectively, you could begin to enter information regularly. Or we could train your assistant to do the same.

Some readers may feel that such a system could help retrieve the information buried in their reprint

to put hundreds or thousands of older papers into the system? You would also offer to index your backfiles. Since this is *your* personal system, you would be consulted at the initial indexing stage. But once that's done, you could have a complete backfile organized and easily retrievable.

The cost of a PRIMATE system is still somewhat uncertain. However, based on present equipment costs, the rental charge would be in the range of \$100-\$150 per month including installation and software.

The ASCAMATE updating service might run \$400 per year for weekly updates or \$250 per year for less frequent monthly updates. The backfile service, of course, would be subject to quotation, depending on the state and size of the file. This could easily involve a few thousand dollars, unless you get student assistants to do the work.

If you compare these costs to the price of a *Current Contents* subscription, then you may be in a state of shock. You may in fact be forced to re-evaluate your own existing manual system. You may be surprised by what it is really costing you to maintain and use it. Most people will not have any way to compare since they have no existing system at all.

PRIMATE hardware and software will not be absolutely unique. I fully expect that microcomputer manufacturers will design software packages that handle most everyday retrieval problems. Even the maintenance of an up-to-date a

problem in every lab. But I recall myriad personal indexing systems—including those based on edge-notched cards, peek-a-boo, delta cards, etc.—that are now defunct. So, I am convinced that microcomputers will only be successful when the software and in-

forming system are adequate to the task.

If you have any interest in PRIMATE or other personal information systems, please write to me in Philadelphia or to Mr. A. E. Cawkell, Director of Research, ISI 132 High St., Uxbridge, Middlesex England UB8 1DP.

#### REFERENCES

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