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The Magazine For Apple III Owners and Users

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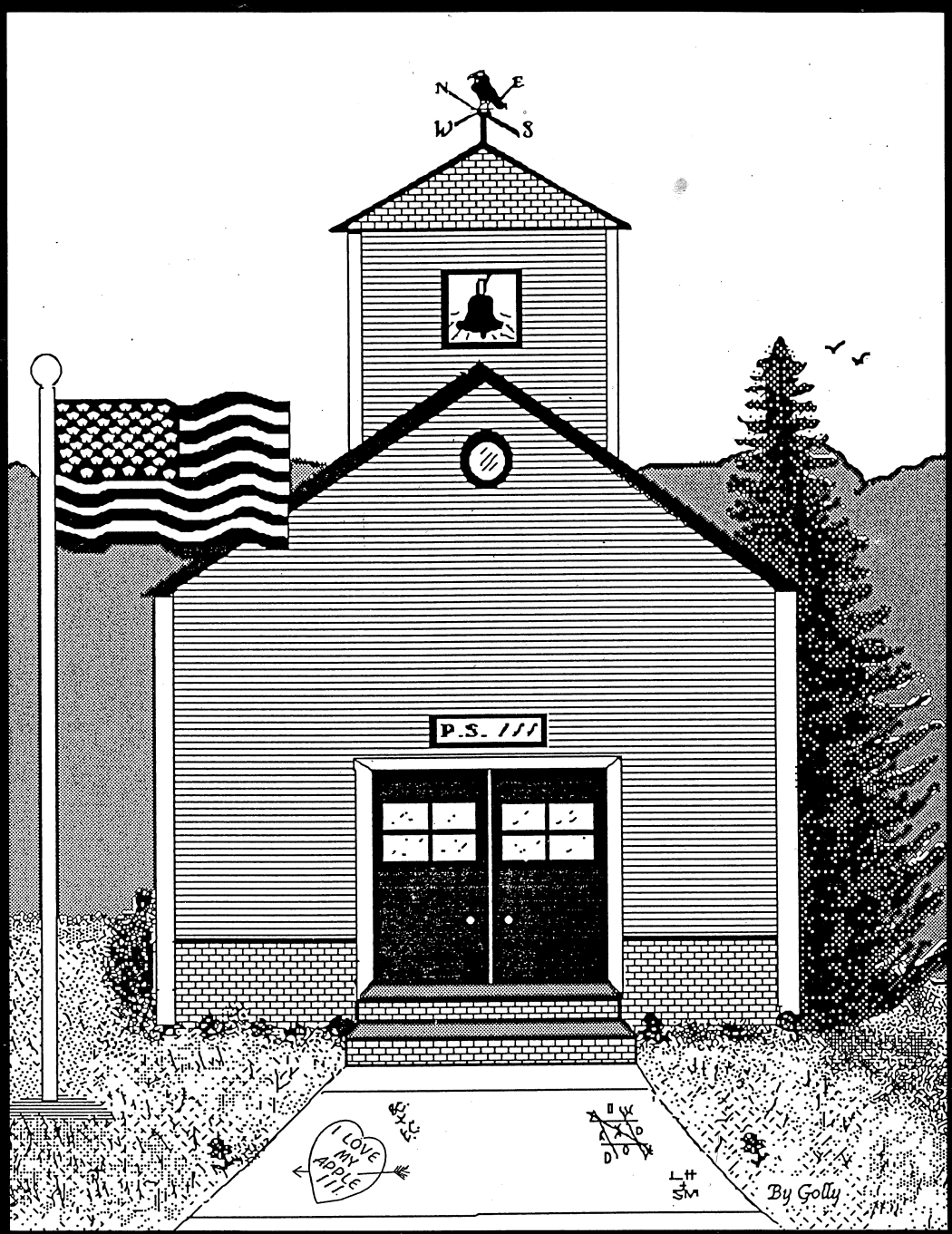

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The Magazine For Apple III Owners and Users

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ON THE COVER:

BACK TO SCHOOL! This is another one of ON THREE's MacPaint masterpieces. With a little creativity, it's a snap even for non-artistic people to draw with MacPaint or even with Draw ON /// accompanied by the Graphics Manager.

MEMO FROM ON THREE

SUBJECT: TECHNICAL SUPPORT
DATE: JULY 1, 1987

ON THREE, Inc. warrants all of its products and offers full technical support for a period of up to ninety days. This has always been our policy and we will continue to help our valued customers as much as we can. However, of late, the abuses to our limited technical staff have been overwhelming. Every day we receive dozens of calls from /// users with questions on products that were bought years ago, questions on software the caller frankly admits he/she has copied from a friend or other source "but doesn't have the manual and can you step me through the program?", calls concerning products that were purchased from companies and dealers that have gone out of business or refuse to support Apple /// products. We receive calls from Apple /// users who insist that because Apple, Inc. or their dealers won't assist them , we must help them with products that are not even ours,"because ON THREE is the only company still supporting the Apple ///." The majority of these calls come in over our toll free order line, which is toll free *only* because ON THREE is paying for the call! Our phone bills have been positively astronomical! All of this free technical support has put tremendous strain on our limited time and resources. ON THREE is not subsidized by Apple, Inc., as many people believe. If ON THREE is to survive financially, and stay in a position where we will be able to continue to develop new hardware, software and programs for the Apple ///, we must regretfully change our present policy of unlimited free technical support because quite frankly, we can no longer afford to do so. Because of these circumstances we are forced into the position of having to change our rules concerning free technical support on certain products: Effective immediately:

ON THREE will no longer offer unlimited, FREE help and assistance on products that:

1. Were not purchased from ON THREE.
2. Are not ON THREE products.
3. Were obtained from an unauthorized source.

If your call falls into any of the above categories, we will still try to assist you to the very best of the ability of our staff. However, at the start of your call, which must be made ***only*** to the 805-644-3514 line, we must ask you to give your credit card number and expiration date. You will be charged at the rate of $5 for the first three minutes and $1 per minute for each additional minute thereafter.

THANK YOU FOR YOUR UNDERSTANDING AND COOPERATION

*****

The following excerpts concerning the technical assistance offered by other companies is from an article titled, "EASY LISTENING ON THE SOFTWARE CIRCUIT," by editor George Gendron. This story appeared in the February 1985 issue of INC. magazine.

"Even the expense of making long distance phone calls to software publishers would be tolerable, except that getting through to a consoling voice often strains the bounds of patience.

Ashton-Tate: Called and got right through but was transferred to a recording that advised me to have software serial number readyt and described A-T's committment to the customer. Message prattled on for a good 80 seconds. No support was forthcoming, only "Easy Listening" FM. Was easy listenin' uneasily to "Try to Remember (the kind of September)" when a voice interrupted, "Our support technicians are still busy." Kept holdin'. Twelve minutes later, still no surcease; lots of hearts and flowers, though. Hung up. Elapsed time; still tickin'.

Context Management Systems: Picked the phone right up. No wonder there was such speed. The company no longer offers technical support. "Try the dealer you bought it from, " I was told. Elapsed time: 8 seconds.

BTI Systems: The line was busy 10 striaght times. At last a recorded voice answered, " All of our support representatives are currently busy." Held the dead line for 2 minutes. Finally a *real* voice answered, "All of our support representatives are currently busy." Left name and phone number. Was called back in a half an hour. Elapsed time: 40 minutes.

IBM: They answer questions like everybody else - except their support can cost $40 a query.

Apple.Sauce

by Paula Sheppard

Changing times for the ///

Who owns an Apple ///?

A few years ago, when Apple supported the Apple ///, the question, "Who owns an Apple ///?" was not of great significance and it didn't take long to answer. Now the ///'s path for life has changed. What seemed to have been the ideal business computer is being thrust into the hands of many others. Perhaps "thrust" may seem to be too harsh of a word to describe the most recent changes. Nonetheless, many ///'s are being sold at this time and reports have it that they are becoming *home* computers.

Of course, the /// is a very versatile machine and would fit in well as a family computer. Mom can write letters and keep a family budget on it while her husband can use it occasionally for business purposes. Meanwhile, the kids can enjoy playing Sandman and Crossword Scrambler on it. The teenagers can learn to program on it and use its word processing capabilities to write their latest term papers.

While this sounds like a very, happy, new dimension for the Apple ///, it can be sad at the same time. The computer may not be used to its full capacity ever again. The biggest problem, though, is that the people who have recently purchased the computer from its original owner may not know who to contact for assistance.

When an Apple /// is sold by *ON THREE* or Sun Systems Remarketing, the new proud owners still have contact with /// people and know where to turn for assistance and software. When a /// is sold at a swap meet, garage sale or in the classified section of a daily newspaper, the new owners may not be so proud when they discover that they need more memory on their machines, don't have the beginning manuals or just can't get around one of the *bugs* in the only programs which came with their purchases. What happens then?

Here at *ON THREE*, we are hoping that those people who are selling their Apple /// computers have not forgotten how exciting it was when they first upgraded their ///'s memory, picked up the most recent release of Business BASIC, wrote to *ON THREE* for assistance with a *bug* and made new friends at one of the many Apple /// users group's meetings. If these sellers can remember these times, hopefully they'll drop a name, number and/or address of their favorite Apple /// developer, distributor, helpline, or user group in the hands of the new, ready-to-be-proud /// owners.

ON THREE is asking owners who are selling their ///s to either give the new owners our name, address and phone number or give us the new owners' names, addresses and phone numbers. We have always been sincere about keeping the /// family together. This company picked up where Apple Computer left off in this department and we desire to continue to help those who own Apple ///s.

Although the question, "Who owns a ///?" is a little tough to answer these days, our staff is ready to tackle it. In a future magazine article, we would like to answer that question in great length with statistics not assumptions or hearsay through the grapevine. Therefore, we need a little help from our readers. If you could slip the following form in the mail today, we would certainly appreciate it. The article could possibly be a Christmas present from us to you, if you act now.

I am an *ON THREE* reader and would like to help with the exciting article, "Who owns an Apple ///?"

I use my Apple /// in my:

Business
Type of business: _____
Job title: _____
Used for what purposes: _____

Home
For what purposes: _____

I own the following programs: _____

Name _____
Address _____
City _____ **State** _____ **Zip** _____
Phone number _____

Send this form to: *ON THREE*, P.O. Box 3825, Ventura, CA 93006

Sign up sheet intact

While the sign up sheet is out on the table, here is another set of questions /// users should be asking themselves:
1. Why is the /// for me?
2. Should I share the answer to No. 1 with others?
3. Can I write well?

If you liked your answer to No. 1 and answered the rest of the questions with a "Yes" response, then you are a likely

Apple.Sauce (continued on page 14)

NEW from *ON THREE* -

Memory Board Insurance!

Have you ever wondered what would happen if your Apple /// suddenly went bad? Has your machine ever sputtered to a halt? How would you get things done while you waited for your Apple /// to be fixed by a place halfway across the country?

Well, *ON THREE* has the answer with **256K and 512K Memory Board Insurance!**

For only $50 (or less!) per year, *ON THREE* will provide an unlimited extended warranty on your Apple /// 256K or 512K Memory board. If your memory board goes bad, we will ship you via overnight mail a replacement 256K or 512K memory board. As soon as you get the new memory board, send back the faulty one in the handy package we provide.

All current 256K and 512K Apple /// owners are eligible to participate. Simply phone in your order or send in a check for $50. At the time of the order you must specify if you're using a 256K or 512K system. An official *ON THREE* Insurance certificate will be issued in your name and immediately mailed to you.

We even offer **multiple purchase discounts.** The per year premium on two 256K or 512K memory boards is $40 per board. If you have three boards the costs is $35 per board and if you have four or more memory boards, the fee will be $30 per board.

Hurry, order your insurance policy today - before it's too late!

512K Memory Upgrade Sale!

We know that there are still **90,000+** Apple ///'s out there that have not upgraded to 512K of memory and we are committed to letting all Apple /// owners enjoy the benefits of an enhanced Apple ///.

For **larger spreadsheets, data bases, word processing documents** and **faster program utilization,** you can't lose! If you have *any* questions about the upgrade, feel free to call **ON THREE.**

$324 plus $10 s/h
Send in your old 256K board for $35 software credit toward your next purchase. Installation is $50! Available by appointment only.

The 512K Memory Upgrade includes:

- Δ Complete installation and guide for use.
- Δ System Utilities 1.2 which permits larger driver files.
- Δ Industry leading six month warranty!
- Δ Ultra-fast RAMDisk driver with demonstration programs.
- Δ 512K Upgrade utility which updates your programs.
- Δ Free technical support on the 512K upgrade
- Δ And of course, an Apple /// 512K memory board with state-of-the-art 256K memory chips.
- Δ 512K Memory Confidence Program which tests all memory and ensures that your 512K /// is working properly.

256K Memory Upgrade Sale!

If you don't want to upgrade your Apple /// all the way to 512K, but want more memory for your ///, order the 256K Memory Upgrade today! It's specially priced at only $150 plus $10 s/h Hurry, supplies are limited.

With a 256K equipped Apple ///, you will be able to use the newer programs that require a minimum of 256K. Programs like Selector ///, Catalyst, Draw ON, The Desktop Manager, Lazarus and more! The price of the 256K Memory Upgrade may never be this low again. If you decide that you want to upgrade to 512K, we even offer a generous rebate on your 256K board.

$150 plus $10 s/h
Order today!
Just call our orderline at:
1-800-443-8877 or
in California call 1-800-331-1418

The 256K Memory Upgrade includes:

- Δ Complete installation and guide for use.
- Δ Free technical support on the 256K upgrade
- Δ 256K Memory Confidence Program which tests all memory and ensures that your 256K /// is working properly.
- Δ Industry leading six month warranty!
- Δ And of course, an Apple /// 256K memory board.

How To Order

The 256K Memory Upgrade costs $150 plus $10 shipping and handling. After installing your 256K board, return your old 128K memory board for a $10 future software credit.

We recommend that a 128 to 256 or 128 to 512K upgrade be done by *ON THREE* or a registered Apple dealer. *ON THREE* will install all upgrades for only $50. Same day turnaround on memory board installations! Please call for an appointment.

The Beginning ///

by Richard and Lavona Rann

S O Ssy disk drives

Practical guide to selecting the disk drives that are right for your system

Over the past few months we've talked about the Apple ///, its function and use. However powerful the machine is, without extra disk drives, the /// loses a lot of usefulness. This month we will focus on disk drives and the storage and retrieval of data. After reading this article, you will have a basis for selecting the *right* type or types of devices for your needs. Finally, you will have a step by step guide for setting the speed of the two most common floppy disk drives for the Apple ///.

The discussion of which and how many disk drives are needed for a particular system comes down to a consideration of S O S. We don't mean the ///'s operating system. The letters are an easy way to remember the three factors that are the controlling conditions by which we can measure the performance of all disk systems. Each has to be considered when selecting a system, and each must be evaluated in light of your needs. This S O S stands for: Size, Organization, and Speed.

Historical perspective

Imagine the time and effort that would be wasted if all of the programs and data had to be typed in every time the /// was turned on. It may sound like a ridiculous situation, but that was exactly what the computer world was like when the first microcomputer was designed. The Altair 8800 was introduced to the world on the cover of the January, 1975 *Popular Electronics* with neither a monitor nor a keyboard. Programs and data had to be entered by manually flipping switches on the front of the orange crate sized box. It was a tedious task. One mistake meant that the whole task had to be repeated from the beginning.

Flipping switches on a 1K Altair was tedious, but it worked. For the size of the machine and its ability to process, it was an acceptable, if not an enjoyable, solution. Imagine what this method of data entry would be like on a 512K /// or with the newest machines today. Does anyone believe that Apple would be able to sell a Macintosh II with a 2 Meg memory if input were through a series of switches on the front? It would be impossible. The microcomputer industry would never have gotten past hobby stage without a solution. Somewhere between the 1K machine and a 512K machine, there is a point where it becomes ridiculous to use re-keying as the data and program entry mode.

