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Reactions to Failures
in Library Automation

IN 1968 AND 1969 Doris Bolef, Lynda Van Wagoner and I published two articles reporting the failure of a computer-based cataloging system which we had developed for the Washington University School of Medicine Library in St. Louis.[1] These articles discussed the theory behind our system, the methods and programs used, and the unsatisfactory results, and announced that we were scrapping the old system and starting all over to design an entirely new one. We also examined the reasons we could adduce for the lack of success and made a few tentative remarks about the lessons we had learned from our failure.

Surprisingly, these seemingly innocuous papers brought forth a spate of letters—to us and to the editors of various journals[2]—which stated that at best we were incompetent bumblers and that at worst we were heretics who had betrayed the godhead, the teachings from "on high," and the faith we were sworn to uphold. I finally replied in one publication: "Forgive me if I seem weary of this argument. Since I have had to write several letters like this, I am sending a copy to the Editor of *Special Libraries* and asking him to print it."[3]

Since then I have not published any other articles which report a failure in automation in quite so much detail, so I do not know if the severity and tone of attack on authors who do report such situations is still as great as it was eight or nine years ago. However, according to a recent article in *SLJ Hotline*[4] and to Steve Salmon's article in *The Information Age*, only a small number of failures in library automation have

been reported; Salmon states that the literature on the failures suggests that: "Those experiments which did not work were considered failures. . . . The real failure of most of these projects is the lack of reporting . . . on . . . them."[5] Several years ago Bruer noted that when there is a failure in automation, articles on it "decrease drastically until . . . almost nothing is reported in the literature."[6] Perhaps all this secrecy is like Walter Cronkite's feeling about negative news. Reporting negative news on the air, he once told an interviewer, is a little like writing a story about a cat that *didn't* get stuck in a tree. Also, the very normal human trait of not wishing to appear foolish, as well as the feeling of frustration when reality doesn't measure up to one's expectations, have much to do with the lack of negative reporting in the field.

Like Bergson, however, I believe there is no explanation, there are only explanations. I know of at least three other contributing reasons which might explain the dearth of reports telling of the demise or required reconstruction of library automation systems. These are: (1) the emotion of the newly-converted, (2) the attitude of librarians and others dealing with libraries concerning funds, and (3) the difficulty many librarians seem to have in understanding exactly what is subsumed under the words "research and development."

Varieties of Religious Experience

So common is the zeal of the newly-converted that proverbs have been formed in many languages to describe this folk knowledge. In French, converts are called more regal than the king; in Hebrew, more orthodox than the rabbi; and in American slang, more religious than God, or more Catholic than the pope. The reasons for this experience are not hard to find. The convert is looked upon with some suspicion by those who have been in the group for a long time; they question that the conversion was real, that the convert will not soon relapse into his old ways. To combat this suspicion, the new member of the clan must give greater assurance of his faith and faithfulness than is expected of one who has been tested by past experiences; small things which are of no concern to the accepted member become crucial for the new one. He dare not appear to have any doubts about the wisdom of his choice. Another reason is that a new convert lacks the experience to differentiate that which is fundamental to his new faith from that which is peripheral and comparatively unimportant. His usual answer to this dilemma is to treat everything as equally—and vitally—important. Both the belief in one God and the necessity of facing toward Mecca when praying are thus of the same importance to the new convert, but are usually placed in perspective by the Muslim of many years' standing.

Finally, the convert has probably come to his new position after conflicts with his former group, to whom he has usually proclaimed the superiority of his new religion. He may have been told by his old colleagues that he has been brainwashed or that he is betraying the group that nurtured him. Under these circumstances he feels he dare not go back to the old group, even if he finally comes to agree with them. The only answer is to continue to assert that the new belief is not less valuable than he had proclaimed previously. All arguments against the new creed must be overturned—by reason if possible, or by a call for faith if reason cannot prevail.

I think the relationship between these things and the feelings of many librarians about automation in the 1960s must be fairly obvious. Many of these librarians came to automation as new converts, often without being completely sure of the basis for library automation; some, indeed, came only after being pushed into it by their administrators. Automation, for them, *had* to be the truth and the way; they dared not even appear to lack adherence to either the major or the minor tenets of the faith, lest they themselves become suspect; and they could not let their erstwhile colleagues and friends think they had been foolishly brainwashed. Instead, they must turn on the questioner and demolish his arguments, somehow, for the good of the faith and the convert's peace of mind. The letters I received seem to me to be the expected result of such mixed feelings.

