AUGUST - HIGHLIGHTS - 1986

More Sophisticated Writing

Macintosh Hints

ANNUAL GENERAL MEETING
Monday August 18th. 6.30 p.m.
Prizes and surprises

THE PUBLICATION OF THE
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AUSTRALIA

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similar problem with early versions of MacWrite. The similarities continue.

The reason I ran out of memory was that I decided to put the article into column format and this effectively doubled the amount of pages that were used. Consequently the problem didn’t arise until too late. You can safely type 8 full pages and still have room to manipulate text. This shows why the program has a print merge capability. Some problems are to be expected but it still doesn’t dampen my enthusiasm for the program as a whole. For the price it is a very good package that gives the best printed output I have seen of any word processor currently available for the Apple // series of computers. Maybe it’s not for the professional but with the advances being made in Apple // software then its only a matter of time before a more advanced version is available which takes advantage of memory expansion boards.

Apple UniDisk

Comments by Philip Marston

Recently, a need has become apparent among AppleWorks Users, for greater storage space for their AppleWorks files. Such space is available by using the newer, smaller 3.5 inch disk.

A normal SSD 5.25 inch floppy disk provides 136Kb storage. A DSD 3.5 inch disk, when formatted under AppleWorks, has 798Kb of storage space for your AppleWorks files. That’s nearly six times greater than the space of a full 5.25 inch floppy disk.

Program and data on the same disk

The AppleWorks program resides in 171Kb of the disk space. This exceeds the capacity of a normal Apple disk, and therefore usually resides on two disks – or BOTH sides of a 5.25 inch floppy disk.

Alternatively, a 3.5 inch disk containing the AppleWorks program leaves 625Kb available for data storage. Therefore the entire AppleWorks program can reside within a small expansion card. This small piece of the 3.5 inch disk and leave available a massive 625Kb of free storage space. This is equivalent to the space available on more than four ordinary floppy disks.

It is therefore possible to engage in a full AppleWorks session with ONE 3.5 inch disk – ONE 3.5 uninord and NO disk swapping.

Multiple Programs on one disk

The AppleWorks program occupies 171Kb of disk space. The DSD 3.5 inch provides 796Kb of disk space.

If all ProDOS programs were as big as AppleWorks, and we knew they are not, it would be possible to include at the very least, five entire programs on the one 3.5 inch UniDisk. This suggests the possibility of storing all your related programs, e.g. graphics programs on the one disk. AppleWorks, ReportWorks and Pinpoint represent a group of related programs which could reside together on the same disk, and still leave storage space for data files. Many other examples within your own applications probably come to mind.

Control of different programs on one disk

How do you control more than one program on one disk? Naturally you would like to switch from one program to another, and back again! It would also be desirable for which program was to startup on booting the disk. How do we keep track of a single data file when it is stored with so many others?

These questions suggest some sort of program management, and whether you are interested in managing the files on a hard disk or the 3.5 inch disk, one of the three following suggestions may provide the solution.

1. Menu

A small menu can be written to display a list of choices on the screen when the disk is loaded. Each of the choices could represent one of the programs resident on the disk, and upon entering the appropriate response, the program of your choice could then be accessed.

To write such a program, however, requires a knowledge of ProDOS and ProDOS pathnames, particularly if smooth changes from one program another are to be achieved.

2. Mousedesk

A product of International Solutions, the Mousedesk is a disk and file management program with Macintosh appearance. Pull-down menus, icons, and double-clicks allow you to copy, delete, identify and run programs. used in conjunction with the Apple (1 Mbyte) ProDOS, Mousedesk will automatically load your programs into the extra RAM for faster than Hard disk operation. The Mousedesk program has been packaged free with the 3.5 UniDisk as a promotion by many distributors, but of course you have to supply your own mouse. It is possible to use MouseDesk with the keyboard using the arrow keys and the Apple keys, but this method bears no comparison with the smooth operation of the mouse for which the program was designed.

3. Catalyst

If you do not have a mouse connected to your Apple computer, then Catalyst II is what you need to manage your mass storage disk.

Quark Incorporated, the producers of Catalyst, offer as their solution a 5.25 inch startup disk, which will identify the 3.5 inch disk loaded, and represent an on-screen menu of programs that can be run from that disk, at the selection of a number. Using the program, it is possible to customise the appearance of the disk to suit your tastes. Catalyst II can achieve equally successful results when applied to hard disk management, the only requirement is that the disk being addressed must be set up using the Catalyst Installation program.

The concept of a separate Startup disk offers several advantages. Your hard disk or 3.5 inch disk, they cannot be accessed by anyone who does not have your startup disk with its own unique serial number.
UniDisk 3.5
High-Density Data Storage for Your Apple II

The UniDisk 3.5-inch floppy-disk subsystem opens up a new world of information storage for your Apple II personal computer. Each compact, rugged 3.5-inch disk provides 800 kilobytes of data-storage capability—more than five times that of conventional Apple II floppy disks. And UniDisk 3.5 lets you access your files faster than ever before.

You can easily use UniDisk 3.5 in conjunction with your current Apple II drives, giving you the flexibility of running programs from (and storing your data on) either the 3.5-inch or 5.25-inch format, whichever best suits your needs.

No matter where you use your Apple II—in the office, at school, at home, or in the laboratory—UniDisk 3.5 is your best value for power and flexibility in information handling.

Benefits

- Gives your Apple system more than five times the storage capability of 5.25-inch disks.
- Loads and saves data at speeds up to 50 percent faster than the standard Apple II drive.
- Is compatible with the entire Apple II family of computers, from the original Apple II and Apple II Plus to the Apple IIe and IIc.
- Lets you combine 5.25-inch and 3.5-inch drives in the same system for maximum information-handsizing flexibility.
- Uses rugged, compact, 3.5-inch plastic-encased disks.
- Lets you add additional drives easily.
- Takes up a minimal amount of desk space.

UniDisk 3.5—A Closer Look

UniDisk 3.5 uses the latest personal computer disk technology: plastic-encased floppy disks that are small enough to fit in a pocket—and rugged enough to survive there. Each double-sided disk has a storage capability of 800 kilobytes, minimizing the need for disk swapping. For instance, many programs that require separate 5.25-inch program and startup disks can be transferred to a single 3.5-inch disk for easier backup. And each 3.5-inch disk holds about 800 pages of information, so even lengthy documents can be stored in one convenient location.

UniDisk 3.5 also lets you access your information faster—up to 50 percent faster than a standard Apple II drive—so you spend less time waiting for files to load and save.

You can use UniDisk 3.5 subsystems in conjunction with your present Apple II drives, giving you all the benefits of 3.5-inch disk technology without obsoleting your existing hardware and software. The computer can boot from either type of drive. UniDisk 3.5 connects easily into the back of your Apple IIc, or into an interface card for the Apple II, II Plus, or III. An additional drive can be plugged right into the first one. (On the Apple IIc, you can extend the chain with a Disk IIc instead.)

These additional disk drives give you even more information-handling power, and further reduce disk swapping.

To use UniDisk 3.5, you will need one of the following systems:

- An Apple IIc personal computer
- An Apple II, II Plus, or IIc personal computer with the UniDisk 3.5 Apple IIc Accessory Kit.

To use UniDisk 3.5 with an Apple II, II Plus, or IIc personal computer, you must also obtain UniDisk 3.5 Apple IIc Accessory Kit Order No. A202002

The kit contains:

- UniDisk 3.5 interface card
- Installation wrench and bolts

Popped Off the Stack

July 1986

Multilingual Word Processor for Apple IIc

A word-processing system for the Apple IIc that supports two Arabic fonts plus English, French, and German fonts, has been created by two English companies. They are DIWAN Science and Information Technology and Altair Computers Limited.

The system comes with a bilingual notepad program, an address program and ImageWriter bilingual drive routines.

It uses the IIc's bit-mapped display to show Arabic and English text in 40 or 80 columns using two separate windows, each of which has independent scrolling.

For more information, contact:

DIWAN Science and Information Technology
London House
271 King Street
London W11 3LZ
England
(01)741-8011

PMP

PMP does work under Pascal 1.3, what you have to do is replace the following files with the 1.3 equivalent:

SYSTEM,APPLE, SYSTEM.PASCAL & SYSTEM.ATTACH.
Using the 1.3 SYSTEM, LIBRARY is a good idea since CHAINSTUFF.L12 doesn't work with Pascal 1.3.

The only problem with PMP and 1.3 is not being able to use the Extended files, although its functions can be duplicated by using the Filter for normal stuff and then Executing PMP. CODE for the extra functions.

ProFile: Formatting Compatibility

ProFiles can be formatted for two main types of operating systems:

1. the Lisa Operating System
2. ProDOS (Apple III), and SOS (Apple III).

ProFiles are formatted at the factory with the Apple III/ ProDOS format and contain the Apple III/ System Utilities program. This format is completely compatible with the Apple III/ ProDOS format, and so can be used on either the Apple III or Apple II; additionally, these ProFiles can be used without difficulty on the Macintosh XL (running Lisa or Macintosh software). Once a ProFile has been formatted by Lisa software, it may not be able to work any longer on an Apple II or III.

ProFiles don't need any special software to function with these systems other than the respective system formatters which accompany each system's operating system utilities, regardless of what system it was used on previously.

NOTES:

1. The Pascal ProFile Manager will not format a ProFile; the ProFile must already be formatted with ProDOS.
2. If you're unable to initialize a ProFile for use with an Apple II or Apple III after it's been used with a Macintosh XL, replace the HDA. The HDA will have to be reformatted at the factory.

3287 Emulation

ImageWriters make good replacements for the IBM 3287 dot matrix printers that are commonly used with the IBM 3270 family of terminal devices. As you may know, DCA currently replace IBM 3278 terminals with an AppleLine-Mac-Master terminal combination. You can replace the IBM 3287 printers as well. The solution is simple and cost effective.

Here is the solution:

IRMAprint (from DCA) $181.296.00, ImageWriter II Printer (from Apple) $114.00 (in tax) and an Apple II Printer 8 cable $30.00
IBM 3278 4/ Coax cable → IRMAprint → Printer 8 cable → ImageWriter

This solution proves to be a good value because it saves the customer $300+ per printer and provides better print quality and speed than the IBM 3287 or clones such as Telex. A typical 3287 printer costs between $251.5 to $US7,993 depending on features, and a Telex clone configured with like features runs about $5,000.

DCA is a registered trademark of Digital Communications Association, Inc.

LASERWRITER color cartridges

Toner Distributors in Carlisle Ca. (019) 591-9968 will refill toner cartridges with Black, Blue, or Brown toner. A call will get all the pertinent info from an answering machine.
The PRINT SHOP Companion

Reviewed by Trevor Drover

If you have an Apple computer and a printer then there is a strong possibility that you use the "PRINT SHOP". This great programme has been made even better with the release of the PRINT SHOP COMPANION.

Bruderndt consistently produce high quality software and this is no exception. When I first played with the Companion on the Apple stand at PC86, I was immediately sold on the 12 extra fonts and 50 extra borders that I could use with Print Shop. After using the Companion for a few weeks, I was even more impressed with the utilities that the disk contains. These are:
- Graphic Editor+
- Border Editor+
- Font Editor+
- Tile Magic+
- Creature Maker+
- Calender

When you first arrive home with your Companion, you need to set up the original Print Shop disk so that it can look for borders and fonts from OTHER DISK. This is accomplished by the Companion writing to the Print Shop disk. As the Companion has no printer drivers of its own, it gets this information from Print Shop and stores it on disk. Is this what is meant by a mutual assistance programme?

