

MANN LIBRARY INSTRUCTIONAL COMPUTING FACILITY

Part IV -- Computer Software

Mann Library's plan to conduct an instructional program in the use of microcomputers and microcomputer software is a central element of our proposal for the Instructional Computing Facility. The concept that library personnel will not only maintain the computer rooms but will play an active teaching role is one justification for our request for a professional staff member, and supports our argument that the library is a logical place to install a microcomputer facility.

Our initial program of instruction would have two components: 1) a series of workshops, taught by the Programmer, designed to familiarize students of the College of Agriculture with the overall operation of microcomputers, and to teach them to use specific software packages; and 2) classes, taught by members of the Mann Library Public Services staff, that would introduce students to the techniques of online searching in bibliographic databases and prepare them to use the bibliographic search units in the Instructional Computing Facility.

In the June 17 memo we stated our belief that there is no conflict between the program that we are proposing and the present curriculum of Cornell's Computer Science Department, which concentrates on teaching computer programming in a high level language, theory of programming, logical machine architecture, programming at the assembly language level, operating systems, and advanced topics in computer science. We also feel that our proposal would represent a valuable supplement to computer courses offered within the College of Agriculture. Courses such as Agricultural Engineering 151 and 304 will offer students training in common software packages, as well as exercise in programming in a high-level language. What we would hope to do through our program is to bring software instruction to a broader segment of the CALS student population than those enrolled in computer courses. Hopefully, some students who gain their first exposure to microcomputers in our workshops will go on to enroll in the computer courses. In addition to teaching software workshops open to any interested student, we would try to work closely with College of Agriculture faculty in conducting instructional sessions for members of specific courses that are not centered on computer study. For example, if a professor felt that an introduction to spread-sheet software would be valuable for a class in Agricultural Economics, we would arrange instructional sessions for the students in that course and work with the professor in developing computer-based exercises that would test students' understanding of the applications of the software.

We believe that making such instruction available in the library would contribute to a broadening of computer instruction within the College of Agriculture. At this time, students can gain exposure to computers by taking 'computer' courses, or by working on their own and attending

workshops and seminars that stand essentially outside the curriculum. It is our hope that the Mann Instructional Computing Facility will encourage the integration of computer instruction into courses that are not specifically concerned with computers. Microcomputer technology is changing the workplaces and activities of people in many fields who are by no means computer specialists, or even computer buffs. We feel that the challenge to the College of Agriculture is to provide a facility that will support the introduction of computer instruction to areas of the College curriculum where it has not been available before.

Without software programs to run, most microcomputers are only capable of interpreting machine language or Basic language programs that the user writes. In order to offer a course of instruction in the use and applications of the different varieties of microcomputer software, we must have an adequate collection of software from the time that the Instructional Computing Facility opens. As software is machine (or at least operating system) specific, and as costs for similar types of software can vary dramatically, the availability of reasonably priced software is an important consideration in deciding what computer hardware to purchase. We have taken account of software costs in making our recommendations on equipment needs in the preceding section of this report.

In addition to costs, we must address certain legal questions in establishing procedures for the acquisition and use of software in our computer facility. Most commercial software is protected by copyright and must be used in accordance with specific rules. Before purchasing particular pieces of software, we thus must assure ourselves that we have in hand whatever agreements are necessary to allow us to meet our instructional goals without violating copyright regulations.

Professor Robert Cooke of the Department of Agricultural Engineering, who will be teaching AE 151 in the fall of this year, is also vitally interested in copyright as it concerns the use of microcomputer software. Professor Cooke has arranged a meeting with Professor Joseph Bugliari, of the Department of Agricultural Economics and the College of Business and Public Administration, and Ms. Dale Grossman, a Lecturer in Agricultural Economics and Communication Arts. These members of the Cornell faculty are well informed about copyright law and should help clarify our thinking in this area. Mann Library will send at least one representative to this meeting. The following remarks are thus somewhat premature (the meeting will take place Tuesday, August 9), but give some indication of our present thinking on the question of copyright law and software acquisition.

