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NEWS AND ANNOUNCEMENTS

● CAMPUS NETWORK CONSIDERATIONS

If you are considering installing a Local Area Network (LAN) or connecting to the University's campus-wide Ethernet backbone network, there are several issues that you need to keep in mind. (Two reasons for connecting microcomputers and workstations to the campus network are: provide very high speed communications with other computers on campus; use the campus network to link your departmental LANs together.) Since the campus-wide network is shared by people all over the University, there are some limitations on what you can expect to do over the network. In other words, there are some *standards* for how computers communicate across the campus network. Whether you are considering connecting either a single machine or a LAN to the campus network, you need to be aware of what the standards are and how they affect what you can expect to do over the University's backbone network.

Perhaps the most important standard you should be aware of is the *network protocols* that are supported over the network. The campus-wide Ethernet is intended to support TCP/IP (Transmission Control Protocol/Internet Protocol). This family of protocols was chosen because it can be used to interconnect a wide variety of computers from different vendors. This ability contrasts with more *proprietary protocols*. These proprietary protocols only work to connect a few pieces of a particular vendor's hardware together. Because the backbone network is intended to support the TCP/IP protocols, the *safest* thing for you to do is make sure that any network traffic you run over the campus backbone is TCP/IP traffic. This is because it is very possible that protocols other than TCP/IP will not work over the backbone network. Even if protocols other than TCP/IP work today, there is no guarantee that this will continue to be the case in the future.

So, *if you plan to connect to the campus backbone network, you should plan to use the TCP/IP protocols.* Here's an example: the protocol issue comes into play if you look at ways to use the campus network to connect several microcomputers or workstations in different buildings to a departmental minicomputer. You can choose from a variety of products to connect desktop machines to minicomputers over Ethernet. However, not all the products use the TCP/IP protocols. In fact, many products use other proprietary protocols that are not guaranteed to work over the campus network.

NEWS AND ANNOUNCEMENTS CONTINUED ON ... PAGE 79

REVIEW: MICROSOFT MAIL

Microsoft Mail is electronic mail software that lets you send and receive messages among Macintoshes over an AppleTalk network. We tested Microsoft Mail version 1.36 in two environments: a non-dedicated and a dedicated mail server environment. In this review of Microsoft Mail (MS Mail), we cover setting up MS Mail to work in the two environments, as well as using the software, hardware requirements, and some of the package's features.

INSTALLING MS MAIL

Installing MS Mail is easy. The manual even includes a one page outline of the installation process for experienced users who don't want to bother reading the manual. You install MS Mail on any Mac which is to act as the mail server. A mail server is typically a microcomputer with a hard disk that is shared by many people.

• On a *Non-Dedicated* Mail Server

When you set up a non-dedicated server, you designate one person's Macintosh to act as the server. This means that in addition to being used by that person (for word processing or other applications) the Mac is also performing the function of the server. There is a drawback to the non-dedicated approach. Since the micro is doing two jobs at the same time, the overall speed at which each task is executed will be slower.

We installed MS Mail on a Macintosh SE with a 20 megabyte external hard disk. The installation process involved dragging the MS Mail Server icon into the SE's System Folder and restarting the Mac. When you set up an MS Mail server this way, the hard disk with the server software installed on it is shared (but shared just for mail) by all the MS Mail users, including the actual owner of the Macintosh.

• On a *Dedicated* Mail Server

A dedicated server is a machine that is dedicated to doing one thing: running the server software. Since the micro is dedicated to its task, no one can use it as a personal computer. One advantage of using a dedicated server is speed. Since the micro does not have to share processing time with anyone's report writing or budget balancing tasks, mail requests are handled more promptly. Another advantage of a dedicated server is that you can put it in a secure place, such as a locked closet, and leave it on indefinitely. *If the server is always turned on*, you can depend on the service being available whenever you need it. The disadvantage to using a dedicated server is cost. You must purchase an extra Mac with a hard disk and no one can use the Mac for other tasks.

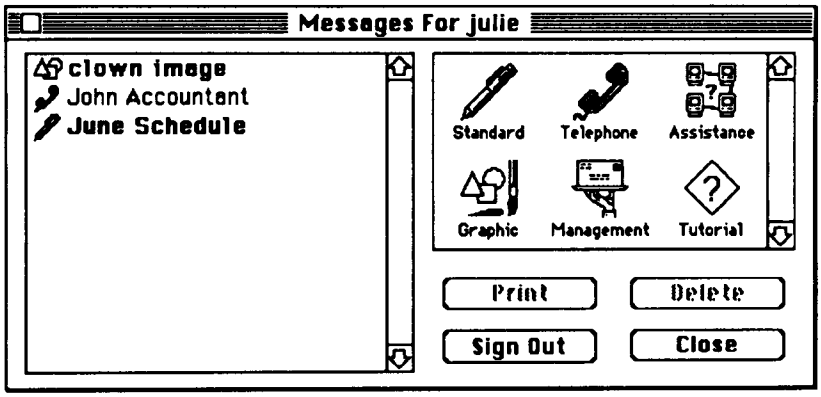
You may install MS Mail on a dedicated server all by itself or you can install it, as we did, on an AppleShare file server. (For a review of AppleShare see our August 1987 newsletter.) Our AppleShare server is a Macintosh SE with an internal 20 megabyte hard disk. It's easy to install the two server programs together. To install the MS Mail server software along with AppleShare, we dragged the MS Mail server icon into the Server Folder. Then we restarted the Mac that acts as a file server. On start up, our Mac was running two server programs: AppleShare and MS Mail.

