

The Wilson County Networking Project

Peter A. Bileckyj

The Wilson County Libraries Networking Project is one of the five projects to grow out of the response to the North Carolina Networking Feasibility Study performed by King Research, Inc. Some of the directors of libraries in Wilson County—Josie Tomlinson, Wilson County Public Library (WCPL); Jeannette Woodward, Atlantic Christian College Library (ACCL); Shirley Gregory, Wilson County Technical College Library (WCTCL); Marian Spencer, Wilson Memorial Hospital Learning Center/Library (WMH); and Jinny Beddingfield, Eastern North Carolina School for the Deaf (ENCSD)—had spoken informally among themselves about the possibility of increased cooperation among libraries in Wilson County and had already begun work on a “Wilson County Libraries Brochure.” In May 1983 many of the county’s librarians met at a luncheon meeting at the Wilson County Technical College Library to discuss the libraries’ response, if any, to the King Study (in particular the matter of whether or not to submit a proposal to become a ZOC [Zone of Cooperation]) and any other networking efforts among themselves. At that meeting it was concluded that most of the librarians did not feel that their libraries were in a position to prepare a proposal at that time; networking was a new concept; and the King study appeared to imply a need for very large projects, which most of the librarians in Wilson did not feel ready to undertake. Having made their reservations clear, the librarians nonetheless expressed great interest in joining together in local cooperative efforts, thereby continuing in the spirit of the King study without venturing dangerously into unknown areas. The five libraries that had cooperated in developing the brochure then decided that the next useful project would be to develop a union list of periodical holdings, the first version of which was finally produced in early 1984.

Nineteen eighty-three and 1984 were the years that microcomputers, mostly Apples, were entering libraries and schools in Wilson County. The “Micro Revolution” was having its first effects

on Wilson librarians, who with so many others, were confronting a strange but potentially useful tool. I had accepted the assignment of overseeing the introduction of automation at the Wilson County Public Library with its new Apple IIe and hard disk drive; Shirley Gregory at the Wilson County Technical College Library and Jeannette Woodward at the Atlantic Christian College Library were at similar stages with their institutions’ Apples. All the librarians involved with microcomputers were beginners and very soon were confronting the sometimes exasperating challenge of integrating microcomputers into their institutions’ routines and of somehow also tapping more of the potential claimed for microcomputers. Responding as time and need permitted, the librarians were able to bring word processing and database management—at different levels of sophistication and complexity—into the work routines of all three libraries. The sense remained, however, that something more was possible.

This sense was in great part inspired by the then heady microcomputing literature, particularly microcomputing magazines. The professional wisdom had it that to become comfortable with microcomputers, one had to have time to “play” with them and that one needed to read the literature to keep up with developments in the quickly changing field. The more I read about modems, baud rates, the Source, Compuserve, electronic mail and electronic bulletin board systems, the more it sounded as if an electronic bulletin board system might be just the thing to link libraries in Wilson County. Did not the letter of the State Interlibrary Loan Code mandate a thorough check of all local resources before directing requests for materials and information to the State Library in Raleigh? The longstanding informal arrangement among WCPL, WCTCL and ACCL whereby public services staff would call the other libraries if they felt that another library might have the book or information needed demonstrated that information exchange within the county could work. Why, then, not automate it?

The notice of a request for proposals for the

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second year of ZOC projects precipitated the vague feelings of networking potential in the county into something more definite. I shared my ideas about a bulletin board system with Shirley Gregory and Jeannette Woodward. In 1984 staff members from the three libraries attended a MUGLNC [Microcomputer Users Group for Librarians in N.C.] workshop on telecommunications and microcomputers, which demonstrated that information exchange by way of microcomputers was already being done in the microcomputing community and in such a way that it would also be feasible in Wilson County. To the feasibility discussions I brought my very strong interest in setting up a bulletin board system to facilitate exchange information (ILL, reference, news, notices, electronic mail) among libraries in the county; while interested in this potential, Shirley Gregory and Jeannette Woodward wanted to see a networking project that would provide more services than just a bulletin board system. The successful union list of periodicals had demonstrated the feasibility of producing very useful bibliographical tools at a local level. Woodward and Gregory saw in a countywide network of linked microcomputers a new way to build union lists and bibliographies, one that would make it possible for librarians to exchange large amounts of information without having to leave their libraries or to exchange diskettes or hardcopy. The three librarians, having cooperated often before, found it easy to combine their respective interests into what became the vision of the proposal.