Copyright Considerations

Most vendors of microcomputer software sell computer programs (usually stored on magnetic disks) under the provision that a particular piece of

software (physically, the disk or disks that one purchases, and any copies made therefrom) by used only on "one machine." This rule, designed to prevent the indiscriminate copying and distribution of computer programs that cost large sums of money to develop, poses obvious problems in an instructional facility. For example, if we propose to teach students to use database-management software, we will need 21 copies of this type of program to equip the microcomputers in the classroom. However, students will also want to use this software on their own time. Now, if a student comes to the Instructional Computing Facility when a class in word processing is being conducted in the classroom, it would seem reasonable that we be able to make one of our 21 pieces of database-management software available to the student for use on a machine in the general-use area of the facility. Under the narrow letter of the law, though, this is not possible, in that each piece of software is only licensed for use on one specific machine in the classroom.

One way to avoid this problem, of course, would be to stock one copy of every piece of software in our collection for each machine, but this would be expensive and wasteful. There are two other methods of circumventing this narrow constraint of copyright law--through site license and through vendors' waivers.

In a site license arrangement, an organization, such as a university, pays for the right to copy and distribute a given piece of software to its members, subject to specified restrictions. The cost of software to the end user can be dramatically reduced under such an arrangement. For example, Cornell has for several years possessed a site license for a version of the UCSD Pascal language system which runs on the Terak microcomputer. The Department of Computer Services has made this software package available to the Cornell community, with documentation, for the nominal fee of \$20.00.

Computer Services has now negotiated site licenses for two items of software that will run on the IBM PC--MINITAB, a statistics package, and an instructional version of the popular database-management program dBase II. By taking advantage of existing site license agreements, we can save hundreds of dollars per machine by comparison with the costs that would result if we were to assemble a software collection through direct purchases from vendors. Computer Services' pursuit of site licenses for software that runs on the IBM PC and PC-XT is another powerful argument in favor of acquiring this hardware.

A vendor's waiver consists of a written agreement between the holder of copyright on a piece of software and the purchaser concerning the manner in which the program will be copied, administered, and used at a particular computer facility. Four members of the Mann Library staff recently visited a microcomputer laboratory maintained by the library at the SUNY branch in Cobleskill, New York. We discussed the question of copyright with the library administration in Cobleskill and learned that, in purchasing a set of software, they always seek from the vendor (or copyright holder) a written agreement releasing them from the narrow

letter of the one-disk one-machine rule. In return, the library agrees not to create and make available to students more sets of a software package than they have purchased. Vendors are usually willing to conclude such an agreement with an educational institution.

Such vendors' waivers would be of great advantage to us in operating the Instructional Computing Facility. If we purchased 21 sets of database-management software, to return to the earlier example, we would avoid the need to designate each individual disk for use at a particular machine. And we would be free to use the same software in both the classroom and the general-use area.

Careful consideration should be given to copyright whenever we purchase software for the Mann collection. Whenever possible, a clear, written agreement should be concluded with the vendor before a purchase is made.

Software Available

The 20 IBM PC-XT computers to be used in the Agricultural Engineering 151 course will be delivered with a considerable collection of software. The following programs will be provided with each machine:

The INSTRUCTOR-- Introduction to the IBM Personal Computer
Volkswriter-- Word processing
PL/I-80 compiler-- Support for high-level language programming
SUPERFILE-- Information retrieval
LOTUS 123-- Spread-sheet
dBase II-- Database management
MINITAB-- Statistics

(From information kindly provided by Professor Robert
Cooke, Dept. of Agricultural Engineering, and Thomas
Hughes, Decentralized Computer Services)

Should the College of Agriculture place these computers, together with the software listed above, in the classroom of the Mann Library facility, our needs for the instructional program would be more than satisfied. Three caveats should be noted, however:

-- We are proposing that there be 20 student computers in the classroom end of the Instructional Computing Facility, and one additional computer for the instructor. This would require the acquisition of one more IBM PC-XT computer, with software. The alternative is to assign one of the original 20 machines to the instructor, leaving 19 for students.

-- As mentioned above in the hardware section, Mann needs not only computers and software to begin the instructional program we propose, but access to the classroom facility. A clear agreement should exist between the administration

of Mann Library and interested faculty members in the College of Agriculture before the equipment is in place.

-- When and if the IBM PC-XTs are moved to Riley-Robb Hall, the classroom would require not only replacement computers but provision for software acquisition.