There is, however, another way of looking at the effects of conversion and sectarian heresies, and this is a more optimistic view. The very fact that heresies develop causes changes in established religions; every reformation has its equivalent counterreformation, in which the original creeds and the accepted institutional actions are examined and modified in light of this examination: thus Luther's Ninety-five Theses on the church door wiped out much of simony and the sale of indulgences in the Catholic church; Hahnemann's homeopathy did away with polypharmacy and enormous doses of drugs in eclectic medicine, as well as introduce the concept of the patient as an individual. Gradually, the original belief and the heresy become indistinguishable, as the best of both systems are molded into one, until finally it is difficult to tell them apart without a scorecard.

This is what has happened with library automation. Many of us can remember when there were two schools of thought about computers in libraries; when those who were opposed to it (whether because they felt threatened by it, or just couldn't stand the boasts and posturings of the newly-converted) would rejoice at the reports of computer foul-ups. Accounts of overpayments of checks, confused department store charge accounts, and the failures of bank vaults run by computers to open on

time would be posted gleefully on library bulletin boards. A decade later, however, computer system developers have come to examine more soberly the complaints of the disgruntled and incorporated many of them into their work, and the unconvinced have had to add computers to their everyday lives, with the result that the sharp distinction between believers and heretics has almost been wiped out. I say "almost," because I still sense a tendency of some librarians to equate computers with black magic and their users with powerful spirits. An example is to be found among those librarians who search the many computerized data bases now available to answer inquiries and so consider themselves a group apart from the other librarians. The mystique of data base searches fascinates and amuses me, but I believe with time this too will pass.

Librarians as Churchmice

All that I have just said is only one portion of the picture. There are other reasons for the actions we saw, and one has to do with the psychological effects of poverty. Most libraries have traditionally been starved for the resources which would allow them to perform efficiently the tasks for which the library was originally established. The old joke is that librarians are mice in two senses: they squeak and run away and they are as poor as churchmice. Scott Adams said that after grants were set up through the Medical Library Assistance Act of 1965, librarians were so used to being poor that they didn't know how to use money when it did become available. Whether or not this is true, it certainly is true that when money is in short supply, the misuse of any of it becomes a sin—just as gluttony was a mortal sin in medieval times when food was scarce, but became unimportant as newer methods of agriculture provided everyone with fuller diets.

This is also compounded by the fact that society has accepted the librarians' views of resources for libraries. Most administrators, boards of trustees and university presidents expect that the library's funds will be spent carefully, frugally, with maximum return for the outlay, and without risk. Librarians are not expected to be innovators of untried systems for several reasons. They are too often thought to be intellectually or emotionally incapable of handling innovations (present company excepted, of course); moreover, if the money is spent unwisely, there are no backup funds to substitute for the lost resources. A library *must* succeed with its programs or make do without other programs.

If a librarian has spent much effort and time convincing budgeting officials to allow him to automate part of the library's work, there is great pressure to have that automation do all the good things he has assured the president or dean or board of trustees it will do. When it does not work, it

must be patched up here and there to cover up the deficiencies of the system—rather than scrapped and begun all over again—in the hope that things will work out before the complaints of users reach that president or dean or trustee who was "brainwashed." At the very least, he will try to find in the failed system some unexpected benefits for the library, which will then be viewed and reported as successes. This is necessary not only because he fears a drop in status due to failure, not only because everyone will say, "I told you so," but because the librarian knows perfectly well that he has mortgaged his library account as well as his soul, and that there is no more of either when the devil's—or the computer sales representative's—system is a flop. He realizes it will compound his problems if the automation fails, for he will have as a result neither automation nor a good acquisitions or catalog program. He dare not start all over again; but even if he wanted to, he couldn't, because there are no additional funds available. Consequently, if someone else reports that the system fails, he feels the necessity to shut that person up or to downgrade him for his own safety. This is an old Ciceronian ploy—if you cannot find reasoned arguments against an opponent, call him names or imply nefarious motives. "Oh, Roman Senators," you thunder, "Oh, patres conscripti, is this not the man who was found in the vestal virgin's house on the night of the last Saturnalia?" even though you know perfectly well it wasn't this man at all, and even if it were, that has nothing to do with the case you are arguing. I fear that this was the unconscious reaction of some people to our articles; all I can say here is that we might have been stupid, but venal we were not. So far as I know, no member of my staff was ever found in the vestal virgin's house—on the night of the Saturnalia, or any other night!

