

# The Light at the End of the Wand

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Those of us involved with automation at the Public Library of Charlotte and Mecklenburg County have always intended to write up the experience of automating the circulation system including all the gory details of unmet expectations, down time, no-match records, and, heaven forbid, disk crashes. We just never got around to pulling all of the details together in written form. Until now that is. Here is a short overview of as much of our experience as we care, or have space, to print.

## Background

For many years we had been searching for a new circulation system to replace our 25 year old, labor-intensive, modified Wayne County system that was based on the McBee keysort card, accession number, and self-charge slips. With our eyes and ears filled with the wonders of computers, we requested permission of the County Commissioners in 1975 to study the impact of a computerized circulation system on the library. Judith Van Noate, a former library assistant returning from UNC-CH with her MSLS and some computer courses, was hired in September 1976 as the first librarian to head Main Lending and was assigned the task of conducting the feasibility study. Her MSLS paper entitled "A Study of Cost Savings Achievable through Automation of Circulation Control in the Public Library of Charlotte and Mecklenburg County" was completed in May 1977. For those who wish to read the study, I should point out that it is lending-oriented, is a point-in-time study for our library and computerized circulation, and was based on assumptions that have not proven true—theory vs. facts. The study was presented for implementation to the commissioners in June 1977. Funding was denied.

Meanwhile, at the State Library, the Library Services and Construction Act North Carolina Advisory Committee discussed the possibility of becoming involved in state-wide networking, recognizing that Greensboro and Charlotte were about to launch forth into automation of their respective circulation systems. The LSCA Committee recommended that the State Library appropriate \$200,000 in federal funds to be shared by public libraries that chose to use compatible systems. The State Library then appointed a Subcommittee on Automated Circulation Control Systems which included members from representative types of public libraries and the State Library.

The Subcommittee met in February with representatives of established turnkey systems—Systems Control, CLSI, Gaylord, Plessy Telecommunica-

tions, and 3-M—to discuss the concept and available hardware and software. DataPhase later made a separate presentation. We met frequently to develop a prototype of library needs that would fit the optimum configuration anticipated at that time. We developed a bid proposal based on this model library which was submitted to the vendors in March 1978. The returned bids were variable enough to make fruit salad. James H. Kennedy, Director of AMIGOS, was asked to evaluate the bids. He and Joe Becker, author and authority on library automation, conducted a very enlightening workshop for librarians, vendors, public library directors, and guests in September 1977. On October 14, 1977, at the Capitol Visitors Center in Raleigh, the Subcommittee on Automated Circulation Control Systems voted that DataPhase, headquartered in Kansas City, be selected as the required vendor for public libraries that wished to qualify for state funds or LSCA monies.

Armed with the State Library endorsement and proffered funds (albeit limited), the Subcommittee's recommendations reinforced by Kennedy of AMIGOS, the blessings of the Mecklenburg Data Processing Director, and the recommendations of a local blue ribbon study committee on "productivity" which hoped for staff cuts, the Mecklenburg County Commissioners (while questioning the stability of this fly-by-night, up-start DataPhase and being reminded that 3-M had just flown-by-night from Princeton) reluctantly funded the five year lease-purchase of a start-up configuration, with remaining equipment to be added in phases as needed.

### **Preparations**

With county funding in hand in July 1978, we negotiated contracts for January 1979 delivery of the equipment. Space was made available in the recently vacated Children's Room. Supplemental air conditioning was added, electricity beefed up, telephone conduits and wiring pulled in, and office furniture gathered from all sources to house the computer, the terminals, and a staff anticipated to reach 28 persons. Negotiations continued with Blackwell North America for the purchase of on-line bibliographic records. The regular staff began to feel a little uneasy about the innovations in the offing.

Lest you think that we were idle during this time, we had also joined SOLINET in the spring of 1978 and were anxiously awaiting the delivery of a Beehive 105 terminal for Technical Services so that new acquisitions would be in machine readable form. The new OCLC records were to be fed into the computer via magnetic tape when ALIS (DataPhase's Automated Library Information System) arrived and would accept supplemental feeding.