Programs and data had to be entered by manually flipping switches on the front of the orange crate sized box.

Looking at this situation, and the broader concept behind it will give us an understanding of size considerations in determining disk needs.

The Greeks knew the answer

The process at work here goes back to the ancient Greeks and their idea of a Golden Mean. It is the first S size in this month's S O S. As the size of memory increases, the size of input device necessary to support it increases. The same is true for output and data storage. The larger the memory of a computer, the greater the data storage space is necessary. This is an important concept as it effects the way we set up our computers to obtain the maximum performance out of the system. We are sure that somewhere in the reams of material published on computer design there is a thumbnail formula for calculating this relationship. No matter, we need some means for determining this relation without recourse to calculators and advanced mathematics. First let's see if we can deduce some general principals from what we can see around us.

Let's pick up our observations with the Apple II. Even the early II's had significantly improved memory over the first Altair. They were supported by tape cartridges instead of disks. Since memory was somewhat less than 48K, the programs and files were relatively small and it didn't matter that tapes held little and took a long time to read. When the memory size grew to 48K, the standard Apple II system was sold with at least one 140K drive.

When the IIe started supporting 128K and programs began coming on two disk sides, it became apparent that the disk drives were too small for the system. At the same time, data files that the system could handle grew. People using VisiCalc or AppleWorks wanted to be able to store larger documents, and more documents per drive. About this time, Apple made the 5meg ProFiles available for the Apple IIe. People bought memory extensions for their II's and then started buying hard disks. The two went together.

Today, the IIGS comes with a minimum of 256K and is easily upgraded to 1.25 meg (more with non-Apple upgrades). Dealers can sell the GS with 140K (5.25 inch) disk drives, but the System Disk only comes in 800K (3.5 inch) disk format. Realistically, the IIGS requires at least one 800K drive. As programs and files on the GS become larger, there will be a real demand for hard disks.

As our second example, let's look at the *Mac* before we get down to the /// and apply the logic to our current needs. Recently, we received the 2.0 upgrade to Aldus' PageMaker for the Macintosh on two 800K diskettes. Both disks, which are almost full, must be on line at the same time to

operate the program. The minimum requirement is two 800K disk drives, but Aldus recommends a hard disk. On a hard disk, PageMaker takes up more than a megabyte of space. Several programs like PageMaker will take up a large piece of the Mac SE's minimum sized hard disk of 20 megabytes. As the Macintosh came to have a standard 1 meg and more of memory, it generated a need for larger capacity disk drives.

Quickly the reality of program size is surpassing the ability of floppy drives to cope. This trend, as we project it into the future, means that programs will not be used from diskette any longer. Diskettes will be used only as a transport medium. They will be used primarily to move programs and data between hard disks on different computers.

The Apple /// originally came with one 5.25 inch 140K disk drive. This worked fine for the original 96K ///s, but when the standard machine went to 128K and then 256K, even two 140K standard disk drives were found to be too small for most people. An intermediate step became available with the Microsci A143 disk, which has four times as much space and works faster than the standard drive. For most heavy users of the ///, a hard disk is a defacto standard. The relationship is quite clear, when the memory size is larger than half of the storage device capacity, there is a need for a larger input/output/storage device. That means that a 512K /// should have at least one device on it that holds over 1meg.

As memory size increases, programs are written to fill the space. It sounds like one of Murphy's laws, but it holds true. No one would market a program for a II+ that required five or six disks to run, but that amount of code is becoming quite common for machines with larger memories. Think of all the applications on the Apple /// that require more than one disk drive. Pascal requires two or three and is most useful with a hard drive. Cobol requires three disk drives and is almost impossible to use efficiently without a hard disk. There are a number of databases that require multiple drives. All in all, larger memories generate larger programs and require larger disk capacity.

The flip side of this is also true. Larger programs generate larger data files that once again eat up disk space. With a 256K ///, the Microsci A143 is a reasonable step for someone not ready for a hard disk. It seems to have been only available for the ///, which is sad. This means A143's are no longer manufactured and are becoming rare. The A143 disk drives are double sided and pack the data so tightly on one 5 1/4 diskette that it holds about the same amount as four standard /// diskettes.

Of course, with a 512K /// the relationship of memory to drive capacity is still at the critical point with an A143 drive. There are still two more options - the 800K (3.5 inch) Unidisk and/or hard disks. One of these larger disks is absolutely necessary to get the best use of any 512K /// and most 256K setups. Fortunately, *ON THREE* sells 256K and 512K memory upgrades, Microsci drives and Unidisks.

Organization

Yes, there are other reasons than size for needing a larger disk drive. The reason that is least obvious, at the start, is organizational. Usually, people think of organization as a requirement of large devices rather than a reason for larger devices. They are both true. Organization of data is critical especially when programs and data become more complex. By now it should not be a surprise to anyone that the complexity of files and programs, size of memory, and the size of storage devices are all interrelated.

When using several different programs and/or lots of data files, you should be looking at disks that are larger than the standard disk ///. The beauty of the SOS operating system is that it allows a user to efficiently arrange a large number of files (programs and data) on one device. It becomes harder to find files with several diskettes. No matter how carefully a person labels the diskettes and boxes similar things together, it takes a major effort to keep things grouped in handy ways on diskettes.

For most heavy users of the ///, a hard disk is a defacto standard.

Moving things around on a larger disk is much simpler and faster than from one diskette to another. The use of a large disk device requires you to organize files. If you don't put some careful thought into the arrangement of subdirectories on a large disk, a lot of time can be wasted looking for files. The positive side is that with some simple planning and use of System Utilities, the *Pascal* filer, or something like *The Disk Manager,* all of your commonly used files are available without constantly going to a box to get another disk.

On standard Disk /// disks the organizational problem is a physical one. The question is: Which disk holds which file? All sorts of schemes have been devised to help, including colored labels and boxes to store the diskettes. These help but not a lot after you get past a couple boxes of diskettes. These methods also have a problem with lack of flexibility. For instance, if you change your mind about the category of a disk or file, it means re-labeling at the least, and very probably changing two diskettes to move the file.

See ON THREE at APPLEFEST

Booth 2111

Civic Auditorium
San Francisco, CA
September 18-20, 1987

With a larger disk, subdirectories can be made for each category and changed quite simply. Your first organization may not be the last one, but it is not hard to move files from one place to another on a disk. Just think about the time saved by not reaching for disk boxes and looking for the specific diskette that has the file you need.

Organization is made even simpler on a hard disk by the use of the Selector and Catalyst utilities. Each of these allows a user to put multiple programs on the disk and use a menu to access them.

People who use computers heavily are annoyed by waiting for the system to perform. One of the most frustrating waits is during reads and writes. As programs become more complex the problem is exacerbated. For these people spending money for a faster storage system is an easy choice.

Summary of /// disk devices

There are three types of diskette drives and at least a couple types of hard disks available for the ///. The sizes that are generally available are:

the operations, make organization of data more difficult and limit some of the applications.

One additional factor to consider before selecting a system, is the type and amount of desktop accessories you have or want. The programs may reside on disk and any subsidiary files you keep (like calendar records) are certain to use up disk space. On a system with only 140K disks there is little room for the programs or files. Desk accessories are super and help efficient people become even more productive when using their computers. Their real cost for heavy users

LETS GET AQUAINTED

ON THREE, Inc.*

registered developers for Apple Computer, Inc.*

Congratulations on your purchase of an Apple /// computer, you have chosen a real thoroughbred! Please accept this issue of ON THREE MAGAZINE™ with our compliments, it will help you get so much more from your Apple ///. ON THREE MAGAZINE is the *original* and *only monthly* international publication devoted exclusively for the Apple ///. So that you can get to know us better, we're offering you a very special deal! ON THREE MAGAINE delivered to your door every month for the next six months fo only $9.95. You'll save more than $14 over single issue newsstand price. There's more about ON THREE inside, but now that we're aquainted we feel that we should offer you a word of

CAUTION

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iods, but from the standpoint of technology, the 800K GS drive is more efficient as it loads more in less time. A wait of six or seven times the load time of System Utilities on the /// would be unacceptably long. A larger device would not be acceptable unless its speed were also faster.

The physical device speed is not the only improvement available. The use of Selector or Catalyst as a program switcher allows movement from program to program without stopping to reload the operating system and drivers between programs. This combined with device speed helps a lot.

What is at stake here is perception.

and for backing up the hard disk.

Finding the right match

The big question is, "How do I know what I need?" As much as we'd like to give an easy answer to that question, we cannot. What you need depends on what you do. By now you realize there is a definite relationship between memory size and disk size that is affected by speed and the ability to organize. Where you fall in this pattern depends, of course, on how you use the /// and the size of its memory. Remember the goal is not to have every possible piece of equipment, but to have a system that operates efficiently. Running a system with disks that are too small will slow

can be fine, especially if you don't use more than two programs, don't use note pads or calendars heavily, and don't store large files. As size and complexity increases so does the need for larger storage. We decided that we needed more than our external Disk /// and A143's not long after moving to 256K because we use several programs among them Pascal which really begs for a hard disk. By the time the Apple /// is expanded to 512K, a hard disk is almost mandatory to keep the time of reads and writes at a reasonable time, and to provide space for the larger files that are possible.

The best way to judge your needs is to make a list of the size of your most important programs and the ones

operate the program. The minimum requirement is two 800K disk drives, but Aldus recommends a hard disk. On a hard disk, PageMaker takes up more than a megabyte of space. Several programs like PageMaker will take up a large piece of the Mac SE's minimum sized hard disk of 20 megabytes. As the Macintosh came to have a standard 1 meg and more of memory, it generated a need for larger capacity disk drives.

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program for a II+ that required five or six disks to run, but that amount of code is becoming quite common for machines with larger memories. Think of all the applications on the Apple /// that require more than one disk drive. Pascal requires two or three and is most useful with a hard drive. Cobol requires three disk drives and is almost impossible to use efficiently without a hard disk. There are a number of databases that require multiple drives. All in all, larger memories generate larger programs and require larger disk capacity.

The flip side of this is also true

start, is organizational. Usually, people think of organization as a requirement of large devices rather than a reason for larger devices. They are both true. Organization of data is critical especially when programs and data become more complex. By now it should not be a surprise to anyone that the complexity of files and programs, size of memory, and the size of storage devices are all interrelated.

When using several different programs and/or lots of data files, you should be looking at disks that are larger than the standard disk ///. The

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like one of Murphy's laws, but it holds true. No one would market a

for needing a larger disk drive. The reason that is least obvious, at the

of your commonly used files are available without constantly going to a box to get another disk.

On standard Disk /// disks the organizational problem is a physical one. The question is: Which disk holds which file? All sorts of schemes have been devised to help, including colored labels and boxes to store the diskettes. These help but not a lot after you get past a couple boxes of diskettes. These methods also have a problem with lack of flexibility. For instance, if you change your mind about the category of a disk or file, it means re-labeling at the least, and very probably changing two diskettes to move the file.

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With a larger disk, subdirectories can be made for each category and changed quite simply. Your first organization may not be the last one, but it is not hard to move files from one place to another on a disk. Just think about the time saved by not reaching for disk boxes and looking for the specific diskette that has the file you need.

Organization is made even simpler on a hard disk by the use of the Selector and Catalyst utilities. Each of these allows a user to put multiple programs on the disk and use a menu to access them.

Speed

There is another consideration, that of *speed*, the second S in S O S. As your programs and files get larger, more time is spent waiting for the disk drive to read or write them. Each save from your word processor requires physical time to write to the disk. If you find yourself waiting a lot, you might be ready for a larger and faster drive.

As disk capacity increased, both in hard and floppy disks, the speed of data transmission has generally increased as well. As program and file sizes have increased, the minimum speed to read them has actually decreased. The speed of access has shrunk steadily since the introduction of the /// and its 140K drives. There is a threshold of time that is recognizable to the user. Take as an example System Utilities on the ///. It takes about the same time to load about 140K of utilities in the /// as it takes to load nearly 800K into the 1.25 meg GS; both are recognizably long periods, but from the standpoint of technology, the 800K GS drive is more efficient as it loads more in less time. A wait of six or seven times the load time of System Utilities on the /// would be unacceptably long. A larger device would not be acceptable unless its speed were also faster.

The physical device speed is not the only improvement available. The use of Selector or Catalyst as a program

switcher allows movement from program to program without stopping to reload the operating system and drivers between programs. This combined with device speed helps a lot.

What is at stake here is perception. People who use computers heavily are annoyed by waiting for the system to perform. One of the most frustrating waits is during reads and writes. As programs become more complex the problem is exacerbated. For these people spending money for a faster storage system is an easy choice.

Summary of /// disk devices

There are three types of diskette drives and at least a couple types of hard disks available for the ///. The sizes that are generally available are:

140K - Disk ///, and Microsci A3
560K - Microsci A143
5,000K- 5 Meg ProFile
(not available new)
10,000K-10 Meg Xebec Sider
-10 Meg ProFile
(not available new)
20,000K-20 Meg Xebec Sider
-20 Meg CMC
(not available new)

There were a few other hard disks available for use on the ///, but the list above covers those that have been most commonly used and are more likely to be available either new or used. We suggest that you think twice about the price you are willing to pay for a used hard disk. The older ProFiles are beginning to fail in large numbers and repairs can run $250 or more.

Another thought to take into consideration with large disks is backup. Backing up a 20Meg drive onto 140K diskettes can take *forever*. We suggest anyone with a hard disk put some thought into either a 560K or an 800K drive to use for everyday use and for backing up the hard disk.

Finding the right match

The big question is, "How do I know what I need?" As much as we'd like to give an easy answer to that question, we cannot. What you need depends on what you do. By now you realize there is a definite relationship between memory size and disk size that is affected by speed and the ability to organize. Where you fall in this pattern depends, of course, on how you use the /// and the size of its memory. Remember the goal is not to have every possible piece of equipment, but to have a system that operates efficiently. Running a system with disks that are too small will slow the operations, make organization of data more difficult and limit some of the applications.

One additional factor to consider before selecting a system, is the type and amount of desktop accessories you have or want. The programs may reside on disk and any subsidiary files you keep (like calendar records) are certain to use up disk space. On a system with only 140K disks there is little room for the programs or files. Desk accessories are super and help efficient people become even more productive when using their computers. Their real cost for heavy users is in disk space. The more notes and/or appointments needed on the ///, the more a user must allocate space to these things. The productivity gains, however, may be just what you need to justify a hard disk. They are an overhead item that may force some people to larger capacity disks. We've seen some Mac systems with 500K to 600K desktops that demand a hard disk for their boot device (even with standard disk size being 800K).

If you have less than 256K on a ///, a hard disk is probably not needed. After that, it gets more complex. Using a 256K machine from diskettes can be fine, especially if you don't use more than two programs, don't use note pads or calendars heavily, and don't store large files. As size and complexity increases so does the need for larger storage. We decided that we needed more than our external Disk /// and A143's not long after moving to 256K because we use several programs among them Pascal which really begs for a hard disk. By the time the Apple /// is expanded to 512K, a hard disk is almost mandatory to keep the time of reads and writes at a reasonable time, and to provide space for the larger files that are possible.
The best way to judge your needs is to make a list of the size of your most important programs and the ones

Desk accessories are super and help efficient people become even more productive when using their computers.

most frequently used. Check their size in relationship to memory and disk size.

Do you have to swap disks often? Do you have difficulty keeping track of frequently used files? Are these important files spread over a dozen plus diskettes? Then think of how much time is wasted during reads and writes. Is it noticeable? Do you have to split large files? Does it always seem that you are waiting for the system? After answering these questions, determine if you need a hard disk or maybe just a larger floppy drive.