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After explaining the goals and the likely benefits to my director, Josie Tomlinson, I was able to proceed with Gregory and Woodward to plan and produce the proposal. Joining the original core group of five libraries were the three high school libraries (Beddingfield High School, Fike High School and Hunt High School), whose participation was championed by Rebekah Overman, media supervisor of the Wilson County Schools. The diversity of types of librarianship (academic, public, school and special) represented and the nearness of the libraries to each other (all in the same county and calling area) boded well, we thought, for "ZOC-ing."

What the eight libraries finally offered was in

concept quite simple. They envisioned a network that offered two major functions: a capacity to exchange reference and related reference information by way of a bulletin board system and a capacity to build bibliographical products. The literature abounded with references to successful bulletin board systems, so the librarians felt secure that they would be able to develop this function. To show the capacity to produce useful bibliographies, the libraries turned for a model to the earlier success of the union list of magazines and proposed to produce a union list of audio-visual materials held by the eight libraries. Because the two functions were related but different, the planners had envisioned the network as having at least two nodes. WCPL would serve as the site for the bulletin board system and its related activities, while ACCL would serve as the major workstation site for any bibliographic efforts.

To understand some of the problems that the project later encountered, one needs to understand the planners' thoughts about how to equip the proposed network. The planners' libraries all had Apple II's, as did, for the most part, the high school libraries. We saw the microcomputers already in the institutions as a base for any future network. To complete this base, each library that did not have a microcomputer would be provided with an Apple. All the libraries needed modems; cables; telephone lines—which the proposal would fund for all libraries for a specified period; communications software; data base software and any other hardware or software necessary to maintain compatibility throughout the network. Since two of the libraries, WCPL and WCTC, were already using Condor III, a CP/M-based data base management system [dbms], it was decided to use that program throughout the network; this meant that all the libraries also had to have CP/M capacity.

During the preparatory deliberations for the proposal, Woodward recommended that since all the librarians in the county were still beginners in the use of microcomputers, the planners should also budget for a technical consultant who would be able to guide the libraries through the inevitable technical problems. This recommendation was incorporated into the proposal and proved, as will be seen below, to be one of the important safety nets for the entire project. When the Wilson County Libraries were granted funding in June 1984, they knew that they were embarking on a trip into new territory; but none of the librarians had any sense of how new *new* could be. Among the earliest efforts of the consultant was making that fact clear to them.

The planners of the original proposal, with the support of Josie Tomlinson, were able to send out a request for a proposal for a technical consultant by the end of the summer 1984. The Request for a Proposal (RFP) was sent to five organizations, only one of which, the Center for Urban Affairs and Community Services, North Carolina State University, responded. (The planners had decided that geographic proximity was an important factor in the choice of a consultant so we limited the distribution of the RFP to possible consultants in the Triangle and Piedmont areas of the state. We reasoned that any consultant from outside these areas would expend most of the limited allotted funds in travel costs.) Needing the technical assistance and seeing no reason to expect that the center would not meet the libraries' needs, the libraries accepted the bid as offered by the center. With that acceptance, the libraries began an intense nine-month relationship with the center and their representative, Gary Miller.

I met with Miller repeatedly in Raleigh, first to explain what the libraries were attempting to do and, as the enormity of the central problem became clear, to learn how to correct it. Miller, after listening to me, reviewing the proposal and conferring with other experts at the center, reported to me that what the libraries were attempting to do was (1) in practice in advance of the times (i.e., at the cutting edge of networking), and (2) impossible in terms of the hardware configuration of the original proposal. This report announced the first crisis of the project and made clear in dramatic terms how limited the experience of the Wilson County librarians was at that stage.

