

Appendix B

June 17 Memo: Jan Olsen to George Conneman

June 17, 1983

To: George Conneman

From: Jan Olsen

Re: Instructional Computing Facility

Following is a proposal addressing the purpose and nature of an instructional computing facility in Mann Library. The writing was done by Howard Curtis of the Library staff, after discussion with other staff members and Mike Thonney.

We have not attempted to answer all the questions inherent in this project, but did attempt to deal with those which determine the feasibility of such an undertaking. We will be most interested in your response.

Purposes of a Microcomputer Facility at Mann Library

At a June 1 meeting held at Mann Library we specified three major purposes that a microcomputer facility in the College of Agriculture should serve:

1. To provide students with access to microcomputers, so that they may become familiar with the various types of software available for microcomputers (word-processing; spread-sheet programs; data-base management software; communications software; applications programs in a student's field of specialization, and so on). Ideally, this function would extend to the offering of courses or workshops in software capabilities and manipulation.
2. To provide students access to microcomputers dedicated to the performance of searches in online bibliographic data-bases, such as BRS, DIALOG, and AGRICOLA.
3. To provide a classroom equipped with microcomputers that would support the type of computer instruction mentioned in (1) above, and allow faculty in the College of Agriculture to introduce students to specific software applications.

At my meeting with him on June 3, Professor Thonney elaborated on his ideas concerning instruction in the use of microcomputers. At present, the College of Agriculture supports a microcomputer facility in Riley-Robb Hall and offers courses that involve the use of Cornell's main-frame computers (Agricultural Economics 304 is the best example). What is missing is an organized introduction to microcomputers and the use of microcomputer software. Ideally, a course would be instituted within the College of Agriculture to fill this gap. The course would, at minimum, carry one or two credits, and could well be set up as a full four-credit

semester-long course. It would introduce students to the most common types of microcomputer software, provide them with the opportunity to become familiar with the operation of this software at a machine, and test their understanding with problem sets or other graded exercises. Some time would be dedicated to an overview of the logical architecture of microcomputers and to a discussion of important aspects of microcomputer hardware and its selection. During the last few weeks of the course, faculty of the College of Agriculture who use microcomputers in their research would be invited to give guest lectures, to increase students' understanding of the potential applications of microcomputer technology in agriculture.

Professor Thonney and I agreed that such a course would not infringe on the material presently covered in the curriculum of the Computer Science Department. With the exception of CS 101, which gives an interested student a taste of programming and a broad introduction to the role computers are coming to play in society, the courses of Cornell's Computer Science Department seek to bring students rapidly to the point where they can write competent applications programs, and then to introduce them to machine architecture and to advanced problems in computer science. The Computer Science Department currently uses TERAK microcomputers in at least two of its courses--CS 100 and CS 101--but the software provided is intended primarily to aid students in developing rigorous programming practices in a high-level language. Our proposed software course would actually be closer in content and approach to certain workshops given by Cornell's Computer Services Department (on the operation of the CMS system, SCRIPT word processing, MINITAB, etc.), but it would be more extensive, and would provide a guided, and graded, environment within which students would efficiently learn to use software. At the present time, neither the Computer Science Department nor Computer Services maintain anything resembling the kind of "library" of microcomputer software that such a course would make necessary.

Professor Thonney felt that the institution of an instructional program on this scale, with course credit, would require some discussion among the faculty of the College of Agriculture. A less ambitious program of instruction would consist of a series of workshops in software use, to be held at the Mann Library microcomputer facility. These would be conducted on a regular basis, with probably one software package introduced and demonstrated at each session. Workshops would not carry course credit, but they could be timed, through consultation with College faculty, to coincide with particular assignments in regular courses. Having taken a workshop, it would then be the responsibility of the student to work up to competence in the use of the software in question by taking advantage of the microcomputer facility and the software library, which would be maintained at Mann Library. Staff would be available to answer student questions.

Layout of the Facility; Hardware Required

It has been proposed that the Office of Instruction move to install the microcomputer facility in what is presently the Informal Study Room, on the first floor of Mann Library. Professor Thonney and I support this

decision, 1) because this is a central location within the College of Agriculture, and one which will provide the computer room with excellent public exposure, and 2) because the operation of the facility as we envision it would necessarily involve the maintenance of a substantial collection of software, and, if we are to avoid copyright violations, strict control over the way in which it is used--functions that Mann Library is better prepared to undertake than any other unit in the College.

Professor Thonney and I agreed that the existing Informal Study Room should be divided approximately in half, either with a true wall or with some sort of sliding partition. The division would run east and west, and would allow half the facility to be used as a classroom without disturbing computer users in the remainder of the space.