Adjusting the speed

Floppy drives need one piece of maintenance to keep them running effectively. Over time and with use, the drive mechanism that spins the disk can change speed. It does not matter whether it gets faster or slower, once it surpasses a certain tolerance, it will become difficult to read data. Data stored on the diskette at an incorrect speed is hard to read with other drives, and data created at the correct speed is hard to read on the drive that has its timing off. This usually shows up with System Utilities or commercial programs. If the drive has been slowly going off speed, it will read the most recent disks because the data was put on at near the same speed as the disk is turning now. Problems arise when the drive reaches the limit of tolerance. System Utilities may refuse to format disks and all programs may refuse to read data.

This is a serious problem, but an easy one to fix. The adjustments can be made in minutes. Most Apple repair facilities will retime the Disk /// drives and the standard charge is not too high. With an A143, a person may have a harder time finding someone to time the drive because it takes a /// to make it run. In any case, it is easy to set the timing yourself. Just use a Phillips screwdriver for removing the case and a tiny flat bladed screwdriver for the adjustment POT. The adjustment set screw has only about 1/8 inch head so the screwdriver has to be small. It should also be made of plastic or nylon because the metal of a normal screwdriver can effect the adjustment speed. If a metal screwdriver is used, it should be removed completely after an adjustment and the speed checked once more to be sure accurate. The third item needed is a 60 cycle fluorescent light. Even if you must buy a small fluorescent fixture it will cost about half of what a shop will charge for adjusting one drive.

The theory

The electronic disk drive motor is connected to a flywheel by a rubber belt. The flywheel is connected to a shaft that becomes the hub that spins the diskette every time the disk drive reads or writes. Therefore, the flywheel is turning at the same speed as the disk. On the flywheel is a circle composed of alternate squares of white and black. As the wheel turns the circle spins and the squares blur. In the light of a 60 cycle fluorescent tube the spinning circle and the 60 cycle alternating current come into phase and a strobe effect is created. If the disk is spinning at the right speed the black squares will appear to be standing still in the light of the fluor-

The Beginning ///
(continued on page 14)

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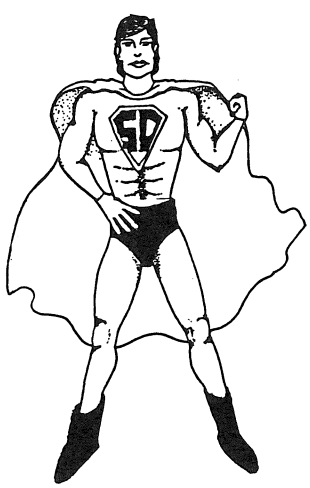

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***File Print** - Besides viewing a file within a file, you can print it, too.
***Print Screen** - Just like Screen Dump, but better! You can opt to Print Screen, Form Feed Printer or Line Feed Printer.
The disk also contains Reload & Exit, PKASO U commands and the Warning Module.

Order the latest TDM disk - No. 2 - for only $24.95 plus $3 s/h.

The Updated Desktop

by Earl T. Brelje

The latest Desktop Setup

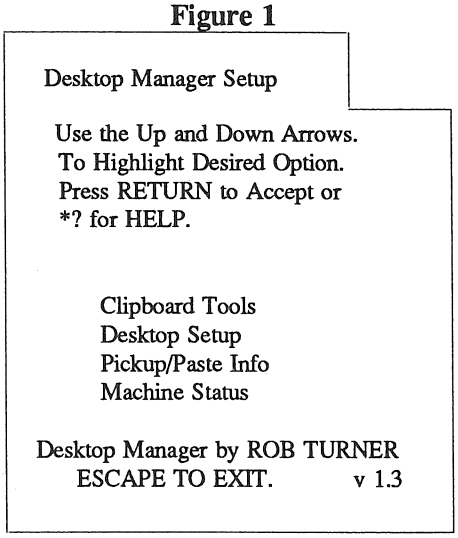
As mentioned last month, in this article I will be reviewing the updates to some Desktop Manager functions, which are included in *ON THREE*'s Accessory Disk No. 1.

The first of these is the Desktop Manager itself. The new version is 1.3. This version allows the use of one of the new modules and also gives you room in the Menu for 21 accessories instead of 20.

For those who use the print feature, OPEN-APPLE H, in the Note Pad module, the default printer listed in the *Desktop Setup* will now be used instead of always .PRINTER.

The new version of the Desktop Setup allows greater control over the Clipboard. The previous version allowed you to view only the clipboard. After selecting Desktop Setup from the **Main Menu,** a new selection is now available as shown in Figure 1.

Figure 1

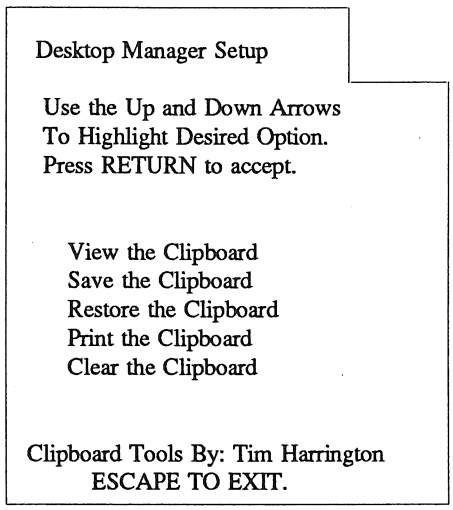


New Desktop Setup

After selecting Clipboard Tools the menu in Figure 2 will be displayed.

The *View Clipboard* option is still available but, it is the rest of the selections that make a major improvement in the Clipboard. If you are not using a switcher program, now you can save the data in the clipboard to disk and then restore it after booting a new application program. The data will be saved to a file in the *Desktop Subdirectory* with the name of CLIPBOARD.DATA. After changing to another application, the clipboard can be restored and pasted into the application.

Figure 2
View Clipboard Tools menu



If you have ever saved a large amount of data on the Clipboard and then pasted that data into an AppleWriter document, you know it can be a long process as the Clipboard sends the data to AppleWriter one character at a time. Now it's so much faster to load the file, CLIPBOARD.DATA into the AppleWriter with a load command.

When writing this article I used the Clipboard to pick up the figures. When picking up the first data screen, store it on the disk, and then pick up another screen. Go back to AppleWriter, paste the current clipboard where needed, and then simply load the one saved on disk. Using this procedure, a user can pick up two different portions of a spreadsheet and then go to AppleWriter to paste them. By changing the file CLIPBOARD.DATA to a different name, you can now pickup any number of screen from one application before going to a different program. This new Desktop Setup is going to save a lot of time.

-///-///-///-

What's happening, ///'ers?

Here at **ON THREE** we could nearly conclude that all of your /// problems have been solved by the amount of mail we have been receiving. However, that is not the case. The technical support line is usually busy with calls for help. But, we can't share phone calls in the magazine so why not write so you can share your problems with other /// users in the magazine.

Smart users select the

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- ✔ Apple Speller ///
- ✔ Apple /// Pascal
- ✔ AppleWriter ///
- ✔ Backup ///
- ✔ BPI
- ✔ Business Basic
- ✔ Business Graphics
- ✔ Cobol
- ✔ Draw ON ///
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- ✔ Nexus
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- ✔ PFS: Graph *
- ✔ PFS: Report *
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*Indicates boot disk required in internal drive.

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TCM, XModem Unveiled

by Edward N. Gooding, Sr. /// communications packages

(Editor's Note: Information appearing in bold is XModem info. while italics designates TCM info.)

Those of us who have been telecommunicating with our modems for some time have been publicly clamoring for a communications program that would send error-free files between our computers ever since the IBM PC world was blessed by a communications protocol from a guy named Ward Christensen. This protocol is called Xmodem, and was included in a terminal and file transfer program that Ward donated to the public domain as a shareware program. Unfortunately, this program would not run on an Apple ///, and those of us who understood what this program would mean to ///'ers just had to sit by and envy our IBM PC user friends.

Apple ///'ers have been able to transfer AppleWriter word processing files and VisiCalc spreadsheet files between our ///'s ever since good old Access /// was first released by Apple in 1981. It was one of the original "Special Delivery Software" programs that came out at that time. Access /// also allowed us touse our ///'s as "dumb" terminals and dial into mainframe computers, which I often did as a contract programmer. This allowed me to work at home, instead of having to put on a tie and show up at my client's site. It also allowed me to sleep in, work odd hours whenever I felt like it, and to exercise bodily functions openly that would not have been socially acceptable while at my client's offices. It was great to get up at 9 a.m., throw on a pair of gym shorts and a T-shirt, put on a pot of coffee, and crank up Access /// for a programming session.

One thing that Access /// could not do was to transmit non-Ascii files. These included "RUN-able" Business Basic programs, Pascal and 6502 Assembler codefiles, SOS.INTERP files, SOS.DRIVER files, data files from our favorite data base manager, foto files, and font files among others. The other major drawback to Access /// was that it would not guarantee that what was transmitted to another computer arrived at the receiving end in exactly the same form as it left the sending computer. Often, due to *noisy* phone lines, a data bit would be dropped here or there, and the result would be a spreadsheet that did not work as intended, or a command to a host computer that was not executed properly.

Dr. John Jeppson partially alleviated the situation with his Codefile Transmitter program which he submitted to the Public Domain. This program would allow the user to *encode* a binary file such as a Pascal codefile, in order to make it look to Access /// like it was an Ascii text file. You could then transmit it to a friend via your modem. The only drawback was that your friend also had to have a copy of Codefile Transmitter, and you could still drop bits during the file transfer process. You might be able discover that you dropped a byte by visually scanning the file with the word processor, but if you dropped a bit, it wouldn't be detected until you tried to run the program and found yourself in La-La Land with no ticket home. What the /// world really needed was a program to determine on its own that a bit or byte had been dropped and automatically re-transmit the block of data affected. With such a program, ///'ers could exchange programs and other binary files with complete confidence that what was being received was identical to what was being transmitted on the other end of the line.

Thus, after much nagging of the few remaining Apple /// developers, we now have a choice of terminal programs that offer the Xmodem file transfer protocol. In fact, both programs also offer an extension of Xmodem called Binary II. This is an improvement over Xmodem that is applicable to Apple computers only. Xmodem transferred files always show up on the receiving system as binary data files, regardless of the file type on the sending system. Also, the file name of the received file is set by the receiving party when using Xmodem. When using Binary II, the file name and type are also transmitted with the file's data, so the received file is named, and looks, exactly like the file on the sending computer. This is crucial when sending interpreters and driver files, for instance. If a person sent these files with Xmodem, another program would have to be used to change the file type in order for SOS to recognize them for what they really were. They would have to be named properly when specifying the receiving file name to transmit SOS.KERNEL, SOS.INTERP, and SOS.DRIVER files.

The two programs which answered our telecomputing prayers are The Communications Manager and Xmodem ///. The Communications Manager (TCM) was programmed by Tim Harrington, and is sold by *ON THREE*, Inc. Xmodem /// (X3), was programmed by Gary Kato, and is sold by Pair Software. The versions of each program used for this review were TCM 1.2, and X3 1.6. If you currently own either program, and it is a version previous to these, contact the vendor for an update.

The price of TCM is $52.95, including shipping. For this price, you actually receive two different versions of TCM. A buyer receives an interpreter version to be booted from a floppy disk, or a hard disk with a switcher like Catalyst or Selector ///. A Desktop Manager module version is included to install TCM on the desktop, and access it from any other program. To order the TCM contact ON THREE *at 1-800-443-8877 or in California, 1-800-331-1418.*

The price of X3 is $51.95 including s/h. Pair Software can be contacted by calling (916) 485-6525.

Functional Overview

Both programs are functionally similar, in that they offer the same features, although the mechanics of the functions vary between the two programs. Both include a basic terminal mode, which can used to dial into and use your favorite bbs or on-line service. Both allow the user to transfer and receive Ascii text files, such as AppleWriter files, VisiCalc spreadsheets, and /// E-Z Pieces print files. And, both allow transferring the binary data files identified earlier with either the XModem or Binary II protocols. Both programs can be installed under Catalyst or Selector, and of course, with the Desktop Manager (TDM), the TDM module version of TCM can be installed on a user's existing desktop the program at any time without booting another disk.

The desktop version of TCM "looks and feels" like the other TDM modules, and is consistent in its use of help screens and basic desktop functions. It should be easy for current Desktop Manager users to install and use.

Documentation

The documentation for TCM, with one exception, is consistent with the pre-existing Desktop Manager documentation. I inserted it into my Desktop Manager binder with my other TDM documentation. The 26-page documentation is printed on 8 1/2 by 11" white, three-hole punched paper, using a laser printer. It contains a table of contents, an over-view, instructions for installing (both versions) and starting the program, definitions of some of those bizarre telecommunications terms like duplex, parity, and bits per character, and detailed instructions on how to use the various TCM functions. The documentation does not contain an index, but the detailed table of contents will generally suffice for an index, also. One thing missing from TCM documentation, that I have grown accustomed to seeing in ON THREE *documentation, is the use of graphics along with explanatory text. I did not feel that this hindered me personally in using this program. However, I feel as though it is much more reassuring to a new user when using a program's documentation to see the same screen on the monitor as displayed in the instructions.*

The 12 page documentation for X3 is printed on 8 1/2 by 11" white, 3-hole punched paper, in NLQ mode on a dot matrix printer. It includes a table of contents, general definitions of Xmodem and Binary II protocols, instructions for installing X3 under a program switcher or booting from a floppy disk, six pages of instructions on how to use the various functions, and an index. The documentation makes liberal use of graphics to offer samples of the various screens that X3 displays to the user.

Installation

Both programs require at least a 128K Apple ///, an internal disk drive (though it would be more convenient to use a second drive to store files on), a modem, and the .RS232 driver included in the SOS.DRIVER file. The SOS.DRIVER file included with both boot disks does contain the latest version (1.3) of the .RS232 driver.

To install without an interpreter switcher like Catalyst or Selector ///, simply insert the TCM or X3 boot disk in .D1 and press CONTROL-RESET to start the program. With a switcher program, use the programs' docu-

***ON THREE* presents...** **Incredible buy - less than $50!**

The Communications Manager

The Communications Manager is a powerful tool that allows your Apple /// to communicate or *talk* to other computers or services such as CompuServe™. If you are familiar with other telecommunication programs such as Access /// or Terminus, you should be pleasantly surprised. VT-52 terminal emulation makes the program as powerful as any other Apple /// communications package. You can record incoming text to a printer or disk file for later viewing and transmit standard ASCII and Pascal Textfiles automatically. **The Communications Manager** has almost every feature of those popular programs plus an important extra.

This extra is error free transmission of files via the popular **XModem** and **Binary II** file transfer protocols. This means that you will be able to transfer programs and data - all types of files - between your Apple /// and virtually any other computer system.

The Communications Manager has all of the easy to use features of other **ON THREE** products, and it's the most powerful communications package available for your Apple ///. It's the ***only*** communications package available today for your Apple /// that completely supports the powerful **Xmodem *and* Binary II** protocols. Included with this package is a version of **The Communications Manager** which runs as a stand-alone program and a version that can be installed as an accessory under **The Desktop Manager**.

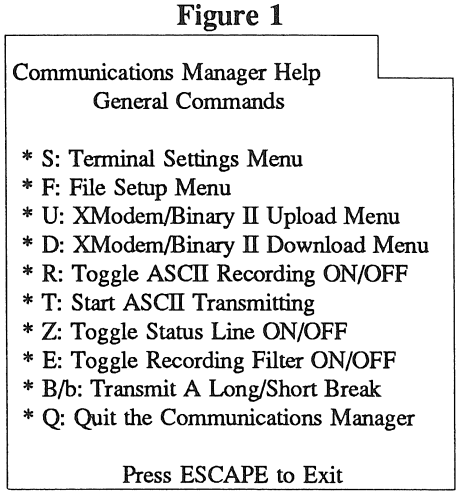
If you have The Desktop Manager, you get the best of both worlds. You can be inside /// E-Z Pieces or VisiCalc and send a spreadsheet or data base file directly! The hundreds of Apple // AppleWorks templates available on bulletin board systems like CompuServe and others can now be yours! Thousands of pictures and other graphics images on CompuServe and other systems can be downloaded to your Apple /// with ease - with **The Communications Manager**. All this for ***only*** $49.95 plus $3 shipping and handling. Order your copy today!

mentation for complete installation instructions. Both are interpreters, and therefore load very quickly.