The Graphic Editor+ is a very much enhanced version of the utilty of the same name that comes on Print Shop. Building or modifying graphics is now a pleasure rather than a challenge. Lines, boxes, rays and ovals can be simply drawn using keyboard commands, then areas can be flood-filled with a choice of 17 patterns. Made a mistake? Press U to undo it and try again! It's so simple.

Including alphanumerics on your graphics is also a dream, press T and type them in. With all the enhancements this programme provides, it seems rather unfortunate that there is only one size font to use in the Graphics Editor. I guess 'we've been spilt a bit.

The other commands allow you to insert and delete rows or columns; flip your graphic vertically or horizontally; make a negative; draw a mirror image as you make a freehand drawing; and scroll the graphic around its tile. There's even a graphic 'grabber' that lets you take a bit of a picture from screen memory.

When we had a choice of 9 borders you came to your decision fairly quickly; now we have 59 so a lot of Umming and Ahving goes on...Throw in a Border Editor that lets you easily modify an existing border or build one for a specific job, and time seems immaterial.

Borders are constructed on three tiles, to allow for corners, sides, top and bottom. While you build the segments on the tiles, a representation of the final article is displayed around the screen. This assists you in deciding if any portions need to be flipped about to make a harmonious fill. When it is finished you save the border to a data disk for recall at a later date.

We've built our graphic, modified a border, now what's left to change? Why not a Font of course. Fancy a bit of comic relief, put eyes in the letter 'O' for use in the word LOOK; or create monograms by modifying those initials of your name, and using on a letterhead. Maybe you think Lower Case 'a' and 'g' should be changed to reflect the way we teach children to write in our schools - then change them!

To change a few letters from an existing font, or build a new font up for the Greek alphabet requires use of the Font Editor. This can be a long process as there are not many short-cuts, and there are after all, 57 letters, numerals and symbols to work on. As with all three editors, progress is made by turning 'on' or 'off' each small block until you have created the desired effect, which can then be saved for future use.

Tile Magic and Creature Maker allow you to create original graphics by using The Companion's in-built features, and then modifying them even further by carrying them into the Graphic Editor+

Tile Magic gives you 11 moving patterns like the kaleidoscopes in Print Shop's ScreenMagic mode. You watch the patterns change until you see a design you like, then freeze it, and presto! - another graphic for your data disk.

Creature Maker is another fast way of creating graphics. There are 10 creatures, from which you select the head, body, and legs. Have a normal monkey, or give it some 'lucky' rabbits feet! There are hundreds of possibilities.

With Calender you select the month and year and then as expected, The Companion does the figuring and comes up with the correct days and dates. You can choose the font for the month and year and also choose a graphic for the top if you so desire. There are two ways of printing calenders; by the month and by the week, that is, seven days. Ok you've seen similar before; I had just typed a programme into my machine and was putting some polish on it when I purchased The Companion. Now my programme is gathering dust or electronics or whatever unused disks tend to gather.

Calender gives you the facility to enter notes for any day (eg birthdays, holidays, meetings) save it to disk, then you can drag it back next year, edit where necessary then print it out again. And oh boy, the printout is really good.
Stardisk

A Stardisk CP/M Information disk. Almost all you ever wanted to know about the Stardisk.

How Stardisk and Apple talk to each other. A full description with lots of programming examples you can build on.

Many new drivers: Use the Epson APL (printer) card; use the SATURN 128K RAM card as a RAM disk; use Apple memory as RAMdisk instead of printer buffer.

This disk (one side Stardisk CP/M, the other DOS 3.3) is $8.00 (plus postage if necessary). Ring me, Fernd Brand, at 427-2355.

P.S. The DOS 3.3/ProDOS disk and DOS/Pascal disk described in Jan/Feb 1986 Applications Page 17 are still available – free.

Good Profits

During 1985 IBM still topped the sales list, but little Apple was the second-largest seller of business oriented computers with sales of US$1.2 million.

SuperCalc 3 for enhanced Apple //c, //e

By Computer Associates International, and distributed by Arcom Pacific, the product has all the features and functions of the IBM. It provides a spreadsheet with integrated graphics and data management. Providing 50 functions, file conversion, send/receive utilities, ProDOS filepath support and full use of the 65C02 processor.

Hardware: 128K RAM, and one disk drive.
Information: Arcom Pacific, 252 Abbotsford Rd., Mayne, QLD 4006

MULTISCRIBE

By Mike Nagle.

Now your //c and //e can offer you the type of creativity that you might have thought was available only with a Macintosh with the release of a word processor program called Multiscribe.

With Multiscribe there are no complicated commands to learn. It has easy to pull down menus providing you with a range of type styles, character sizes and text formatting options. You can select the typeface that's right for your text or even create your own custom font with the font editor. Multiscribe offers you any style, from Bold and Underline, to Italic, Shadow and Outline, making it very much like MacWrite.

Multiscribe requires 128K RAM to run, can be used with a mouse or keyboard and is also available on a 3.5 disk for use with the Apple Unidisk. It works with most dot-matrix printers, including ImageWriter, Epson and Okidata and you can even customise files created by other word processors.
What sets Multiscribe apart from other word processors is that, once you have selected the font, style and size you see on the screen how actual the file will be printed so as it makes formatting that much easier. The only setting it will not show is when you select the text centering format.

The formatting is all done on a ruler that appears on the screen and you select tabs, spacing and text justifying from the boxes on the ruler. This format remains in force until you insert a new ruler. You can search for any word, or any part of a word, in a document and, if you want to, replace it with a different word. You can also delete, copy, move and replace text quickly and easily with a mouse or the keyboard.

The manual that comes with Multiscribe is very comprehensive, but it is also quite long and detailed. It is often more detailed than is necessary to do a particular task. However, it does provide a detailed reference manual for the program.

There are other word processors on the market that are more powerful than Multiscribe, but it offers many features for designing creative text that would make it a worthy acquisition to your software library.

The one thing I found a bit off-putting about the program is that there is a delay from when you enter a keystroke and it appearing on the screen. This took me a while to adjust to.

**SUMMARY:**
On scale of ten I would rate it a seven for performance and ease of use.

**Aug BulkPurchase Price $10.00**

--- **MACROWORKS** --- By Beagle Bros ---

Review By Mike Nagle.

Beagle Bros have just released a package called Macroworks. It is an Appleworks enhancement disk containing many macros which can be automatically built into your Appleworks program.

As with all Beagle Bros products it has many things going for it, but one disadvantage is that you cannot use Macroworks and the Pinpoint desktop accessories together. The manual recommends that you have one Appleworks disk for each system.

What Macroworks allows you to do within Appleworks is extensive and it streamlines Appleworks word processing with added commands that replace many of the Appleworks edit commands that take longer in their execution.

To use Macroworks within Appleworks, you update your Appleworks start-up disk with Macroworks, (remember - do not use your start-up disk containing Pinpoint) and you are ready to use many of the built-in macros that are installed.

For those of you who do not know what a macro is here is a brief explanation.

Macros are instructions that are written into your program that enable you to take short cuts when you want your word processor to carry out a function which normally requires a string of instructions to be entered for the task to be carried out. Also - every time you want the same function you have to repeat the procedure, whereas with built-in macros you have only to perform one keystroke for the function to be executed.

There are too many of these macros to list in this column but here are a few of them that will enable you to judge its usefulness for yourself.

Once in a word processor document, you can activate the following macros by these keystrokes:

- **Solid-Apple-RETURN:** forces a Page Break
- **Solid-Apple-Tab:** Go to right margin
- **Solid-Apple-Space:** Inserts a space
- **Solid-Apple-D:** Deletes word at cursor
- **Solid-Apple-S:** Saves and removes the current file from the desktop.
- **Solid-Apple-C:** Centers the text
- **Solid-Apple-P:** Prints the current file using the current printer
- **Solid-Apple-U:** Undoes last delete

There are many more that make editing and printing Appleworks documents much faster than the normal Appleworks commands, and by so doing reduces the time in producing the final product.

Macroworks does not end there as you can design your own macros that suit your personal requirements.

One example of such a macro is by writing one using the Solid-Apple-N you can have your name an address printed automatically anytime without having to type in that information. The manual that comes with the package gives you hints on writing your own personal macros that enable you to reduce the number of keystrokes dramatically.

And that's not all - as there are several more utilities that can be used such as, Analyst, Alpha-cat and Galley. Here is a short outline of how they work:

--- **VERILIST - FILE LISTER** ---

By R. Bennett

If you have Pronto-DOS or DAVID DOS, you will be familiar with the TYPE or LIST commands. Weil these commands are great if you want to list text files, but what if you want to list an Applesoft file. If you have ten different versions of a program on a disk, you don't want to have to load each one in to find which one you are looking for, especially if they're all very long. Or what if you are copying a routine from one program into another, you don't want to have to keep saving the new program and rebadging the old one just to copy the routine, what you need is a TYPE command that will list Applesoft files without altering any memory.

My first idea was to intercept a DOS command from the keyboard, open the file, and use the RTF's LIST routine to list the file to the screen. So first, I needed a DOS command. The VERIFY command is perfect, because a VERIFY is done automatically after "EVE" or BS A anyway.

The next step was to open the file, which was fairly simple. A routine at $4305 will open the file and test that it is of the filetype passed in the Accumulator. (Line 67)

Now the hard part, trying to list the file. The only way I figured I could do this was to write my own list routine and put it with the VERILIST program in memory, which I did. (Actually, I disassembled the RBT and copied most of it.)

Except for a few minor additions, the program was finished. I added a way to get out of the program halfway through a list, just type CTRL-C. The attached source listing was written on the Merlin Assembler, which allows two files to be written, assembled, and saved together if their ORG addresses are different. (i.e. Line 66 is really in memory at $6057, but gets relocated by the program to $9C49)

If you are using another assembler, like the Toolkit Assembler, then you will have to type it in as two files. One from $6000-$6056 and the other from $9C49-$9CFF, BLOAD them into memory one after the other at $6000 and BS A them as one file.

Or if you don't have an assembler, type all the code in from $6000 and BS A it as one file.(BSAVE VERILIST.A,6000,L270)
JANUARY/FEBRUARY 1987

HIGHLIGHTS

NEW MEETING LOCATION - Map On Page 5

Apple //GS Upgrades
Rebuild a DOS 3.3 Catalog

SuperPaint-Review
Microsoft WORKS-Review

THE PUBLICATION OF THE
APPLE USERS GROUP (SYDNEY)

(incorporated in N.S.W.)
Apple IIgs Upgrade Preliminary Data Sheet

You may also wish to add some of the exciting new Apple accessories for which the upgrade is not required. For instance, there's the Apple Monochrome Monitor, for crisps white-on-black text and graphics, and the Apple II SCSI Card, which allows you to access the 20 megabyte Apple Hard Disk 20SC and up to three other SCSI-compatible peripherals.

The Apple IIgs Upgrade is a simple, dealer installed option that involves replacing the logic board and metal base pan of your Apple IIe. The new logic board contains the 65C616 microprocessor, RAM, ROM, Enoqin sound chip, expansion slots, and connectors; the base pan holds the logic board securely in place inside the Apple IIe case.

System Requirements
To use the Apple IIgs Upgrade Kit, you must have an Apple IIe personal computer. This upgrade is not compatible with other computers in the Apple II family.

Technical Specifications
Consult the Apple IIgs data sheet.

Apple IIgs Upgrade
Order No: A256001
With your order, you'll receive:
• Apple IIgs Logic board
• Apple IIgs/IIc base pan
• Apple IIgs identification plaque
• Apple IIgs Upgrade Owner's guide

You may also wish to purchase the following accessories, which are scheduled for availability in January 1987:
- Apple Desktop Bus Mouse
- Apple IIgs System Disk
Order No. A256007

The Apple IIgs Upgrade must be installed by an authorized Apple Dealer.

