

®

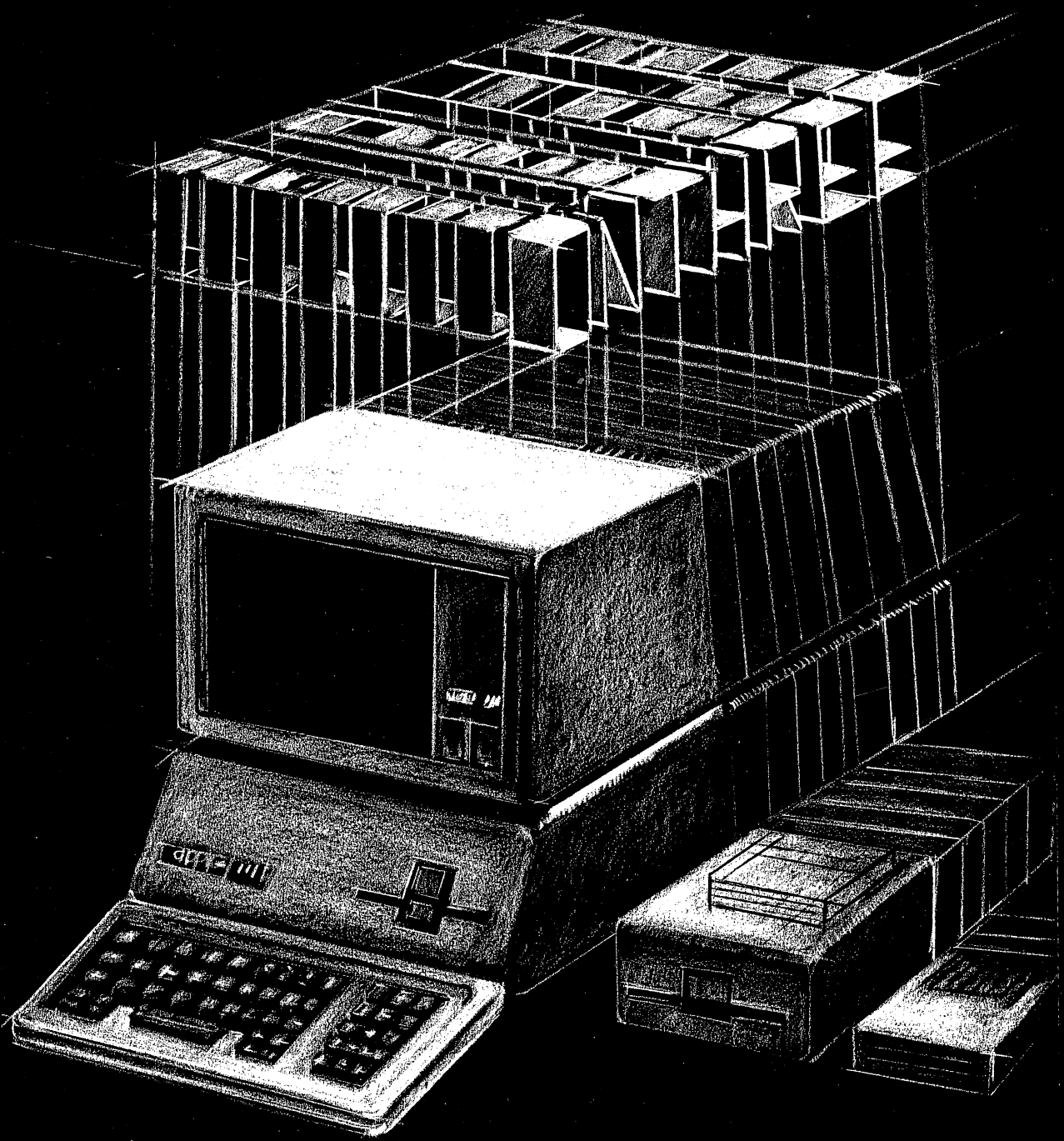
# ON THREE

The Magazine For Apple III Owners and Users



Volume 4, Number 3

March 1987  
\$4.00



# How many dollars have you invested in your Apple ///?

Answer this questionnaire and find out how to extend your computer's life:

- Do you vacuum your office or home less than twice a day?  YES  NO
- Are there smokers in your office or household?  YES  NO
- Are there children in your household?  YES  NO
- Is the computer located in a family room or other high traffic area?  YES  NO

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\$11.95**

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Apple /// and Monitor ///  
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Ventura, CA 93006

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## /// E-Z Pieces

This program is the Apple /// version of the Apple II hit known as AppleWorks. It combines a word processor, data base and spread sheet in one integrated program. All sections use similar commands and easy-to-follow pop-up menus.

The spread sheet, while not as powerful as Advanced Visicalc, is much faster. For example, loading and saving files is 20 to 30 times faster. Even recalculation times are much quicker. And you can access your existing VisiCalc or DIF files, eliminating the need to re-type. Up to 999 rows and 127 columns are available.

The data base section is just like the popular QuickFile ///, but better. /// E-Z Pieces' Data Base can handle as many as 3,000 records per file and double the number of fields per record. Sophisticated record selection, sorting and printing combined with lightning fast sorts and searches make this portion of /// E-Z Pieces valuable.

The word processor rivals programs like Apple Writer and Word Juggler in speed and ease of use. Advanced options such as the ability to cut and paste information between your data base, spread sheet and word processor make the program a must for all /// owners.

\$135 plus \$3.50 s/h

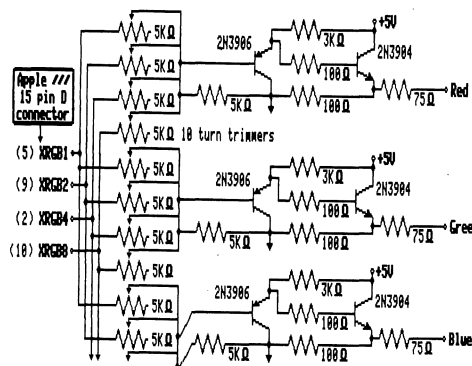
## Draw ON ///™

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**The most versatile Apple ///  
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- Spruce up dull graphs
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**ON: The Cover**

Once again *ON THREE* is fortunate to have the artwork of Pittsburgh's Thomas J. Lacey gracing its cover. The drawing on this month's cover is titled, "The World of the Computer: Apple III."

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## EVOLUTION OF THE MICROCOMPUTER

PHASE I: Experimenters and Hobby Users PHASE II: Education and Games

### PHASE III: BUSINESS

The **PHASE III CONFERENCE & EXPOSITION** is the first major gathering designed explicitly for the business and professional user of **Apple** Computers. The seminars have been planned to provide the business/professional user (and developer) with tools and skills to increase productivity and profitability.

Full registration includes 3 days of seminars and workshops, a keynote reception the first evening, a gala banquet on the second evening which will feature a major speaker as well as honor several of the pacesetters and pioneers of hardware and software for the **Apple** family. The first 200 persons registering will also receive invitations to the **/// Forever Luncheon** which will honor the people who have made major contributions to the continuing value of the **Apple ///**.

The conference will address issues relevant to business use of all models of **Apple** computers. Seminars and workshops will be presented on three simultaneous tracks and will include topics ranging from introductory product tutorials, head-to-head comparisons of competing products and accounting issues, to advanced classes on specific products. A consistent goal of the conference will be to augment attendees' return on their **Apple** system investment.

In addition, all attendees will receive full admission to the **Phase III Exhibition**. Representatives of a variety of hardware, software and service providers will be present to suggest solutions to your business problems. Many vendors will be offering special **Phase III** discounts.

The headquarters hotel is the **HYATT REGENCY WOODFIELD** in SCHAUMBURG, Illinois. A limited number of rooms will be available for early registrants at \$57 per night, single or double occupancy. The hotel is about a 15 minute ride from Chicago's O'Hare Airport.

**Conference Dates: Friday, October 2 through Sunday, October 4, 1987**

SAVE BY REGISTERING EARLY and also BE ONE OF THE FIRST 200 to get in on the special luncheon. To guarantee your registration at the lowest EARLY BIRD RATE, send your \$100 non-refundable deposit now! (The remainder of the registration fee will be due no later than July 1.)

	Before <u>APRIL 15</u>	Before <u>July 1</u>	After <u>July 1</u>
Conference fee	\$225	\$275	\$325
Companion fee (banquet, reception and exhibition only)	\$ 60	\$ 60	\$ 75

This conference is being sponsored by **TAU**. For more information about the **TAU** users group for business and professional users of Apple's, write to:

**TAU c/o Lavona Rann 1113 Wheaton Oaks Drive Wheaton, IL 60187**

For additional conference information or to register, send this form to:

-----  
**PHASE III, INC. c/o Randall Jackson 1511 N. Bell Chicago, IL 60622**

Please Print:

Name \_\_\_\_\_ Title \_\_\_\_\_

Organization \_\_\_\_\_

Address \_\_\_\_\_

City/ST \_\_\_\_\_ Zip \_\_\_\_\_ Phone (\_\_\_\_) \_\_\_\_\_

I need hotel registration forms.

Check enclosed.

I wish to exhibit.



# Apple.Sauce

Lynne Denicola

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## Phase III Conference and Exhibition

If you haven't noticed the page opposite this one yet, I hope you'll invest a few minutes now in reading it. TAU, sponsor of the *Phase III Conference and Exposition*, is currently entering its sixth year as an Apple user group and states as its sole purpose for existence the "accumulation and dissemination of information of interest to the Apple business/professional/technical user." As is apparent in their announcement on page 2 of this magazine, they are not only living up to but exceeding their stated goal. Thanks to TAU's diligence, there will be a conference for Apple users held this year which, while it is intended for all Apple computer users, will be of particular interest to Apple /// users.

Conferences are held almost monthly across the country for users of Apple computers and related software products, but how often is one held which features topics of interest to the Apple /// owner and user? Never! So here is your chance to attend a conference including workshops and seminars designed especially for you.

As the adjacent notice mentions, the first 200 people registering for the conference receive invitations to the /// Forever Luncheon, a gathering held to meet and honor those who have made the /// the viable machine it is today. Several representatives of the /// world will have booths and displays set up, so you'll have a chance to not only meet those people who have been no more to you than names printed on a program's byline or faceless voices on the phone, but also view their products, try them out for yourself and compare them to programs on display or to the ones you currently use.

Another benefit of attending the conference is that you will not only view but actually obtain hands-on experience with all models of Apple computers, not just the ///. And bring your credit cards; many of the vendors attending will be offering special discounts just for the occasion. So, if you are planning to add another Apple computer to your current system, Phase III is the perfect place to compare and decide which.

Experts will be there offering advice, and even people not frequently or specifically named as experts -- long-time Apple owners and users -- will provide you with useful information and thoughtful discussions as you

mix and mingle with the others who have gathered for this event.

For example, one conference panel discussion titled "Future of the ///" is depending on the input of you, the typical Apple /// programmer and user, to make the discussion fruitful. Chris Acreman, organizer of this seminar, is collecting wish lists and presenting the results of the survey to a panel of experts and to you, the audience, for discussion at the seminar and possible future product development. For more details about how you can help assure the success of this event, see page 16 of this issue.

The key element guaranteeing all of this fun as well as substantial savings is early registration. You can save as much as \$100 simply by registering early! And another enticing aspect of the conference is the lower-priced companion fee. You can take your spouse and your children and spend an enjoyable weekend with your entire family in the Chicago area.

Don't miss this chance to hear the latest news in the world of Apple and to be heard by the people who produce hardware and software products for your ///. Even if you think you don't have anything to say about the ///, there is much to be learned by attending a conference of this magnitude. And there is no better way of showing your support for the /// and the /// community than by attending this gathering. Remember, the success of this conference and, ultimately, the direction of future Apple /// product development depend on you, so why not fill out the registration form and mail it with your deposit today?

### Three Shorts - Too Short!

I knew it was simply a matter of time, but I have made my first error in printing a program. Inadvertently, I omitted the three lines printed at the bottom of this column from the end of Ron Puckett's "Two-Way Scrolling" program on page 18 of the February 1987 issue. Please, if you discover an error in any issue of *ON THREE*, write or call to let me know.

```
730 GOTO 400
800 REM PUT CURSOR AT BOTTOM AND END
900 VPOS=24:END
```

# Disk of the Month

What is the ultimate time-saver? Why *ON THREE's* Disk of the Month diskettes, of course. Why use your precious time typing in *ON THREE* program listings when they are available on diskette for just \$14.95 (plus \$2 shipping and handling) each?

Better yet, mix and match. Any two or more for \$12.50 each (plus \$4 total shipping and handling). Best bet: the works.

Now is the time to start your collection of these program-filled diskettes from all issues of *ON THREE Magazine*. Bulk and group purchase rates are also available, call (805) 644-3514 to inquire about these super savers.

## DOM #1—Extra Disk Space Plus!

This diskette contains all programs from volume I, nos. 1 and 2 of *ON THREE Magazine*. Included: Disk Pak1 with a program to give you four additional blocks of space on your data disks, and Disk Pak2, something you can't do without if you are a Pascal user, a convenient and easy way to list the files on a Pascal directory. Plus graphics and sound demos and more.

