RALPH R. SHAW

CATCALL

YES, THE TITLE OF this talk is CATCALL. That signifies *C*ompletely *A*utomated *T*echnique [for] *C*ataloging [and] *A*cquisition [of] *L*iterature [for] *L*ibraries. If there is one absolutely indispensable step in any program of automation, it is the initial step of coining a peachy, and preferably mnemonic, acronym. In many cases that can be the final step, so far as getting anything useful done is concerned, because knowing acronyms that someone else does not know immediately establishes you in the inner circle of the mystique.

But after this promising beginning, I am afraid that the *cognoscenti* in the art will be disappointed in me again, because this talk is going to deal with a prosaic subject like getting some useful work done. If it were a really imaginative program for testing the limits of the computer to prove that we need newer and bigger computers (rather than something prosaic like making use of them to do routine chores, as in this paper), I should have given it a fancier name, such as IRON CRAB POT which obviously stands for *I*nstant *R*eproduction *O*f *N*ew *C*atalog *R*egularly *A*s *B*ook *P*urchase *O*rder [is] *T*ransmitted. The IRON CRAB POT system would be a real imaginative contribution, and typically it would have to wait for creation of new hardware (probably two or three more generations of quick access memory capable of storing hundreds of trillions of bits at a fraction of a penny a bit so the cost for the memories would come down to a couple of hundred million dollars, and thus would become available to every elementary school library). Economical? Of course not. Nobody who is anybody in this field worries about sordid little details like that. The important thing is that the IRON CRAB POT would print out for you a completely new catalog instantly every time you ordered a book, and think of how that would improve the *quality* of service, which is the important thing! It would have another great advantage. It would also solve the shortage of librarians because when this wonderful new computer is available at the Library of Congress (for example), and it prints out a completely new catalog (card, book, sheaf form, or what you will) instantly, every time a new book is ordered, the old catalogs are going to have to be hauled off. This would require so many janitors to haul the catalogs off that we would not have any money to waste on frivolities like librarians, and who would need these carping fuddyduddies anyhow, because the catalog would always be in the dynamic state of producing a new edition and no one could reach into it fast enough to look up anything anyhow.

Now, having established my *bona fides* in this racket, I shall revert to the original topic of this paper and midst the catcalls from the buffs, shall talk about the mundane matter of CATCALL.

The useful potential of CATCALL starts with the SBN. (Now let us not

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let our imaginations run riot; SBN is not even an acronym; it is just an abbreviation for the words Standard Book Number.) The program of industry-wide uniform numbering of books originated in England, and after a good deal of study has begun to be applied in the United States. Book numbering has been used by individual publishers for a long time, but each had his own numbering system. Under the SBN program the SBN is always nine digits in length. These nine digits are always divided into three parts which are separated by a space or a hyphen. The first unit of the SBN identifies the publisher, the second part identifies a particular edition of a particular book and the third part, which is always a single digit, is the check digit—a device used almost universally in computer technology to guard against manual mistranscription of numbers.

None of this is new except for standardization. Publishers have used book numbers (and check digits if they have computers), as have jobbers and warehouses, for a good many years. The thing that the SBN achieves is a standardized and unique number for every volume that is sold as a separate unit. If a work in multiple volumes is sold only as a single unit, it gets a single SBN for the entire set. If the individual volumes are sold separately, then each volume gets its own distinguishing number. And if a new edition is published, it too gets a distinguishing SBN. As the program develops, these numbers will be published in all trade sources and will eventually cover a large and increasing proportion of all trade and nontrade books in the English language, or published in England and the United States.

As this happens, it will become increasingly possible for libraries and bookstores to handle orders for particular titles in particular editions by writing the SBN for the pieces or piece wanted. It might be desirable to add the first letter of the author's surname, or his surname, as a further check, but the probability is that 99 percent of all errors resulting from transposition of numbers in using the SBN will be caught by the computer parity check (which is probably better, on the average, than we achieve in manual production of the author, title, edition, place, publisher, date, and price).

Now if we would go just one step further and agree to a standardized customer number, the process of ordering a book would become very simple. We now *have* customer numbers. If you will examine the bills you receive from any of the major jobbers, you will find a customer number on it; just as those of us who have been using the computer to do our bookkeeping assign dealer numbers to our various sources of supply. Under the SBN program we will have a standardized publisher and book number; what we need next is a standardized jobber or bookstore number and a standardized customer number. So far as American libraries are concerned, the customer number could be as simple as using our zip code, subdivided by a further three- or four-digit number to identify up to 1,000 or 10,000, if needed, different libraries, bookstores or jobbers in any given postal zip code area, and we should, of course, add a parity number.