• On Users' Workstations

The job of setting up new users on MS Mail goes to the Network Manager. The Network Manager creates a user name and password for each person who uses MS Mail. Next, each mail user must drag the MS Mail user icon into their System Folder. Finally, they must install the MS Mail desk accessory using Apple's *Font/DA Mover* software.

USING MS MAIL

MS Mail is not a stand-alone application; it's a desk accessory. Once you've installed MS Mail to work with your Mac, you sign onto MS Mail by selecting *Microsoft Mail* from the Menu and entering your user name and password. Then you get a *Messages For* dialog box; a sample is displayed here.



In our example two buttons are highlighted: *Sign Out* and *Close*. If you click on the Close button, you will close the Mail window, but remain signed onto Mail. This means if a message arrives for you, you will be notified. If you click on the Sign Out button, you will quit the Mail program. Once you've quit the program, any messages that arrive will be held on the MS Mail server until you sign onto Mail again.

You can send four different types of messages: Standard, Telephone, Assistance, and Graphic. The two most common types of message are: *Standard* for memos and *Telephone* for taking telephone messages for someone. If you want to send a picture, you use the *Graphic* type message. *Assistance* is a special type of message for reporting problems; you send these messages to the Network Manager. (See the *Sending Messages* section below for more details.)

If you double-click on the *Management* icon, you will get a dialog box. This dialog box lets you change your own pass-

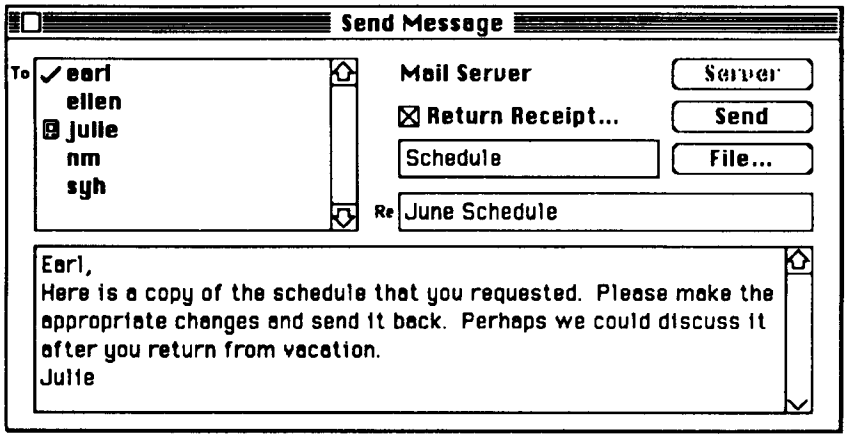
word or user name, set up an automatic sign-on procedure, or change features such as how many times the Mac beeps when there is a message for you.

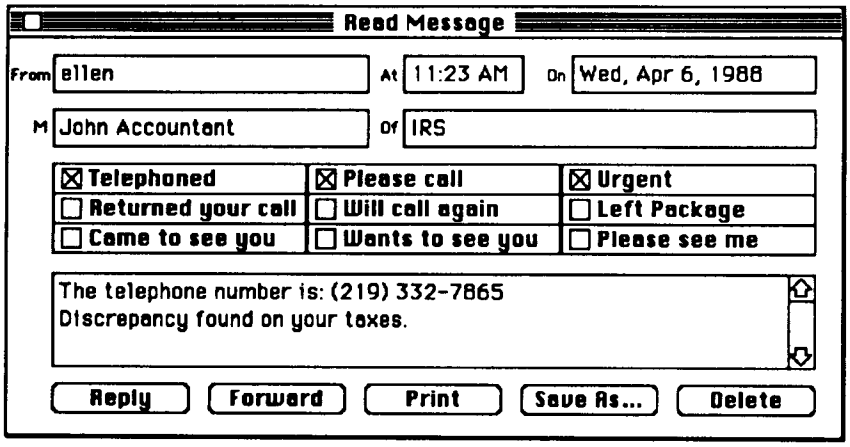
When you double-click on the *Tutorial* icon you get an on-line tutorial on how to use MS Mail. The tutorial provides a supplement to the manual; it explains things like how to send and receive messages.

The left side of our *Messages For julie* box shows the mail that is currently being saved on the MS Mail server for Julie. This dialog box also has buttons to let you print or delete existing messages.