## DOM #2—Changing Printer Characters

Here is an amazing program you won't want to miss. With it you can print to the Apple Dot Matrix and compatibles such as Imagewriter or ProWriter the same characters that are shown on your video display. Many special fonts, including fancy gothic characters, can enhance your printed output. And, it comes with complete documentation. Also on DOM #2 are the other programs from issue number 3, more graphic demos plus: a program to list files from an Apple II diskette without entering emulation mode.

## DOM #3—Redefining a Keyboard

This disk is jam-packed full with programs that appeared in Volume I, No. 4 of *ON THREE*, and includes an easy-to-use program to redefine any or all keys on the Apple /// keyboard. Of particular interest is the ability to reassign the "V" to be the delete key so it can be used on AppleWriter /// and other programs. Also included are all the WPL programs, a disk formatting utility, a graphics sketching tool and still more that we don't have room to list here.

## DOM #4—Emulation Patch

Volume II, No. 1 had so many great programs it took two disks, DOM's 4 and 5, to hold them all. DOM 4 has all of the Pascal programs and the *Apple II Emulation Patch*, a way to use any Apple /// Font in emulation. Also included is the Pascal startup program for *Access ///* that lets you autodial. Another fine utility is a Pascal program and UNIT to permit calculations from within the Pascal environment. Demos haven't been forgotten either with *Radiate Graphics Demo* and *Beatles Music Demo*. To top things off, we have included a number of *Draw ON* pictures you can view with the program on DOM #5.

## DOM #5—Access Draw ON

Here we find the BASIC startup program to autodial from *Access ///*, and *Ben's SUPER Slot Machine*, along with all of the *VisiCalc* and *WPL* programs, and the *Circling Graphics Demo* which will show some of the fantastic images that *Draw ON* can create, plus still more *Draw ON* pictures, along with the *Draw ON ///Picture Demo* which you use to view *Draw ON* pictures.

## DOM #6—BASIC Lister Plus!

Straight from the pages of Vol. II, No. 2 is a program which will give you perfectly formatted listings of Business Basic programs, and a Pascal program to guide and assist you in selecting noises for animation and game programs. Both the *Pascal Noisemaker* and the BASIC lister come with full documentation. We've also tossed in still more *Draw ON* pictures and some new fonts, as well. You can use the *Draw ON* viewer from DOM 5 to see them.

## DOM #7—Heap Good Stuff

From Vol. ///, Nos. 1 and 2 we present a BASIC heap sort routine and demo, *IMAGEHELPER*, a neat graphics utility to simplify graphic image design, and a menu-driven program to pre-select printer codes and parameters.

## DOM #8—Directory Sorting

Here is what you have been waiting for, a complete BASIC and Assembly program to take those old chopped up directories and sort them out in just the order you want. Included also is *Clean.Heads*, a Pascal program which exercises your disk drive at cleaning time and writes a program to remind you when you last cleaned heads, plus a simple utility to read a text file and find out what the contents are without having to write a program on the spot.

## DOM #9—Music, Music, Music

Here is a great collection of programs from April through July, 1986. *Music Maker* and *Music Player* let you create and play your own Merry Melodies with alternate sets of DATA statements in BASIC. *Energy Plotter* not only plots energy consumption graphs, but contains techniques to "roll your own." In addition you will find a space game, graphics images and an assembly language subroutine to find maximum and minimum values in an integer array.

## DOM #10—Editing Character Sets

A great Pascal program to download and modify or create new fonts, this editor makes child's-play out of designing new text characters to meet your specific needs. Special math signs, foreign alphabets, you can do them all. *Football Pool* is a BASIC program to print out a grid for that office pool. All you do is type in the teams, the scores, and the participants; it does the rest. What? 3-D Video? Yes, indeed, *Stereo Spiral* shows how, using simple Business Basic subroutines. For the more technically inclined, the assembly subroutine *Pixel Inverter* does just that. Also included is *Prompt Procedure*, a collection of Pascal and assembly demos to write to the screen, and a couple of programs in WPL (Word Processing Language) to be used with *AppleWriter*.

# Smart users select the

# Selector ///

## The smart Program Switching utility from ON THREE

- Switch to Selector /// now
- Ideal for UniDisk or hard disk systems
- Compatible with more than two dozen major Apple /// applications
  - AppleWriter ///
  - Business Basic
  - Haba Merge
  - VisiCalc
  - /// E-Z Pieces
  - ... and more

# \$99

plus \$7 s/h

*Selector ///* is a state-of-the art program switcher.

A program switcher is a utility that functions as your computerized personal secretary. Its purpose is to make instantly available to you, without rebooting, a wide range of applications programs stored on your hard disk or high capacity floppy (such as UniDisk). Programs such as AppleWriter ///, Quick File /// and more than two dozen others.

Each time you require a different application, just tell your personal secretary, *Selector ///*, with a couple of keystrokes, and it will be there in seconds. No need to find your way through sub-directories or paw through a stack of floppies.

When you start your system up in the morning, just boot *Selector ///* and that's it for the day. Smart users are switching to and with *Selector ///* now.

### Selector /// works with all of these programs:

- |                      |                         |                      |
|----------------------|-------------------------|----------------------|
| ✓ Access ///         | ✓ Business Basic        | ✓ Multiplan          |
| ✓ Access 3270        | ✓ Business Graphics     | ✓ Nexus              |
| ✓ Advanced VisiCalc  | ✓ Cobol                 | ✓ PFS: File *        |
| ✓ Apple II Emulation | ✓ Draw ON ///           | ✓ PFS: Graph *       |
| ✓ AppleFile ///      | ✓ Easyterm              | ✓ PFS: Report *      |
| ✓ Apple Speller ///  | ✓ Graph'n Calc          | ✓ Quick File ///     |
| ✓ Apple /// Pascal   | ✓ Haba Merge            | ✓ Script ///         |
| ✓ AppleWriter ///    | ✓ Keystroke Data Base * | ✓ Senior Analyst /// |
| ✓ Backup ///         | ✓ Keystroke Report      | ✓ VisiCalc ///       |
| ✓ BPI                | ✓ Generator *           | ✓ /// E-Z Pieces     |
|                      | ✓ Lazarus ///           |                      |

\*Indicates boot disk required in internal drive.

Selector /// \$99 plus \$7 shipping & handling

ON THREE (805) 644-3514

P.O. Box 3825  
Ventura, CA 93006

Send me \_\_\_\_\_ Selector ///s

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

enclosed \$ \_\_\_\_\_

M/C  Visa  AE\*

number \_\_\_\_\_ exp. date \_\_\_\_\_

Signature \_\_\_\_\_

\*3% surcharge on American Express  
California residents add 6% sales tax.

# ON THREE Presents...

## The Lowest Price Ever On The 512K Memory Upgrade

Now Specially Priced **\$289\***  
At Only **\$289\***

The 512K Memory Upgrade from *ON THREE* has been the ///'s best selling add-on hardware item for the last two years. And now it's even better. With the lowest price ever and a full six month warranty, *now* is the time to order your 512K Memory Upgrade.

Have you ever run out of memory in /// E-Z Pieces? Do your VisiCalc programs yearn for more memory? Have you ever had stack overflow problems with certain large programs? Do you want to use the new accessories to the Desktop Manager but can't spare the 32K of memory those utilities require?

Worry no more, because with a 512K-equipped Apple ///, all of your problems are over. Enjoy a full 414K of desktop space in /// E-Z Pieces, 442K in Advanced Visicalc, 455K in Visicalc, 456K in Apple Writer ///, 456K in Business Basic—the list goes on. Almost all\*\* programs running under the Apple /// SOS work with the 512K Memory Upgrade.

Do you use Catalyst or Selector ///? Have you ever had problems running large programs such as State Of The Art Accounting, BPI, Omnis 3, Keystroke and Draw ON ///? These programs use all available memory in a 256K Apple ///. Since Catalyst and Selector each occupy some memory

as well, certain large programs will not work on a 256K Apple ///.

A 512K Apple /// has enough memory and room to run the largest programs available today with some to spare. You can create larger spread sheets, data bases and word processing documents. Your 512K Apple /// will be able to do things few other personal computers can.

Included free with the 512K Memory Upgrade is an ultra-fast RAMDisk. This is an optional enhancement to the 512K Memory Upgrade which allows you to use a portion of your ///'s memory as a fast RAMDisk drive. One noticeable benefit is faster program utilization, but there are many more.

The 512K Memory Upgrade is easy to install and even easier to use. It is a *replacement* memory board and, therefore, doesn't need a precious expansion slot. Hidden inside your Apple /// is a 128K or 256K memory board. Simply take out the old board and put in the new one.

Using state-of-the-art 256K memory chips, the 512K Memory Upgrade is the single most exciting add-on produced for the /// in a long, long time. Even though we have many 512K Memory Upgrades in stock, at this unbelievably low price, we're expecting temporary shortages. Order yours today.

### LOOK!

The 512K Memory Upgrade includes:

- Complete 24-page instruction manual.
- Ultra-fast RAMDisk Drive with demonstration programs.
- The 512K Upgrade disk which automatically adjusts your disks to utilize the 512K of memory and contains the updated version (1.2) of the System Utilities program permitting larger SOS.DRIVER files.
- The 512K Confidence Memory Program which tests all memory and ensures your 512K Memory Board is working correctly.
- *ON THREE*'s new and improved 180 day (six month) warranty.
- And of course, an Apple /// 512K memory board with state-of-the-art, 256K memory chips.

Place your order today for the exciting, low-priced 512K Memory Upgrade.

Call toll-free: (800) 443-8877

California residents: (800) 331-1418

\* The purchase price is \$324 plus \$10 shipping and handling. After installing the *ON THREE* 512K Memory Upgrade, return your old 256K memory board for a \$25 cash rebate or a \$35 software credit.

If you have a 128K Apple ///, the cost is \$324 plus \$10 shipping and handling with no rebate. If you order a 512K upgrade for your 128K machine, please ask for the free 128K to 512K instructions. We recommend that a 128K to 512K upgrade be done by *ON THREE* or a registered Apple Dealer.

*ON THREE* will install any memory upgrade for just \$50. We offer a one day turnaround on 128K or 256K to 512K upgrades. Call for more information.

\*\* The regular Word Juggler program works with the 512K Memory Upgrade but does not offer additional lines for your documents. An upgraded version is available which allows twice as many lines in your documents. To obtain it, please send a disk with return postage to *ON THREE*. However, there is one known problem with the updated Word Juggler package. It does not work with the LexiCheck spell checker option. To check the spelling of a very large Word Juggler document, you must divide it into two smaller sections.

\*\* The program Multiplan from Microsoft does not recognize the 512K Memory Upgrade.

# Warning

Earl T. Brelje

Some months ago, I purchased an ASCII chart module for my Desktop Manager. After looking through the code file included, I decided that even though I was rusty, I could probably write some simple modules using this and the sample module included on the Desktop Manager disk. I have written two: one follows and the other will appear in the April issue of *ON THREE*.

This month's module is called "Warning." If you have problems with other people using your /// when you leave it alone for a few minutes, this is your solution. When selected from the Desktop Manager menu, this module puts a warning on the screen which states that no one can use the computer and no keys should be

pressed. If a key is pressed, it clears the screen before displaying a second message. From the first or second screen the only way to return to the Desktop Manager menu is to enter the correct code. This module is exceedingly handy, especially if you have children around who like to touch things. The security code in this program is set to **CONTROL R**, so until this sequence is entered, no input from the keyboard will affect the program you are currently running.

To make this program a Desktop Manager module, follow the instructions presented in the February 1987 issue of *ON THREE* ("Reload and Exit," p.5), substituting file names which correspond to this program.

```
=====
;
; Desktop Manger Warning Module by Earl T. Brelje
;
; Written by Earl T. Brelje with the help of the sample module and the Ascii
; conversion table. Module written by Bob Consorti. Portions of each were
; used as a starting point for this module.
;
; This module warns that the computer is in use by someone else. If a key is
; pressed, the keyboard is rendered useless until the correct security code is
; entered.
;
; To use this module, select "Warning" from the Desktop Menu. The first screen
; is displayed. Enter the security code ( CONTROL-R ) and you return to the
; Desktop Menu. Pressing any other key displays the second screen and, again,
; entering the security code returns you to the Desktop Menu. Rebooting the
; system is the only other way to regain control of the machine without the
; correct code. Therefore, DO NOT FORGET THE CODE.
;
; NOTE: You may enter your own code in the area of the following program
; surrounded by plus (+) signs. Simply enter the ASCII value for the character
; you would rather use before you assemble this.
;
=====
;
; .ABSOLUTE
; .PROC Warn
; .ORG 3800
; JMP Enter_Here
; .BYTE 07. ;Number of characters in name.
; .ASCII "Warning" ;Module name.
;
=====
; Equate and Macro Definitions:
;
=====
```

```

;+++++
Code      .EQU    18.                ;Code to restore screen. Change
;to whatever key you wish to
;use. 18 is CONTROL R.
;+++++

```

```

Read      .EQU    0CA                ;Call number for a SOS Read.
Write     .EQU    0CB                ;Call number for a SOS Write.