In effect, the libraries had offered an excellent model that was, regrettably, technologically unfeasible with the equipment brought to the project and the equipment that the planners had thought necessary to purchase with funding from the grant. Miller made it clear that the bulletin board system functions of the network were not under question; there were already hundreds of functioning bbs's, some at libraries, so there was demonstrated precedent for that capacity. The construction of bibliographic products over telephone lines, however, offered problems that the planners had not even known to consider. Our vision saw the network allowing each librarian to work at his or her library while building the union list of audiovisual material at a workstation microcomputer (at ACCL); the microcomputer in the librarian's library would work as a dumb-terminal extension of the workstation microcomputer,

with the two microcomputers being linked by the telephone lines and telecommunications software. As Miller explained, the eight-bit technology represented in the original proposal cannot support the type of signal and file control that the librarians' vision demanded. There was at least one software package that might work as the required intermediary between the distant-user's signals and the workstation microcomputer's operating system, but it would not work on any eight-bit microcomputer. His recommendation was, in short, that the network would absolutely need to have at least one IBM PC-XT (with a 10 megabyte hard disk drive) to serve as the workstation microcomputer. It should also seriously consider having a second XT at the WCPL for the bulletin board system function, since that would provide backup coverage for the network in case the workstation microcomputer were to malfunction and would provide the technology and storage capacity to run a bulletin board system adequately.

The successful union list of periodicals has demonstrated the feasibility of producing very useful bibliographical tools at a local level.

I reported the news of the crisis to the other planning librarians. After explaining the problem to the State Library, we received permission to modify the original configuration in whatever manner necessary to make the network work. Because the proposal had already been funded, we had to work within the total amount of the grant. At first, this limitation was a source of concern for us, but as we worked with the consultant's hardware and software recommendations, we were able to recast the configuration more easily than we had expected, in particular because the new software recommendation appeared to make the multiple copies of Condor that the libraries had originally budgeted unnecessary. We found that the crisis appeared to be a blessing in disguise.

The planning librarians and Miller presented the results of our respective findings to all the librarians involved with the project in a special meeting in November 1984. Now that an all-Apple network was shown to be unworkable but that a mixed-type-network appeared to be feasible, the two institutions not bringing microcomputers into the network—ENCSD and WMH—had to

decide which type of microcomputer each wanted the project to purchase for it. ENCSO chose an Apple because of that microcomputer's proven capacity to serve well in an educational context; WMH chose an IBM PC to maintain compatibility with the Hospital's commitment to IBM hardware.

With the consultant's assistance, the libraries were able to prepare the requisite bids for hardware and software and to send them out just before the Christmas holidays. The next few months saw a complex round of complications and errors. Orders for microcomputers, in particular for the two XT's, were either lost or significantly delayed. Serving as the project's fiscal agent, Atlantic Christian College Library spent much time tracing down orders that vendors had misdirected or misunderstood. Out of the process of trying to sort out what happened with the orders, ACCL discovered that one institution ordering for another often disrupts vendors' ways of providing services. The delay in receiving needed equipment inevitably slowed down all networking efforts.

While the libraries were dealing with the frustrations of ordering and receiving hardware, the consultant was looking into the utility of the software package, Softterm PC, which we hoped would enable the libraries to build the union list of audiovisual materials on the workstation microcomputer. Working with Softterm PC and Condor III, Miller and his associates discovered that the project had been stymied by technology again. The Softterm PC performed very well as the telecommunications intermediary between the outside caller and the host microcomputer's operating system. It was possible to call up Condor III, open files, etc. from another microcomputer, but with an important restriction: the user at the distant microcomputer could not see anything on the screen. The designers of Condor and of most single-user software had not intended their programs to rely entirely on calls to DOS, which can slow down the performance of the software; in certain functions the software bypasses the operating system to engage the microcomputer's hardware directly, thereby adding to the speed of operation and also effectively guaranteeing that the program cannot be used in a multi-user environment. While it was possible to access the data base management system (dbms), it was useless to do so. The vision of building the data base at one workstation while working at a distant microcomputer appeared, once again, to be an unobtainable one.

The planners had no recourse but to reconfigure the networking arrangements yet another

time. In light of the consultant's discoveries, we struggled to maintain as much networking capacity as the then-current state of microcomputer technology would permit. We were also constrained by the hardware that was already in the system and the hardware that had been ordered. The power of the vision still gripped us, however, so we looked into other operating systems, in particular the Pick operating system and Xenix. From the literature, it appeared that both offered multiuser capacity similar to what the libraries had proposed originally, so we made use of our consultant again to see what he could find out. His research brought news that disappointed us again, but at least in the case of the Pick operating system, it showed that we were looking in the right area.