• Sending Messages

The *Send Message* sample displayed here shows a *Standard* message session. The names of all the MS Mail users the Network Manager registered appear in the upper left portion of the box. Whenever anyone signs onto MS Mail, a tiny Macintosh icon appears to the left of their name. In our sample only *julie* is signed onto the MS Mail system. You can send messages to people on your MS Mail system whether or not they are currently signed onto Mail.





When you want to send a memo to someone, you double-click on the *Standard* icon and a *Send Message* dialog box like the one shown here is displayed. You can compose your entire message in this dialog box, or you can include an already created document along with your memo. To send a file you created with your word processing software, click on the *File...* button to get a list of files. Then select the file that you want to transfer. When you are done with your message, click on each user name that you want to send the message to. MS Mail puts a check mark by each name you clicked. Finally, click on the *Send* button to actually send the memo. In our sample we sent our message to Earl.

To send other types of messages, such as graphic images, click on the appropriate icon and follow a procedure very similar to the one described above.

• Receiving Mail

Depending on your preferences, when you receive a message, you may hear a one to three ring chime or see a small icon flashing on your screen. The *Read Message* sample displayed here shows a telephone message from Mr. John Accountant of IRS that *ellen* took for us. This message fits in the Read Message dialog box; if the message is too big to fit in the box, use the vertical scroll bars to see the rest of the message. You can handle this message in six ways. Each way, except read, has its own button. You can *read* it; *reply* to it, and then *delete* it; *print* it before you delete it; *forward* it to someone; or *save* it for later reference.

ADVANTAGES

From installation to actual use, MS Mail is easy to use. This may explain why the manual is very small; the package does not need much explaining.

If you've connected several AppleTalk local area networks (LANs) together to create an internet, you can still use MS Mail. (An AppleTalk internet is a collection of AppleTalk LANs which are tied together by the campus-wide backbone network or by some other means. For more information about AppleTalk LANs and internets, please refer to the December 1987, January 1988, and March 1988 issues of our newsletter.) Your AppleTalk internet might extend to other buildings or you may have created separate zones for each work group. (Multiple zones and internet support is built into MS Mail.) To use a different zone, you select *Chooser* from the menu and click on the name of the AppleTalk Zone you want to use. (There are misprints in the MS Mail manual regarding zone support, such as a statement that you need a *Zone Support Driver*. We successfully ran MS Mail on the University's AppleTalk internet without this driver.) When testing MS Mail over the AppleTalk internet, we sent mail from Williamson Hall to Shepherd Labs.

You can easily customize MS Mail. For example, initially MS Mail is set to ring like a telephone whenever you receive mail. Unless you use the *Preferences* button (which you get after you click on the Management icon) to change the current settings, this chime will also ring whenever a message that you have

sent is read by the recipient. This chiming can seem noisy even if the volume on your *Control Panel* is turned off. With a simple change you can turn off the Mail chime and have a small, silent icon appear on your screen in its place.

DISADVANTAGES

MS Mail has one major drawback. The current version can only send and receive mail between Macintoshes which are connected in an AppleTalk local area network (LAN) or an AppleTalk internet. In other words, the current version of MS Mail cannot send or receive messages between a Macintosh and another non-Macintosh computer system. Further, MS Mail cannot send or receive mail outside the AppleTalk LAN or internet on which it is being used. The reason for MS Mail's current limitations is that it cannot communicate through a *gateway* to the University's TCP/IP backbone network. Ideally MS Mail would be able to send SMTP (Simple Mail Transfer Protocol) datagrams. SMTP datagrams are used by hosts on the University of Minnesota's Ethernet backbone network.

We hope that a future version of MS Mail will be able to use the SMTP protocol. Then MS Mail users would, for example, be able to communicate via electronic mail with non-Macintosh users, with users on the campus mainframe computers, and with users at other sites throughout the world. We contacted Microsoft about the limitations of the current version of MS Mail. They indicated that they are *considering* a plan to enhance MS Mail for SMTP support in a future version of the program. However, until a version of MS Mail is available to communicate with other hosts on campus, *MS Mail should be considered a Macintosh-only solution.* In addition, it would be imprudent to purchase MS Mail with the expectation that the SMTP support will be forthcoming. (See *Campus Network Considerations* on page 73.)

HARDWARE REQUIREMENTS

Microsoft Mail will work on a Macintosh 512K Enhanced, Plus, SE, or II as long as these machines use System 3.2 and Finder 5.3 (or higher). Although the MS Mail server software will work with 800K diskettes, we recommend that you use a hard disk system for the mail server. Since the MS Mail server handles messages, your ability to send or store messages would be restricted without a hard disk.