Also a staff committee was meeting frequently with and without representatives of Data Phase to iron out the myriad details of our circulation and cataloging procedures which had to be reconciled with ALIS. We designed a new patron registration application to meet our loading requirements and established patron categories: juvenile (to age 13), adult, older adult (over 65), staff, film-borrower, professional courtesy (no fines for area librarians), tem-

porary deposit, teacher loan, regular patron, student UNCC, student CPCC, student other, out-of-country, Union, Catawba (in anticipation of their joining our system at some future date), business and institution (to borrow under corporate name rather than personal name), handicapped, and Census tract. Loan parameters had to be established for hardbacks, paperbacks, phonodisc, pictures, films, film strips, maps, pamphlets, etc. The schedule and methods of conversion of materials were devised, revised, altered, and amended. One label or two for the book? Does cataloging need an extra label for some new items? Will we use Optical Character Recognition or bar-code labels? New library cards were designed, overdue notices drafted, invoices reformatted for high-speed printing. Into the midst of this frenzied activity had been thrust a new Head of Lending, Susan Kerr, who added her computer expertise to our learning experience.

Technical Services staff were thrilled to receive their SOLINET connection in January and came on-line in February 1979. ALIS, a Data General Eclipse S/130 central processor with 128 K memory, two disk drives each with 192 megabytes, a tape drive, a console printer to tell us what the CPU (central processing unit) was doing and with whom, a high speed printer for overdues, and nine terminals were delivered in February and checked out for equipment and programming flaws in March. Key staff members were trained in April. ALIS began running on April 26, 1979, and patron registration input began immediately from the applications which had been completed in advance. At about this time, we learned that no progress had been made to load the Blackwell/North America bibliographic data base in Kansas as was planned.

### **Holdings Data Base**

Tacoma Public Library, the first comparable public library to automate its circulation system, had loaded the B/NA base in their over-sized disk drives and matched their collection against B/NA in-house. Their record storage had reached capacity with only their main library and one branch on-line. Tacoma was going to have to purge the B/NA file before bringing up the rest of the system. Had B/NA files been loaded in Kansas, several libraries, including Tacoma and Charlotte, would have been able to match records through multiplexors (communications device which handle several terminals via one phone line.) Now there were no firm plans to load B/NA in Kansas and even when the plans were firmed up, it could still take three or more months to load the records. Charlotte could not wait; we had political pressure to get the system going.

Since the PLCMC had taken no inventory of books or materials in 20 years because of the manual circulation system, we felt that it would be a waste of time and money to batch load the collection as Greensboro had done and then have to weed approximately 40% of our records that we estimated as no longer being available. With B/NA out of the picture and SOLINET not yet involved in retrospective conversion, rather than delay further, we chose to load

the nearest match. Houston Public Library's BROADART processed bibliographic records, augmented with Los Angeles County Public Library fiction and some records from UCLA, were loaded into Charlotte ALIS and the records matched with our collection in-house. The load estimated to take 24 working days actually took 45 days, from April 26 to July 3. One of our erroneous assumptions (really our naivety) at that time concerned the speed of computers in general. "Split second response" had always been the by-word. Loading tapes, however, can be a lengthy process. Tapes cannot be read and filed in an hour or two or three.

## Conversion

Now began error two. During the planning stages, we had had on our staff several well-qualified CETA workers. We had projected and had been assured that Charlotte Manpower could furnish the library with some 28 CETA workers of high caliber to match our book holdings with the Houston Bib File. In the meantime, the CETA guidelines and qualifications had been changed; the experienced, trained employees we had anticipated were no longer eligible. After interviewing some 70 "new" CETA applicants, we chose 21 marginally acceptable candidates. This number steadily declined to seven, two of whom were still in training after 22 weeks on the job. The CETA staff began training on June 6, 1979, and tried to match records against the Houston data base. The data base also proved to be less than we expected, which we can call error three. The record in the data base might be for the 3rd edition while our volume was either 2nd or 4th edition. There was also only one generic entry for *Jane Eyre*, but we owned 32 editions, each of which should be entered. Our hit rate was only 37.8% and by mid-winter, we had entered only 38,617 patrons and 25,230 titles.

When we realized how slow conversion to machine readable form was, we decided to apply our LSCA enrichment grant toward conversion. We purchased five OCLC terminals for retrospective conversion and one additional CRT and printer for Technical Services to guarantee MARC format records. We had changed from the original plan of entering short bibliographic records to entering full MARC records, which took longer. A quote in our automation file states, "Based on original number of anticipated records converted, we would have finished conversion in approximately 1½ years. Based on present flow, we will finish conversion in 23 years." With the SOLINET retrospective CRT's linked to ALIS and with a dozen Library Assistants authorized by the Commissioners in February to replace the CETA staff, we brought the Main Library on-line for circulation on June 1, 1980, with 65% of the active collection in the computer.