If the College of Agriculture decides to install the IBM PC-XTs in the Mann facility, a need will remain to create a software base for the general-use area. A tentative proposal for the acquisition of this software follows, with estimates of cost. These figures assume that we can arrange vendors' waivers, as outlined above, of the one-disk one-machine regulation. It should be understood that these cost estimates do not include the costs of the IBM PC-XT software.

12. 6. 1987

Table I:

Software Requirements and Costs*
(With IBM PC-XTs installed at Mann)

<u>Type of Package</u>	<u>Number of Sets</u>	<u>Price/Unit</u>	<u>Tot. Cost</u>
Word processing (Volkswriter)	6	\$125	\$750
Word processing (EasyWriter II)	1	\$300	\$300
Database management (instruc- tional dBase II)	6	\$20 (SL)**	\$120
Database management (full- capacity dBase II)	1	\$420	\$420
Spread-sheet (LOTUS 123)	6	\$247.50	\$1485
Communication Software (IBM)	2	\$50	\$100
Online Search (SciMate)	2	\$980	\$1960
Pascal (UCSD P-system; MCI)	1	\$800	\$800
Custom queue-maintenance software	1	--	--
<hr/>			
TOTALS	25	--	\$5935

* Cost figures should be regarded as approximations. Information on current prices provided by Cornell Decentralized Computer Services.

** SL--Under site license agreement.

In the event that the College of Agriculture does not install the IBM PC-XTs at Mann Library, we have requested that the classroom of the Mann facility be equipped with IBM PCs, with extended RAM memory capacity. That choice is justified above in the section on hardware. In addition to providing the instructional facility with a first-rate machine, this choice will result in substantial savings in software acquisitions because of site licenses held by Cornell. Still, the cost of providing the Instructional Computing Facility with a reasonable software base will be greater if we start from scratch than if we are able to make use of the same software employed by students in the Agricultural Engineering 151 course. The following is an estimate of the initial investment that would be necessary to provide a software collection for the classroom and general-use area.

Table II:

Software Requirements and Costs*
(Mann provided separately with IBM PCs)

<u>Type of Package</u>	<u>Number of Sets</u>	<u>Price/Unit</u>	<u>Tot. Cost</u>
Introduction (the INSTRUCTOR)	20	\$50	\$1000
Word processing (Volkswriter)	25	\$125	\$3125
Word processing (EasyWriter II)	1	\$300	\$300
Database management (instruc- tional dBase II)	25	\$20 (SL)**	\$500
Database management (full- capacity dBase II)	1	\$420	\$420
Spread-sheet (SuperCalc)	25	\$130	\$3250
Communication Software (IBM)	2	\$50	\$100
Online Search (SciMate)	2	\$980	\$1960
Pascal (UCSD P-system; MCI)	4	\$800	\$3200
Custom queue-maintenance software	1	--	--
<hr/>			
TOTALS	106	--	\$13,855

* Cost figures should be regarded as approximations. Information on current prices provided by Cornell Decentralized Computer Services.

** SL-- Under site license agreement.

Conclusion

New microcomputer hardware appears on the market at a bewildering rate. If anything, however, software is changing and progressing even more rapidly. Libraries undoubtedly will come to store and organize microcomputer software as a routine matter, just as they do printed materials and microfiche today. Mann Library would like to be in the forefront of this movement, and we view the creation of a software collection at the Instructional Computing Facility as a first step.

The stocking of the software library should not, therefore, be viewed as a one-time investment. As new microcomputer programs become available, and as student and faculty needs become clearer, we will have to expand the Mann collection. This will involve an ongoing financial commitment on the part of the College, but over time this expense will come to be viewed as a routine component of library acquisitions costs, not just at Cornell but across the country. Also, expenses can be minimized through site licensing arrangements and the maintenance of close relationships with software houses (It should after all be in the direct interests of software developers to have students exposed to their products in an instructional setting). This is an area where the staff of the Instructional Computing Facility should work closely with the Computer Services Department.

In addition to commercial software, Mann Library hopes gradually to build a collection of applications programs as they are developed by faculty and staff of the College of Agriculture. At this time, new applications software moves through the Cornell community through informal networks of users. These will continue to flourish, but the time is rapidly approaching when the participation of the libraries, which are the units of the university best prepared to catalog and store the growing production of programs in diverse fields, will prove beneficial to the entire community.

Respectfully,

Howard Curtis, Mann Library

August 8, 1983