CONCLUSION

Microsoft Mail makes communicating around an office easier; it's a pleasure to use. This ease of use combined with features such as being able to send files along with messages makes it a useful package for any office with an AppleTalk network already in place. Since you purchase MS Mail by the number of concurrent users, the cost of MS Mail varies. (Microsoft claims the software has no limit on how many users Mail can support and that they've set it up for as many as 200 users.) We purchased a copy of MS Mail from the Williamson Hall Book Center for $595; this copy allows us to install MS Mail for 1–4 concurrent users. Although the Book Center does not stock MS Mail, you can special order it at the Electronics Desk in Williamson Hall. By the time you read this we hope to have Microsoft's prices for installing MS Mail to work with more than 4 concurrent users. To see a demonstration of MS Mail, stop by the Microcomputer HelpLine.

REVIEW: APPLE 40SC TAPE BACKUP

Most microcomputer users back up files as they are created (file by file) onto floppy disks. This is a simple task for one person to do for his or her own machine. However, with the growing use of hard disks, monstrous databases, multi-user file servers, and the like, the file-by-file-to-floppy-disk backup scheme becomes difficult, if not impossible. To handle disk backups of this magnitude, a tape backup system is an alternative to using fifty (or more) floppy disks. Apple's Tape Backup 40SC consists of a SCSI (pronounced "scuzzy") tape drive and some backup software (version 1.1). You can connect it to the SCSI interface on your Macintosh Plus, SE, or II.

CONNECTING THE BACKUP SYSTEM

As with Apple's SCSI disk drives, you need to purchase a SCSI connector cable and *perhaps* a SCSI terminator. Which cables should you buy? If you plan to connect the Tape Backup 40SC directly to your Macintosh, get the SCSI System Cable (M2556). Otherwise, if you will connect the Tape Backup 40SC to some other device in a *chain* of SCSI devices, then you should buy the SCSI Peripheral Interface Cable (M2558). On the subject of SCSI terminators, there are three rules of thumb to follow to decide how many SCSI terminators you will need.

1. Always use two SCSI terminators in a SCSI chain—never more, never less (see rule 2 for the sole exception). Violation of this rule permits noise in the SCSI chain to interfere with reliable data transmission.

2. You must begin the SCSI chain with a terminator and end it with a terminator. (Exception: You may use just a single terminator—at the end of the SCSI chain *only*—if you are connecting a single device via the SCSI System Cable.)

3. A Macintosh with an internal SCSI hard drive already has a built-in terminator which counts as the beginning terminator of the SCSI chain. (This is more of a reminder than a rule.)

What these rules say, in essence, is you must buy a SCSI terminator *except* in the case where your SCSI chain already has two terminators. In that case, you must make sure that the terminators you already have are located (or relocated) at the beginning and end of the SCSI chain. After you get the

requisite parts for the Tape Backup 40SC, its manual does a good job of telling you how to properly connect them.

USING THE TAPE BACKUP

The backup program which comes with the Tape Backup 40SC (40SC) is simple to use—perhaps too simple. You have just two choices for backing up your hard disk: you may back up your entire hard disk or select files from the same level (i.e., in the same folder). This means your options are for either a *disk backup* or a *file backup*. Likewise, your restore options are for either a *disk restore*, from a disk backup only, or a *file restore*, from a file backup only.

As noted, the software is easy to use. We used it to back up and restore a 50 MB disk with 39 MB stored on it. In doing so we discovered that the 40 of 40SC is somewhat of a misnomer; each 40SC tape actually holds only 38.5 MB, not 40 MB as you would think. So, two tapes were required for our backup: one for the first 38.5 MB and a second for the remaining .5 MB. Nonetheless, the backup and restore processes were straightforward. During both processes a status window displayed the *elapsed time* and the *percent done*. Also, when appropriate, a dialog box appeared asking us to change the tape.

From start to finish, this 39 MB backup took 41 minutes, a rate of .95 MB per minute. The restore took slightly longer at 45 minutes, a rate of .87 MB per minute.

COMMENTS AND CRITICISMS

Our biggest complaint about the software is you *cannot* restore individual files from a disk backup. This is certainly a critical omission. Rather than be rewarded, diligent users who back up their hard disks everyday are punished. For when you need to restore a single file, you cannot—at least not directly as you should. Instead you must first back up your hard disk to new tapes, then restore your hard disk from the old tapes so you can copy the file to a floppy disk. Next, you must restore from the new tapes so you can finally copy the file from the floppy onto your hard disk. This is a ridiculous scenario, but one for which there is currently no option. Given that it is likely to be an often-needed use of restore, a future release of the software ought to add a single-file restore option.

Also conspicuously missing from the 40SC's software is an incremental backup option to back up files which have been added or changed since the last backup. Incremental backups usually take a fraction of the time of full backups and use fewer tapes. In most regular backup schemes, incremental backups serve as a complement to full backups. Performing incremental backups between weekly backups, or even monthly full backups, is a practical way of protecting your work (because nobody has the time to do full backups everyday). Incremental backups protect you as well as full backups do, but at a fraction of the cost (measured in both time and tapes). Certainly, an incremental backup option ought to be added to a future release of this software.