Apple IIgs Upgrade Feature Article

FORMATTING PROFILES

FORMATTING Compatibility
ProFiles can be formatted for two main types of operating systems:
1. the Lisa Operating System for the Lisa, and
2. the Operating System, namely:
   a) ProDOS for the Apple II, and
   b) SOS for the Apple IIe.

ProFiles are formatted at the factory with the Apple II SI05 format and contain the Apple III System Utilities program. This format is completely compatible with the Apple II ProDOS format, and so can be used on either the Apple II or Apple IIe. Additionally, these ProFiles can be used without difficulty on the Macintosh XL (running Lisa or Macintosh software). Once a ProFile has been formatted by Lisa software, it may not be able to work any longer with an Apple II or Apple IIe.

ProFiles don't need any special software to function with these systems other than the respective system formatters which accompany each systems operating systems utilities, regardless of what system it was used on previously.

NOTES:
1. FFM will not format a ProFile; the ProFile must already be formatted with ProDOS.

2. If you're unable to initialize a ProFile for use with an Apple II or Apple II e after it's been used with a Macintosh XL, replace the HDA.

The HDA will have to be formatted at the factory.

Popped Off the Stack

Reprinted by courtesy of Apple Computer Australia
How To Rebuild a Broken DOS 3.3 CATALOG Track.

By Keith Jeeves.

When a disk drive fault occurs during a SAVE operation, the result is often corruption of track $11 - the catalog track. The most common drive problems are caused by a build up of dirt on the fingers of the drive interface card resulting in poor electrical contact with the socket on the motherboard and causing corrupt data signals or intermittent drive power. Further problems can be caused by overheating inside the machine, especially on the I/O. Often no warning of an impending problem is given and the result is a blown disk. There are two approaches to recovering the situation:

1) Backup everything and if a disk is smashed simply re-initialise and copy over. This is easier said then done, of course, but a useful technique is to use the floppy side of a single sided disk for backup. This gets over a number of problems; it is convenient, saves an disk and backets, the file will only get occasional use (the perfectly valid) arguments against 'filiples' are not too important. Of course, if you physically damage the disk, you can lose the lot.

2) Rebuild the catalog track. This is actually extremely easy and all you really need is a ZAP utility or Nibble Editor. If your utility has facilities to copy a whole track, then the job is even easier. The procedure is summarised as follows:

1. Initialise a blank disk.

2. Set up dummy files on the new disk called A,B,C etc. You will require the same number of files as there are files to recover...if in doubt create more than you will need. The files can be any type but if all your smashed files are TEXT files, then the dummy files should all be TEXT files and the same for BASIC and BINARY files.

3. Copy track $11 from the new disk to the smashed disk.

4. Find and note the location of all the Track/Sector lists on the smashed disk. You can either search manually by sector or use a test $11/sector utility (see later).

5. Insert the T/S list addresses into the dummy files set up in the new catalog track.

6. Inspect the first sector of each file to attempt to determine the file type and insert into the dummy files set up the new catalog track.

7. Boot DOS and load each file. Identify, rename and save to a new disk. When the file disk is spun up, some of the T/S list may be missing the previously deleted files so take time to properly identify wanted files.

8. Re-initialise the smashed disk.

Briefly:

A disk file consists of as many as 256 byte sectors as are required to hold the file. These sectors can be pretty much anywhere on the disk and their location is sorted out by DOS during the SAVE process.

DOS keeps a sequential list of where it stores the data sectors and when all sectors have been saved, it puts the list, known as the Track/Sector list, onto the disk in the form of an additional sector and records its Track/sector address in the catalog entry for that file, along with the file name. File type and number. The file may be too short to store one for storage...one for the file data and one for the T/S list which in this case will only contain one sector address).

The format of a T/S list is as follows;

IRTUAL ADDRESS OF T/S LIST FINDER, AS900H, 1408H
Now go through the catalog starting at track $11/sector$F and allocate a T/S list address to each of the dummy file entries. Each sector of the catalog track will hold seven file entries and is arranged as follows:

| BYTE 00 | Not used |
| BYTE 01 | Track number of next T/S list (zero if no other list needed) |
| BYTE 02 | Sector number of next T/S list (zero if there is no other list) |
| BYTE 03-04 | Not used |
| BYTE 05-06 | Sector number in data file of first sector in this list |
| BYTE 07-08 | Untouched |
| BYTE 0C | Track of first data sector |
| BYTE 0D | Sector of first data sector |
| BYTE 0E-FF | Up to 12 more T/S pairs |

To find all the T/S lists on the disk, you can either search sector by sector for entries following the above format or use a short utility to perform the search and report any successful finds. A simple binary routine to do the job is given in the book 'Beneath Apple DOS' and a dump of this routine follows. To use it, BLOAD T/S LIST FINDER insert the disk to be investigated and run the file with 900S. A list will be produced of all sectors found following the T/S list format.

When all the T/S lists have been found and recorded, dump the first sector of each file to attempt to determine the file type. Text files will be recognisable text, Basic files should be able to be identified by text strings within the code,...if in doubt, have a guess. Note the file type next to the T/S address. The catalog entry also contains the number of sectors in the file, but this is for display only and need not be correct at this stage. The correct number will be generated when the recovered file is save to another disk.

The important addresses in a catalog sector for our purposes are:

| BYTE | File 1/ T/S list | T/S list sector |
| BYTE | File type | T/S list sector |
| BYTE | File 2/ T/S list | T/S list sector |
| BYTE | T/S list, sector | T/S list sector |
| BYTE | File type | File type |
| BYTE | File 3/ T/S list | T/S list sector |
| BYTE | T/S list sector | T/S list sector |
| BYTE | T/S list sector | T/S list sector |
| BYTE | File type | T/S list sector |
| BYTE | File 4/ T/S list | T/S list sector |
| BYTE | T/S list sector | T/S list sector |
| BYTE | T/S list sector | T/S list sector |
| BYTE | File type | T/S list sector |
| BYTE | File 5/ T/S list | T/S list sector |
| BYTE | T/S list sector | T/S list sector |
| BYTE | T/S list sector | T/S list sector |
| BYTE | File type | File type |
| BYTE | File 6/ T/S list | T/S list sector |
| BYTE | T/S list sector | T/S list sector |
| BYTE | T/S list sector | T/S list sector |
| BYTE | T/S list sector | T/S list sector |
| BYTE | File type | File type |
| BYTE | File 7/ T/S list | T/S list sector |
| BYTE | T/S list sector | T/S list sector |
| BYTE | T/S list sector | T/S list sector |
| BYTE | T/S list sector | T/S list sector |

It should now be possible to boot DOS, load and identify the files, ensure that they are complete and delete any unwanted material. Wanted files should now be renamed and copied to a new disk. This is the most important, because the thing that we did not do was rebuild the Volume Table of Contents (VTOC) which is the master map of the disk giving DOS information about which sectors are allocated and which are free to store new data. If we attempt to store new files on a disk with an incorrect VTOC, we run the risk of overwriting existing sectors. Saving the recovered files to a completely new disk will allow DOS to build the VTOC as it goes. It will also ensure that the correct value for the number of sectors is written into the new catalog track. Needless to say, do not use a fast back-up disk utility to do this as it will only duplicate the partially reconstructed disk and not build a new one.

The very last thing to do is to re-initialise the old disk (and back up the recovered files!).

From AU6Disk*P1

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Continued on page 13
### Apple IIgs: Printing to the LaserWriter from AppleWorks:

(Downloaded from "AppleLink" courtesy of Apple Australis and Peter Sandy.)

The following instructions are valid for AppleWorks versions 1.3 and 2.0; earlier versions of AppleWorks have not been tested with these modifications. These changes support both the LaserWriter and the LaserWriter Plus.

You first create an AppleWorks program disk with all the files required to print AppleWorks documents to the LaserWriter and then run the disk by printing a document.

Then you can create a bootable disk that effectively reduces the number of manual steps needed to prepare the system for printing your AppleWorks documents to the LaserWriter.

#### Creating a program disk:

Using the System Utilities program,

1. Name a disk /APPLEWORKS. For this set of instructions, we'll say the disk is a single 3.5" disk.
2. Copy all files from the master AppleWorks disk to the single 3.5" disk that you have named /APPLEWORKS.
3. Put away the master AppleWorks disk
4. Delete the old version of ProDOS 1.1.1 from your /APPLEWORKS disk.
5. Copy the new version of ProDOS, P8, from the Apple IIgs System Disk to your /APPLEWORKS disk.
6. On your AppleWorks disk, rename P8 with the name PRODOS.
7. Copy the following files from the Apple IIgs System Disk to your /APPLEWORKS disk:
   - ATINIT
   - AppleTalk initialization program
   - ImageWriter/Emulator program
   - MTXABS.0 -- Mouseless text tool kit
   - NAMER.0 -- Namer Object Code
   - NAMER.3 -- Namer program
   - CHOOSER.0 -- Chooser Object Code
   - CHOOSER.2 -- Chooser program

#### Printing a document with AppleWorks and the LaserWriter:

You need only do steps 3a through 3f once; after that, the disk has the necessary information.

- **APLWORKS.SYS** contained in /APPLEWORKS
  - **Exit to BASIC**
  - **Create the following AppleSoft BASIC program:**
    - **10 HOME:** "REM Start program"
    - **20 PRINT "Program Loader:" PRINT **
    - **30 PRINT "1 AppleWorks:"**
    - **40 PRINT "2 Chooser:"**
    - **50 PRINT "3 Namer:"**
    - **60 INPUT "Enter your choice:";A$**
    - **70 A = VAL(A$)**
    - **80 ON A GOTO 100,200,300**
    - **90 GOTO 10**
    - **100 PRINT CHR$(4);"-APLWORKS"**
    - **110 END**
    - **200 PRINT CHR$(4);"-CHOOSER"**
    - **210 END**
    - **300 PRINT CHR$(4);"-NAMER"**
    - **310 END**

### What I Did Wrong - Next 1

A guide to repairing Apple and Apple compatible computers.

**By Eric Lindsay**

One major problem with repairing compatibles is that they often have very different layouts to the genuine Apple. The computer in question was a II + compatible with a built in Z80 for running CP/M all in an IBM style case. I am always unhappy about these, since the Z80 equipped systems seem prone to strange intermittent faults that are impossible to trace. If you must run CP/M (and I certainly wouldn't), use a plug in card.

The owner had already moved part of built in drives aside, and tried the system without any cards. What it produced was a series of large vertical bars across the screen, and nothing else.

In these cases, your first step is always the same. Check the reset line on the 6502 CPU. I used a CRO, but a cheap logic probe is sufficient. There wasn't any indication of the reset line moving from high to low, because it was always low. As a precaution, I also checked the output from the detachable keyboard, since it was easily accessible. This was also low. The question was, why was the line low?

The problem with the low reset line was that the CPU was always in a state of reset, and therefore nothing could start. The easiest way to check that this was the cause of the problems was to remove the 6502 CPU chip (remember to switch the power off before changing chips), and gently bend the reset pin up so it couldn't make contact when put back in its socket. When I tried this, the system produced a normal prompt, and you could type from the keyboard.

Now to find the cause. The reset line to the CPU is pulled low by a transistor, driven by a little 5 pin 555 Timer chip. There are also two other TTL chips in a similar area that could possibly be involved. My own bet was that the transistor had failed, however since the chips were all in sockets, I tried the quick method of substituting new chips. Incidentally, many chips in the Apple are used in multiple places, so if repairing, you can often simply swap two chips - if the symptoms change, one chip was probably at fault - you don't have to have a complete stack of-brand new chips on hand.