Desktop Manager users should copy the TDM module version of TCM to the desktop directory and reboot the system to use the program. This program version is especially convenient, as need not leave the program you are using in foreground memory to boot TCM to transmit file(s). For example, if a person uses AppleWriter to compose a letter to a friend on CompuServe, key the letter in, then press Open Apple/Escape to invoke the Desktop Manager main menu and select the TCM option. Once loaded, dial CompuServe, access the electronic mail function, transmit the letter, log off, quit TCM and TDM and you're still in AppleWriter.

Another practical use of the would be for those Apple ///'ers who also own an Apple //e, and use /// E-Z Pieces and AppleWorks. You could update a /// E-Z data base on your /// at work, invoke TCM from TDM, transmit it to your //e via Binary II, read the data base directly into AppleWorks and use it at home. After transmitting the

Figure 1



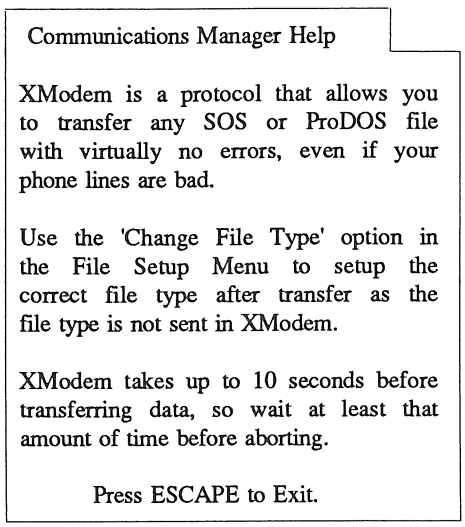
/// E-Z file, quit TCM, exit TDM and be returned to /// E-Z Pieces.

Ease of use

In spite of the complex programming involved to put both programs in our hands, both are relatively easy to use. They offer online help screens, in addition to their documentation.

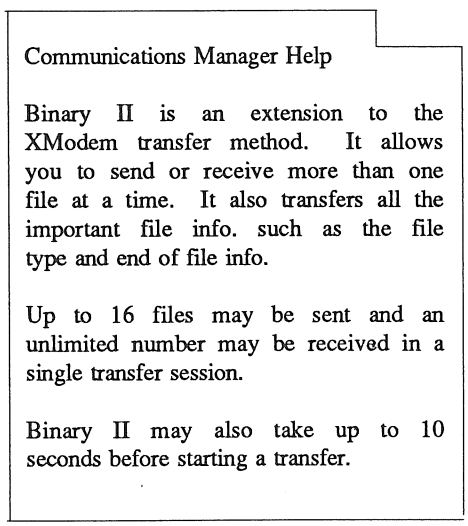
TCM offers several help screens, invoked from a help screen menu which is displayed after pressing Open Apple/? The command key help screen is shown below in Figure 1, and the Xmodem and Binary II help/info screens are shown below in Figures 2 and 3, respectively.

Figure 2



The asterisks in the first menu show up as little open apples on your ///'s monitor.

Figure 3

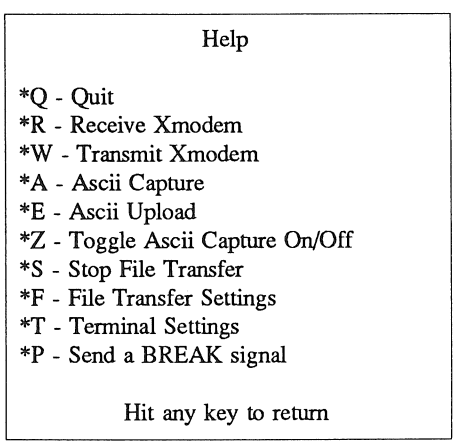


X3 offers a single help screen that is also invoked by pressing the Open Apple/? key sequence. It is presented in Figure 4. The asterisks for Figure 4 also represent open apples on the actual program's display.

Access /// users will find the Ascii terminal function of TCM to be very familiar. Tim Harrington took great pains to use the same command keys to make this possible. For instance, a person uses Open Apple/S to invoke the terminal settings menu, which looks similar to Access ///'s. Open Apple/R is used to turn Ascii Recording mode on and off. The other command keys are logical, in that they are easy to relate to their corresponding functions. For instance, key Open Apple/T to T)ransmit an Ascii File, Open Apple/D to D)ownload via Xmodem or Binary II, Open Apple/U to U)pload an Xmodem or Binary II file, Open Apple/F to invoke the F)ile Setup Menu, etc.

X3's command key sequences do not resemble the sequences of any other terminal program that I have used, and some of them are not quite as logical as TCM's in their naming conventions. For example, key Open Apple/Z to turn Ascii capture mode on and off, and Open Apple/P to send a Break command. However, since there are about 10 command sequences to learn in X3, it should not take a user too long

Figure 4
Xmodem /// help screen



to adapt to using this program.

One thing I find annoying when using X3 is if you inadvertently press Open Apple/Q, while intending to press either Open Apple/A or Open Apple/W, then the program will immediately terminate.

TCM, on the other hand, verifies "Do you really want to quit?" and gives an escape path back to Ascii terminal mode. Also, TCM does not use the

The Beginning /// (continued from page 8)

escent tube. The more the flywheel is off speed, the more the light and the wheel are out of phase, the faster the square will appear to move. Note that on the flywheel there are two sets of circles, one for 60 cycle and one for 50 cycle. It is the 60 cycle one that is used in North America.

Before we are ready to tackle the project, we need a way of spinning the disk drive to see the flywheel and adjust the setting. We can use some program like the List Files instructions of Systems Utilities, but this requires going back to the keyboard many times throughout the process. We need a way to make the disk drive spin until we are finished. *ON THREE* author Ed Gooding suggests a simple, one line program in basic to do the job.

10 CATALOG ".DX":GO TO 10.

Just change the disk drive number (X) for the disk your are working on. **Remember** to regain control from this intentional loop by pressing CONTROL C.

Now, set the speed on a Disk ///. Start with the front of the drive facing towards you. There are four Phillips screws on the bottom of the drive holding the two parts of the plastic case together, and one screw at the top center of the back holding the upper half of the case in place. Remove them and the plastic case. Inside there is a metal case around the drive. This case is held on by two Phillips screws on each side of the drive. The metal inner case slips off towards the back. Without removing the ribbon connectors, move the metal case back. There is enough excess connector wire so the ce will slip off the drive exposing the circuit board. With the metal case loose and the ribbon connectors still connected, turn the drive on its left side so the bottom and the flywheel is exposed. The adjustment screw is on a small printed circuit board at the back of the drive. With it sitting on its left side the brass screw head will be facing up at the very edge of the board. In most drives it will be sticking out of a piece of blue plastic much like the same color as the ribbon connector plug. Place the fluorescent light close to the flywheel and spin the drive. Use the flat bladed screwdriver to turn the brass screw, adjustment *pot*, until the black square appear to be standing still; the drive is now turning at the right speed. Reverse the process to put the case back together.

The Microsci A143 is adjusted in precisely the same way, the only difference is the placement of the adjustment parts. The case is held on to the A143 by two Phillips screws on each side. After removing the sides and top, remove the bottom by taking out the four Phillips head screws holding it in place. With the case off and the drive door facing you lay the drive on its right side exposing the flywheel and drive belt. The brass adjustment screw is pointing up on the main board this time. With the drive on its right side, the adjustment pot is at the edge of the left hand side of the board just about the middle point. Once again it is likely to be sticking out of a blue plastic block, and it will be close to the silver Phillips screw that anchors the circuit board to the drive frame. Once the adjustment *pot* has been located, it adjusts exactly the same as the standard Disk ///.

Remember that if the drive was off by any appreciable amount, it may not be able to read the disk that it previously created. If System Utilities informed you that the drive was off speed during a "Format A Disk" procedure, or it failed the disk test in the Dealer Diagnostic Program, it would probably be a good idea to copy important disks written on that drive to another drive *before* adjusting the speed.

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Apple.Sauce (continued from page 3)

candidate to write an article entitled, "The ///'s for Me." Awhile back, in the second issue of the magazine (February-March 1983), Al Evans wrote an article entitled, "The ///'s for Me." He followed the article with a column entitled, "/// to the Max." In reading over his first article, I asked myself this question, "Wouldn't it be great each month to feature a reader's response to this question?" My answer, of course, was "Let's do it!" I decided, however, that since most of us know how *ON THREE* authors use their ///'s it would be more exciting for those ///'ers who have never had an article published in the magazine to participate. Sorry past authors, but it's time for new faces!

Eligible participants must submit their answers typed (using the ///, of course) on one sheet of 8 1/2 x 11" paper. It can be single or double spaced. Please indent the paragraphs. Participants whose responses are chosen for publication will receive a copy of the author's guidelines before the response will be printed. Remember, this is not a contest between one another, but rather another way to let you know what other people in the /// community are doing. Please be creative but truthful in answering the big question, "Why is the /// for me?"

Faces

ON THREE has been in business for four years, but how often have /// people wondered what the employees (who you speak to over the phone) look like? Would you be able to pick our company president Bob Consorti out of the crowd? What about *ON THREE* authors Richard and Lavona Rann? More yet, can you pick R.J. Lissner, /// E-Z Pieces developer, out of a crowd? What about Rob Turner - is he the same nice guy that wrote most of the Desktop Manager programs or has Apple Computer changed him? I'm sure many ///'ers miss hearing his voice when calling for technical support.

Well, here is your big chance to see what everybody looks like! Call Lavona Rann today or better yet, read the advertisement in this issue for the Phase III conference, gather all the pertinent information and make flight arrangements to be in Chicago, Ill. Oct. 2-4. You won't regret it!

While we are thinking of faces, Terry McNeese will be missed at ON THREE. When he told us he was going into the Navy again, he forgot to tell us that he would be in the Persian Gulf serving with the *other* navy! No, just kidding, he has enlisted in the U.S. Navy once again, to be stationed in Seattle. David Christenson will be taking Terry's place as an *ON THREE* technician.

- ///-///-///-

Open Apple/W and Open Apple/A key sequences, so the chances of accidentally invoking the Quit command are less likely than with X3.

Both TCM and X3 provide a mechanism to abort file transfers at any time if you detect something wrong and decide to terminate the process.

With TCM, use the Escape key to terminate a download or upload. This keeps TCM consistent with other Desktop Manager modules, with most of ON THREE's *other products and other existing Apple /// software. To abort a transmission or receive operation in X3, press the Open Apple/S key sequence.*

TCM does a better job than X3 of reassuring you that things have processed successfully, as well as notifying you of problems. When you successfully complete a file transfer using TCM, you are notified via a window that the process has successfully terminated. At this time, press Return to enter Ascii terminal mode. With X3, the program sits there until it times out, then you are returned to Ascii terminal mode. This could cause some anxiety on the part of new modem users, and I think additional windows notifying the user of successful completion of file transfers would be appreciated by all. See Figure 4.a for an example of an error reporting screen that TCM displays if a user tries to receive a new file over an existing one.

Figure 4.a
TCM file error window

Transfer File Error

Cannot create the file :

.R1/SUPER.TREK

Delete Old File

Delete Old File will attempt to delete the above file and write over it. Change To New File will allow you to specify a new file name for this recording. Cancel Recording simply aborts this recording.

Change To New File

Cancel Recording

RETURN To Accept, ESCAPE To Abort Recording, UP And DOWN ARROWS To Select.

Copy protection

Neither of these programs are copy protected, so they can be backed up with System Utilities immediately upon receiving them. Use your copy for daily use.

Next month

Since both TCM and X3 offer the same functions, I will present each function next month for both programs in a way that they can be compared on an "apples-to-apples" basis. The following functions will be presented in detail:

- Ascii terminal mode
- Ascii file transfer/receive mode
- Xmodem and Binary II file Transfer mode
- Xmodem and Binary II file Receive mode

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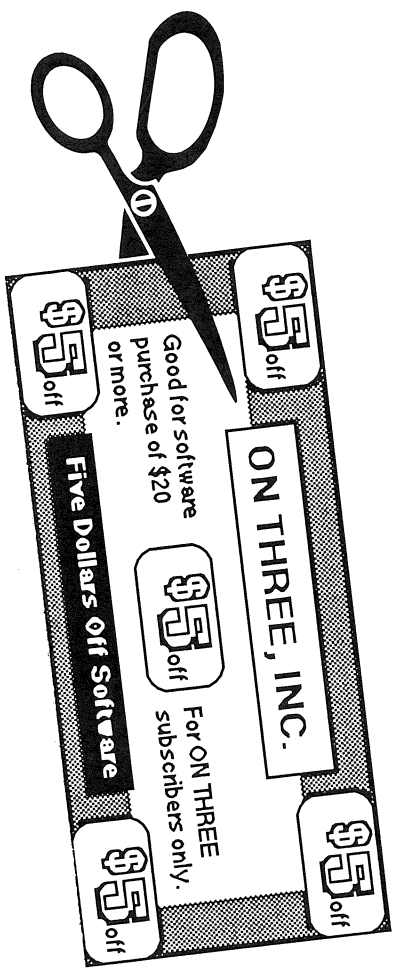

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Ranntings

by Richard and Lavona Rann

The emotional attachment

Emotions are a uniquely human quality. They spur us to great achievement. They cause 250 pound plus football playing behemoths to dance like five year olds in the end zone in victory, or sit along the sidelines and weep in defeat. They bind us together in love or separate us in hate. They color the world around us taking every action and raising it above the mechanical to something that is distinctly human. Emotions tint everything we do. It is not surprising that the Apple /// still raises strong emotions more than three years after production was discontinued by Apple.

Central to the emotions surrounding the /// is a dream of missed possibilities. Each person that curses Apple for discontinuing the Apple /// is looking past what we have in our ///s towards a missed future. Fair or not, they see that the decision killed a limitless dream, and forced us to live in a specific reality. To many it was seen as a personal attack. It hurt them and their self image, engendering the anger and pain. After three years, it is still a sore place. The nineteenth century poet Whittier may have put it best:

For all sad words of tongue and pen.
The saddest are those: "It might have been!"

To some, the Apple /// could have taken man to the stars if only Apple would have allowed it to happen. To them the future of the /// was limitless, but that is not so. The Apple /// is a product of technology, and like any technology, it becomes quickly dated. To claim anything else is to allow our emotions to mask reality. In 1981 and 1982 the Apple /// was the most powerful computer that could sit on a desk top. All the research and development money in the world could not keep the /// as we know it at that peak of technology.

If we look closely at Apple products a life cycle becomes clear. All Apple computers follow the same general cycle. The *Mac* was introduced some three and one half years ago, and that early Mac is as obsolete today as the Apple ///. No one is writing 128K Mac programs. It took two expensive upgrades to bring it to a Mac Plus, and that machine, too, is now obsolete. The Plus is no longer upward compatible. The SE that replaced it is now the standard. In a couple years the Plus will not be able to run the programs being written today for the SE just as the first Mac is unable today to run the programs written for the Plus just last year. The same process occurred with the Apple II line. When the /// was introduced, the Apple II+ was the hot machine. It only took a few years before that machine was obsolete. It cannot be upgraded to a IIe. Not many 48K or less programs are now being written.

Apple emptied the six shooter and did not hit the target.