The Pick operating system had sparked much hope because of its nature as a dbms-Ucum-operating system and its multiuser capacity. (Its dbms capacity makes it an ideal system for library-type applications, which is why at least one of the major library system automation vendors, Dynix, uses this operating system.) Regrettably, we had to abandon this lead to fuller networking because the consultant learned that Apples could not communicate with an IBM PC running Pick.

That left the other option, Xenix, a Microsoft version of the multiuser operating system Unix, which had become available for the IBM PC-XT. While affording multiuser capacity, this operating system could not guarantee that all the libraries would have access to or compatibility with the necessary applications software. The libraries also had to consider the fact that all the operating system and applications software, not at all inexpensive, would still need to be purchased out of already depleted funds. The consultant also warned us of the likely steep learning curve involved in using the system and of the lack of technical expertise in the area to draw upon for assistance. The Pick operating system, while admittedly a risk, had the "built-in" dbms component to commend it; Xenix had nothing similar and offered more uncertainties than the libraries felt comfortable in confronting.

Finally convinced that their vision of multiuser capacity was unobtainable in terms of what the libraries had to work with, the planners concentrated on making the best of what they had. After two crises and an increasing amount of experience using microcomputers, it became apparent that the thinking behind the configuration originally offered in the proposal was quite sound overall for what the libraries could actually

do. The bulletin board system capacity at WCPL had never been lost, so we knew that we had a base for networking. To make the capacity to develop bibliographical products a real one, we now saw the network in terms of distributive capacity, in which each institution would build its own data bases, which each in turn would send to the workstation microcomputer at ACCL over the telephone lines using the telecommunications software that each would need to access any of the other microcomputers. At the workstation microcomputer, the separate files would be joined and sorted to produce a master union list.

The decision to standardize on one dbms program, Condor, meant that despite the "Apples and IBMs" problem, each institution would be producing files for the same program, either in MS-/PC-DOS format or in Apple CP/M format. By using the same program on different machines, we were assuring compatibility of data files. Experiments with the exchange of trial data bases between an Apple IIe and an IBM PC-XT confirmed what the planners knew in theory. But what if the communications link broke down or otherwise became unusable? Or what if it took too long to transfer a very large file to the workstation microcomputer? An article in the December 1984 issue of *Byte* indicated that transfers of large files can be lengthy operations, whereby the two microcomputers would be tied up for what could be long periods of time. After our experiences in just coordinating meetings among all the librarians involved, we wondered how practical transferring files over telephone lines would always be in the real world of the very different types of schedules in the eight libraries; therefore we also hoped to find another means to transfer files to supplement the telephone lines or, if that route finally proved to be impractical, to replace it. Fortunately I had chanced upon an advertisement for a utility card, the Apple Turnover card from Vertex, that converts Apple CP/M files to MS-/PC-DOS files and vice versa. (The literature indicated that such a program such as Media Master alone, which appears to offer this type of conversion for every other (or almost so) CP/M format could not work for Apple CP/M files because of the special nature of CP/M for Apples. This information was our first indication that the many parts of the CP/M world were not as compatible as some of the literature had claimed.) The project purchased the card to test it and found that it works well for the libraries' purposes, thereby guaranteeing file transfer and networking capacity between the two types of microcomputers.

The matter of the bulletin board system had

almost been forgotten in the many crises attending the area of file transfers and file compatibility. Since working within the total budgetary amount after the networking reconfigurations had left the project with fewer resources, it became important for the libraries to maximize the return on what was left. The consultant had been involved in all the planners' deliberations and understood our position. His recommendation for the remaining software needed was to use public domain and shareware software; the low cost involved and the reputed reliability made this route appear to be the best course. For the telecommunications software, the libraries would use Modem7, an older but well-tested CP/M program, for the Apples and PC-Talk for the IBMs. For the bulletin board system itself the consultant recommended "RESPOND Bulletin Board System" (RBbsS-PC), a very inexpensive but very functional program from the Capital Area PC Users Group in Silver Springs, Md. He arranged through his sources for the libraries to receive Modem7, and the libraries procured RBbsS directly from the source.

Once these decisions had been made, the problems of "lost" and missing hardware resolved and the equipment brought to the right owners, it was possible, so the libraries thought, to get down to the matter of bringing up both parts of the network. That meant arranging for telephone lines to be installed wherever needed, getting the bulletin board package running at WCPL, arranging for all the institutions to receive the needed version of the Condor data base entry form, etc. for the audiovisual list, preparing instruction sheets and solving all the little problems that kept cropping up. Fall 1985 and early winter 1986 were devoted to this endeavor. Without the assistance of all the librarians involved in the project and the special assistance of Mark Turik, local dentist and computer dealer/consultant, the project would have fallen even more behind.

