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THE ADMINISTRATION AND ORGANIZATION OF DATA PROCESSING FOR THE LIBRARY AS VIEWED FROM THE COMPUTING CENTRE

In order to give some structure to my paper, I will preface it by stating that library administration for automation at Simon Fraser has passed through four phases since 1965 and began a fifth on May 1, 1969. The real situation was somewhat more dynamic and haphazard than I will suggest. Like most institutions of comparable size, our library reacts to life rather than generating it; although we like to pretend it is otherwise when we are on public display.

I would like to make it clear that while I will concern myself mainly with tracing the administrative convulsions of the Simon Fraser University Library as they related to automation and the Computing Centre, I really believe it is more fruitful to concern oneself with right people rather than with right structures—mainly because people do things and structures do not.

The first and longest phase of automation (summer 1965—spring 1968) was also the most informal. The librarian came to the new job with great physical energy and considerable enthusiasm for automating library functions and he infused a similar enthusiasm into those of us who joined him in the summer of 1965. From the beginning, the Computing Centre, the offices of the registrar and bursar, and the Library have shared the same building. I would guess that this arrangement has had a positive effect on the development of automated procedures in all the offices mentioned, but since all arguments would be based on conjecture, my opinion must stand simply as a guess. One happy consequence was that librarians were thrown into frequent contact with the Computing Centre staff. The fact that there were more librarians anxious to promote automated procedures in their areas than the

total number of Computing Centre staff, and that the equipment configuration in the Centre was upgraded very rapidly during this phase (IBM 1440-1401-360/40) created a situation wherein the Library's aspirations (ignorant but certain) were not restrained by either equipment lack or a large and firmly established Computing Centre administration.

In 1965, academic demands on the Centre were virtually nonexistent, so the administrative areas dominated the machine. The fact that the manager of the Centre reported to the registrar gave impetus to this development. However, during the past year, the Centre has been the pawn in a political struggle which has recently been resolved more or less to the satisfaction of the academic side of the house.

The design and implementation of the loan system (September 1965) and the acquisitions system (April 1966) was accomplished by the informal collaboration of a handful of men. Only one Simon Fraser University staff member was able to devote all of his time to library automation problems. He was a programmer working for the Centre. Ideas, whimsical decisions, and cries for help were communicated over coffee, in elevators, anywhere where two or more of Centre and Library staff happened to meet. This loose jointed way of operating put a great strain on those responsible for making the projects work effectively: library staff, particularly those working with loans and acquisitions, had to learn a new terminology, new concepts, and frequently how to think more precisely about their objectives. The same was true for the Centre's staff except that, generally speaking, they had already been encouraged by their training to think with artful precision. There were curious failures in communication which went undetected by both sides, often with disastrous results. Most frequently problems arose because of questions not asked and facts or principles not volunteered. At the time it became obvious only that librarians and data processors could not learn one another's profession casually, and that because automation imposes a new kind of formalism on library procedures and a concomitant need for all involved personnel to be aware of an incredible number of high-value variables, staff must be made available who could devote all their time to short- and long-range systems analysis and design.

Our commitments and ambitions were in conflict with our naivete and limited resources. Specifically problems arouse because new projects were put into production before old ones were de-bugged; the Library made frequent requests for small changes of all kinds; since there was nothing built into the formal administrative structure to prevent it, programmers in the Centre were subjected to uncoordinated and random personal requests from librarians in acquisitions, serials, loans and collections who ignored, for the most part, the general agreement that all such requests should go through the office of the assistant librarian for processing; the projected marriage of the acquisitions and the yet undesigned cataloging system retreated further and further into the future; a map catalog project was started, then scrapped; and the advent of Mark II began to make us feel slightly paranoid. In spite of our aspirations concerning the development of a total library system, we were headed toward a position where we would have systems which expressed a kind of fragmented creativity, but no total.