This time the fault was in the 555 timer, which had apparently died. Replacing it fixed the entire system. One point to note is that, if you don't have chips, but do have access to a logic probe or a CRO, you can trace faults like this by following back the lines from chip to chip, seeing that each line does what you expect it to do. For instance, I could have almost as easily simply checked the three or four lines that could have affected the reset line transistor, thus eliminating all substituting.

Eric Lindsay,
6 Hillcrest Avenue, Faulconbridge NSW 2776

 continua on page 15

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January/February 1987 - Page 14
What in the world has happened to CARMEN SANDieGO
A review by Stephen Pritchard & Michael Paske.

Educational games tend to fall into two categories. They are either boring and educational — just plain boring. Wolf Carmen Sandiego is neither of these. This game has graphics which make for an interesting adventure. Moreover, it will help develop geographic skills.

The game commences with the disclosure that some priceless work of art has been stolen. It is your duty to pursue the bandit to his / her hideaway, arrest him / her and return the artifact to its rightful owner. In order to make an arrest a warrant has to be obtained from Interpol. A warrant will only be issued if the description you have input into the computer is accurate. Much of the game, therefore, is spent trailing the bandit from continent to continent collecting clues as to his / her identity. Once you have the desired warrant it becomes your goal to pinpoint the bandit’s location and make the arrest.

A series of successful arrests leads to promotions to higher levels.

This program is a mixture of various elements of graphic adventures, trivia games and mystery animation. It contains “The World Almanac” which, although not necessary for the smooth running of the game, does provide some answers to some of the more difficult questions posed.

In order to become a top class detective you will travel to exotic places and distant cities. There are ten possible suspects to track down through 30 cities with nearly 1,000 clues. While CARMEN is extremely user-friendly, there are ten possible suspects to track down through 30 cities, with nearly 1,000 clues.

The program is available through bulk purchase.

divebombers before they destroy Lone Wolf.
The game has real life voice simulation in it but you have to listen hard to be able to understand it, as it only says one or two words very quickly.
It is a good game for players 12 yrs and up. It does have some weak points but apart from that I would recommend this game to anybody who wanted a game to play on a rainy day or had some time to fill in during the day.

FIGHT NIGHT ----------
By Accolade

A review by John Paske.

Requirements: - An Apple II+, IIe or a IIc, with at least 64k of RAM.
Optional: - Joystick.

FIGHT NIGHT is a game that involves one or two players to box it out in the main arena. FIGHT NIGHT is actually two games in one. The first game is the Main Event. Line-up and the second is more of a construction set where you develop your characters to fight in the Main Event.

Upon loading the program, you are confronted with a menu with several different options. The first option, The Main Event, is where you can test yourself for boxers made up with the construction set, against five of the world’s toughest fighters (namely: Bronx Bomber, Dipl SticK, Kid Kastro, Hu Him and British Bulldog). The Main Event is the arcade style of the program. As you play against the above contenders, each become more powerful than the last. The second option, Boxing Construction, allows you to create your own boxers. Boxers can have different appearances and qualities. They can be player or computer controlled, offensive or defensive, brick headed or glass jawed. The third option is Training. This option allows you to practice your joystick (or keyboard) control with one of the constructed boxers. The fourth option is Sparring, in which you can have a match between constructed boxers, player against player, player against computer, or computer against computer.

The last option is labelled Tournament. In tournament, you and your friend (or just yourself) can set up a tournament, as a manager, you must try to get the “right” fight schedule, to make your man the champ. Each of these options are chosen by a “Mac” like icon that is moved around on the screen.

DESSERT FOX
A review by John Paske.

Hardware: Apple II+, IIe or the IIc, with joystick.

The object is to save ‘ALLIES’ depots before Rommel’s forces take over.

DESSERT FOX is a strategy simulation game in which you are positioned in and around the deserts of Tobruk. You have to protect all your depots from the Desert Fox and his forces. If you are able to stay alive, you and the Desert Fox will be the only ones left to fight in a head to head tank duel.

Booting the disk displays a rough but acceptable graphic title page whilst loading the program. The menu selects either practice or campaigns (games) for you to play. There are 5 practice games and 5 campaigns. Each of the practice games represents what can be encountered in your campaigns. They are mainly Convoy attack, Tiger Tank attack, Minefield attack, Ambush attack and a Stuka attack (more on them later). Each of the campaign games range from beginners to grand masters and the only different aspect in these is that a higher amount of points are required to save your Convoy or depot.

Once you select your campaign game, you are displayed an overview of Tobruk and you have four choices to pick from. They are:

1) call in your bombers,
2) zoom up deposits,
3) listen to enemy radios &
4) move in the direction of where the radio beacon is pointing.

You can only call in your bombers once per game. Zooming in allows you to view each depot, whether it is still around or blown-up and any supplies it has left. By selecting the Radio, you can point the beacon in any direction and then listen to enemy radio. This is very handy in case the Fox is attacking a depot or convoy. Using the MOVe command you can intercept the Fox or his forces and have a small conflict to protect your allies.

The computer picks which conflict is happening:
A: CONVOY. You have to protect you allies by shooting down enemy Stukas.
B: TIGER TANK. You have to destroy enemy Tiger Tanks en route to a depot.
C: MINEFIELD. You have to successfully steer through a lethal minefield in as short a time as possible while sustaining minimum damage.
D: AMBUSH. You have to get through the canyon ambush with as little damage as possible.
E: STUKA. You have to shoot down enemy STUKA

Continued on page 17

In the Main Event, you have to box, using joystick or keyboard, for a total of 3 rounds each consisting of 3 minutes per round. If you can’t knock out your partner within this time, a decision will take place. The player with the most points will win.

An interesting feature about FIGHT NIGHT is the ability to construct your opponents, or your own men. Although you are only limited to the parts of the five main contenders, you can produce some interesting boxers. You are able to build 24 custom boxers which includes changing their statistics. These statistics include Power for blow to head and body, Resistance to blow, Time spent on actions and the intelligence of the custom Boxer.

For anybody that’s into Boxing and every thought that a computer game would be a good challenge, this is the game for you. I found it a bit difficult in places but I suppose it’s only practice that makes perfect.

Distributed by Ozisoft, Sydney.

January/February 1987 – Page 17
A

Q. From Allam Maroney (again)

I am a teacher/educational researcher. Are there any education-centred groups you can recommend contacting?

A. I think Allam meant overseas ones, but it is worth starting by pointing out that there are groups in Australia. To begin with, I have a small group at NSWIT mostly interested in mathematical software. There are some at Macquarie University and doubtless other places.

The NSW Computers in Education Group used to be at:

P.O. Box 148
Broadway, N.S.W., 2007.

I am no longer a member (fees fell due while I was overseas last year). I suppose that address could have changed. If it has, contact should be makeable via:

The Editor
Information Transfer
Schools
Mitchell College of Advanced Education
Bathurst, N.S.W., 2795.

There are lots of groups overseas, particularly in the U.S. I listed 54 of them in my Intermediate Computer Encyclopaedia a few years back, but I have not updated my information since then. The following are chosen as addresses that are unlikely to have changed since 1984, which is about when I could be confident of them:

ACH SIGCUE Bulletin
PO Box 12015
Church St Station,
New York, N.Y. 10249
USA

A journal from the Association for Computing Machinery which is definitely on the heavy weight side. You can probably find it in some of the larger libraries in Australia (I'd start looking at Sydney University).

Computer Using Educators
1776 Education Park Drive
Independence High School
San Jose, CA 95133
USA.

This group had a software clearing house which can be a magazine when last heard from. My notes called them "very professional" but I no longer know why I made that comment.

Q. From Lindsay Warton:

I have a 48K Apple II plus, with one disk drive, green screen monitor and a printer. How much would I need to add to the system to use PlusWorks XP? I have Sandy's word processor and want to continue to use it. Will I be able to use ProDOS in the upgraded system?

A. To begin with, you obviously need both the PlusWorks program and the 128K card from the club, as you mentioned. (It is possible to use the lowest grade PlusWorks program on a 64K Apple to get PlusWorks up with a small desktop, but it is hardly worthwhile to my way of thinking.) You would also need AppleWorks itself - PlusWorks only modifies the program, it does not replace it. You also absolutely have to have an 80 column card. The Taiwanese Vexid clones are OK provided they do not have the switching capability. (The cheapest ones are good, the more expensive ones give advantages.) Peter Garde, who often advertises in Applications, probably has them on hand.

It is not necessary to add a 16K card as well as the 128K card. You do not have to have a 2nd disk drive, but I would strongly recommend it. You won't need a keyboard modification as the 80 column card will give upper and lower case. You might run through the Sandy setup menu to make sure that any 80 column card you get is compatible with the wordprocessor. If you have an old version, contact Sandy Garage numbers and the manual) and spend $10 for the latest update. He would tell you on the phone which 80 column cards he supports.

Any 64K Apple system should run ProDOS. You might find that you have to place the 128K card in slot 0, which may be the best place on other grounds anyway.

By the way, there is a new version of PlusWorks (probably also soon obtainable through the club) that allows use of multiple RAM cards. I have tried it with success in my 5/1e, using a RAMWOKS 256K card plus a standard Taiwanese 128K card.

THE TOY SHOP

A Review by John Paske.

Remember the good old days when Kelloggs and Sanitarium used to put cut-out models on the backs of Corn Flakes and Weet Bix? Well, don't despair. The Creative Workshop people through Broderbund have put together a package called "The Toy Shop" which lets you personalise twenty different models.

Continued on page 20
IMAGINEERING™

TECHNICAL NEWSLETTER
Reprinted by courtesy of IMAGINEERING

APPLE II PRODUCTS

SPRINTDISK

A memory expansion card for the Apple IIe, compatible with the Apple Memory Expansion card. Comes standard with 256K on board, and can be expanded to 1024K with standard 256K chips. Fully compatible with DOS 3.3, ProDOS and Pascal 1.3, as well as AppleWorks, PFS:File/Report/Write/Graph/Pla, Catalyst 3.0, MouseDesk, and Pinpoint. Software provided includes 800K Ramdisk support for DOS 3.3 and ProDOS, AppleWorks desktop expansion, and disk catching support for up to 14 drives. AppleWorks 1.3 automatically loads into the Sprintsdisk.

MEGARAM PLUS

An expansion board for the Apple IIe that provides full compatibility with the Apple Extended 80 column card (including double-hires graphics), but has up to 1 megabyte of memory on board. Comes standard with 64K, but upgradeable to 1024K with standard 256K chips. Comes with Ramdisk software for DOS 3.3 and ProDOS, disk catching software, and software to use the MegaRamPlus memory as AppleWorks desktop.

MULTI/I/O

A multifunction board for the Apple IIe with a built-in clock/calendar and two serial ports. The clock calendar is fully ProDOS and AppleWorks compatible (for time and date stamping files), supports 12/24 hour formats, and can generate real time interrupts. The board also comes with modern and printer serial ports that support baud rates from 50 to 19200 baud.

For more information on these products, contact Kim Medway at Imagineering on (02) 662-4499.

SIDeways Notes

There is a new version of Sideways for the Apple II (2.0). The following features apply:

1. Sideways is no longer copy protected.
2. There are three versions of Sideways included on the disk: Sideways for AppleWorks spreadsheets, Sideways for DOS 3.3 text files and Sideways for ProDOS text files.