The planners aimed for a special meeting in January 1986, to be held at ACCL, to which all the librarians involved in the project and representatives of the State Library were to be invited. Working with the assistance of all the librarians involved, we were able to establish the foundation of networking capacity in the county in time for that meeting. At that meeting all the librarians were introduced to the operational bbss and its potential uses and were given preliminary instruction about entering their institutions' data into the audiovisual materials data base. After so many crises and interruptions, the parts of the network had begun to come together and were working.

This optimism was soon to prove premature, as some of the librarians involved discovered new problems. It had become apparent even before the January meeting that the network might yet experience more problems of incompatibility, even in cases where the planners had ensured compatibility. The first major problem involved the CP/M cards needed by the Apple-using libraries to run Condor and to communicate with the bbss using Modem7. The planners all had older Apple IIe's and older CP/M cards, for which the version of Modem7 that was supplied to the network was configured. With our Apple IIe's it worked well, so we assumed that this version would work in the other Apples in the system. The newer Microsoft CP/M cards that the Project had purchased were, however, so significantly different in structure and in placement in the Apples that the version of Modem7 configured for the network's use would not work. Microsoft, the libraries discovered, was not necessarily consistent with Microsoft.

The planners immediately recognized the seriousness of this problem and decided as a stop-gap measure to see whether there was any software at hand that the Apple-using libraries could use to access the bulletin board system. The details of transferring CP/M files would have to wait until the more pressing problem of how to enable these libraries to access the bbss was solved. ACCL has been using Data Capture successfully for its on-line searching, so we decided to see how that program would work on the other Apples. We quickly discovered that the program would not work on the newly enhanced Apple IIe's that had entered the network. Apple Computers had changed the design of the Apple IIe by using the 65C02 chip, a modified version of the 6502 found in the older Apples; the changes were sufficient to make different models of the same basic microcomputer at best only semicompatible.

While puzzling over the communications impasse, the librarians who were to use the CP/M version of Condor and the planners were also confronting the arcana of CP/M as an operating system and the logistical shuffle of running a sophisticated dbms such as Condor on a two-floppy-disk-drive microcomputer. Gregory and I, who frequently went to these libraries to assist as we could, quickly discovered that despite much good will, the staffs at institutions such as Eastern North Carolina School for the Deaf Library and the three high school libraries found it difficult to find time away from their other, often non-library-related responsibilities to master enough of the CP/M operating system to make

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working with Condor a pleasant (or at least tolerable) experience. Even we who had some experience with CP/M were far from expert at using it and were occasionally stymied by CP/M's cryptic (and erratically produced) error messages. While the decision to bring "inherited" microcomputers into the network necessitated the use of CP/M and CP/M-based software, the complexity of the operating system made it less than ideal for training inexperienced microcomputer users.

In contrast to the setbacks with the Apple IIe's, the experience of libraries using IBM PC's were generally forward-looking and positive. As I became more comfortable with using the IBM PC-XT at WCPL and explored more of the software available for it, I began to understand what the consultant had meant when in the November 1984 meeting he had said that eight-bit microcomputer technology was out of date. The IBC PC users had no software problems accessing the bulletin board system. In the beginning they used PC Talk and later shifted to Qmodem. With both programs, after a few minutes of instruction they were able to access the bbss and were ready to explore the software by themselves to discover its other capabilities. Their experience with Condor, while not quite so simple, proved similar.

Through continued reading in microcomputing magazines and purchases, I soon discovered large amounts of inexpensive, reliable free- and shareware programs for the IBM PC that, because of its easiness to use, made us realize how much simpler it would have been for all had the project been configured to give each institution an IBM PC-XT—or at least an IBM PC. In that way all the libraries would be using the same hardware and software. Learning problems, while always present, would have been fewer and less severe because the universe of potential problems would be smaller and more easily addressable. Just the increased ease-of-use factor in the software, which would be a criterion of selection and use, would have reduced a potentially severe problem. The increased ease-of-use factor in the hardware would have saved both planners and users many frustrating and exasperating hours.