Three to five year cycle

What we can deduce from this is a three to five years life cycle for a specific computer. The Apple /// was discontinued in 1984, some three and one half years after it was introduced. It could have gone on longer, but it had reached an acceptable life. To think that it could have carried on until today is allowing emotions to dictate to the logic of the situation. There is no denying that the /// could have been more than it was, or that Apple could have done better with the machine. There is no denying that they made mistakes. Apple emptied the six shooter, in the parlance of the Old West, and did not hit the target. In fact a couple of the rounds pierced Apple's own foot. The reality is that after six years, even if things had gone better, our ///'s would still be obsolete, discontinued, machines with no more upward compatibility than they now have in relationship to the GS. Very useful, yes. Technologically up to date, no.

Still there are strong Apple /// supporters that deny the historical imperative of technology. They cling to the notion that the /// was killed without reason. That it was a vindictive act of a small inner group at Apple done for their own self agrandisment. To be sure, there is no way to avoid some personality entering into the business decision making process; however, these arguments reflect less about Apple's decision and more about the personality of the Apple /// owners themselves.

Emotional bond

For some unexplained reason, what was originally envisioned as an intellectual device has become personalized. People relate to their computers emotionally as well as intellectually. Consequently the computer has collected its assortment of buffs and fanatics just as other things like automobiles, and sports teams have before it. In a way that we cannot explain, Apple /// supporters have taken on some of the sad acceptance and camadarie that has always characterized Chicago Cub fans. Their machine is inevitably in decline, and they recognize the fact. The difference between the purely emotional response and one mixing emotion and intellect is one that recognizes the value of the Apple /// as it is.

Apple Fellow, Alan Kay has been interested in the relationship between people and their computer for a long time. He has spent many years studying the way people and computers interact. These studies were part of his work for Xerox in the mid 1970s when he was on the team that developed the mouse interface. Always sensitive to the social relationship of computing, Alan convinced that computers are successful because they amplify normal human traits. One of

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*File management, sorting/selecting segment records, formatting a volume, creating a vanilla file and other important tasks can be performed from within the StemWriter Utilities program. Save valuable time using this program.

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these traits he identified is that of fantasy. "The reason for that is when we think we are dealing with reality we are actually living in a fantasy. This is partially a reflection of our culture and up bringing as well as what our senses bring to us."

We can use computers as extensions of our intellect and as tools to do specific jobs, but in doing so we project part of ourselves into the process. We become involved with the processing that not only captures our mind but our emotions as well. If Alan Kay is at all correct in his assertion of the inescapable fantasy component of computer usage, then Apple Computer did not just stop producing the Apple ///. It *divorced* nearly 100,000 Apple /// users. What could be seen as a business decision really involves much more in the minds of the user. Only a traumatic social change like divorce would involve intellect, emotions, and self image to the same degree.

To test this hypothesis, just look at how some people are reacting more than three years after the event. There are a few that say publicly they will never buy another Apple computer because of what Apple did. Obviously they feel betrayed, their self image was injured and their emotions bruised. They are so tied up in their fantasy of the Apple /// that they fail to see the reality of poor sales, extremely limited software development and aging technology.

For most of us, the last official days of the /// were sad times. We were involved in an emotional way with our ///s, and felt that it should not have been dropped by Apple. We were shocked by the announcement. Most of all, we were hurt and angry about what might have been. The worst part, for most people, was the fact that the /// was just as powerful as any other computer then on the market. The machine still had a good number of years of useful life ahead. It hurt to see something we believed in die, but like everything else in life, most of us gained perspective with time. Today we can see value in the Apple /// and the community that developed around it.

Many of us still have that emotional bond with our ///s, a first love, first computer type of relationship. It is too bad that a few cannot gain a perspective to see just what their relationship to the /// really is. They don't want to admit that the rest of the world does not agree that the /// is a super machine that will slowly evolve into unimaginable power. It is not important whether the machine and SOS could have evolved, the fact is that the marketplace did not allow it to evolve, even after Apple re-introduced it several times.

When Apple had to face reality and develop another approach to the marketplace, it couldn't have been a painless decision for them either. They did what they could to help /// owners by making certain that five years of replacement parts would be readily available and helping to set up a distribution channel for their remaining supplies of hardware and software. No, they did not provide cheap *upgrades* to other Apples for /// owners. Actually, most of us would agree that there was no machine (Apple or otherwise) worth upgrading to at the time. Only now are many of us finding that there are machines with functionality that meet and exceed the capabilities of our ///'s.Considering technological timelines, we have all gotten a fair return from our ///'s. How can we say that? Think about it, most computers are technologically obsolete in three years. It has been over three years since Apple quit selling ///'s and over six years since the machine was introduced.

We are sad that the /// will not have new generations to carry the name and logo into new technology. We would rather the IIGS had been called the ///GS as it probably would have been if sales of the /// had been better. It would have been a dream come true if the new machine emulated the /// and ran our old software just like the old II software is emulated on the IIGS (and the II+ was emulated on the ///). It would also be nice if our Sony Trinitron from two years ago would be *upgradable* to the new stereo capability without having to buy a new machine. Reality is always harsher than fantasy. We will continue to feel sad about the demise of the Apple /// because our emotions are involved, but like Whittier we know, the saddest words of tongue or pen is *the /// that might have been.*

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The Desktop Manager

This is the most complete and sophisticated desk accessory program ever written! Finally you can unclutter your desk the Desktop Manager way. The Desktop Manager places all of the desk accessory utilities you need -- appointment calendar, notepad and calculator -- within every program you own, so you can use them as if they were a part of your original programs. While you are using your program, you cannot see the Desktop Manager. However, by pressing only two keys the Desktop Manager menu appears, ready for your use from within *any* application!

While word processing, have you ever needed to multiply two numbers? Or have you suddenly remembered while in the middle of a spreadsheet the name of that stock your broker suggested, but have no pen or paper nearby to jot it down? Perhaps you've forgotten your spouse's birthday again, although you did write the date on a piece of paper you keep in your desk. Why not increase your productivity while you clear your work area of that old-fashioned calculator, pens and paper scraps, and unnoticeable apppointment calendar? With the help of*ON THREE's* Desktop Manager, you can do all this and more.

From within any program, two keypresses override and freeze your current application and display a window containing the Desktop Manager's main menu. Now you have the power of all of the Desktop Manager's options at your command. Simply select one of the following standard Desktop Manager features:

Appointment Calendar - Set multiple appointments daily through December 31, 1999. As your appointment is due, a reminder appears on your screen regardless of what application you're using. The daily and weekly appointments are shown at a glance and, as with all Desktop Manager options, help screens are only two keystrokes away.

Appointment Calendar

17 Sept 87 9:15:19 AM

You have 2 appointments scheduled for today.

8:30 AM 2:45 PM

SUN	MON	TUE	WED	THU	FRI	SAT
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17 *	18	19
20	21	22	23	24	25	26
27	28	29	30			

Open Apple ? Key For Help. SEPTEMBER 1987

Note Pad

Alabama.....
Alaska.....
Arizona.....
Arkansas.....
California.....
Colorado.....
Connecticut.....
Delaware.....

HELP MENU

General Commands:

*A => Add Another Note
*B => Backs Up to Previous Note
*N => Moves to the Next Note
*S => Shows Note Selection Menu (Help Provided in Menu)
*R => Allow Renaming Active Note
*F => Find Text Within Note
*M => Moves the Note Pad Window (Pressing Escape Will Restore Window Contents)

ESCAPE TO EXIT.

Note Pad - This handy tool has multiple pages per note, word wrap, automatic repagination, pick up and paste, and many other features usually found only in a word processing program. On-line help screens (a standard Desktop Manager feature) make using the Note Pad effortless as well as convenient.

Calculator - A powerful electronic workhorse, the Calculator has full 16-digit accuracy and advanced functions such as SIN, COS, TAN, LOG's, x to a power, square root pi, memory and base conversions in addition to the basic add, subtract, multiply and divide functions. Also, you can invoke a simulated scrolling paper tape for printing later or pasting into another document.

Calculator

0

```
[Hlp][Prt][Tap][CE ][CLR]
[Sin][Cos][Tan][Pi ][ e ]
[Log][Ln ][x^y][Sqt][Bin]
[ D ][ E ][ F ][Deg][Dec]
[ A ][ B ][ C ][Rad][Hex]
[ 7 ][ 8 ][ 9 ][ / ][M+ ]
[ 4 ][ 5 ][ 6 ][ * ][M- ]
[ 1 ][ 2 ][ 3 ][ - ][RM ]
[ 0 ][+/-][ . ][ + ][ = ]
```

```
                25    Sqt
                 5
                 5    *
                 5    +
             79.95    -
             32.01    /
             65.02    -
                 2    Sin
  0.0348994967025    Deg
   .0348994967025    *
               587    +
               100    -
              0.09    +
183.88168537718894    =
367.76337075437788    Sum
                 0    CLR
             55.95    /
                12    *
              0.06    =
           0.27975    Sum
                 0    CLR
```

Spreadsheets, Formulas

by John Lomartire

Solving formulas with spreadsheets

Spreadsheets are powerful tools for handling data, especially numerical manipulations. They also handle mathematical operations and relationships so that formulas can be used to generate numerical values for spreadsheet entry. The more advanced spreadsheets permit Boolean expressions such as IF (this condition) THEN (this result). All three of these attributes are well known and will not be further discussed individually. What is covered here is a procedure that puts these three major strengths of so many spreadsheets to good use.

Turning to the subject of formulas, one finds two basic types.

In the simplest case, a given formula contains variables in such a relationship that each variable can be isolated by re-arrangement of the formula parts. For example:

A = B + C eq. 1

can be solved for B:

B = A - C eq. 2

or it can be solved for C:

C = A - B eq. 3

In such instances, depending on which two of the three variables, A, B, or C are *known*, use of equation 1, 2, or 3 will produce the *unknown* value.

Life, unfortunately, is not always this simple and straight-forward. There are many formulas where variables are *nested* in such a way as to make solutions by formula re-arrangement very difficult and even impossible. An example would be:

$$Y = \frac{X * (X - 2)}{X + 4} \qquad \text{eq. 4}$$

There is no easy re-arrangement of eq. 4 to solve for X.

These types of formulas occur frequently so they cannot be ignored. To add to these woes, it is often the case that these formulas contain multiple variables, some isolatable by rearrangement, and some not. It is convention that the variable to the left of the equals sign is designated the *dependent* variable and those to the right are *independent* variables. This would signify that the independent variables are known quantities that are used to calculate the dependent variable. If the formula cannot be rearranged, how does one solve for a variable on the right that cannot be isolated? In addition, it would be advantageous if the spreadsheet format would permit evaluation of *any* variable without keying in new formulas to do so for each calculation.

It turns out that the inherent capabilities of a spreadsheet can be utilized to solve all types of formulas, even very complex ones.

It is convention that the variable to the left of the equals sign is designated as the dependent variable.

The following examples should present the concepts and techniques involved. In all cases, the spreadsheet is set for manual calculation, not automatic.

Example 1a:

A simple, but useful, formula of interest to almost everyone at one time or another is this one from the financial area.

FV = PV * (1 + R) ^ N

where:

FV = Future Value, $
PV = Present Value, $
R = Interest Rate, *per calc. period* (decimal)
N = No. of Calc. periods.

This relationship is of the *simple* type in that any one of the variables can be isolated as an dependent variable (to the left of the equals sign) by rearrangement of the formula.

Set up the spreadsheet as in Fig. 1.0.

The first thing to note is that values are inputted in column A. Normally, there would be one arrow in column B for each variable in the equation, in this case, four. There are two other entry points shown because the variable R can be calculated from "Rate/yr (decimal)" and "Calcs per yr." (It is customary to express interest rates on an annual basis but the formula requires it to be expressed as interest rate per calculation) Put in col. A, row 17 the formula:

(A13/A15)

to calculate R automatically after "Rate/yr (decimal)" and "Calcs per yr." have been entered.

Any one of the four variable can be solved for by entering a 0 in column A to the left of its corresponding arrow. (In this template, remember to also enter values for "Rate/yr." and "Calcs per yr." if you want the spreadsheet to enter a value for R. If you select to enter a value for R yourself, remember to also enter a value for "Calcs per yr.) When commanded to do so, all calculations will be performed and final values will appear under "CALC. VALUES" in column E. In order for this to happen we make use of the @IF statement in column E, rows 9 - 23 to identify the dependent variable (the one with the 0 entry.)

These are the formulas that would be entered in column E:

Figure 1

	A	B	C	D	E
1					
2					
3	COMPOUND INTEREST RATE CALCS.				
4					
5	FV = PV*((1 + R)^N)				
6					
7	INPUT VALUES		VARIABLE		CALC VALUES
8	==========		==========		==========
9		<===	Future Value	FV	ERROR
10					
11		<===	Present Value	PV	ERROR
12					
13			Rate/yr (decimal)		
14					
15			Calcs per yr.		
16					
17	ERROR	<===	Rate/Calc	R	ERROR
18					
19		<===	No. of time units	N	ERROR
20					
21			Time, in years		ERROR
22					
23			Annualized Rate		ERROR

Row	Formula
9	@IF(A9=0,(A11*((1+A17)^A19)),A9)
11	@IF(A11=0,(A9/((1+A17)^A19)),A11)
17	@IF(A17=0,((A9/A11)^(1/A19))-1,A17)
19	@IF(A19=0,((@LOG10(A9)-@LOG10(A11))/@LOG10(1+A17)),A19)
21	(E19/A15)
23	(E17*A15)

Note that row 23 was added to convert the variable R (rate per calculated period) into an annualized rate.

Example 1b:

Desire to deposit $10,000 for three years. Want to have $12,525 at the end of that period. If interest is compounded every month, at what annual interest rate should it be invested? These figures are entered in the left hand column as shown. Since the object is to solve for R, a 0 is entered in A17. Upon calculation, E23 shows the annualized interest rate.

	A	B	C	D	E
1					
2					
3	COMPOUND INTEREST RATE CALCS.				
4					
5	FV = PV*((1 + R)^N)				
6					
7	INPUT VALUES		VARIABLE		CALC VALUES
8	==========		==========		==========
9	12525	<===	Future Value	FV	12525
10					
11	10000	<===	Present Value	PV	10000
12					
13			Rate/yr (decimal)		
14					
15	12		Calcs per yr.		
16					
17	0	<===	Rate/Calc	R	.0062735286
18					
19	36	<===	No. of time units	N	36
20					
21			Time, in years		3
22					
23			Annualized Rate		.0752823432

The answer appears in the E23: 7.53% per year.

It would be just as simple to find an answer to any other variable. The required formulas are entered only once when the template is first assembled.

Try solving for some of the other variables to get an appreciation for the flexibility of this template.

Draw ON /// —
THE Graphics Tool for the Apple ///

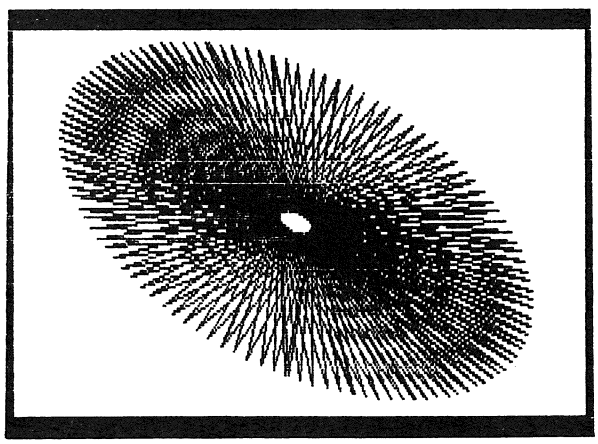
ON THREE is very proud to announce Draw On ///. **Draw ON** brings the power of LisaDraw and MacPaint to your Apple ///. Powerful cut and paste facilities let you create almost anything that you can visualize. Very fast, **Draw ON** lets you "pick up" objects on the screen and "Drag" them around in real-time. This is the most exciting package ever for the ///. With **Draw ON** you can become a one person graphic arts studio!

Since it works in any of the Apple ///'s color or B/W graphic modes and can quickly print out any picture you create, **Draw ON** is the first program to fully take advantage of the Apple ///'s tremendous graphic capabilities. Complex, pseudo three-dimensional figures are easy to create as you can place objects in front of or behind previously drawn objects. CAD is also possible with the powerful "rubber-banding" and grids available.

