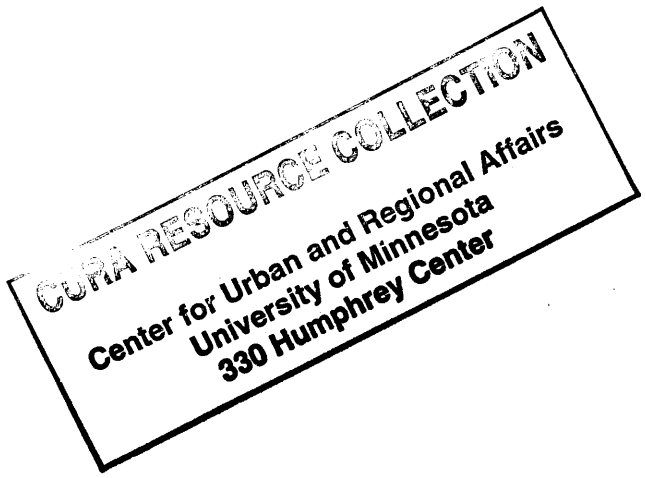

by

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and

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CURA

MICROCOMPUTER RESOURCES

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Second Edition

INTRODUCTION

CURA owns an extensive array of microcomputer resources: hardware, software, and data. This guide was prepared to aid researchers and staff in identifying the tools that might help them in their work. A very brief description is given of each resource; more detailed documentation is given elsewhere.

CURA has also developed a set of policies regarding the use of these resources.

1) These resources are for the use of CURA people working on CURA projects.
2) They have also been made available to non-profit organizations to use on a short-term basis, but this use requires special arrangement. This option is especially useful for units that have a one-time need for unique features or who want to try out a resource before they buy.
3) These resources are in short supply. Please refrain from playing games or personal use, especially during office hours.
4) Honor our license agreements. Do not copy software. The price of software is ridiculously cheap given the time and effort invested. If we need two copies, we should buy a second. Never copy licensed software to give or sell to anyone.
5) Any data processed at CURA is available in the public domain, eventually. Access to that data is restricted to the principal investigator until the first report(s) is completed.

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SOFTWARE

"Software" is what tells the machine to work and how to proceed. These are the computer instructions, the computer program. Each piece of software is designed to perform a specific task. Given the amount of effort that went into producing each piece of software, the price is very low. No software may be copied for use outside the CURA shop. The capabilities of each of our software packages are mentioned briefly below. For ease of reading and finding software you might need, the software is organized by type.

1. WORD PROCESSING

Word processing software provides a way to produce, correct, format and print text. Text can range in length from single page letters to book-length reports. All word processing systems have basic text input and editing functions. Most have ways to remove, move or copy blocks of text. There are many ways to format the text and most programs try to show you what the printed output will look like while still on the monitor, though what you see is never exactly what you get. Word processors also have mail-merge capabilities where the name and address can be merged from a list to a form letter; this allows personalized form letters.

A. XyWrite III

XyWrite has become the word processor of choice at CURA for most applications. It is a system with many capabilities. It works well with the laser printer using all features: various fonts, proportional spacing, right justification, and column printing. It is fairly easy to learn the basics, but more complex page formatting and operations take time to learn. XyWrite has mail-merge capabilities.

B. Wordstar

Once considered the word processing standard, and still the most widely used word processor for microcomputers. It is a complete system, with easy to follow menus, but it is less efficient than XyWrite and others. It is not able to fully utilize the laser printer, but for basic tasks it works fine. Wordstar includes a mail-merge module.

C. Word

Word, like the others, is easy to get started with, but difficult to master. Word's main advantage is that it can fully utilize all the capabilities of the laser printer including a near-typeset look. This program, too, has print merge capabilities and includes a spelling checker.

D. Wordproof

This is a spelling checker which works best with files created with XyWrite. It has a 125,000 word dictionary and a thesaurus. It works by checking each word in the text. When it finds one it does not recognize the program offers alternative spellings of the word; the correct one can then be inserted into the text. It is useful to correct typos but does not find misused words that are spelled correctly.

E. Bank Street Writer

This program is very easy to use. It is also quite limited in its capabilities.

2. SPREADSHEETS

Spreadsheets are designed as tools for financial record keeping and analysis. They are basically a table of rows and columns with cells at each intersection. Each cell can be treated independently, but each row is usually an entry or record. Complex mathematical formulas can be placed in different cells to calculate summary information. When the value of a cell is changed, all the other cells that are affected by that value will also be recalculated.

A. Multiplan

Multiplan is a basic spreadsheet program that is fairly easy to learn and use, but lacks some of the speed and bells and whistles of other programs.

B. Lotus 1-2-3

Lotus is the most popular spreadsheet. It allows large spreadsheets, includes a graphics module, and is faster than other spreadsheets. But it is also more complex and difficult to master.

3. DATA BASE MANAGEMENT SYSTEMS

Data base management systems are designed to help organize large amounts of data. This can range from a mailing list to an inventory system, or a bibliography. Information in a data base is organized into records and fields. A record is one item, a single name and address, a field is part of a record, the last name or the city. Data base systems have ways to access subsets of records and only certain fields (all the last names in Iowa). The data base can be sorted on fields or combinations of fields (zip code and state). Output, in the form of reports, can be generated for various needs (mailing labels, form letter headings).

A. dBase III Plus

dBase III Plus is a complete, powerful, and complex program. It can easily do all the tasks mentioned above and much more. It is a command driven system, so to operate it efficiently, the commands and their syntax must be memorized. A command might look like this: LIST FIELDS LASTNAME, FIRSTNAM FOR STATE='IA'. Fields are of a fixed length (chosen when the data base is created) so the information in those fields must be able to fit in the pre-defined length. Also part of dBase is a programming language which allows further customization of the data base system. dBase III Plus improves on a good package by giving the user most of the power of dBase while eliminating the need to program.

B. PC File III

PC File is an easy to use system with the main characteristics of dBase. It is menu driven, there are fixed length fields, you can sort on various fields and generate various types of reports. It does not have the programming language, it runs slowly compared to dBase, and the size of the fields and records, as well as the number of records, are limited. PC File is good for simple mailing list systems or other tasks where it does not pay to spend the time learning dBase.

C. FYI 3000 Plus

FYI is a free-field data base system with a maximum of three fields, but nearly unlimited information in each. Annotated bibliographies can be done in FYI, or text can be indexed for searches by FYI. FYI is not good where the data needs some structure. A word processor is used for the data entry and for designing output reports (Wordstar and XyWrite will work, Word will not). FYI is menu driven and easy to use. This latest version has full Boolean

logic, nested parenthesis, browsing, and many other features.

D. Notebook II

Notebook II is a free-field data base with up to forty fields in each record and each record can be about ten pages long. Searches can be done for information in each field or in a combination of fields. The data base can be sorted by field. Report formats are fairly flexible. Notebook is good for organizing bibliographies or research notes; it will work on mailing lists and other data bases. It is menu driven and fairly easy to use, though report formats cause some trouble.

4. INTEGRATED SOFTWARE

Integrated software is a single package that contains the tools that most people use. The core tools include word processing, data base, spreadsheet, graphics and communciations. In an integrated package the user can move from one module to the other quickly and bring pieces together in a final report.

A. Framework II

This package includes word processing, spreadsheet, data base, graphics, communications, and an outline to tie it all together. Data can easily be transferred back and forth between the spreadsheet and data base, graphs can be made instantly from the spreadsheet or data base, and the numeric tables can be transferred into text. Data from dBase III Plus can be transferred easily into Framework. Because of the many operations there are limitations. The spreadsheet is very slow and is limited in size, as is the data base. Considering all of its operations, Framework is fairly easy to learn the basics and fun to use, but it would take a great deal to master all of its features. Framework II contains many improvements to formatting and output.

5. GRAPHICS

Graphics can be worth 1,000 words for a report whether written or oral. High quality black-and-white output can be produced on our laser printers; for written reports use paper, for oral presentations, transparencies. Colored output must be created outside CURA. Chart and Atlas can yield either black-and-white or colored results. The Social Science Research Facilities Center (SSRFC) in 25 Blegen has a 6-pen plotter that can be driven by files created by these programs. The Land Management Information Center can create slides from these files for a nominal fee.

A. Chart

This business graphics package includes forty-five default graph types and the flexibility to generate other types beyond. Standard types include variations of bar charts, scatter charts, and pie charts. Publication quality output can be generated using the laser printer. See attached example.

B. Atlas-AMP

This is a mapping package for creating shaded maps or dot maps (e.g. 1 dot = 1,000 jobs). The user controls patterns and class breaks. Labels and values can be superimposed on the map. As of March 1986, boundary files exist for:

1. States of the U. S.
2. Minnesota counties
3. Minnesota school districts
4. Twin Cities metro cities and townships
5. Twin Cities metro census tracts
6. Twin Cities metro 5-digit zip codes
7. Minneapolis/St. Paul Neighborhoods (communities)

Screen dumps and plotter drawings are the two output options. See attached example.

C. Printmaster

This simple program produces signs, banners, and cards. Several typefaces and dozens of designs are available.

D. 3M Meeting Graphic Service

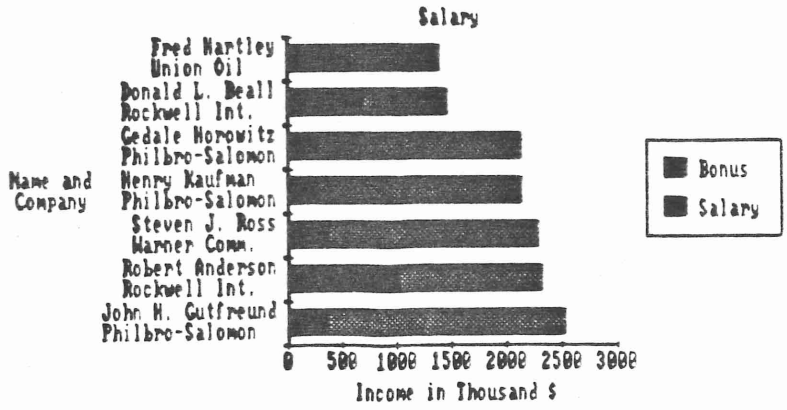
Our Philanthropy Project subscribes to this service which allows the user to graph his own data and obtain final results on a color slide. The user selects the graph type (including those from Chart and title/headline slides from a catalogue). Data is transferred using a microcomputer and modem. Slides, costing $19 to $27 each, are returned by mail within several days.

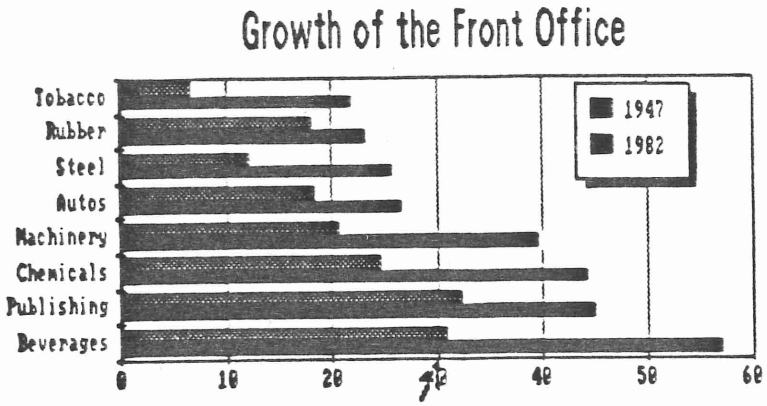
E. Others

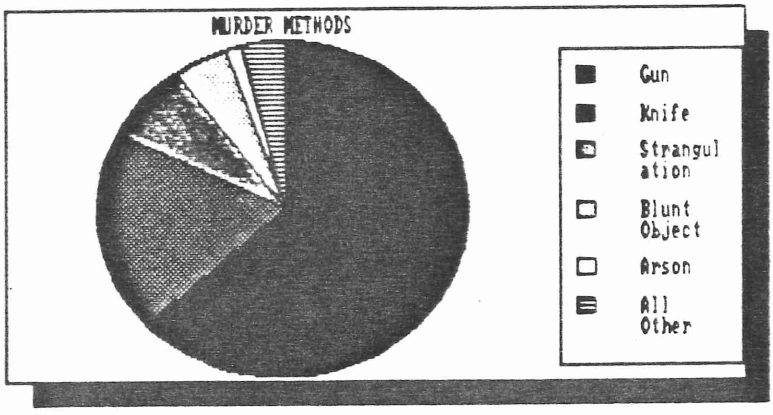
Several packages listed elsewhere have graphic output as one option.

1. Lotus 1-2-3
2. Framework
3. SPSS

SAMPLE CHART OUTPUT







THIS IS THE TITLE AREA

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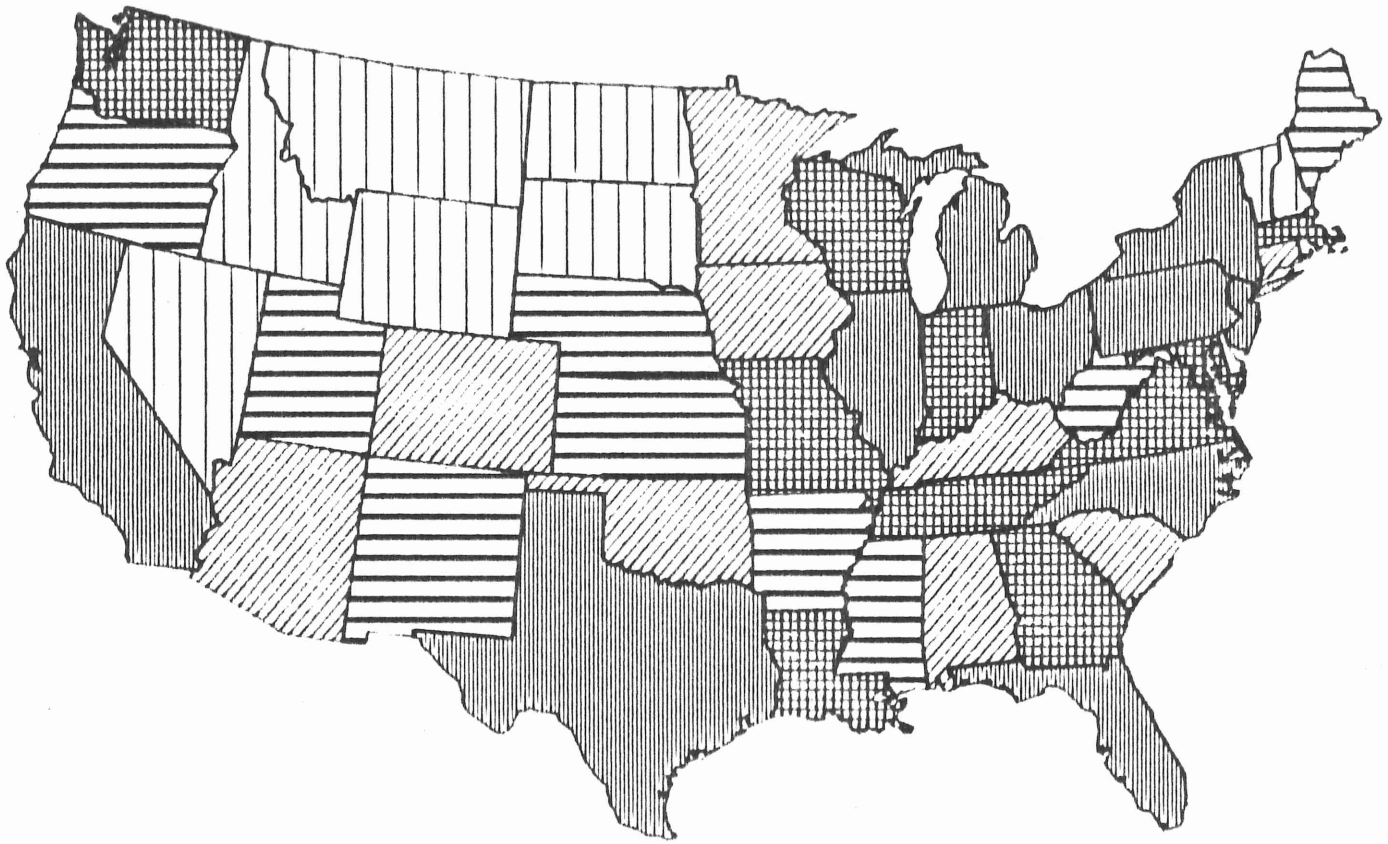

Tot Pop (000)

470 to 944

944 to 2633

2633 to 4076

4076 to 5737

5737 to 23668

6. DATA ENTRY

Though numerous means can be used for entering raw data into the computer, CURA has two programs specifically written for data entry. Both Autoida and Keypunch can be used to create a data set for analysis by the microcomputers or for use on the University's mainframe systems. A third major option is to use a data base management program. Other options might include using a text or word processor or using a spreadsheet program like Lotus 123. Most software packages will accept data base files prepared on such programs, especially when the format of the file is some standard like ASCII. A few programs demand that data be entered directly or through a conversion program.

A. Autoida

This program was designed for entering questionnaire data. It includes range edits and branching dependent on responses. The screen displays the question and possible answers, the operator responds using the questionnaire, that answer is checked and recorded, and the next appropriate question is displayed. A key and powerful feature is that SPSS control cards are generated in addition to the data file.

B. Keypunch

With this program, the microcomputer emulates an old-time keypunch, only the results are stored on disk rather than on punch cards. A key feature is that a control card can be utilized forcing appropriate column skips, alpha vs. numeric fields, etc. This program also includes a verification option.

C. dBase III Plus

dBase III Plus can also effectively be used for data entry in some

applications. But the complexity of the software sometimes makes the data entry task more difficult than need be if the data is going to be exported to some other analysis package.

7. STATISTICAL ANALYSIS

Many programs have some statistical capabilities including the spreadsheet programs, the data base programs, and even the graphics programs. Only one has the range and flexibility to meet all but the most unique needs.

A. SPSSPC+

This is the microcomputer version of the popular SPSS. It includes enormous flexibility for data recoding and transformation in addition to fifteen popular statistical functions. Besides the popular functions of frequency distribution and cross tabulations, SPSSPC+ adds new functions of cluster analysis, multiple response, and log-linear models. The program has three major advantages over the mainframe computer version (as well as many smaller advantages); it has graphic output, a built-in editor, and it is interactive.

8. COMMUNICATIONS

Communications software is used to manage telephone links between two computers. The telephone links are usually made through modems. The software turns the PC into a "smart terminal" for another "host" computer. After logging on, the PC acts like a dedicated terminal for the host computer, but files can be transferred from one computer to the other and back. Thus an SPSS file can be sent to the Cyber system for analysis, and the results file can be transferred back to the PC and saved on the disk. Or when using online data base such as DIALOG information can be downloaded to your computer.

A. COM

COM was developed by the University computer system for micro-mainframe communication. It is particularly good for communication with the Cyber and VAX systems, but it is not as good with non-university systems.

B. PC-Talk

PC-Talk is a menu-driven general purpose program with a number of useful features. For example, it can automatically dial and log on to a host computer system. This program is sufficient for most communication needs.

9. UTILITIES

Utilities are programs designed to solve particular problems or add convenience features. Here are some you may find useful.

A. Norton Utilities

Among other things the Norton utilities can restore erased files. Even if a file no longer appears on your directory, this program may be able to recover it if you have not written over it.

B. Advanced Diagnostics

The diagnostic programs use your computer's power to examine itself for problems. These diagnostics are an easy first step for determining what is wrong with your computer.

C. Vedit

Vedit is a very simple text editor with an important feature. This editor produces a pure ASCII file. These features have no embedded printer control characters or extraneous symbols. This makes Vedit the editor of

choice for computer programs or other executable files. This editor is also useful for just looking at files that you don't want to print out.

D. Multifunction Card Utilities

There are several programs to take advantage of the additional memory and features of mutifunction cards. You may find these useful even if you do not have a multifunction card in the machine you are using. A ramdisk program will enable you to put your program or data into electronic memory instead of onto diskettes. This makes the program run faster. Another interesting utility is a print spooler. A print spooler stores files that are being printed and prints them during unused moments. This eliminates the annoyance of waiting for the printer to finish before continuing working.

E. Extended DOS

Several extensions to DOS are available. These add commands to make DOS more convenient. Commands to search all directories for a file or to jump to the root directory are examples.

10. MISCELLANEOUS

A. Sidekick

This popular program resides in the computer's memory even while your main program is working. It gives you access to a calculator and calendar without leaving your main program.

B. Sideways

The mnemonically named Sideways prints files that are wider than the standard 80 columns (e.g. Lotus spreadsheets) vertically instead of horizontally.

DATA BASES

Often the most expensive part of a research project is collecting the data and getting it into the computer. CURA has developed and purchased data bases which are available for use by others. They are both general and specific in nature.

1. CITY AND COUNTY DATA BOOK

All the data that can be found in the published report; this includes dozens of statistics from many data sources including the Census of Population, Census of Agriculture, and much more. We have purchased the 1983 CCDB for all U.S. states and for Minnesota counties and cities over 25,000.

2. MINNESOTA SCHOOL DISTRICTS

For each of Minnesota's 437 school districts, we have data from the 1980 U.S. Census of Population and 1982-83 State Department of Education reports. These twenty-three data items may be characterized as documenting three areas: the community environment, the school environment, and financial information.

3. METROPOLITAN AGRICULTURAL PRESERVES SURVEY

Over 500 farmers responded to a survey about their current and anticipated farming activity. The sample was split between those currently enrolled in the Ag Preserves Program and those who have not. Each group was also asked its feelings towards the program and suggestions for improvement.

4. SPRING '85 MCSR STATE SURVEY (Education and Demographic Questions)

This file contains the fourteen education question responses and the twelve demographic characteristics of the 2,000 respondents to the survey.

5. PHILANTHROPY PROJECT SURVEY

This data base contains information on grants made by philanthropic foundations in Minnesota. In addition to dollar amounts, characteristics of the foundations are available as well. On the recipient side many characteristics are listed, among them region and constituency.

6. DAY CARE WORKERS SURVEY

The results of a survey of Minnesota day care centers. Staff characteristics as well as financial data were collected.

7. CURA MAILING LIST

This list of 3,000 names and addresses is the basis for the CURA Reporter. (Ag Extension agents and Dean-Directors-Department Heads make up the remainder.) Each name is keyed by interest area (twelve areas) for focused mailing.

8. DIALOG

DIALOG is an enormous bibliographic and resource data base. CURA subscribes to this service. Different data bases within DIALOG focus on different topics. This service is accessed over telephone lines through a modem. Peggy Wolfe has the protocol for this system. There is a charge for this service.

HARDWARE

"Hardware" means equipment. There are different kinds of equipment for different tasks.

1. COMPUTERS

All machines are IBM or IBM compatible, except the TRS80. Never "boot" a machine (CNTL-ALT-DEL or turn on) with the DOS from another machine in the A drive.

Computer	Location (Room)	Memory	DOS	Access	Comments
IBM/AT	computer room (348)	512K	3.0	A	Priority to SPSS & graphics users.
IBM/XT	computer room (348)	640K	2.0	A	Priority to data entry staff, usually available mornings.
IBM/XT	SARS (320)	256K	2.0	R	
IBM/PC	production (L334)	320K	2.0	R	
IBM/PC	production (L334)	320K	2.0	A	Priority to McKee, if needed
IBM/PC	Lukermann (325)	256K	1.1	R	
IBM/PC	AUCA (322)	256K	2.0	R/P	Available after 2:30 PM
IBM/PC	library (347)	320K	2.0	A	Priority to Wolfe and her staff
Z-160	reception (330)	320K	2.11	A	Priority to Kelley and her staff
Z-160	mobile	320K	2.11	P	May be used in individual offices
Z-150	Bennett (345)	640K	2.11	A	Priority to Bennett
Z-150	computer room (348)	320K	2.11	P	
TRS80	very mobile	24K	NA	P	May be checked out overnight. Files can be printed directly or uploaded to the IBM machines.

Access Codes:

P	"Pool"	Available to all employees. Reservations permitted.
A	"Absolute Priority"	Immediate bumps allowed by designated staff.
R	"Reserved"	No one but designated personnel may use these machines during business hours.

2. PRINTERS

Printers vary in speed and in quality of output, only three can produce letter quality. The two Laserjets are in multi-computer rooms and may be used by any computer in those rooms. Switching is manual in the production area, but handled by a LAN (Local Area Network) in the computer room.

Printer	Location (Room)	Quality	Width	Speed
HP Laserjet	production (L334)	letter	8 1/2"	325 cps
HP Laserjet Plus	computer room (348)	letter	8 1/2"	325 cps
Qume	AUCA (322)	letter	14"	45 cps
HP Thinkjet	reception (330)	draft	8 1/2"	140 cps
HP Thinkjet	mobile with Z-160	draft	8 1/2"	140 cps
HP Thinkjet	mobile with TRS80	draft	8 1/2"	140 cps
Okidata Microline 92	library (347)	draft	8 1/2"	160 cps
Epson MX100	Bennett (345)	draft	14"	80 cps
Okidata Microline 93	Lukermann (325)	draft	14"	160 cps
IBM Graphics	SARS (320)	draft	8 1/2"	80 cps
IBM Graphics	storage	draft	8 1/2"	80 cps
Epson FX-80	storage	draft	8 1/2"	80 cps

3. MONITORS

Each computer comes with a monitor for displaying text. All but the two Z-150s have a 12-inch diagonal screen; those transportable machines have 9-inch screens. All IBM machines show green characters; all Zenith machines, amber. These colors are by our choice; either color was available from both manufacturers.

In the IBM design, the monitor shows wonderful resolution of characters,

but nothing in graphics. CURA has two graphics monitors. A standard monochrome monitor is attached to Lukermann's computer (room 325) for use with Lotus. An enhanced color monitor is attached to the IBM-AT (room 348). The Zenith machines have graphics capabilities as a standard feature.

4. MODEMS

CURA has two modems which allow computers to communicate over telephone lines. The units are identical: both Hayes 1200 smart modems. These allow high speed communication. One modem is connected to the library IBM-PC, the other to the IBM-AT.