Another omission is a more flexible file backup option to back up files which are sprinkled throughout the disk—files not necessarily all at the same level. This would provide another practical backup option. Although not a criticism, we thought a useful addition to the status window would be a timer showing estimated time remaining. All that is given now is information on how to calculate this value yourself.

Finally, we checked the fragmentation index of the disk before the backup and after the restore. (Fragmentation occurs under normal use when wasted "pockets" of free space form which are generally too small to store anything.) Since we recorded the same reading both times, it apears that during a full backup the software makes an image of the disk. That is, the software does not reorganize the blocks for better disk utilization. We'd like more intelligent software which would optionally eliminate fragmentation while it *restores* your hard disk.

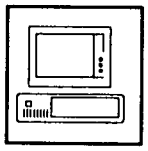
CONCLUSION

Despite the many shortcomings of its software, the Tape Backup 40SC works well. You can buy the system from the Book Center in Williamson Hall. Here are the prices:

Part	Description	University Discount Price
M2640	Apple 40SC Tape Backup	$ 1050
—	Tape Cartridges	30
M2556	SCSI System Cable	35
M2557	SCSI Peripheral Interface Cable	26
M2559	SCSI Terminator	22

REVIEW: LOTUS MEASURE

Mervyn Bergman
Institute of Child Development and Department of Psychology



Lotus Measure, published by Lotus Development Corporation, is a data logging companion to Lotus 1-2-3. This system consists of a set of drivers that supports the IBM Game Control Adapter (IBMGCA), the MetraByte DAS-16 (MBC16) data acquisition adapter, the National Instruments GPIB IBM (NAT488), the Hewlett-Packard HP-IB (HP488) IEEE-488 bus interface adapters, and the IBM Asynchronous RS232-C interface. These adapters are installed in an expansion slot of an IBM PC, XT, AT, or compatible microcomputer.

Lotus Measure version 1.0 is supplied on two non-copy-protected floppy disks and is designed to make it easier to use the computer in the laboratory or in an environment where analog and/or digital data is to be collected. Information from suitably interfaced instruments or devices is automatically entered into previously defined ranges of a Lotus 1-2-3 worksheet. With Measure and 1-2-3, it is possible to imple-

ment a complete system of data logging with data analysis and summary graphics, without the necessity of complex custom programming.

HARDWARE INTERFACES

The simplest and least expensive hardware interface that Measure supports is the **IBM Game Control Adapter.** It is capable of receiving four digital (TTL) logic input lines, and four analog input lines through a fifteen-pin D connector in the mounting bracket. The digital lines are intended to be used as switch inputs. These lines can be used to sense external events such as the operation of limit switches, push button switches, interrupter modules, etc. The analog lines have an eight bit resolution and are normally used to detect the position of a variable resistor in a game paddle or joy stick. These lines can also be used to monitor the position of a valve, control knob, float level, or any device that can drive a variable resistor. These lines are limited to approximately an 800 hertz sampling rate when using a compiled language to directly sample them. General overhead, averaging, and noise reduction techniques that Measure employs reduce their maximum sampling rate to 50 hertz.

An interface supported by Measure with more powerful capabilities is the **DAS-16 interface board.** Connection to external equipment (strain gauge and thermistor amplifiers, pH instruments, flow indicators, pressure transducers, contacts, interrupters, etc.) is made through a 37-pin D connector in the mounting bracket. Board functions that are supported by Measure provide sixteen single or double ended analog channels with twelve bit resolution, four digital lines, and one counter input. The input type and the voltage range of the analog channels are selected on the DAS-16 board by jumper connectors. Up to four DAS-16 boards can be installed in a Measure system.

IMPLEMENTATION

The Measure implementation, like that for the IBMGCA, does not perform with the speed the board would be capable of if it were driven directly by well-designed, custom software written in a compiled language or in assembly language. When driven by Measure, the board has a net sample rate of 1000 hertz on a standard IBM PC. This base rate is divided among all selected channels. Thus the maximum sampling rate for four active channels would be 250 hertz. Descriptive literature of the MetraByte software, which Measure uses, indicates that the analog-to-digital conversions of all selected channels are done at machine speed by assembly routines. The Measure sampling rate acts as a timer that triggers the high-speed readings of all selected channels. A phone call to Lotus could not immediately confirm this, nor could they provide the channel-to-channel slew specifications, but they would check into it further if requested to do so. A divider of from 1 to 99 can be chosen for any selected channel to reduce its sampling rate to conserve the base for use on channels with higher sampling speed requirements.

The four digital (TTL) logic input lines can be configured to be independent channels of digital bits, and/or optionally, to be a single four bit binary channel. The counter is capable of more than one megahertz pulse rates with a capacity of 65,535 counts.