```

```

.MACRO    SOS                    ;Used to make SOS calls.
BRK

```

```

    .BYTE  %1
    .WORD  %2

```

```

.ENDM

```

```

.MACRO    GotoXY                ;Acts like Pascal's GOTOXY
;and BASIC's HPOS, VPOS.
.BYTE    26.                    ;Screens X position.
.BYTE    %1                      ;Screens Y position.
.BYTE    %2
.ENDM

```

```

.MACRO    ClearScr              ;Clears screen.
.BYTE    28.
.ENDM

```

```

.MACRO    Normal                ;Sets normal screen.
.BYTE    17.
.ENDM

```

```

.MACRO    Inverse               ;Sets inverse screen.
.BYTE    18.
.ENDM

```

```

;=====
; Data for first warning screen:
;=====

```

```

; You may enter anything you want displayed instead of what is here.

```

```

Write_Data

```

```

GotoXY    25.,02.
.ASCII    "
GotoXY    25.,03.
.ASCII    "|
GotoXY    25.,04.
.ASCII    "| Even if I am not here,
GotoXY    25.,05.
.ASCII    "|
GotoXY    25.,06.
.ASCII    "| you can't use the Apple ///.
GotoXY    25.,07.
.ASCII    "|
GotoXY    25.,08.
.ASCII    "| Please do not press any keys.
GotoXY    25.,09.
.ASCII    "|

```

```

Len_Write_Data .EQU    *-Write_Data    ;Number of bytes to write.

```

```

;=====
; Data for second warning screen:
;=====

```

```

W2_Data

```

```

ClearScr                ;Clears the screen before
;displaying the second message.
GotoXY    25.,02.

```



```

.ASCII " "
GotoXY 25.,03.
.ASCII "| "
GotoXY 25.,04.          What's the matter?
.ASCII "| "
GotoXY 25.,05.
.ASCII "| "
GotoXY 25.,06.          Can't you read?
.ASCII "| "
GotoXY 25.,07.
.ASCII "| "
GotoXY 25.,08.          NOW LOOK AT WHAT YOU'VE DONE!!!
.ASCII "| "
GotoXY 25.,09.
.ASCII "| "
GotoXY 25.,10.
.ASCII "| "
Inverse                ;Sets screen to inverse
                        ;mode for next characters.

.ASCII " ENTER SECURITY CODE TO RESTORE OPERATION "

NORMAL                ;Returns screen to normal.
.ASCII "| "
GotoXY 25.,11.
.ASCII "| "

Len_W2_Data          .EQU    *-W2_Data                ;Number of bytes to write.

;=====
; SOS call parameter tables:
;=====

Write_List           .BYTE    03                ;Number of parameters for
Write_Ref            .BYTE    00                ;write.
                   .WORD    Write_Data         ;Console reference number.
                   .WORD    Len_Write_Data    ;Pointer to data.
                   .WORD    Len_Write_Data    ;Number of characters to write.

W2_List              .BYTE    03                ;Parameters for second screen.
W2_Ref              .BYTE    00
                   .WORD    W2_Data
                   .WORD    Len_W2_Data

Read_List           .BYTE    04                ;Parameter for a read call.
Read_Ref            .BYTE    00                ;Console reference number.
                   .WORD    Key_Buffer        ;Pointer to key buffer.
                   .WORD    1                ;Get 1 key.

Ret_Count           .WORD    00                ;Number of bytes returned.

Key_Buffer           .WORD    00                ;Keypress is returned here.

;=====
; Main entry point for the module:
;=====

Enter_Here          STX      Read_Ref          ;Store console reference number
                   STX      Write_Ref        ;in both SOS call parameter
                   STX      W2_Ref          ;lists.
                   SOS      Write,Write_List ;Write first message.

$01                 SOS      Read,Read_list   ;Get a key.
                   LDA      Key_Buffer      ;Load keypress.
                   BEQ      $01            ;No key? Check again.

                   CMP      #Code          ;Check for correct code.
                   BNE      $02            ;Wrong! Display second message.

                   RTS                    ;Correct code, so EXIT.

```

```

$02      SOS      Write,W2_List          ;Write second message.
$03      SOS      Read,Read_List
        LDA      Key_Buffer          ;Get key.
        CMP      #Code              ;Check for correct code.
        BNE      $03                ;Wrong? Check again.
        RTS
        .END                          ;Correct code, so EXIT.
        ;End of module.

```



**ON THREE Presents ...**

# Draw ON ///

***The most versatile Apple /// graphics tool ever designed!***

**\$179 ... plus \$5 shipping and handling**

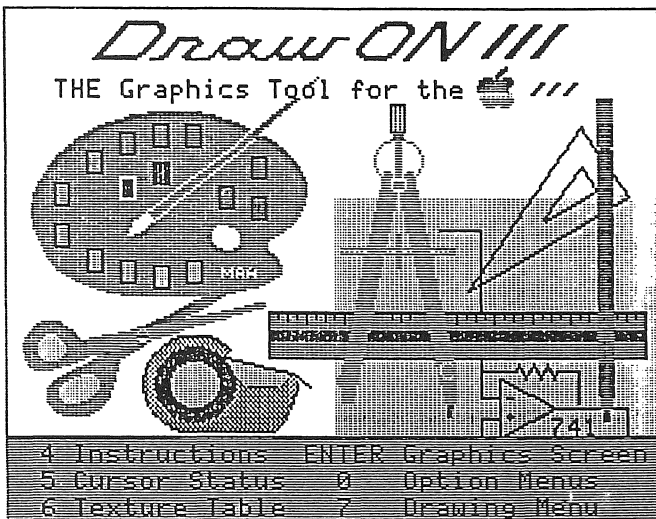
- Use Draw ON /// directly with Apple //e mouse and interface, joystick, keyboard, or Apple Graphics Tablet (Graphics Tablet version \$50 additional)
- Draw ON /// can spruce up dull graphs with its many typefaces or by creating fancy borders and textured images
- Draw ON /// comes complete with easy to follow menus, a durable spiral-bound instruc-

- tion manual and tutorial, keypad overlay, and unprotected diskettes which will install on Selector /// or Catalyst
- Draw ON /// is compatible with all monochrome monitors as well as NTSC (standard) and RGB (hi-res) color monitors
- Multiple help screens
- User-adjustable grids
- Zoom in for detailed work
- Rubber-banding of lines

**What? A computer graphics program that is powerful and easy to use, has the resources of a complete graphics art studio, creates professional-quality charts and diagrams, complex illustrations and original artwork, letterheads, slides and tables for presentation? Don't you believe it! ... unless you're talking about Draw ON ///™, from ON THREE!**

**Draw ON /// transforms your Apple /// into a drafting table, easel and sketch pad, all rolled into one, like MacPaint with color. Computer Aided Design (CAD) applications such as circuit layouts and flowcharts are childs play for Draw ON ///.**

**Draw ON /// comes with a wide selection of text fonts and objects which can be supplemented with those of your own design. Mix and match with drawings and charts, using Draw ON ///'s powerful cut and paste facility. You can use Draw ON ///'s many fonts to label your own drawings as well as those in other applications, and you can pick up objects, expand, shrink, rotate, invert, and texture.**



**Draw ON /// requires 256K minimum memory**

## Look!

You can print Draw ON /// screens with all of these popular printers:

- Apple DMP
- Epson FX, MX, RX series
- ImageWriter
- ProWriter

plus, with a PKASO/ PKASO-U interface:

- Centronics
- IDS Prism, Color Prism\*
- NEC
- Okidata
- ... and others

\*required to print color drawings

*Specify printer and interface when ordering*

# The Beginning ///

*Richard and Lavona Rann*

---

## The Priesthood of the CPU

In the ancient days of the mid 1950's, computers were deaf, dumb, blind beasts which needed the constant attention of a small army of people. Like queen ants, computers sat in special rooms surrounded by workers carrying information in and out. The early computer people were a priesthood. They were the only people who had the mystical knowledge which allowed them to interact directly with computers. As a user, you had to petition this priesthood to get anything done.

In those days computers did not have keyboards, CRT's, telephone lines or even magnetic tapes. Computers did have toggle switches, punched cards and/or punched tape. The operators communicated with the computer by flipping switches on a control console which controlled the yes/no switches at specific points of the machine's memory. The computer was little more sophisticated than a box filled with on/off switches arranged in groups of eight. Everything else depended on the imagination and skill of the programmers. The programmers had the task of creating pattern and sense out of this chaos.

A lot separates our ///'s from those early machines. We can easily see many of the improvements: we talk to the /// through the keyboard or mouse and monitor screen; the machine fits nicely on a desk or table top; and it does not need lots of specialized and expensive electrical wiring and cooling equipment. Data and programs are easy to handle, partly because of hard and floppy disks. We all know that the /// can do things much much faster than its ancestors and can be effectively used by people who have not been through extensive training.

We have said before that SOS and System Utilities are keys to the ///'s flexibility. The System Configuration Program section of System Utilities is what makes it possible for each of us to configure our /// to meet our needs WITHOUT having to go through a "priesthood" of systems programmers. It is what allows each of us to modify the operating system of our /// to tailor the system (the /// and associated hardware and software) to our needs.

Since we are delving into that seemingly mysterious topic of operating systems, it makes sense to first

review a little background and terminology about operating systems in general. It will help de-mystify a lot of what we are likely to hear about microcomputers of all types, especially our ///'s. Most importantly, it will enable us to understand the need for the System Configuration portion of System Utilities and will help everyone gain a comfortable working knowledge of it and its use.

## Operating Systems and Your Apple ///

Operating systems exist to organize and coordinate the various devices in a computer system and provide standard ways of communicating with those devices. Sometimes the devices are built into the computer, as is the ///'s internal drive. At other times, they are optional add-on's which people purchase to fit their particular needs (like hard disks, graphics tablets, etc.). Operating systems are extremely important programs. A good operating system provides a consistent and flexible environment for those people who develop programs for use on a computer system. It is possible to design and write versions of an operating system which work on vastly different machines yet still make them all appear the same to programmers, programs and end users.

Ready examples of cross-machine operating systems abound. Two common ones are CPM and the newer, loudly-touted MS-DOS. Big Blue clones are not generally the same as IBM's machines. In fact, they are often quite different. What makes them clones is that they support the MS-DOS operating system, which makes it possible for some, or most, software written for the MS-DOS operating system on the PC's to work on the other machines. Programs written to "talk" to MS-DOS don't care how the real machine is configured. MS-DOS has to worry about that. Another example of multiple machine use of the same operating system comes from Apple. One of the important things Apple did when introducing the IIGS was to make certain that the older DOS and ProDOS operating systems worked on that new machine.

The Apple /// is able to work with several different operating systems. SOS is the main "native mode" /// operating system, is the most powerful and is the one we care most about. There are others. Emulation mode doesn't use SOS; it is set up for DOS, the older of the

---

Apple II operating systems. It is also possible to run the CPM and ProDOS operating systems on a /// with the appropriate cards and software.

In some computers, the program(s) which make up an operating system are permanently stored in ROM; to most users they are indistinguishable from the hardware. However, there are some problems with that approach, and SOS was designed to solve those. If an operating system is permanently stored in the computer, some flexibility is lost. An example of lost flexibility can be found in the ///. The section of the ///'s operating system which initiates a boot is stored in ROM on the ///. The program always looks to the built-in drive to read the rest of the programs and files needed to get a complete operating system. This limits our options. We cannot start up the /// from a 3.5 inch disk, or a hard disk, unless someone modifies that part of the operating system.

Notwithstanding that example, the /// and later Apples using SOS and its descendants (the various versions of ProDOS) have avoided this type of lost flexibility. These machines have part of their operating systems in ROM and the rest loaded in from disk. That is exactly what is done in the startup (boot) on the ///. The ROM code does some initial work and then reads from the build-in drive to get the rest of the operating system. Two of the files needed for a bootable Apple /// diskette contain the SOS information to set up and start SOS on the ///. The SOS.KERNEL file contains the actual programs that are necessary, no matter how you want your system set up and what additional items you may have. This file was set up to be read from the disk instead of being permanently in ROM so updates to the operating system could be made relatively simply. Most of us now use version 1.3 or some special version of SOS. The way we install a new version is generally to replace the SOS.KERNEL files on our boot disks. If the the programming present in SOS.KERNEL had been stored in ROM, we would probably still be using version 1.0 or would have spent quite a bit of money to have the ROM replaced in our machines.

SOS.DRIVER is the other key file which completes the information needed by SOS. The SOS.INTERP file, which is also needed to boot, is actually the program that runs once SOS is loaded. It is a special type of program, and may in fact be a programming language like BASIC or Pascal. Since it is not really part of the operating system we will skip it for now, even though it must be present to start up your /// in a SOS environment. On the other hand, the SOS.DRIVER file contains data critical to the operating system and to all the programs which run on the machine. It contains information that is likely to vary from one user, or setup, to another. It defines additional devices that our

machine can communicate with, defines their communication rules and includes the programs which handle most of the intricate details of the communications process. These files are often called drivers.

When a user's (or a developer's) program "talks" or "listens" to a device, it actually is talking to, or listening to, a DRIVER program designed to work with that device. You can think of the process as operating like a relay team or an assembly line, with each program performing only that function which it is best suited to do. USER programs "talk" to humans and to driver programs; DRIVER programs actually "talk" to devices.

Drivers are put into memory (RAM) when the system is booted and, like the rest of SOS, must stay there during the whole time the machine is in use. With the exception of the built-in drive and an exception handled by the Catalyst software package, only those devices for which drivers are in the SOS.DRIVER file on the LATEST DISK BOOTED will be available for use by programs.

The System Configuration Program (SCP) allows you to make your own collection of drivers so your /// can talk to its devices. New types of devices need new driver programs. As a community, we cannot do completely without the "priesthood" of programmers because most users do not actually write driver programs. On the other hand, unless you want to add a piece of equipment that no one else has ever used on a ///, you will probably have no problem getting access to an appropriate existing driver. This brings up an important point. Do not even think of buying something new for your ///, such as a new hard disk, unless you are certain a driver file exists which supports the device.

Once you understand these general concepts, using SCP is relatively simple. The SCP option is selected from the main menu of System Utilities and works in ways consistent with the other portions of the program (i.e. arrows or letters may be used to select from menus).

The program has only one purpose: to create new SOS.DRIVER files for your boot disks so they will have the appropriate combination of drivers for use on your system, with your programs. Although there are six options to choose from on the System Configuration Program menu (see Figure 1), basically only four of them provide the significant flexibility offered by the ///. The SCP main menu screen shows all four options: Read A Driver, Delete A Driver, Edit A Driver and Change System Parameters. The last two of the six menu selections are used after you finish creating a new driver file. The Generate New System selection is followed by a prompt asking you the pathname you

want to use for the new driver file. It is basically a save command. The Quit Command returns you to the main System Utilities menu, but only after checking to see whether you generated a new system and, if you didn't, asking you whether you really want to quit and lose your work.

Figure 1

```
-----
Apple /// Utilities                               21 Mar 87  2:46:58 PM
System Configuration Program Menu                 Version x1.2b

R - Read a Driver File
D - Delete a Driver
E - Edit Driver Parameters
C - Change System Parameters
G - Generate New System
Q - Quit to Main Menu

Press:                                           ?? for Help

Please select SCP Function : Read a Driver File
-----
```

One nice thing about the original System Utilities diskette was that it was not notched. This meant that you could not write on the diskette and inadvertently write over the SOS.DRIVER file, or others, on that diskette. The instructions which came with the /// indicated that you should copy the diskette and make your changes to SOS.DRIVER on the copy. This is a good practice to implement for all of your software, whenever possible.

You should keep extra copies of driver files for specific devices in a special place. It is quite simple to create a new SOS.DRIVER file, if you have the drivers you need in a driver file elsewhere. If not, you have to obtain one from someone else and that can be a hassle. Most programs come with SOS.DRIVER files. Many times, you will find drivers in those files which you do not already have. If the identity of the driver is obvious, you might want to generate a driver file with only that one driver and save it on a diskette. We keep a box of diskettes with various driver files on them so we will have them when we or someone we know needs one we don't ordinarily use.

Figure 2

```
-----
Apple /// System Configuration Program           21 Mar 87  2:53:30 PM
Read a Driver File

Current Driver Configuration:
No Drivers are loaded.

( Available memory: Approximately 51K bytes )
Press: RETURN to accept  ESCAPE to exit to SCP menu  ?? for Help

Read a Driver File
Enter Pathname of Driver File :
.D1/SOS.DRIVER
-----
```

Let's get started by making a new driver file. First, let's read in the driver file on your System Utilities diskette. From the SCP main menu, select the "Read A Driver" line on the menu and then press the return key. Not unexpectedly, a screen appears which looks a lot like the screens in the Device Handling section of System Utilities (see Figure 2).

The default line already has a pathname and if your utilities diskette is in the built-in drive, you can load its driver file by pressing RETURN. The pathname may be modified here just as pathnames are modified in the other parts of System Utilities. Once you press return, the SCP accesses the file and determines if it is a valid driver file. If it is, it is loaded into memory. The FIRST driver file read is also used to set the system parameters. We will explain those a little later. After the file is loaded, the screen shows the drivers which were loaded. Yours may not be the same as the one in Figure 3.

Figure 3

```
-----
Apple /// System Configuration Program           21 Mar 87  2:56:37 PM
Read a Driver File

Current Driver Configuration: ( *=Inactive )

1 .FMDD1
2 +.FMDD2
3 +.FMDD3
4 +.FMDD4
5 .SILENTYPE*
6 .PRINTER
7 .CONSOLE

( Available memory: Approximately 36K bytes )
Press: RETURN to accept  ESCAPE to exit to SCP menu  ?? for Help

Read a Driver File
Enter Pathname of Driver File :
.D1/SOS.DRIVER
-----
```

Except for listing the loaded drivers, the screen contains only one other important piece of information: the available memory line. There are basically two limits to the size of your driver files. The first is simply the amount of room available on your boot diskettes. The second is how much memory it takes to hold all the drivers. A /// with 256K or more can handle driver files bigger than System Utilities can handle. Special programs like the Desktop Manager provide their own specialized install programs to bypass this limit. Even if you have one of these specialized programs, you will have to use SCP for your other drivers.

When making a new driver file, you will want to add and delete drivers from the original SOS.DRIVER file. We saw on the main menu that there is a delete option, but there is no mention of an add option. The way you add is to read in another driver file containing the driver you need to add. To read another file from the "Read A Driver" menu, you need only change the pathname, make certain the appropriate diskette or disk is ready and press RETURN; the second (or third, etc.) file will be read in. After each file is read, the screen is updated to show you all the drivers you loaded.

Deleting is quite simple. Just select the delete option from the main SCP menu (if you aren't there just use the escape key to get back to it) and use the arrows or numbers to highlight the driver you want deleted. Finally, press RETURN and the driver is deleted.

Always be certain that you do NOT have two drivers in the same file with the same device name. If you need two drivers that begin with the same name, you will need to rename one of them by editing its driver entry. Normally, you would simply delete one of the files with the duplicated name because only one is required.

Editing (changing) is similar. Most people do not have to do any editing except with modem and printer driver files. The most common field to edit is the Device Name. To do this, select 1, press RETURN and then type in the new name. [Remember that device names must start with a period.] Your programs (and all others) will use this name to find the device. If you have only one printer on your system, it is a good idea to use .PRINTER as its driver name because lots of programs use that default.

Figure 4

```

Apple /// System Configuration Program          21 Mar 87 3:05:18 PM
Edit Driver Parameters

item  field          value
1 - Device Name..... .PRINTER
2 - Device Type..... $41 Char, Write      ( range: 00..FF )

3 - Device Subtype..... $01
4 - Driver Status..... ACTIVE
5 - Comment

6 - Configuration Block data
  Slot Number..... n/a
  Unit Number..... $00
  Manufacturer ID..... $0001 Apple
  Block Count..... n/a
  Version ID..... 1.10

Press:          ESCAPE to exit to top Edit menu      *? for Help

Edit Driver Parameters
Select an item to be edited : Device Name

```

As for the other items on the edit menu (see Figure 4), you will almost never have to change "Device Type" or "Device Subtype." "Driver Status" is basically a toggle. If you hit return when it is highlighted, the "Active" changes to "Inactive," and vice versa.

The only really technical thing which you may have to change is the Driver Configuration Block (a sample screen appears in Figure 5). It contains a series of codes used by each driver to control options. For example, printer drivers are generally written to allow people to select transmission speed. The printers often come with switches which allow you to select the printer's speed. Whatever speed the printer hardware is set to is the speed which must be coded into the printer driver so the printer will be able to understand the information passed to it by the driver (thus allowing you to print). The speed itself is not as important as having both the printer and the driver set for the same rate. The first position (called a BYTE) in the Driver Configuration Block is used for setting this speed. In Figure 5 this is set to 08, which translates to a speed of 1200 baud. Other common printer values are: 0A = 2400 baud and 0E = 9600 baud.

Figure 5

```

Apple /// System Configuration Program          21 Mar 87 3:09:21 PM
Edit Driver Configuration Block

      0  1  2  3  4  5  6  7  8  9  A  B  C  D  E  F
0x - 08 22 00 00 00

Cursor keys ARE allowed          ESCAPE to quit      *? for Help
Cursor is at 00.      New data value:      ( range: 00..FF )

```

To change to 0E from 08 in our example, you would move the arrow key so that the 08 is highlighted, type in 0E and press RETURN. A detailed listing of standard codes for printer and modem configuration blocks can be found in the *Standard Device Drivers Manual* which was initially provided with every new Apple ///. As with all other screens, ESCAPE takes you back to the prior one.

There is only one option on the main menu that we have not covered and it is actually the simplest: Change System Parameters (see Figure 6). It allows you to modify the number of Disk III drives on your system (the built-in drive is counted as number 1), assign drivers to specific cards which you added to the inside of your ///, select a different screen character set by loading another one from a file, change the keyboard layout (again by loading one in from a file), toggle from light letters on dark background to dark letters on light background by selecting the Invert Standard Character Set option or number 6, which asks you to set up each of the above. Some optional screen character set and keyboard layout files are on the System Utilities Data disk which was initially provided with all new ///s. If you are missing this disk, check with another /// owner or your nearest user group to obtain one.

Figure 6

```

Apple /// System Configuration Program          21 Mar 87 3:12:27 PM
Change System Parameters

CURRENT SYSTEM PARAMETERS:

1 - Number of Disk III Drives..... 2
2 - Peripheral Slot Assignments
3 - Standard Character Set..... STANDARD
4 - Keyboard Layout..... SHOLES
5 - Invert Standard Character Set
6 - Change All System Parameters

Press:          ESCAPE to exit to SCP menu      *? for Help

Change System Parameters
Select Parameter to be Changed : Number of Disk III Drives

```

If you read in too many files, or even two files that are quite large, you may encounter the memory limitation. If so, the /// will beep and a box will appear with the message "Insufficient memory to read the file." DON'T PANIC. Over the past few years, we have found that this message is the one most likely to make new ///er's uncomfortable. All it means is that you



must make your new driver file in stages. You will have to delete unnecessary drivers from what you loaded; generate a system (don't call it SOS.DRIVER); exit SCP; re-enter SCP and read the file you were trying to read when you saw the initial error message; delete any unnecessary drivers from that file; generate a system with a DIFFERENT name; and exit SCP. Then you are finally ready to re-enter SCP and read in both of your temporary driver files and generate the new SOS.DRIVER as if you never had run out of memory. This takes time and patience but is not terribly complex. Just examine the contents of each driver file (it is a good idea to write them down) and think of the driver files you want the final SOS.DRIVER file to contain. Then you just step, slowly and methodically, through the process. Most of the time you will be lucky and be able to create a new file in one step.

That's it! Combinations of these steps will take you through all that SCP can do. Even if you don't need a new driver file, we suggest that you make a copy of your System Utilities diskette and try a few of these options anyway. Just be certain to avoid writing over a good SOS.DRIVER file on any of your boot disks. Finally, remember that SOS.DRIVER is read into

memory each time you boot and will be set up exactly as the files are on that disk. SOS.DRIVER files are just like any other files in that they can be copied with the file copy option of System Utilities, can be renamed and deleted, etc. You can have several of these files on one diskette, but the only one which will be used when you boot is the one named SOS.DRIVER.

Most people just copy their driver files to the working copies of all their boot disks. However, before you delete the SOS.DRIVER on a boot disk, be absolutely certain that (a) you have another copy of the one you are going to delete, (b) there are not any extra drivers in the file which are not in your "standard" SOS.DRIVER and (c) you've included any additional drivers which you might need to run that diskette's program. For example, consider the .FMT drivers. They must be present for you to format diskettes. They need not be present in the SOS.DRIVER files of diskettes that do not allow for formatting. In a future article, we will cover how to select the correct driver files to include on individual diskettes and how to get around the problem of not having enough room on your boot disks for a large SOS.DRIVER file and the programs.



**ON THREE Presents...**

## **Graphics Manager™ \$49.95** **plus \$3.00 s/h**

The complete graphics utility for the Apple /// interfaces to Draw ON ///™ and all graphics programs and allows printing enlarged or reduced portions of the graphics screen, normal or inverted, single or double density and with four rotation values.

For the first time you can load directly any DOS 3.3 or ProDos Hires or double Hires graphic files (including "Print Shop") and of course SOS fotofiles or other binary graphic images.

Comes complete with full documentation and diskette containing standalone SOS interpreter and a Desktop Manager™ module. All popular printers, serial and parallel interfaces supported and limited color graphics capability is included.

**• Available now!**

---

# Future of the ///

As part of the Phase III Conference and Exhibition scheduled for October 2 through 4, 1987 in Chicago, I am organizing a panel discussion about potential enhancements of the Apple ///, including add on's for the Apple /// and perhaps new computers which will be compatible with existing software for the Apple ///. To prepare for this panel discussion, I am collecting wish lists. Please tell me what hardware products you want to see produced either as an improvement for the Apple /// you now have or as a feature of a new machine.

## What do you wish your machine could do that it cannot do now?

Please limit your suggestions to hardware or SOS enhancements and try to make your requests *performance* specific, not *device* specific. For example, don't phrase it like this: "I want a Whiz-Bang Industries, Inc. Thunderbolt 409." Instead, please write your request like this: "I wish we had a hydrolic turboincabulator that filtered the bit-spliced line frequencies, like the Thunderbolt 409 does for that other computer." Also, estimate the amount of money you are willing to pay for such an enhancement. To isolate the value of each individual improvement, assume that your requested improvement will be made available as an enhancement to an existing Apple /// and will NOT use an expansion slot.

Even if you know someone else who has already written and mentioned the improvement you want for your computer, please let me know what you want anyway. It is as important to know *how many* people want an item as it is to know *what* is wanted.

Once you've completed your wish list, mail it to me at either of the following addresses:

Chris Acreman  
13805 Windmill Circle  
Pflugerville, Texas 78660

Chris Acreman, PE, RPS  
Acreman Engineering  
300 E. Huntland Drive, Suite 215  
Austin, Texas 78752

Or you can send your wish lists to me by CompuServe's EMAIL [72747,3060] or to my mailbox on the ///'s Company bulletin board [(804) 747-8752, half-duplex, 7 bits, odd parity, 300 or 1200 baud, APPLE.III.HELP/MAIL.BOXES/ROW.4/CHRIS.ACREMAN].

With these wish lists as a starting point, the discussion between a panel of experts and users in the audience should result in a synthesis of ideas. After the seminar, developers will have a clear idea of what the market is and users will have an idea of what they can reasonably expect from developers in the future. Thank you in advance for your input, help and cooperation in making this a success.

Chris Acreman  
Organizer, "Future of the ///" Panel Discussion  
1987 Phase III Conference and Exhibition

# Interview with Bob Cook

David Ottalini

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Logan, Utah is a beautiful old city located about one and one-half hour's drive from Salt Lake City. It's a quiet town, one most people would not believe is a beehive of Apple /// activity. In fact, even if you searched, you wouldn't find more than one or two computer dealers selling Apple products.

Instead, you must travel just outside of Logan to find the hub of this Apple activity: Sun Systems Remarketing. Even then it's not too easy to find. The best way to locate the building is to look for the words "GREAT CHEESE" painted in faded letters on its roof (it was formerly a cheese processing plant). The biggest shock of all comes when you knock on the door and look in. All around you are people busily packing Apple ///'s, II Pluses, Macintosh XL's, peripherals and software into boxes for shipping. And then there are the back rooms with pallet upon pallet stacked and full of Apple ///'s, disk drives, printers, monitors and software. For example, at the time of my visit, Sun Systems had the following in stock:

- 5000 Apple Writer 2.0 packages
- 6000 BPI modules
- 4000 CP/M Softcard packages
- 1700 Apple ///'s

Upstairs are technicians whose primary function is to repair the ///'s owners send in. Much of the equipment Sun Systems uses to test those machines came from Apple and was originally part of Apple /// assembly lines.

Last summer, I visited Bob Cook and Sun Systems as part of a quest to find and meet the vendors who still care about and serve the Apple /// community. (I also visited Bob Consorti and Frank Moore, as well as Dr. Wendell Sander, the father of the ///.) In the few hours I spent in Logan, I spoke at length with Bob Cook, the 31-year-old owner and president of Sun Systems Remarketing. Below are excerpts from our conversation which, thanks to *ON THREE*, I am able to share with you.

*How did you get started?*

In October of 1979, I was Apple dealer number 345. I called the business "Cooks Incorporated." It evolved into Alpine Computing, with four stores in Utah.

Unfortunately, I'm not part of that expansion because I sold out of Alpine Computing about two years ago. Sun Data, now Sun Systems Remarketing, was started in 1983 as a division of Alpine Computing to sell Apple /// software.

After production ceased, Apple wasn't going to do anything with the Apple /// project. Since there was continued interest in the Apple /// and in the marketing of the software, I saw that an opportunity existed. It took me a year and a half to convince Apple that they needed to do something. Naturally, the only solution for them was a complete one: a total buy-out of the product line. I was willing to do that if they were willing to support me in my exclusivity.

Right now, anybody who calls Apple with a question about the Apple /// automatically gets our telephone number. And if people want to buy Apple ///'s, Apple is supposed to send them my way as part of the agreement.

*Were you surprised that Apple decided to drop the ///?*

No, it didn't surprise me at all. In fact I was, by coincidence, at Apple the day they decided to do away with the Apple /// group. It is known as the "Black Wednesday" of the Apple /// group. You'll remember Dave Braden was the leader of that group. By coincidence, I was in his office that day. I was trying to negotiate a deal at the time so they would use my bulletin board as the resource center for all the Apple /// users across the nation. And they told me they'd found out that morning that the Apple /// would be abandoned, the Apple /// group dissolved and there was no future at Apple for the Apple ///. It was naturally a distressing feeling for everybody in that group, as well as for me because I had so much of my personal interest and business involved with the ///. That was the first time I thought of the opportunity the situation presented, almost three years before the opportunity became reality.

*What kind of support have you received from the /// community?*

Consistent. It surprises me. I come here every morning thinking, "How many orders can I take?" There are days, like now, when the phones don't ring and yet

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there are days when the phone rings off the hook. It's surprising to me how close we are to the same dollar value every single day (\$10,000 each day they are open). I would characterize it as consistent. There probably isn't any one day in which business is really outrageous and there isn't one day in which it's absolutely dead either, so I'm surprised at its consistency.

*You don't find being in Logan, Utah to be a detriment?*

Not too many people know where Utah is, let alone Logan! And, in fact, most of my business comes from California. A big percentage comes from the Boston area. And there are a lot of Apple IIIs in Texas. So if I were in any one of those areas, I would be closer to the nucleus of users. But if I were in California, my California customers would pay six and one-half percent more money for everything they buy from me because of California's sales tax. I'd also be another hour away from the East Coast customers. And besides, life is better in Utah! When I'm not sitting behind a keyboard, I'm fly fishing.

*How would you describe your relationship with Apple?*

I think our relationship is extremely strong. It's stronger than it's ever been before. They listen to me,

first of all, which is an amazing story all by itself. They listen to what I have to say and I never did get a "no" from Apple in the year and a half I spent presenting this idea to them. I also didn't get a yes! But I was really pleased from the beginning with the way they treated me. The whole thing has been based on common trust and a "we win" kind of association. They win because they get rid of their inventory and we take over the support group. We win, naturally, because we have a whole business based on what they've left behind.

*Where do you see your company going in the future?*

Our strength is going to be in sales. That's where all of our income is derived. We don't charge for our technical support, so sales is the number one revenue base. We also earn some revenue on service and naturally we want to be around as long as there is a machine to service. But I think the strength of our company is going to be from our close association with Apple and our ability to sell anything they consider obsolete.

For example, they were so pleased with what we accomplished with the Apple III that we were asked to consider the Macintosh XL. So we're doing the Macintosh XL and, in terms of dollars, it's probably one-third bigger than the Apple III project was. Since it involves newer technology, we've got big plans for that. We hope we can sell through that stuff. But actually we're never going to turn down an order for a III. We're never going to turn down an order for any accessories for the Apple III. It's all an important part of what we're trying to accomplish. I'd say the future of Sun Systems depends on its ability to sell and its ability to continue winning that customer, winning his or her confidence.

*There have been discussions about getting the source code to SOS, various upgrades for the III, expansion boxes, etc. Are any of these projects you might consider?*

It's extremely likely that they will become available but I'm not that kind of a marketer. I don't like to go out and say I am going to develop this or that. I'd much rather surprise them and say, "Here." I pride myself on the fact that when a customer calls and says "I would like . . ." we either say "It'll go to you this afternoon" or we don't take the order. We have some talented people here and once we get what we're asking for, I hope the world will look at Sun Systems as the developer's headquarters for some of this stuff. There are some amazing things we know can be done fairly inexpensively which would greatly increase the life of the Apple III.



# Ranntings

*Richard and Lavona Rann*

---

A number of years ago, about the same time that Steve Wozniak and Steve Jobs were building Apple, there was a mystery novel on the best-seller lists titled, *Who Is Killing the Great Chefs of Europe?* The tastefully-done murders and calorie-packed mayhem were fun. The title came to mind recently, though in a slightly different context. Of course we'd love to claim it was over a crystal goblet of Strawberries Romanoff, accompanied by a glass of '61 Wehlener Sonnenuhr Trockenbernauslase, its gold reflecting the dancing flames in the fireplace of a private dining room in a chateau in Southern France. But it was hardly that romantic and certainly not within our budget. The truth is, it came up at a meeting of /// users, over coffee, when we were asked about all the missing developers in the Apple /// community. So, to rephrase the question, *Who Is Stealing the Great Apple /// Programmers?*

Almost everybody has heard of Robert (Rupert) Lissner, author of /// E-Z Pieces (also known as AppleWorks in its II-family reincarnation). He is well and reported to be living and working in his Nevada retreat above Lake Tahoe. He has been quite busy these past months redoing AppleWorks to add new functions (mail merge and new rounding options) and to have the software take advantage of the added memory available when run on the IIGS. The new AppleWorks 2.0 was a major project because he rewrote the internal structures to streamline the entire program. He obviously still maintains quite a bit of power within Apple, because AppleWorks 2.0 does not use the new Mac-style interface. "Heavens to Jobs," no pull-down menus? AppleWorks 2.0 still has file folders just as the original /// E-Z Pieces does.

Wendell Sander is another legendary figure in the /// community. He headed the design team at Apple which produced the Apple ///. Among his other accomplishments was designing the /// 512K upgrade. He is busy now with his own company, The Engineering Department. Even though there has been talk of developing an MS-DOS board for the ///, most of the products being developed by The Engineering Department are designed for use with the Apple IIGS.

Until the latter half of 1986, Rob Turner was a full-time programmer for *ON THREE*. He and Bob Consorti developed the Desktop Manager for the Apple

/// as well as a number of other nice /// programs. Last summer, Rob was offered a job at Apple and now he is in Cupertino. His function there is in software development, but he remains loyal to the /// community. Before he agreed to the job, he got permission from Apple to have an Apple /// at work: no mean feat in a company which still has a faction that believes in "/// bashing." He keeps close touch with his /// friends and still spends personal time developing on the ///.

Gary Kato is a loyal /// supporter on Section 7, the Apple /// section of MAUG<sup>TM</sup>. Until recently he spoke of starting some rather large /// programming projects. He is still present and answers questions for people having problems but is now strangely quiet about new programming projects. He was one of the attendees at the IIGS developers conference held in September and it is fairly easy to guess that much of his attention is being diverted to the GS.

If you are not familiar with the name Jim Mensch it is not surprising. He is a long-time employee of Apple, and most of that was spent in the Midwest regional office in customer and dealer support functions. For us in Chicago, he was the best source of Apple /// technical information, from its introduction until long after it was officially killed. He programmed for the /// in his spare time and created, among other things, the first Public Domain SOS block editor. He taught SOS internals to generations of dealers, developers and service personnel. As one of his other services to the user community, he was a founding member of TAU (Third Apple Users based in Chicago) and was a voice inside Apple that kept saying and proving "That can be done on the /// too!" when the Lisa came out. Where is Jim now? He is in Cupertino. What is he doing? For one thing, he was part of the Apple technical engineering team that went out last fall to introduce the GS to user groups. One of his other functions has been teaching ProDOS 16 to developers.

So who is stealing the great Apple /// programmers? Apple corporate has taken quite a few of them. Most of these people have been drawn to Cupertino or, at the very least, contracted to work on Apple-related projects. If there is a single thread drawing all of these people together it is the Apple /// and, more specifically, SOS. Each one is an expert in the Apple /// operating system. Each one has demonstrated his ability to

manipulate SOS. It seems that Apple has finally realized just how technically strong the Apple /// was and how good the people who devoted time to it really are. That raises one more question. Why Apple /// people and not all the good people who know Apple II, Macintosh, even MS-DOS? The answer should be obvious by now. ProDOS 16 is an advanced SOS. It is important to Apple because it is the operation system of the future. It will dominate the Apple II line for many years to come.

A close look at the developers still supporting the /// shows that many of them are also working on ProDOS 16 applications (Daryl Anderson and Tim Harrington are prime examples). What does this mean to us in the Apple /// community? First it means that our developers can use the ProDOS 16 applications to make money to support their avocation of supporting the ///. Second, those of us who understand and are comfortable with SOS now have an easy entry into a new generation of

computers through ProDOS 16. Third, we have an added life expectancy for our ///'s because the SOS and ProDOS 16 environments are so similar that /// developers can easily work in both worlds and port applications both ways. Finally, because the mainstream II computer is *data compatible* with our ///'s, we can share data between applications on ///'s and II's. For those of us who might want to consider moving to a newer machine at some future date, there is a certain amount of comfort in knowing that our data investment in /// applications is easily transferred to the new II's. In a strange way, even though the /// was the target of several murder attempts, it lives on. Like an adult child helping support an aging parent, the GS is assisting the ///. Most importantly, the Apple /// and SOS have now firmly established their impact on future generations of computers through their descendants, the Apple IIGS and ProDOS 16. The only question now is one of legitimacy.



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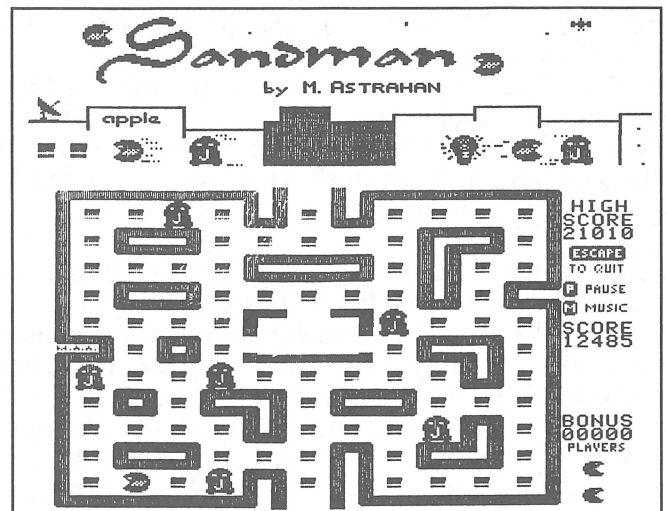
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*Your only weapon against the JOBS is to find the WOZ who wanders about the lab peeking in on various projects. For a short time following a meeting of SANDMAN and WOZ the JOBS turn blue and may be exorcised if you can catch them.*

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GET's and PUT's aren't effective either. Every Pascal data structure has an even number of bytes. You can specify an odd number of bytes in a data structure -- to your heart's content. It will do you no good. Pascal always gives you one more byte because Pascal is a word-oriented language. Each Apple /// word is comprised of two bytes, so Pascal will never give you an odd number of bytes in any data structure.

You don't believe me? With your help, I'll prove my contention using the program listed in Figure 2.

Figure 2

```
program TESTODD;
var
  data_rec: record
    datum: packed array [1..71] of char;
  end;
begin
  writeln ('Length is ', sizeof (data_rec));
end.
```

After you've entered and run the program, "Length is 72" will appear on your console screen. It doesn't matter what you do; no Pascal data structure will have an odd number of bytes. While GET's and PUT's work with Pascal data structures, they will only work if the text file has an even number of bytes.

The Business BASIC random text file can have any number of bytes. But, if you try to GET an odd-sized Business BASIC random text record into a data structure described with an odd number of bytes, you will move out of synchronization very quickly. The extra byte is read by the program, even though it is not available for use. With the second GET, you'll start with the second byte of the text file's second record. With the third GET, you'll start with the third byte of the third record.

That is part of the problem. You can't use READ, WRITE, GET or PUT. The only Pascal file I/O commands remaining are BLOCKREAD and BLOCKWRITE. BLOCKREAD can be used to read a random text file, entering a block at a time and manually parsing out each text string.

So, why not reverse the process and use BLOCKWRITE to *output* a random text file? There are two problems. With BLOCKWRITE, a file's SOS directory EOF entry is always a multiple of 512. The true EOF is masked because BLOCKWRITE always writes blocks of 512 bytes each. This deceives Business BASIC, making it think there are more records in a file than actually are. It may or may not hurt a particular application to see a bunch of spurious records containing nothing but hexadecimal zeroes. I, for one, would not like to take the chance.

BLOCKWRITE also creates a "typeless" file and does not use the auxiliary file type in the file's directory entry. After you write the file, you must rearrange the bits in the file's directory entry: the auxiliary file type bytes must hold the file's record length; the file must be flagged as an ASCII text file; and EOF must be reset from a multiple of 512 to its real value.

As you can see there are problems but they aren't insoluble. Even so, I don't care for the BLOCKWRITE solution. In the first place, I have an unreasoning terror of puttering with disk directories. I'd rather have system software do such things. Fortunately, such system software is available -- in the form of the SOSIO library unit which accompanies the Pascal Technical Reference Manual (Apple Part Number 030-0378-A). SOSIO has easy-to-use subroutine calls which let a Pascal program write a random text file with minimum effort and maximum safety.

SOSIO could also be used to read a Business BASIC random text file. However, there is no real advantage over a straightforward BLOCKREAD. Given a choice, I prefer using built-in language features whenever possible. A BLOCKREAD-based procedure can be transported to Apple II Pascal or even Turbo Pascal on an IBM PC which permits at least reading a random text file in those different environments.

We have examined the problems and seem to have the tools available to solve them. Let's apply those tools so a Pascal program can both read and write a Business BASIC random text file. I'll deal with the functions separately, even though the accompanying BASIC Input/Output (BASIO) program in Figure 2 both reads and writes a random text file.

### Reading a Random Text File

Let's concentrate now on the procedures for reading a file. This method uses the READ\_BAS procedure and a block of information (basblock) needed to manipulate the file.

An adaptation of the one presented originally by Richan and Rosenvall in their article "High-Speed Pascal Text File I/O" in the January 1983 *Byte* magazine (Vol. 8, No. 3, pp. 454-460), this method is slightly strange. It takes a bit of extra coding, but it is accurate and it is fast. After coding the procedure and its type statements, using the method requires little effort. Simply add them to your favorite library or include the text with your program.

There are three keys to reading the file. First is the TYPE section. This should be included in every program which must write or read a Business BASIC

random text file. The basblock type is a multipurpose structure, with items needed either to read or to write a random text file. Those items are shown in Figure 3.

**Figure 3**

```

BUF:      A general-purpose two-block buffer.
FIRST:    A boolean variable to indicate whether a file has
          been read from, or written to, yet.
REFNO:    The SOS "file reference number" of an output file.
LEN:      The number of bytes in use by BUF. For input.
PTR:      The pointer to the current BUF location. For input.
EF:       A boolean variable indicating end-of-file. For input.
LRECL:    The length of the Business BASIC record.
REC:      The text contents of the Business BASIC record.
SYS:      A two-block buffer reserved for system use. Output.

```

Before reading the file, you must initialize three of its basblock variables. Set FIRST to "true," EF to "false" and LRECL to the file's record length as assigned by the program which created it. BASIO uses the record created by the modified PrintRandom program described above, so LRECL is 71.

The second key is the READ\_BAS procedure. It is perfectly general and will work any time you need to read one or more Business BASIC random text files. The PTR variable determines what READ\_BAS does. When first called, it reads up to two blocks of the file and sets PTR to bypass the first "dummy" record. Then it transfers LRECL bytes from BUF to REC and advances the pointer to the next record. Finally, it strips the carriage return and trailing hex zeroes from REC and returns only the record's text contents. EF can be turned on either by running out of input blocks or by finding a record that is all hex zeroes.

The third key involves using READ\_BAS. It is a bit different from the usual Pascal input routine in that EF is "true" only after the last record has been read. Note how BASIO uses the procedure with an initial call, a "while" loop and a second READ\_BAS call at the end of the loop.

### Writing a Random Text File

Creating a Business BASIC random text file in BASIO is done with the WRITE\_BAS procedure and SOS calls. For consistency, the output file also uses the basblock structure. Preset the file block's FIRST to "true" and LRECL to the appropriate record length. You must also set up the file. The three preliminary SOS calls (1) wipe any file of the same name that may already exist, (2) create an ASCII text file with LRECL in the "auxiliary file type" field and (3) open the file for output.

Note that opening the file assigns it a reference number. This is needed by SOS to write to the file and to close it. There is no explicit file declaration for the output file. Note also that SOS\_OPEN must have its very own buffer (SYS) and you may not use that

buffer as long as the file remains open. Otherwise, you will get a "System Error 0F" (not a pleasant experience).

Once the file is opened, BASIO calls WRITE\_BAS almost as if it were a WRITELN. This is quite nice because the procedure handles the dirty work. When first invoked, it writes LRECL hex zeroes to take care of the first "dummy" record. Then it loads the REC string into a zero-filled array, inserts a carriage return and writes LRECL characters from the array. Nothing to it. This is easier to understand than the procedures for reading, isn't it?

After you are finished with the file, you must use SOS\_CLOSE to close it because, having started with input/output via SOS calls, you must continue using them. While SOS\_CLOSE doesn't have the options that the Pascal close has, it behaves like the Pascal close using the "with lock" option.

### Wrap-Up

As I said in the beginning of this article, Business BASIC random text files are alien to Pascal, however, that fact does not mean that a Pascal program cannot read or write them. Pascal is a flexible and powerful language, especially when augmented by SOSIO's ability to access the operating system. The techniques presented here aren't limited to the immediate problem; they can be applied to a number of situations. However, the tools presented here -- allowing the Pascal programmer to read and write Business BASIC random text files -- are themselves a significant contribution to inter-application compatibility on the Apple III.



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

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Edward N. Gooding, Sr.	VA	(804) 747-8751	Su-Sa	6-9pm	Eastern	CO,SS,PR,MD,CT
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Scott Weddel	NE	(402) 572-7543	Su-Sa	4-10pm	Central	GE,TC
Jim Ferencak	IL	(312) 599-7505	M-F	10am-5pm	Central	GE,EP,DB
Paul Thomas	MS	(601) 494-8736	Su-Sa	6-10pm	Central	GE,AC,BB,CP,DB,FI,MI,MD,PA,PR,SO,SS,TC,EP,WP
Earl T. Brelje	MN	(612) 455-6405	M-F	4-9pm	Central	CT,DB,WP,GE, Quick File, Omnis 3
Ron Maupin	TX	(512) 280-0144	Su-Sa	8am-10pm	Central	AL,CO,CT,EP,MD,PA,QU,SS,TC,WP
Terri Wiles	CO	(303) 850-7472	Su-Sa	10am-6pm	Mountain	PA
William Prince	OR	(503) 254-6465	M-F	9am-4pm	Pacific	GR,TC, Corvus
Karl La Rue	WA	(509) 582-6459	F-Su	6-10pm	Pacific	MD,GE,EP,WP,TC,SS,CP
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
Dennis R. Cohen	CA	(818) 956-8559	Su	10am-10pm	Pacific	GE,PA,MU,WP,DB,SO
			M-F	7-9pm		
			Sa	12n-6pm		
Kelly C. McGrew	WA	(206) 943-8533	Su-M,Th-Sa	7-9pm	Pacific	DB,GR,SS,PR,MD,CT
Larry E. Kalland	AK	(907) 272-4968	Su-Sa	12n-11pm	Alaska	AC,CT,GE,SS,EP,WP
H. Van der Straeten	Belgium	(015) 205328	Su-Sa	7-10pm	Europe	BB,CT,DB,GE,PA,PR,SS
Arnaud Trache	France	21 03 04 21	Sa-Su	10am-7pm	Europe	AC,BB,DB,AE,FI,GR,MD,PR,SS,TC,EP and all ON THREE products
J. Woretshofer	Netherlands	043-611704	Su-Sa	9-12 am	Europe	CT,FO,GE,PA,QU,SO,WP,AE,EP

# One, Two, /// Forum

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## The Graphics Manager

I'm writing in regard to John Sollman's fine article in the December 1986 issue of *ON THREE* in which he reviewed Mel Astrahan's super Graphics Manager program. He mentioned that to mix a foto file with text from a word processor, the user must make two passes with a single sheet of paper: the first pass prints the entire text document, leaving a space for the graphic; and then after the user correctly positions the printer head, the second pass with the Graphics Manager fills in the blank space on the paper with the graphic image. I have discovered that if you use the Graphics Manager in background mode as a Desktop Manager module with Apple Writer ///, you can print both your text and your graphics in one pass of the sheet of paper! I don't use Word Juggler and do not know if this tip is applicable to it as well.

Let's say you want to print five lines of Apple Writer text, then a pie chart and then more lines of print after the chart. To do this, boot Apple Writer, enter the five lines of text and then, on its own line and starting in the left-most column, type:

```
.IN Print your graphic now.
```

Now follow the above with the remainder of your text. You may have to precede the rest of the Apple Writer text with the appropriate imbedded control codes for your printer because the graphic's printer commands may override some previously-set Apple Writer printer commands. Simply use the CONTROL V function to imbed the appropriate printer commands in front of you remaining text.

Having completed your document, you are ready to print. Insert your paper, ready your printer and invoke the printer function for Apple Writer, CONTROL P. The first five lines of text print and, at the bottom of the screen below the "[P]rint/Program :np" command line, the prompt you entered above, "Print you graphic now," appears. So invoke the Graphics Manager via the Desktop Manager and print your graphic image. There is no need to move the paper. After you print your pie chart, exit Graphics Manager, exit the Desktop Manager, press RETURN and the remainder of your text file is printed.

There is one potential problem which must be dealt with, however. Apple Writer is now going to be confused about where the end of the page is because it is unaware that the Desktop Manager slipped in and took control of the printer for a while. You must set Apple Writer straight by imbedding form feed (.FF) or printed lines (.PL) commands before and after your combination text/graphics page in the original Apple Writer document. If you use those commands, Apple Writer will print the rest of the document and be totally oblivious to the fact that you "borrowed" the printer from it for a while!

Edward N. Gooding, Sr.  
Richmond, VA

*I'm a loyal Apple Writer user and tried the procedure listed above. It works exactly as stated. If you own Apple Writer and the Desktop Manager, this is an excellent solution to the inconvenience of double-inserting a page to print both text and graphics on it.*

## Bothersome Beta

I have tried everything to make my Compiler 2.0 recognize Pascal version 1.2 and to make the "!" appear in the options field. Unfortunately, I am still unsuccessful and wonder if it could have something to do with the version of my compiler (2.132) which is a beta version. I was told by Apple France that there is no further version available, so I'd greatly appreciate your help in solving this important problem because I use the new reserved words extensively in my programs.

Gilbert Doumont  
Paris, France

*Sun Systems Remarketing sells the version 2.0 Compiler. Their version is not a beta release and should work better than the version you have. You may contact them by writing or calling:*

Sun Systems Remarketing  
P.O. Box 4059  
Logan, UT 84321

(801) 752-7631



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## Through the Looking Glass

I was surprised by your answer to Mr. Biggs of Charlotte, NC (December 1986, p.22-23) that "...there is no tape backup available for the ///." I was surprised since for the past four years our office has been backing up Corvus hard disk data files onto a video tape using a Magnavox VCR. Back up time for our 5 megabyte Corvus onto a tape is about 20 minutes, which includes verifying that the information was recorded correctly. The backup is accomplished by having a Corvus Mirror device installed in the Corvus disk drive. We recently added a 20 megabyte Corvus disk drive and we back up its files (which also takes about 20 minutes) by using the same Mirror device found in the 5 megabyte drive.

Also, we have recently ordered a Selector /// program switching utility from *ON THREE*. Will we be able to transfer all of our program disks to our Corvus drive using the Selector ///? The programs we have are /// E-Z Pieces, Advanced Version VisiCalc, PFS File, PFS Report, Apple Writer /// and Apple Business BASIC.

Thank you for your continued support of Apple /// users.

Timothy J. Piper  
Lima, OH

*You may not be aware that Corvus recently reorganized after filing for bankruptcy. The company is no longer selling the Corvus drives or Corvus Mirror you mention in your letter. If someone is able to purchase a used Corvus Mirror, then they are indeed fortunate. I hope you can understand my reluctance to endorse a product which is not currently under production, probably no longer being supported and is only available second-hand. But I am publishing your letter in case anyone who is not aware of the Corvus Mirror's existence should discover one being sold used. Before purchasing one, however, be sure that the version of Corvus' Mirror you're purchasing corresponds with your VCR's format (beta or VHS).*

*And here is an answer to your question about Selector ///. You will be able to transfer all of the programs you mention successfully to your Corvus. However, there is a slight problem with PFS File and Report. Using these two once you've installed them on the Corvus will require that you insert the original disks into the internal drive before you can run the program. But, if you send ON THREE the original PFS File and Report disks (for ownership verification purposes only) and \$2 for each program sent, we will send you updated versions of the programs which do not require disk insertion to run from your hard drive.*

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# Disk Of the Month

What is the ultimate timesaver? Why *ON THREE*'s Disk Of the Month diskette, of course. Why use your precious time typing *ON THREE* program listings when they are available on diskette for just \$14.95 each. Better yet, mix and match. Any two or more are available for only \$12.50 each.

**DOM #1 - Extra Disk Space Plus!** Includes both Disk Pack 1, with a program to give you four additional blocks of space on your data disks, and Disk Pack 2, containing a utility which allows you to list files within your Pascal programs. Also included are graphics, sound demos and more.

**DOM #2 - Changing Printer Characters.** This amazing little disk allows you to set up your printer (Apple DMP, ProWriter or ImageWriter) to produce the same font that appears on your screen. Many special fonts, including fancy gothic characters, are included on the disk as well as more graphics demos and a utility that enables you to list the files on your Apple ][ DOS 3.3 disks.

**DOM #3 - Redefining a Keyboard.** This disk is packed with programs, including a utility for redefining any or all of the keys on your ///'s keyboard. You can redefine the '/' key to look like the DELETE key of the /// plus, and more. Also included are Word Processing Language (WPL) programs, a disk formatting utility, a graphics sketching tool and much, much more.

**DOM #4 - Emulation Patch.** The Apple ][ Emulation

Patch allows you to use any Apple /// font in Apple ][ emulation (not //e). Included also is the Pascal version of the Access /// utility which allows you to automatically dial. The Radiate Graphics demo and the Beatles Music demo will both stimulate your senses. As a special bonus, some sample images created with Draw ON /// are thrown in to boot.

**DOM #5 - Access Draw ON.** Here you will find the Basic version of the Access /// utility which allows you to automatically dial. Ben's Super Slot Machine, the Visicalc and WPL programs, and the Circling Graphics demo will amuse and help you for hours. Included also are still more Draw ON /// images and the Draw ON Picture demo, which lets you view Draw ON pictures without Draw ON.

**DOM #6 - Basic Lister Plus!** How much would you pay for perfectly formatted listings of your Basic programs? The NoiseMaker utility guides you in selecting tones and tunes for your animation or game programs. We've even tossed in a few more Draw ON images and a number of new and exciting fonts as well.

**DOM #7 - Heap Good Stuff.** Included is a Basic heap sort routine and the ImageHelper/ImageLooker programs that allow you to easily create graphic image designs. The menu-driven, printer-controlling program allows you to easily set up your printer with various commands. Telling it to print in com-

pressed bold underlined text is simple with this.

**DOM #8 - Directory Sorting.** Have you ever wanted to rearrange the order of the files in your directory listing? If so, this disk is what you need. It includes a complete program for sorting your directories to any order you desire. The Clean Heads utility exercises your disk drive for cleaning purposes and notes when you last cleaned your drive.

**DOM #9 - Music, Music, Music.** In this collection of programs you receive Music Maker and Music Player, which let you create and play your own melodies with alternate sets of DATA statements in Basic. Energy Plotter not only plots energy consumption graphs but allows you to plot them as well. Also included are a space game, graphics images and an assembly language subroutine to find maximum and minimum values in an integer array.

**DOM #10 - Editing Character Sets.** This disk contains a fantastic Pascal program to download and modify or even create new fonts and text characters. There is also program to create a grid for your office's football pool. Stereo Spiral shows you how to use simple Basic subroutines to create three dimensional video images. For the more technically inclined, the Assembly subroutine Pixel Inverter is included. Prompt Procedure is a collection of Pascal and Assembly demos for writing to the screen. And for good measure, we've included two programs in WPL for use with Apple Writer.



**ON THREE Presents . . .**

# Disk Manager

Disk Manager

File Commands

List Directory  
Copy File  
Delete File  
Rename File  
Lock/Unlock

Device Commands

List All Devices  
Copy Volume  
Format Disk  
Rename Volume  
FileVerify Volume

⌘? = Help

Use Arrow keys to SELECT, Press RETURN to RUN. ESCAPE to EXIT.

This Desktop Manager module features the most frequently used applications of Apple's System Utilities and makes them available to you from within any program. Copy, delete, rename, lock/unlock and list all of the files on your disk without leaving the program you're using. Copy, format, rename and verify *volume* commands are available as well, so you will never again lose data because you exited a program to format a disk. Only \$44.95 plus \$3 s/h.

## Expert Advice

Upon reading the December issue of *ON THREE*, I have a few comments about questions raised in the "One, Two, /// Forum" section.

Concerning the letter from Angie Vincenti on installing Apple Writer and Apple Speller on a hard drive with Catalyst, you must have version 2.1 of Catalyst to install Apple Writer correctly. This has the correct procedure for automatically loading Apple Writer. Catalyst 2.0 will sometimes load Apple Writer correctly, but not very often.

To install Apple Speller on a hard drive with Catalyst:

1. Create a subdirectory for the speller code files within the directory CATALYST. I called mine SPELLER to keep it simple.
2. Transfer the following files from the Speller program disk to the subdirectory SPELLER:

SYSTEM LIBRARY renamed to  
SYSTEM.STAR.LIB  
SPELLERUTL.BIN  
SPELLER.AWL  
SPELLER.SETUP  
SYSTEM.STARTUP

3. Go to the Catalyst editor. Put the Apple Speller program in the menu. Your #2 interpreter path should be CATALYST/PASCAL and your #9 program path, .PROFILE/CATALYST/SPELLER/SYSTEM.STARTUP.

The Apple Speller program can now be run directly from the Catalyst menu. On my machine I used the Speller Utilities to put all the dictionaries into one large dictionary. This makes a file of 421 blocks. It's large, but you can now make one pass through one dictionary and have all the words they contain checked. By using a WPL program during the startup of Apple Writer or from the additional functions menu, you can also go directly to the Speller from Apple Writer and check your document while it resides in memory. Make sure you use the Speller Utilities to set up the Speller.

Next I'll address the question from Neil Biggs concerning Great Plains Accounting and hard disks. I must disagree with the answer given in the column. Great Plains is written specifically for hard disks. BPI requires special loaders and mappers to put it on a hard disk, but Great Plains doesn't care where it is put within certain limits.

All program code files must be put in one directory called GPCODE. The payroll code files must be in a directory called GPCODE2. When the Great Plains

system update loads the files, it also creates a directory for data files called GPDATA. By selecting CHANGE COMPANY DATA from the Administrative Menu, the data files can be put in any directory on any drive. In the COMPANY DATA file, the data file location for each module will have \*GPDATA for its location. The \* tells the system to find the files on /PROFILE. If you change this to .PRO/GPDATA/ the system will go to volume .PRO, directory GPDATA to find the data file for that module. The location for each module must be given. Therefore, the data files can be put on any drive.

In fact, the data files can be put on a floppy drive such as the A-143. This works; I've tried it. The only requirement is that all data files for a module such as General Ledger must be in one directory. I set up a 20 megabyte Corvus with all program code files and all data files on virtual drive 1, except the inventory data files, which were put on virtual drive 2.

To set up the Great Plains for multiple company operation, transfer the file GRTPLN.DATA from the root directory of .PROFILE to a floppy. Before calling Great Plains from Catalyst, insert the floppy into the built-in drive. The system will work with that company's data files. Each company's data files should be put in a separate directory. Create a different GRTPLN.DATA floppy for each company.

I currently have a Xebec 9730 on my Apple ///. Before I purchased the Xebec I was using two 5 megabyte Profiles. On one I had all my program code files: Apple Writer, Apple Speller, VisiCalc, Great Plains, Quick File, Catalyst and more. On the second Profile I kept all data files including Great Plains'. When I switched to the Xebec, I transferred the data from one Profile to the first 16 megabytes and the data from the second Profile to the second 16 megabytes. I have not had any trouble with Great Plains or any other program while running my system in this manner. In fact, Quick File data files are the only ones which must be kept on the boot drive and in the root directory. This can be overcome if you are willing to tell Quick File where you put its data files each time you invoke it.

I have been using my Xebec for about a year now and I don't think I would take any other drive in its place. The only disadvantage associated with using the Xebec is the fact that there isn't a tape backup device for it. I have the Desktop Manager installed on my /// and you would not believe how fast the modules load when I boot.

Earl T. Brelje  
So. St. Paul, MN

*Thank you for sending the response printed above. I feel much better knowing the record has been set*

## ON THREE Presents . . .

# Macro Manager

Macro Manager allows you to define a single keypress as a series of keystrokes to be played back anytime. You can also record over 2,000 keystrokes as you type and invoke them later by pressing one key. One MacroMap™ can hold 50 defined keys, called macros. With Macro Manager, you can create up to 200 different MacroMaps which are easily selected from a menu, so you need never retype repetitive text again. Let the Desktop Manager's Macro Manager do it for you. Only \$44.95 plus \$3 s/h.

Macro Manager			
Solid Apple Definitions			Keypad Definitions
[A]	[N]	[,]	[0]
[B]	[O] ON THREE	[.]	[1]
[C]	[P]	[/]	[2]
[D] Dear Subscriber,	[Q]	[;] Dear Sir/Madam	[3]
[E]	[R]	[']	[4]
[F]	[S] Sincerely,	[[]	[5]
[G]	[T]	[]]	[6]
[H]	[U]	[\\]	[7]
[I]	[V]	[-]	[8]
[J]	[W]	[=]	[9]
[K]	[X]	[`]	[.] March 1987
[L]	[Y]		[_]
[M]	[Z]		[ ]
			⌘? = Help
MacroMap: Your MacroMap			
Escape to Activate Macros and Exit. Macro Manager written by Rob Turner V1.0			



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## Desktop Publishing

I found your Apple.Sauce column, titled "The Joy of Publishing," in December 1986's issue of *ON THREE* to be very interesting.

I would like to know if you can possibly tell me more about some of the software programs you mention and where I might possibly purchase them. I am especially interested in purchasing Apple's Passport program and Aldus' PageMaker. Are these stand-alone programs?

Thank you for your time in answering this letter and for publishing such a fine magazine.

Kenneth E. Ratcliff  
Roseburg, OR

*I'm delighted to hear that you like the magazine and are interested in becoming a Desktop Publisher. The programs you'll need to produce your own publication are few but take a bit of time to master. Below are listed the programs, the names and addresses of the programs' producers and brief descriptions of each program's function.*

**Microsoft Word:** *I use this program to edit the documents which I place on the pages of my magazine. Any word processing program (MacWrite for example) will due, but I prefer this one for its ease of use and its power. This is a stand-alone program. For additional information contact:*

Microsoft Corporation  
10700 Northup Way  
Box 97200  
Bellevue, WA 98009

**PageMaker:** *This program, created by the Aldus Corporation, lets you place the word processing documents you've created with Microsoft Word into a page format. You can choose different numbers of columns, margins and carry-over articles from one page to another. You can even make corrections in your text after you've placed it on the page. This program prints the entire page on one sheet of paper, thereby eliminating your having to paste-up columns of text. Of all of the Desktop Publishing programs available today, this is the best. Aldus is also releasing in March 1987 a revised version which will automatically hyphenate words for you, automatically kern the text and much, much more.*

*PageMaker requires a Macintosh with a minimum of 512K of memory and an external disk drive or hard disk drive. The recommended configuration for version 2.0 (the version to be released in March) is a Macintosh Plus with a hard disk drive. PageMaker*

*accepts pre-formatted files from MacWrite and Microsoft Word as well as unformatted ASCII files from other word processing programs. PageMaker directly accepts graphics files from MacPaint, MacDraw and other PICT (picture formatted) applications. This program supports the Apple ImageWriter, LaserWriter and LaserWriter Plus printers; the Allied Linotype Linotronic 100 and 300 typesetters; and other PostScript-compatible output devices. For more information contact:*

Aldus Corporation  
Attn: Carolyn Bakamis  
411 First Avenue South, Suite 200  
Seattle, WA 98104

Telephone: (206) 622-5500

**Passport:** *This program, written by Karl B. Young of Apple, lets you convert ProDOS (SOS) data files to Mac files and visa versa. This has been invaluable to me. To purchase Passport, you must first join the Apple Programmers and Developers Association (APDA). Only they sell it, and to order software from them you must be a member. The annual membership fee is \$20 and the only real stipulation for joining is a mere formality: you must sign an agreement form which essentially states that you cannot market any software your purchase through APDA.*

*The cost of the Passport program is only \$10! Apparently Apple wants one of these in every home. Even if Passport is the only program you purchase from APDA, the \$30 total investment is a bargain. APDA sells dozens of programs, so I'm sure you will find a few others you want. Contact them at the following address for membership information and product listings:*

Apple Programmers and Developers Association  
290 S.W. 43rd Street  
Renton, WA 98055

Telephone: (206) 251-6548

*I would also like to recommend a book to you which I know will help. It is called "Personal Publishing with the Macintosh," written by Terry Ulick. It is published by the Hayden Book Company in Hasbrouck Heights, New Jersey. Any large computer store in your area should have copies for sale. If not, call the publisher for the name of a book store or computer dealer near you which carries it. This book will tell you everything you need to know about Desktop Publishing.*

*I hope all of this helps you and would love to see a copy of your first publication. Please write again if you need further assistance.*

## Badly Formatted Driver File

I recently purchased the Desktop Manager and have been trying to install it onto my applications disks. It works beautifully, but I am having trouble with my driver files. When I installed the .DESKTOPMANAGER driver everything worked fine, even the booting process. I then installed .CONSOLE, .MOUSE, .RAM, .GRAFIX, .AUDIO AND .UNCOPY-PROTECT, and everything again worked well except for the mouse. It did not respond to any movement when I tried to select one of the Desktop options. Then, when I returned to System Utilities to re-read the new driver file, the machine responded with "Badly Formatted Driver File." What have I done wrong? I have tried to the best of my knowledge to arrange my drivers and to make my mouse operate but have been unsuccessful.

Robert Kacer  
Downers Grove, IL

*Unfortunately, if you have the Macro Manager module, the mouse will not work with the Desktop Manager. In the latest Desktop Manager version, Rob Turner had to sacrifice the mouse in order to have macro ability. The changes necessary to re-activate the mouse are major and extremely time consuming.*

*The difficulty you're having with the "Badly Formatted Driver File" message is common in cases such as yours because you have so many drivers in your file. The problem is that version 1.1 of the System Configuration Program can only create and read driver files of up to 45K. Version 1.2 of the System Configuration Program will do the same, but up to 51K. The Desktop Manager, however, allows you to create a driver file of 60.25K, the maximum allowed by the Apple III. While you can create and use a 60K driver file with the Desktop Manager, the System Configuration Program will not recognize it.*

*Therefore, if you ever need to make any changes to your driver file, remove the Desktop Manager driver as specified in Appendix H of the Desktop Manager manual and make your changes. Since the Desktop Manager driver takes 10K, you should have no problem re-generating a new driver file under the System Configuration Program. Then once you've finished creating the new driver file, reinstall the Desktop Manager driver as specified in the manual. That's all there is to it.*

## 512K Memory Upgrade

I would like to add my endorsement to those of the other satisfied customers who have purchased ON

**ON THREE presents...**

# Crossword-Scrambler

Crossword-Scrambler is a computer program that is educational and makes learning fun. Unlike many software products, Crossword-Scrambler is a challenge and really makes you think. While it is not a "shoot 'em up" type of arcade game, you will not be disappointed by this game's graphic displays and musical interludes.

If you need a diversion from your daily computer routine, Crossword-Scrambler provides one without making you feel as if you're wasting time. Hundreds of different crossword questions provide hours of educational entertainment for you and your entire family.

Purchase Crossword-Scrambler today and start having fun with your computer.

**Only \$11.95 plus \$2 s/h**

# Products and Services Available for the Apple ///

## Current ON THREE Price List

Product	Price	S/H	Product	Price	S/H	Product	Price	S/H
<b>Software</b>			<b>Hardware</b>			<b>Other Services and Products</b>		
Disk Of the Month	\$14.95	\$2.00	ON THREE O'Clock	\$49.95	\$3.00	512K or 256K Upgrade installation	\$50.00	
Two or more DOM's	\$12.50 ea	\$4.00	Game Card /// +	\$39.95	\$2.00	(by appointment only)		
/// E-Z Pieces	\$135.00	\$3.50	Apple //e Mouse and Interface card			12-issue ON THREE subscription	\$40.00	
Apple Fortran /// (requires Pascal)	\$99.00	\$5.00	(Use with Draw ON and Desktop Manager)	\$160.00	\$5.00	ON THREE back issues	\$5.00 ea.	
Selector /// program switching utility	\$99.00	\$7.00	Apple /// UniDisk ///.5 (800K 3 1/2" disk drive w/ interface, driver & documentation)	\$499.00	\$10.00	ON THREE magazine binder	\$14.95	\$3.00
Lazarus /// file recovery utility	\$49.95	\$3.00	MicroSci A3 140K Disk Drive +	\$225.00	\$6.50	Dust Cover for Apple /// and Monitor ///	\$11.95	\$2.00
Unprotect Driver	\$19.95	\$2.00	MicroSci A143 560K Disk Drive +	\$325.00	\$6.50	Dust Cover as above plus ProFile	\$12.95	\$2.00
Desktop Manager	\$129.00	\$6.00	Reconditioned 512K Apple /// w/monitor ///	\$1048.00	\$50.00	I ♥ My Apple /// T-Shirts		
Desktop Manager/ON THREE O'clock combination	\$165.95	\$8.00	256K Apple /// w/monitor	\$749.00	\$50.00	sm, med, lg, x-lg		
Disk Manager* (utilities)	\$44.95	\$3.00	512K Memory Upgrade, 256 to 512K (Remit \$324 and \$25 cash or \$35 credit is rebated when old board is returned.)	\$324.00	\$10.00	yellow, blue, white, beige	\$11.95	\$3.00
Grafix Manager**	\$49.95	\$3.00	256K Memory Upgrade, 128 to 256K, no rebate	\$150.00	\$10.00	I ♥ My Apple /// Sweat Shirts		
Macro Manager*	\$44.95	\$3.00				sm, med, lg, x-lg		
ASCII Conversion Table*	\$9.95	\$3.00				yellow, blue, white, silver	\$18.95	\$3.00
Draw ON ///	\$179.00	\$5.00				I ♥ My Apple /// Caps	\$5.95	\$2.00
Draw ON /// Graphics Tablet Version	\$229.00	\$5.00				*Background module for Desktop Manager		
Fruit Machine (slot machine game)	\$19.95	\$2.00				**Runs as standalone or Desktop Manager module		
Card Machine (blackjack game)	\$24.95	\$2.00				+Quantity Limited		
Fruit Machine/Card Machine combination	\$39.95	\$3.00						
Sandman** (arcade game)	\$29.95	\$2.00						
Crossword Scrambler	\$11.95	\$2.00						
UniDisk ///.5 disk and documentation only	\$60.00	\$3.00						
Sider 10, 20 mb								
Driver and documentation only	\$159.00	\$3.00						

To order, call toll-free (800) 443-8877 or in California (800) 331-1418. Send check or money order to:

ON THREE, Inc., Order Dept.  
Post Office Box 3825  
Ventura, CA 93006

Visa, Mastercard, American Express accepted. 3% Surcharge on American Express orders.

Items returned without prior authorization subject to 15% restocking charge.

California Residents add 6% sales tax.

All prices are subject to change without notice.

**THREE's 512K Memory Upgrade.** As has already been noted, its RAM disk capability is a great time-saver when compiling Pascal programs.

An additional benefit which I have not seen addressed yet is the use of the RAM disk as a recording device when using ACCESS ///. I have found that most bulletin boards have a 1200 bps capability, however, the Disk /// (or Disk II) will not support any higher than 300 bps without the remote computer using the XON/XOFF protocol. I solved that problem by adding the RAM disk to my driver file and then redefining my recording file to my RAM disk. The recorded data can later be transferred to the printer or disk, as desired.

I appreciate your efforts in keeping the Apple /// community informed and look forward to future issues of *ON THREE*.

Bob Drowley  
Honolulu, HI

*Thank you for that helpful hint. If anyone else knows of any short cuts or little-known facts about Apple /// hardware or software, please write and I will share them with other ON THREE readers.*

### Help!

Please excuse my ignorance, but I have a question concerning articles published in your magazine which contain programs for the reader to use. When such programs are supplied in an article, how does a novice reader know which software must be utilized in order to enter and save the program?

I have tried using several programs over the past two years and I have never been able to attain success.

Thanks for your advice.

Sheldon R. Franklin  
Brick Town, NJ

*Don't feel that you're alone! I have received at least a dozen letters similar to yours and help for all of you is on the way. Richard and Lavona Rann, authors of this magazine's The Beginning /// series, have agreed to write articles describing exactly how to do what you ask. The articles will cover entering programs from the magazine which are written in BASIC, Pascal and Assembly and the Ranns will be writing them especially for the beginner, so don't throw away any of your old issues. You will soon be entering and using the programs listed in them.*





**ON THREE Presents...**

## **ON THREE O'Clock**

***Now is the Time  
for a real-time clock***

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

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

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

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

### **Special Combination Offer**

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

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



**\$49.95**  
plus \$3.00  
shipping and  
handling

**Desktop Manager/ON THREE O'Clock Combo**

**\$165.95** plus \$8.00 shipping and handling

BULK RATE  
U.S. POSTAGE  
**PAID**  
Permit No. 90  
Ventura, CA

**ON THREE Presents...**

# The Desktop Manager™

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

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

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

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

**HELP MENU**

General Commands:

<div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;"> <p style="text-align: center;">Note Pad</p> <p>Alabama.....</p> <p>Alaska.....</p> <p>Arizona.....</p> <p>Arkansas.....</p> <p>California.....</p> <p>Colorado.....</p> <p>Connecticut.....</p> <p>Delaware.....</p> </div>	<p>⌘A =&gt;Add Another Note</p> <p>⌘B =&gt;Backs Up to Previous Note</p> <p>⌘N =&gt;Moves to the Next Note</p> <p>⌘S =&gt;Shows Note Selection Menu (Help Provided in Menu)</p> <p>⌘R =&gt;Allow Renaming Active Note</p> <p>⌘F =&gt;Find Text Within Note</p> <p>⌘M =&gt;Moves the Note Pad Window (Pressing Escape Will Restore Window Contents)</p> <p style="text-align: center;">ESCAPE TO EXIT.</p>
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Appointment Calendar

17 Mar 87 6:13:01 PM

You have 2 appointments scheduled for today.

8:00 AM 9:04 PM

SUN MON TUE WED THU FRI SAT						
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
MARCH 1987						

Open Apple ? Key For Help.

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

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

Calculator

0

[Hlp] [Prt] [Tap] [CE] [CLR]  
 [Sin] [Cos] [Tan] [P1] [e]  
 [Log] [Ln] [x^y] [Sqt] [Bin]  
 [D] [E] [F] [Deg] [Dec]  
 [A] [B] [C] [Rad] [Hex]  
 [7] [8] [9] [ / ] [M+]  
 [4] [5] [6] [ \* ] [M-]  
 [1] [2] [3] [ - ] [RM]  
 [0] [+/-] [ . ] [ + ] [ = ]

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