Research and Development

Finally, there is the third possible explanation of the reaction to failure in automation mentioned earlier—misunderstanding of the terms *research* and *development*. Old and established disciplines tend to have an underpinning of sound knowledge of the fundamental laws of their fields. The laws of falling bodies, of immune response to infection, of drought and famine are well understood, and a whole series of actions can be built on this knowledge. We know why vaccination with cowpox will protect one against smallpox, and we can calculate how long it will take the lighted ball on top of the Times Building in New York's Times Square to reach the ground on New Year's Eve; and we act on this knowledge. In a new field, however, these fundamental laws are still unknown, and most research must be focused on uncovering them. This is the most arduous, most frustrating, but most exciting, fulfilling and rewarding part of re-

search and development. Only when this work is done can the development part of research and development follow. The changes for success in research are, of course, always problematic, for if one knew for sure that something would be true, then acting on that knowledge would not be experimentation. Research is essentially answering two questions: what happens, and why does it happen? All else is window-dressing.

Even when the fundamental bases for a discipline are fairly certain, there is no end to the search for data and their explication. Not only does the uncovering of new data change what seemed at the time reasonable explanations of natural phenomena (for example, the switch from the corpuscular theory of light to the wave theory), but there still remain the problems of determining how the basic factors act and interact in different environments and under different conditions. This is the development side of research and development: the fleshing out of fundamental knowledge for a specific purpose, goal or end. Knowing the way in which computers work, how can they be used in library automation?—this is a true developmental question.

It must not be thought, however, that there is no likelihood that a computer system developed for a desired goal may end up unsuccessful. The state of our present knowledge of the fundamentals of the discipline precludes such certainty; we know too little about the computer, the environment and the infinite variations in situations—to say nothing of all the things we forgot to consider—to be entirely sure that a library automation system developed with such high hopes is actually going to work. This is part of the development process, with some success and some failure. After all, developmental work is an example of probability, not certainty. I am sure I need not elaborate here that the reporting of failures is a boon to others working in the field. With such knowledge they do not have to replicate errors in ignorance. Indeed, it reminds me of a cardiologist I know who likes to dictate his findings to his secretary while he examines his patient. "Negative findings are often good tidings," he says. "When I say 'heart negative,' I don't mean there's no heart in the body. Instead, I mean nothing bad has been found." Similarly, reporting errors and unsuccessful library automation programs may be the "heart negative" of our field.

Development, then, is the process of using fundamental knowledge to bring about some desired end. Within limits, based on reasonable hypotheses and sound experimental design, it is a trial and error process of fitting what is desired into what is known, of asking a few questions of the phenomenon, and then redeveloping the system to fit the new knowledge. It is a constantly iterating job in which one probes here, advances there, tries out one possible key to the riddle, retreats and tries another.

Uncertain development is the characteristic of newly developing fields, such as library automation, and the fact that some developments act as expected and others do not is a fact of life which must be accepted as part of the cost of doing business in it. It is not a disgrace; indeed, it may be the stepping-stone to a greater understanding of the fundamental nature of our intersecting fields: libraries and automation. What is especially needed, of course, in addition to a description of the projects which fail, is a discussion of why they failed, so that additional basic information on the nature of the problem can be obtained, and new iterations of the developmental systems can be undertaken.[7] Thus, out of apparent failure can come new success.

Conclusions

It is natural for people to wish to hide their mistakes, their poor judgments, their expensive slips. After all, it is the rare surgeon who publishes a paper, "Twenty-seven Appendectomies Performed by Me Which Ended in the Death of the Patients." Librarians share this emotion with everyone else, but they seem to be particularly prone not to report failures or endings of programs which started out with fanfare. Yet, thoughtful examination of such situations is an important step toward better programs in the future. It is therefore, in my opinion, the duty of those engaged in this field to document fully what they do and what they find they cannot do. Library automation is young, and as Thomas Henry Huxley put it, "There is the greatest practical benefit in making a few failures early in life."[8]

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