Given the customer number and the SBN, even the smallest library could obtain cards that are prepunched with its customer number, and all that would be required to order a book would be to punch in its nine-digit SBN. This does not even require rental of a keypunch; we could use a pad and stylus, like those we use in voting in an increasing number of jurisdictions, and at a capital investment of $1.00 or so, the process of book ordering would be automated.

Carrying this one step further, if we

wanted to order through a particular bookstore or jobber, we could establish a third zone into which we would punch the supplier's number, and I daresay that most jobbers would be delighted to supply us with stacks of prepunched cards bearing both our customer number and the jobber's supplier number. All we would have to do to complete the order would be to punch the SBN with a stylus. An alternative, in order to avoid the investment of $1.00 or so in the stylus and pad, would be to use the conventional mark sensing pencil to mark the digits of the SBN on the card, but this might cost more in the end because we might conceivably use up $2.00 or $3.00 worth of mark sensing pencils over a year or two.

O.K. Now we have the order typed by punching or marking the magic digits of the SBN on the card prepunched with our customer number and our supplier number, if any. How do we get it to the supplier? Well, it may be cheap enough when Western Union and and Mama Bell have central transmission units in every town, to have it sent via satellite; but having saved a week or so in avoiding typing our orders, we could now put the daily (or weekly, or other) batch of orders into an envelope (and again I suspect the supplier might even supply preaddressed envelopes if we were to insist)—add airmail postage—and the book orders should travel to the office of the supplier within two to three days as a maximum, from any point in the United States. Given half a dozen or so order cards per ounce, with domestic air mail at ten cents per ounce, we would have to figure it pretty close to justify sending a messenger, costing $1.50 per hour, to the central transmitting office, even if we did not have to pay the cost of shortwave transmission; so it would have to be fairly urgent, as compared with our usual delays in getting orders out, in order to justify the overall cost of transmission at higher speed than air mail.

On the other hand, very large libraries might well find that their volume of work might justify on-line transmission to a central computer. They might, but I should certainly want to see the arithmetic in full, and to study it carefully, before I should be inclined to believe it. The basic point here is that we do not have to get very fancy or very much involved in sophisticated hardware to start getting some benefit from computer technology; and that it is becoming feasible even for the one-man school library at the elementary level to benefit by simply applying that most uncommon commodity which, for some reason, has become known as common sense.

Well now, it ought to be fairly obvious that if we could mark or punch a nine-digit SBN on a card prepunched with our customer number and a dealer number, and send it off and get our book, that should save a good deal of work as compared with typing orders complete with author, title, etc., in full. If it did no more than that for us, it would save some time.

If the books any library bought were recorded in an electronic memory, this would represent a shelflist of the library in SBN form and any future order could be searched automatically to see whether it was in the library or on order. Thus, as soon as this had been in operation for a few years, it would be possible for the computer to do searching for the library automatically, and, if the book was found to be in the collection or on order, the order would be returned with the proper indication of its status unless the order was clearly marked as requiring an added copy or copies. This in time could eliminate substantially all searching of the catalog, the outstanding order files, the in-process files, trade sources, etc., when that book has an SBN and has been pub-

lished during the time span covered by the computer ordering procedure. Since LC is producing machine-readable cards, the computer could also convert from SBNs to LC numbers and locate cards in the MARC data bank for reproduction and shipment to the library.

And, as would appear to make sense, if LC could change from the use of its own special machine number to the use of SBNs when they are more generally available, then conversion from the SBN to an LC number would be eliminated. In either case all that would be required of the ordering library to obtain LC cards with the books would be to indicate by a proper mark or punch, in the assigned column, whether cards are wanted or not.

With thousands of libraries and booksellers ordering their books in this way through the same central mechanism, a fairly sophisticated computer could be kept busy and it could, if desired, serve as the bookkeeping department for all the libraries, bookstores, and publishers making use of it.