Ever been bored with some of the graphics that your business charting programs create? Would you like to add different titles? Change the "Look" of the graphs? Use different colors or even texture your graphs? It's all a snap with **Draw ON** /// !

Priced only at **$179.00, plus $5.00 s/h,** this is one of the few programs that you can't do without. All of the pictures in this ad were created with an Apple /// and **Draw ON** ///. **It requires an Apple /// with 256K or an Apple /// plus.**

Don't Miss Out



On This Offer!

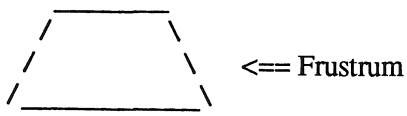
Example 2a:

Moving on to a more difficult situation, consider the volume of a frustrum cone or pyramid shape. (A frustrum is what is left when a cone is sliced horizontally and the top removed.) In this case the basic formula is:

V = (H/3) * (A1 + A2 + ((A1 * A2) ^ .5))

where

V is the volume of the conic segment described by H, A1, and A2
H is the height of the conic segment
A1 is the area of the bottom surface
A2 is the area of the top surface



Two of the variables, V and H, can be restated as dependent variables by rearranging the equation. However, the other two variables A1 and A2 cannot be easily isolated as dependent variables by re-shuffling them.

Start by setting up a template as shown in Fig. 2.0.

The volume V, or height H can be calculated by simply rearranging the formula to make either V or H the dependent variable. However, the two areas A1 and A2 do not have convenient formulas for their determination. Fortunately one of the spreadsheets main attributes, speed, can be put to use to solve for these area variables by iteration (repeated testing of selected values until a suitable one is found.)

(Notice how the selection of certain variable values listed at the bottom of the template can actually extend the applicability of the formula to other situations.)

These are the formulas to be entered in column E:

Row	Formula
9	@IF(A9=0,(A11/3)*(A13+A15+((A13*A15)^.5)),A9)
11	@IF(A11=0,(3*A9)/(A13+A15+((A13*A15)^.5)),A11)
13	(A13)
15	(A15)

In order to solve this type of formula, a series of values are substituted for the sought-for nested *independent* variable. The value for a selected *dependent* variable resulting from the calculation is compared to the desired value for this same dependent variable. By trial and error, the value of the nested variable is narrowed to a point where the dependent variable falls within an acceptable range of the desired (could also be "equal to"). This sounds more complex than it actually is, as we shall see.

To make this process easier, a small template has been added in columns H through L. This small template automates solution of the equation, as explained in the example below.

Enter this formula in column J, row 17

(((J17-L15)/(L13-L15))*(J13-J15))+J15

Finally, for those with Advanced VisiCalc, the procedure can be simplified by setting up this keystroke sequence with label T :

T:(E15)^R#^R^>^>(E9)^R#^R^<^<

If the spreadsheet being used does not have keystroking or macro command capability, the template can still be used.

Any required entries in the Interpolator cells are made manually.

To see how all of this works, consider an actual problem.

Example 2b:

A cone section is desired that has a base radius of eight inches. The cone section is to stand three inches high and have a volume of 500 cubic inches. What is the radius of the top circular area of the segment?

Enter 3 in A11.
Area of the base segment is (3.14159*8*8), so enter this calculation in A13 to get a value of 201.06176.
The DESIRED volume is 500, so enter this in J17.
Enter 0 in A9 since we will be looking at calculated values in E9.
Now it becomes a matter of entering numbers in A15 until E9 equals J17 or is acceptably close.

Figure 2.0

```
      A          B                C            D      E       F  G     H        I        J     K     L
 1
 2
 3    FRUSTRUM OF ANY PYRAMID OR CONE
 4
 5    V = (H/3) * (A1 + A2 + ((A1 * A2) ^ .5))
 6
 7    INPUT VALUES          VARIABLE                  CALC. VALUES
 8    ============================================================
 9                     <=== Volume                 V             0
10
11                     <=== Height of segment      H         ERROR       INTERPOLATOR:
12                                                                       ==============
13                     <=== Area of base segment   A1              0     ENTER HIGH EST.          0           0
14
15                     <=== Area of top segment    A2              0     ENTER LOW EST.           0           0
16
17    (Using zero for A2 in this formula gives the                       ENTER DESIRED  #         0
18     volume of an untruncated cone or pyramid.)
19                                                                       TRY THIS NEXT:       ERROR

      (A1 or A2 can be calculated by the spreadsheet
       by inputting 3.14159*R1*R1 or 3.14159*R2*R2)

      (If A1=A2 then this becomes the formula for the
       volume of a cylinder.)
```

Figure 2.1

```
      A          B                C            D        E        F  G     H          I          J      K     L
1
2
3     FRUSTRUM OF ANY PYRAMID OR CONE
4
5     V = (H/3) * (A1 + A2 + ((A1 * A2) ^ .5))
6
7     INPUT VALUES            VARIABLE                    CALC. VALUES
8     ============================================================
9                  0     <=== Volume                  V             500
10
11                 3     <=== Height of segment       H               3      INTERPOLATOR:
12                                                                          ============
13        201.06176      <=== Area of base segment    A1      201.06176      ENTER HIGH EST.     134.4946          500
14
15     134.49458069      <=== Area of top segment     A2     134.4945807     ENTER LOW EST.            50     351.3268
16
17    (Using zero for A2 in this formula gives the                           ENTER DESIRED  #         500
18     volume of an untruncated cone or pyramid.)
19                                                                           TRY THIS NEXT:      134.4946
      (A1 or A2 can be calculated by the spreadsheet
       by inputting 3.14159*R1*R1 or 3.14159*R2*R2)

      (If A1=A2 then this becomes the formula for the
       volume of a cylinder.)
```

First enter a value close but smaller than A13 in A15 and perform the calculation. This will probably give a value for V (E9) that is larger than the desired (J17). Enter E15 in J13 and E9 in L13. Go back to A15 and enter the expression (J17) to make an automatic transfer of the suggested value for a new calculation. After each calculation, alter the values at J13 and L13 if E9 is greater than J17, or enter values at J15 and L15 if E9 is less than J17.

(If you have Advanced VisiCalc, the calculation step is automated by placing the cursor on either J13 or J15 and using the keystroke T mentioned above. The macro can be expanded even further to automate the iteration step even more.)

With each calculation cycle, the value at E9 gets closer and closer to the desired value at J17 until an acceptable value is reached.

The final calculation is shown in Fig. 2.1. --- A frustrum three inches high, with an eight inch radius bottom surface and a 6.543 inch radius top surface will hold 500 cu. inches. (((134.49458/3.14159)^.5) = 6.543)

One disk could be set aside to contain all formula templates of interest.

This iterative approach can be used to solve complex formulas whether the variables can be conveniently isolated for calculation or not.

For anyone involved in the usage of a variety of mathematical formulas, one disk could be set aside to contain all formula templates of interest. In this way, any equation is solved by calling up the applicable template from the master disk. **Remember:** Within each of these templates, any variable can be determined whether it can be expressed as a dependent variable or not. In addition, as formula templates are added to the disk, a printed version can be prepared on which the correct dimensions for each variable can be stated. With time this would generate a very important and personal calculation manual.

-///-///-///-

Apple.Slices

LaserWriter graphics

With a LaserWriter printer, the best way to make sure that your graphics are centered on the page is to feed the paper manually to the printer. With the paper tray, despite the settings you make in your graphics program, the graphic just will not center from top to bottom when printed.

Desktop memory

Some /// users have been confused about the amount of memory the Desktop Manager modules take up. The Desktop Manager, including all modules written for it now and in the future, only takes up 40K. The system is set up so that when a new module is added, it is tied into the same memory as the regular Desktop Manager. So don't panic when you see a new Desktop Manager module and you wish you could buy it but think there is not enough memory on your system. If you already have *The Desktop Manager*, your ///'s memory is fine. You can add as many TDM modules as you wish!

Fooling BPI Accounting

If you do not have a hard disk but wish to use the BPI Accounting System, there is a way to do so without a hard disk. If anyone has the complete directions on *fooling* the accounting package into believing that your A143 drive is a hard disk, please share it with others.

Accounting plan for /// plus II'ers

Sir-tech Software of Ogdensburg, N.Y. has recently released an accounting package, The CLAN Practical Accountant, for home, school and business. To run on the ///, a user needs either the Titan /// plus II or IIe card. It requires 64K and two disk drives. If you are interested in writing a review of the program for this magazine and your system meets the program's requirements, please contact *ON THREE* magazine as soon as possible to express your interest.

AppleFest

AppleFest is set for Sept. 18-20 at the San Francisco (Calif.) Civic Auditorium. Show hours are from 10 a.m. to 6 p.m. Friday and Saturday and from 10 a.m. to 4 p.m. on Sunday. Over 20,000 people are expected to attend the event. ON THREE will be introducing its new Desktop Manager for the IIGS at this time. For AppleFest info, call (617) 860-7107.

-///-///-/// -

Glossary of Terms

by Rutherford B. Thompson, Jr..

Ending vocabulary study

(Editor's Note: This is the last in a three part series of glossary terms for the Apple ///.)

Pathname - The name that uniquely specifies a file. It consists of the volume name, followed by a slash, /, all directory and subdirectory names which are needed to locate a file, each followed by a slash and finally the file name. Instead of the volume name, the disk drive containing the volume may be specified. If a prefix has been specified previously, then only the directions following the prefix need be specified. Here is an example of the process: .d1/programs/diet.prog/foods. The volume is .d1. The directory is "programs," the subdirectory, "diet.prog" and the file name is "foods."

Prefix - The prefix allows one to select a default directory to be accessed when only a file name (or partial pathname) is used. The reserved variable PREFIX$ allows one to use this rather than typing a long address. This variable is used for the commands: CAT, UNLOCK, LOCK, DELETE, OPEN#n, etc. If you are using Business BASIC 1.23ax, see prog. prefix.

Program prefix - In Business BASIC version 1.23ax there is a new reserved variable called PROGPREFIX$ which is used for all RUN, EXEC, LOAD, SAVE and CHAIN commands. See also the term *prefix.*

RAM - Random Access Memory. the ".RAM" drive is a random access memory which functions like a disk drive except that its memory is volatile, i.e., it is erased by turning off the computer, a momentary loss of power or by pressing CONTROL and RESET simultaneously to boot a disk. RAM is the basis of the Apple /// computer operation as opposed to ROM or Read Only Memory. With RAM, the operations are controlled by the software. See ROM. Apple provided the Apple /// computer with a maximum of 128K eight-bit bytes of RAM. They later provided for 256K bytes (262,144), and now *ON THREE* provides a CPU of 512K (524,288) bytes of RAM.

ROM - Read Only Memory. The operations of a computer which are permanently installed and cannot be changed by software. See RAM. The Apple /// has 4K (4,098) eight-bit bytes of initialization and diagnostic ROM.

Root directory - Main directory associated with a particular volume. May contain subdirectories as well as files.

Serial interface - An interface in which all bits of a given character are transmitted on the same wire one after another serially. The RS232C interface for a modem or a serial printer is serial. Compare parallel interface.

Software - Programs stored on disks, tapes or other storage means, so that they may be called up and used by a computer. See *hardware.*

SOLID APPLE - Another name for the CLOSED APPLE key.

SOS - Pronounced "sauce," it is the name coined by Apple for the Apple /// operating system. There are three SOS files required to operate any boot disk: (1) SOS.KERNEL - operating system program; (2) SOS.DRIVER - driver file; and (3) SOS.INTERP - interpreter program. When reading a catalog of files these files will be designated as "Sosfile." Most boot disks also contain a program which runs automatically when the disk is booted. SOS stands for Sophisticated Operating System. Other computers use a different operating system and give it a different name, e.g., DOS for Disc Operating System.

Subdirectory - A directory within a directory. See *volume.*

Terminal - A keyboard and monitor with or without a printer which can operate a computer, usually from a remote location. The terminal, strictly speaking, cannot operate alone. However, the Apple /// can be made to operate as a terminal through the use of certain programs such as Access ///.

Text - Printed information that a person types or will read. Files shown as text files are generally of this type, though some special files may also use this designation as the file type. ASCII file is another designation for text.

User friendly - when the user needs to know very little about the operation, this is referred to as a "user friendly" program. In this process, the operating instructions are given as the user operates the program. In addition, there is probably a special key or keys to press for more information, such as OPEN APPLE-?.

Volatile - Easily lost such as information that is in the computer's memory and will be lost in the case of a power interruption. Information on a floppy or hard disk is not volatile even though it may be erased.

Volume - A magnetic card (hard or floppy) containing information. All volumes must have names. The names can be obtained by addressing the drive containing the volume and asking for the catalog or listing of files. The

Glossary of Terms (continued on page 31)

Apple /// User Groups

California
Sacramento Apple /// User Group
1433 Elsdon Circle
Carmichael, CA 95608
(916) 482-6660

Orange County Apple ///
User Group
22501 Eloise Avenue
El Toro, CA 92630

LA-So. Bay Apple ///
Users Group
P.O. Box 432
Redondo Beach, CA 90277
(213) 316-7738

Apple /// Users of
Northern California
220 Redwood Highway #184
Mill Valley, CA 94941

International Apple Core
Apple /// S.I.G.
908 George Street
Santa Clara, CA 95054
(408) 727-7652

Canada
Apple **British Columbia**
Computer Society Apple /// S.I.G.
P.O. Box 80569, Burnaby, BC
Canada V5H3X9

The Astronic Club
1453 Highbush Trail
Pickering, **Ontario**
Canada L1V1N6
(416) 839-7779

Colorado
Colorado Apple Three User Group
P.O. Box 3155
Englewood, CO 80112

Connecticut
Apple /// Society of South Conn.
34 Burr School Rd.
Westport, CT 06880
(203) 226-4198

Florida
Sarasota Apple /// User Group
c/o Computer Center
909 S. Tamiami Trail
Nokomis, FL 33555
(813) 484-0421

Georgia
Atlanta /// Society
385 Saddle Lake Road
Roswell, GA 30076
(404) 992-3130

Illinois
TAU, c/o Lavona Rann
1113 Wheaton Oaks Drive
Wheaton, IL 60187
(312) 665-6319

Kansas
Kansas City Apple /// Users Group
5533 Granada
Roeland Park, KS 66205
(913) 262-3355

Maine
So. Maine Apple Users Group
Casco St.
Freeport, ME 04033
(207) 865-4761 ext. 2249

Maryland
Apple /// S.I.G. Chairman
Washington Apple Pi
8227 Woodmont Ave. #201
Bethesda, MD 20814
(3011) 654-8060

Minnesota
Minnesota Apple Corps User Group
P.O. Box 796
Hopkins, MN 55343

New Jersey
North Jersey Apple /// Users Group
c/o Roger T. Richardson
P.O. Box 251
Allamuchy, NJ 07820
(201) 852-7710

North Carolina
North Carolina Apple /// User Group
2609 North Duke St. #103
Durham, NC 27704

Ohio
Cincinnati Apple /// User Group
5242 Horizonvue Drive
Cincinnati, OH 45239
(513) 542-7146

Apple **Dayton** - Apple ///S.I.G.
P.O. Box 1666
Fairborn, OH 45324-7666
(513) 879-5895

Oregon
Oregon Apple /// Users Group
1001 S.W. 5th Ave. #2000
Portland, OR 97204
(503) 645-6789

Overseas
Apple /// Users
Belgium/Netherlands
c/o R. Van der Straeten, Vestinglaan 49
2580 Sint-Katel ijne-Waver
Belgium
(015) 205328

Apple User Group **Europe** e.V.
Box 11 01 69 D-4200
Oberhausen 11
West Germany
0049-6195-7 3917

Apple /// User Group
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c/o J. Woretshofer
Ganzerikweerd 22
NL-6229 TG Maastricht
The Netherlands
(043) 611704

British Apple Systems User Group
(BASUG) Apple /// S.I.G.
P.O. Box 174
Watford Herts, England WD2 6NF
0727 7339/72728

Le Club Apple
43 Avenue de la Grande-Armee
75116 Paris, **France**

Apple /// User Group
c/o Canberra Accounting Services
P.O. Box 42
Duffy A.C.T. 2611
Australia

Texas
Apple Corps of **Dallas**
Apple // S.I.G.
P.O. Box 5537
Richardson, TX 75080

River City Apple Corps /// S.I.G.
Box 13349
Austin, TX 78711
(512) 454-9962

Houston Area Apple Users Group
(Apple /// Division)
P.O. Box 610150
Houston, TX 77063
(713) 480-5690 or 974-5153

Virginia
Charlottsville Apple /// User Group
216 Turkey Ridge Road
Charlottsville, VA 22901
(804) 642-5655

Greater Tidewater Apple /// User Group
Route 2, Box 216
Hayes, VA 23072
(804) 642-5655 or 898-3500, ex. 2671

Apple THREE Group International
c/o H. Joseph Dobrowolski
P.O. Box 913
Langley AFB, VA 23665
(804) 865-7520

If you wish to meet other Apple /// owners and exchange ideas, contact one of the user groups listed above.

