The
Academic Computing Facility
Microcomputer Newsletter
The Academic Computing Facility, New York University
Courant Institute of Mathematical Sciences
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ACF Talks in April Will Focus on Microcomputers

Each semester, the Academic Computing Facility presents a series of talks on special topics, as well as a program of introductory tutorials and lectures for new users of our computer systems. The ACF Talks scheduled for April 1986 will all focus on microcomputer use.

* On April 1, Gary Chapman, who heads the ACF's Faculty Microcomputer Lab, will present an overview of microcomputer hardware and software. The talk will be followed by a question-and-answer session.

* On April 8, Professor Benson Sundheim (Chemistry, FAS), will discuss and speak on ASYST, a software package for the IBM PC which is used for the collection and analysis of data from laboratory equipment.

* On April 15, David Spector, of the ACF's Systems Group, will speak on Kermit, a program used to transfer files between microcomputers and other computers. Kermit is widely supported at NYU.

* On April 22, Gary Chapman and Jeff Bary, both of the ACF's Systems Group, will discuss dBase III and Oracle, two database management systems.

The ACF talks being planned for May will deal with computer networks. As we receive details of times and topics, we will post them via the ACF's online news facilities and the bulletin boards at the ACF sites.

About This Newsletter...

A publication of New York University's Academic Computing Facility, the Microcomputer Newsletter is intended for current and prospective microcomputer users in the NYU community. It is one way in which we hope to provide information which will help individuals select and use personal computers and personal computer software.

The Microcomputer Newsletter is a joint effort of the ACF's Faculty Microcomputer Laboratory and the ACF Documentation Office. We welcome your comments, suggestions, anecdotes and ideas. Please send them to: The ACF Microcomputer Newsletter, c/o Gary Chapman, ACF Microcomputer Laboratory, 251 Mercer Street, New York, N.Y. 10012. Those contributions which we feel will most benefit our readers will be included in future issues of the newsletter.

Except where by-lines indicate otherwise, this issue of the ACF Microcomputer Newsletter was written by Gary Chapman and Estelle Hochberg. It was prepared on Apple Macintosh computers and printed on an Apple LaserWriter. Stephen Rittersporn, of the ACF's Faculty Microcomputer Laboratory, used MacPaint and Pagemaker to produce the drawings in this issue. All photographs were provided by ACF Systems Group member Jeff Bary.

Newsletter Editor: Estelle Hochberg
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Ask "Dr. Micro"...

Visitors to the ACF's Faculty Microcomputer Lab ask about many aspects of microcomputer use. The most frequently received questions, however, are from people who wish to use their microcomputers to communicate with the mainframes and minicomputers at NYU. Often, people want to know how they can transfer information between their micros and one or another of the NYU computers. (Such transfers are commonly called "uploading" and "downloading"). Sometimes, however, individuals merely want to use their micros as terminals, so that they can work on one of the larger NYU computer systems. The answers to these questions all touch upon the larger subject of "telecommunications". Indeed, in many ways, connecting one's micro to the NYU computer systems is not unlike connecting to such other computer services as on-line databases and computerized home banking. Similar kinds of considerations are involved in these various communications tasks.

1. How Do I Use a Micro to Communicate with NYU Computer Systems?

This edition of Dr. Micro will be a kind of summary of information on communications that we feel might be useful to our readers. The information may go a bit beyond the barest essentials of what you really "need to know". There is an ACF writeup that deals with these essentials, however. For starters, therefore, if you do not have a copy of the Academic Computing Facility's document, DATACOM, you should probably arrange to obtain one.

DATACOM is a document which helps you set up your terminal or microcomputer for communicating with the NYU computer systems. It outlines the hardware and software that you will need, gives you dial-in information, and tells you how to configure your modem and your terminal or micro. Copies of DATACOM are available from the ACF's Documentation Office, Room 306 Warren Weaver Hall.

Once you are set up for communicating with NYU, it is quite easy to "dial in", connect to an NYU computer system on which you have an account, and work on it just as if you were using one of the terminals at an ACF site. In our experience, many of the problems encountered after the initial set-up stage (the stage that DATACOM will help bring you through) could be prevented if users had a better idea of how their dial-in connection worked.

The sketch below depicts the equipment that is salient to our little discussion of how a connection is made between your micro and an NYU computer. As you can see, the connection involves your microcomputer and modem and, at the other end, the NYU "switch" as well as an NYU computer.
When you use your microcomputer and modem to "dial up" NYU, you are actually connecting to the NYU "Computer System Selector" (or "switch"); the "switch" waits for you to choose an NYU system and then sends your call through to the system you have selected. Many people do not realize that a major part of the "switch" consists of a very large battery of modems, each of which is not unlike the modem that you are using.

**Modems.** In order to use your microcomputer for communications you need the following computer hardware and software.

- A modem, to provide a link between a computer and telephone lines
- A communications software package, to control the handling of information flowing to and from it.

There are two types of modems: *external* and *internal*. An external modem, like the one pictured above, sits outside of your computer and is connected to it by a cable. This cable (from modem to microcomputer) connects to a *serial port* at the rear of the computer; therefore, in order to use an external modem, your computer must be equipped with a serial port. An internal modem, on the other hand, is installed *inside* the computer itself, and thus requires no serial port.

No matter which kind of modem you use, a telephone wire runs from the modem to a modular phone jack on your wall.* Typically, the modem will also allow you to plug your telephone set into it. This is a convenience, because it means that, when you are not using your computer for communications, you can make telephone calls without having to first disconnect the modem and reconnect the telephone.

Most modems sold today for microcomputer use are billed as "Hayes-compatible". This means that they imitate the industry-standard modems made by Hayes Microcomputer Products, Inc. In particular, *Hayes-compatible modems* and Hayes modems will respond similarly to the same *commands*. The commands that we refer to here are sent by a communications program as special streams of characters. Both Hayes-compatible and Hayes modems will correctly recognize these characters as commands -- for example, a command to dial a specific number or to disconnect the phone.

**Communications software.** Communications software is required in order to initiate communications and to control your computer while it is communicating with another computer. It is this software which receives information from another computer system (via the modem) and displays it on your screen, and which sends your keystrokes out through the modem to the other computer. There is a wide variety of communications software for most brands of microcomputers. They range in price from free, public domain software to commercial communications packages costing between $100 and $200.

Even the simplest communications software should be enough to allow you to connect to the switch, log in to an NYU computer system, and make basic use of it -- so long as the package was written for use with your particular type of microcomputer and modem. Before you use your package to connect to the NYU system, however, you must see that certain communications "parameters" are at the correct settings. Normally, you select these by means of the communications software package itself. What these parameter settings do, roughly, is to ensure that your microcomputer system and NYU's equipment

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*A modem should allow you to make telephone calls, when you are not using your computer for communications, without having to reconnect your telephone.*

*The one exception to this rule is the by now "old-fashioned" modem with acoustic coupler, a style of modem which was popular before the modular phones and phone jacks became common. If you do not yet have a modular phone, you will probably have to use an acoustic coupler.*
both agree on the terms under which the communication is to be conducted. For example, the most important of these parameters is the communications speed (the "baud rate" or "bits per second"). If your modem were sending information at 75 baud, and the NYU systems were only capable of dealing with calls at 300- or 1200-baud, then your attempt at communication would be unsuccessful.

Normally, you use your communications software package to select the correct parameter settings for your microcomputer and modem. Guidelines as to the communications settings that will bring your microcomputer into agreement with the NYU systems are published in the ACF's document, DATACOM, mentioned above. The recommended settings are as follows.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
</tr>
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<tbody>
<tr>
<td>Speed</td>
<td>300 or 1200 baud</td>
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<tr>
<td>Duplex</td>
<td>Full</td>
</tr>
<tr>
<td>Parity</td>
<td>None</td>
</tr>
<tr>
<td>Data Bits</td>
<td>8</td>
</tr>
<tr>
<td>Start Bits</td>
<td>1</td>
</tr>
<tr>
<td>Stop Bits</td>
<td>1</td>
</tr>
</tbody>
</table>

*Full duplex* means that your communications session will be characterized by simultaneous two-way transmission of information. *Parity: None* means that none of the information "bits" being sent back and forth between the computers will be used for special error checking. *Data Bits: 8* means that each character sent between computers will be encoded in a group of eight bits. *Start Bits: 1* and *Stop Bits: 1* means that each character that is sent will be preceded and followed by a single, special bit, for purposes of synchronization between the computers.