At this point, the librarian, the registrar, the bursar and the manager of the Computing Centre decided that each of the first three required a systems analyst. A predictable debate took place to determine whether applications men should be hired to acquire data processing skills or whether data processors should be hired to acquire applications skills. The matter was further complicated by the fact that the manager of the Computing Centre wanted the proposed analysts to report to him. He reasoned that they would thereby exercise more efficient control over the programmers working in each area and be less likely to make promises the Centre could not fulfill. The librarian tended to agree, but was apprehensive about the possibility of his analyst being taken off Library projects to put out fires in other areas. For the Library, the problem was solved by the agreement that its systems analyst would be a librarian. At that time, I had been the acquisitions librarian for almost two automated years, and was familiar with most of the activities shared by the Centre and the Library. In the spring of 1968 I joined the Computing Centre staff as systems analyst for the Library.

This signalled the beginning of the second phase. It was intended that for five months I would do nothing but learn to program, after which time I would undertake the duties of an analyst. But as is usually the case when there is some contention between the real and the ideal worlds, the real world wins. Almost immediately I became involved in coordinating and directing the activities of three programmer/analysts and acting as a communications link between them and the Library. During this period the map catalog, the pamphlet subject catalog, and desiderata control system were implemented, and preliminary work was started on the design of a on-line loan system. The programmer/analyst assigned to library projects (most important of which was conversion of all existing Autocoder programs to PL/I) were able to work on a schedule and consequently were more productive than they had been.

On the negative side, the manner in which I reported to the Library administration was not completely satisfactory. It had been agreed that all formal communications would pass through the assistant librarian for processing. In the light of his long involvement and interest in the development of automated systems in the Library, and the fact that the most ambitious systems had been implemented in the processing division, this decision seemed to make a good deal of practical sense. However, when requests for minor changes to existing systems continued to make exhausting demands on our resources, we in the Computing Centre began to realize that what the Library required was a means of establishing priorities for all requests for service regardless of departmental origin. Although capable and willing, the assistant librarian for processing was simply too busy and the requests too varied, and sometimes too politically loaded, for this means of reporting to be viable.

Phase three started with the librarian's response to this problem. He established a library automation committee with himself as chairman. Other members included his two assistants, the department heads, and the library systems analyst. The committee functioned primarily as an advisory body for the librarian, but was also a forum where priorities could be argued and policy consolidated. Along with the establishment of the committee came the decision that the analyst should report directly to the librarian, and that all

requests for Computing Centre service must bear his signature. It was hoped that this last would prevent small but "urgent" requests from bumping work currently in progress. Unfortunately, the Library and Computing Centre staff were on such friendly terms that the new policy became subject to good-natured avoidance by both sides, and the whole exercise met with only moderate success. Therefore, while phase three was typified by somewhat better communication between the Library and the Centre, and increased involvement of the library staff in policy making, it was still true that major decisions with respect to operational and proposed systems were being made by people who could not devote a sufficient amount of their working day to that activity.

Phase four began in October 1968, and of all the phases this one most reflected the individual character of the Simon Fraser situation. I was promoted to assistant manager of the Centre, and a programmer/analyst from the Centre was promoted to systems analyst for the Library. Why a librarian would be given an administrative post in a Computing Centre is interesting, but not pertinent to the subject of this paper. More pertinent are the reasons for the reversal of opinion which resulted in a data processor, not a librarian, being assigned as the library's analyst. First, the library administration felt that even if my new duties would not directly concern me with library problems, they would still have "one of their own" in the Centre to look after their political and philosophic interests. Second, there was no librarian in the establishment who was prepared to make the same move I had a few months earlier. Third, there was now an accumulated body of knowledge in the form of documentation and experience in the mind of the programmer/ analysts concerning the Library's systems, consequently the need for an interpreting librarian at the "nuts and bolts level" was felt to be less critical than it had been. A search of the market for a librarian/data processor was not seriously considered because of the above three reasons, the pressure of time, and the fact that such people were known to be in short supply. To give pragmatic value to the library's political point of view concerning my new appointment, I was asked by them to be a member of the library automation committee. The presence of two Computing Centre staff members on the library committee played a role in the initiation of the fifth phase—which officially began May 1, 1969.