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ON THREE and *First Class Peripherals* (Xebec) will no longer be bringing you Sider 10 and Sider 20 hard drives. However, ///'ers who have already purchased Sider 10 and Sider 20 hard drives through *ON THREE* can count on *ON THREE* tech support, should any problems arise.

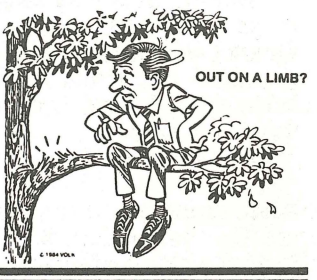
ON THREE presents...

The Uncopyprotect Driver $19.95 plus $2 s/h

ON THREE has not changed its position regarding duplicating copyrighted programs for profit or to give away, but since many Apple /// software products are no longer supported, owners of AppleWriter ///, VisiCalc, and VisiCalc Advanced Version are facing the problem of what to do when a diskette "crashes." After much consideration we decided to proceed with a product to solve that problem. *The Uncopyprotect Driver* will allow you to make back up floppies of the above programs. For the first time, you can put your master disk in a safe place and boot on the duplicate.

Economically priced at only $19.95 plus $2.00 shipping and handling, the *Uncopyprotect Driver* comes with full documentation and will work with *Selector* /// so you will no longer require a "key" diskette. The *Uncopyprotect Driver* is sold for legitimate *Archival* purposes only. *ON THREE does not condone* and will not condone duplicating a disk for any other purpose.

One, Two, /// Forum



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Save this receipt. Your ON THREE subscription may be tax deductible.

DATE:_____
Amount:_____
ON THREE MAGAZINE

Big Horn Collection Computers
Cody, Wyo.

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If any ///'ers wish to order from BHCC, just write them at P.O. Box 3237, Cody, WY 82414.

What's in the mailbag?

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Robert Sudduth,
Braunschweig, Germany

From time to time, I'd like to share comments made by readers about the articles in **ON THREE** *magazine. I would also like to thank those who do write, like Mr. Sudduth, and share their words of appreciation for the magazine and the many, many authors who do so well. Thank you for the encouragement, Mr. Sudduth.*

Graftrax - Panasonic combo

I would like to thank your technician Terry McNeese for his assistance and persistence in the troubleshooting and repair of my new Microsci A143 drive. Many other vendors would have simply given up, returning my money.

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Orange County Apple ///
User Group
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El Toro, CA 92630

LA-So. Bay Apple ///
Users Group
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Redondo Beach, CA 90277
(213) 316-7738

Apple /// Users of
Northern California
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International Apple Core
Apple /// S.I.G.
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The Astronic Club
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Englewood, CO 80112

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Westport, CT 06880
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(813) 484-0421

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Roswell, GA 30076
(404) 992-3130

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We love the Apple ///

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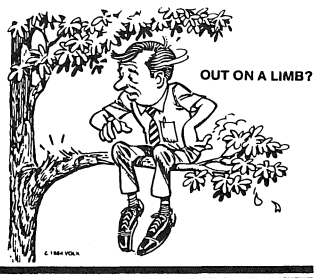

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I've read a couple of times about the often-overlooked file conversion programs on AppleWriter /// which converts Apple /// files to Apple // and vice versa. Is this restricted to text files such as word processing or will VisiCalc or PFS files, for example, convert both ways? There is a program called "Apple Turnover" for converting Apple II files to IBM and back again. Could an IBM file from the office be first "turned over" to Apple II, then brought home and again converted to Apple /// format using AppleWriter utilities? Then, use VisiCalc on the /// to work the files and eventually convert to Apple II and be ready for "Apple Turnover" at the office the next day?

As a result of our answering the questionnaire to Dr. Alan Bloom, we have received an inquiry and order for Merge ///. For what it may be worth we are authorized dealers for Merge /// and even though Forsyth Computers apparently does not supply the program anymore, we still do. It is something to behold what this program can do in personalized letters working with AppleWriter ///.

One can make up their own data base files under the A3FIELDS, or use VisiCalc, Mail Manager, Access ///, and PFS data, although we have worked only with AW3FIELDS and PFS.

We have found it is not only a powerful but also a profitable program. We used it in our collection agency to produce personalized and effective payment demands. We had a "clients" data base on PFS and Merge /// permitted us to make effective, yet very economical, contacts with clients.

Burt Whitlock,
Big Horn Collection Computers
Cody, Wyo.

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the filter in assembly language or to obtain any other filters to gain the other features not supported by the filters of Quark? Would this be a suitable subject for an upcoming article? I know that AppleWriter /// has this ability using WPL (yes, I have been reading *all* of your articles, even those on software I don't have), but I don't have any plans to replace this otherwise excellent word processor.

Also, could you print an article on Pascal for those who are familiar with BASIC or Fortran which has a similar logical method of program development? An example with translation from BASIC to Pascal would be helpful. Pascal has such a great depth of commands and flexibility that a good tutorial would be a great help. I could probably go on much longer, but this is enough for now.

Robert W. Hernquist,
Mundelein, Ill.

We appreciate your comments about **ON THREE** *technician Terry McNeese. We try to go all out for the customer when there is a problem.*

Regarding your questions, they are just fine for this column and here are the answers. First of all, Graftrax allows graphic capabilities with the Epson printer. The only way you can possibly use it with your Panasonic printer is by purchasing a different interface board. The APL board will not work smoothly and would require quite a few adjustments. If you pick up either a PKASO or UPIC board, Graftrax should work fine with your printer.

The problem with your clock may be that you need a new battery backup. I suggest that you test it to see if it is working properly.

You can buy a RAM Diagnostic disk from **ON THREE** *for $15 plus $2 shipping and handling to test your system. Make sure that you specify the disk is for a 256K when ordering.*

Word Juggler does have complete utilization of printer commands as long as you select Epson as your printer filter. So there is no need to worry about patching the assembly language to utilize all of your print commands while in Word Juggler.

Your article suggestion is great. There is a Pascal tutorial planned in the near future. Richard and Lavona Rann will give readers all the instructions needed to get going in Pascal.

Tech support tips

I would like to state my opinion on (*ON THREE* president) Bob Consorti's editorial comments made in the summer sale mailer. People, /// users included, will use the 800 number for technical questions. Telling them not to do so is an unlikely solution. Why don't you consider selling on-phone technical support as an option? Eliminate the "800" number or make it a tech support line, with timed charges to credit cards. You people provide a nice service. If we want it and need it, we have to pay something for that. I would do it if were a fair rate.

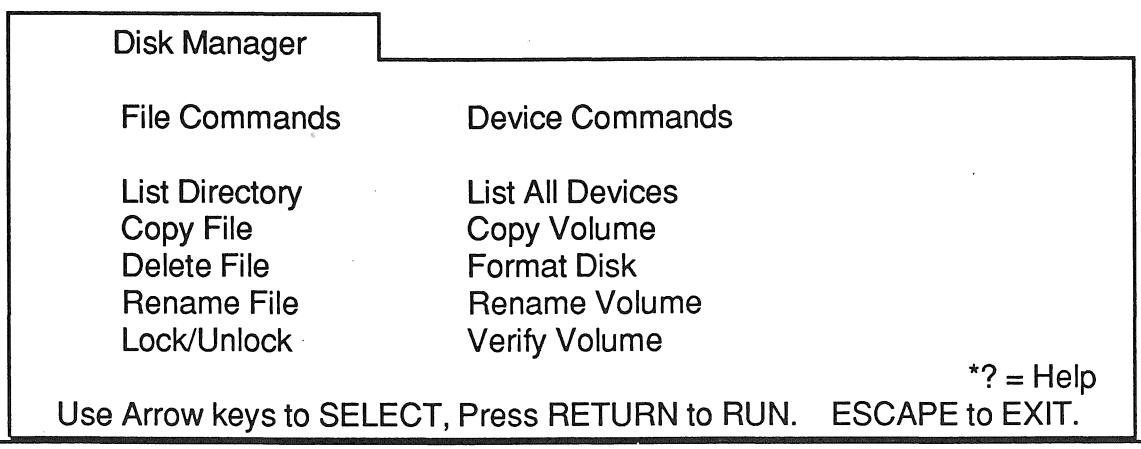
As a director of a small non-profit organization, I have tried asking people to cooperate, for our financial security and it *doesn't work* well. Bob will just not find people to

ON THREE presents...

$44.95 plus $3 s/h

Disk Manager

This Desktop Manager module features the most frequently used applications of Apple's System Utilities and makes them available to your from within any program. Copy, delete, rename, lock/ unlock and list all of the files on your disk without leaving the program you're using. Copy, format, rename and verify *volume* commands are available as well, so you will never again lose data because you exited a program to format a disk.



be all that logical. He will need to make and take a firm stand that does not allow people to misuse. You cannot base your hopes on whether owners will "follow the rules."

Jim Reisinger,
Skokie, Ill.

ON THREE *certainly doesn't want to start selling support for its own products. However, as you mentioned, there are people who abuse their privileges and some type of action must be taken. We are hoping that the ones who have abused the order line will stop and think about it now* before *the free help is discontinued. If a person calls for support on the order line, they are asked to call our (805) 644-3514 number. This has alleviated most of the problems. We thank you for your input into our policies and am glad that you understand where we are coming from. Most people do not understand and believe that we* owe *them the free technical support when indeed it is a bonus for buyers.*

Reminiscing

After receiving your appeal in *ON THREE* NEWS, what can I say? It is distressing to see the increasing signs of the end of the Apple ///. To some who are well-healed this may be a time of sentimental and affordable regret but to others of us, this is a far more painful sadness. Our days of heavy investment are passing and the future looks grim!

It was back in 1982 that I bought my Apple /// - and paid through the nose! It was a *great* machine but the money boys were playing games and I was one of the victimized solitary individuals. What a refreshing thing to hear about your proposed publication. I was there with you from the start and I have every issue of *ON THREE* except for two that were *borrowed* and never found their way back (Vol. 3 #6, and Vol. 4 #4).

My /// was only 128K but I got a Clock from you and Lazarus only to find that I had to send Lazarus back. 128K was too small! Finally in 1984 I was able to get my /// up to 256K. That year I got Draw ON /// for $153.95 and also, at your recommendation, PKASO-U and a Zenith color monitor. Quite a year.

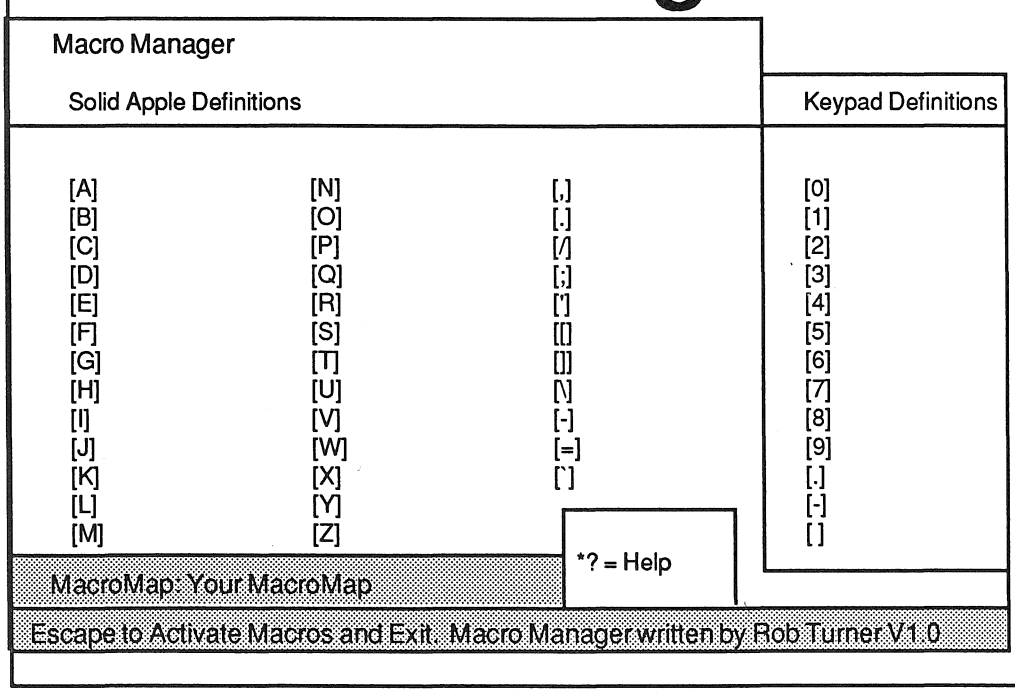
1985 turned out to be another big year. I got a MicroSci A143 from you for $345.50 and had the good fortune to fall into a second-hand 256K /// for only $400, which helped to bring down my average investment in my two ///'s. Besides, I now had a safety back-up and also we had a "his" and "hers" a happy and helpful arrangement in our house! But 256K was obviously restricting for some of our work so I managed to get the 512K board toward the end of that year for $559 - full development price! You also - for an extra $10 - gave me some Draw ON disks that would at long last allow me to print.

In 1986, Graphics Manager appeared. Just in time. I got it - and Sandman! But my needs were calling for a hard disk. The MicroSci was maddening, just a little too small for too many of my gifts primed the situation and you were offering the UniDisk 3.5 as a large 800K disk that would work on the ///. You got my $509 and I got my "poor man's hard disk." A very satisfactory solution.

So 1987 started with great promise. But the "shake down

ON THREE presents...

Macro Manager



Macro Manager allows you to define a single keypress as a series of keystrokes you can play back anytime. You can also record over 2,000 keystrokes as you type and invoke them later by pressing one key. One MacroMap™ can hold 50 defined keys, called macros.
With Macro Manager, you can create up to 200 different MacroMaps, so you need never type repetitive information again. Let Macro Manager, a Desktop Manager module, do it for you! Order today for $44.95 plus $3 s/h.

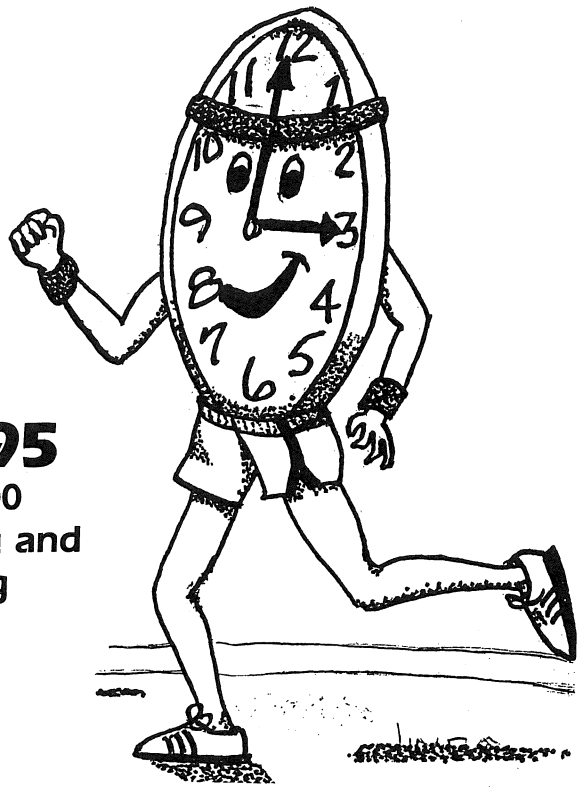
Get off and running with the ON THREE O'Clock!

Let the ON THREE O'Clock be your stop watch today!

Believe it or not, a lot of folks have plain forgotten (or never knew) that the Apple /// was designed to operate with a built-in clock and that, with a clock chip installed, SOS will automatically time stamp and date all file saves.

When the Apple /// was first released, the supplier of Apple's clock chips could not supply a working clock. As a result, the /// was supplied without a clock of any kind. Now maybe you are wondering when you list a disk directory, how the time and date magically appears.

Not too long ago *ON THREE* developed a clock for the Apple /// which plugs in right where the never-released Apple clock was supposed to go, and for just $49.95 plus $3.00 shipping and handling, this easy to install, SOS-compatible clock can be yours. It comes with comprehensive instructions and *ON THREE*'s limited six-month warranty and does not use any of your precious slots.



$49.95
plus $3.00 shipping and handling

With an *ON THREE O'Clock* installed, whenever you save or modify any type of file, the current time and date will be added to the directory listing so you can always tell at a glance which file you last worked on, and when. But that's not all. Business Basic has two reserved variables, DATE$ and TIME$, which return, respectively, the current date and time to your BASIC program. These reserved variables can then be used whenever you want to print the date and/or time in a BASIC program.

Special Combination Offer

There's a great deal more you can do with *ON THREE's ON THREE O'Clock* if you also have our *Desktop Manager*. Whenever you want, you can display the current date and time on the screen with one keypress. Since this is a background function, you can be word processing with AppleWriter or entering data into VisiCalc, and with one keystroke you can obtain updated time information. In addition, you can use the *Desktop Manager*'s Appointment Calendar to enter items you want to be reminded of and, like magic, when the time comes, no matter what you are doing, a message will appear on your screen to gently chide you via the *Desktop Manager* to make that phone call now, etc.

Now The Appointment Calendar is not the only feature of the Desktop Manager, you can read about the Calculator, the Notepad, and the others elsewhere, but since the *Desktop Manager* requires a clock, we want to offer you a money-saving deal. Purchased together, you can get the *ON THREE O'Clock* and the *Desktop Manager* for only $173.95 plus $8.00 shipping and handling. Now is the time to take advantage of this special offer.

Desktop Manager/ON THREE O'Clock Combo

$165.95 plus $8.00 shipping and handling

cruises" made it clear that Catalyst was giving me troubles. I turned to Selector. Great! Except Power Keys was also giving me troubles. I put $180.80 into practically all of your Desktop offerings. And that is where things now stand. All in all, over $2,230 has gone your way since 1982.

Which is to say that I have been trying to do my part in giving you support and encouragement all along. At practically every point you have served me well, and I am glad. I want you to know that. I have repeatedly thanked you for it in my correspondence with you.

Of course there is more that I would like: a 512K board for my 256K ///, a Unidisk 3.5 to chain my present UniDisk and the new Communications Manager to move beyond my Access ///.

Hang in there! I am hoping that you will get a good response to your appeal. I am one of those who are going to need you for a long, long time.

Rev. Francis K. Wagschal,
New York, NY

Bravo! Bravo! Rev. Wagschal, you have already played your part in helping **ON THREE** *stay in business. If every /// owner became the dependable customer which you have been since DAY 1 - the appeal would never have had to be made. Thank you for your longtime patronage to* **ON THREE**. *You are one person that we are very grateful to! We will be there for you in the future.*

Also to clear up any misconceptions, **ON THREE** *magazine will always be here for you, but the* **ON THREE** *order department may not always be here, depending on user support.*

Timeless spreadsheets

I would like to know if anyone has found a good way to deal with *time* as a value when using a spreadsheet or data base. It seems that with so many people using these tools for many years now that someone has found a logical if not simple way to have our microcomputers deal with hours, minutes and seconds as values. Obvious uses are in billing cost per hour, figuring the payroll of hourly workers or, as in my case in broadcasting, adding or subtracting blocks of time when building elements of a production.

I have been searching books and magazines for such an article - but alas found none to date. I can usually do the calculations faster with a pencil than enter the values into several columns of a spreadsheet and watch all the conversions to and from decimal numbers to get the answer to something like: two minutes and 22 seconds minus one minute and 43 seconds.

Thank you in advance for your help and thank you also for publishing a fine magazine especially for us fortunate enough to enjoy using the Apple ///.

Don Eaton,
Wentzville, MO.

I am sorry that no one here at the office can help you with time values using spreadsheets. I am hoping that by publishing this letter, someone in the /// world, who has either just discovered, or has been hiding the secret, will definitely give us a call or write a letter with a full detailed explanation of this process. The process would definitely make your life and others' so much easier. Thank you much for supporting **ON THREE**.

-///-///-///-

Glossary of Terms (continued from page 25)

name for the Profile hard disk (addressed as .PROFILE) is profile. Think of a volume as a room of file cabinets. Each cabinet is a directory, each drawer in each cabinet is a subdirectory and in the subdirectories are the files containing the desired information. However, these files may be in file folders which are themselves subdirectories of subdirectories. There may be many subdirectories or none.

Volume name - A one to 15 character name by which one can refer to a volume. The name must be composed of only letters, digits and dots. The first character must be a letter. Lower case letters are almost always acceptable and will be transformed by the Apple /// to uppercase. When used in pathnames instead of the specified prefix, the name should be preceded by a slash, /, (e.g./MY.VOLUME.1). A volume may also be addressed by the drive in which it is located such as .d2, .RAM, .PROFILE.

Wildcard - A character, such as = (equal sign), used to represent common characters, specifically used in file names. The System Utilities program permits this use in several applications.

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Call Three: Hotline

The Call Three Hotline is a service whereby Apple /// owners and users with questions can call an area number for answers. The individuals answering you calls are fellow Apple /// users who volunteered to help those in need over some rough spots. They are not compensated for this service, so we owe them a resounding "three cheers" for their kindness and generousity.

If you are willing and able to aid others by answering questions, please write to ON THREE and provide the necessary information. If you have questions, feel free to call our consultants listed below. Please observe the calling hours shown, and, before placing a call, double check the time zone so you don't inadvertently wake someone. No other restrictions apply to this service.

For your reference, the accompanying table lists subjects and abbreviations used in the "Subjects" column of the consultant listing.

Name	Area	Telephone	Days	Hours	Zone	Subjects
Colville Woodburn	NH	(603) 863-5590	M,Tu,Th,F	7-8 p.m.	Eastern	BB,CT,GE,MI,QU,WP
Ken Johnson	MA	(413) 536-7502	Su-Sa	6-9 p.m.	Eastern	BB,PA,MD,WP,MI
Don Loosli	MI	(313) 626-3848	M-F	9-5 p.m.	Eastern	GE,WP,SS,DB
Harry T. Hanson	NJ	(201) 467-0712	M-F	6-9 p.m.	Eastern	GE,PA,BB,CT
Edward Gooding, Sr.	VA	(804) 747-8751	Su-Sa	6-9 p.m.	Eastern	CO,SS,PR,MD,CT
Jeff Fritz	WV	(606) 353-9493	M-Sa	8-11 p.m.	Eastern	BB,DB,GE,MI,SS,TC,EP
Al Johnston	FL	(904) 739-1600	M-F	9 -6 p.m.	Eastern	GE
Paul Sanchez	FL	(305) 266-5965	Su-Sa	10-4 p.m.	Eastern	SS<PR,CT
R.B. Thompson	NC	(919) 787-1703	Su-Sa	10-10 p.m.	Eastern	BB,DB,GE,SS,WP
J.Donald Glenn	NE	(402) 291-9177	Su-Th	7-10 p.m.	Central	GE
Scott Weddel	NE	(402) 572-7543	Su-Sa	4-10 p.m.	Central	GE, TC
Jim Ferencak	IL	(312) 599-7505	M-F	10 -5 p.m.	Central	GE,EP,DB
Paul Thomas	MS	(601) 494-8736	Su-Sa	6-10 p.m.	Central	GE,AC,BB,CP,DB,FI,MI,PA,PR,SO,SS,TC, EP,WP
Earl T. Brelje	MN	(612) 455-6405	M-F	4-9 p.m.	Central	CT,DB,WP,GE,Quick File, Omnis 3
Ron Maupin	TX	(512) 280-0144	Su-Sa	8 a.m.-10pm	Central	AL,CO,CT,EP,MD,PA,QU,SS,TC,WP
Rodney Hendricks	TX	(214) 581-0524	Su-Sa	6-9 p.m.	Central	DB,EP,GE,MD,QU,SO,SS,TC,WP
Terri Wiles	CO	(303) 850-7472	Su-Sa	10-6 p.m.	Mtn	PA
William Prince	OR	(503) 254-6465	M-F	9-4 p.m.	Pacific	GR,TC,Corvus
Karl La Rue	WA	(509) 582-6459	F-Su	6-10 p.m.	Pacific	MD,GE,EP,WP,TC,SS,CP
Pat Holwagner	CA	(415) 433-2323	M-F	10-6 p.m.	Pacific	GE,SS,WP,CT,DBSU,AE,EP
Viincent F. Latona	CA	(818) 703-0330	M-F	9-5 p.m.	Pacific	GE,WP,BB,SS,AE
Dennis R. Cohen	CA	(818) 956-8559	Su	10-10 p.m.	Pacific	GE,PA,MU,WP,DB,SO
			M-F	7-9 p.m.		
			Sat	noon-6		
Kelly C. McGrew	WA	(206)943-8533	Su-M,Th-Sa	7-9 p.m.	Pacific	DB,GR,SS,PR,MD,CT
Larry E. Kalland	AK	(907) 272-4968	Su-Sa	12n-11pm	Alaska	AC,CT,GE,SS,EP,WP
H. Van der Straeten	Belgium	(015) 205328	Su-Sa	7-10 p.m.	Europe	BB,CT,DB,GE,PA,PR,SS
Robert C. Sudduth	Germany	(0531) 35851	Su-Wed	6-9 p.m.	Europe	AL, GE, PA, SO (German or English)
Arnaud Trache	France	21 03 04 21	Sa-Su	10-7 p.m.	Europe	AC,BB,DB,AE,FI,GR,MD,PR,SS,TC,EP,OT
J. Woretshofer	Netherlands	043-611704	Su-SA	9-12 a.m	Europe	CT,FO,GE,PA,QU,SO,WP,AE,EP
Salvador Garcia	Spain	(91) 234-5068	Su-Sa	7-10 p.m.	Europe	BB,GE,PA,MD,CT

Abbreviation Table

Subject	Code	Subject	Code	Subject	Code	Subject	Code
Accounting	AC	Agriculture	AG	Assembly Lang.	AL	Business Basic	BB
Catalyst	CT	Cobol	CO	CP/M	CP	Data base	DB
Education	ED	Emulation	AE	Financial	FI	Fortran	FO
General	GE	Graphics	GR	Micro-Sci	MI	Modems	MD
Modula-2	MU	Pascal	PA	ProFile	PR	Quark	QU
SOS	SO	Spreadsheets	SS	Telcom	TC	/// E-Z Pieces	EP
Word Proc.	WP	On Three Prod.	OT				

ON THREE'S HELPLINE:

If you live in an area without a user group or free consultant, you may want to call *ON THREE* from 8 a.m. to 5 p.m. Pacific time. *ON THREE* will give free help as long as the products purchased from *ON THREE*. Help with any other products will cost *not purchased* through *ON THREE*, will cost $5 for the first three minutes, and $1 per minute, thereafter.

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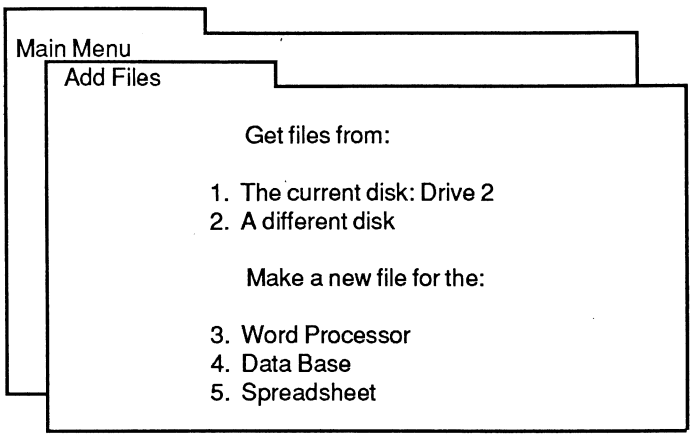

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a new multi-level arcade game by Mel Astrahan

- Use with joystick, keyboard or mouse
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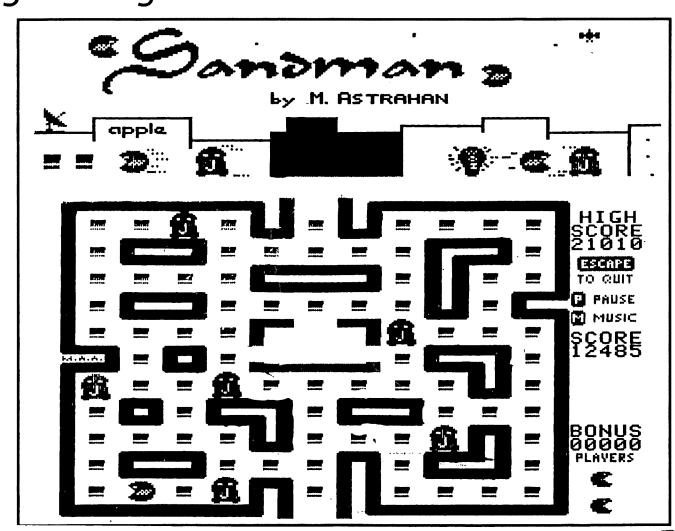
The objective of **SANDMAN** *is to score as many points as possible. Salvage all of the Apple ///parts discarded throughout the halls of Apple's labyrinthian research lab to receive points.* **WARNING!** *The lab is haunted by the ghosts of* **JOBs**. . . *if they catch you, you're done for!*

Your only weapon against the **JOBs** *is to find the* **WOZ** *who wanders about the lab peeking in on various projects. For a short time following a meeting of* **SANDMAN** *and* **WOZ** *the* **JOBS** *turn blue and may be exorcised if you can catch them.*

"—Brilliant, colorful and fast moving, Sandman will provide hours of fun."



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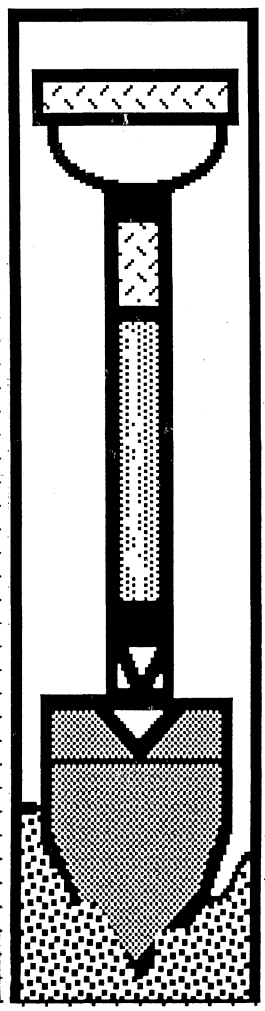
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