The Informal Study Room currently has two doors. We would suggest that the door at the southern end of the room be fixed with an alarm and posted for use as an emergency exit only. All traffic into and out of the computer facility would move through the present northern door. Next to this door, a counter or other enclosure would be built to provide a place from which staff members would regulate use of the entire facility, and where the software library would be maintained. This structure would back up against the existing northern wall of the Informal Study Room. Shelving for the maintenance of the software library and a collection of reference manuals will be necessary.

The southern portion of the present study room would be converted into the proposed classroom. Instructional equipment would include a large blackboard and at least two monitors that would permit students to see what is taking place on the screen of the teacher's microcomputer. Access to the classroom would be through a door in the dividing wall. The microcomputers in the classroom would be placed either on desks or long tables, and would all be of one type. When the classroom was not in use for instruction, the computers in this section of the facility would be available on the same basis as those in the northern room, or be available for professors within the college to schedule for other classes that require computer use.

The western wall of the Informal Study Room, which faces the Ag Quad, is composed of large windows. In order to permit the use of the monitors in the classroom, and to prevent direct sunlight from striking the computer equipment during the summer months, draperies should be installed.

Professor Thonney and I felt that it was not necessary that all the microcomputers in the northern end of the facility--the general-use area--be of the same variety. It might in fact be best to provide several models, to give students the opportunity to develop a broad familiarity with the machines and to meet a wider variety of software requirements. At least two of the microcomputers in the northern area should be dedicated to online searches, and provided with whatever software will make bibliographic searching simplest and most efficient for the student (the

library is interested in a product called SCIMATE, developed by the Institute for Scientific Information). At least several of the units in the general-use room should be equipped so that they can function as terminals and communicate with the main-frame computers at Cornell, although both of us feel that it will work against the purposes for which this facility is intended if we allow large-scale use of these microcomputers by students in Computer Science Department courses who are developing programs, or by those who are using the main-frame computers for word processing with SCRIPT. It is not our intent, in other words, to encourage the use of these microcomputers by students who are looking for a CMS terminal during "crunch periods" of computer use around campus. As it would be desirable to establish some connection with the Cornell main-frame system, however, and as electronic mail and other "networking" arrangements will undoubtedly become common around the Cornell campus in the next few years, we would suggest that consideration be given to the possibility of installing a network "node" in this facility from the beginning.

In order to provide microcomputers with the capacity for online searching, and units which are enabled for communication with Cornell's mainframe system, it will be necessary to run telephone lines into the Informal Study Room, and to install modems with certain of the microcomputers. It should also be noted that providing a power supply for a large number of microcomputers will require a general rewiring of the room.

We feel that the design of these rooms should give substantial consideration to the creation of an acceptable learning environment. Amenities that should be reviewed for possible inclusion include:

- This would be an excellent opportunity to give the entire room a coat of paint.

- Wall-to-wall carpeting (of a type that inhibits static electricity) to reduce noise.

- Individual study-carrel style desks, with side-walls, to reduce noise and give users some sense of privacy in the northern room.

- Printers will be necessary. If possible they should be isolated behind a wall or partition with soundproofing.

- Hanging ferns, pictures of Switzerland, and other touches should be added where possible to help soften the edges of the machine-dominated environment.

The proposed computer facility should be equipped with approximately 35 microcomputers, of which 20 would be located in the classroom and 15 in the general-use area. Four rows of five microcomputers each in the classroom, with individual computers placed on flat-topped desks 48" in width, would result in an even division of floor space between the

classroom and the general-use area, if space between rows of desks and between the first row and the blackboard is allocated as Computer Services has done at its Warren 160 facility of 20 terminals. We also suggest that five or six printers be acquired and installed, with at least three of these capable of producing letter-quality text. One additional microcomputer should be provided for staff use at the control counter. The following is a comparison of the proposed Mann Library facility with computer facilities presently maintained by Computer Services:

Location	Equipment	No. of Computer Units	Area (Sq. Ft.)	Sq. Ft./Unit
Carpenter 101	32 Terak micro-computers	32	1374	42.9
MVR G-83	4 Teraks 20 VT100 terminals 8 DECWriter terminals	32	1732	54.1
Warren 160	20 VT100 terminals	20	1080	54.0
Proposed Mann facility	35 microcomputers	35	1685	48.1

At some point a decision must be made as to what sort of microcomputers should be acquired to equip the classroom and the north-end room. Professor Thoney has suggested that serious consideration be given to the Osborne Executive, on grounds of both quality and price. I am also impressed by this machine, but have doubts as to whether it would be the best choice for students using a microcomputer for the first time. It is premature to make any final suggestion as to what specific equipment should be secured, but both of us feel that our eventual choice of a model (or models) of microcomputer should be based in large part upon the nature of the service that can be arranged. We would propose the following as guidelines in choosing a microcomputer, or several models of microcomputers, for the Mann Library microcomputer facility:

1. The computer should have at least 64 kilobytes of random-access memory, with the possibility of expansion beyond that.
2. Each machine should have two disk drives, providing at least 360 kilobytes of secondary storage capacity. All machines of the same model should have identical disk drive configurations, so that data disks may be used in any

machine.