Terminal emulation, and "intelligent" terminals. Something that you should bear in mind is that any large computer system is "unaware" that you are using a microcomputer to connect to it: from the point of view of the larger system, you are a terminal. Computers like the CYBER or NYU's VAXes only "know" about different kinds of terminals; they know nothing about microcomputers. Consequently, one of the major functions of communications software is to make your microcomputer "look like" a terminal to the larger system, and to appear to you as if you were actually sitting at such a terminal. Once this is accomplished, the larger computer will interact with your computer as if it were that terminal. If you can make your micro imitate a DEC VT100 terminal, for example, and you tell a VAX (whether VMS or UNIX) system that your micro is a VT100 terminal, then the VAX system can send commands to your system that can control your microcomputer's screen in sophisticated ways. For example, a simple command can be sent from the larger computer to yours to completely clear your screen. This is far more effective than, for example, the larger computer sending 25 lines of blanks or 25 carriage returns to clear your screen of any text that may be on it.

Different types of terminals are sometimes referred to as "intelligent" or "dumb". An "intelligent" terminal like the DEC VT100 can respond to a wide variety of commands. A comparatively "dumb" terminal (like the ADM3a) has a much smaller vocabulary of commands to which it responds. (The "dumbest" type of terminal of all is called simply a "dumb terminal" or "tty"). Your terminal's "intelligence" becomes most important when you wish to use a "full-screen" editor like FSE on the CYBER or EDT on VAX/VMS. These editors control the entire screen for the display and manipulation of text, and typically require the use of an intelligent terminal, or a microcomputer imitating one.

One characteristic of sophisticated communications software is that it

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**Sophisticated communications software will offer "intelligent terminal" emulation and will allow you to transfer files.**
will enable your micro to emulate at least one type of "intelligent" terminal. Two examples of such software are MacTerminal for the Macintosh and Crosstalk XVI for the IBM PC. Many others are available, including CKermit and Red Ryder for the Macintosh, and Realia Termulator, PCVT, and PC-PLOT for the IBM PC.

File transfer to and from other computers. In addition to "terminal emulation", sophisticated communications software will allow you to transfer (move) files from one computer to another. The two computers can be linked by telephone connection or wired directly together in some fashion. Commonly, this is done either by raw capture of text or by protocol transfer of files.

Say you wish to transfer a plain text file (e.g. called "myfile.txt") from a VAX/VMS computer at NYU to the micro in your home or office. With either method, you would start by connecting to the NYU VAX, using your communications package to do so. Raw capture might then proceed in something like the following steps.

1. You prepare to tell the VAX that you wish to list the file on the screen, by typing the command

   TYPE MYFILE.TXT

   but you do not press the RETURN key at the end of the line -- that is, you do not actually execute the command yet.

2. You tell your micro that you wish to "capture" text. The command for this differs from one communications software package to another.

3. You now press the RETURN key, telling the VAX to list your file on the screen.

4. The contents of the file will be displayed (or "listed") on your screen, and your communications software will collect each character as it appears and put it into a new file in your micro.

5. When the file has been completely listed on your screen, you give a command to your communications software to save the file it has been creating on your micro and to stop capturing characters as they come in from the VAX. This command also differs from one communications software package to another.

Raw capture can also be used to send text from your micro to another computer and is an adequate method for many situations. However, it has two important flaws. First, it can only be used with plain text files; other files, like your software itself, are called "binary" and cannot be transmitted in this way. While this may not be a problem for many micro users, the second flaw is a major one: if telephone line noise ("static") occurs while the text is being captured, your information will be garbled. Since raw capture offers no checks for such transmission errors, you are left with only ad hoc methods of verifying that all of the information in the newly transferred file is correct.

Protocol transfer offers methods of overcoming these two limitations of "raw" capture. Generally, files can be either text or binary, and there is some means of checking, during the transfer process, the accuracy with which the information is being transmitted. Many communications software packages incorporate one or more protocols. A protocol establishes a set of rules for two (or more) systems to follow in a file transfer. The rules describe how one system will send data (including information that will be used for error-checking), and how the other system should check the data as it comes in. With this

Protocols offer a means of overcoming the limitations of transfer via "raw capture".
of protocol established, the receiving system can signal the sending system, if a discrepancy is found between the data that is received and the error-checking information that has been sent along with it. While such protocols do not result in 100 percent guaranteed accuracy in the transmission of data, they come very close. Two such protocols in wide use are Xmodem and Kermit.

Most communications software packages for micros incorporate one or both of these protocols to aid in the transfer of files. However, a protocol cannot be used unless it is available on both systems involved in a file transfer. The NYU CYBER system supports both Xmodem and Kermit, while NYU's VMS and UNIX systems only support Kermit for public use. The ACF Faculty Microcomputer Lab distributes free copies of Kermit software for the IBM PC, Apple Macintosh, and CP/M systems like the Kaypro. To obtain a copy, or to learn more about Kermit, please contact the Lab at 460-7160.

### 2. Dealing With Startup Difficulties

If you are just starting out with communications products for your micro, and encounter difficulties, here are some things that you can do.

1. Check to see that your hardware is connected correctly. Go over all the instructions which came with the hardware, and make sure that you have followed them.

2. Check that you have set the communications parameters correctly. Go over the instructions which came with the software and make sure that you followed all of them.

3. If you suspect a problem with your software or hardware, contact the vendor or the manufacturer of your communications hardware or software.

4. If you cannot connect successfully to the NYU system, try connecting to some other computer facility, such as a public computer bulletin board not connected to NYU.

5. For advice from ACF staff, use a terminal to send electronic mail to "Datacom" describing your problem.
Computing Coordinators
Welcome Input from Faculty, Research Staff*

If you are a very recent addition to the growing number of computer users at NYU, you may not know about NYU's committee of Academic Computing Coordinators (ACC). Headed by Vice-Chancellor Sylvia Baruch, the ACC consists of representatives from each of the schools and divisions of the University.

The committee meets regularly to discuss instructional and research computing interests and needs, and to exchange information. Each Coordinator will both receive input from faculty and research staff in his or her school, and pass information back to them about computing facilities, discounts, opportunities for grants, and so on.

If you have any computing interests that you wish to bring to the attention of your Academic Computing Coordinator, he or she would appreciate hearing from you. A list of the current members of the ACC follows.

<table>
<thead>
<tr>
<th>School</th>
<th>ACC Member</th>
</tr>
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<tbody>
<tr>
<td>ACF</td>
<td>Sylvia Baruch</td>
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<tr>
<td>BPA</td>
<td>Max Goldstein</td>
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<td>Dental</td>
<td>Michael Moses</td>
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<td>FAS</td>
<td>Edgar Tonna</td>
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<td>Faculty Council</td>
<td>Ann Burton</td>
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<td>GBA</td>
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<td>Robert Corre</td>
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<td>Gallatin</td>
<td>Will Hansen</td>
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<tr>
<td>IFA</td>
<td>Whitney Carman</td>
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<tr>
<td>Law</td>
<td>Priscilla Soucek</td>
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<td>Library</td>
<td>Harvey Dale</td>
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<td>Medical</td>
<td>Nancy Kranich</td>
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<td>SCE</td>
<td>Martin Nachbar</td>
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<tr>
<td>SEHNAP</td>
<td>Stuart Fink</td>
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<tr>
<td>SSW</td>
<td>Lloyd Bishop</td>
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<td>TSOA</td>
<td>Carol Geisler</td>
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</table>

A Local Association for Computing in the Humanities*

If this is the first time you have read our *Newsletter*, you may not know about the Northeast Association for Computing in the Humanities. Meetings occur about once a month and are attended by faculty and other individuals from various institutions, generally in the tri-state area.

Meetings begin with a question-and-answer period in which participants discuss problems which they have been facing in the use of computers in their research and publications, and in instruction.

The second halves of meetings are usually devoted to an invited speaker. For example, at the meeting on Tuesday, April 8, the speaker will be Robert Whittaker, Professor in the Department of Classical, Oriental, Germanic, and Slavic Languages at Lehman College, who will speak on "Mapping Moscow on a Micro". At the meeting on Wednesday, March 12, the speaker was Michael Lesk of Bell Communications Research, who spoke on computerized lexicography and current efforts to make the Oxford English Dictionary available in machine-readable form.