1-2-3-like menus allow the operator to name an "ID" and to assign to it the board number, channel number, 1-2-3 range, and an optional scaling or linearization formula. Up to eight IDs, that are to be sampled at the same rate, can be grouped and treated as a single ID. As many as eight groups of eight IDs, or 64 input lines, can be used. IDs and groups can be saved to file to make subsequent sessions easy to set up.

CONTROLLING DATA COLLECTION

To control the sequence of data collection, Measure provides three *stages*. *Looping* options allow stages to be repeated in any sequence. IDs or groups are entered into a stage where the sampling rate, sample total, and the stage trigger and stage Looping is specified. After IDs, Groups, Stages and Loops are set, the operator can select *Observe* to display the data from the input lines in real time. *Verify* will provide a check on the validity and completeness of the stage and ID set up. To initiate a session the operator selects *Go*. Measure then waits until the initial stage trigger criterion has been satisfied (key stroke, analog value, digital line, or counter criterion met, etc.). The IDs in the first stage are then sampled at the rate specified for that stage until the sample total has been collected. Measure then moves to the next stage and waits until trigger criterion for that stage has been met. The IDs or groups in that stage are then sampled until the sample count has been completed. This process is repeated, stage by stage, until the Loop specification has been met. After the session has ended all data collected will be contained in the 1-2-3 worksheet in the ranges assigned during the ID definition. Standard Lotus 1-2-3 commands are then used to save the worksheet and to manipulate and graph the data.

The **GPIB IBM** and the **HP-IB 488** bus interfaces both use the same menus and commands and are supported by Measure in an identical manner. They differ only in the adapter card and in the Measure driver that is used. All standard IEEE-488 bus conventions and standards are used. The microcomputer that is running Measure acts as the system controller and will not support requests to release control of the bus to other controllers. As controller, the computer automates the transmission, receiving, and collection of data on the bus. The Measure implementation selects, sets, and triggers devices and receives data from any device on the bus. Data can be output from or entered into a 1-2-3 worksheet. As a device bus, the IEEE-488 interface does not provide the pacing, counting, or clocking functions that the MBC16 board does. These functions are the domain of instruments and devices that are connected to the bus. Instrumentation and test equipment such as voltmeters, oscilloscopes, timers, spectrophotometers, chromatograph units, counters, etc. are all available with IEEE-488 bus

options. Two leading test equipment manufacturers, Hewlett-Packard and Tectronix, have adopted the IEEE-488 bus as the communications bus for their products.

The RS232-C driver provides a means of transmitting data to, or receiving data from, a 1-2-3 worksheet via the **IBM Asynchronous RS232-C adapter**. The Measure driver supports simplex (one-way) and either full or half-duplex (two-way) communications. All communications parameters such as baud rate, parity, and word length are selected using Lotus-like menus. Selections can be saved to disk for later use. To assure that the "end-of-line" will be properly recognized, Measure allows the operator to state the end-of-line character or string that a sending device will be using.

DATA AND LOTUS 1-2-3

Measure is designed to receive communications from a wide variety of devices and instruments. To facilitate the proper worksheet formatting of the received data, Measure offers a choice of three methods of parsing the incoming data. Data can be imported into worksheet cells based on a predefined field width by selecting *Width*. Incoming data can also be formatted into worksheet cells based on a character string that is transmitted with the data. This data-coded formatting is invoked by selecting *Character*. The third option is *Include*, in which the operator can choose to have data included or excluded according to incoming column width or separator string.

After all communications parameters and worksheet ranges are set, Measure will begin acquiring data when the *Capture-range* menu item is selected, or it will begin transmitting data when the *Transmit-range* menu is selected.

SUMMARY AND CONCLUSION

Lotus Measure provides five drivers that support an IBM game control adapter, a MetraByte multifunction data acquisition module, two IEEE-488 adapters, and an RS232-C communications adapter. These drivers provide a medium performance interface to the Lotus 1-2-3 worksheet as data storage. The advantage of being able to use the worksheet in all standard operations makes Measure worthy of consideration for use in a laboratory where data acquisition is of a slow or moderate rate.

A distinct drawback to Measure is its total lack of process control. The MetraByte board does have digital and analog output capabilities but Measure does not support them. Another shortcoming is that Measure does not support interface adapters from Data Translation or from Scientific Solutions, two of the leading manufacturers of this type of interface equipment.

The retail price of Lotus 1-2-3 and Lotus Measure is $495 each. The price of the MetraByte DAS-16 is $955. This is a considerable cost but, if the expense of custom software can be avoided, and if Measure's performance is adequate, it may be worth the investment. Measure is especially attractive if you already have an IBM microcomputer with Lotus 1-2-3.

If an experimenter is still investigating, or does not have access to an IBM PC with Lotus 1-2-3, or needs more functionality, an alternative worth considering is *LabView* from Standard Instrument Corporation. This software system, running on an Apple Macintosh II, will cost more but offers much more speed, flexibility, and convenience than does Measure.