SIDeways for Appleworks

With the new version of Sideways you can:
- Print an entire spreadsheet, selected rows, columns or a block of cells.
- Choose the character size and print density.
- Vary the spacing between characters and lines.
- Control the size of the margins at the top, bottom, left and right.
- Add a header to appear on each page of the printout.
- Reprint title rows at the top of each page.
- Print title columns at the left of each page, with an automatic skip-over-perforation at the end of each page.
- Print normal cell contents or print formulas.
- Change the default location of the data disk and default printing options, so the new choices will automatically be loaded each time Sideways is run.
- Locate any cell by its coordinates or contents.

Sideways for DOS Text Files

The DOS 3.3 version of Sideways is the same as the old one, except that it now supports the following spreadsheets:

- Acccalc
- Magicalc
- Multiplan
- Practicalc
- The Spreadsheet 2.0
- VisiCalc
- Advanced Version

Sideways for ProDOS Text Files

The ProDOS version of Sideways acts in the same way as the DOS 3.3 version but now supports the following programs:

- AppleWorks
- FlashCalc
- AppleWriter II
- PFS:File/Report
- Word Perfect
- PFS:Plan
APRIL 1987

HIGHLIGHTS

PC87 Report

Apple Synthesiser
Enhance your Apple//e

Macintosh SE and //
Customise your menus

THE PUBLICATION OF THE
APPLE USERS GROUP (SYDNEY)
(Incorporated in N.S.W.)

REGISTERED BY AUSTRALIA POST—PUBLICATION No. NBH 3716
The Australian Personal Computer Show - 1987

This year the organisers were unable to provide a User Group corner. As a result our details were sketchy, and wrong. My apologies for the faulty information given in the March Magazine about the dates and times. We ourselves were in chaos because of the change in times.

Apple Computer Australia came to the rescue, and provided space for the AUS on its stand - many thanks to them (particularly Peter Sandys, who always champions the User Group cause). We occupied the leading corner of the Apple stand, such that people had to walk past us to get to the rest of the Apple stand. This caused some confusion when we were unable to provide the necessary prices and advice about all the new Apple equipment. We were however, ambassadors for the Apple cause.

Because the space on the stand was limited to two computer stations, we only sold P.D. disks, magazines and - through Peter Kazacos' advance planning - Apple // and Macintosh show bags.

Many thanks to the many club members who manned the stand during the four days. It was a pleasure to meet so many intra-state, inter-state, and even overseas members. We also converted many owners of Apple equipment to the AUS cause.

The PC87 show was busier than in previous years, and the Apple stand was always packed. The philosophy of Apple Computers, in providing space for its software dealers to promote the Apple cause was always very successful. A large screen was provided to give regular demonstrations of popular software, whilst there were many computers set up to give hands-on assistance. I saw many exiting new programs, both in the Apple // range as well as for Macintosh.

Other stands contained the usual range of IBM and compatibles. Desk-Top-Publishing and Local-Area Networking were the most popular topics shown on most of the stands. Apple's computers were all networked with AppleTalk.

NEW PRICES

<table>
<thead>
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<tr>
<td>Apple //c 128K Mono Monitor</td>
<td>$345</td>
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<tr>
<td>Apple //c Monitor Stand</td>
<td>$80</td>
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<td>Apple //c 128K Colour System</td>
<td>$1,050</td>
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<td>Apple //c Colour Monitor</td>
<td>$345</td>
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<tr>
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<td>Apple //e Mono Monitor</td>
<td>$345</td>
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<tr>
<td>Apple //e 5.25 inch Disk Drive</td>
<td>$550</td>
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<td>Controller for 5.25 inch drive</td>
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<td>Apple //e 128K Colour System</td>
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<td>Apple IIOS 512K Mono System</td>
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<td>Apple 3.5 UniDi[1] Disk</td>
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Phone Answering Services

Apple Users Group Inc. - being a non-profit part-time involvement for it's officials, often has had difficulty coping with enquiries. A lot of need to contact the AUS involve Membership or Purchases.

Two phone numbers are now available to take your details. The phone answering services will record your enquiries or orders. Please make the details very clear - particularly your PHONE NUMBER - in case of difficulties. If your request is obvious, the response will be quick, as the tapes are checked regularly. If your enquiry needs a return call, it will be a S.A.P.

To make best use of this service:
1. Write down your enquiry in a concise manner:
   - Detailed enquiry - start with your name and phone number - then explain your problem.
   - For membership - fill in the form if renewal is needed - help with the details.
   - For membership - fill in the form if renewal is needed - help with the details.
2. Be sure of your CREDIT card number and Expiry date.
3. Read these details in the order on the form - be sure to include YOUR PHONE NUMBER.

24 hrs. SERVICING PHONE NUMBERS:
MEMBERSHIP: (02) 958-2709
PURCHASES: (02) 681-3731

Letter to the Editor

After reading your review of PRINTMASTER in your magazine, I decided to purchase it. Upon receiving the program I took it home expecting to produce magnificent signs, etc., but alas after configuring the disk to the ImageWriter printer and Super Serial card, selected print and pressed return. In fact there was no response and the system hung.

I returned the disk to my dealer, who suggested I try changing the dip switches. After much frustration I returned to the dealer who rang the distributor. We were informed that PRINTMASTER did not seem to support the IMAGEWRITER, and that there are no plans to update the program, so bad luck.

What company could make this kind of statement and expect to stay in business?

As a member, I would like to let other readers know of this problem with PRINTMASTER and the IMAGEWRITER. etc.

A. Jenkins B. Sc. D.I.D. Ed
ERRATA

1200/75 BAUD FIX For -------
COMUNICATIONS Cards.

A hitch in the data transfer between the editor's Apple and Mac caused some errors. If you read this interesting article by Hans Mauchle in the March '87 edition of Applications, here are the corrections.

Page 16, Col. 2, end of Par 3 should read:
That is, in 6850 and 5303 can transmit simultaneously at different baud rates, whereas the 6551 cannot.

Page 16, Col. 2, Par. 7 should read:
But what about the 75 baud? It occurred to me that 75 is 1/16th of 1200. So all I had to do is add in between the receive clock pin and the transmit clock pin was a divide-by-16 counter. Simple!

Page 16, Col. 2, mid of Par 8 should read:
No more waiting endlessly for the bulletin board's response to a Control-S. Everything worked four times as fast as it used to.

FURTHER COMMENTS BY HANS MAUCHLE

1. Members should be aware that the AUS(Sydney) bulletin board has options for baud rates other than 300. The modern at the end can send baud rates you are sending and adjusts accordingly.

2. If you want to do the modifications described and need some help, Hans will be happy to talk to you. Phone him on 810-8821 - 6:00-9:00pm only please!

3. If you are completely daunted by all the technicalities, Hans will do the mod for you, for $40. Contact him by phone to arrange details.

APPLEWORKS has seen sterling service in schools across the country, providing class lists, lists of students taking part in excursions, lists of teachers' subjects and assisting in all the other administrative aspects of running a busy school.

The reasons were easy to identify: ease of use and affordable, reliable hardware which could be customised on the spot to meet the needs of individual schools.

But while your school has been using Appleworks in the traditional way, decreases in the real costs of the Macintosh and the release of powerful software such as Microsoft Excel and Omnis 3 Plus have permitted the development of a program which permits the school files to share data with each other.

This has meant greater accuracy, greater time savings and use of the Macintosh interface for maximum user friendliness.

And these days, Apples and Macintosches are very much on speaking terms.

The winning entry, handling yard duty, library books and overdue accounts is...

OMNIBUS

OMNIBUS is an application written in OMNIS 3 Plus and is supplied in an unlocked form to schools.

Had OMNIBUS been written in a traditional computer language, few schools would have been able to afford it; none would have been able to customise it to their further special needs. But the processing speed and comparative ease of use of OMNIS means all these things are possible.

Ask any of the State, Catholic or Independent schools using it from Marwellbarn in the north to Cooma in the south, St Johns Park in the west to Manly in the east.

The program has been demonstrated at Dealers' workshops, and at the last year's Leura conference. All the good ideas have been included. It is now into its third term of use at Chatswood Catholic Girls High where it was developed and has handled the annual full gamut of duties without fuss.

If your school's attempts to computerise its administration have been accomplished with a gnashing of teeth and the payment of vast amounts of money, we can say it does not have to be that way. And remember OMNIS 3 Plus supports the Laser/Writer: your school reports will never look better!

OMNIBUS is another locally devised program developed within the profession it is designed to serve using...
The Time Of Day

By Keith Jeeves

It is common knowledge that PRODOS supports the date and time, either directly, through reading an on-board real time clock, or indirectly through inspecting time and date bytes set manually by a utility (refer to my article Selling Prodos Time and Date in the July 1985 issue of APP.CATIONS). There are many other similar utilities to do the same thing but it is important to realise that all they do is read the date and time bytes at addresses 490-493, THEY DO NOT UPDATE A REAL TIME CLOCK.

The Clock Read routines are already built into Prodos, and they are run when a disk access is made, but calling the Read routine from your own program is simple and can be done at any time. The procedure is to call the MIL (Machine Language Interface) Command Handler which is a catalogue of built in routines for disk access, file handling and a few miscellaneous things like reading the clock. When you call the MIL (which lives at $8f00$ and tell it the command number you want, it will go away and run the routine for you. Most of these routines expect you to pass parameters but the clock read (command number $82$) does not. The real power of this sort of architecture is that the instructions and language changes can be changed beyond recognition in future revisions but provided that the MIL command handler remains the same, earlier software can run the routines without modification. (Could this be Gareth Powell's elusive 'Translucent Interface'? ... Actually, the dictionary defines translucent as distorting, so a Translucent Interface must be an interface which distorts the signal.)

Now to the good stuff. The following program sets up the call to the MIL from BASIC and runs it, hence updating the Date and Time bytes. A machile language version can be derived from the listing. It is only 7 bytes long and can reside anywhere. GS owners note that this program works with PRODOS 8 which has an entirely different clock reader to the older PRODOS 1.1.1, but the MIL is told to run it in exactly the same way and store the bytes in the same place. Ain't that somethin.

60000 REM INSTALL CALL TO MIL TO RUN THE CLOCK DRIVER
60010 REM JSR $8F00 TO CALL MIL COMMAND HANDLER
60020 REM SEND GET TIME COMMAND ($82)
60030 REM $80 $00 $00 $00 DUMMY
60040 REM $60 RETURN FROM SUBROUTINE
60050 REM
60060 REM POKE 768,32: POKE 769,00: POKE 770,191: POKE 771,130

Once the Date and Time bytes are set (either automatically or manually) the Year, Month and Day values are derived, the user program can use them as it likes. It is however, icing on the cake to work out the day of the week and include that too. The mathematics to do this is called Zellers Congruence and it corrects for any day in the Julian Calendar it returns a number from 0-6 corresponding to the days of the week from Sunday to Saturday.

The following subroutine will take values of Y, M, D from the calling program and return the day of the week as $X$.

60100 REM THE YEAR, MONTH NUMBER & DAY IN MONTH ARE;
60110 REM DX, M AND K RESPECTIVELY
60120 REM WORK OUT DAY NAME WITH ZELLERS CONGREUENCE
60130 CX = $19 : REM FOR THE 20TH CENTURY
60140 $11 N = - 2 : REM MAR IS MONTH 1
60150 IF $0 = 0 THEN M = 12: DX = DX - 1
60160 REM FEB IS MONTH 12 OF PREV. YEAR
60170 IF $M = - 1 THEN M = 11: DX = DX - 1
60180 REM NOT IN CHAO 1973.
60190 F = (2.6 * M - 2) + K + DX + INT (DX / 4) + INT (CX / 4) + INT (2 * CX)
60200 IF $F = 0 THEN $M = "SUNDAY"
60210 IF $F = 2 THEN $M = "MONDAY"
60220 IF $F = 3 THEN $M = "TUESDAY"
60230 IF $F = 4 THEN $M = "WEDNESDAY"
60240 IF $F = 5 THEN $M = "THURSDAY"
60250 IF $F = 6 THEN $M = "FRIDAY"
60260 IF $F = 7 THEN $M = "SATURDAY"
60270 RETURN

Review by Mike Nagle

I have been able to borrow an Apple Unidisk 3.5 for the past month, and I must say I am extremely impressed with it.