The remaining meeting is scheduled for Wednesday, May 14. Meetings generally begin at 1:30 p.m. They take place in the IBM Building, 590 Madison Avenue (at 57th Street), in Room 15-A, on the 15th Floor.

Those interested in finding out more about the organization or in attending a meeting should contact F. Woodbridge Wilson, The Pierpont Morgan Library, 29 East Thirty-sixth Street, New York, NY 10016, or call (212) 685-0008.

*Repeated and updated for this issue from the February 1986 issue of the Academic Computing Facility Newsletter.
The 1986 MacWorld Exposition

On January 16–18, the 1986 MacWorld Exposition was held at Brookes Hall in San Francisco. The bi-annual exposition is a showcase of the new and up-and-coming in the world of hardware and software for Apple Computer Inc.'s line of Macintosh personal computers.

The highlight of the show was Apple's introduction of their newest machine, the Mac Plus. The Macintosh Plus is an extension of the Macintosh 512K computer, whose ease of use, intuitive user interface, and advanced graphics have made it the third standard industry after the Apple II and the IBM PC. From the outside, the Macintosh Plus (or "Mac+", for short) looks exactly like the Macintosh 512K, but on the inside it is a completely different machine. The Mac+ has one megabyte of memory, which can be expanded to four megabytes. It has an 800-kilobyte, double-density, 3.5" internal disk drive and, optimally, a second external drive of similar capacity. It also comes with a new "business style" keyboard, with a built-in numeric keypad and cursor keys, and a device called an SCSI.

Perhaps the single most interesting feature of the new Macintosh Plus is the addition of the SCSI port (pronounced "scuzzy", and sometimes referred to as

MacWorld Expo continues on following page.

AppleWorld 1986

On January 15–18, while hardware and software vendors were showing their newest wares at the MacWorld Exposition, Apple was holding its annual AppleWorld press conference and exposition at San Francisco's DataMart across town. This yearly event allows Apple to exhibit its newest entries in the personal, business, and educational computer markets to people from all over the world.

The conference started out with a multi-media press conference, introduced by Apple President and Chief Executive Officer, John Sculley. Mr. Sculley spoke about Apple's past achievements with the Apple II and the Macintosh families and their plans for the development of these products.

The following are foremost among these plans:

* products that will allow Apple computers to work with and communicate with computers from other vendors, including DEC and IBM
* projects that will allow all of Apple's product line to share data, peripherals, and storage
* software tools and products that will work on all Apple computers.

This press conference was also the scene of Apple's latest round of product introductions. Apple's Director of Product Development, Jean-Louis Gassé, formally introduced Apple's newest Macintosh, the Macintosh Plus. In his talk, Mr. Gassé also hinted as to Apple's plans for future development of the Macintosh line, including an "open architecture" Macintosh with expansion slots, which may become available in late 1986.

College-level Courseware

Perhaps the most interesting development of the AppleWorld Exposition was Apple's announcement of the Academic Courseware Exchange (ACE) through which members of the Apple University Consortium, including NYU, can obtain courseware for Apple computers at very affordable prices. Subjects covered by the ACE include biology, history, chemistry, physics and more. Also available through the program are tools for courseware authoring, including a system called LessonWriter, developed by Drexel University. LessonWriter allows instructors to develop lessons on a disk and give both the disk and a lesson player to a student. "Authoring" with LessonWriter appears to require only a small investment in time and money.

AppleWorld Expo continues on following page.
"the scuzzy port"). SCSI is an acronym that stands for Small Computer Standard Interface. The SCSI was developed in the 1970's by NCR Corporation. The advantage of the SCSI is that it allows a user to connect a variety of peripherals to the Macintosh, including disk drives, tape drives and other products currently on the market.

Other new products were introduced at the MacWorld show. The following seemed particularly interesting.

* The LaserWriter Plus, a new version of Apple's popular laser printer. It contains seven new typefaces and prints faster than the original LaserWriter.

* A variety of hard disk drives, from a number of manufacturers, that take advantage of the SCSI port on the Macintosh Plus.

* A number of "page-generation" or DeskTop Publishing tools, including new versions of Aldus Corporation's PageMaker, Manhattan Graphics' ReadySetGo, and Boston Publishing's MacPublisher.

* An optical character reader from A Baton Incorporated which can read an entire page of text in 30 seconds.

* A Japanese language (Kanji based) word processing system from Sensei Software.

- David Spector

Discounts on Macintoshes and Other Apple Products through NYU

Individual members of the NYU community, as well as NYU departments and schools, are eligible for substantial discounts on Macintosh computers and other products from Apple Computer.

For departmental purchases, there are discounts through Apple's University Purchase Program on a large variety of Apple equipment. Generally, the prices seem very good. Contact Cathy Chapman at NYU's Purchasing Services Division (598-2674) for information and for the latest price list.

Under an agreement between NYU and Apple, individual purchases by NYU students, faculty, and staff are handled by Computer Era, an Apple dealer here in New York City. The purchase plan offers package prices for individuals that are also very good -- even better, in fact, than the prices printed in the last issue of the ACF's Microcomputer Newsletter. For example, a 512K Macintosh is $1099, while the new Macintosh Plus is $1549. Both prices are exclusive of tax, a $35 processing charge, and a $27.50 shipping fee for anywhere in the tri-state area. Other packages are available. Computer Era advertises their offerings in campus newspapers. You can also call them for information, if you'd like, at (212) 686-1705 (ask for Irene Cooke). Computer Era is located at 460 Park Avenue South, at 31st Street.

- David Spector
Microcomputer Discounts through NYU

New York University has arranged discounts on microcomputer purchases for students, faculty, and staff. You must have a valid NYU ID card to be eligible. The following table summarizes the discounts available through NYU and indicates whom you should contact for further details. Some of the items listed below require special order forms. These order forms can be picked up at Purchasing Services Division, 269 Mercer Street, 5th Floor, or the Office of Student Life, Room 208 Loeb.

The editors of this Newsletter would like to remind our readers that, in a city like New York, it pays to shop around. The Apple and Zenith discounts do seem to be particularly good deals. Nonetheless, we recommend that you scan the ads in newspapers and microcomputer magazines. Local merchants frequently offer competitive prices and "specials" that compare well with at least some of the discounts shown below.

Apple

Computer Era (NYU Purchase Plan) (Cf. page 10)
460 Park Avenue South
New York, N.Y, 10016
(212) 686-1705
Contact: Irene Cooke

Contact dealer directly for information and order forms.

Future Information Systems
95 Trinity Place
New York, NY 10006
(212) 732-3905
Contact: Karen Guthman or Lou Figliozzi

Compaq/Sharp

Future Information Systems
95 Trinity Place
New York, NY 10006
(212) 732-3905
Contact: Karen Guthman or Lou Figliozzi

DEC

Digital Equipment Corporation
One Penn Plaza
New York, NY 10119
(212) 714-6339
Contact: Barbara Birkett

IBM

IBM/NYU Discount Arrangement (Cf. page 12)
Dataflex Corporation
777 New Durham Road
New Edison, NJ 08817
1-800-526-6974
Special order form required.

Future Information Systems
95 Trinity Place
New York, NY 10006
(212) 732-3905
Contact: Karen Guthman or Lou Figliozzi

Kaypro

Village Computers
687 Broadway
New York, NY 10012
(212) 254-9191
Contact: Keith Doyle

Radio Shack

Tandy Corporation
100 Route 22, Center Isle
Springfield, NJ 07081
(201) 376-3000
Contact: Mick Nuspl

Zenith

Zenith Data Systems
Belmont & City Line Ave.
Bala Cynwyd, PA 19004
Contact: 1-800-842-9000 Ext.12

40% discount on Zenith desktop and portable units

40% discount on Z29A terminals

Special order form required.
IBM Personal Computer Package Prices

A recently negotiated purchasing agreement between NYU and IBM now makes IBM PC's, PC/XT's, and PC/AT's available at about 37% off list price. Under the plan, several packages are offered to matriculated students, faculty and staff through Dataflex Corporation, a dealer which sells and services both IBM products and other brands. Order forms, prices and other details can be obtained from the Dataflex Corporation (1-800-526-6974). The following are some prices of sample configurations. They reflect a 37% discount from list price. All prices are before tax, shipping ($27) and handling ($75).