It could also, if desired, serve a central banking function; transferring funds from the account of the bookseller or library to the account of the publisher, either instantly or after any agreed upon period of grace. This is not new. Voucher orders which combine a check with the order are common in the book trade. This alone would save hundreds of thousands of dollars a year for even a medium-sized publisher. Carrying even a million dollars of accounts receivable for sixty days, a normal time lag in payment by libraries, costs the publisher around $12,500 at current interest rates. If this time lag could be cut in half and applied to even half the receivables from sales to libraries, it would produce a tremendous saving for publishers. This banking function is not new. A large percentage of checks are cleared in just this way, and our personal checking accounts in the larger banks are all computerized. The end product to the library would be the equivalent of a bank statement, indicating what books have been bought, the amount paid for each, and the balance remaining in the account. This could keep track of our monthly and quarterly expenditures and it could be designed to keep us from over obligating during the designated periods for which funds are available. A great deal of backroom work would be saved in publishing houses, bookstores, and in thousands of libraries.

The same routine could also be used to check each publisher's inventory of each book as each copy was sold, against the anticipated rate, and let him know when a reprint is required, as well as doing a good many other similar operations for booksellers and for libraries.

Where do we stand on all this right now? Hardly at the beginning. Publishers have just begun to assign SBNs, and that does not appear to be proceeding very rapidly. Some, hopefully many, may include SBNs for all their backlist in the next volume of the *Publishers' Trade List Annual.*

To be sure, a few jobbers have set up automated systems for a few of their customers, but these systems appear to be primarily a method for capturing large customers rather than a method for making savings in time or effort. Since this approach requires a substantial amount of makeready for each case and does not affect adoption of standard numbering, it is not of particular interest to the average library.

The only thing really holding back the SBN program is apathy. The publishing industry must be encouraged to speed up the adoption of SBNs and the assignment of these SBNs to all books in print as well as to all books published from now on. Given any real effort by the publishing industry in that regard, we should be able to handle any book in print in the United States or in England by SBNs in less than a year. Dur-

ing that time, if we want it, we could insist on standardized customer numbering for all libraries, and in the next six months to a year we could be ordering all English and American books in print without typing, and possibly with reduced searching, bookkeeping, and related record keeping.

Each library could make as much use as it wanted of the full range of the service, with the small library using the mechanisms that are suitable and practical for it, and the large library using what serves it economically. There would be no requirement that anyone accept LC copy in order to use the service, nor would automatic bill paying, etc., be required. Its use could vary from library to library.

While this would save fewer manhours for the small library than for the large one, it could free manpower for other work, even if it is limited to SBN ordering, with the orders sent in by first class mail. In a library with only one staff member, who has to do everything, it would free added minutes or hours to provide the services for which the library exists.

In the long run, it may be that this might change the structure of the book business, since a few strategically located warehouses could supply all the books that tens of thousands of libraries around the country need, and could do it faster and better and cheaper than going through intermediaries, but it is doubtful that this would affect trade book sales, which require display of books to the public. So, while it might change library buying patterns and it might reduce costs for jobbers supplying bookstores and costs for bookstores, it is doubtful that this will bring about any radical change in general book distribution channels in the foreseeable future.

The possible advantages to libraries would appear to be quite great. Speedier and cheaper book ordering and checking, with immediate reports on o.p. items and on items temporarily out of stock are the minima that we could expect, and this would require a negligible investment, or no investment, in either purchase or rental of equipment by libraries or in staff training.

It should achieve better use of the equipment already in use by the publisher or jobber who already has electronic data processing equipment, because he would not need to go through the step of converting our orders to machine readable form before he can handle them in his equipment.

This does not, of course, lay out a complete program for use by anyone, in all the ways in which it could be used. We have said nothing, for example, about ordering multiple copies at one time (one to two punches in the assigned column or columns would take care of that); nor about allocation of funds by departments or to branches—again a simple routine requiring not more than two punches in two assigned columns to take care of as many as one hundred accounts or branches, and with computer programs in existence taking it from there, even with a relatively inexpensive computer such as the IBM 1401.

There is no point, however, in going any further with the potential advantages and usefulness of this system, or any of the other ways in which it could be used, because the fact of the matter is that it is not usable for anything at the moment. The reason that it is not now usable is not lack of computers, or lack of big enough computers, or lack of suitable software, or the cost of equipment in the individual library, or lack of training of staff in new techniques. It is simply that there has not been any sense of urgency about getting all publishers in the United States to assign SBNs to their books in print or to set up a standardized customer number for all libraries, and book jobbers, and book-

sellers. If standard book numbers were assigned for libraries only, jobbers and booksellers would have to follow suit if they wanted any library business.