Continuing with Main's conversion, we turned a part of our attention to the branch libraries, expecting to have a high hit rate against our ALIS bibliographic file. Because the "stack" collection of older titles had not yet been converted, because many titles had been lost or stolen from Main, and because

conversion began with the new Sharon Branch collection, we found that we had only a 60% hit rate instead of the anticipated 100%. Those titles not found in the ALIS file were sent to Main (either the book or a photocopy of the title page) and the conversion staff ran them through SOLINET. One or two conversion staff members were assigned to work with the collection at the branch under the able supervision of ALIS assistant June Gill and the new Head of ALIS, Emily Walker. Sharon began conversion in September 1980 and came on line in April 1981, eight months later rather than the two months projected for the conversion.

Since then, we have worked with each of the branches using their regular staff as time permitted and conversion staff when available. At this time, 13 branches are on-line with circulation; the other two are scheduled to come up within the next month.

To date we have entered 139,564 titles representing 416,175 volumes. Our estimate of 75,000 patrons has turned out to be 146,006 library users from our 400,000+ population. With various supplemental equipment, the hardware configuration includes the Eclipse S/130 with 448 KB memory, 3 Disk drives - 192 MB each; 2 tape drives; 1 slave printer for overdues; 1 console printer to talk to ALIS; 4 terminal printers; 35 ALIS terminals with 30 wants to read the labels; and 7 OCLC terminals, all with the various associated modems, current loop adapters, etc.

We have invested \$413,768 in hardware and software, of which \$30,854 was LSCA networking money, \$25,322 an LSCA enrichment grant, \$125,861 in state funds and the rest, local funds. In addition, we estimate that we have spent more than \$600,000 in salaries and supplies for the conversion staff of 15—a Supervising Librarian, 2 Library Assistant III Technicians, and 12 Library Assistant I converters. This brings our investment to slightly more than \$1 million and still growing.

### **ALIS Operations**

What does ALIS do for us? She charges and discharges books, sends 1,000 to 1,100 overdue notices per week for materials five days overdue, and generates 350 second notices at the end of 15 days and 300 invoices at the end of 45 days. She generates statistics of the number of patrons borrowing materials and the number of materials loaned. She can tell us which books have not circulated and when they were added to the collection. She can tell us how many patrons in each census tract used which branch library agency. She transfers books from one branch to another and from special collections such as the Community Services Juvenile Collection to a branch, recording who owns the materials, which library has them, and then what patron has borrowed them. She can tell the Children's Coordinator which branches have copies of a title or if they are lost, so that they can be replaced or copies acquired. She tells a branch staff which other branch has a copy of a book that a patron wants and will send a message to the owning branch that the first branch wants to borrow



that book.

ALIS is also relieving the branch staffs of typing overdue and invoices, freeing them to concentrate on reserve books, story hours, patron assistance, and reader advisory services. She helps the branches in book selection in that a branch might not need to order a book if there are already three copies in the system.

### **Staff Reaction**

Earlier I mentioned that the staff were wary of ALIS because of the impending doom which cartoons spell out, not to mention the Van Noate report that 39 staff members would be freed from their routine work and no longer needed. With ALIS in the house, training sessions began and staff were involved early, even before they had a CRT at their home branch to play with. They began to get excited. Later, each location received a CRT on line and staff were encouraged to practice in their spare time "in the test mode."

With a CRT in each location, staff training was reinforced, and each staff member had a chance to come into Main for special update sessions. They became enthusiastic. One small branch (Davidson) requested permission to begin matching their collection with the data base in their quiet times and conversion began in earnest—early. The Head of Davidson Branch transferred to Cornelius and again requested permission to start conversion there. She and her former assistant at Davidson Branch worked furiously to be the first small branch on line. This healthy competition and demonstration of CRT dexterity proved to the staff that life with baby ALIS could indeed be beautiful. Only one staff member was lost to ALIS when the employee retired before learning the ins and outs of terminal operation. We feel that this was a rationalization to retire rather than actual fear of the machine age.

Most staff reaction has been fabulous. Staff would not return to the old manual system, even on the worst of days. And there are the worst of days. The old nursery rhyme comes to mind, "When she was good, she was very, very good, but when she was bad she was horrid." Most of her "horrids" are times when ALIS is out of commission for a few hours or even worse—days. Try as we may, not all modifications to software or internal rearrangements can be made after hours. As back-up when we are down, materials supposedly can be recorded on cassette and later fed to ALIS which will then record the transactions. This will not work. We have had to develop a sheet for manual charges and feed this information in manually as time permits when the system is back up. Discharges are held until ALIS recovers and then entered, after charging is complete. Overdue notices have to be delayed a day or two until we are able to clear up the tremendous backlog of returned materials. When ALIS was down on a Friday and Saturday for a little internal rearrangement, books returned on Friday, Saturday, and Sunday were stacked higher than a Winston-Salem book stacking contest in several locations. The staff, too busy on Monday with the press of patrons checking out more books, did not clear returned books until

Tuesday or Wednesday. Overdues were generated on Monday, sorted and mailed on Tuesday, received on Wednesday and then the phones began to ring. What fun! Another minor problem is that the lights at the end of the wands burn out and have to be replaced or wands will malfunction and have to be returned to the factory for repair. We keep spare lights at the branches and spare wands at Main so that an individual branch is not off line very long. But all in all, the staff is pleased.