- **Package #1**: (5150-M66); PC with 256k, one (1) - 360k drive; Monochrome Monitor; Monochrome video adapter/printer port; $1588.
- **Package #2**: (5160-M78); PC/XT with 256k, two (2) - 360k drives; Monochrome Monitor; Monochrome video adapter/printer port; $1950.
- **Package #3**: (5160-M86); PC/XT with 256k, one (1) - 360k drive, 10 Meg Hard drive; Monochrome Monitor; Monochrome video adapter/printer port; $2785.
- **Package #4**: (5170-239); PC/AT with 512k, one (1) - 1.2Meg drive, 30 Meg Hard drive; Monochrome Monitor; Monochrome video adapter/printer port; $4108.

**Popular Options**

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Model</th>
<th>Additional Cost</th>
</tr>
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<tbody>
<tr>
<td>IBM</td>
<td>DOS 2.1 (4120)</td>
<td>$54</td>
</tr>
<tr>
<td>IBM</td>
<td>DOS 3.1 (4211)</td>
<td>54</td>
</tr>
<tr>
<td>IBM†</td>
<td>Proprinter and cable (5201-001)</td>
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<tr>
<td>IBM†</td>
<td>Color Monitor (5153-001)</td>
<td>428</td>
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<td>IBM†</td>
<td>Color Video Adapter (4910)</td>
<td>154</td>
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<tr>
<td>AST</td>
<td>6 Pack Plus w/ 384k</td>
<td>285</td>
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<td>AST</td>
<td>Advantage Board w/ 128k</td>
<td>355</td>
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<td>AST</td>
<td>Advantage Board w/ 512k</td>
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<td>Epson</td>
<td>Fx 286 printer</td>
<td>515</td>
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<td>Oki</td>
<td>Oki 193</td>
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<td>Princeton Graphics</td>
<td>HX-12 Color Monitor</td>
<td>450</td>
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<td>Hayes</td>
<td>1200 External Modem</td>
<td>388</td>
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<td>Hayes</td>
<td>1200B Internal Modem</td>
<td>356</td>
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<tr>
<td>Amdek</td>
<td>310A Video Monitor</td>
<td>149</td>
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<tr>
<td>Taxan</td>
<td>Video Monitor (model #122)</td>
<td>149</td>
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<tr>
<td>Maynard</td>
<td>10 Meg Hard Drive (PC, XT)</td>
<td>535</td>
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<td>Maynard</td>
<td>20 Meg Hard Drive (PC, XT)</td>
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<tr>
<td>Maynard</td>
<td>20 Meg Maynestream Back-up</td>
<td>975</td>
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</tbody>
</table>

*Note: You will also need an operating system such as DOS. It is a requirement for system operation (see options list).

†Additional shipping charges on some orders.

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**Please note:** IBM's announcement of price decreases, as we go to press, is likely to also result in lower package rates for NYU students, faculty, and staff.

Workshop on Teaching Computers and the Humanities Courses is Planned for Summer 1986

From July 31 to August 2, there will be a workshop, at Vassar College in Poughkeepsie, on teaching computers for humanities courses. The program is being sponsored by both the Association for Computers and the Humanities and the Alfred P. Sloan Foundation, and is intended for faculty in colleges and universities who are teaching or developing courses that incorporate the computer for use in liberal arts fields. It will consist of panel discussions by educators in the field, as well as group discussions involving all workshop participants. The forum, in general, will focus on the kinds of computing knowledge appropriate for people inclined towards the liberal arts. A second focus will be the ways an educator can present this material to his or her students.

The keynote speaker will be Robert L. Oakman, author of Computer Methods for Literary Research. Keep in mind that the registration deadline is June 1 and that the workshop is limited to 100 participants. The general registration fee is $35 for the program and an additional $25 each for both room and board. For more information on how to register, write to Elle Gohl, Workshop Coordinator, Box 252, Vassar College, Poughkeepsie, NY 12601.

EDUCOM Sets Conference Dates for 1986 and 1987*

EDUCOM, a non-profit consortium of 500 colleges and universities, has chosen dates for its next two annual conferences.

EDUCOM '86 will be held November 11-14, 1986 at the Pittsburgh Hilton. It will be hosted by Carnegie-Mellon University, the University of Pittsburgh, and the Pittsburgh Council on Higher Education.

EDUCOM '87, hosted by the University of Southern California, will be held October 27-30, 1987 at the Los Angeles Hilton.

EDUCOM was founded in 1964 to facilitate the introduction, use, and management of information technology in educational settings. The EDUCOM conference is a forum for policymakers concerned with computers and communications technology on campus. EDUCOM '85 in Austin drew 700 people. A typical conference audience includes academic presidents and vice presidents, deans, computer center directors, librarians, and faculty, as well as representatives from industry, government, and foundations.

For additional information, contact Carol Parysz at EDUCOM, P.O. Box 364, Princeton, N.J. 08540 (609-734-1888).

Also of Note...

The following conferences or events might also be of interest to the academic community at NYU.


Also of Note continues on Page 26.

*EDUCOM is repeated from the February 1986 issue of the Academic Computing Facility Newsletter. Also of Note was extracted from "Calendar of Events", Communications of the ACM, Volume 29, Number 3, March 1986.
Faculty Doings

For this issue of the ACF's Microcomputer Newsletter, we contacted several faculty members and asked them to describe, in just a few sentences, some of the ways in which they have been using their microcomputers for research or instruction. The result is Faculty Doings, an unsystematically-arrived-at sampler of faculty microcomputing activity at NYU.

These informal reports are not intended to fully represent the range of work being done. We do think, however, that they suggest a diversity in microcomputer usage among the faculty at NYU, one that has struck us for some time now, in speaking to visitors to the ACF's Microcomputer Laboratory.

As we said, we gathered our information for Faculty Doings in an informal and unsystematic way. By and large, our "respondents" are those recent visitors to the Lab who happened to have been at their phones when we called. We would be delighted to hear from other members of the faculty and research community at NYU. If you would like to contribute a similar sketch of your microcomputer activity, please call Gary Chapman at 460-7160 or Estelle Hochberg at 460-7397.

• Charles Affron (French and Italian) is using an IBM PC/XT for writing. He recently completed a book-length manuscript on his PC, a critical edition of Fellini's 8 1/2. Professor Affron uses Nola Bene, a wordprocessing program designed specifically for academic uses. He noted that it is exceedingly easy to use for foreign-language wordprocessing.

• James Christenson (Physics) is using an IBM PC/AT for computer-assisted design. His AT is equipped with a high-resolution Artist-I video card and Mitsubishi monitor, and is being used to generate drawings and schematics, as well as to design a variety of complex printed circuit cards. All of this work is being done in connection with the development, by the High Energy Physics Lab, of a new detector for the study of proton-antiproton collisions at very high energies. The detector will be installed at Fermi Lab near Chicago.

• With funding from an NYU Curriculum Challenge Grant, Louis Karchin (Music) is now in the process of obtaining an Apple Ile computer, a Yamaha DX-9 synthesizer, as well as ear-training software, all for instructional purposes. Students will be using this equipment to develop aural skills. In addition, they will be able to input musical exercises, see them displayed in musical notation on the Apple Ile's screen, play them through the computer's speaker, and make changes via the computer keyboard.

• Gary King (Politics) uses an IBM PC/XT for word processing and statistics. The statistical analyses which he performs on his PC primarily involve a software package, GAUSS, which specializes in matrix manipulation. He uses GAUSS in analyzing election and congressional roll call data and for exploring new statistical techniques for dealing with event count data.

• Jules Moskowitz (Chemistry) has recently obtained the new AT&T 6300 Plus. Professor Moskowitz' current research focuses on developing Monte Carlo methods for solving the Schrödinger equation. He uses microcomputers for two main purposes: as a terminal for accessing larger computer systems, and for developing and testing FORTRAN programs which are used in his research.
- Elazar Pedhazur (Educational Psychology) uses an IBM PC/AT for writing and statistics. He is currently working on a book which will contain a chapter discussing various statistical software packages for the IBM PC family. These will include SPSS/PC, BMDP, SYSTAT, Minitab, StatPack, and others. Interestingly, he has found that some of these packages contain features which are not duplicated in others, features which may be needed for particular research applications. Examples are Minitab’s matrix operations and SYSTAT’s multidimensional scaling routines.