3. The computer should have an easily read monitor with an 80-column display.

4. At the beginning, we assume that floppy disks or diskettes will be the medium for program and data storage. The "software library" will consist of a collection of these disks. However, the microcomputers should have the capacity to access and store data on a hard disk as well.

5. We should be assured that software is available, or will definitely be available, to connect the microcomputer of choice to an IBM main-frame computer, so that it may be used as a terminal. The microcomputer of choice must, then, have a serial data port, or provide for the simple addition of one.

In designing the microcomputer facility, and in choosing a microcomputer, we suggest that Mann Library and the College of Agriculture should take positive measures to gain the cooperation of the Computer Services Department, which has a wealth of experience in both these areas. Even if Computer Services is not in a position to join this project as a full partner, their knowledge could prove of crucial assistance. Professor Thonney and I both feel that discussing the details of the proposed Mann Library microcomputer facility with the staff of Decentralized Computer Services is a step that we should take early on in our planning.

Staff for the Microcomputer Facility

Professor Thonney believes that adequate staffing, from the moment the facility opens, is critical to the proper supervision of the computer rooms and the microcomputers themselves, and to the eventual success of whatever instructional program is developed. I agree completely. Mann Library's Reserve Department can provide vital expertise and support in the development and management of the software library; however, in no sense is Mann Library's present staff adequate to the additional responsibilities involved in properly running a facility of this magnitude.

At our meeting, Professor Thonney provided detailed suggestions for staffing these new computer rooms at Mann Library, and, again, I am in close agreement with him. Professor Thonney identified the following needs:

1. A full-time support person should be hired to initially work solely in the microcomputer facility. This individual would correspond to the Computer Operators (GR-20, I believe) in Cornell Computer Services. Computer Operators regulate the use of campus terminal facilities and provide "front-line" consulting support to users. Primary duties for this support person at Mann Library would include assigning users to

machines, insuring the security of the facility, answering users' questions, indentifying and, where possible, correcting mechanical problems, maintaining the software library, and providing general oversight for the classroom and north computer room. This individual would spend the bulk of each working day in the computer facility, but as time goes on and the operation of the instructional computing facility becomes systematized he or she would also contribute to the automation of Mann Library.

2. In order to keep the microcomputer facility open and functioning whenever Mann Library is open (we consider this to be highly desirable), the full-time person described above would require the help of a number of student assistants. It is also possible that, depending on how much time it takes to maintain the software library, student support would prove necessary at certain hours of peak demand during the regular work week, or during certain periods of the semester. These student assistants could be hired through Mann Library's current system, trained by Library personnel, and paid through the work-study program or on the Mann Library payroll. The cost of their wages should be viewed as an expense deriving directly from the new computer facility, however, and provision made for the hiring of students from the time that equipment is installed and the facility opened. From a security standpoint alone, it is critical that staff be present in the computer facility during the entire period that the library is open.

3. No matter what form the instructional program for College of Agriculture students takes, the services of a professional employee will be required if this program is to be a success. If the College determines that a credit-bearing course (or courses) is desirable, a high-ranking professional should be appointed to the Mann Library staff. This could be seen as a duty of one of the professionals who is to be hired to implement the automation of Mann Library, but it should be recognized from the first that conducting a program of instruction will prove a considerable undertaking in itself. If, for example, a credit course is offered, and the course proves popular, it might well be necessary to provide the professional employee with graduate-student assistants in order to handle the burden of grading computer exercises.

If the College wishes initially to pursue a more modest course and opts for a program of workshops, non-credit classes, and similar activities, an individual should be hired at a somewhat lower level (probably Applications Programmer II, with emphasis on teaching background). In addition to teaching, this individual would be responsible for the general oversight of the computer facility, for supervising the activities of employee (1) above and those of

the student assistants, for helping to develop overall policy for the computer facility in conjunction with the Mann Library administration and the administration of the College of Agriculture, for providing in-depth consulting support to microcomputer users, and for maintaining liaison with the faculty of the College of Agriculture. This employee would report directly to one of the senior Mann Library administrators and should also be qualified to participate in the automation planning and programs of Mann Library.

It cannot be emphasized enough that proper staffing is the key to success. Adequate staffing will permit Mann Library to consider maintaining the instructional computing facility as an addition to traditional library services; from the standpoint of the College of Agriculture, it will allow the development of a truly innovative educational program in the applications of microcomputer software.