When Apple first released the Unidisk 3.5, I was not enthused with it for two reasons - one, that it only operated with ProDos, and the second it's price. It did not seem to give you value for such a high outlay.

After actually using it with my Apple //c, I can honestly say that my two objections to it have well and truly been shot down in flames. When I first installed the unit I sat down and worked out which programs (PRODOS) I used the most:

Appleworks c/w Pinpoint Desktop Accessories, A Document Spelling Checker and Copy II Plus.

I then followed the instructions that came with these programs on how to copy them to a 3.5 disk. I booted the 3.5 disk and found I had all these programs on the disk with very little space left.

Anyone who uses Appleworks with the Pinpoint Desktop Accessories and the Pinpoint Pop-up Spelling Checker is well aware of the amount of disks swapping it entails. The Unidisk 3.5 eliminates all of this and - runs your program much faster than the conventional 5.25 disk drive.

For example: when using Appleworks on a 5.25" disk, you first must insert the Start-Up disk, then you are told to insert the program disk. With the Unidisk you just boot Appleworks, hit the space bar and you are presented with Appleworks main menu.

One thing that is highly recommended when copying applications to a 800K - 3.5 inch disk is that you copy each application to a sub directory on the disk, as this allows you to use the full extent of the disks storage capacity.

After using the 3.5 disk for a while I found that whenever I quit an application, i.e. Appleworks, I was asked to enter the path name of the next application I wanted to run. This lead me to recall that I had read in certain Apple publications that there were diskette packages available which allowed you to have all the applications entered onto the desktop thus eliminating the necessity of always having to enter the path name.

One of these packages is Pinpoint's Run Run, so I got my hands on this program and proceeded to copy it to a 3.5 disk. I then booted it, and from the Run Run menu selected the "Add an Application" option, followed the instructions and copied all the previous mentioned programs to Run Run.

When rebordering Run Run I was presented with the list of applications that were installed on the disk, and all that was required of me was to select whichever application I wanted.

When I quit a particular application, I was taken back to the Run Run menu, enabling me to select the next program I wanted without having to remember or enter the path name of any of the programs on the disk. By using 5.25 disks for these programs I would have had to insert 6 disks, whereas with the Unidisk 3.5, I now only have to load the one 3.5 disk, with storage left on the disk to add more applications to.

When copying programs to this type of disk it is recommended that you group programs which you would normally use together, as you find it eliminates the diskette with you normally are faced with, using the standard 5.25 disk.

As for using DOS 3.3 with the Unidisk 3.5; this problem has been partially overcome with a program called UNIDOS 3.3 from Microsparc Inc. The reason I said partially is because UNIDOS 3.3 will not work with many commercial software written in DOS 3.3 or AppleSoft, and as I have had little experiences with this package I am at the present time unable to pass judgement on its usefulness when running DOS 3.3 on the Unidisk 3.5.

I can highly recommend the Unidisk 3.5 to anyone who is heavily into using multiple applications such as Appleworks - combined with Pinpoint, as it does free you from the frustration and time consuming disk swapping that is required.

Hopefully the day will come when someone will produce a package that will allow you to run all DOS 3.3 and AppleSoft programs on the Unidisk 3.5 - making it the complete answer to all Apple II users. Even at a cost in excess of $600, it really is a worthwhile acquisition. I for one am presently saving every cent so I can become a proud owner of a Unidisk 3.5.

On a scale of ten I would rate the Apple Unidisk 3.5 a nine, with the only drawback being the limitation of using DOS 3.3 with it.
**HOMEWORKER**

A review by Kellie-ann Paske.

**Homeworker** is an integrated program designed to help students organize and plan their study more efficiently. Homeworker integrates six different modules into the one package. This includes such functions as

- **Textwriter:** a word processor.
- **Outliner:** a planning module.
- **Flash Card Maker:** a memory trainer.
- **Calendar:** organizes obligations, exams etc.
- **Grade Keeper:** a compiler of mark and results statistics.
- **Calculator:** which performs all the basic functions.

**Textwriter** is a word processor with most of the usual word processing features. This allows you to write assignments, projects and homework quickly and easily as well as presenting your efforts in a legible form for assessment.

**Outliner** organizes notes and ideas into point form. These can then be elaborated on, changing their structure as ideas develop. From this basic plan, essays, formal study notes and assignments can be written.

Planning schoolwork prevents the student from mixing facts, repeating points and from causing confusion to their poor teacher!

**Flash Card Maker** lives up to its name and assists in memorization tasks by creating flash cards. These can be viewed on the screen either in order or randomly to efficiently test memory. Flash cards may also be printed for additional study but must be folded and glued to become double sided.

**Calendar** records important days, exams, due dates for assignments, birthdays etc. These dates are shown with either a dot or an exclamation mark, depending on degree of importance. Each day has ample space for entering events, which are shown in separate "zoom boxes", below the actual month format.

**Grade Keeper** is as American as it sounds and is based on the complicated American grading system. Grade Keeper could be used with the American marking system but with some degree of difficulty. Basically, it records marks (known as grades in the US) for each piece of work in each subject which are then "weighted" and averaged into a final subject mark. An average overall mark is then calculated from all the subjects to give you a final "grade". Grade Keeper helps students to keep track of their performance in certain subjects and in their overall schoolwork.

Calculator performs as an ordinary pocket calculator, with multiple memory, constant division and multiplication, as well as conversion tables. Calculator may be accessed from any homeworker module, making it very useful for assignments needing conversions, calculations and the like.

Although Homeworker has many good points, it also contains some faults which can become very frustrating at times. One of these occurs in textwriter - the problem being that when one is using the backward and forward arrows, the insert cursor (the one underneath the text) cannot be seen unless you stop. This can be irritating during correction as one must always be stopping to see where the cursor is! Another fault possessed by textwriter is that of having a very slow delete, particular in demonstration mode (included on the reverse side of the disk).

Outliner and Flash card maker are easy to use, although, like much of homeworker, they are not self-explanatory and require reading of the manual before use.

Calendars may be printed and include corresponding entries from the "zoom boxes". Calendar is simple to use yet very helpful.

Grade Keepers faults include those already mentioned (i.e. its complex nature). Besides this there appear to be no major irritations involved in using it.

Calculator is time consuming to use in that you must use the arrows in order to multiply and divide (i.e. those functions not on the keyboard). Besides this annoying fault, calculator is one of the few modules which does not require much manual-reading to use.

Besides software, Homeworker offers:

- a suede-finish, upholstered binder.
- a student organizer involving places to store calendars, your personal directory, punctuation, spelling and rules, U.S presidents and capitals, equivalents, conversions etc.
- a subject divider with tabs (to keep subject notes separate and easy to find)
- a large Homeworker pad.
- a size double-ended pen.
- a Homeowner ruler and pencil (this is starting to look like advertising!)
- a study guide entitled "How to Study for Success" (98 pages)
- a disk holder for two disks.
- stickers for two data disks.
- and, of course, a manual!

Continued on page 14
A SOLO FLIGHT

-------- by MicroProse

Reviewed by Robert Brown.

Requirements:
- An Apple II computer with at least 64K RAM.
- One Drive, Joystick.
- Optional: Colour Monitor.

Solo Flight is a flight simulation where you as the pilot has to land, take-off, deliver mail and fly by instruments. It is a lot easier to land and take-off than Flight Simulator II and was designed with fun in mind. It has real-time three-dimensional graphics, full cockpit instrumentation including VORs, Instrument Landing System (ILS), make it a streamlined good program to get drawn into. It includes four difficulty levels, one emergency procedure practice and night flying. It also includes a Mail Run game for you to deliver mail to over 42 different airports in such diverse geographical areas as Texas, Massachusetts, Colorado, Washington State, Kansas and Michigan.

Once you start the program, you pick what state and cities you want to fly in and whether or not you are a student, novice etc. Next, a screen is loaded showing you your navigation chart of the state that you picked. Pressing 1) gets you into your option mode and you can load your plane with fuel (if you selected Mail Run from the first menu, otherwise you just start with a full tank and get to fly to any different airports within the state). Once you have selected your mail, the computer will pick an airport at random for you for your first delivery. Each time you land, the computer will choose another airport for you.

Once you have loaded up you are positioned on the runway ready to take off. Pressing any of the number keys revs the engine up to a particular speed (95 mph).
Solo Flight. continued from page 15.

Fastest, 0-Turn off engine. By now you are rolling down the runway and once you have reached 60-90 knots you can take off by pulling the joystick back. The joystick controls your up/down movement and your left/right movement.

When you land the plane, you are asked for a FICSC (Multi Carrying Security Code) for the number given. An example is if the number given is 7 then you look through the manual for a table with the letter 7 in it. The answer for this is C. If you enter the correct code, you are assessed on your performance, flying capabilities, landing procedures etc to get a final score. You are then given another airport and off you go again to try and land and continue on until you have completed all the airports.

If you manage to crash your aircraft, a message is displayed which reads "you crashed and the route you took is displayed on the screen. Other games include Night Flight where you have to fly by instruments and land by instruments, Instrument Flying which is similar to Night Flying but you fly in the day with low flying clouds, rain etc.

The manual that comes with the program is 31 pages long and has some interesting comments and facts. Overall, Solo Flight is a good simulation for people that are not used to using FSII and for those that would like to have a bit of fun while they learn.

Review copy courtesy of OzSoft, Sydney.

CHAMPIONSHIP BOXING

by Sierra

Reviewed by Robert Brown.

Requirements:
- Any Apple computer with at least 64K.
- One drive - One or Two players.
Optional: Colour Monitor.

Championship Boxing is an action and strategic boxing game that puts you into the ring. You choose from any of history's World Heavyweight Champs, or a list of the toughest contenders. Detailed statistics on each boxer reveal his weaknesses and strengths to you. You can create your own boxers - build a champion who might devastate even the boxing "greats", or enjoy a "Featherweight" bout with cartoon characters or even a boxing kangaroo.

The graphic opening title page offers four options. They are: Gym, Fight, Quit, Options. Pressing one will get you into the gym. From this point, new boxers can be added to the roster of champions or you can change the statistics of the boxers that are already there. If you create a boxer from a well known champ, you should find out as much info as you can as you as CHAMPIONSHIP BOXER will fight exactly by the information given.

Although the ready-made boxers are all Heavyweight, you can build a Lightweight boxer or turn you favourite Lightweight into a Lightweight and see how he can handle the ring. Once you create a boxer you will then be asked to supply answers to 22 different options, e.g. his height, Age, Weight, Accuracy, Best Punch, etc. Once you have completed entering your boxers statistics you can save it to the disk.

Leaving the gym and going into the options mode which lets you change various parts of the game. Some examples are, the Scoring system, Length of the round, Number of rounds, Playing mode (ie. whether or not you are going to play or the computer plays itself.), and the Number of players. After you have changed your options you can then go to the Fight Arena and start your fight. If you enter the 'Strategy' mode, you act as a trainer and manager for the Heavyweights. You can make the between-rounds decisions such as Rest on the ropes or Go for the knockout. Then when you enter the Arcade mode you control every movement of the boxer of your choice.