- Benson Sundheim (Chemistry) is using an IBM PC/XT with the software package ASYST for approximately half of the demonstrations in his course "Computers for the Working Scientist". ASYST is an extremely powerful and versatile tool for the collection and analysis of data. Typically, the data is output by laboratory equipment to which a PC is connected. (Prof. Sundheim will be speaking on ASYST on April 8; see page 2 for details.)

- Daniel Walkowitz (History) uses no fewer than three computers for his work: an IBM PC, a Kaypro 2, and a Radio Shack Model-100 laptop computer. Professor Walkowitz typically collects notes while doing research at various archives, typing them directly into his laptop computer. Later, he transfers these notes to his PC or his Kaypro, where he uses Superfile software to store and index his text for future reference. The transfer is an easy one, via null-modem cable. For wordprocessing, he uses WordStar, because it is compatible with both his IBM and Kaypro computers.

*In the photos to the left and below, Professor Sundheim is using ASYST to prepare a graph on his IBM PC.*
Microcomputer Activity  
in NYU's Schools and Divisions

These informal accounts of microcomputer activity at the School of Law and the Dental Center were submitted by their Academic Computing Coordinators. In future issues of this Newsletter, we hope to feature similar accounts of microcomputing at other schools and divisions within NYU. If you have information that you feel would be of interest, please contact Estelle Hochberg (460-7397) or Gary Chapman (460-7160). Your "report" can consist of just a few paragraphs, outlining what is being done with micros in your school or department, or perhaps focusing on a particular application.

At the School of Law

The NYU School of Law is engaged in a variety of microcomputer activities. Every member of the faculty has an IBM PC, either at home or in his or her office. The principal use at present is wordprocessing, although an increasing number of faculty members are beginning to explore additional applications, such as setting up their own databases of information. In addition, approximately 40 faculty members have been trained in accessing on-line legal databases, particularly Lexis and Westlaw.*

The Law School has established a laboratory for students. Currently, it has six IBM PCs. The hope is that the number of PC's for student use will be increased over time.

Plans are being made to establish, in the near future, an experimental Local Area Network (LAN) connecting several PC's. The LAN is expected to facilitate the sharing of devices and of information among faculty members. The school hopes to network all of their PC's at some point in the future.

The Law School is the acknowledged national leader in developing interactive video disk exercises for instruction in the legal professions, and is now planning to experiment with general computer-assisted-instruction programs for student use.

Desktop publishing is one microcomputer application which is being considered at the Law School for the future. It may soon become practical to take advantage of microcomputer-based page-composition systems, so as to bring "in-house" more of the steps involved in actually publishing the Law School's journals and other publications.

- From the notes of a telephone interview with Harvey Dale, Professor at the School of Law.

At the Dental Center

A card reading system interfaced with a TRS-80 Model 4 is now being used by all clinical and basic science departments to grade dental student examinations and provide the departments with individual and class performance statistics. The program also provides statistical evaluation of each exam question, and a plot of class grade performance. Instructor comments can also be added to any examination question. In addition, students are provided with individual reports, which include a sum and list of incorrect answers, plus instructor comments if desired, together with correct answers and grades.

At the present time, department multiple choice examination questions and correct answers are being entered into a program to provide each instructor with a listing of questions he has used over the years in a given course subject. The years in which those questions were used are also recorded. Review, editing, additions, deletions and printout capabilities are included, as well as randomization of the questions on whole examination inputs.

- Edgar Tonna  
Professor Tonna is Chairman of the Department of Histology and Cell Biology, and Director of the Institute for Dental Research.

*Lexis and Westlaw are the two premier on-line legal databases, providing complete text for a wide variety of legal material, including statutes, regulations, and court decisions.
What's New in the ACF's Faculty Microcomputer Laboratory

Since the last issue of this Newsletter, the ACF's Faculty Microcomputer Lab has continued to acquire a variety of interesting new microcomputers and microcomputer products. The hardware and software in the Lab are available to faculty for purposes of demonstration. (Lab hours are given at the bottom of this page.)

New Hardware

The AT&T 6300 and AT&T 7300 are two machines which represent AT&T's first forays into the microcomputer field. The 6300 is a highly compatible "clone" of the IBM PC; it is faster than the PC, however, and can display both high resolution text and monochrome graphics. The 7300 is AT&T's effort to put its UNIX operating system in a microcomputer. At present, the Lab possesses virtually no software which runs on the 7300.

PC-MacBridge is a combination of hardware and software for the IBM PC. It allows one to attach a PC to an AppleTalk network and thereby to share an Apple LaserWriter printer with other machines on the network. The product appears to have some "bugs" in its current release.

Micro-Design Keeper is a hard-disk file server for an Apple Macintosh network. The file server allows users of different Macs on the network to share files and to store their own files on its hard disk.

The lab currently has an AppleTalk network consisting of two Macintoshes, one Apple Lisa (pretending to be a Mac), one IBM PC/AT (utilizing PC-Macbridge), an Apple LaserWriter printer, and the Keeper.

ThunderScan is an inexpensive peripheral device for the Macintosh which permits the "digitization" of pictures (say a drawing or photo) for storage and use on a Macintosh. ThunderScan hooks up to an Apple ImageWriter dot-matrix printer attached to a Mac. As a picture is fed through the printer, the ThunderScan cartridge (mounted in place of the printer's normal ribbon and print head) passes back and forth over the page and transmits information about the picture through the printer to the computer. In this way, an image on a piece of paper is transferred to a MacPaint document for use on the Mac. (See illustration on following page for an example of a photo digitized with the ThunderScan and then printed out on an Apple LaserWriter printer.)

New Software

PageMaker is the leading page-composition system for the Macintosh. It enables a user to design and lay out documents up to 16 pages in length, incorporating text and graphics elements.

Excel, the premier Macintosh spreadsheet, features an enormous matrix (256 columns by 16,384 rows). It enables you to create spreadsheet macros simply by asking Excel to "record" your keystrokes!

MacEqn is a desk accessory which enables a Macintosh user to create complex equations and then incorporate them into documents created with such word processing programs as Apple's MacWrite and Microsoft Word.

Windows is Microsoft's long-awaited windowing environment for the IBM PC family. It imitates the icon-oriented, mouse-driven interface of the Macintosh but, like several other products which attempt the same thing, is rather slow in its operation.

The Norton Editor is a small inexpensive text editor for the IBM PC, featuring split-screen editing and auto-indenting features for program writing. Only disk capacity limits file size, which is somewhat unusual among inexpensive editors.

ADA Programming is one of Control Data Corporation's set of PLATO instructional "courseware". It teaches the ADA programming language and can be used on graphics-equipped IBM PC's.

Oracle is one of the premier relational database management systems. The version which the Lab has acquired runs on IBM PC's (equipped with hard disks), although versions of Oracle exist for most.. What's New continues on the following page.

About the Faculty Microcomputer Lab

The ACF's Microcomputer Laboratory was established at the beginning of the Fall 1984 semester. It is a place where faculty and research staff can learn about different kinds of microcomputer hardware and software. The Lab is located in Room 317 Warren Weaver Hall. Visits to the Lab are by appointment. Please call 460-7169 to arrange a time. Hours between noon and 8:00 p.m., Mondays through Fridays, are usually available.
major brands of computer systems.

Public Domain Software. The Lab has begun to collect some of the more popular and useful public domain programs both for IBM PCs and the Macintosh. For example, we have recently acquired the latest version of PC Kermit (V. 2.28), as well as an updated version of PC-VT (which is an excellent VT-100 terminal emulation program featuring both XModem and Kermit file transfer capabilities).

The Washington Square Arch. The photograph to the left was taken by Jeff Bary. Steve Rittersporn used Thunderscan to digitize the photo, and then "touched up" the output with MacPaint. The result was printed on an Apple LaserWriter. It is shown above. (See page 17 for more about Thunderscan.)
Trends in the Microcomputer World

The world of microcomputers continues to change rapidly. New products are announced on an almost daily basis, and established hardware and software products seem to become outdated with disconcerting speed. Here are our informal observations of what appear to be some major trends in the industry today. They are gleaned from a perusal of popular microcomputer journals and magazines.