If these two steps were taken promptly, any library, with or without electronic data processing capabilities, and regardless of its size, could make the job of book ordering easier and faster for itself and for its suppliers, and should get faster service and faster reporting. We would not even have to wait for other services to be built into the system before we started to use it, since programs for accounting, billing, reporting, backordering, and the like are in existence now and could be added to the system as they are required.

This would not, of course, cover all book buying for any library for many years to come. It does not include books in foreign countries, other than England and possibly Canada, and there does not appear to be any special drive for broadening it to cover all foreign countries. Furthermore, there will probably always be difficulty in achieving complete coverage, by any mechanism, of all privately published books and pamphlets, such as works published by the author or by societies for distribution to members only. Nevertheless, it would appear that a very high percentage of the books bought by all except the largest public and scholarly library could be ordered this way; the average elementary school library does not order very many foreign or specialized or o.p. items, nor does the small or medium-sized public or high school library, and even college and research libraries order substantial numbers of titles from the ranks of English and American trade or scholarly books which are in print. There is nothing about this approach that requires an either/or answer, and there is no reason why the large amount of buying that can be simplified should not be, simply because some book buying will still require manual processing.

The process will not of course have any appreciable, foreseeable impact on the intellectual processes involved in book selection, except that it might free some time for doing it. It will not replace the card catalog, or the reference librarian, or the readers' adviser, and they will not even have to learn to use a new lingo to make use of it.

It does represent one way in which we can use one or more central computers to do work that is arduous clerical work, which the machine can do, and in which a single input can eliminate a large number of succeeding inputs into the routines we have to carry out in order to get a book into the library and ready for use.

This may not be very glamorous, and it runs the risk that it might work, thus diverting attention from more "sophisticated" problems such as machine searching of the literature and the like, but there is nothing in this proposal that requires limiting the computer to this sort of intellectually sterile operation, and it is hard to see why this sort of intellectually sterile operation should be reserved for humans.

It certainly should not slow down the more sophisticated operations that fill the literature, since, assuming we could really get it going, this would provide a key to the collection in machine readable form from the moment of placing the order for any material. Thus if anyone ever figures out any really viable ways in which we can do such things as automatic indexing, searching, and the like, he would be saved at least part of the job of turning the library's records into machine readable form. The part of the collection ordered by SBN could be converted into LC cards pulled from MARC.

However, we are stepping out of character here, and out of our subject,

so let us return to it for a moment. If we could get SBNs supplied for all books in print by all, or almost all, American publishers, and SBNs assigned for substantially all American books published in the future; and if we could get standard customer numbers assigned, we could immediately start using central computer services advantageously, in any of our libraries, regardless of their size, for book ordering and receiving and reporting services, and we could do that without any (or any appreciable) investment in either hardware or in retraining of staff. We could then let it grow from there, variably for different types and sizes of libraries, as that appeared worthwhile.

Some twenty years ago we ran an experiment in the use of photography for clerical routines in half a dozen libraries. One of these was Yale, where the camera, called the Photoclerk, was housed in the catalog department. One of my more memorable experiences occurred when I went back to check on progress of the experiment and as I was leaving, one of the sweet old ladies said to me, definitely more in sorrow than in anger, and with the greatest gentility, "Dr. Shaw, why do you want to do away with catalogers?"

Then two weeks or so ago, when I went over part of the program I have outlined above with my class in documentation, citing it as one of the types of things the computer should be able to do effectively, one of the students, positively stuttering in outrage (note the sign of the changing times), "But Professor Shaw, why do you want to relegate the computer to nothing but routine operations!?"

The answer to both is the same and it is simple. We are employed to operate libraries. We should use any tool or method that helps us to do that more effectively in whatever way it is most useful under the current state of the art. Using a camera to photograph a card cannot denigrate the intellectual work of cataloging and using a computer to compute cannot paint the computer black either.

The approach outlined above appears to promise one of the easy and available ways in which all types of libraries (as well as all types of publishers and all types of booksellers) can profit from the use of available computers with a minimum of change in methods or routines and with a minimum of investment in time or equipment, and it appears to present an evolutionary potential, starting with simple book ordering and adding steps as these appear feasible. I think we ought to get on with it. ■■