You can play against your friend or the computer.

Championship Boxing comes with four manuals. The How To Play manual, a Program Guide (which shows you the keys to use), the Boxing Clinic (which tells you how to box and what each punch represents), and The History Of Boxing (which presents some interesting facts about where boxing originated and where it goes to today).

Championship Boxer is a good program if you are into boxing or just want to have fun having a duel between your qualities and your friends without anybody getting hurt. Dad's could even put in Joe Fennech's statistics and his opponents to see the odds at one or the other winning. (It's a thought).

Review copy courtesy of OzSoft, Sydney.

POINT TO POINT

by Pinpoint Publishing.

Reviewed by Robert Brown.

Requirements:
- An Apple IIe, IIc or IIgs.
- Should be an Enhanced IIe but not necessary.
- One or Two drives.
- A Smartmodem or Dumb modem.
- A standard telephone line.

Optional:
- High capacity drive - Hard disk.
- Printer - Clock.
- Extended, high memory Ram card.

Point To Point is one of the latest pieces of software that goes hand in hand with the infamous Pinpoint. Point To Point is a stand-alone communications program that can combine the talents of Pinpoint or use Point To Point - from Pinpoint. If you have a High Memory Ram Card, you can load all of Pinpoint - all of Appleworks - and all of Point To Point all at once and run them in the background at each of lightning speed. Point To Point recognises the RAM card and automatically loads itself into the card and then performs as a desktop manager until you are ready to use it. When you are, all switches to a powerful communications program with qualities like Appleworks. For example, All of Point To Point's menus appear as file cards as Appleworks, it also displays its files as WW, ABD, ASD, SIT, BIN, SYS and the amount of memory each on takes.

Upon booting Point To Point, you are confronted with the system configuration menu from which you can select which Modem and interface card you are using, which Printer and printer card you are using and whether your printer needs linefeeds etc. Each time you boot Point To Point, you will get the menu the same (One boot point). Although you get around by typing NO to the question on whether or not you want to change the configuration.

From the main menu, you can pick up to eight different sub-menus to go to. These include Dialling, Answering, Disk Activities, Macros, Buffer Editing etc. If you go into dialling, you are asked to pick out a phone number and then the modem will start dialling. If you have a dumb modem, the program will wait (approx 30 seconds) for a carrier.

If it does not get a carrier a beep sounds and a message is displayed.

After connection, the screen turns into what you would see if you were a sysop. The first two rows are the system's status while the rest of the lines are for your text. Once you make a connection the top line displays 'Connected'. The next row has a real elapsed time display, ten commands that are operable and the amount of room left in your buffer. A text buffer of 256 bytes has a buffer of 256 bytes available. The time is shown in minutes and is very accurate apart from the fact that the minute might be different length. (I timed it three times. The first time was 1.5 minutes, the next was three minutes and the second was 2.5 minutes which gave 7 minutes. I timed it by a real clock and that gave 7 minutes also.) The ten commands are operable at any stage by typing Open-Apple and a number from 1 to 0. The commands are: Call, Send (disk send), Xmodem, BSend (buffer send), Macro (more on this later), Trap (turn buffer off), Break (send break of 233ms), Print (print file) and Hang (hang up). If you have a printer connected, you can press Open-Apple H and get a screen print (just like Appleworks).

Also, if you have an Autoanswer modem, the status display will tell you how many phone calls have been received.

One very powerful feature of Point To Point is the ability to use Macros. Quickly - a macro is one or a group of instructions that can be performed to do certain tasks. Point To Point allows you to create your own macros by placing a +1 after the macro name. Whenever you are finished, you can delete the macro name by placing a +1 after the macro name will be executed and so on. Therefore a 3 line macro can be input your password, account name and the command to get you to the first menu. Even when you use a dumb modem, and you make a connection with a telephone number with a plus after it, you can use the macro command. There are certain macro commands that will wait for certain text E.G. WB8851.

In this example, the '+W' means wait until the letter 'B'. Once they have respond with the letter 'L', for Logon.

Because Point To Point is not copied protected, (you pay for it over $200), it supports Hard Disks, Ram Cards and High Density Disks. I have tried it on all of them except the Hard Disk and find it very simple to use and very convenient on a Ram Card.

For those that would like a serious communications package that is compatible with Appleworks file Types, Prodos Commands and Files, Pinpoint and other very different modem and printer you can connect to your Apple, then this is the program for you.

Thanks to Imagining for the review copy.

Applications

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Applications

Page #17 April 1987
B-GRAPH

--- from Batteries Included.

Reviewed by Mike Nagle.

B-GRAPH is a graphics package from Batteries Included, who produced the very good word processor PAPERCLIP, and is a very versatile and easy to use program that enables you to produce many kinds of business graphs.

B-Graph can be used on the Apple II+, IIe or IIc.

The analytical and statistical tools available in B-Graph are designed for use by individuals without any prior expertise in this area.

The program allows the creation of numerous types of graph and charts, as well as providing statistical and analytical tools for the evaluation of data.

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The manual takes you through a step by step, hands on course of each module, explaining every function and option available. Each tutorial is illustrated with actual pictures of what will appear on your monitor.

Also included is a short course in data analysis and statistics.

The one disappointing feature with the package I was given to review was that it did not support the Apple II/c printer port - so I was unable to produce a hard copy of the graphs. The copy I had was an early version so I presume later versions of B-Graph would not have this problem.

I would recommend any user who is considering buying B-Graph to check that the version supports your printer and interface card before purchasing it.

The graphs I was able to produce using B-Graph look good on the screen and if I'll produces what you see on your screen to your printer it is a worthwhile package for anyone who is looking for this type of software.

On a scale of ten I would award B-Graph a seven for performance and ease of use with the only drawback being the limited number of printer interfaces my copy of B-Graph supported.

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THE BODY TRANSPARENT

--- By Designware.

Reviewed by Robert Brown.

Requirements:
- An Apple II computer with at least 48K.
- Joystick - One or Two Drives
- One or Two Players
Optional: - House - Colour Monitor

The Body Transparent is a program to teach children from the age of 10 up about the human body and its relative organs and their functions. The program comes on a 'Filppy Disk', Yes a Filppy Disk not a Floppy Disk. For those that aren't familiar with the term, A Filppy Disk caters for two types of machines. On side One there is the Commodore 64 program and on side Two is the Apple program. (I don't know why they put Commodore over preference to Apple for ????). Anyway back to the program.

The main idea behind the program has several reasons. They are:
- Teaches names and locations of bones as well as male...
AUGUST 1987

HIGHLIGHTS

A Year in Review

New AppleWorks
Apple //GS Software List

Better Disk Labels
MFS vs HFS
Mac Hints

Annual General Meeting
Monday August 10th.

THE PUBLICATION OF THE
APPLE USERS GROUP (SYDNEY)
Incorporated in N.S.W.

REGISTERED BY AUSTRALIA POST—PUBLICATION No NBH 3716
Apple Computer, Inc. has produced an enhanced version of AppleWorks, its best-selling integrated software package for the Apple family of personal computers. AppleWorks, which combines word processing, spreadsheet and database applications, now offers a mail merge function for producing personalised form letters. The enhanced AppleWorks automatically loads into Apple memory cards for greater speed and convenience, handles more complex spreadsheets and works with larger files. The new version is compatible with the Apple II/6, Apple II/C, and the new Apple II GS computer.

More than half a million copies of AppleWorks have been sold since it was introduced in 1984. Its popularity derives from its powerful applications and the ease with which information can be moved between applications. In addition, AppleWorks is easy to learn to use. It employs consistent commands that are easy to remember and extensive menus and on-line help.

New Features and Power

New features in AppleWorks enhance the capabilities of individual applications, take advantage of larger memory capacities now available on Apple II systems, and extend integration to include mail merge. Mail merge lets users combine information from a database file with documents created with the AppleWorks word processor. For example, AppleWorks can automatically generate form letters that are personalised with names, addresses and any other identifying information contained in a mailing list file. The user avoids the inconvenience and expense of needing a separate mail merge package.

AppleWorks now automatically loads into Apple memory expansion cards each time the system is turned on. This saves steps and time for the user and enables the software to operate faster.

The enhanced AppleWorks can take advantage of additional memory provided by Apple memory expansion cards for a larger desktop and increased file sizes. The desktop can range from 56 kilobytes (K) on a system with the minimum 128K of RAM up to 1024K on a system equipped with a one-Megabyte memory expansion card. The desktp can hold up to 12 files at once for quick access.

Maximum file sizes also increase with the addition of an Apple memory expansion card. With a memory card, the user can create a word processing document over 180 pages long (7250 lines), a database of 65530 records or a spreadsheet with 10K per row.

New spreadsheet features enable the user to perform more complex analyses and provide additional flexibility. Logical ANDs and ORs allow for complex analysis. A new rounding feature lets the user calculate on either the visible, rounded-off number or the actual underlying number, thereby providing extra precision. The user can now cut and paste between multiple spreadsheets more easily by choosing to simply transfer values, and not formulas, attached to the cell.

New manuals and tutorials make AppleWorks easier to use for both novice and advanced users. A new intermediate level tutorial and a "Tips" reference section for more advanced tasks help the user go beyond the basics. Sample files are tailored for specific environments.

Upgrades

AppleWorks version 2.0 is available to replace the earlier product.

AppleWorks now requires at least 128K of RAM on the Apple II/6 and also runs on the II/C and II/GS. To accommodate the two disk drive formats now available for the Apple // system, each AppleWorks package contains both 5.25 inch and 3.5 inch disks. The program can be used with a single disk drive, but two drives are recommended if 5.25 inch disks are used.

Many of the disk accessories and templates designed to be used with AppleWorks are compatible with version 2.0. Some programs which are memory-dependent will need revisions. Owners should contact those producers' developers for information on upgrades.

HINTS For AppleWorks

For what it is worth, if you ever felt that single spaced text was too hard to read and double spaced was just a little too much, what would you say to one and a half spaces? Try this:

EA-0 Set spacing to DS (double spacing)
Set lines per inch to IS
Presto! You have one and a half spacing.

Continued from Page 7

Space and time doesn't permit the mention of all the activities of the many committee members and others not officially on the committee. Many thanks to all who spent time promoting the AUS(Sydney) Inc.

**NEW VERSION OF APPELWORKS**

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### BACKUP ESSENTIAL DATA DUPLICATOR

- **EDO 4** version which doesn't include any hardware is available, and can be used on Apple IIc and III (using emulators mode) and is priced at $129.00.
- **EDO 4 PLUS** is a new technology, not just another copy program. The EDO 4 PLUS program uses a specially designed hardware card which works with your disk drives to back up disk by accurately copying the data from each track. It's available in Apple IIc IIgs IIIc and IIIgs versions.
- **EDO 4 PLUS** for Apple IIgs Plus (including most compatible) and IIc, and is priced at $160.00 ($250 including 3/4 owners, add $32.50 for a special cable adapter). [A Standard](utilico.jpg)
Two programs compared by John Hammtt.

Viscalc has long been quoted as one of the raison d'etre's and propagators of the Apple // and also of PCs in general.

This program still exists but it has been usurped by the release of spreadsheets catering to the ever-increasing demands of wish lists. Appleworks with its integrated package then introduced spreadsheets to a generation who may not have even considered spreadsheets. Now given the tool and ready made worksheets (templates) from various magazines and user groups, new markets have opened up for developers.