Friendlier Machines

Now that there are millions of microcomputers in offices and homes, computer manufacturers and software designers are seeking ways of making machines easier to use and thereby more attractive to prospective purchasers. From a reading of popular microcomputer magazines, one might surmise that, in some ways, this effort toward friendlier computers is an attempt to improve upon the IBM PC, a machine which many consider user-unfriendly. In particular, there has been the emergence in the last few years of the Apple Macintosh, with its emphasis on ease of use. More recently, we have seen the development of two machines, the Atari 520ST and the Commodore Amiga, which closely mimic the way in which a Macintosh interacts with its user.

Designers of software for the IBM PC have not been unresponsive to this trend. There are now a number of software packages which try to give a friendlier and more intuitive look to IBM PC's. Examples of such products are Microsoft Windows, IBM Topview, Quarterdeck's Desqview, and Digital Research's Gem. Unfortunately, all of these products are hampered seriously by the fact that IBM PC's generally are not as powerful as some of the more recent machines. The new "friendly" products are add-on software enhancements which the PC was not engineered to handle; consequently, the performance of the computer generally suffers when one of these packages is used. By contrast, the design of the standard Macintosh software went hand-in-hand with the development of its hardware. To date, none of these PC products has emerged as a clear leader in that segment of the PC software market, and it is not clear whether the goal which they seek to achieve -- a standard, friendly interface for users of the IBM PC -- will (or can) be realized.

It is also unclear what the future holds for companies which, like Atari and Commodore, have introduced innovative but unproven machines. It is widely agreed that the home computer market has diminished markedly, that the corporate marketplace strongly favors the IBM PC, and that Apple dominates in educational and technical circles.

Lap-Top Microcomputers

One of the more exciting developments of the last few years has been the introduction of microcomputers which are small enough to be considered truly portable -- hence the term "lap-top". These machines, and there are probably a couple of dozen different ones, are usually "clones" of the IBM PC. It might be supposed that they are intended largely for business people who use IBM PC's in their offices. Many such individuals would benefit when they go into the field, from the availability of information stored on their computer and from software enabling them to make presentations, do analyses, or gather information at different sites. Clearly such machines can be of considerable use to lawyers, accountants, journalists, sales personnel, and so on.

The practicality of such truly portable machines (weighing between 10 and 15 pounds) is also evident in an academic environment. For example, the owner of a lap-top can take it to the library, type in information gathered while doing research, and then transfer that information (via floppy disk) to a PC in the office or home for use when writing papers.

The major problem with lap-top computers to date has been the generally poor quality of their displays. Usually LCD (liquid crystal display) technology is used, as in digital watches. Despite steady improvements, characters on LCD screens tend to be hard to read under normal lighting conditions. Among alternatives that have been suggested for the future are inexpensive and lightweight electroluminescent or gas plasma screens.

In recent months there has been a rumor that IBM would announce a lap-top computer. (It may no
longer be a rumor by the time this newsletter is published.) An associated rumor has been that the display on the IBM lap-top will be detachable. Thus, in the future, when better display technology is available for lap-tops, owners could upgrade their machine with a new screen.

IBM PC Clones -- Cheaper and Better?

Since the IBM PC emerged as the standard microcomputer for serious wordprocessing, financial, and database applications, a large number of manufacturers (including AT&T, Compaq, and Zenith) have produced "imitation" PC's. These machines are attempts to provide the same functionality as an IBM PC, while offering some practical advantages over the PC. That is, they are meant to be capable of running the same software and of utilizing the same hardware add-ons. Typically, they also cost less, include more features as part of their basic price, and run faster than an IBM PC.

Unfortunately, to avoid legal complications, no PC "clone" can be an exact replica of the IBM machine. As a result, each of these computers suffers from at least a very small degree of incompatibility with the PC. However, the vast majority of standard software packages and hardware peripherals designed for the PC do work well on such clones.

"Clones" are machines that attempt to provide the same functionality as an IBM PC, while offering some practical advantages over the PC.

At this point, it is difficult to see why most potential users of an IBM PC should not actually purchase one of these PC clones. The only caveat is that owners of a clone should be cautious when purchasing software and hardware, and make certain that the product which they are considering will, in fact, work on their particular machine.

Mass Storage Devices

Most microcomputer users have machines equipped only with drives intended for floppy disks. They use the floppy disks to store the application programs which they are using, as well as their own information -- document files, data, and so on. Typically, a floppy disk can store the equivalent of from 100 to 200 pages of text (400,000 characters). A computer user who is working with a large quantity of information may need a great many floppy disks just to store it. Such a situation can be inconvenient, and a real nuisance when there is a need to rapidly find a particular piece of information.

Hard disks. The conventional alternative is to add a "hard disk" to the micro. Unlike floppy disks, hard disks are not removable, but are installed in your machine. One hard disk can hold as much information as 30 or more floppies. Typical sizes of hard disks for micros are ten megabytes (10 million characters) and 20 megabytes (20 million characters).

In the past year or so, there has been a rapid decline in the price of hard disks. A few years ago, a hard disk for a PC might have cost between $1500 and $2500; today, prices start at as little as $500. Because of the strong competition among manufacturers in this field, we can probably look forward to a continued lowering of prices.

Optical disks. Another development in the area of "mass storage" devices is the emergence of optical disks. These disks are similar to the high-fidelity compact disks ("CD's") which have become popular in the audio field. To use them, you need a special disk drive which incorporates a laser unit for reading the disk. Like CD's, optical disks are physically small, but they are capable of storing large quantities of information, ranging from 100 million to 500 million characters of information on a single disk! It is thus becoming feasible to store on one optical disk such reference works as encyclopedias, or entire databases and other vast collections of information. Indeed, it has been suggested that the microcomputer will become truly useful -- both inside and outside of the office -- only when comparable quantities of information are ready at hand for reference purposes. 

It is becoming feasible to store on one optical disk such reference works as encyclopedias. Nonetheless, it is still "early days" for optical disks.
A great deal of progress has been made in this field over the past couple of years, and the first commercial products are now becoming available. Nonetheless, it is still "early days" for optical disks. For one thing, there is the problem of making these disks and optical disk drives affordable. However, the most difficult problem associated with optical disks is technological; while it is fairly easy to make optical disks that can be read, it is far more difficult to make ones that can be both written to and read by users. An optical disk is read by a laser which looks for little "pits" that have been burned into the disk media. Since information is written to an optical disk essentially by burning marks into it, under current technology, once information has been stored on the disk, erasing it or replacing it with new information is extremely difficult. To date, there are only "write-once, read-many-times" (WORM) optical disks.

**Desktop Publishing and Laser Printers**

Two developments in the microcomputer field have pointed the way toward what many regard as a revolution in small-scale publishing: the emergence of powerful microcomputers with graphics-oriented displays (e.g., the Apple Macintosh), and the creation of small laser printers capable of rivaling the print quality of typesetting machines.

Page composition is of particular interest to publishers of newspapers, magazines, and journals. Recent software products enable users to do page composition on microcomputer screens. These products have been written particularly for the Macintosh, although they are also available for the IBM PC. They allow a user to manipulate both text and graphics. In addition, they offer a wide range of type styles.

Take Pagemaker, for example, a product written for the Macintosh. With PageMaker, a user can lay out, as one document, a publication of up to 16 pages in length. (Longer publications would be laid out as two or more documents.) The composed publication can be printed on an Apple LaserWriter printer and then sent to an offset printer. Alternatively, for maximum quality, it can be sent to a typesetter and produced via linotype machine.

These relatively new applications for microcomputers hold great promise for cutting publication costs in many situations. By purchasing the appropriate combination of microcomputer hardware and software (probably costing less than $10,000), one could reduce typesetting and page layout expenses. Aside from a savings in production costs, one might also cut down on production time.

**Networking Microcomputers**

The main purpose of networking is to enable several computer users to share files or devices (such as printers and disk drives). As an example, without networking, an office with three microcomputers would also need three printers if each micro were to be able to print documents directly from his or her machine. Of course, it would be possible to have just a single printer hooked up to one of the micros, but then users of the other machines would have to move their files (e.g., via floppy disk) to the other machine for printing. A convenient alternative might be to "network" all three micros (in essence, "wire them up") to a single printer.

Microcomputer networks are also attractive, potentially, as a means by which disk space can be shared conveniently among users and as a way in which users can send messages to each other. These are all features which are standard on larger minicomputers and mainframes.

For a number of years, a variety of sophisticated software and hardware has been available for networking microcomputers, especially IBM PC's. IBM itself has two different networking schemes, the so-called PC Network, and the recently announced PC Token-Ring Network. The major stumbling block to networking IBM PC's has been cost, and costs remain high. The hardware needed to turn single-user PC's into networked machines can easily cost $1000 per PC. There may also be considerable additional expense involved in wiring and installing the needed equipment.
Recently, however, a number of lower-cost networks have become available for IBM PC's. These simple, low-speed networks typically do not offer software as sophisticated as the more elaborate networks, but it is possible to hook up a small number of PC's for only $100 to $200 each and to thereby share printers or hard disk drives.

One of the most interesting networks to emerge recently is the AppleTalk network for Apple Macintosh computers. Because Apple built networking software and hardware directly into the Macintosh, it is very inexpensive to wire Macs together (approximately $50 per machine). Networked Macintoshes can share a laser printer, as they do at the Academic Computing Facility's Macintosh Lab on the second floor of the Education Building. Moreover, it is possible to obtain special hard disk units called "file servers" which, when added to an AppleTalk network, enable users on the network to store and share their files on a single hard disk. In addition, although it is not cheap, it is also becoming increasingly possible to put an IBM PC on an AppleTalk network along with Macintoshes.

It is important to remember that networking microcomputers is still a fairly "experimental" activity, even though people have been doing it now for years. There is still no single method or standard for networking. Many people think, however, that the new IBM token-ring network may provide a stabilizing influence in this field.

**Where to Learn More**

We have only touched upon some of the most important trends and areas of development in the microcomputer field. The best way to learn more about the subjects we have mentioned, as well as those we haven't, is to subscribe to one or more of the many microcomputer magazines. For example, PC, PC World, Macworld, PC Week, and InfoWorld all contain frequent articles discussing the latest trends and developments. Bobst Library subscribes to a number of popular microcomputer publications and copies are available for reference in the ACF's Faculty Microcomputer Laboratory.

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**Update on the ACF's Experimental Macintosh Lab**

Since its opening this past November, the ACF's small laboratory of Macintosh computers has become very popular. Located in the ACF's Education Building site (35 West Fourth Street, second floor), the Macintosh Lab is an experiment in making microcomputers generally available to NYU faculty and students. It is now typical for just about every Mac to be in use, and at certain hours there may be a wait for a free Mac.

An important purpose of the new Mac Lab is to enable people from a range of disciplines to become aware of what can be done with microcomputers. It is hoped that, as individuals discover ways in which they can use micros in their academic pursuits, they will be encouraged to purchase their own. (See pages 10 - 12 for discounts on Apple, IBM and Zenith computers.)

Currently there are twelve 512K Apple Macintosh computers in the Mac Lab, all connected to a LaserWriter (Apple's laser printer). Macintosh computers are powerful single-user micros. They are easy to use and quite versatile. The LaserWriter provides high quality, nearly "camera ready" printed output. Users of the Mac Lab are also provided with MacWrite, the wordprocessing program which comes with the Macintosh. *MacWrite* offers considerable flexibility in layout, font style, and so on.

To use the Macintosh Lab, you need a valid New York University ID card. New users of the Lab should borrow a "starter kit" from the operator at the Lab site. The starter kit contains the ACF's introductory document ("mandatory reading" whether or not you have used a Mac before), two of Apple's fine manuals (one for the Macintosh and one for *MacWrite*), and a blank practice disk. In addition, if you wish to keep your work, you will have to bring your own single-sided Macintosh floppy disk. (They can be purchased at the NYU Book Center for $3.00.)

*Macintosh Update* is a revision of an item which appeared in the February 1986 issue of the Academic Computing Facility Newsletter.
Readings on Word Processing and Word Processors

There is a growing literature on word processing products. Here are two publications which came to our attention recently.

• *IBM PC and Compatibles: Technical Word Processor Review Summary*. Price is $8, which covers the cost of reproduction and mailing. For more information, contact Carl A. Hein, Dunster House, Apt. 7, Swanson Rd., Boxborough, MA 01719.


NYU Book Center Will Be Selling Microcomputer Hardware

Plans are under way for a microcomputer hardware section on the lower level of the NYU Book Center at 18 Washington Place. It is expected to open this spring. A modest range of popular microcomputer peripherals will be sold, including Epson and Toshiba printers, Amdek monitors, and AST cards. The Commodore 128 home computer and the Epson Equity series of IBM PC-compatible computers will also be offered.

The new hardware section will complement the Book Center's collection of publications and supplies for microcomputer users. These include a selection of books on microcomputers and microcomputer software, as well as such items as diskettes and printer paper. Books are sold on the lower level, where the hardware items will be. Software and supplies are on the upper level.

For further information on the Book Center's new hardware section, contact Phil Christopher (598-7980).

Added to the mailing list, please write to *The PLATO Newsletter*, Control Data Corporation, HQW10S, P.O. Box 0, Minneapolis, MN 55440.

The ACF has had several PLATO workstations on campus on an experimental basis for over a year. While PLATO may be best known as a CAI system that operates on "mainframe" computers, the PLATO which the ACF has acquired runs on Control Data microcomputers. The Academic Computing Facility's three PLATO workstations are located in its Education Building site. The four courses involved in the current PLATO experiment -- Pascal, Calculus 1, Physics 1, and Chemistry 1 -- are only a small sample of what can be acquired.

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*PLATO* is repeated from the February 1986 issue of the Academic Computing Facility Newsletter.
IBM PC Maintenance Contracts
Are Now Available
to Departments through NYU*

An agreement has been reached between NYU and Dataflex Corporation to provide service on IBM personal computers, and on a variety of peripheral devices, terminals and printers. At the present time, these service contracts are available only to NYU departments, and not to individual private owners of personal computers.

Departments with IBM PC's, or other computer equipment which they wish to place under maintenance, can choose annual or monthly payment plans. If a machine develops problems, the user can place a service call to Dataflex. A Dataflex service technician will attempt to fix the machine on-site and, if this is not possible, will take the machine to the Dataflex service depot. Loaner machines are available.

The following are examples from the Dataflex price list. Prices are pre-paid and annual. They include on-site labor and replacement of parts. More detailed information can be obtained by contacting Cathy Chapman, NYU Purchasing Services Division, at 598-2674.

**Sample Packages**

<table>
<thead>
<tr>
<th>IBM PC with 256K, 2 floppy disk drives</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monochrome or Color monitor w/ adapter</td>
<td></td>
</tr>
<tr>
<td>AST 6-Pack-Plus or Quadboard with 384K</td>
<td></td>
</tr>
<tr>
<td>Epson FX185 or Okidata 192 printer</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IBM PC/XT with 256K, 1 floppy drive</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>One 10 megabyte hard disk</td>
<td></td>
</tr>
<tr>
<td>Monochrome or Color monitor w/ adapter</td>
<td></td>
</tr>
<tr>
<td>Hayes Smartmodem 300</td>
<td></td>
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<tr>
<td>Diablo 630 API printer</td>
<td></td>
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</tbody>
</table>

**Sample Individual Items**

<table>
<thead>
<tr>
<th>IBM PC (basic configuration)</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM PC/XT (basic configuration)</td>
<td></td>
</tr>
<tr>
<td>IBM PC/AT (Enhanced)</td>
<td></td>
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<tr>
<td>IBM Quietwriter Printer</td>
<td></td>
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<tr>
<td>IBM Wheelwriter Printer</td>
<td></td>
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<tr>
<td>IBM Monochrome Monitor</td>
<td></td>
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<tr>
<td>IBM Color Monitor</td>
<td></td>
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<tr>
<td>Epson FX80 Printer</td>
<td></td>
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<tr>
<td>NEC 3550 Printer</td>
<td></td>
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<tr>
<td>Okidata 92 Printer</td>
<td></td>
</tr>
<tr>
<td>Hayes 1200 baud external modem</td>
<td></td>
</tr>
<tr>
<td>Apple II+ computer</td>
<td></td>
</tr>
<tr>
<td>Corvus 20 megabyte hard disk drive</td>
<td></td>
</tr>
<tr>
<td>Bernoulli Box</td>
<td></td>
</tr>
</tbody>
</table>

$290

$304

$396

$617

$675

$136

$175

$27

$66

$153

$136

$243

$160

$80

$255

$552

$160

$541

*PC Maintenance is repeated from the February 1986 issue of the Academic Computing Facility Newsletter.
Microcomputer and Terminal for The Visually Impaired Are Installed At the ACF's Tisch Hall Site*

A combination microcomputer-and-terminal for the visually impaired has just been installed at the ACF's Tisch Hall site. The new equipment consists of a Zenith microcomputer, a large CRT display screen, and a Visualtek enlargement system, including a special unit for magnifying printed matter. With the Visualtek system, a user can manipulate and magnify objects appearing on the screen. There is also a separate device for magnifying printed matter. All are located in Room LC-14.

The Zenith microcomputer is IBM PC-compatible and can be used either as a "standalone" microcomputer or as a terminal. When used as a terminal, it can access any of the systems connected to the NYU Computer System Selector (or "switch"). A Braille terminal and printer, previously located in Room LC-8 of Tisch Hall, have been moved and now also reside in Room LC-14.

Like the Braille terminal and printer, the new equipment was funded by a National Science Foundation grant that was matched by the University. The equipment was obtained so as to give visually impaired students access to computers and computing services at the University.

Individuals who need information or help getting started with the computing equipment for the visually impaired can call Professor Doris Aaronson, of the FAS Psychology Department (598-2243), or Judith Goldberg, of the Center for Student Disabilities (Loeb Student Center, Room 701, 598-2941). Also of interest is the New York Blind Computer Users Group -- a computer club that meets every third Saturday at 2:00 p.m. in Room 565 of the Psychology Building (6 Washington Place). For information on the club call Paul Gabias (598-7668).

*Microcomputer for the Visually Impaired is repeated from the February 1986 issue of the Academic Computing Facility Newsletter.
• June 4-6 NECC 86: 7th National Educational Computing Conference
San Diego, Calif. Sponsors: ACM SIGCUE (Computer Uses in Education); ACM SIGCAS (Computers and Society); ACM SIGCSE (Computer Science Education); ACM SIGUCCS (University and College Computing Services); IEEE-CS; SCS; Association for Educational Data Systems; Association for Small Computer Uses in Education; International Council for Computers in Education; EDUCOM/EDUNET; Association for Computers and the Humanities. Contact: Susan M. Zgliczynski, General Chairman, NECC 86, School of Education, University of San Diego, Alcala Park, San Diego, CA 92110; 619-293-4538

• June 9-11 19th Annual ASCUE Summer Conference
Myrtle Beach, SC. Sponsor: Association of Small Computer Users in Education. Contact: Jack Cundiff, Horry-Georgetown Technical College, Conway, SC 29526.

Reminder: Bulletin Boards for Microcomputer Users Are Available through INFO*

The ACF maintains several electronic bulletin boards for microcomputer users. The ACF's Microcomputer Bulletin Board is devoted to information of particular interest to the community of microcomputer users at NYU. Other bulletin board facilities consist of extracts from several nationally read bulletin boards; they are particularly geared toward users of Zenith/Heathkits, Apple Macintoshes, and IBM PCs. A fifth bulletin board focuses on information about Kermit, a program which is used to transfer files between popular brands of microcomputers and many of the computers at NYU. Two recently added bulletin boards concentrate on the programming languages Pascal and Modula-2, mostly from the standpoint of their use on microcomputers.

The bulletin boards were all implemented as part of INFO, an experimental system which, at present, also offers information on logging in to the NYU computer systems. INFO and the bulletin boards can be reached via dial-in by anyone who has a modem, a microcomputer, and communications software. Here's how:

1) Connect to the NYU Computer System Selector (or "switch") by dialing 777-7600.

2) In response to the SELECTION? prompt, type INFO and press the RETURN key. (If the word "GO." appears, press the RETURN key again.)

3) This will connect you to INFO and its main "menu". To access the bulletin boards, select MICRO, press RETURN, and a second menu will appear. This menu will offer you a selection of bulletin board facilities. MICROINFO is the ACF's bulletin board for microcomputer users at NYU. Also in the menu is POST, the facility which you can use to submit a message for inclusion in MICROINFO.

*Repeated and updated for this issue from the February 1986 issue of the Academic Computing Facility Newsletter.

And have you heard...?

(Some news notes, as we go to press.)

• Apple Computer has released its AppleTalk card for the ImageWriter II dot matrix printer. This card enables an owner of an ImageWriter II to hook up several Macintoshes to the single printer. List price is $139.

• Apple has also released update versions (2.0) for both MacPascal and MacTerminal. Registered owners of these software packages can obtain the updates by bringing their original program diskettes to an authorized Apple dealer.

• IBM has released version 3.2 of the PC-DOS operating system, and has begun shipping hardware and software for its Token-Ring network.

• Zenith Data Systems was awarded the long-awaited $27 Million IRS contract for lap-top microcomputers. Zenith will be supplying the IRS with some 15,000 of its Z-171 lap-tops.
Brochure Gives Overview of ACF

This fall, the ACF came out with its first brochure. To date, approximately 3000 brochures have been distributed, primarily to faculty and graduate students. The brochure presents an overview of the services and facilities offered by the ACF. An insert can be mailed in for additional information on particular topics.

Copies of the brochure are available at the information counter at Bobst Library, and packets have been sent to departments for distribution to graduate students. If your department has not received any brochures, and you would like some, please let us know by mailing in one of the coupons on this page.

If you are just starting out on an ACF computer, or planning a research project,

Let The ACF Help You Select The Right Computing Resources for Your Project

This fall marked the beginning of Information-About-The-ACF, a modest service which provides introductory kinds of information about our computing facilities. An important purpose of the service is to help current and prospective users of ACF computers find the ACF staff member who can best help them.

Queries can be made via mail or phone. Mail inquiries should be made to Information-About-The-ACF, Academic Computing Facility, Room 306, 251 Mercer Street, New York, N.Y. 10012. Telephone inquiries (598-3513) reach an answering machine, but generally replies are made within the same day.

Would You Like To Be Placed On the Mailing List for This Newsletter?

If you would like to receive future issues of the ACF's Microcomputer Newsletter, please fill out this form and send it to ACF Microcomputer Newsletter, c/o The ACF Documentation Office, 251 Mercer Street, Room 306, New York, N.Y. 10012. (No need to send us this form if you have already submitted one from an issue of the ACF Newsletter or the Microcomputer Newsletter.)

Name: ____________________________ Please check one:

Address (a University address, if possible, please):

_____________________________________ Faculty

_____________________________________ Student

_____________________________________ Administration

_____________________________________ Staff

Check here if you would like to receive a copy of our brochure (The Academic Computing Facility: An Introduction for Faculty and Students).

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Table of Contents continues from front cover.

Update on the ACF's Faculty Microcomputer Laboratory
A variety of interesting new hardware and software products have been added in recent months, and are available for examination by faculty and research staff.

Trends in the Microcomputer World
Noteworthy trends in the microcomputer industry appear to include the development of "friendlier" and increasingly portable computers, improved IBM PC "clones", devices offering more storage capacity, and products enabling affordable desk-top publishing and the networking of microcomputers.

Update on the ACF's Experimental Macintosh Facility
The popular new laboratory of Apple Macintosh micros and a laser printer is intended to enable faculty and students to discover ways in which they can use micros in their academic pursuits.

Some Readings on Word Processing and Word Processors

NYU Book Center Plans to Sell Microcomputer Hardware

Newsletter for PLATO Users from CDC
The PLATO system for computer-assisted instruction offers finished courseware as well as a CAI courseware authoring program.

Microcomputer for The Visually Impaired Is Installed At the ACF's Tisch Hall Site
A Zenith PC-compatible microcomputer and additional equipment for enlarging printed matter have joined a Braille terminal and printer at the ACF's Tisch Hall site. The micro can be used as a stand-alone or for logging into the ACF's mainframes and minicomputers.

And have you heard...? (Some Notes, As We Go To Press)

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Note: Some articles in this Newsletter were extracted and revised from the February 1986 issue of the Academic Computing Facility Newsletter.

The Academic Computing Facility

New York University