☛ *ANNOUNCEMENTS CONTINUED FROM... PAGE 73*

Another consideration is how to connect local area networks (that are used primarily inside your department) to the campus network. When you look at LANs, you should consider if it is possible (and how much it will cost) to connect your LAN to the campus backbone network. Keep in mind that connecting a LAN to the University backbone network usually requires more than just a physical connection. You may have to invest in some specialized network software to convert the information that travels on your LAN into the proper protocol (that is, TCP/IP) for the backbone network. When you shop for a LAN or actually connect a machine to the University network, you should make certain that your network hardware and software is (and will continue to be) compatible with the rest of the University.

If you are considering installing a LAN or have questions about these issues, we would be happy to discuss them with you at the Microcomputer HelpLine.

MA MICRO NOTES

❤ FILEMAKER PLUS 2.1 UPGRADE

In our April issue we reviewed FileMaker Plus 2.1 for the Macintosh. If you registered your software, you can get a free upgrade from version 2.0 to 2.1. For more information about the free upgrade, call Nashoba Systems, the current vendor of FileMaker Plus at (800) 274-1919. (If your documentation, like ours, says Forethought Inc., don't worry. FileMaker was originally sold under that name.) Version 2.1 is available for your inspection in the HelpLine.

❤ APPLE LASERWRITER AND LEGAL-SIZE PAPER

You may find using legal-size paper in your Apple LaserWriter an easy or seemingly impossible task. Your view is probably dependent on whether or not you use a legal-size paper cassette tray and the *Larger Print Area* option. If you use the legal-size cassette to print on 8 1/2" x 14" paper, printing generally is as easy as when you use standard paper. However, if you hand-feed legal-size paper into the LaserWriter, you'll have a variety of problems if you do not choose the *Larger Print Area* option.

For example, we chose *US Legal Paper* from MacWrite 4.6's *Page Setup* menu and set our text for the widest margins.

When we printed using the legal-size cassette, our text printed as expected with 3/4-inch top and bottom margins. However, when we printed the same text but hand-fed the legal-size paper, our text was mangled; to unmangle our text, we chose the *Larger Print Area* option. With this small, but significant, change the cassette-fed and hand-fed text looked the same.

Most applications let you easily select this option from the *Page Setup* menu because their menus have a visible *Options* button. Once you press this button, one of the options you can choose is *Larger Print Area*. Some applications, such as *Microsoft Word 3.02*, don't use a standard Page Setup dialog box. With some versions of Word, to make the Options button visible you must do this: hold down the Shift key *before* you select the Page Setup menu. If you're using an old LaserWriter driver (pre-version 4.0) with *Excel* and you *hand-feed* legal paper into the LaserWriter, you'll have margin problems. (According to Microsoft this problem is due to a bug in the LaserWriter ROMs.) To correct this problem without buying a legal-size cassette tray, install LaserWriter drivers 4.0 or above, then use the *Larger Print Area* option. (New LaserWriter drivers and other Mac operating system software, such as System and Finder upgrades, are available from the Mac Information Server or the Micro HelpLine.)

SITE LICENSE FORUM

Sandra Welch, Information Systems

This forum is for people who want to participate in a microcomputer site license or volume discount agreement which the University presently holds or who want to find participants for new agreements. Please direct your requests to participate in this forum and your questions to *Sandra Welch, forum coordinator, at 625-9091.*

DISCOUNT THROUGH JUNE: MATLAB FOR PC

As announced in the March newsletter, PC MATLAB is available for purchase at the Minnesota Book Center in Williamson Hall. Interested buyers should purchase their copy as soon as possible. As of press time the Book Center had 17 copies for sale at $175. *We will return all unsold copies by June 30th.*

PROPOSED DISCOUNT: MATLAB FOR MAC II

We have had several inquiries about a discounted price for MATLAB for the Mac II, but we won't order the software without firm commitments. Since this is a volume discount-type agreement, the price will range from $175–325 per copy depending on the volume ordered. (The list price is $695.) If you want to purchase a copy of MATLAB for the Mac II under this plan, please call Sandra Welch *by May 30th.*

PROPOSED DISCOUNT: PC TEX

The number of requests we have received for this software is lower than we need to make the cost of a University site license advantageous for purchase. After examining the agreement and pricing policies, we concluded *we need at least 50 confirmed buyers.* At a minimum, this site license would include PC TEX, printer drivers, and MF Medley. If you are ready to commit to purchasing PC TEX, please call Sandra Welch at 625-9091 *before May 30th.* At that time we will decide whether or not to purchase a site license. Either way, we will inform you of our decision as soon as possible.

INSTRUCTIONAL SOFTWARE FORUMS

Sponsored by: Information Systems, Project MinneMac, Project Woksape, Project Assist, and the speakers departments

The Instructional Software Forums feature faculty members and the instructional software they have developed. The series provides a forum where faculty and staff can learn about the process of building instructional software. Watch for fliers about upcoming forums or *contact Project Assist (625-1090) for more information* or to be put on the forum mailing list.

Unless otherwise noted, Forums are held 1:30 to 3:00 p.m. on Thursdays.

May 5 Leonard Lichtblau, Pharmacology

May 12 James S. Noblitt, Professor, Cornell University, (IBM Consulting Scholar at the Project Woksape Fair), *2 to 3:30 p.m.*

May 19 Jean Magney, Assistant Professor, Cell Biology and Neuroanatomy, 555 Diehl Hall

May 26 William Hanson, Professor, Philosophy

June 2 Ann Duin, Assistant Professor, Rhetoric

BOOK CENTER NOTES

These offers are made to University departments, employees, and students; the regular rules of eligibility apply. *If you have questions, ask for Larry or Brad at the Book Center's Electronics Desk (phone 625-6681).*

● Price Changes for HP LaserJet Fonts

Prices changed for Hewlett-Packard LaserJet font cartridges and soft fonts.

Although the Book Center stocks many font cartridges, they do not stock soft fonts. Soft fonts are available only as a special order. Items which are special orders are not returnable even if the package is unopened. Although a lot of software supports some of the HP font cartridges, less software works with soft fonts. You can see samples of these fonts in Hewlett-Packard's *LaserJet Printer Family Font Catalog*. This catalog is available in the Microcomputer HelpLine. Like us, the HP catalog warns: "Always check with your software vendor to ensure that the application software that you plan to use is compatible with the font that you have selected." Your software may not support features such as special characters or the micro-justification you need with proportional fonts. The tables below list the cartridges by name and by price.

Alphabetical List of HP Font Cartridge, 92286 Series

A	(Courier)	B	(Tms proportional 1)
C	(International 1)	D	(Prestige Elite)
E	(Letter Gothic)	F	(Tms proportional 2)
G	(Legal Elite)	H	(Legal Courier)
J	(Math Elite)	K	(Math Tms)
L	(Courier P&L)	M	(Prestige Elite P&L)
N	(Letter Gothic P&L)	P	(Tms Rmn P&L)
Q	(Memo 1)	R	(Presentations)
T	(Tax 1)	U	(Forms P)
V	(Forms L)	X	(EAN/UPC/OCR-B)
Y	(PC Courier 1)	Z	(Microsoft 1)

University Discount Price

HP Cartridges, 92286 Series	Old	New
A, C, D, E, H	$ 190	$ 92
B, F, J, K, L, M, N, P, Q, U, V, Y	289	155
X	289	140
R and Z	350	200
HP Soft Fonts, 33412 Series	$ 209	$ 112

● Laser Printer Toner Cartridges

The Bookstores carry two types of laser printer toner cartridges: one type for older printers (HP's LaserJet and LaserJet Plus and Apple's LaserWriter and LaserWriter Plus) and another type for the new printers (Apple's LaserWriter IISC, IINT, IINTX and HP's LaserJet Series II). The two generations of laser printers are based on different print engines; the old is based on the Cannon LPX-10 and the new on the Cannon LBP-SX. We have found that you can use Apple's toner cartridge in Hewlett-Packard's printers and vice versa *as long as you buy the toner cartridge for the correct laser print engine.* Here are the Bookstores' current prices:

Laser Printer Toner Cartridges

Old Print Engines	University Toner Price
Hewlett-Packard's	$ 71
Apple's	71
New Print Engines	**University Toner Price**
Hewlett-Packard's	$ 71
Apple's	91

● Apple → Claris Software

Claris supports the latest as well as older versions of software formerly sold under the Apple label. Many of you already own these packages: MacPaint, MacWrite, MacDraw, and MacProject. Claris has given us demo copies of the latest upgrades of these packages. These demos are available on the Mac Information Server. (The Mac Information Server is a public-access AppleShare file server that contains a variety of information. See the November 1987 newsletter for more details.) However, if you want working copies of the latest version, you must buy them. Claris is not offering upgrades for software sold under the Apple label. Here are the Bookstores' prices for this new software:

Claris Software	University Discount Price
MacProject II v1.0!	$ 285
MacDraw II	225
MacDraw v1.9.6*	88
MacPaint v2.0	60
MacWrite v5.0	60

* People who bought an older version of MacDraw packaged under the *Claris* label and registered their software, can get the 1.9.6 upgrade if they return the upgrade card included with MacDraw's packaging.

Currently the HelpLine does not have working versions of this new Claris software. You can continue to get free MacWrite 4.6, MacPaint 1.5, MacProject 1.2, and MacDraw 1.9.5 upgrades at the Microcomputer HelpLine if you bring your original disk and a blank disk to the HelpLine.

● HP DeskJet Ink Cartridge

The Bookstore's price for one ink cartridge for this new Hewlett-Parkard ink jet printer is $14.75.

● May IT Tech Fair

May brings not only flowers but also the IT Tech Fair. The fair, which is held during IT Week, is a joint venture between the Plumb Bob Honorary Society and the University bookstores. Watch the *Minnesota Daily* for details.

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