## **Public Reaction**

Public reaction has been marvelous. We began the registration early and tried to keep pace with registering or re-registering our patrons. We decided to mail the new library cards to the home address after patrons had been entered in the computer to ensure that the person filling out the form was the person to receive the card and to verify the address given. Slightly over 5% of the cards were returned as undeliverable. Either the address was false or the patron had moved in the intervening month. The same problem would have occurred with overdue notices. This mailing also inflated our postal costs.

The public was anxious to begin using their new library cards, the first that we had had in over 20 years. The library card was evidence of membership and had been missed by many library patrons. When were we ever going to get running, they asked. They were very understanding when we were loading the records and they have been most understanding, if not always patient, with our errors. We have tried not to use the computer as a scapegoat for all of our faults. Some errors have been due to staff or computer program flaws. The public is pleased with shorter lines and with not having to fill out charge slips and happy that the overdue notice tells them what book they have overdue so that they can insist that they returned it. In some, nay many, instances, problems resulted when ALIS did not discharge materials properly because staff might not have been attentive when they heard the "beep" and thought the material was discharged when it had not been.

## **Problems**

In the hidden or additional costs category, first class postage for notices, even zip code sorted by ALIS, has greatly increased the postal costs over those for the bulk rate used for the old notices. Telephone charges for dedicated lines are huge and growing daily. A dedicated line from Davidson, some 22 miles north of the Main Library is \$158.40 per month, while the lines in Charlotte cost \$63.32 per month. Most branches are able to manage with one terminal and dedicated phone line, but one branch has three, three branches have two each, and five are clamoring for another CRT to speed up activity and searching.

One of the main problems still evident is the speed of the transaction: it is much slower than we anticipated. A title called up to the ALIS screen in Technical Services to link to a stack of duplicate titles takes about 8 seconds to file a copy before proceeding to the next copy of the same title. We have

expanded the memory of the computer for faster reaction, but searching for records is still time-consuming, and thus a response-time delaying factor which will be reduced when the last two branches are on-line.

We still have to clean up the software programming so that it is the most effective for us, but everyone is familiar with the propensity of library staffs for finding ways around something that they do not like to do or that does not work properly. Our staff has been inventive, and the grapevine works well to help them share their techniques to beat the problems.

Part of the original State design in 1978-79 was that there would be 9 mainframe libraries throughout the state. Each mainframe would service the surrounding counties with circulation and bibliographic information. Because of the slow start of the entire project, the original LSCA \$200,000 was not spent and was reduced to \$75,000 in the succeeding years. The State Aid to Public Library funding of \$200,000 for networking (shared between Greensboro and Mecklenburg) was available for only one year. The difficulties and expenses of connecting Rockingham County with Greensboro via Southern Bell delivered a mortal blow to our current networking. The delay in getting Mecklenburg's data base and system up and operating put us behind by at least a year and a half. We would still like to see two or three of the neighboring county libraries join ALIS-Charlotte and we hope that this can happen within the next year. However, funds are not available for this to be a demonstration project and costs will be high. The cost of loading a bibliographic base and linking it with the book collection is still more than twice the cost of hardware.

### **Conclusion**

With SOLINET marketing the LAMBDA test, TRLN in the Research Triangle, OCLC marketing a serials and acquisitions system and a circulation system on the horizon, COM catalogs, the possibility of on-line catalogs, low cost micro and mini computers, floppy discs and cable vision, the possibilities for diversification are unlimited. We look forward to the King Research report on networking in North Carolina.

Knowing what I know in 1982, would I take the Public Library of Charlotte and Mecklenburg County through computerization and conversion again? Yes, we would be willing to start from scratch again. No one ever said that it was going to be easy. But then no one really knew what agony would be involved. I hope to live to see the day that a computer will do what the salesman says it will. I hope to see the day when there will not be 1,001 problems and decisions. However, even with hindsight and knowledge of all the frustrations and vendor communication problems, I would vote again to install DataPhase. I would request, however, that the CPU be larger than the one we started with and have more hardware to make life with it easier and better software to accomplish the tasks at hand.

The light at the end of the wand does burn brightly, and it has brought us through a tunnel that was indeed dark.

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