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An important, if also partial, solution to the network's problems appeared late in the 1985-86 school year, when each of the three high school libraries received an IBM PC-XT from the county school administration. These microcomputers arrived too late for the libraries to be fully integrated into the network before the end of classes, but barring major hardware problems (e.g., a faulty hard disk drive), it will be a simple process of double checking for correct cables and of instructing the librarians in the use of the telecommunications software (Qmodem), which the network has tried and tested, to enable them to access the bbs when the 1986-87 school year begins. These libraries have already made provisions to purchase the PC DOS version of Condor, so these libraries are ready to join the network fully. (Any files that they have already prepared using the Apple CP/M version of Condor can easily be converted using the Apple Turnover Card at ACCL, so none of their efforts have been wasted.)

The project has still to solve the problem of the enhanced Apple IIe at the ENCSD, which will not be replaced by an IBM PC of any kind. At absolute minimum, the planners need to find a telecommunications package that can connect ENCSD with the bulletin board system and that is

inexpensive. (Since July 1985, the effective end of the grant, the project has had no funds.) More desirable would be a program that also would enable ENCSD to transfer Apple CP/M files over the telephone lines; this capacity is not absolutely necessary, however, since the network can, as noted, already translate Apple CP/M files into MS/PC-DOS files.

Much of this case study has dealt with the problems of the project. I have dealt openly with them because the project has had to confront what has sometimes felt like an overabundance of problems, and the libraries would like to save other libraries working with networking from similar problems. The final story about the project in Wilson County, however, concerns its successes, which have been real and exciting.

In the more than two years since networking has come to the libraries, they have benefited from the greatly increased awareness of each other and of their respective natures and responsibilities. Real acquaintance and honest, useful professional exchanges have grown out of the interactions to bid for the project and all the trials to build the networking capacities. The idea of cooperation has taken on a prominence among the libraries that it never had before 1984. This does not mean that the county librarians no longer have their differences or that everyone involved in the project is always excited about everything that is being done. For example, there still are problems with getting everyone who can access the bbs to use it frequently, and no one knows how much the high schools and ENCSD will be able to use the bbs once they can access it. But overall the librarians in the county have moved closer to each other professionally, which has meant that we have been able to exchange more with each other and to help each other more readily.

The project has forced the libraries to confront the new technology in ways that, without the impetus of the project, many of the libraries probably would not have considered. The planners and other librarians alike have had to learn from all the problems. While none of us is an expert in microcomputers, our efforts against the "technological odds" have been remarkably successful. The libraries have worked out feasible, effective means to deal with the problem of operating system and file incompatibility; while not as "ideal" as any of us might like, the measures do work. Our experiments with transferring files led to some practical observations. One of the most useful is that it is possible to transfer files from a local library to a larger utility, in our case

the VAX system of North Carolina Educational Computing Services (NCECS), and then to download the file to another microcomputer in the county from NCECS—only it is too expensive to do so with the current rate structure. The use of a local bbs, such as the one at WCPL or the duplicate one that can be set up at any time at ACCL, makes much more sense for unattended file transfers.

Continuing in this vein, the libraries are getting ready to experiment with file transfers using null modem cables. In this arrangement, two computers, either of the same type or different, are connected by a null modem cable, a special cable that permits data to move from one microcomputer to the other without the use of modems. The libraries have produced two union lists of periodicals for the first five libraries that worked together. The planners have decided, however, that the next updated version will list the periodicals holdings of all eight of the libraries and will not be done on an Apple IIe using General Manager, a cumbersome approach in light of the newer hardware and software options available in the network. But what of the files that the five libraries have already developed, which with relative ease could be updated instead of being redeveloped on another package? Once again the literature offered a suggestion, the null modem route. Why not stream the fixed-length-field data files from General Manager into Condor, also a fixed-length-field dbms, on the IBM PC-XT at ACCL, on which we shall have duplicated the General Manager form? If it works, five of the libraries will have saved themselves a great deal of work; if not, they will know that they have tried and will have to redo their records using Condor. Either way, all the institutions' records would end up in the same (or close enough) file format. If not successful with that particular combination of packages, the approach might work with other, more closely related packages. Out of the challenge of adversity, the libraries have shown themselves willing to address the challenge.

None of the planners would deny that had we the opportunity to take what we know now and address the project anew, we would configure everything very differently from the way we did in May 1984. We knew that we were inexperienced then—just not how inexperienced. The efforts to develop the project into a working Zone of Cooperation have forced all of us to react and to learn, and thereby to become much more knowledgeable. Gregory, Woodward and I have learned from each other; we have also learned much from


Woodward's special assistant at ACCL, Joann Rago, whose natural affinities for microcomputers should be the envy of any microcomputer expert and whose efforts were often crucial in determining the results of our experiments and in solving problems. We four in turn have profited greatly from working with Mark Turik, the local dentist who also is an expert on IBM PC's. This teaming interaction has in turn made it possible for us to assist the high school librarians, the librarians at WMH and the librarian at ENSCD. As these librarians have become more secure in using microcomputers, they have been able to give us new insights into how microcomputers can be used by all of us. Even when there has been friction or misunderstanding among us, it has been a creative process, since it has forced the parties involved to look at the other library's or libraries' needs in another light and to invoke a variant of the "Golden Rule" of behavior and expectation.

Before the proposal was sent out in 1984, a librarian confronted me with a question about the "worth" of a certain type of library in the system: What could they possibly give if they do not have many ... etc.? The experience of the project has shown that the giving has actually gone both ways. It has been possible to give in time and expertise and still take away new professional knowledge. The fact that the "consulting" and exchange of ideas has been given freely and received openly (but not without questions and criticism) has forged a mutually respectful atmosphere among the librarians and has made the project anything but stale or routine. The libraries have grown to expect this sense of cooperation among themselves even as they may disagree about details. The exchanges during planning sessions or over the bbs show this.

The efforts to develop the project into a working zone of cooperation has forced all of us to react and to learn, and thereby to become much more knowledgeable.

Apparently the experiment is working, since libraries outside the county have also been availing themselves of the potential. The State Library has been a very active user of the bbs and thereby has demonstrated that a bbs is a very effective means to avoid telephone tag when trying to leave someone else a message, something

that those of us who have been able to access the bbs within the county have long known. Other librarians, both near to and far from Wilson County, have also "visited" the bbs, and with one of these I have had talks about the possibility of more exchange of ILL and reference information between that librarian's county and the libraries. On a still broader statewide front, the willingness of three of the libraries, ACCL, WCTC and WCPL, to accept the State Library's offer to join the new networking arrangements (OCLC, ILL and the state-wide electronic mail/bulletin board system) derives in good part from the strides the libraries have made in networking in the county.

Networking has not come easily to Wilson County, as this study has made clear, but it has come and will stay. With more experience at the beginning, the libraries might have had fewer problems developing capacity; but despite the early inexperience, the libraries have developed the double capacity that they proposed to develop. In the process, all of us who have been working on the project have been able to develop new skills and prepare ourselves and our colleagues better for the technological and conceptual changes that have already made themselves felt throughout the profession. 

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Instructions for the Preparation of Manuscripts

for North Carolina Libraries

1. *North Carolina Libraries* seeks to publish articles, book reviews, and news of professional interest to librarians in North Carolina. Articles need not be of a scholarly nature, but they should address professional concerns of the library community in the state.
2. Manuscripts should be directed to Frances B. Branburn, Editor, *North Carolina Libraries*, Central Regional Education Center, Gateway Plaza, 2431 Crabtree Boulevard, Raleigh, N.C. 27604.
3. Manuscripts should be submitted in triplicate on plain white paper measuring 8½"x11".
4. Manuscripts must be double-spaced (text, references, and footnotes). Manuscripts should be typed on sixty-space lines, twenty-five lines to a page. The beginnings of paragraphs should be indented eight spaces. Lengthy quotes should be avoided. When used, they should be indented on both margins.
5. The name, position, and professional address of the author should appear in the bottom left-hand corner of a separate title page.
6. Each page after the first should be numbered consecutively at the top right-hand corner and carry the author's last name at the upper left-hand corner.
7. Footnotes should appear at the end of the manuscript. The editors will refer to *The Chicago Manual of Style*, 13th edition. The basic forms for books and journals are as follows:
Keyes Metcalf, *Planning Academic and Research Library Buildings* New York: McGraw, 1965), 416.
Susan K. Martin, "The Care and Feeding of the MARC Format," *American Libraries* 10 (September 1979): 498.
8. Photographs will be accepted for consideration but cannot be returned.
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Issue deadlines are February 10, May 10, August 10, and November 10.