Most spreadsheets are Visicalc clones i.e., the page or display is divided into rows and columns with the basic entity being the cell. Appleworks followed this mode but being part of an integrated package lacks much of the sophistication called for by businesses. Lotus 1–2–3 for the IBM lured the business user and the rest is history.

Lotus 1–2–3 has finally arrived for the Apple // in the form of VIP Professional, complete with sophisticated graphics and functions. However, before I delve into the virtues of VIP I shall run through another powerful but little known package called SuperCalc 3A.

**SuperCalc 3A**

This is a ProDOS based program requiring 128K and a 6552 processor. Disk one contains a massive 233 block binary file which is the main program and disk two contains files pertaining to the graphics functions. A disk three contains a comprehensive set of utility files for Sideways printing, communications and a program which convert Appleworks, DF and text files to SuperCalc "CAL" files and versus. It's a pity you have to exit SuperCalc to run these utilities but this stems from the fact that the program is also available for the IBMI and compatible. In fact the manuals and commands are almost identical. The various operations are invoked by slash (/) commands, somewhat akin to the Open-commands in Appleworks. In SuperCalc, the various commands are nested in menus each invoked by an alpha character - one of the novel features of this - the help function which can be called up while you are at a menu prompt. Therefore the information sought pertains to your exact problem - I personally found this much more useful than haphazardly flicking through the manual. The display is based on the text screen and thus data entry and movement within the worksheet is as fast as Appleworks. The inability to use the mouse for cursor movement is a drawback. Apart from the usual operators there are financial, calendar, statistical and database functions to a total of 49. A number of sample worksheets are included to demonstrate its capabilities.

The program really comes into its own when you explore the graphics functions. Ten variables may be defined and these may be plotted on a double hiro on the graphics screen, making it increasingly versatile. The commands may be invoked either from pull-down menus (this novelty wears off very quickly) or by slash commands. Macros may be created and invoked by the Open-Apple key. One of its best features is the ability to table cells and cell ranges with names, which can then be referred to in formulas. For example, naming a partial row as "COST" can eliminate having to remember range co-ordinates and adds an element of user friendliness to the system. The graphs are drawn in double hiro graphics and therefore can incorporate fine detail. Scaling allows you to see the line on co-ordinates. VIM may also be used as a database complete with a host of data base functions as found in Lotus.

The two programs compared

If you are familiar with Lotus and need to use the same features then VIM is the program of choice. However, a number of hardware modifications need to be made to, a minimum of 256K Ram disk and possibly an accelerator. VIP is painfully slow in data entry, scaling and calculation. Compared to Appleworks, a 999 cell calculation takes twice as long to calculate on VIP. Whilst an accelerator triples the speed of Appleworks, only a doubling of speed is noted on the VIP using a Transconv card - this is due to the use of the graphics page. It must be noted that only the Transconv card accelerates VIP, as it works on auxiliary memory. VIP does have the edge in "Natural" recallulation, a peculiarity only in VIP whereby it handles all forward references. For example, if you are calculating backwards from cell 9 to 1, only one calculation step is required whereas Appleworks and SuperCalc would require a further 9 recalculations.

SuperCalc on the other hand does not place such emphasis on hardware requirements 128K and a 6552 is all that is required - although I strongly recommend the use of a Ramdisk if you are generating a large number of graphs. Being text-based, speed is identical to Appleworks. As far as graphs are concerned, SuperCalc definitely wins in terms of options, a larger screen display, speed of generation and most importantly the ability to print charts with the program. Both programs use the double hiro display with a colour option. SuperCalc also allows the display of graphs in single hiro - a totally redundant function in my view.

The macro facility in VIP is far superior to the Execute file macros in SuperCalc as they are more easily accessible and programmable. A truly novel feature of VIP is its tutorial disk which unlike other tutorial programs is wholly written via a self executing set of macros and spreadsheets. As a teaching aid the tutorial itself takes you through the various aspects of VIP but after that if you "break" into this powerful macro, one can then examine the style of programming involved. The special macro commands familiar to Lotus users even allow you to design your own menus from within your spreadsheets.

SuperCalc has a 256 X 63 cell worksheet whilst VIP gives you a massive 8156 X 256 cells.

**Summary**

In summary, if you need VIP, then you will need to upgrade your hardware or at least it will be a good reason to. Remember, however, that if you have already upgraded to an enhanced Apple //, then VIP is the only current program to harness all that power. VIP is also an excellent medium for those wanting to interface with Lotus the "WKS" files are compatible with Lotus via communications). For complex spreadsheets which require extensive repetitious keystrokes then the macros in VIP will be most appreciated.

For those wanting a spreadsheet with more functions than Appleworks (with speed) then SuperCalc Is the program of choice especially if graphs form a large part of the program. Then, the special features of SuperCalc (name and range handling, the ability to use the mouse) are considerable. Functions in both programs are similar, however, VIP has the edge for complex analytical worksheets through its macros and impressive range labeling features.

The tediously slow operation (even with an accelerator) of VIP is its greatest drawback which if overcome would make it undoubtedly the spreadsheet of choice.

**Editorial Continued**


Line 137 is missing, and should read:

80:AS IE 137 LDA VRES
The Finer Points: Creating a disk Printer
By W. Beasley, courtesy of H & S Works Newsletter

Many users of Appleworks know that there is such a thing as an ASCII file, also known as a text file. Such files are used to transport information from the wordprocessor into the database, as well as to import information from other programs into Appleworks. What many people do not know is that there are two different kinds of ASCII files: unformatted and formatted.

Unformatted ASCII files consist simply of characters, stripped of all information about such things as margins, underlining, boldfacing, and character-per-inch settings. Formatted ASCII files are roughly the same EXCEPT for the fact that they keep the margin information intact. This becomes important if you wish to create, say, a pair of columns for a newsletter.

Appleworks can readily create an unformatted ASCII file in the wordprocessor. Just use OA—P to print, select "TO A TEXT (ASCII) FILE" instead of your printer and type in the pathname form / (the name of your data disk)/// (the name you wish to give the ASCII file).

Creating a formatted ASCII file requires that you create a fictitious printer which actually prints the document to a disk file rather than to paper. Here's how to do that.

From the main menu choose 5. OTHER ACTIVITIES, and from the other activities menu choose 7. SPECIFY INFORMATION ABOUT YOUR PRINTER. You will see a printer information screen listing the printers currently installed on your disk and giving you the chance to add, remove, or modify printers. Now, Appleworks can only hold three printers at a time; if you already have three, you will have to delete an unused one to make room for this project. (If you have three and need all three — go and make a backup copy of your program disk and use it to return to this point. Go on; I'll get a cup of coffee while you're at it.) I'll assume that you now that you have only one or two printers listed on the information screen of the copy of Appleworks you're using.

Choose 2. ADD A PRINTER. You'll be presented with a list of 12 printers of which the last is "Custom Printer". You want to choose 4. APPLE SILENTTYPE. Yes, I know you don't have one of those; no one does anymore... we're trying to fool Appleworks, and I won't tell if you don't. You will be asked to specify a name for this new printer, I usually call mine PHANTOM, though you can call it TO DISK, ASCII, or WOLFANG if you prefer. You will be asked "How is it accessed?"; the choices are a list of slots followed by "Print into disk or onto another Apple". That's — choose that last option.

Choosing this will produce a screen with five pieces of information, ranging from "Needs line feed after each return" to "Interface Cards". The first one (LF with CH0 says YES at the moment. We want it to say NO, with choice 1 highlighted, press RETURN. You will be asked whether you wish to change the value. Say YES; then the value will change to a NO. Go down to the third choice (Stop at end of each page) and follow the same procedure to change it to a NO. Then go down to choice 4 (Print length) and change it to 0 inches. You're done. ESCAPE your way back to the main menu. Whenever you wish to create a formatted ASCII file on disk, use OA—P to print and choose PHANTOM (or whatever you called it). You can then type in a pathname and the resulting file will be formatted ASCII preserving the line lengths needed for newsletters and finicky telecommunications programs.

**Author's note: The above article was written when Appleworks 1.3 was the current version; I assumed that no changes were made in version 2.0 with respect to this information but have since discovered that this is not true. Version 2.0 AUTOMATICALLY creates formatted ASCII files when you specify that you would like to print at an ASCII file in disk; versions up through 1.3 created an unformatted ASCII file under these conditions. This means two things:

1) Users of version 2.0 need not go through the phantom printer installation routine — it's redundant.
   - repetitive, since it will produce the same kind of file as "print to an ASCII file".
2) Users of version 2.0 who NEED an unformatted ASCII file are apparently out of luck (I met one yesterday)... to the best of my knowledge, your best bet in this situation is to create a file in version 2.0, then find a copy of 1.3 or earlier for use in creating on unformatted ASCII file.

Home and School Works Newsletter is a small publication devoted to the use of Appleworks. It can be obtained by sending $US30 to:
Home and School Works Newsletter
P.O.Box 72, Leetsdale, PA 15056-0072 U.S.A.

A Review by John Paske

For those people who purchased a GS hoping to utilise the sound capabilities of this machine, Activision have a new release hot off the press called "MUSIC STUDIO". This is one hell-of-a-good program as I intend to show you briefly.

The advertising on the package says it's the premier music composition tool, but they're only half right; it's the only composition tool for the GS. What programs have the following features:

Four computer voices.
Fifteen instruments.
Connections for MIDI interfacing.
Designing of instruments.
Addition of lyrics.

To sample the way the GS produces music the authors have included several songs and it is a good idea to listen to these in order that you may not only appreciate the sound produced but also study how to compose your own work.

Composing tunes is quite a simple matter. First assign a time signature, then adjust volume and tempo, select instrument and place notes on the grand staff. If you wish a classical piece of music to be produced this can done by selecting the classical sound files. When this file is loaded fifteen classical instruments are then available for selection. Other files include rock, voices and jazz each with fifteen different instruments.

If this is not enough you can modify these to your own custom needs in the Design Instrument section.

This facility allows for creating customised instruments quickly and easily. A selected instrument can changed in terms of attack, decay, sustain and release. The new instrument can then be saved onto a data disk for later retrieval.

An added bonus with this program is that if you wish to add a MIDI interface card to your computer you can connect your computer to a Midi-equipped synthesizer or any other MIDI instrument. Through this connection you can play tunes you compose with the MUSIC STUDIO on your synthesizer.

If you are not confident in writing the traditional form of music this program has devised a system that is extremely simple to use. The Music Paintbox is a free-form method of composing. Instead of using standard musical notation you can "paint" notes onto the staff in the form of coloured rectangles. The size of the rectangles determines how long the note will be held, and the colour determines which instrument it represents. Having completed your composition it is interesting to see the transformation from rectangles to the traditional notation.

There is a lot to recommend this program, from its vast array of instruments to its ease of operation. There were two things I would like to see included one being a warning that the Control Panel slot for the printer shouldn't be set to your card and that printers other than Imagewriters / and / be incorporated to work with the program.

The idea in creating this program was to design a computer, musical "tool kit". One so complete that it would offer every option and audio function anyone could ever want, and yet be simple for even young children to use. THE MUSIC STUDIO has achieved this idea.

PROGRAM COURTESY OF IMAGINEERING

H&S WORKSTM
Newsletter for HOME & SCHOOL
Supporting AppleWorks

WANTED!

Computer Science Student with own Macintosh for part-time programming assignments. Preferably with some knowledge or interest in computer Graphics and/or Geography

Contact: Robert (02) 84-6448
Revelation Computing Pty. Ltd.
- or (02) 484-6448 after August 2.
## Apple II Software Listing

This list came to us by courtesy of TRIAD Software Products in the USA. All prices are in US$ and need multiplication by two to estimate Australian prices. