ON THREE

The Magazine For Apple III Owners and Users

Volume 3 - Number 2

February 1986
$4.00 U.S.

Graphically Speaking

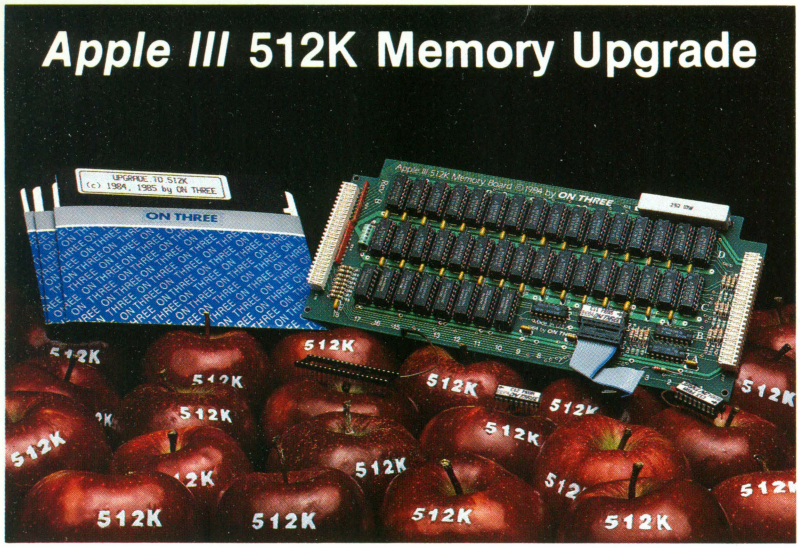
I ♥ My Apple ///

Reviews:

Lexicheck
Post Master

PLUS:

- printers
- systems



= Increased Productivity Through Your More Powerful 512K *Apple ///!*

ON THREE Presents. . .

For everyone who has wished for more memory in their *Apple ///* or *Apple ///* plus - here it is!

The ***ON THREE* 512K Memory Upgrade** is a simple replacement memory board, and all programs running under SOS will work with it. How would you like your Visicalc (regular and Advanced version), *///* E-Z Pieces, Applewriter, Business Basic, Selector *///*, Catalyst and others to have about 450K to work with?

If you have ever run out of room with a huge spreadsheet model, the **512K Memory Upgrade** is just what you need. Just think of the forecasts that you could create with your **512K** *Apple ///*! If you have ever filled memory working with an *Apple ///* program like Visicalc or *///* E-Z Pieces, the **512K Memory Upgrade** will give you the room you need. The extra memory will give your Visicalc or *///* E-Z Pieces spreadsheets room for the largest model that you can imagine.

How would you like to be able to type PRINT FRE in *Apple ///* Business Basic and the response that comes back is: 467452. That's over 456K of available space in Business Basic. With that much room, the *Apple ///*'s version of Basic is one of the most powerful on the market.

Have you ever had problems putting some programs on your ProFile hard disk while running under Catalyst? Since Catalyst takes up a good portion of memory, there are times when there isn't enough memory to go around. Many programs will not run at all under Catalyst because of memory limitations. Some programs will run only on minimal Catalyst systems. That means no spooling, no special purpose utilities like ONTIME or the Calendar-Pak, and a lot of dynamic driver loading. Who needs problems like this? With the **512K Memory Upgrade**, your problems with programs not fitting while running under Catalyst will be solved. You will be able to put Lazarus and Draw ON under Catalyst and have your Draw ON pictures being printed out while you undelete a file with Lazarus or even work on your word processing with Applewriter or Word Juggler. The BPI system and all other large programs such as Keystroke will now fit easily under Catalyst.

Included in the **512K Memory Upgrade** package is a diskette that will check your memory for any errors, thus giving you confidence that your **512K Memory Upgrade**works correctly. In addition to the confidence program, we are including a new disk drive for your *Apple ///*–a RamDisk drive! This disk drive is simply a new device driver that takes a portion of your 512K *Apple ///*'s memory and uses it as an ultra-fast disk drive. If you want, you can add this driver to your disks to store and retrieve information at lightning fast speeds. Using one of the popular program switching utilities like Selector *///* or Catalyst, you can use the RamDisk for quickly storing information that you need to transfer from one program to another.

The **512K Memory Upgrade** is the single most exciting thing to happen to the *Apple ///* in a long, long time. Using state of the art 256K memory chips, the board is very simple to install and even easier to use. The **512K Memory Upgrade** will NOT take up an expansion slot as it is a simple board swap-out. Just keep on using your existing programs--you don't have to change them! Visicalc, Advanced Visicalc, *///* E-Z Pieces, Applewriter, Business Basic, Pascal, Catalyst, Selector *///* and many other programs will automatically have about 450K of memory to work with.

The *ON THREE* 512K Memory Upgrade

is specially priced at only **$399**[*2‡]

The **512K Memory Updrade** includes . . .

1) An *Apple ///* **512K Memory Board** using state of the art 256K memory chips.
2) The **Confidence Memory Program** which will ensure that your **512K Memory Board** is working correctly.
3) The RAM ultra-fast **RamDisk** drive with demonstration programs.
4) The **Upgrade to 512K Utility** that will update all of your disks so that they will work with the memory upgrade, and the **updated** version (**1.2**) of the **System Utilities** program that permits larger SOS DRIVER files.
5) **Complete** instructions for installation and use.
6) A full **90-day Warranty**

*The ***ON THREE* 512K Memory Updgrade** can only be used on a 256K *Apple ///* or an *Apple /// Plus.* If you have an old 128K *Apple ///*, the upgrade costs **$449**‡ + shipping (there is no rebate), and it must be installed by a dealer or by ***ON THREE***. We offer same day turnaround on 256K or 512K memory upgrades and charge only $50 plus shipping for the installation.

²The purchase price of the **512K Memory Upgrade** is $449‡ plus shipping. After installing the new **512K Memory Board,** return your old 256K memory board to us and you will get a rebate of $50.

‡Price effective through 1/31/86 only.

Ordering Information

Item:	Price:	Shipping:
512K Memory Upgrade	**$ 449**	**+$10.00**
A143 560K Floppy Disk	**$ 399**	**+$ 6.50**
A3 143K Disk Drive	**$ 299**	**+$ 6.50**
Trustor 10H Hard Disk (Main Drive)	**$ 999**	**+$35.00**
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Trustor 10H Combo (Main and Second)	**$1848**	**+$70.00**
Trustor 30 Hard Disk	**$1999**	**+$35.00**
Draw ON /// Graphics Tool	**$ 179**	**+$ 5.00**
(Specify which printer and interface card you are using.)		
Apple /// Fruit Machine	**$ 19.95**	**+$ 2.00**
Apple /// Card Machine	**$ 24.95**	**+$ 2.00**
Game Combo (Fruit & Card Machine)	**$ 39.95**	**+$ 3.00**
Lazarus /// File Restoration	**$ 49.95**	**+$ 2.00**
ON THREE O'Clock	**$ 49.95**	**+$ 3.00**
ONTIME Utility Package	**$ 39.95**	**+$ 2.00**
ON THREE O'Clock - ONTIME Combo	**$ 79.90**	**+$ 4.00**

ON THREE
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Ventura, California 93003

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Printing:
California Offset Printers, Inc.
Glendale, CA

ON THREE™—*The Reference Source for the Apple ///* is published monthly by *ON THREE*, 4478 Market Street, Suite 701, Ventura, CA 93003. (P.O. Box 3825 Ventura, CA 93006.)

For a copy of author guidelines, send a stamped, self-addressed envelope to the above address. Current page rate: $35 per printed page.

Return postage must accompany all manuscripts, diskettes and drawings submitted if they are to be returned. All manuscripts longer than 500 words or program listings longer than one half page must be accompanied by a diskette if they are to be considered. No responsibility can be assumed for unsolicited materials.

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Subscription information:
U.S.: $40 for 12 issues.
For First Class service, remit an extra $12.
Foreign subscription information:
Canada, Mexico, APO, FPO: $20 *additional*, $60 total.
So. America, Europe: $24 *additional*, $64 total.
Pac. Islands, Asia, Australia, Mid-east: $29 *additional*, $69 total.

Back Issues:
Available at $5 each. Please indicate issues desired on the enclosed order form.

Postage for *ON THREE* products:
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Canada and Mexico: double listed US prices.
Outside North America: triple listed US prices.

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ON THREE™

The Magazine For Apple III Owners and Users

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ON: The Cover

This month the ON THREE cover symbolizes the "I Love My Apple ///" logo and the spirit of St. Valentine's day. You can support the /// with our wild t-shirts, sweat shirts and caps. [See references elsewhere.]

Cover art by Virginia Carol

Call Three: Hot Line/Apple /// User Groups

If you would like to get together with other Apple /// owners and exchange ideas, a user group is for you. Below is a listing of all Apple /// user groups known to us. If you have recently formed a group or know of one we have not listed here, please contact *ON THREE* and let us know so that they may be included. There is no charge for this service.

California

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

Orange County Apple /// User Group
22501 Eloise Ave.
El Toro, CA 92630
(714) 951-1231

Fresno Area Apple /// User Group
4175 N. Blackstone
Fresno, CA 93726
(209) 224-2983

Los Angeles-South Bay Apple /// Users Group
c/o Sun Computers
1848 Pacific Coast Highway
Lomita, CA 90717
(213) 541-2311

Apple /// Users of Northern California
220 Redwood Highway #184
Mill Valley, CA 94941
(415) 383-0203

Psychologists on /// West Covina/Glendora Apple /// User Group
413 W. Heatherglen Lane
San Dimas, CA 91773
(818) 963-2980

Canada

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

Colorado

Colorado Apple Three User Group
6818 S. Magnolia Ct.
Englewood, CO 80112

Florida

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

Georgia

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

Illinois

MThird Apple Users Group
P.O. Box 176
Chicago, IL 60690

Kansas

Kansas City Apple /// User Group
3800 Cambridge
Kansas City, KS 66103
(913) 588-6025

Maine

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

Maryland

Apple /// SIG Chairman Washington Apple Pi
8227 Woodmont Ave. #201
Bethesda, MD 20814
(314) 654-8060

Massachusetts

Applesauce
24 Dickinson St.
Amherst, MA 01002

New Jersey

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

Ohio

Cincinati Apple /// User Group
7960 Shelldale Way
Cincinatti, OH 45252

Overseas

Apple /// Owners & Users Group International
c/o Maj. H. Joseph Dobrowlski
AF SOUTH/JLD Box 149
FPO New York 09524

Texas

Apple Corps of Dallas
Apple /// SIG
P.O. Box 5537
Richardson, TX 75080

Houston Area Apple Users Group (Apple /// Division)
P.O. Box 610150
Houston, TX 77063
(713) 688-3102 or 974-5153

Virginia

Charlottsville Apple /// User Group
216 Turkey Ridge Road
Charlottsville, VA 22901

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

Washington

Seattle Apple /// User Group
9630 240th Place SW
Edmonds, WA 98020
(206) 546-3019

The *Call Three: Hot Line* is a service whereby Apple /// users with problems can call an area number to get assistance. The individuals answering the phones are fellow Apple /// users who have volunteered to help others over some of the rough spots. They are not compensated for this service, therefore we owe then a resounding "three cheers."

We would like to expand this service even further, so if you are familiar enough with your machine to be able to aid others and answer questions, please write us, stating your areas of expertise and availability in terms of days and hours. Certainly you can bask in the knowledge that you have been able to help a fellow Apple /// user.

For those of you who have questions, feel free to call our consultants listed below. **Please** observe however, the calling hours shown and before placing a call, double check the time zone so that you don't inadvertantly wake someone up! There are no other restrictions on using the service other than as stated above. Again, **please** remember these people are volunteers, and if we receive information indicating that calling hours are not being observed, we will have no choice but to remove the consultant from the listing or, worse, discontinue the service.

The following is an alphabetical listing of subjects and abbreviations used in the "subjects" column of the consultants listing.

Subject	code	subject	code
Accounting	AC	Graphics	GR
Agriculture	AG	Micro-Sci	MI
Assembly Lang.	AL	Modems	MD
Business Basic	BB	Pascal	PA
Catalyst	CT	ProFile	PR
Cobol	CO	Quark	QU
CP/M	CP	SOS	SO
Data Base	DB	Spread-sheets	SS
Education	ED	Telecom.	TC
Financial	FI	Word Proc.	WP
Fortran	FO	Emulation	AE
General	GE	/// E-Z Pieces	EP

Name	State	Telephone	Days	Hours	Zone	Subjects
Coville Woodburn	NH	(603) 863-5590	M,Tu,Th,F	7-8pm	Eastern	CT, QU
Ken Johnson	MA	(413) 253-2298	Su-Sa	6-9pm	Eastern	BB, PA, MD, WP, MI
Don Loosli	MI	(313) 626-3848	M-F	9am-5pm	Eastern	GE, WP, SS, DB
Richard F. Malley	CT	(203) 232-9505	M,Tu,W,F	6-9pm	Eastern	GE, SO, WP, SS, QU, CT, PR
Harry T. Hanson, Ph.D.	NJ	(201) 467-0712	M-F	6-9pm	Eastern	CO, SS, PR, MD, CT
Edward N. Gooding, Sr.	VA	(804) 747-8751	Su-Sa	6-9pm	Eastern	CO, SS, PR, MD, CT
Al Johnson	FL	(904) 739-1042	M-F	9am-6pm	Eastern	GE
Paul Sanchez	FL	(305) 266-5965	Su-Sa	10am-4pm	Eastern	SS, PR, CT
John & Lisa Beckett	MO	(417) 678-2500	M-F	6-9pm	Central	GE
J. Donald Glenn	NE	(402) 291-9177	Su-Th	7-10am	Central	GE
Jim Ferencak	IL	(312) 599-7505	M-F	10am-5pm	Central	GE, EP, DB
Neil Quellhorst	IL	(217) 434-8727	Su-Sa	7-9pm	Central	AL, BB, GR, PA, SO, TC
David B. Hays	KS	(316) 722-1242	M-F	7-11pm	Central	GE
Terri Wiles	CO	(303) 850-7472	Su-Sa	10am-6pm	Mountain	PA
Pat Holwagner	CA	(415) 433-2323	M-F	10am-6pm	Pacific	GE, SS, WP, CT, DB, SU, AE, EP
Vincent F. Latona	CA	(818) 703-0330	M-F	9am-5pm	Pacific	GE, WP, BB, SS, AE
Carl & Anita Reynolds	CA	(714) 734-9324	M,Tu,Fr	4pm-9pm	Pacific	GE
Wayne Hale	CA	(619) 450-3856	M-F	7-11am	Pacific	BB, GR, CT
Dennis R. Cohen	CA	(818) 956-8559	Su-Th	10am-10pm	Pacific	GE
Kelly C. McGrew	WA	(206) 943-8533	Su-Sa	6-10pm	Pacific	DB, GR, SS, PR, MD, CT

The Editor Dishes it Out:

Apple.Sauce

val j. golding

Freebies,Threebies

Freebies are giveaways, and (double entendre here) the purpose of this column is to "give away" a few hints about our story line-up for this issue and to tempt you to flip the pages and start reading. (Betcha can't read just one.) Secondly, we're giving away the stories themselves. *ON THREE* is *the* source for Apple /// information and resources. As we move back into high gear, our intent is to provide you with a balance of material, whether you are a beginning user, an experienced hacker, or somewhere in between.

While we're doing all of this giving, you too can give by letting us know what you want to read about, what subjects appeal to you most. And while you're at it, it might not be a bad idea to pass on to us some of those sneaky little tricks you've learned, tricks that just might help another reader out of a tight spot. There are a couple of ways you can do it. You can pound out a brief note to the editor, and we will post haste post it in our *Three Questions* letters column or, you might try your hand at writing an article for us. We certainly have a constant need for new and fresh material. Speaking of *Three Questions*, that's what our letters column is designed for, to answer questions. So if you are stumped on something, give it a try. *ON THREE* is your Apple /// support group.

Introductions are in Order

In a single paragraph, we'd like to introduce **Mel Astrahan** and his new column, *Graphically Speaking*, which leads off this issue. Mel is the author of *ON THREE's* famous drawing program, the *Draw ON /// Graphics Tool*. Each month he will touch on a topic of interest to graphics users, ranging from computer aided design to font generation, etc. His initial contribution, *Installing NTSC and RGB Monitors* will get you up and running in color graphics.

Carol Chrzanowski is a member of a strong and active Apple /// group in Denver whose "Apple /// Forever" philosophy is echoed in her club's policy of free advertising in their newsletter. In *Denver is More than Dynasty*, Carol reports briefly on the world of the ///, then offers three (no pun intended) mini-reviews of software from Colorado-based companies.

As promised, we have brought back **Art Schumer** to conclude his review on the Quark Word Juggler family of products, entitled *And in a Supporting Role...* Naturally, the one review which caught our eye was "Typeface", a program to interface Word Juggler to a typesetting machine. We believe you will find them all of interest.

Recently, we have seen a number of ///'s pass through the used market as the owner base (but obviously not the number of machines) continues to expand. If you are one of those recent purchasers, we have a couple of stories that may be of interest to you.

Llona Cunningham, whose name is well known to regular readers of *ON THREE*, has proffered a treatise categorizing different types of applications and how to shop wisely for them. If you are looking for just the right tool to do a job, then *Computer Applications* was written with you in mind.

For a newcomer, and some old-timers as well, it is often confusing, to say the least, to create a new system, reading in drivers, etc., just because you have acquired a new piece of software or a new peripheral. *In the Beginning* by **Kevin FitzMaurice** is a step-by-step guide to configuring your system, along with explanations of the logic behind SOS's unique design. (It sure makes sense to us.)

A sore point with many computer users is the complete lack of standards for hardware and software printer control codes. Since Epson appeared on the market, their popularity itself has resulted in a de facto standard, but some printers just plain don't conform. **Jerry Lewicki's** *Confusing the Apple Dot Matrix Printer* may go a long way toward resolving that problem with the DMP and the ImageWriter look-alike. Jerry's bit is a BASIC program that does all the work for you; select a few items from the menu to change fonts, etc., and throw away the printer manual (which is probably wrong, anyway).

Neither last nor least is *AppleWriter: A Footnote*. More than likely, AppleWriter /// is your word processor of choice. This paper by **John LoMartire** corrects some serious errors in the AppleWriter manual *and* the program itself. Basically, you are told that footnotes of 1024 characters are possible on one page, but not a word on how to generate them. In fact, it is not possible to approach anywhere near this figure, but after reading this, you will certainly be able to deal a great deal more with footnotes. John tells all.

Hearts and Flowers

Yes, St. Valentine will soon be with us; it is indeed that time of year. We hope our gifts above will be well received. As our cover indicates, we love our Apple ///. And what better occasion and better way to show it than with an *ON THREE* "I love my ///" T-shirt, sweat shirt or cap. With T-shirts at only $11.95 and in a wide variety of colors, what a "cap" to the *ON THREE* quality line of hardware and software products.

We recently mailed a circular describing a portion of our product line and detailing some of our newest. If you did not receive a copy, possibly because you have moved, please make sure we have your most recent address and drop us a note requesting a free copy. We'll be more than happy to ship one your way.

Notes from the Publisher:

Block_Write

bob consorti

As I sit down to write this column I am working under a deadline. Val says I'm going to be dead unless I finish it. I never knew that I had hired such a slave driver! I'm sure everyone out there likes it though. We are now on a *monthly* publishing schedule! You have no idea of how good it feels to write those words. Over the past few years I have been spreading myself very thin trying to do everything. It's a joy to be able to have an issue of *ON THREE* printed each and every month.

Enough of that for now. Some of you may be wondering just what my position in putting the magazine together is now that Val is the editor. Well, over the past couple of months I've been pondering that same question. Basically I'm acting as support for Val in his learning endeavors with the ///. I keep him fairly well stocked with your questions and my answers for the *Three Questions* section of the magazine. Other than that, I just keep an eye on things - making sure that you can look forward to the best the /// has to offer.

With Val as the full time editor, I'm free to help our head programmer, Rob Turner, create the state-of-the-art programs that everyone has been asking for. The *ONTIME Desktop Manager* is our latest project. By the time you receive this magazine, we will be shipping this fantastic tool. Everyone who has an Apple /// should own a copy. Ads for the Desktop Manager are elsewhere in this issue. By now you may have heard about the Desktop Manager. If not please read on.

The *ONTIME Desktop Manager* will clear your desk! With a single keypress you now have available 1) A full feature Appointment Calendar, 2) A full feature Calculator, 3) A full feature Note Pad (rivals some word processors), 4) The ability to use the mouse from within any application program and much, much more! Just press a button and any of the Desktop Manager utilities will appear in a window on the screen. You can use the utilities to set appointments, figure some numbers, jot down a few notes and generally increase your productivity. I could go on for pages about the Desktop Manager (maybe next time Val will let me!) Suffice to say that this product will revolutionize the way you use your Apple ///.

How Fast Can We Go?

Rob may get upset because I'm not really supposed to talk about it yet, but along the development path for the Desktop Manager we scrapped the Apple /// Pascal Assembler. The main reason was for its lack of speed. For some of the larger Desktop Manager Utilities, the Apple /// Pascal Assembler took over 30 minutes to assemble. What did we change to? Well, it's tentatively called the 'Rob & Bob Assembler', but the name may change. We designed it to be the fastest assembler ever! It's just a little bit faster than the Pascal Assembler, by about a factor of 120. The 400K of source code (the assembler itself) takes the Pascal Assembler about 30 minutes to do, while the Rob & Bob Assembler can do it in about 15 *seconds*!

As I write this column, the assembler does not support relocatable code, so you Business Basic Invokable module writers will have to wait a little. Adding the relocation information into the assembler will probably take another month or so. We do support almost the entire Apple TLA formats and with some expansions. If you are doing any serious developmental work on the ///, give Rob or myself a call and we'll keep you posted on its progress and let you know when it may be available .

Two-Timing Chips For The Apple ///

It's no big secret that Apple is preparing their replacement for the Apple //e. The //x as it has been called is presumed to use the new 16-Bit 65816 micro-processor chip. The standard 8-Bit 6502 variety is falling by the wayside. For those of you interested in such things, the new chips (65816 and 65802) offer a variety of new instructions and modes. The new chip can directly access two bytes at a time (16 Bits) versus the 6502's single byte at a time. What this really means is a speed increase.

"Big deal," you say? "It will only make me dump my /// quicker," you curse. Wrong! The 65802 is a direct replacement for the current 6502 in your Apple ///. We have already tested the new chips in the machine and they work just fine. Rob modified our .RAM ramdisk driver just slightly to use the expanded modes of the 65802, and the darn thing operated over 33% faster! None of your current programs will be able to take advantage of the extra speed capabilities of the new chip without major modifications, but *ON THREE* has some things planned.

We have been trying to get Apple to release the source code to the Apple /// operating system (SOS) for some time now. If they ever do, we will modify it to use the new chip. Since most of the time your programs are working is spent inside the operating system, we feel that the speed-up will be significant. Hopefully Apple will agree and let us pursue this enhancement for all Apple ///'s. By the way, *yes*, our new assembler supports the new chip and its widely expanded instruction set.

512K Memory Notes

The *ON THREE 512K Memory Board* now works with *all* Apple /// software. The last hold-out was Word Juggler, but it too now supports the extra memory in your 512K Apple ///'s. Special thanks go to Tim Gill, President of Quark, Inc. for taking the time out of his busy schedule to complete the upgrade. If you have a 512K Apple ///, contact Quark directly for information on upgrading your current disks to the latest version.

All of our older memory board purchasers were recently mailed a set of the latest upgrade disks. These new disks contained the upgrade to /// E-Z Pieces that allow that program to use the full memory in their 512K Apple ///'s. We received a number of the packages back because people have moved, etc. If you have an *ON THREE 512K Memory Board* and have not received the update to /// E-Z Pieces that gives you a 410K-plus desktop, please contact *ON THREE*.

Last Notes (For this time, that is!)

P.S. Happy Valentine's Day!

Connecting RGB and NTSC Monitors:

Graphically Speaking

melvin a. astrahan, ph.d.

This is the first in a series of articles I will be writing on the subject of computer graphics and the *Apple ///*. The Apple /// has some rather remarkable color and black-and-white graphics capabilities. In this series of articles I will delve into such subjects as: Computer Aided Design, specific business and artistic applications of *Draw ON* /// (a new and powerful software graphics package for the Apple ///), the various Apple /// graphics modes, memory organization, hardware, projects, some powerful assembly language routines, Pascal and Business Basic graphics programming, character font generation, and so on. This initial article commences with adding color graphics capability to your Apple ///.

Which Monitor Should You Purchase?

I have noted numerous letters in this and other publications indicating confusion about color monitors and the Apple /// computer. This was rather surprising to me, since the first thing I did when I purchased my computer a couple of years ago was hook up an NTSC composite monitor (the type an Apple][uses) so I could play the Apple][games in emulation mode. As a physicist and electronics hobbyist however, I suspected I was in a much better position to handle the problem than many other new Apple /// users. One of the main reasons I chose Apple /// was because it met the needs of my professional work, such as respectable word processing ability, graphics capability, the ability to handle large data arrays for physics and engineering problems, and by using the emulator, I could play *Zork* or *Raster Blaster* on weekends. The Apple /// provides all of the color information required for both NTSC composite video and RGB computer video via a 15-pin connector on the rear. In order to connect the NTSC signal, all you need is the correct plug.

Out of curiosity, I recently made a brief survey of five southern California Apple dealers in Los Angeles and Orange Counties. I found one dealer with a more-or-less functioning color monitor (an incorrectly color balanced *Taxan*), one with an incorrectly connected monitor (an *Amdek* yielding only 8 of the 16 available colors), one with a correctly connected high resolution RGB monitor and two who had no color monitor connected, although every Apple][in the store had one. None of the sales people knew how to properly connect a color monitor, let alone anything about the rather incredible computing power or system design of the Apple ///. One dealer even had an RGB color monitor of the type which is directly compatible with the /// (and even was designed specifically for it), sitting in a box in a corner, for sale at a bargain price, since they had apparently forgotten what it was for.

Before I discuss the actual connection procedures, a brief discussion of the applicability of the various types of monitors is in order. If the only reason you need a color monitor is to play Apple][games (in emulation mode), you should purchase an NTSC composite monitor. Many inexpensive NTSC monitors use a picture tube similar to those found in conventional TV sets. The manufacturers remove the tuner section, and in some cases, the audio section as well, and sell what remains for about the same price! Not a bad deal for them, but I doubt they sell enough to permit the same profit margin per unit as with conventional TV sets.

Some monitors, however, seem to exhibit better frequency response than their TV set cousins. Frequency response in a monitor is a rating factor which is directly related to how 'sharp' a dot the monitor can make on the screen and how true its color is. Poor frequency response results in 'blurring' the dot by spreading it out over a larger area of the screen, resulting in lower overall intensity. Another factor which determines sharpness and color purity is the phosphor dot packing density (the number of red, green, and blue phosphor dots per unit area) on the screen itself. The better monitors use a special screen with more and smaller phosphor dots. This is important, since you might want to put a small blue dot at some location on the screen, but if the phosphor dots are too large, only red phosphor may be available at the desired location.

In Apple][emulation mode, the only color signal the /// produces is via the NTSC output (when in emulation mode, the RGB circuit interpret the graphics memory in hi-res black and white for a reason which is probably hardware oriented). The NTSC composite is essentially the same quality signal that an Apple][produces, except for a small anomaly which occasionally causes some uncontrollable flickering of the left-most edge of some games. This is a fairly minor annoyance, and does not occur all of the time. The reason for this flickering is also apparently hardware oriented.

The NTSC signal is also the same type as is used by a video cassette recorder (VCR), and in fact you can directly record the video output of the Apple ///. If you are short on cash, but have a VCR, you may connect the /// to the video-input jack on the VCR (they all have them for dubbing purposes), and play the games on your standard TV set, although the picture quality will be poorer than using a high quality monitor directly.

Several factors are responsible for this, the primary ones being the generally better frequency response of a monitor, and bypassing the necessity for a TV channel carrier. A good quality 13 inch NTSC composite monitor should cost between $250 and $350, while a top quality monitor can cost up to $800, depending on screen size.

If you would like to use the advanced color graphics and text capability of the /// in native mode, you may still use the same monitor with no change whatsoever, although the picture quality will be similar to that of an Apple][or other game type computer. One of the more delightful characteristics of the Apple /// is its impressive 16 color text (and graphics) capability, a decidedly under-used feature in all the software I have seen available to date. (*ON THREE is doing something about that! ...ed.)* Highly readable color text is a powerful software tool for directing your attention to a location on a crowded screen and/or organizing data for easy correlation and recognition. In order to take advantage of this capability, an RGB color monitor is absolutely essential.

In an RGB monitor, the computer directly controls the red, green, and blue color guns of the video monitor, with no mixing and encoding of the color information into a composite signal. This results in character sharpness and color quality equivalence approaching that of your black & white or green monitor (such as the Apple monitor ///), depending on the quality of the monitor you choose. Even with the poorest RGB monitor I saw at a dealer (an Amdek), the picture was significantly better than that from the NTSC signal. You should get the highest resolution monitor you can afford, with a rated resolution in pixels of a minimum 560 horizontal by 192 vertical. The greater the resolution, the more distant a dot will appear to be, and the truer its color will be. RGB color monitors for the Apple /// are available priced between $400 and $1400, the most expensive capable of reproducing far more resolution than the signal the computer can output.

The monitor I recommend for the Apple /// is the 13 inch Electrohome ECM 1302-2 (Electrohome USA Limited, 250 Wales Ave., Tonawanda, New York 14150) with a pixel resolution of 580 by 235 (10 mhz bandwidth). Electrohome is a well known Canadian manufacturer of home television sets and monitors used in medical imaging and other industrial applications. The 1302-2 is actually assembled by JVC for Electrohome. It is pin-for-pin compatible with the Apple /// color video port and includes built in color balancing for the Apple /// color set. Two years ago this monitor was about $800, it should now be available for about $450 (I dropped by the Electrohome booth at the last NCC conference here in Anaheim. They sent me product information indicating a suggested list price under $500). This monitor also has an NTSC video & sound adapter available for about $100 (I have one, and it works!) which allows it to be used in both native /// and][emulation mode. Thus, for the cost of a top-of-the-line NTSC monitor, you can get the best of both worlds. To misquote a famous salesman "You just have to know the territory!"

Connecting an NTSC monitor

Connecting a color monitor of either type to the Apple /// is actually a rather simple procedure if you know where to get the necessary information. A famous adage is quite applicable in this case; "when all else fails, read the instructions." Buried in *Appendix C*, pages 132-135, of your *Apple /// Owner's Guide* is most of the information you need. The problem appears to be that most people tend to lose interest in any non-fiction book after about page 3, let alone page 132.

I will first describe connecting an NTSC monitor, the general idea being to add a socket similar to the one which you use to hook up your B/W monitor to the ///. On the back of the /// is a 15 -pin D-type connector (socket) which is the video port. Your major problem will be to find a 15-pin D connector (plug). Check your local electronics supply and surplus or the mail order houses that advertise in *Byte* magazine for instance. Some software houses also seem to carry these plugs and sockets on occasion. Try and find a plug which is fully populated with 15 pins if you don't know how to assemble the connector (specifically, avoid the *ICO RALLY* system unless you are familiar with assembling connectors.) A 15-pin D plug should cost about $5 with plastic shields. Your local RadioShack store should carry one-foot long (roughly) coax audio extension cables with a female socket on one end and a male plug on the other. This is the type of plug commonly found on the back of stereo receivers, cassette decks, and like the black and white video plug on the back of the Apple /// (which you use to connect your monitor ///). These plugs are also sometimes referred to as RCA plugs or occasionally as ring (the outer shield) and tip (the prong).

Use a wire stripper to cut off the male (pronged) end of the RCA cable and throw it away. With the wire which remains attached to the female socket (at the end where you cut off the male plug), carefully strip off the outermost insulation for a length of about one inch. Unbraid (a tack or pin is helpful in separating the wires) the braided shielding wires from the inner insulation as far as possible and gently twist them into a rope-like bundle. Strip the insulation from the inner wire for about ⅛ inch, and solder the center wire to pin 12 of the 15-pin D plug. Each pin is labeled with a tiny number embossed in the plastic casing around it. However, you may need a magnifying glass to see it. Soldering will be easier if you gently clamp the plug prong side down in a vice, and melt a tiny bit of solder into the hole in each pin to which you are going to connect a wire. Then take the wire in one hand, reheat the pin with the other, and insert the wire, holding it steady until the solder cools. Solder the tip of the twisted shielding wires to pin 13, being careful not to let the inner wire and shielding wires short out anywhere. A bit of heat shrinkable insulation on the braided wires prior to installation is a good idea. You can get heat shrink insulation at most electronics supply stores. Use the side of your soldering iron, a match, hair dryer, etc... to shrink the insulation. When working with electronic components, you should always use a low temperature soldering iron with a fine tip. *Never* use a soldering gun

or you will melt or damage everything in sight. Put the plastic shields onto the plug (if not already there), and gently lock down the strain relief (if there is one) onto the coax cable where it exits the shield. Test the resistance between pins 12 and 13, and all the other pins with a multitester (if you have one) to verify no electrical shorts.

You may now hook up most any NTSC monitor, VCR, TV with monitor capability, etc... by connecting them using the same kind of male-male coax cable that you use to connect your monitor /// to the B/W video socket.

Connecting an RGB monitor

If you have purchased an Apple /// compatible RGB monitor such as the Electrohome 1302-2, you may purchase a cable from the local distributor, or build one yourself for about one third the cost. A true Apple /// compatible monitor will have in it somewhere the resistor network outlined on page 134 of your owners guide. All you have to do is get some 6-conductor wire (about 22-24 gauge) and connect the signals XRGB1 (pin 5), XRGB2 (pin 9), XRGB4 (pin 2), XRGB8 (pin 10), SYNCH (pin3), and SIGNAL GROUND (pin 13) to the similarly labeled pins on the monitor's connector. In the case of the Electrohome, the pin numbers are identical. This monitor requires a female 15-pin D socket at its end of the cable, and a 15-pin D plug at the Apple /// end. Shielded cable is not required for short runs of a few feet. I used regular multicolored ribbon cable. Use the same soldering techniques outlined in the NTSC hookup section of this article.

If you have an RGB monitor which is not designed as Apple /// compatible, you will need to build a resistor network in order to correctly reproduce the Apple color set. The colors produced on the RGB screen are determined by the relative contribution of the red, green, and blue guns at that point. These contributions are controllable from the digital outputs of the Apple /// via a resistor weighting network. The circuit to do this (page 134 of the owner's guide) is flawed. For technical types, the emitter follower buffers are missing from the input transistor network, resulting in the wrong voltage levels for a correct 'black' of 0.5 volts, and the resistor values are wrong. The Synch inputs to the network are also extraneous if your monitor has a negative synch input somewhere. A simpler and more versatile circuit is illustrated below in figure 1. The five volts required by the transistors is provided by the Apple /// via pin 15 (**WARNING: Do not connect this pin to the RGB monitor**). Connect the outputs labeled Red, Green, Blue, Synch, and Signal ground to the RGB monitor.

By replacing the fixed value resistors of the diagram in the Apple Owners Guide with 5000 ohm 10-turn trimming potentiometers (about $1.50 each), a highly versatile network is created which you may adjust for any color set you desire. This is useful for color balancing the screen, or in creating special colors for artistic and animation projects.

The colors on an RGB monitor are produced entirely from this resistor network. All the Apple /// does is produce a four bit digital code at outputs XRGB1, XRGB2, XRGB4, and XRGB8. This is about a 2.5 volt signal when 'on', and about 0.5 volts when 'off'. The relative contribution is determined by the value of the resistor between the digital output and the gun drive. The higher the resistance, the less the contribution. A simple bit table, as illustrated in figure 2, illustrates the interactive relationship. Table locations with ones present indicate a contribution from that output to the color number in question. Thus, color number 1 is entirely due to XRGB1, whereas color number 2 is due to both XRGB1 and XRGB2. It should be obvious why black is defined as color number

(Cont'd on page 12)

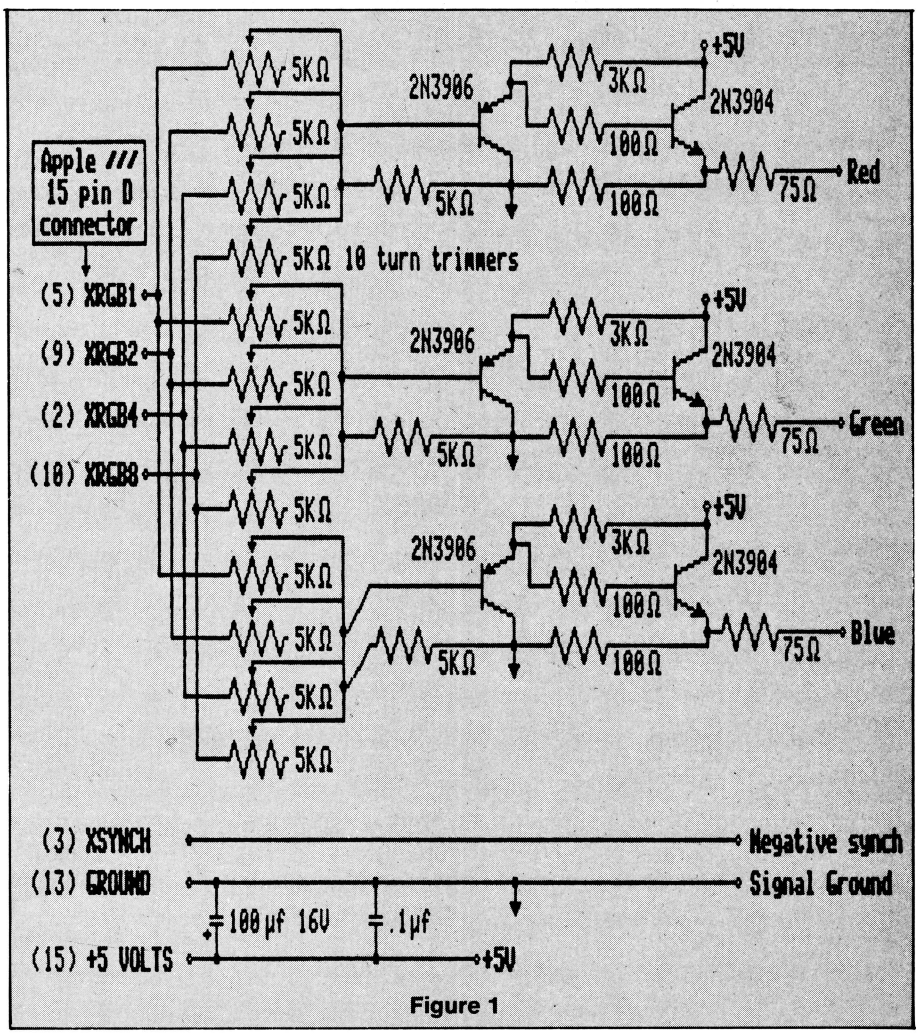

Figure 1

Technique:

Transfering Foto Files to ProDOS

finn jorgensen

I use the *Draw ON /// Graphics Tool* to make illustrations for an upcoming technical book. This work is done in Mode 2 (560 B&W) and the results print nicely with Grafpak /// using an Epson FX-80.

I plan to use the same illustrations in lectures, with a portable Apple //c hooked up to a video projection system, which would mean re-drawing everything, using Penguin or Beagle graphics programs. It occurred to me that perhaps the original Apple /// Fotofiles could be used.

I therefore called the *ON THREE* office and was kindly referred to Dr. Melvin Astrahan, author of Draw ON ///. A series of phone calls ensued and the information provided by Dr. Astrahan proved most helpful in telling me what I need to do. Because this is an application that may be of use to other Apple /// users, I have detailed step-by-step instructions below to aid in converting Fotofiles to a form that ProDOS on an Apple][can handle. For the record, here are the steps:

A. Load the picture into screen buffer #1.
The Fotofile may be either B&W 560 or COL 140
Note: Unless using COL 140 mode, skip to step B.1

Fotofiles in COL 140 require additional steps since the bit patterns in the pixel bytes in the /// produce different colors when displayed on an Apple //c or //e. The colors must be changed in the COT table as shown below. For details, see the Draw ON /// manual, pages 54-56:

A.2 We will use open-apple-F with the cursor fully open (entire screen) to change colors. We can preserve all colors by placing the cursor in the *black row* and pressing the *underscore* '_' or *minus* '-' key.

A.3 Now change colors in that row by first selecting a pen color number that represents the new byte. Place the cursor on the color number—in the last row (0)—that you are changing. Press '*' to change the cell.
The changes required are:

old:	1	2	3	4	5	6	7	8	9	0	11	12	13	14	15
new:	8	1	9	2	nc	3	11	nc	12	nc	13	6	4	7	nc

A.4 Go back to screen no. 1 (in the COL 140 mode) and place the cursor in the upper left corner of the screen. Press open-apple-C and open the cursor by moving it to the lower right corner. Press open-apple-C again.
Now press open-apple-F and press return.

B.1 Set MODE to 0 (B&W 280). The picture will look messy, but don't be concerned, it will later display correctly on the Apple //c and //e double hi-res.

B.2 Save Fotofile as
NAME.DPA (for later use with Penguin or:)
NAME.AUX (for later use with Beagle.)

C.1 Switch to screen buffer #2.

C.2 Set MODE to 0 (B&W 280). Again, the picture will look messy.

C.3 Save Fotofile as
NAME.DPM (for later use with Penguin, or:)
NAME (for later use with Beagle.)

Note: NAME is your choice of a new file name. You now have the two files required for the][series double hi-res picture, but they are still Fotofiles, which the graphics programs will have nothing to do with. They must therefore be altered to a file type that ProDOS can handle: type BINARY. A fast way to do this is to go to your //c or //e computer and boot the ProDOS *Excerciser* disk from Apple's *Work-Bench* with the *ProDOS Technical Reference Manual:*

D.1 Select C4—Get file (using /disk.vol.name/NAME.DPA or NAME.AUX).

D.2 SelectC3—Set file: Change second bit from $08 to $06.

E.1 and E.2: Repeat for other half-file.

Voila!—boot Penguin or Beagle double hi-res programs and load your picture. If you wish to transfer a //c or //e double hi-res picture to the ///, just reverse the entire procedure.

Some may wish to use Broderbund's *Dazzle-Draw*, and since that program does not split the double hi-res file, we must therefore combine the two files as shown below, where .DD is added to the file name for Dazzle-Draw:

F. For use with Dazzle-Draw:

F.1 BLOAD NAME.DPA, A8192 [return]
BLOAD NAME.DPM, A16384 [return]
BSAVE NAME.DD, A8192, L16384 [return]

G. The other way (to Penguin:)

G.1 BLOAD NAME.DD, A8192 [return]
BSAVE NAME.DPA, A8192, L8188 [return]
BSAVE NAME.DPM, A16384, L8188 [return]

G.2 To Beagle, use .AUX instead of .DPA; nothing instead of .DPM

The /// Lives in Colorado:

Denver is More Than Dynasty

carol chrzanowski

A lot of Apple /// user groups can often be heard proclaiming "Apple /// forever" or "let's keep the /// Alive!" And rightly so, for the Apple /// is truly a fine machine. However, at first these proclamations may sound impossible. After all, large companies like Visicorp are no longer supporting the ///. And certainly they are no longer developing new software for it. But did you ever stop to think how many of the smaller software and hardware houses are still developing for and on the ///? Probably not. Because they do not have the capital to advertise like the Visicorp's of the world, you don't always hear about the smaller firms or their products. You won't see their wares in computer stores either, since today no one there has even heard of the ///. Yet their products may be equally as good, if not superior to those produced by the large corporations.

Unlike the large corporations, these smaller companies can more easily be encouraged to develop new products for the ///. They do not require as great a volume of sales to succeed. But even these companies will soon stop producing new hardware and software if no one is buying their products.

But, you ask, how can you buy anything from these companies if you don't know what is available? This is a problem. However, it can be overcome easily enough, simply by working together and communicating with one another about any products we have found to be of sufficiently high caliber. It is important for all users of the /// to make known to other users in their local user group, and to publications like *ON THREE*, information they have obtained about lesser known, but excellent, products. This simple effort could encourage these smaller firms to develop additional new products and to continue support of their existing base of Apple /// offerings.

Apple /// users can only benefit from this effort. A greater variety of products will mean that our machines will be of greater use to us. And, if companies continue to develop new products for the ///, our fine machines will, in a sense, continue to live on.

In Denver, the *Colorado APPLE ThREE User Group* is very active and dedicated to supporting the ///. We feel so strongly about the need to disseminate Apple /// information that we publish advertising in our monthly newsletter free of charge to developers of quality products.

. . . we publish free advertising.

Denver is occasionally referred to as a second Silicon Valley because of the number of software and hardware houses located here, such as Quark. Being located in Denver provides our club members with the opportunity to learn about products developed by Denver-based companies that may not be widely publicized. For this reason, many of our club members are using software that others may not have heard about. Because our club members have been pleased with these products, I'd like to pass on some information about them and also share some pretty solid Denver-based rumors.

Post Master by compuCRAFT

Post Master is more than a mailing list system. It is a database management system whose database contains information on or about people and/or companies. It can also be used as a telemarketing system. Post Master is so sophisticated that it requires 256K to run, a second disk drive or hard disk, and occupies two *full* disks. For this reason, it takes a little while to boot, but once booted, is really fast! We are using Post Master to maintain our own club's mailing list. Before acquiring Post Master, we used Mail List Manager and have found Post Master to be a significant improvement over Mail List Manager. Not only will it work with a hard disk but Post Master will also run under Catalyst. Designed to work quickly with large mailing lists, Post Master can handle 32,000 records. One individual uses Post Master to maintain a mailing list of over 16,000 names and addresses. Before getting Post Master, he used Versa Form to maintain his list and it took him days to sort and print his list. With Post Master, it now takes a few hours. Besides being a lot faster than Mail List Manager, Post Master also has more user coding flexibility and some pretty sophisticated features.

Post Master was designed for large lists.

Because Post Master was designed for large lists, compuCRAFT included a number of professional mailing list features:

1. Minimized keystrokes:
   a. Automatic Capitalization—When inputing data, Post Master will automatically capitalize the first letter of any proper name or word. Hitting the shift key to capitalize a word can slow you down and cause you to be more prone to data entry errors. With a heavy volume of input, this feature can really save time. Even with a small data volume, it is a fun feature. It almost seems like magic.

b. Default Values—A really neat feature is Post Master's ability to use default values. For example, if you are inputing a batch of records that have Englewood CO addresses, you can set Englewood CO as a default value. Then you don't need to retype the same keystrokes over and over for each record. Moreover, you can override the default if you encounter an exception. So Post Master is flexible about the defaults.

c. Partial key searches—You can locate data in the data base by entering only a partial key. It doesn't have to find an identical match. Instead, it will find the first record in the database that matches on the partial key.

2. Sorts Without Sorting—Unlike Mail List Manager, Post Master can provide the data in several different sort orders without the user waiting for sorting to take place. Post Master doesn't sort because it indexes the database. You therefore get your data just as fast in any of the following orders: Name, Company, or Zipcode.
3. Word Processor Interfacing—Post Master can produce address files for Word Juggler, Apple Writer /// or /// E-Z Pieces. The nice thing here is that Post Master can be used in conjunction with your word processor to write personalized form letters, yet you don't need to keep a separate mailing list for your word processor.
4. Extensive Data Base Selection Capabilities—Post Master's selection capabilities are pretty sophisticated and available to *any* of Post Master's other features like report generation, automatic calling, copying or purging of mailing list entries, word processor interfacing, etc. The selection options are:
   a. Contains: The contains option allows you to find all records 'containing' a particular character or string of values anywhere in any of the fields. This is a really useful feature, especially when used against the free-form comments fields. of values. Post Master can do this as well.
   c. 'And' and 'Or' Conditions: Post Master will allow you to build a large combination of 'And' and 'Or' conditions that must be met before data will be selected. The way Post Master guides you through setting up these conditions is unique. You don't need to do a lot of head scratching to decide whether you need to do an 'And' or an 'Or' test to achieve the desired result.

   Achieving a 'not equal' test with Post Master has to be done with the 'range' condition which is a little more difficult than just saying 'not equal' but this hasn't been a serious inconvenience.
5. Automatic Calling—Post Master will dial all or selected names in your mailing list and allow you to talk with these individuals and record the results of your conversation. You don't have to select one name at a time either. You can specify some selection criteria, such as a range of zipcodes, and Post Master will dial all entries in automatic succession that meet this criteria. You can still talk to each individual called, but when your conversation ends, Post Master automatically goes on to the next record. What is nice too, is that Post Master keeps track of those individuals you were unable to reach, either because the line was busy or because they weren't home. Later, if you like, it will automatically redial all of the names you couldn't reach the first time. It can handle up to three phone numbers per name.
6. Sophisticated Duplicate Checking and Purging—if need be, Post Master will allow you to enter duplicates, or will check for duplicates as you enter data. It is the user's option. If you allow duplicates, Post Master will help you purge them later, if desired. The user can let Post Master automatically purge the duplicates or just have it identify the duplicates while the user controls the purging. It is also easy to purge all records which meet a certain set of selection criteria established by the user. For example, you may want to remove records from your club's membership list of all members who didn't renew their membership. As a safety feature, you can optionally transfer these records to another mailing list. If an error was made, you can re-merge back into the original mailing list.
7. Reports—Again, the selection feature of Post Master can be used in generating any of the reports or labels, as well.
   a. Labels: All or a selected subset of your mailing list can be used to create mailing labels. These labels can be printed any size from one to nine across in Cheshire or pressure sensitive format. These labels can be printed in the order selected by the user including zipcode order. Printing the labels in zipcode order, along with Post Master's ability to handle the new zip+4 format, can be used to take advantage of better postal rates for bulk mail.
   b. Zipcode Report: Using this report, the selected records can be summarized, by zipcode. In this way the user can provide the post office with a count of mail by zip and thus save on postage through special large volume rates.
   c. Telephone Directory: Only the name, company and telephone numbers are printed on this report.
   d. Complete List: All information in the database, including all notes, comments, etc. can be printed with this report. This list is printed in a linear format which is nice for verifying your input.
   e. Audit feature: At the end of, or during each input session, if you so choose, Post Master will display on the screen the number of entries you added, changed and deleted from your mailing list. The uses for this feature might be to ensure that you didn't skip a record or delete one record too many. For a mailing list business, it could also be used in determining a customer's billing.

8. Utilities—A real convenience is Post Masters ability to perform a number of SOS type utilities. These are:
   a. Format a volume
   b. Rename a mailing list
   c. List directory: This feature is not only a menu item by itself, but can be accessed any time a file name is requested by Post Master by simply pressing '?'.
   d. Copy all or selected portions of the mailing list to another new or existing mailing list
   e. Erase the contents of a file
   f. Delete a file
   g. Set pathname prefix: As in the SOS utilities, this feature allows you to set a default device or prefix. However, it can easily be overidden if necessary.
   h. Automatic setup for the proper printer driver needed. This allows you to switch drivers mid-stream.

As far as ease of use is concerned, although Post Master comes with a 56-page instruction manual, its use is pretty obvious without ever reading it. Post Master is menu driven and has some pretty sophisticated, multi-level help screens. That is, the second level of help screen gives more detail than the first on a given topic.

. . . it appears you can use it for almost anything . . .

In their documentation, compuCRAFT provides some examples of how Post Master can be used. Besides the obvious uses, some of the more unusual examples include route planning, church membership information, telemarketing or mass calling, birthday or anniversary reminder, club membership or subscription renewal notices, and Christmas card lists. However, it appears that you can use it for about anything involving names, addresses and phone numbers as long as you don't need more than two lines of additional free-form user coded information. This has been plenty for us. The Post Master documentation also includes some examples of coding techniques to make optimum use of these fields so most users should find this a workable size, I would think.

A while back, a representative from compuCRAFT demonstrated Post Master at one of our monthly club meetings where we learned some interesting information about compuCRAFT and Post Master that I don't think you will find written anywhere. For example, compuCRAFT was considering selling Post Master as a vertical market product to small mailing list houses. As a vertical market product, Post Master was valued at $800 by an outside consultant. But, since they can no longer purchase ///'s, compuCRAFT decided to market Post Master to the general market for $200. They are also planning to convert Post Master to run on the MacIntosh some time this year.

Besides being in the software development business, compuCRAFT is in the mailing list maintenance business and uses Post Master on the /// to maintain extremely large lists for other companies. This in itself should say something about the quality of their product. The programmer at compuCRAFT that wrote most of Post Master is Terri Wiles. Some of you may have seen her name in *ON THREE* magazine. Terri has been programming for many years and is on Bob Consorti's Hot Line calling list for Pascal questions.

VFEDIT by compuCRAFT

One of the drawbacks of Versa Form is that, once your data base is set up and all of your data has been input, the only way to change information in the database is one field at a time. With a lot of records on file, mass changes can be very time consuming. VFEDIT was designed to simplify and shorten the amount of time needed to make mass changes to a Versa Form database.

VFEDIT is another compuCRAFT software package that has been out for at least two years. As its name implies, it is an editor designed to perform global edits on Versa Form data. For example, one large Denver electronics parts manufacturer, Hathaway Corp., uses Versa Form to keep their parts price list. Periodically they may have an across-the-board price increase—say 10%. They use compuCRAFT's VFEDIT package to apply this 10% increase to the prices in their price list. VFEDIT will also change all records having a specified value to some new value. For example, it will find all records containing, "John" in the name field, and globally change all of these records to whatever new value is specified, like "Joe". VFEDIT will also rearrange data in the Versa Form database.

There may also be some additional global edit features that I am not aware of since I have not personally used VFEDIT. However, a couple of our club members have been using it for some time now and have found it to be a nice compliment to Versa Form. The price for this package is $79.95.

For more information on either of these packages, contact compuCRAFT at 303-850-7472 or write them at P.O.Box 3155, Englewood, CO 80155.

Directory Labeler /// by Sourceware

Directory Labeler /// is another product that has been on the market for a couple of years. Jeff Anderson, the programmer at Sourceware who wrote this diskette labeling utility is a real perfectionist and his program shows it.

Directory Labeler /// offers a convenient way to document the directory contents of a program or data diskette on peel-off labels. These labels can then be put onto the diskette. This eliminates any confusion about what is really on the disk because all files, as well as volume name, are listed on the label. If you are like me, before getting Directory Labeler ///, I would label my disks in pen or pencil with the volume name and maybe a note to myself about the contents, but I never listed all of the files. Later, when I wanted to go back and use the disk, I was often unsure if I had the right disk and certainly didn't know the name of the file I wanted on that disk. So this is a real organizing tool. It may seem time consuming to do, but you will find that having well labeled disks can save you a lot of time later. It also keeps the disks looking neat. If you prefer, Directory Labeler /// will print letter sized listings of the directory that can be filed and referenced later.

Some of this program's features are:

1. Listing the Directory to the Screen—In much the same fashion as the SOS utilities, this option allows you to see the contents of the diskette prior to printing the label or the hard-copy listing.
2. Print Standard directory Labels—Directory Labeler /// will allow you to print from 1 to 99 peel-off labels with this option. These labels contain the following information:
   a. Any Title You Wish,
   b. Current Date—If you have a built-in clock, Directory Labeler /// will determine the date automatically for you. Otherwise, you will be prompted for the date.
   c. SOS Volume Name.
   d. The Names of All Files on the Diskette—A maximum of 24 files can be printed on one label. If more files are on the diskette, they will be printed on a second label. You can also optionally exclude from the label or listing, any standard SOS files, such as the SOS.INTERP, SOS.DRIVER, SOS.KERNEL, etc.
3. Custom Labels—Directory Labeler /// will allow you to print, from 1 to 99 custom labels which contain the following information:
   a. a title line, centered at the top of the label,
   b. up to five additional lines of any free-form information you choose. The five lines of added information will print exactly as they appear on the screen when you input the information.
4. Directory Listing—This option provides a hard copy listing of the contents of a diskette. The listing includes whatever title you input, the date, SOS volume name, and all of the files on the directory as well as a count of the number of files listed.

Directory Labeler /// works nicely on a 128K Apple ///. It can work with a hard drive, such as the ProFile, if desired. To print 'Standard Labels', you must have one of the following printers: Epson MX80/100 (or compatible), Apple Dot Matrix Printer (or compatible), or Imagewriter. 'Custom Labels' can be printed on any properly configured printer. Labels that are one-up, and 1-7/16" by 4" are required for this program and a set of 20 labels are included in the package so you can begin using the program immediately. By the way, these labels are easy to find. Most stationery supply stores as well as computer stores carry this size.

Another neat feature of Directory Labeler /// is that it is written in BASIC. This allows the user to modify the program, if desired.

For more information on Directory Labeler ///, call Sourceware at 303-979-3876 or write them at 6899 South Yukon Ct., Littleton, CO 80123.

RUMORS

Word Juggler Printer Filters

PI WARE, another Denver-based company, is developing some Word Juggler Printer Filters for the ///. The purpose of these filters will be to change print styles in the middle of a line. This is particularly useful with daisywheel type printers. With this filter, you will be able to print your document until Word Juggler encounters an instruction to stop printing. You can then change the daisywheel on your printer and resume printing. Printing will then continue until another stop command is found. Printing will once again stop, allowing you to put the original, or again some other daisywheel in your printer, etc. It sounds like a neat idea! For more information, you can write PI WARE at P.O. Box 36328, Denver, CO 80236 or call them at 303-972-4167.

Pascal Subroutines

Soon to be available, from compuCRAFT is a set of Pascal subroutines that are supposed to make the more tedious and boring parts of working with Pascal easier. For more information, write compuCRAFT at P.O. Box 3155, Englewood, CO 80155.

As you can see, Colorado is still very active with the ///. I would assume that other parts of the country are equally active in their support of the ///. After all, one statistic shows that Apple /// users are the most satisfied group of computer users. For this reason, it would be a shame to give in and let our machines die. Let's support the small developers! Let's keep the /// alive!

Graphically Speaking (from page 7)

0, since color 0 has no contributing outputs. From this table, you can see that reducing the resistance between the red drive and XRGB1 will add more red to all odd numbered colors and remove red from all even numbered colors. Adding resistance between XRGB8 and the green drive, will reduce the amount of green in colors numbered greater than 7, and increase the green contribution to colors numbered less than 8. You can play with the resistance values by adjusting the trimmers in figure 1 to create the Apple designated set, or any other set you might like. This circuit should cost about $20 to build.

Color #	XRGB8	XRGB4	XRGB2	XRGB1
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

Figure 2

Review ON: Quark Products:

And In a Supporting Role. . .

arthur a schumer

The following review covers four *Quark, Inc.* programs, created by them to supplement and support their well-known and capable *Word Juggler* word processor which was fully reviewed in the last issue of *ON THREE*. You should refer to that issue for more information on Word Juggler itself.

Lexicheck:

The *Lexicheck* spelling checker program, like Word Juggler, is written in assembly language. The package includes a supplement that will fit in your Word Juggler manual and a master disk that is copyable. It comes from Quark complete with a 50,000 word dictionary that has been specially compressed to fit in a 195 block disk file. A dictionary of legal terms is also available.

The user can create . . . auxiliary dictionaries . . .

The user has the capability to create as many auxiliary dictionaries as desired to supplement the main dictionary. This is especially nice as you can create dictionaries for a specific purpose (I created one specifically for this article!)

Lexicheck is called from within Word Juggler by touching the seven (7) key on the numeric keypad in conjunction with the 'closed apple' key. The program is brought in from the storage device and a menu with the following options is presented:

1) Select Auxiliary Dictionary.
2) Change Display Order.
3) Toggle One Letter Word Ignore.

The first option allows you to specify the path name of any auxiliary dictionary that you wish to use. The second one is to have Lexicheck display the misspelled words in either the order that they are found in the document or in alphabetical order. The third option toggles Lexicheck to check the spelling of one letter words or not.

As it displays on the bottom of the screen, just press the return key to begin checking! Lexicheck is a very fast checker and will process your document at the rate of about 10,000 words per minute (13,000 wpm if a hard disk is used.)

. . . you may speed up processing by turning off the video

An important note is in order here. With just about any program that runs on the Apple ///, you may speed up the processing by turning off the video refresh. This is accomplished by touching the control key and the five (5) key on the numeric keypad. By turning off the video screen, Lexicheck will speed up its processing by 10% to 20%.

After the spelling check is complete, Lexicheck will display the number of words in your document, the number of unique words it found and the number of words that it thinks are misspelled.

If misspelled words are found, Lexicheck will display the words one at a time in the status area on the top half of the video screen and on the bottom will be the word as it is first used in context. You may then choose one of the following options:

?	—Guess word
Return	—Replace word
Space	—Skip Word
Shift Space	—Add Word to Dictionary

If you press the return key, Lexicheck will prompt you to type in the new spelling and will subsequently correct the spelling throughout your document. Please note that it will treat variations of words as different words (e.g. word, words, wording are all different.)

When you are replacing a word that occurs more than once through you document and if it is capitalized differently, Lexicheck will prompt you to spell each occurrence separately.

By pressing the '?' key, you can have Lexicheck find words with similar spelling and display them at the top of the screen. this makes it very easy to correct any minor spelling errors.

. . . you can display words with similar spelling.

One of the most useful functions which is available while you are entering text into your document is *Word Guess Plus*. This is a feature that allows you to check the spelling of the word that you have just typed into your document. Word Guess Plus is called from within Word Juggler by touching the eight (8) key on the numeric keypad in conjunction with the 'closed apple' key. A list of similar words is presented to you and you then have the option of selecting one of them to replace your word or just exiting back to the word processor. This feature saves a lot of time looking up words in a dictionary. If you are like me, you sometimes 'blank-out' when spelling simple words. This is where Word Guess Plus can be a godsend!

Summation

I like the way that Lexicheck interfaces with Word Juggler and its speed in checking documents. I created an auxiliary dictionary for use with this review and found that there were only 81 words that were not recognized. Not too bad for a document that had some technical terms in it. After I manually checked the unrecognized words for spelling, I created a dictionary and will use it for my next article. For your information, this article is 7001 words in length with 1227 unique words and was checked for spelling in 37.6 seconds (with the screen turned off).

Lexicheck is accurate and fast checker.

All in all, Lexicheck is an accurate and very fast spelling checker. With its capability to create and use auxiliary dictionaries, as well as guess at words for you, it makes a fine addition to Word Juggler.

Mail List Manager Support:

The *Mail List Manager Interface* is a nice addition to the Word Juggler support programs. With it, Word Juggler can directly access data that you have stored using Apple's Mail List Manager without first having to put it into an intermediate form.

The package comes with a supplement that is inserted into the Word Juggler manual and one copyable master disk. The instructions for using the Mail List Manager Interface program are sparse, but complete. It is a simple but powerful program that can make life much easier for you if you are currently using Apple's Mail List Manager.

The first thing you should do is to transfer the appropriate files from the Mail List Manager Interface diskette to the Word Juggler diskette. After doing so, you are ready to use the program.

The program operates just like the Data File Merge system on the Word Juggler diskette, in that you first have to create a form letter or mailing label format and then call in the auxiliary program to take over the processing of the document. The combination of touching the 'closed apple' key along with the zero (0) key on the numeric keypad will bring in the program from the disk and present you with a prompt for the storage medium that contains the Mail List Manager data files.

Immediately, the Mail List Manager Interface program takes over and starts printing your document. Through the use of conditional statements and variables in your document you may select which records in your data file you desire to use. While your document is being printed, you are kept informed of the progress that is being made through your data file and the current information that is being supplied to the variables in your document. A sample screen is supplied here to illustrate this feature:

```
Mail List Manager Interface Version 1.0
Mail List: File Name
# of Records: Number
Record #1

                [ Name                ]
                [ Company             ]
                [ Address             ]
                [ City, State, Zip    ]
                [ Line 5              ]
                [ Line 6              ]
Phone           [ Phone Number        ]
Label Code      [ Code                ]

Copyright 1982 Quark Incorporated
```

Like the Data File Merge command, you may select only the records that you want to use by inserting the appropriate conditional statements in your document with Word Juggler.

[the] interface progam expands the power of Word Juggler.

Summation

The Mail List Manager Interface program expands the power of Word Juggler to allow it access to data structures that otherwise would have to be output to an ASCII file before being usable to the system. The program and manual are fairly complete and do their job very nicely.

Typeface:

Typeface is another accessory program to be used within Word Juggler that allows you to transmit your document to typesetting equipment. The manual that accompanies this program is also to be inserted into the Word Juggler manual and the package comes with one copyable diskette.

The command files on this diskette are to be transferred to the Word Juggler diskette to allow them to be accessed from within Word Juggler.

Typeface has a rudimentary terminal program.

In transmitting your document you have three choices. You may use a direct link between the Apple /// and the typesetting equipment, you may place the formatted document in a disk file or you may use a modem. Typeface has a rudimentary terminal program built in to allow you to transmit your document or you may simply store it as a TEXT file and send it later using another communications program.

. . . the typesetting company will format output their way.

Since the typesetting company will want to format the output their way, Typeface will ignore several of the built-in commands that Word Juggler normally handles. These commands are:

Left Margin	Text
Width	10 Pitch
Top Margin	12 Pitch
Page Length	15 Pitch
Length	Pause
New Page	Printer Control
Need	Indent

Typeface will transmit information about the line spacing, character font, and paragraph format (ragged right, ragged left, center or justified) at the beginning of the paragraph. The sequences of characters sent by Typeface to indicate these commands are completely user definable.

Quark supplies a program written in BASIC that prompts you for the information needed to communicate with a typesetter. After running this program and entering the proper character sequences, a file of the information is written to disk and subsequently used by Typeface. If you are using a modem or a direct link, you should also transfer the SOS RS-232 driver (supplied with your Apple ///) to the Word Juggler diskette at this time.

This program is not for the faint of heart as you must be knowledgeable about the type of typesetting equipment that you are transmitting to and what character codes that it will respond to. The manual completely describes how to accomplish this and will take you step by step through the configuration program. In addition, there are several example files on the Typeface diskette that you should examine to familiarize yourself with the concepts being presented.

Once you have configured Typeface to 'talk' with the typesetting equipment, the rest is easy!

Instead of using the normal command sequence to insert formatting information into your document, you must now use the comment command to enter them. This will not affect the output of the document should you decide to print it out, but will still allow Typeface to recognize your typesetting commands.

Typeface is called from within Word Juggler by a combination of touching the 'closed apple' key and the nine (9) key (on the keypad). You are immediately presented with the following menu choices:

1) Check —Checks the document in memory for improper commands.
2) Send —Used for sending the document in memory over the RS-232 port. The keyboard may be used as a terminal prior to transmission.
3) Write —Writes the document in memory to a TEXT file.

The first option scans your document in memory for illegal Typeface commands. If it finds one, it will notify you and place you in text mode at the place where the error occurred.

The second option is the one that you use to communicate with your typesetter and send your document. You must have the RS-232 port connected to a modem or directly to the typesetter. Upon your selection of this option, you are placed into terminal mode and have some simple choices to make for handshaking, baud rate, parity, etc. Just like Word Juggler, all the commands are located on the numeric keypad and are easy to remember. While acknowledged as not a 'real' communications program, it's nice that Typeface has this capability in case you need it.

The third option will format your document and store it as a TEXT file. This allows you to either send your disk directly to your typesetter (providing they have and Apple /// or Apple][with ProDOS), or to utilize another communications program to transmit at a later time.

. . . the only . . . program . . . to communicate directly with a typesetter.

Summation

This is the only commercial program for the Apple /// that allows you to communicate directly with a typesetter. Bypassing the tedious re-typing of a document into a typesetter is a logical expansion of the capabilities of any word processing program and Typeface handles this task beautifully.

Discourse:

With the recent popularity of printer buffers, it's nice to know that Quark hasn't left its Word Juggler customers defenseless! *Discourse* is a transparent software printer spooler. It also comes with an insert for your Word Juggler manual and one copyable disk.

Installation is a bit tricky but the instructions in the manual are very complete and you should have no trouble setting it up. It will work with any printer as long as it uses the Quark serial driver or the Quark parallel driver. At this time, it will not work if you have your printer configured to work with the Apple /// RS-232 driver.

It functions like the hardware buffers by filling a buffer with the text that you want to print and then allowing you to work on something else while your printer is tied up. The only difference lies in the fact that Discourse spools your printer output to a disk file instead of to a hardware device. This disk file can be located on a hard or floppy disk. During the installation of Discourse, you will have to create a subdirectory called SPOOL for the storage of the files that are in the queue (i.e., waiting to be printed.)

A SOS driver (called .SPOOL) is also installed and will be substituted for your normal printer driver. Whatever program you are using, you usually have the option of informing the system where to send printed output. With Discourse, you will output to .SPOOL rather than .PRINTER or .SILENTYPE. This new driver will take the output that you would normally send directly to your printer and save it to a temporary file on your storage medium.

Aside from re-directing your output, there is nothing more that the basic user will be required to do. Discourse takes over and through the use of interrupts will spool your document from the storage medium to the printer in the 'background' while you are able to do something else in the 'foreground'.

The advanced user may elect to utilize several options that include appending a form feed command after every file in the queue or whether manual or automatic printing is selected. With manual selection, the spooler will halt after each file and need to be restarted, while automatic does not require restarting.

Some of the added features are the ability to queue up to 14 files to be printed. During the print process, you may edit the queue and delete files or change their sequence of printing.

Summation

Discourse is an excellent addition to the product line from Quark and anyone who has a lot of printer output should give this utility some thought when comptemplating the purchase of a printer buffer. My only complaint is the lack of support for users who have to use the RS-232 driver with their printer.

Look What we Found:

Three New Products

Automatic Test Authoring for Apple ///

Resource Software International recently announced that its popular *Automatic Test Authoring System* has successfully completed testing and is now being shipped to users of Apple][and /// computers. It has been available to CP/M and MS/DOS users since 1984.

Due to its structure, ATA can be used by teachers with little or no computer skills. Having been so well received and due to continued requests, RSI has redeveloped it for use on Apple computers.

Dr. Harry Hanson, an associate of RSI, led the development team. Hanson, a computer consultant for 20 years, enhanced the product during this redevelopment effort, adding various features that make the product even more "friendly and powerful."

ATA is modeled after the popular RSI Educational Software Series and offers the teacher the four most commonly accepted drill/test formats, multiple choice, fill-in-the-blank, essay, and true-false. ATA is independent of subject matter; the program developer dictates the topic to be covered. The program allows the teacher to enter hints which are available to the student at any time the teacher wishes. This feature supplies the student with the desired lesson plan while guiding him/her through the drill. The teacher may disable the "hint" feature.

As with all the RSI Educational Software Series, ATA allows the teacher to print tests or homework assignments as well as use the computer in a classroom/lab environment. Built-in security codes prevent unauthorized access to the creation edit functions, thereby guaranteeing the integrity of the drill for multiple classes and semester-to-semester use.

Available for most popular computers, the ATA program requires no previous training or special computer equipment. ATA is distributed, complete with two disks, 30-page documentation manual and a sturdy binder, for $89.95.

RSI is an international distributor of hi-tech products, founded in 1977. The company provides free literature to qualified inquiries through a toll-free 800 number, (800) 526-2396. (In NJ, call (201) 738-8500.)

Investment/Telecommunications Software

Smith Micro Software, Inc., announced today that it has reached an agreement with *Spear Securities, Inc.*, under which Spear will private label the Smith Micro line of investment software. Additionally, Spear will offer a 100% rebate of the software purchase price in the form of brokerage commission rebates to the purchaser. This rebate offer will apply to software packaged under *both* the Smith Micro and Spear names.

According to William Smith, President and founder of Huntingdon Beach, CA headquartered Smith Micro Software, Inc., this announcement marks the launch of a new imaginative method to bring investment software to the Market. "Spear Securities is truly an innovator in serving the needs of the independent investor", says Smith. "The firm was an early developer of on-line brokerage services and the originator of the 24-hour trade execution services. Now, with Smith Micro Software, Spear is breaking new ground in the merchandising of investment related software.

Spear will offer a specialized version of Smith Micro's *Market Link*. The Market Link streamlines the process of accessing investment information from The Source and the Dow-Jones News Retrieval Service. The Market Link automatically obtains quotes at selected intervals, stores them on disk and transfers them automatically to popular spreadsheets such as Lotus 1-2-3 and data base applications such as Dbase. Other products to be offered by Spear will be Smith Micro's *Stock Portfolio System*, a complete portfolio management system, and the *Wall Street Techniques*, a technical analysis charting system.

"Spear customers who purchase any Smith Micro Software products, including the private label Spear products, can use trading commissions to earn a full purchase price rebate", says Jeffrey Anthony of Spear Securities, manager of the Commission Rebate Program. The rebate amount will vary with the trade size and will be as large as 25% on trades involving commissions of $150 or more. According to Anthony, Spear commissions, before rebate, are lower than those of other major discount brokers.

The Smith Micro Software, Inc., line of investment software is available for the IBM PC series, AT&T 6300, Compaq, Apple Macintosh, and Apple][and ///. Products are available through local dealers and are distributed by Softsel, Micro D, Bonsu, and Software Resources. For further information, contact Smith Micro Software, Inc., at (714) 964-0412.

Agricultural Software

A *free* Guided Tour Disk of *AG COUNT*, a farm accounting program from *AG PLUS® Software*, now is available to anyone wishing to review highlights of this package. The Guided Tour disk runs on the IBM-PC and compatibles; it can be kept and re-used by the computer owner.

The IBM version is enhanced compared to the previously released Apple][, ///, and ProFile versions. However it is the same price, retailing for $495. Now, users can name most categories, keep track of several accounts in one system, and run the program about four times faster. Additional features include a help screen, default keys to speed up entry, and all records stored on one disk.

A major improvement to AG COUNT is the ability to sort deposits and checks by "date," by "to whom" the check was written, by "from whom" the deposit was received, or by "description." Computer users can review the new IBM AG COUNT on the free disk or, for $45, they can purchase a *demo* version, which allows them to analyze the full program. The demo also runs on Apple computers.

Other agricultural software available from AG PLUS Software are *Land Purchase, Crop Production, Loan Repayment, Invoice Manager*, and *Financial Statement*. Prices range from $35 to $150, and all are available of the Apple][and /// series, and Macintosh. In addition, Financial Statement (and AG COUNT) also run on the IBM-PC and compatibles.

AG PLUS Software has marketed software for the farm since 1981. Free brochures, sample printouts, and Guided Tour disks (for IBM AG COUNT) are available from AG PLUS Software, 906 South Main, Ida Grove, IA 51445. Phone (712) 364-2135.

A Footnote on Footnotes:

AppleWriter: A Footnote

john lo martire

If you are using AppleWriter /// to prepare a document and you need to enter a footnote at the bottom of a particular page, it is easily done, right? After all, page 51 of the AppleWriter /// Operating Manual describes the correct procedure to use... or does it?

According to the manual, AppleWriter /// recognizes footnote text if it is included within certain delimiters. The manual clearly states: "Any text which is preceded by an open parenthesis and a less-than character and ended with a greater-than character and a close parenthesis will be printed at the bottom of the page." An example of a footnote of about 31 characters is then given. One stated procedural requirement is that the close parenthesis at the end of the footnote must be followed by a space. It is strange that the page 51 section on footnotes makes no mention of some other important information given on page 94 under "WPL Execution Errors." This latter page reveals that: "WPL error: Footnote overflow (Press RETURN)" will appear on the screen if there are more than 1024 characters of footnotes in a single page. "Space for 1024 characters of footnotes is provided..." the manual says.

Maybe page 51 does not mention page 94 because the latter page is at least misleading, if not downright wrong. Apple Computer tries very hard to provide good documentation with its software, but problems or "bugs" do arise, and it is the users who eventually discover any unknown weaknesses. Before going on to the problem of multiple line footnotes, the following information enhances that given in the AppleWriter /// manual:

AppleWriter /// recognizes the presence of a footnote when two characters, the open parenthesis "(" and the less-than sign "<", occur in successive keystrokes. In like fashion, it takes a greater-than sign ">" immediately followed by a close parenthesis ")" as a signal for the end of the footnote. If either one or both or the starting delimiters, the "(" or the "<" is not present, no footnote will be printed and the entire text, including the supposed footnote, will appear in the body of the paragraph. If either one or both of the final delimiters, the ">" or the ")" is not present, the programs stops with a "WPL Footnote Overflow" error signal. Since the footnote was started and not ended, the program assumes an infinitely large footnote, even if only one character appears after the starting delimiters!

Another procedural point. As mentioned earlier, *a space must follow the closing delimiters.* Here is what happens if the space is omitted.

For example, if text is typed in as follows:

Footnotes (<See this article>)are sometimes necessary

then it would appear in print as:

Footnotes re sometimes necessary

(Note that the "a" in "are" is absent);

See this article ← (This footnote would appear at the bottom of the page.)

However, if the same line is typed this way:

Footnotes (<See this article>) are sometimes necessary

then text and footnote will be properly printed.[1]

Finally, remember that if a footnote is included in some text but the total amount of text is insufficient to reach the bottom of the page, a formfeed (.FF) command *must* be inserted after the last line of text to force the printer to the bottom of the page where the footnote will be printed. (Operating Manual, page 51).

Now that various procedural steps have been covered, here is what you face with this software when you have a need for *multiple line* footnotes brought about by a long footnote, or several footnotes.

1. There is no indication in the manual that a "WPL Footnote Overflow" message may appear even if the number of footnote characters is much less than the 1024 figure mentioned on page 94.
2. Nothing in the manual will instruct the user on whether it is possible to enter more than a one-line footnote.
3. On page 51, the manual does not reveal how many footnotes can be entered on a page, assuming that any length restriction is not exceeded. The information on page 94 would lead one to believe that about 1024÷X (where X is the number of characters in the individual footnote entry) lines of text could appear at the bottom of the page.
4. Nothing in the manual explains what happens if you enter a footnote of more than 80 characters in a document format that is only 80 characters wide.

[1] *"Apple Tech Notes," 7/7/82 points out this need for a trailing space.*

Table 1—Actual number of footnote lines permitted

This table illustrates how many footnote lines were *actually* accepted in a comprehensive testing program:

Characters/line	No. of footnote lines of length shown in 1st column
1	128
2	86
3	64
4	52
5	43
6	37
7	32
8	29
9	26
10	24
11	22
12	20
13	19
14	18
15→16	16
17	15
18	14
19→20	13
21→22	12
23→24	11
25→27	10
28→30	9
31→35	8
36→41	7
42→50	6
51→62	5
63→84	4
85→127	3

Does all this mean that the AppleWriter /// user is restricted to single line footnotes? Not necessarily. Determining how many footnote lines the program will accept can be tricky, however.

Here, then, are the results of extensive trial-and-error testing:

→ *There is a maximum allowable length to a footnote line.* Footnotes of more than 127 characters will generate the now-familiar message: ":WPL Error: Footnote Overflow."[2]

→ *Footnote lines longer than the document line length but less than the total allowable length mentioned above will wrap onto the next printed line.*

→ *Multiple line footnotes are possible.* Suppose a 240 character footnote is needed for a document that will be printed 80 characters wide. Obviously this would involve three lines for this one footnote. However, it is impossible to enter a 240 character footnote directly, since it exceeds the 127 character limit mentioned above. To accomplish this, proceed as follows:

(<enter first 80 characters>)__
(<enter second 80 characters>)__
(<enter third 80 characters>)__

(Note: replace the "__" with a single space.)
Remember to count all letters, punctuations, spaces, etc., as characters, but *do not* count the footnote delimiters.

→ *There is a limitation of the total number of lines of footnotes per page*, but it is nowhere near the 1024 characters mentioned on page 94 of the manual. As a matter of fact, the *total number of lines* can be approximated by this equation:

No. of footnote lines = INT ((159.732/(X.854433)) + .5)

...where X is the number of characters per footnote line, assuming all lines are of equal length. This calculation will give an *estimate* of the permissable number of lines. See Table 1 for the *actual* number of lines permitted.

→ *With footnotes of varying character count*, the maximum number of lines per page can be approximated by comparing the *average* of the line lengths to the first column entries in Table 1. Examples are given in Table 2.

(Cont'd on page 29)

Table 2
Number of footnote lines with varying character counts in the lines

Footnote Line Length	Average Line Length	Max. Nbr. of Lines	Table Value
1→22 incr. 1	11.5	22	21
10→24 incr. 1	17	15	15
20→30 incr. 1	25	11	10
5→50 incr. .5	27.5	10	10
50→15 incr. -5	32.5	8	8
1; 127; 2; 126	64	4	4
127; 96; 71	98	3	3
127; 71; 46; 33	69.25	4	4
127; 71; 46; 127	92.75	4	3

[2] Ibid, states that footnotes must be less than 132 characters in length to prevent the overflow message. Perhaps this value is meant to include the two pairs of delimiters and the trailing space.

Utility:

Fooling the Apple DMP

jerry lewicki

Introduction

The Apple Dot Matrix Printer (functionally equivalent to the Apple *ImageWriter*) is an excellent printer and a compatible accessory to the Apple /// computer system. But as anyone who owns the ADMP realizes, operation of the printer is difficult to learn since the manufacturer has not included sufficient reference material. Without a special feature printer interface card such as the Pkaso, it is difficult and time consuming to set up print functions on the Apple Dot Matrix Printer using only a Universal Parallel Interface Card (UPIC). Similar problems are also experienced by Apple II users whose choice in parallel interface cards may limit easy access to some of the printer's many functions. The difficulty lies not with the printer but in the lack of reference materials to explain how to access the printer's features.

Apple does include a demonstration disk with each ADMP which is helpful in providing some instructions for installing, connecting and using the printer. However, the "DMP EXERCISER" program on this demo leaves much to be desired in explaining how to develop printer control operations for character styles, format design and graphics. Furthermore, the demo is written in Applesoft format and must therefore be run exclusively in Apple ///'s Emulation Mode.

Of course, one way for Apple /// users to overcome these ADMP control handicaps is to obtain an interface card designed to utilize all of the ADMP's functions. There are several such interfaces (ie. Pkaso ///) which contribute significantly to harnessing the printer's various formats. However, not all Apple /// users have these full-featured interfaces, having purchased only the standard (UPIC) type along with the printer. The set up and operation of the ADMP using only a standard interface is a challenge and requires practice to learn.

Software Printer Control

Software control of the ADMP is not difficult but requires significant effort and practice, especially for the novice. Information on function controls for the ADMP are tabulated on the ADMP Reference Card. Once the ADMP DIP Switch configuration settings (Standard Switch Setting) have been selected, control of printer functions require only sending the proper sequence of control codes to the printer.

Print, format and graphics commands may be directed to the printer from several different programs. For example, in Business BASIC, the format for sending a printer control command to the printer is:

```
1 OPEN #1,".PRINTER"
2 PRINT #1CHR$(27);"!"
3 CLOSE #1
```

where CHR$(27);"!" is the control command ESC ! for selecting the bold print function. In various word processing systems (ie. Apple Writer ///) these control commands may be embedded in the text, and selection of the printer options will be controlled directly by the word processor itself during text printing. Other programs have a variety of ways (ie. menus) to select printer functions.

An obvious method of selecting printing options for the ADMP is by deciding what print functions are needed and then selecting the appropriate printer commands. Such an approach may be accomplished by developing a menu-driven program which sends predefined control code commands to the printer. This approach eliminates the cumbersome inputting of configuration or formatting strings required in different program environments and conditions.

```
100   REM * * * * * * * * * * * * * * * * * * *
110   REM *  PROGRAM FOR SELECTING PRINTER  *
115   REM * FUNCTIONS ON THE APPLE DOT      *
120   REM * MATRIX AND IMAGEWRITER PRINTERS *
130   REM * BY J W LEWICKI (c) 1985 On ///   *
140   REM * * * * * * * * * * * * * * * * * * *
150   HOME
160   DIM MENU$(30),PICK$(30),POINTER(30,30)
170   FOR INDEX=1 TO 29
180     READ MENU$(INDEX)
190     NEXT INDEX
200   GOSUB 1680:REM * PRINT PROGRAM INSTRUCT
      IONS *
210   HOME:PRINT:PRINT
220   REM * * * * * * * * * * * * * * * * * * *
230   REM * * SELECTION MENU BEGINS HERE  * *
240   REM * * * * * * * * * * * * * * * * * * *
250   PRINT"Select Printer Functions from the
       Following Menu:":PRINT
260   FOR INDEX=1 TO 9
270     PRINT TAB(10);"(";INDEX;") .........
        ";MENU$(INDEX)
280     NEXT INDEX
290   FOR INDEX=10 TO 18
300     PRINT TAB(10);"(";INDEX;") .........
        ";MENU$(INDEX)
310     NEXT INDEX
320   PRINT
330   PRINT TAB(30);
340   INVERSE
350   PRINT"Enter Selection (0 to Exit) ...";
360   GOSUB 1400:REM * INPUT SUBROUTINE *
370   SELECT$=STORE$
380   NORMAL
390   IF VAL(SELECT$)=0 THEN 1080:REM * LIST
      CHOICES *
```

Printer Set-up Program

Using Business BASIC, the program described in Listing 1 was developed specifically to allow easy access for selection of various ADMP print options. This program incorporates menus containing the most commonly used print functions. With only one or two keystrokes, any print command on the menu can be sent directly to the ADMP and the printer will be set up to execute the requested functions. Since these are software commands, the use of a special printer interface is not required.

The "ADMP PRINTER" program is completely menu-driven and offers a selection of five different character print sizes including 9,10,12,15 and 17 characters/inch, large and small proportional spacing, elongated print, bold print, slashed or plain zeros, eleven vertical line spacings and unidirectional or bidirectional printing. By selecting from the twenty-nine different options on the menu, the Apple DMP can be set up with innumerable printing combinations to output word processor text, BASIC, PASCAL, data base or other text matter in the desired output format.

Program Development

The approach to developing this printer set up program was based on several considerations. First, the selection of options was limited to reasonable and applicable choices. Next, appropriate menus containing printer control characters were developed. Finally, a method of listing the options in the order selected along with a way of returning to the menus was implemented. These objectives were accomplished using several arrays to establish storage and retrieval systems for text, menu and cumulative option selections. The primary arrays are described below:

ARRAYS

MENU$(30) — **Store text descriptions**
PICK$(30) — **Store selections**
POINTER(30,30) — **Index selections.**

Principle variables used throughout this program include the following:

VARIABLES

SELECT$ — **Contains first menu selection**
CHOICE$ — **Contains second menu selection**
ORDER — **Contains order of selections**

There are two menus in this program: the print options menu (Figure 1) and the line spacing menu (Figure 2). The main print option menu is located at lines 250-350 and the line spacing menu begins at lines 680-780. Keyboard selections for each menu are transferred through an input subroutine (lines 1400-1670) designed to specifically accept only numeric input, limited to two characters, with a backspacing deletion function. (For detailed information on this inputting routine, refer to Durkee, David, "Follow The Floating Point," *Softalk*, March 1984.)

The text for the menus is first read into the MENU$ array at the beginning of the program (lines 170-190) from DATA statements at lines 1280-1320. Then, instructions for using this program are generated on the screen by PRINT statements located at lines 1710-1800. Following the instruction screen, the main menu is displayed and the program is ready to accept selections.

```
400   REM * LIMIT SELECTION BETWEEN 0 AND 18
      *
410   IF VAL(SELECT$)<0 OR VAL(SELECT$)>18 TH
      EN 210
420   ORDER=ORDER+1:REM * MAINTAINS ORDER OF
      SELECTIONS *
430   REM * * * * * * * * * * * * * * * * * *
440   REM * PRINTER CONTROL CMDS BEGIN HERE *
450   REM * * * * * * * * * * * * * * * * * *
460   OPEN#1,".PPRINT"
470   ON VAL(SELECT$) GOTO 480,490,500,510,52
      0,530,540,550,560,570,580,590,600,680,6
      10,620,630,640
480   PRINT#1;CHR$(27);"n":POINTER(ORDER,1)=1
      :GOTO 1030
490   PRINT#1;CHR$(27);"N":POINTER(ORDER,2)=1
      :GOTO 1030
500   PRINT#1;CHR$(27);"E":POINTER(ORDER,3)=1
      :GOTO 1030
510   PRINT#1;CHR$(27);"q":POINTER(ORDER,4)=1
      :GOTO 1030
520   PRINT#1;CHR$(27);"Q":POINTER(ORDER,5)=1
      :GOTO 1030
530   PRINT#1;CHR$(27);"!":POINTER(ORDER,6)=1
      :GOTO 1030
540   PRINT#1;CHR$(27);CHR$(34):POINTER(ORDER
      ,7)=1:GOTO 1030
550   PRINT#1;CHR$(14):POINTER(ORDER,8)=1:GOT
      O 1030
560   PRINT#1;CHR$(15):POINTER(ORDER,9)=1:GOT
      O 1030
570   PRINT#1;CHR$(27);"P":POINTER(ORDER,10)=
      1:GOTO 1030
580   PRINT#1;CHR$(27);"p":POINTER(ORDER,11)=
      1:GOTO 1030
590   PRINT#1;CHR$(27);"A":POINTER(ORDER,12)=1
      :GOTO 1030
600   PRINT#1;CHR$(27);"B":POINTER(ORDER,13)=1
      :GOTO 1030
610   PRINT#1;CHR$(27);"D1":POINTER(ORDER,15)=
      1:GOTO 1030
620   PRINT#1;CHR$(27);"Z1":POINTER(ORDER,16)=
      1:GOTO 1030
630   PRINT#1;CHR$(27);")":POINTER(ORDER,17)=1
      :GOTO 1030
640   PRINT#1;CHR$(27);"(":POINTER(ORDER,18)=1
      :GOTO 1030
650   REM * * * * * * * * * * * * * * * * * *
660   REM * SPECIAL LINE SPACE MENU BEGINS  *
670   REM * * * * * * * * * * * * * * * * * *
680   HOME
690   PRINT:PRINT:PRINT"Select Special Line Sp
      acing (inches):";PRINT
700   FOR INDEX=1 TO 9
710     PRINT TAB(10);"(";INDEX;") .........
        ";MENU$(INDEX+18)
720     NEXT INDEX
730   FOR INDEX=10 TO 11
740     PRINT TAB(10);"(";INDEX;") ......... "
        ;MENU$(INDEX+18)
750     NEXT INDEX
760   PRINT:PRINT:PRINT TAB(30);
770   INVERSE
780   PRINT"Enter Selection (0 to Exit)...";
790   GOSUB 1400:REM * INPUT SUBROUTINE *
800   CHOICE$=STORE$
810   NORMAL
820   IF VAL(CHOICE$)=0 THEN ORDER=ORDER-1:GOT
```

After the menu selections are made, the resulting printer control codes are transferred directly to the printer. Lines 480 through 640 contain the print control commands for the main menu while lines 890-990 contain the line spacing commands. A paper alignment correction is required after each control command. This correction, defined in line 1030, maintains the position of the paper in the printer at its initial location. Following the selection, the program lists the options chosen in the order they were selected and allows the user to either input another selection or terminate the program. This routine is located at lines 1080-1240.

Conclusions

The ADMP PRINTER program offers several advantages in setting up the Apple Dot Matrix Printer. Using the menu-driven mode of selection, print functions can easily be transferred to the printer without incorporating long input strings. Several combinations of options may be easily chosen and each option is listed in the order selected. Finally, since this is done entirely in software, no special printer interfaces are required.

This useful BASIC program may also be expanded by incorporating additional print formatting commands, custom character commands and graphic mode selections. Furthermore, the program may even be modified as a device driver for incorporation into the SOS.DRIVER thus allowing the printer to be set up directly from any SOS system program installed with this driver.

```
830   REM * LIMIT SELECTION BETWEEN 0 AND 11
      *
840   IF VAL(CHOICE$)<0 OR VAL(CHOICE$)>11 TH
      EN 680
850   REM * * * * * * * * * * * * * * * * * *
860   REM *    PRINTER CONTROL COMMANDS FOR *
865   REM * LINE SPACING BEGIN HERE         *
870   REM * * * * * * * * * * * * * * * * * *
880   ON VAL(CHOICE$) GOTO 890,900,910,920,93
      0,940,950,960,970,980,990
890   n=10:PRINT#1;CHR$(27);"T"n:POINTER(ORDE
      R,19)=1:GOTO 1030
900   n=15:PRINT#1;CHR$(27);"T"n:POINTER(ORDE
      R,20)=1:GOTO 1030
910   n=25:PRINT#1;CHR$(27);"T"n:POINTER(ORDE
      R,21)=1:GOTO 1030
920   n=35:PRINT#1;CHR$(27);"T"n:POINTER(ORDE
      R,22)=1:GOTO 1030
930   n=43:PRINT#1;CHR$(27);"T"n:POINTER(ORDE
      R,23)=1:GOTO 1030
940   n=53:PRINT#1;CHR$(27);"T"n:POINTER(ORDE
      R,24)=1:GOTO 1030
950   n=60:PRINT#1;CHR$(27);"T"n:POINTER(ORDE
      R,25)=1:GOTO 1030
960   n=70:PRINT#1;CHR$(27);"T"n:POINTER(ORDE
      R,26)=1:GOTO 1030
970   n=80:PRINT#1;CHR$(27);"T"n:POINTER(ORDE
      R,27)=1:GOTO 1030
980   n=90:PRINT#1;CHR$(27);"T"n:POINTER(ORDE
      R,28)=1:GOTO 1030
990   n=99:PRINT#1;CHR$(27);"T"n:POINTER(ORDE
      R,29)=1:GOTO 1030
1000   REM * * * * * * * * * * * * * * * * *
1010   REM * CORRECTION FOR PAPER ALIGNMENT*
1015   REM *  WITH REVERSE/FORWARD FEED    *
1020   REM * * * * * * * * * * * * * * * * *
1030   PRINT#1;CHR$(27);"r":PRINT#1;CHR$(27);"
       r":PRINT#1;CHR$(27);"f"
1040   CLOSE#1
1050   REM * * * * * * * * * * * * * * * * *
1060   REM * * PRINT OUTPUT DESCRIBING   * *
1065   REM * * COMMANDS SELECTED          * *
1070   REM * * * * * * * * * * * * * * * * *
1080   HOME
1090   FOR J=1 TO ORDER
1100     FOR K=1 TO 29
1110       IF POINTER(J,K)=1 THEN PICK$(J)=MEN
           U$(K)
1120       NEXT K
1130     NEXT J
1140   IF ORDER=0 THEN 1190:PRINT:PRINT
1150   PRINT"Printer Set-Up With The Following
        Functions ...":PRINT
1160   FOR INDEX=1 TO ORDER
1170     PRINT TAB(10);INDEX". ";PICK$(INDEX)
1180     NEXT INDEX
1190   PRINT:PRINT:PRINT
1200   PRINT TAB(30);
1210   INVERSE
1220   PRINT"Another Printer Function Selectio
       n (y/n) ?"
1230   GET ANSWER$:NORMAL
1240   IF ANSWER$="Y" OR ANSWER$="y" THEN 210
1250   REM * * * * * * * * * * * * * * * * *
1260   REM * * TEXT FOR MENU DESCRIPTIONS* *
1270   REM * * * * * * * * * * * * * * * * *
1280   DATA " 9 Characters per inch",10 Charac
       ters per inch (NORMAL PICA PRINT),12 Ch
       aracters per inch (ELITE PRINT),15 Char
       acters per inch,17 Characters per inch
1290   DATA Bold Print,Bold Print Off,Elongate
       d Characters,Elongated Characters Off,S
       mall Proportional Spacing,Large Proport
       ional Spacing
1300   DATA Six Lines per inch (NORMAL),Eight
       Lines per inch,Special Line Spacing,Zer
       o with Slash,Zero without Slash,Unidire
       ctional Print,Bidirectional Print
1310   DATA Spacing 1/16 Apart,Spacing 1/8 Apa
       rt,Spacing 1/4 Apart,Spacing 3/8 Apart,
       Spacing 1/2 Apart,Spacing 5/8 Apart
1320   DATA Spacing 3/4 Apart,Spacing 7/8 Apar
       t,Spacing 1 Apart,Spacing 1 1/8 Apart,S
       pacing 1 1/4 Apart
1330   HOME
1340   VPOS=8:HPOS=22
1350   PRINT". . . . P R I N T E R  R E A D Y
       . . . .":VPOS=24
1360   END
1370   REM * * * * * * * * * * * * * * * * *
1380   REM * *    INPUT  SUBROUTINE      * *
1390   REM * * * * * * * * * * * * * * * * *
1400   STORE$=""
1410   GET KEYPRESS$:REM * INPUT FROM KEYBOARD
        *
1420   REM * IF INPUT IS A CONTROL CHARACTER,C
       HECK FOR BACKSPACE *
1430   IF ASC(KEYPRESS$)<32 THEN 1510
1440   REM * LIMIT INPUT TO NUMERIC DATA ONLY
       *
1450   IF ASC(KEYPRESS$)<48 OR ASC(KEYPRESS$)>
       57 OR ASC(KEYPRESS$)=47 THEN 1410
1460   IF LEN(STORE$)=2 THEN 1410:REM * LIMIT
       INPUT TO 2 CHARCTERS *
1470   STORE$=STORE$+KEYPRESS$
1480   PRINT KEYPRESS$;
1490   GOTO 1410:REM * NEXT ENTRY *
1500   REM * IF INPUT IS NOT A BACKSPACE,CHECK
```

[Cont'd on page 28]

Evaluating Software:

Computer Applications

Ilona cunningham

Computer hardware was meant to do more than sit on and decorate your desk. It is all well and good that you have an Apple ///, a hard disk and a printer sitting there, but for your computer system to work for you, it must also have software applications programs, utility programs, system programs, and storage media.

Applications programs are what determine whether you will write a letter to Uncle Harry, figure your family budget, slay green dragons to rescue a princess, or build a filing system ranging from a handful of phone numbers to a comprehensive encyclopedia of personal facts. These are the programs that cause the computer to do what it does best—work for you.

Some programs are *General Applications* programs. They provide a general function which you can use to accomplish many different tasks. Word processing, spreadsheet and data base management programs are all examples of general applications.

If you want to write letters, reports, memos, etc., you'll need a *word processing* program (and a printer for the finished text). If you want to do financial analyses or anything based primarily on numbers and mathematics, a *spreadsheet* program will fit the bill. To organize (with search and sort capabilities) the family medical records, the Christmas list, the stereo or video library catalog, etc., a *data base management* program will handle your requirements.

Games and specialty functions like handicapping horses, nutritional menu planning, and genealogy charting can be found in *specific applications* programs. Other examples of specific applications programs include graphics drawing aids such as *Draw On* ///, stock market analysis, accounting (general ledger, payroll, receivables, etc.), educational programs and more.

Utility programs are a necessary part of the computer system. They make everything as easy as possible for the user. Utility programs handle all of the odd-ball tasks that you need to do, formatting blank disks, copying disks, transfering files from one disk to another, listing files from your disk directory, erasing old, no longer needed files, etc.

Utility programs handle all the odd-ball tasks and system programs are most important of all.

System programs are the most important of all. In fact, your computer would not function without them. Curiously, they are the files with the strange names like SOS.KERNEL and SOS.INTERP that you have the least to do with. They include invokable modules and drivers such as .PRINTER and others essential to your peripherals. Among them also are high level language interpreters, e.g., Business Basic and Pascal, which allow you to write your own programs. They serve as a translator between the English-like words and phrases you can relate to, and the low-level hieroglyphics that only the computer understands.

Storage media is the term for the floppy disks where your applications and other programs and their resulting data are stored. A good supply of blank disks is as important to your overall computer system as are the applications, utility and system programs and hardware.

Your standard Apple disk drive system uses 5¼ inch floppy disks with 140K storage capacity. This 140K is divided into 280 *blocks* of 512 bytes each, for a total of 143,360 characters. When you format a disk, seven blocks are used by SOS for housekeeping, leaving 273 blocks (139,776 characters) of free space for data files. Each file in turn uses a minimum of one block for header and pointer information in addition to the space used for actual data storage. A large file may use two or three blocks for the header information.

With all the record-keeping involved, it is sometimes necessary to look to storage devices with larger capacities, especially so if your data files tend to be large (250 or more entries in a data base file). Even though 139,000 characters seems like a lot, many data base programs use one full block or more for each record (each entry or page) in the file, even if that record contains as few as ten characters.

. . . many data base programs use an entire block for a single record.

The *kind* of information you are storing (constant sized records vs non-constant) must be considered as well as the amount.

Mid-range drives such as the low-priced 800K Apple *UniDisk* ///.5 or the *Micro-Sci A-143* can be installed on your system for added floppy capacity. In many cases, the 572 to 800K storage is sufficient for any project you care to undertake. Another type of storage media is the hard disk drive. A few files are simply to large to fit on any single floppy and too cumbersome to spread over several floppies with all the disk swapping inherent in that practice. A hard disk solves the problem by offering storage capacities in megabyte ranges (one million characters equals one megabyte.) Typical hard disks handle from five (ProFile) to 30 (Trustor) or 40 megabytes.

Job Organization Procedure

Using an organized procedure to determine which software (or even which of several methods on the same piece of software) will do the job best is the key to saving time and increasing productivity. This is the reason most of us have computers in the first place.

How Do You Know What You Need?

Computer applications can be divided into three functions: data in, data out, and the processing which must go on between the former two. Look at your project carefully.

Look at your project carefully.

Exactly *what* information are you planning to put into the computer? Exactly *what* information do you want to get out of the computer? Exactly *what* will the computer need to do with your input information in order to produce your output information correctly? Defining what you're going to put in and what you want to get out can help you organize your project, making sure you have correctly determined what information is required to produce the desired results.

Defining what the computer must do for you is likely to show you what kind of program you need to do the job.

Word Processor—Text Functions

To do word processing you'll need word processing software. There are low-priced, minimal use programs which do well in the home if replacing the typewriter is your only need. There are mid-priced models which do a commendable job and can be expanded with spelling dictionaries and other features aimed at the business user. There are also high-priced models containing every feature imaginable, and which some reviewers think no one should be without.

If word processing is to be an integral use of your computer, take the time to investigate several programs. Compare their cost against the work they will perform, and against the work you actually want to do.

Find out if the program can access the files of other programs (particularly spreadsheet data). Try to put together a complimentary 'set' so you'll be able to move information from other files into your word processor text without having to re-keyboard the data.

Spreadsheet—Math Functions

Number calculations with a spreadsheet program are among the most flexible applications of both home and business computer systems. With a spreadsheet program you can plan your budget, keep track of your finances, chart the stock market, the racing world, your favorite teams and players, or virtually anything else having to do with numbers.

Spreadsheet programs should be investigated for the same cost/performance efficiency as any other purchase. They should also be looked at for their ease of use and special requirements. If what you see on the screen is overly complicated you may lose interest before you ever learn to apply the program to your needs. Be careful of picking 'beginner' programs. All that helpful prompting information on the screen is great when you start, but when you've used it for the hundredth time you might wish the helpful paragraph would disappear and let you see more of your own data. A few clever programs will keep the help data out of sight, just a keystroke away.

List Management (DBM)

List management or file management programs, those generally referred to as DBM (for Data Base Management) programs, are perhaps the most diverse collection of choices you will find in general applications programs. List management is a complicated process with several methods of handling the information. Not all users need all of the many ways of managing data.

Start by gathering all the facts you can about the information you will be processing and how you want it maintained. How many items do you want on each record? How many records will the file ultimately contain? How do you want to retrieve the information—what alpha-order, screen, printer, etc.? Then, carefully compare what each available DBM program offers.

The DBM program will handle that final 'general' applications job: organizing, putting in alphabetical order and calling up specific information on demand: *information management*.

Specific Applications

Most applications (even some which could be handled as well by the general categories) can be found in ready-to-use programs designed for specific applications.

Specific applications for business include accounting modules such as general ledger, payroll, receivables, payables, inventory, point-of-sale, and many more. For home and family use, specific applications include nutritional meal-planning and menu maintenance, stock-market tracking, checkbook management, education, music, art games and a list of others that would literally fill a book. Ask your dealer for suggestions. Browse computer magazines for ads and reviews. Check any software index publications your dealer may carry.

If commercial software is unavailable, you have three options . . .

Programming (Unique Applications)

Some projects may be so unique that no commercial software is available. In this case, you have three basic options: hire a professional programmer to design the software for you, scour the public domain offerings for usable material, or learn programming and write your own.

Hiring a professional programmer is usually the most expensive option and not necessarily the fastest, so you should investigate alternatives before committing yourself. The fees charged by professional programmers become cost efficient only when your project is complicated and/or your own time is limited. In some cases you may find that a project would require 50 or 60 hours of your time (which you may not have to spare) just to learn the process and complete the material. Measured against the professional's fee, the bottom line dictates the most effective option.

Searching public offerings doesn't always bring results, but it's still worth a try, even if you ultimately decide to write the program yourself. Public domain programs are rarely written by professionals. More often they aren't even complete programs, but routines for performing various tasks. They can teach you a great deal about programming, and finding a routine you can use is a time saver over figuring out how to do it yourself. Public domain programs can be found in computer magazines and in online databases such as *CompuServe*™ and *Interface Age Data Exchange*™. Special interest computer groups are also a good source.

Learning to program . . . is rewarding.

Learning to program the computer by yourself is by far the most rewarding option but also the most time-consuming. Writing good commercial programs is an art that few master. Writing for your own use is a learned skill which could well serve your own needs and become the most rewarding answer. The key is the necessary motivation to learn, the patience, and the time to practice and become proficient.

There are many programming languages from which to choose. *Assembly* is for the experienced but gives you the greatest degree of control; *FORTRAN* and *COBOL* are generally found on larger (mainframe) computers but are also available on Apple; *BASIC* is the most common language because, using English-like words, it is easy to learn and flexible enough to perform most tasks users have in mind.

BASIC—**B**eginner's **A**ll-purpose **S**ymbolic **I**nstruction **C**ode is a straightforward method of using numbered lines to instruct the computer. At run-time, the computer executes the instructions in the sequence specified by the line numbers.

Pascal is a popular programming language which offers advantages over BASIC in speed and control but is more difficult to learn, requiring strict adherence to program structure and format. It is usually taken up as a 'second' language after not necessarily be. Pascal uses a mastering BASIC, though this need free-form format instead of line numbers. Each separate task is written as a module complete unto itself and with an identifying name. The main program then calls the modules by name.

Wise Buying

Buying a computer system for the home is not like running to the corner grocery for a loaf of bread. Neither is it a wise practice to drop in at the local department store and pick up a piece of hardware or software that neither you or the salespeople know how to operate. You know the old rub about buying used cars—would you buy one from a salesman who couldn't drive?

Along the same line is the problem of mail-order purchases. Ordering from a special interest group such as *ON THREE* is a respectable choice. You can be assured that anything they offer for sale has been thoroughly tried and tested and will perform as specified. They have a vested interest in promoting products they have found useful and in letting you know about those they have found to be duds. At any rate, you can be sure they will do everything they can to assist with any problems which might arise.

. . . there is no one to help solve the problems.

Mail-order through mass-market dealers who advertise in magazines is quite another matter. Their business is based on sales and not help, and it shows. You never know for sure what you're getting until it arrives, if it arrives, and even when it does, there is no one to help solve the little problems that invariably arise with new equipment or software. Mail-order purchasing should be left to the accomplished enthusiast who won't need help from the seller. Even then, there is substantial risk.

Choose an authorized dealer and ask about repair/return/exchange policies before you buy. If you receive a piece of hardware at home and it doesn't work, will they repair it? Are they qualified to repair it? If it must be sent back to the manufacturer, will they ship it for you? How long is the warranty period? If you're going to be left out in the cold as soon as you walk through the door, don't buy it.

Most dealers will not accept returns on software and for good reason. But a reputable dealer won't object to your 'test-driving' software on store machines before you commit yourself. Take time to test each disk and make sure they work. Study the manualor potential problems. Try a sample (if you can) of your own data to make sure the program will do the job you're considering it for. If not, the time to look for another program is before you pay for the first one. If you aren't sure what you need, ask for help. Nobody knows all the answers, but your dealer should maintain a list of people who can offer suggestions for many applications.

Understanding the strengths and limitations of the software, knowing what to look for when shopping for software or peripherals, and knowing how to get started when you have made a new purchase are all part of sensible and intelligent decision making.

After the Fact

Your test run in the store will have told you much about getting your new acquisition up and running. Once you have it in the quiet of you home or office, study the manual again. Look for additional features which might be useful to your project. Many software packages offer features we overlook during a brief store examination. Make a few more tests to familiarize yourself with the product and practice alternative methods which may appeal to you. Any required adjustments are considerably easier to make on small sample files before you have spent a great deal of time keyboarding data.

Finally, will it become obsolete before the ink on your check is dry? Compared to technology such as that of the computers used on NASA spacecraft, yes. In terms of the uses you had in mind when you made your purchase, only unless you selected it that way. Obsolete is a relative term. When your computer can no longer handle the tasks you need, it is obsolete.

Good hunting!

Reading the Mail:

Three Questions

Manual Operation

Dear Bob,

A week ago I received two ON THREE 512K Memory Upgrade packages. Both were installed with very little problem. I also have on order a copy of Selector ///. The upgrade works fine.

Now to my problem. Some time ago, I purchased Draw ON /// and now with the 512K Upgrade, I want to install Draw ON /// under Catalyst. In doing so, the program comes up with the can not find DRW3.DIR/DRW3DATA file message. I have been very careful in checking and rechecking to make sure everything was per your instructions. So now, I do not know what to try next.

The second problem—After adding the Ramdisk driver to my SOS.DRIVER file everything worked fine. Then I wanted to add the .ONTIME driver. When I tried to read in the SOS.DRIVER file, the message "Badly Formatted Driver File" appeared. Can you assist in this problem. The Ramdisk is working just fine, but is there a way to enlarge the area from 280 blocks to 420 blocks?

I will appreciate any assistance you can provide.

John C. Laughlin
Honolulu, HI

The problem with installing Draw ON /// under Catalyst has been discussed previously in the magazine, but it is a recurring problem. Thus I'd like to put the correction in print again. There should have been an ERRATA sheet in the Draw ON box. There is an error in the manual relating to how to install Draw ON under Catalyst.

On the bottom of page 111 of the Draw ON /// Graphics Tool User's Guide, the last line reads:

Program path: .PROFILE/CATALYST/DRAW.ON.3/SYSTEM.STARTUP

To work properly under Catalyst, it should read:

Program path: .PROFILE/CATALYST/DRAW.ON.3,SYSTEM.STARTUP

Note the change, the last slash became a comma. The error is in the strange way that Catalyst sets the prefix.

The error message "Badly Formatted Driver File" that you have been getting is due to a bug in System Utilities 1.1. It allows you to create a SOS.DRIVER file larger than can be read back in. You can create it, but the next time you try to change it, the Configuration program will give you an error. Utilities 1.2 corrects this problem and allows you to build slightly larger driver files.

(Note: Some of you may notice that a letter from John Laughlin was in the last issue. You may also remember that we lost his first letter. I just found it! Oh, well—the last will be first or something like that)

Speed Kills

Dear Sirs,

I recently purchased a Trustor 30 from you and had trouble formatting it. When I tried to format it would hang up, or run for six minutes and finish with a "SYSTEM FAILURE $01" or "Format error # 140. Internal program error" message.

I was about ready to box it up and ship it back until I remembered that I had changed the regular 6502 chip in my Apple /// with a Rockwell 65C02 chip. When I changed back to the original 6502 chip, formatting of the Trustor 30 went without a hitch.

My question is—can I modify the Trustor 30 driver to work with the 65C02 chip, and if yes, do I have to re-format the Trustor 30?

Gerald D. Brown
Mission Viejo, CA

The problem you have experienced is (and will be) common with the 65C02 chip. While the 65C02 chip purports to be exactly compatible with the existing 6502 chip—it is not! Certain instructions take a different amount of time to execute with the 65C02 chip. The Trustor 30 format routine is one piece of software that is sensitive to the differences. Drivers for some other interface cards may also give you problems.

To answer your question, as long as the Trustor 30 is formatted, you can change back to the 65C02. If you ever need to re-format, you will have to go back to the regular 6502 chip. You may also be having a problem because of the speed and timing specifications for the different chips. Some of the more timing sensitive software may also fail with the 65C02 chip.

I assume that you are using the new chip to lower the power requirements in your system (the 65C02 uses less power than the regular 6502). If this is the case, or if you want the few new instructions that the 65C02 offers, try the 65802 chip. It is also a CMOS (low power) device and like the 65C02, is available in three speeds, 2- 4- and 6-MegaHertz. This chip has a powerful superset of the standard 65C02 instructions and is completely compatible with existing hardware and software, since it reverts to the original 6502 cycle times.

Since the 65082 (and the 65816 as well) duplicates the 6502 timing, it is another alternative. In our use with the ///, it has performed flawlessly (also in the][e, and we have in fact successfully formatted a Trustor with it.

Down Under remains Out of Touch

Dear Mr. Consorti,

A friendly Apple executive recently gave me a copy of ON THREE (Vol. 2 #1). Ever since late 1982 I have been pestering Apple and various dealers on how to get more out of my ///, and one issue of ON THREE contains more useful information than I have got out of them in two years. Amazingly, it has taken that length of time for news of your existence to arrive here in Australia.

Can you or your readers help me with some questions I have been asking for so long? (Some may well be answered in the SOS Reference Manual which I have also not been able to obtain here, even from Apple Australia)

Is there a book published on "beyond the manual" programming techniques for the ///? My dealer claims to have heard of one, but can't identify it.

— Are there any software routines available, callable from Basic, for matrix algebra?
— Can Pascal be speeded up by changing the precision of reals? I found that Pascal executes at about one-third the speed of Basic for many of my programs, due to frequent calls to the TRANSCEND Unit. Again, my dealer claims to know of...
— Any other tricks for speeding up number-crunching? Floating point processors? Basic compilers?
— How can I trap special keys (eg alpha-lock, open-apple), or distinguish number-pad keys from their keyboard equivalents in my programs?

Three further questions which were raised by perusing ON THREE:

— "...the Apple /// keyboard is...completely software definable under program control..." (Apple ///—The User's Micro: p. 30). What does this mean, and how do you do it?
— "[Lazarus's] very, very fast screen changes and movements were done with programming ease..." (Why Is Everyone So Excited About Lazarus: p. 16). Again, how? Also are the text effects and special characters simply achieved by defining a special font, or is it something more devious?
— "[Apple's]...formation of a business unit dedicated solely to...supporting the Apple ///..." (Letter from Jack D. Wood: p. 10). Did they, does it still exist, and if so what is it doing?

I look forward to receiving a parcel of goodies from you, plus any advice you can give on the topics above.

Chris J. Talbot
Albury, NSW, Australia

I'm glad that you enjoy ON THREE and hope that we can continue to be of service to you in the future. Regarding all of your questions, I don't know of many books about programming techniques on the Apple ///. It's hard enough to find limited beginner information. Hopefully ON THREE will be able to shortly publish a series of articles on advanced programming practices. I'm also not familiar with any of the matrix routines you were asking about, maybe one of our readers could help.

As far as I know there is no way to speed up the machine as of yet. I'm leaving myself open on this subject because ON THREE may be able to offer a speed up kit (new 65802 chip with software) if Apple allows it. There is a partial Basic Compiler available from D.A. DataSystems. The address is 3792 Windover, Hamburg, NY 14075.

Some of our back issues (which you should have by now) contain articles and programs on how to distinguish certain key combinations from others. Also in past issues were articles on how to change the keyboard map of the ///. Regarding the Lazarus program, the text effects of moving windows and very fast scrolling speed were done using a mix of assembly language and Pascal (mostly assembly language). The special characters (smooth corners, arrows, bold characters and symbols) are simply a redefined character set. There are a number of font creation utilities available, some of them probably advertised in this issue.

The "independent business unit" that was supposed to be devoted to the Apple /// existed for a very short time just before the Apple /// was cancelled. As you probably know by now, Apple Computer is supporting the /// even less than it ever has (I don't know how that's possible—but it is true). Only through groups such as ON THREE will the full potential of the machine be realized. You can help us and your fellow Australians by making them aware of ON THREE's existence.

Poking Around

Gentlemen:

Since I haven't heard from you lately, I thought it to be about time to write again and say I've missed reading the best Apple /// source I have.

Your last issue of ON THREE suggested the development of a product that will let the mouse work on other software. Can you give me some information on it please.

I wanted to let you know I used the keyboard modification program from one of the earlier DOM's. I got tired of the shift key and special characters needed in VisiCalc. I turned the top row of the keyboard upside down. Now 1/! is !/1. I did the same with the quote. It works great!

I have come across a number of Apple][program that I want to convert to run in native mode Business Basic. When I come to the Apple][PEEKs and POKEs I get lost in a real hurry. I understand Apple-Con will convert some but not the ones I have worked with. Is there a good source for identifying these and what their equivalents would be in Business Basic?

Looking forward to your next issue.

Larry Paine
Yuma, AZ

We have completed development of the utility that lets you use the mouse from other programs. It is a part of the ONTIME Desktop Manager. It will allow you to use the mouse as replacements for the arrow, RETURN and ESCAPE keys in your current programs. Move the mouse down and to the right in VisiCalc and your cell cursor will move down and to the right. Likewise for all other programs that use the arrow keys for movement.

In regards to the Apple][programs, we have one of the best sources in the world—our Editor, Val Golding. I'm sure that if you document what PEEKs and POKEs you need information about, Val will know. He's an ardent Apple][(and now ///—right Val?) fan and I'm sure he can help you.

In general, Applesoft PEEKs and POKEs may have either fixed or variable meanings, depending on memory address, while CALLs almost always relate to a specific machine language program that loads with the Basic program. If you will submit a printout, I'm sure Val can decode them for you.

Titanic Questions

Dear Bob,

I must say that I am delighted with my new MicroSci A143. Thanks. But I am impatiently waiting for Selector ///. I am not about to wipe out my "protected" disks with Catalyst. Which reminds me that those of us who are now without protection are the Apple /// owners who have been abandoned and left high and dry and facing a long future without back-ups for our protected disks. Is there any way this situation could be changed, now that Apple /// owners have been left to fend for themselves?

Of course, I am still very satisfied with my Apple ///. It keeps working away faithfully and steadily. What a beautiful tool it is. In fact, we now have two Apple ///'s—one for me and one for my wife! That has helped the scheduling problems considerably. It also eases some of the anxiety about a possible breakdown. The chances of two being down at the same time is slim. By the way, is somebody going to come out with a care, repair, and maintenance manual for us? There is another worthy project for you.

I am happy and reassured to see that you are still sticking in there, though I must admit that I get a little concerned when I do not hear from you. Then again, with all of the work that you seem to be doing I can see where you could be a bit overwhelmed at this point. Could you find some time to handle a couple of questions?

1— A dealer gave me a kit called an Interlace Upgrade, when he heard that I had an Apple ///. However, he did not have the directions nor did he have anyone to install this for me. Help! Could you tell me how to do it? I installed your clock without any difficulty, but then you provided clear directions. Is there any possibility that you could provide directions for this installation?

2— How do I get color for my hi-res pictures in Emulation Mode? Lo-res in Emulation is beautiful, as is the work I do with Draw ON ///, of course. But hi-res in Emulation is a total loss. The grandchildren would enjoy the games a lot more if they were in color! Surely there must be a way. On your recommendation, I purchased my Zenith ZVM135. I had the idea that it would do the job all around. As you know, it is both RGB and composite with NTSC and green monitor choice. What is the problem and what can be done about it?

3— Do the Titan Emulation cards give any trouble? They promise to give me 64K to 128K in Apple][Emulation, including a gameport and a RAMdisk. Who knows, maybe with that I would get color too? I have seen them advertised in little corners here and there but I have not seen a trustworthy evaluation .

I am looking forward to that day when the next issue of ON THREE arrives. It seems like a long, long time. Your Trustor 10 and 512K upgrade are very tempting, but I cannot afford them now. What I am really looking forward to getting is your Selector /// and another gameport to put into my second Apple /// for the grandchildren. I hope that Selector will be ready soon.

Francis K. Wagschal
New York, NY

Per your (and many other Apple /// owners) suggestions, ON THREE will set up a software update and backup service. Look for information regarding it in the next issue. The 'Apple /// Care' manual is a good idea, I'll see what I can do.

To install the interlace kit, you will need to get 'inside' your Apple ///. Since you have installed a clock before, you shouldn't have any problems. After taking the bottom plate off of the main chassis, look at your interlace kit. It should contain 1 large chip and 1 wire, cable, switch assembly.

At location 'H1' on the main logic board, you will find a connector that mates to the end of the cable assembly. From front-to-back the one wire should slide into position 4 in the connector. Next, locate the large chip on the main logic board at location 'G9'. It's the same size as the new chip in the interlace kit. Using a chip puller or flat head screwdriver, remove the chip from the main logic board and replace it with the new chip. Be careful to orient the new chip the same way as the old one—with the notch facing forward.

Next, look at location 'H14' on the main logic board. It will be marked with the white lettering 'J19' and should hold a three prong connector. If your logic board doesn't have the three prongs soldered into the board, but rather three holes in the board, you will have to get an appropriate sized pin and solder it into the hole. Hopefully one of your machines will have the connectors. In any case, attach the connectors on the front-most two pins in the three-pin package.

You have completed the core of the installation. The next part entails putting the machine back together. As you reassemble your ///, the loose wire with the switch connector should be routed upwards through the back of the internal disk drive area. After the bottom is screwed onto the chassis, locate one of the small holes on the back chassis—to the top right of the internal disk drive. You will put the switch assembly through this hole and secure it with the nut assembly. Finish putting back the cover of the machine and you are done.

The switch is an ON/OFF switch and it turns interlace mode on and off. It is not possible to determine which way (on or off) it was installed, so after you turn your machine back on, try flipping the switch a couple of times to see what happens to your screen. Remember that while in text mode, the interlace kit makes the 'look' of the text clearer. In graphics mode, only use interlace while in graphics buffer 1. If you have interlace on while viewing buffer 2, the contents of buffer 1 and buffer 2 will be interlaced, providing you with a very eye-straining experience.

I'll have to let our graphics expert, Mel Astrahan, answer the NTSC video emulation problem, I'm not sure what the answer is. Hopefully Mel will have an answer shortly for you. To the best of our knowledge the Titan card doesn't do any damage to your machine.

You may not have noticed, but the 512K Memory Board is now only $399 after rebate. The Selector /// package has been shipped for a few months now. I look forward to your future comments and hope that we can continue helping you in the future.

Backing Up Trustor 30

Dear Sirs,

Several months ago we purchased the 512K Memory Upgrade for our Apple ///. We have installed it and it works very well. Thank you for making such a useful product available.

On the demo disk that accompanied the memory upgrade was an ad for your Trustor hard disks. Can you provide us with more information on these? Is a tape backup available for the Trustor disks? I cannot imagine backing up a 34 MegaByte disk to floppies.

We appreciate your dedication to the Apple /// user and look forward to a continuing relationship with ON THREE.

Samuel Marshall
Edmonton, Alta. Canada

I'm glad that you are enjoying the use of your expanded 512K Apple /// system. Regarding the Trustor 30, it is an extremely fast 34-MegaByte hard disk unit, about five times faster than the Apple ProFile hard disk. It can hold 69,632 blocks of information. Although the Apple /// is supposed to be able to work with disk drives up to 32-MBytes, it can actually address up to 16-MB at a time. Because of this, we have partitioned the drive as three devices. The first two are 16-MB disks, while the third functions as a two-MB disk. The Trustor 30 also works with all Apple /// software and is compatible with both Catalyst and the Selector /// Program Switching Utility. Priced at only $1999, it's a great buy.

Currently a tape backup is not available for the Trustor disk. The only backup method is the Backup /// program from Apple. Making backups isn't really that bad if you use the right kind of backup disk drive. For example, the new UniDisk 3.5 800K drive holds 1600 blocks at a time. If you incrementally backup your files, it may take no more than 10-15 minutes each day.

Needs More Memory in Emulation

Dear Ms. Schanz,

I have a question about the Apple ///. While in the Apple][Emulation mode, you only have access to approximately 48K of memory. This is sometimes not enough, as programs such as 'Newsroom' require more.

I saw that a product called Titan /// Plus][is on the market now. Do you feel ON THREE will be getting involved with a product such as this. The Titan /// Plus][gives you 64K of memory, plus gives you the ability of using ProDOS.

The Apple /// is a fabulous machine, but quite limited in the software available and not being able to run Apple][software. I look forward to your comments, and also for ON THREE magazine.

Charlotte Story
New Britain, CT

ON THREE will not be introducing a product that enhances the Apple][emulation mode. Since Titan has already come out with the 64K enhancement and should now have released the full //e emulator two interface card set, ON THREE will not try to develop products like these. As I understand, these products work just fine and allow your machine to mimic an Apple][plus with Language Card or an Apple //e.

We have already published an overview of the regular /// Plus][interface card (January, 1986) and expect to publish more details on the new /// Plus //e product from Titan as soon as they are available.

Now is the Time

Dear Mr. Consorti

Being a relatively new subscriber, I am still in the process of reading and entering the program listings from the previous issues.

I was very pleased with the program **Four_Extra_Blocks_and_More** that was published in the January, 1983 (premier) issue. It works like a charm and also illustrates the epitome of good programming practice. It is one of the most readable and easily understood programs I have ever seen.

At any rate, the one thing it didn't do was to place the current date and time on the disk, and since I am a loyal ON THREE supporter and purchased your ONTIME clock, I thought it should be put to good use. I have taken the liberty of modifying your original program and am enclosing a copy of the *changed* portions of the program only.

If the option is selected from the menu, it now automatically places the current date and time on the disk to be updated.

Vincent F. Latona
Calabasas, CA 91302

(Cont'd on page 29)

Fooling the Apple DMP
(from page 21)

```
1530    IF LEN(STORE$)=1 THEN STORE$="":GOTO 1
        550
1540    STORE$=LEFT$(STORE$,LEN(STORE$)-1)
1550    PRINT KEYPRESS$;" ";KEYPRESS$;:REM * B
        ACKSPACE AND DELETE CHARACTER *
1560    GOTO 1410
1570    REM * IF INPUT IS NOT A RETURN,CHECK F
        OR ESC *
1580    IF ASC(KEYPRESS$)<>13 THEN 1610
1590    RETURN
1600    REM * IF INPUT IS NOT AN ESC,NEXT ENTR
        Y *
1610    IF KEYPRESS$<>CHR$(27) THEN 1410
1620    IF STORE$="" THEN 1410
1630    FOR CHAR=1 TO LEN(STORE$):REM * ESC,DE
        LETE ALL INPUT *
1640      PRINT CHR$(8);" ";CHR$(8);
1650      NEXT CHAR
1660    STORE$=""
1670    GOTO 1410
1680    REM * * * * * * * * * * * * * * * * *
1690    REM * INSTRUCTIONS FOR USING PROGRAM*
1700    REM * * * * * * * * * * * * * * * * *
1710    PRINT
1720    PRINT TAB(9);"* *  INSTRUCTIONS FOR TH
        E  A D M P  P R I N T E R  PROGRAM  *
        *":PRINT:PRINT
1730    PRINT"The ADMP PRINTER program is desi
        gned to setup the print functions for
        the Apple Dot Matrix Printer. A select
        ion menu is used to chose the many pri
        nting options available. ";
1740    PRINT" These options may be selected i
        n any order or any combination by oneo
        r two keystrokes.  After each selectio
        n, the program lists the options choos
        en."
1750    PRINT:PRINT:PRINT"Before going to the
        following menu, MAKE SURE that the PRI
        NTER is ON and in the SELECT mode.  In
         order for the for the printer to acce
        pt the print commands     issued from
        the menu, the printer must be ON in th
        e SELECT mode."
1760    PRINT:PRINT:PRINT"The printing functio
        ns selected from this program will rem
        ain in the printer    until the printe
        r is TURNED OFF. Turning the printer o
        ff will reset the printingfunctions ba
        ck to the normal (default) mode."
1770    PRINT:PRINT:PRINT
1780    PRINT TAB(25);"* PRESS ANY KEY FOR MEN
        U *"
1790    GET MENU$
1800    RETURN
```

```
PROGRAM Four_extra_blocks_and_more

(* ON THREE Magazine    *)
(* January 1983      *)
(* Page 8         *)
(* Written by Bob Consorti *)

(* Auto_time routine added *)
(* by Vince Latona      *)
(* December 12, 1983    *)

USE APPLESTUFF;

PROCEDURE Auto_time;

VAR Year, Month, Day, Dayofwk, Hr, Min, Sec, Thou : INTEGER;

BEGIN (* Main of Auto_time *)
  Option ('Automatic change of Time and Date');
  Prompt_start;
  Block num := 2;
  UNITREAD (Device_num, Block_buf, Block_length, Block_num, Block_mode);
Block_num;
  CLOCKINFO ( Year, Month, Day, Dayofwk, Hr, Min, Sec, Thou);
  Block_buf [29] := (Day + Month * 32) MOD 256;
  Year := Year - 1900;
  Block_buf [30] := Year * 2;
  IF (Month >= 8) THEN
    Block_buf [30] := Block_buf [30] + 1;
  Block_buf [31] := Min;
  Block_buf [32] := Hour;
  UNITWRITE (Device_num, Block_buf, Block_length, Block_num, Block_mode)
Block_num;
END; (* of PROCEDURE Auto_time *)

PROCEDURE Do_options;

VAR Answer: CHAR;

BEGIN
  Option ('Options menu');
  WRITELN ('1—Get extra disk space');
  WRITELN ('2—Add or change the disk volume number');
  WRITELN;
  WRITELN ('——Change the disk date & time of creation——');
  WRITELN;
  WRITELN ('3 Manually (your choice of date & time)');
  WRITELN ('4 Automatically—(today's date & time)');
  WRITELN;
  WRITE ('Enter 1, 2, 3 or 4—> ');
  READ (Answer);
  WRITELN;
  CASE Answer OF
    '1': Four_more_nlocks;
    '2': New_volume;
    '3': New times;
    '4': Auto_time

    OTHERWISE
      BEGIN
        WRITELN;
        WRITELN (CHR (Bell), 'Invalid answer');
        Done := FALSE
      END
  END
END;
```


DE CLASSIFIEDS

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Applewriter: A footnote (from page 18)

This study into the peculiarities of the AppleWriter /// footnote procedure has uncovered ways to incorporate multiple line footnotes into printed text. In addition, it has documented the relationship between characters/line and maximum allowable footnote lines for both constant size and variable size footnotes. No way has been found to approach the figure of 1024 footnote characters per page as stated on page 94 of the manual. The maximum number of characters appears to be 381, consisting of three lines of 127 characters each.

Apple Computer, Inc. graciously reviewed a draft of this paper and acknowledged that the findings were correct. They point out that if the documentation is misleading, it was not intended to be. Certainly my experience with other Apple documentation would support this claim. They also volunteered the information that the documentation for AppleWriter for the //e does point out that footnote length is limited to 128 characters per entry and includes "...other information regarding footnotes." Therefore, it may be that these findings are applicable to more than AppleWriter ///.

Three Questions (from page 28)

Thanks, Vince, I'm sure the addition of saving the time to disk is a great enhancement and will be of use to our readers. I'd also like to encourage our readers to send in their improvements to programs we have published in the past. Remember, ON THREE is your Apple /// support group and to provide the support we would like, we must rely on contributions such as yours.

Creating a System:

In the Beginning. . .

kevin fitzmaurice

There has been, and will continue to be, much talk about how programs should be structured or modular in design. The reasons for this are plentiful, and include the obvious reason of being able to update separate portions of a program without having to change any other parts. While Pascal programmers seem to think that Pascal has a monopoly on structure, they're a bit shortsighted.

Even hardware is supposed to be modular nowadays. In order to make operating systems modular on mainframes, the concept of drivers was conceived. Apple borrowed both the idea of a modular operating system and some of the terms for it from the mainframes when when they created their *Sophisticated Operating System* for the Apple ///. SOS (pronounced "sauce"), consists of the following separate modules or files: SOS.KERNEL, SOS.DRIVER, and SOS.INTERP. The SOS.KERNEL module contains the proprietary part of Apple's operating system for the /// and is written in (yuk!) Pascal. You may think of this as the heart of your machine. Only by using system calls is it possible to communicate with this portion of SOS, and only someone working on an advanced software application would have need to do this. The SOS.INTERP module is, as the name implies, the interpreter portion of the operating system. There is no need for us to be concerned with the details of this portion of SOS. What we *will* be concerned with is the SOS module Apple makes readily available to us: the SOS.DRIVER file.

SOS Drivers

The module SOS.DRIVER is actually further broken down into several more modules. In the "Standard Device Drivers Manual" we are told of those Apple wrote for us under their respective names of Console Driver, Graphics Driver, Printer Driver, RS-232 Driver, and Audio Driver. To make it easier on yourself you can think of drivers as machine language subroutines (software) that literally "drive" a part of your computer system.

You as an owner of an Apple /// have access to these drivers and the ability to change them to fit the configuration of your hardware system. Using the SOS Utilities, it becomes easier to manipulate and change the operating system in effect by changing these drivers. Another way to think of drivers is as specialized portions of SOS that interface a piece of hardware or, in the case of the Graphics driver, pieces of software into SOS. Some day you may want to write a new driver for something, perhaps a video disk. You can do this with the help of the recently released "Device Writer's Guide".

Perhaps one of the first things to understand is that to SOS, everything is a file (device). Your printer, modem, and even your keyboard are all files in the eyes of SOS. The somewhat unusual but practical reasoning behind this concept is that it makes it possible for SOS to handle and use every part of our system in the same way. This then allows us to regard our program using the same approach to each part of our system. If we must later change one part of the system for another, it is easy to do, because we need only change the name and SOS will be able to handle it without any program rewriting.

Apple's terminology for the parts of the computer that perform some form of communication is *devices* (files). Devices are further separated into those that *store* communications or information, and those that *retrieve* and/or send information. Storage devices like disk drives are called *block devices* because they store information in *blocks* of 512 bytes or characters. The other types of devices are called *character devices* because they are busy sending or receiving one character at a time. These include your printer, keyboard and screen (console), and the RS-232C port. To repeat, one type works with blocks of characters, and the the other with single characters.

There are a few things about drivers that we must be sure we understand. Even if you have a printer correctly plugged into your Apple and your program is capable of using it, it may still not be able to work. You must have a printer driver loaded into your system first. Further, even if there is a driver loaded but it is not configured to your printer or it is inactive, you will still not be able to use your printer. Drivers take up computer memory, and SOS can operate on up to 24 devices (drivers) at once. Enough of your computer's memory is allocated to handle 24 such devices (51K for a 256K machine) but that eats up a lot of RAM. If we were ever to need more room for drivers, that portion of SOS would have to be rewritten. *(Not likely, with support no longer available from Apple. ...ed)*

This is not likely to be a problem in the foreseeable future, because there just aren't anywhere near 24 *types* of peripherals available. To conserve memory, it is best to configure only those drivers you need or may need into a system. This will keep it simple for SOS and make it faster to operate. You will need at least the Console driver (screen and keyboard) loaded to be able to do anything. When you get a new peripheral like the ProFile, Trustor, or UniDisk 3.5, you also get a new driver for it which

must be loaded into your system with every program that you intend to use with the new drive. Thus all new peripherals cause us to reconfigure our system by adding new drivers or changing old ones. Each time you reconfigure you must then save the new system on those disks with the programs you intend to use the reconfigured drivers with.

General Information on SCP

The most unique and helpful part of SOS is the *System Configuration Program* (SCP). This is option "S" from the main menu on the System Utilities disk. There are six options on this menu, one of which is the choice to quit to the main menu. This program is too powerful for you to use the panic button (ESCAPE) to exit its functions. You must use the "Q" (for quit) option to get back to the main menu. However, the ESCAPE key can be used to get back to the main SCP menu from its other sub-menus. Let's take a tour through the SCP program and then actually configure a new system.

Our top choice from the SCP menu is "R" for 'Read a Driver File'. If the cursor is not already over the "R", position it there by using the cursor keys or just typing "R". Now press [RETURN]. This moves us to another screen which tells us we haven't read any drivers yet and how much memory we have available for them. We can't generate a system until we have read in some device drivers with which to work. Of course, some drivers are already in the system or we would not be able to even see the screen, but as far as the SCP program is concerned, there are none present. When using the SCP program, this is the point where we will normally load in those drivers we want to gather together for a new system. For example, you may have just purchased *Access* /// and, since it comes 'naked', want to install some drivers with it. First, by supplying the necessary pathnames and inserting the appropriate disks, you would read in the drivers you wanted to transfer to the Access /// disk.

Next, you may have to use the "D" (for delete) option of the SCP menu because you read in more drivers than you needed, so press [ESCAPE] to return to the SCP menu and choose option "D". When you have deleted all the unneeded drivers on the Access /// program, leave that menu by again pressing [ESCAPE]. The next option down on the SCP menu is the "E" or 'Edit Driver Parameters" option. This is used to modify the variables of one driver at a time to suit the variable requirements of your peripheral device. We will do this a little later when we configure a printer for your system.

The "C" (for Change System Parameters) option from the SCP menu is for changing the keyboard layout, the character font, and whether or not we want inverse or normal video display. Sometime in the future you may wish to use this option to change your keyboard from the standard QWERTY to the superior *Dvorak* keyboard layout. Once you have the drivers you want and they have been edited for your hardware, you are ready for the final feat of creating your own system. Just return to the SCP menu and choose option "G" (for Generate New System). SOS will then put together and make available for copying, the system you have built up using the various menus and sub-menus. If it is OK, then all you need to do is place the appropriate disks in the built-in system drive and it will copy 'your' system to it. What it actually does is to replace any SOS.DRIVER file with your newly configured one. In summary, all that configuring a system involves is collecting a new group of drivers which will become the new SOS.DRIVER file.

Configuring an Epson Printer

Now let's actually add a useful driver to the Business Basic system. We will configure an Epson MX-100 to use the Universal Parallel Interface (UPI). Step by step, here's how to do it. First, of course, we boot the System Utilities disk and choose the SCP program from the main menu.

The first order of business is to read in the drivers from the Business Basic disk. Choose the "R" option, put the Business Basic disk in the built-in drive and press [RETURN]. This will read in all drivers present on the Business Basic disk.

Check now to see if there is an inactive .PRINTER driver listed. (Inactivity is indicated by an asterisk {*} in the listing.) This is the driver you want to edit to conform to the requirements of the Epson MX-100. If it is not present, then we need to read it in from the Utilities Data disk. To do so, place that diskette in the built-in drive and enter the following pathname: **.D1/SOS.DRIVER/PRINTER**. It will now be added to your list of drivers. Now put the System Utilities diskette back in the built-in drive, press [ESCAPE] and, after returning to the SCP menu, choose the "E" option.

Now select the .PRINTER driver as the one you wish to edit. Ignore all items now being displayed except numbers four and six. If number four shows that .PRINTER is *inactive*, then select it and change it to active by selecting "Activity Status" and pressing [RETURN]. You will be asked whether you want this driver to be active or inactive. Type "A" to make it active and the parameter display will be changed to reflect the new status.

Now choose number six (Configuration Block Data) for editing. Here we enter the hexadecimal numbers 00 in place of whatever is in column zero, the numbers 00 in place of whatever is in column one, the numbers 40 in place of whatever is in column two, the numbers 00 in place of whatever is in column three, and the numbers 5A in place of whatever is in column four. Then press [ESCAPE] until you have arrived back at the SCP main menu. Please note that the Standard Device Drivers Manual gives different numbers for the Epson than those shown here, however they do not work, whereas these do.

From the main SCP menu, select the "G" option. This checks and generates the Driver file for the system you have just put together. Once you get the message that you have successfully generated a new system, put the Business Basic disk in the built-in drive and press [RETURN]. You can now use an Epson MX-100 with the Universal Parallel Interface from BASIC.

Now is a good time to copy this system disk file to a separate diskette which is reserved for similar files. On this diskette, you should rename

it to something that will trigger your memory at a later date, like EPSON.DRIVER. When it is time to use this file in another system, it will have to again be renamed to SOS.DRIVER in order to be recognized by SOS as a system file.

As an extra bonus, figure 1 is a chart of MX-100 control codes that you can enter into your text using the Control-V function of AppleWriter /// or similar functions in other word processors which will allow you to specify print size, density, and other fun things. The page number references correspond to those of my Epson MX-100 manual.

SOS and General Considerations

The philosophy that I would like to propose using SOS is not a memory saver, since at present on a 256K machine, conserving memory loses some of its urgency. What I suggest you do is develop one SOS diskette for all your programs except the utilities. The utilities need drivers for formatting disks that are not needed elsewhere. Your 'standard' SOS disk should contain the latest SOS.KERNEL and SOS.INTERP files, as well as SOS.DRIVER with all of the following drivers: .PROFILE, .PRINTER, .CONSOLE, .RS-232, .AUDIO, .GRAFIX, and any others you may wish to use.

Once you have this standard SOS disk, instead of having to worry about which drivers you have with each program or having to update each SOS.DRIVER file on each program, you can just load in this SOS disk before any program. For example, you can always leave it in the system built-in drive at night, and in the morning just turn on your ///, which will boot this system and ask you to insert the Pascal system. Just load whatever program you want to run, and it will run with this system and will remain until you reboot.

Of course, we can make different SOS disks. We might want to save some memory after all and have a SOS disk with only the .CONSOLE driver loaded. Besides the convenience of knowing just what system you have and being able to update just one disk (backup copies too!) there are other advantages. If this is indeed a policy of ///'ers then suppliers can sell us disks without the system on them and thus get more onto a disk.

You can have different systems for the same program. If you use AppleWriter /// with the Dvorak, maybe your spouse will want to use it with the QWERTY. Rather than having to use your backup copy so that you can have one configured for each keyboard, you can have one SOS disk configured for Dvorak and one for QWERTY. You therefore will not need two copies of each program disk, but rather two SOS disks. Just load in the system disk you want first, and then any program can use it, no matter how it is actually configured.

It is likely that you someday may need a separate SOS disk anyway. It may first happen when you try to add the ProFile driver to your Utilities disk. There is simply not enough room on the nearly full Utilities disk for this large driver. To solve this, we have to create what Apple calls a two-stage boot disk. This is the same thing that I have been talking about as a SOS disk. This two-stage boot disk can then be used with all two-stage boot programs.

Another way to take advantage of SOS drivers is to use a T-switchbox with the RS-232C port on the back of the Apple ///. You can then configure several RS-232 drivers onto a SOS formatted disk, one for each device connected to the T-switch. You must use slightly different names for the drivers such as RS.232.1, etc. This way you can have a letter-quality printer, a modem, a fast printer or anything else hooked up to your Apple, all at the same time. I know of several sources for T-switchers. Here are three:

Giltronics, Inc. 970 San Antonio Road, Palo Alto, CA 94303

Inmac, 2465 Augustine Drive, Santa Clara, CA 95051

Visible Computer Supply Corp., 3623 Stern Drive, St Charles, IL 60174.

Some boxes are available for six devices. You just flip the switch and either your program has just the right RS-232 driver on it, or you load a system disk with the RS-232 you need, otherwise your program refers to the correct one by name.

Products & Services Available for the Apple ///

Current ON THREE Price List

Product	Price	S/H
12-issue subscription to ON THREE	$40.00	
Back issues of ON THREE	$5.00 ea	
Disk Of the Month (DOM)	$14.95 ea	$2.00
Order 2 or more for only	$12.50 ea	$4.00
ONTIME-ON THREE O'Clock Combination	$79.95	$4.00
ONTIME	$39.95	$2.00
ON THREE O'Clock	$49.95	$3.00
Lazarus /// Version 2.0	$49.95	$2.00
Draw ON ///	$179.00	$5.00
Apple /// Fortran	$99.00	$5.00
Selector /// Program Switching Utility	$99.00	$7.00
CROSSWORD-SCRAMBLER	$19.95	$2.00
The Apple /// Fruit Machine (Slot Machine Game)	$19.95	$2.00
The Apple /// Card Machine (Blackjack Game)	$24.95	$2.00
Fruit-Card Game Combo	$39.95	$3.00
Game Card ///	$59.95	$2.00
Micro-Sci Disk Drives		
A3-140K	$299.00	$6.50
A143-560K	$399.00	$6.50
3M DS, DD Disks (10) for A143	$39.95	$3.00
Apple /// Unidisk 3.5 (800K disk) with interface card, Apple /// software & documentation	$499.00	$10.00
Trustor 10H (10 MegaBytes)		
Main Drive	$999.00	$35.00
Trustor 10H (Second Drive)	$899.00	$35.00
Trustor 10H (Main & Second)	$1848.00	$70.00
Trustor 30 (34 MegaBytes)	$1999.00	$35.00
512K Memory Upgrade (256K to 512K) *(You remit $449 and we rebate $50 when the old 256K board is returned.)	$399.00 †	$10.00
256K Memory Upgrade (128K to 256K)	$250.00	$10.00
256K or 512K upgrade installation by ON THREE (appt. only)	$50.00	
Apple //e Mouse and interface card (can be used with Draw ON /// or Desktop Manager)	$150.00	$5.00
Dust Cover for Apple /// with Monitor ///	$11.95	$2.00
Dust Cover for Apple /// with ProFile & Monitor ///	$12.95	$2.00
I LOVE MY APPLE /// T-Shirts Sm, Med, Lrg, X-Lrg (Color choices: Yellow, beige, white, blue)	$11.95	$3.00
I LOVE MY APPLE /// Sweat Shirts Sm, Med, Lrg, X-Lrg (Color choices: Silver, white, blue, yellow)	$18.95	$3.00
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Features such as rubber banding of lines, user adjustable grids, built-in help screens and easy to follow menus make ***Draw ON ///*** the ONLY graphics package for the ***Apple ///*** that is both powerful and easy to use. Combined with an excellent (***Apple*** styling) instruction and tutorial manual, you can be doing useful work in less than an hour. The only limit as to what you can do with ***Draw ON*** is your imagination.

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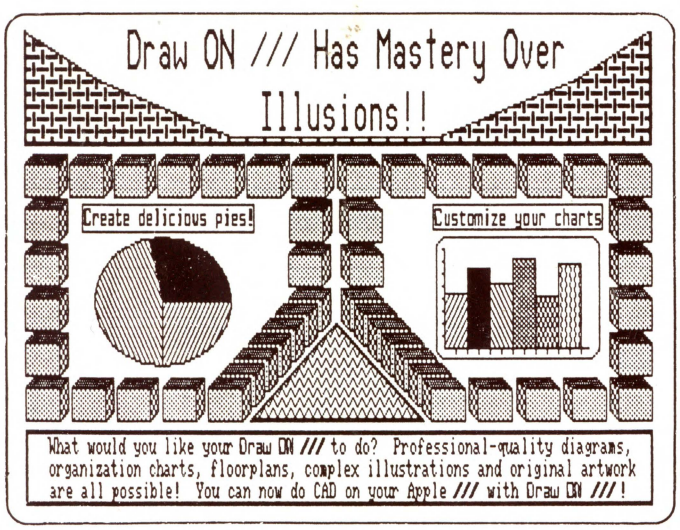
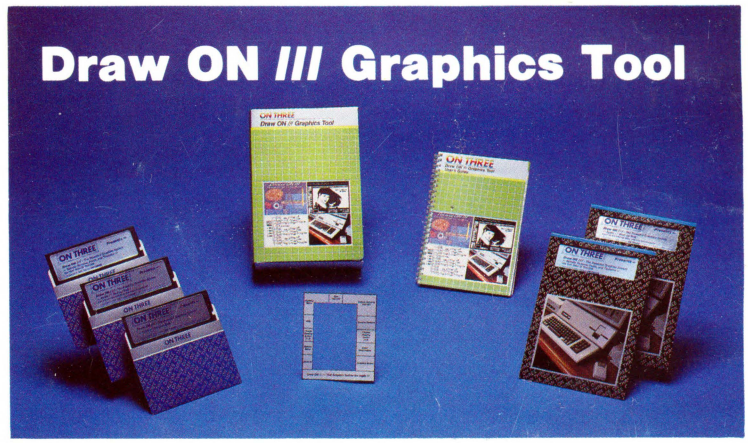


and texture them. You can also zoom in on a particular portion of the screen to do detailed work.

To control ***Draw ON*** either a joystick, mouse or the keyboard is used. Since there are no mice available for the ***Apple ///, ON THREE*** has enabled ***Draw ON*** to use the ***Apple //e*** mouse and interface card. If you would like the ease of use that the mouse provides, purchase an ***Apple //e*** mouse and follow our instructions for installing it in your ***Apple ///***. ***Draw ON*** is so versatile, it will work directly with the ***Apple //e*** mouse, no modifications are needed for using it in the ***Apple ///***! We also support the ***Apple // Graphics Tablet*** with ***Draw ON ///***.

After creating your chart, table or other piece of art you will probably want to print it out. If you have an ***Apple DMP*** (or ***C. Itoh Prowriter, Imagewriter*** or ***Epson (MX, RX, or FX)*** printer, ***Draw ON*** can print out your drawings directly. For those of you who don't have these more popular printers, ***Draw ON*** also works with all of the printers the PKASO and PKASO/U interface card support. This includes ***Centronics, Epson, NEC, Okidata,*** the ***IDS Prism and IDS Color Prism.*** To print out color drawings you will need the ***IDS Color Prism*** printer and the ***PKASO*** interface card.



that your other programs create by adding borders, textures and different typefaces. Even ***Computer Aided Design*** (CAD) applications such as circuit layouts, drafting and flowcharting are now possible on your ***Apple ///*** with ***Draw ON ///***.

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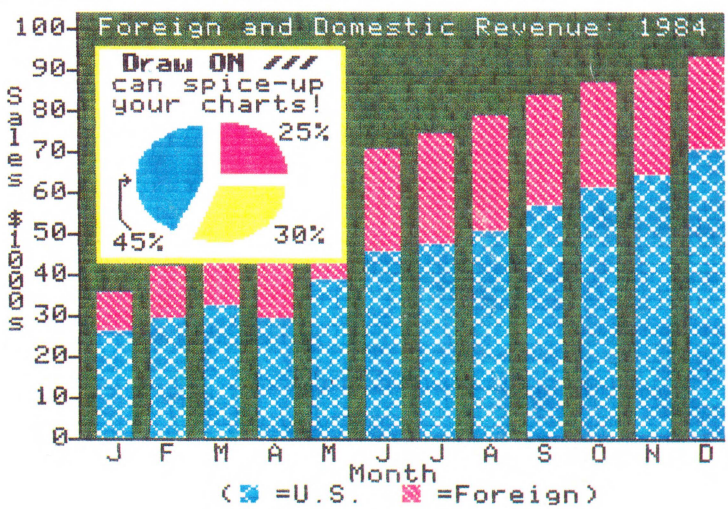

Optional Equipment

Cursor /// Joystick, Apple Mouse //e or ***Apple // Graphics Tablet*** (***Graphics Tablet*** version costs $50 extra), ***RGB Color Monitor, Dot Matrix Printer***.

A ***PKASO or PKASO/U*** interface card is needed if you don't have an ***Apple DMP*** (or ***C. Itoh Prowriter***), ***Imagewriter*** or ***Epson*** (***MX, RX*** or ***FX***) printer. You must specify the printer and interface card you are using before ordering.

Draw ON requires an ***Apple ///*** or ***Apple /// Plus*** with a minimum of 256K and is available for only $179 + $5 for shipping and handling. ***Draw ON ///*** is not copy-protected and may be installed under ***Selector ///*** and ***Catalyst***.