Before discussing the rational underlying our almost current phase five, I would like to digress briefly and talk about methodology. During the course of this past year, I became aware of a basic difference between the Library and the Computing Centre which had to do with their respective modes of getting into production. The Library tended to institute production service procedures in a fairly undisciplined fashion. Policies and procedures were established on a base of unexamined assumptions. An example of one of the least examined is that "A librarian knows what his job is." Another is that "You can not put a price on service." Even if these two and their equally unexamined brethren were cognitively meaningful, they would be false. Nevertheless, on such aphorisms rest a distressingly large percentage of many libraries' operation practices.

Although burdened by curious anomalies in its own functioning, the Computing Centre was very much aware of the fact that its primary purpose was production, and that production depended upon the successful application of an established methodology. No competent data processor would think of putting a program or a system into production without first going through a set of carefully prescribed developmental steps. The precise definition of objectives, input/output requirements, and record format and file designing, plus systems and program flowchart preparation, and the careful examination of variables as reflected in decision tables and the accumulation of exhaustive test data, are all necessary and accepted steps in the data processor methodology. One person may do these things more artfully than another; nevertheless, you will find people busy doing them in almost any computing center.

At Simon Fraser, the Library's ardent love affair with the Computing Centre and with automation generally was, in my opinion, finally being frustrated by the former's failure to realize just what was expected of it. The Centre staff would have been less frequently bewildered if the librarians had used a method of problem-solving similar to their own, but since librarians do not use such a method with any kind of consistency, the consequences for us continued to be what they had always been: moderate success overlaid by communications failure leading to confusion, and ending too frequently in failure.

There were librarians on the committee who were aware of the problem and wanted to see it solved. The analyst and I added the weight of our opinion to theirs, and together we promoted phase five. The librarian has established a systems group for the Library (effective May 1, 1969) to consist of an assistant librarian for information systems, who will supervise three systems analysts, and five clericals (two of the analysts and four of the clericals to be hired in September, 1969). A broad interpretation is to be given to both "information" and "systems": the former will include all information packages of concern to the library; the latter, all library systems, manual and automated.

It is certainly possible that the creation of this group will be an answer to the two main faults I have found with the relationship between the Library and the Computing Centre: that is the absence of an appropriate operational and production-supporting methodology in the Library, and the lack of staff who could devote their energies full time to library systems development. However, I see two potential dangers in phase five: one has to do with the creation of library-based systems groups in general, and the other with the viability of this group within the Simon Fraser University Library administrative structure in particular. I think it is very easy for library-based systems group to become "too heavenly-minded to be of any earthly use." The fruitless search for the total system design and its associated symmetry can lead them on an interplanetary excursion where decisions concerning one library on earth become increasingly difficult to make, and production achievements are remembered as accomplishments in the pre-historic period. This situation might be avoided if the systems group is based in the production-oriented Computing Centre, or if the Library itself develops an energetic production/methodology philosophy. Should Simon Fraser be successful in

developing the latter, it will still have to deal with problems peculiar to itself: pessimism has been expressed by some Simon Fraser librarians about the broad interpretation given "information systems" in conjunction with the title "assistant librarian." They fear that the position does not carry sufficient administrative weight to be effective and that genuine problems will arise if either or both of the other two assistant librarians object to the systems assistant having some measure of control over their area. Animosity might very quickly narrow the practical limits of "information systems," or at best make the librarian an unwilling, overburdened, and unnecessary arbitrator of contentions between his assistants.

The present library systems analyst will continue to work for the Centre, and it is anticipated that he will work very closely with the new group, and possibly have a second desk in the library itself. I must admit that we are not quite sure how this will work out, and neither is he. A natural fear would be that it might lead to a diminution of his importance *vis-a-vis* new developments in the Library. The Centre is moving away from the team and toward a project concept for its programming staff. This will mean that, theoretically, the library analyst will be the only Computing Centre staff member who is continuously involved with the Library's business. Hopefully, we will move into phase six before phase five gets destructive.

As I think about phases, administrative structures, and people, I hold to one consolation which can best be expressed by working some substitutions on an old Chinese proverb:

> If the wrong people are in the right structure,
> the right structure will work in the wrong way;
> but if the right people are in the wrong structure,
> the wrong structure will work in the right way.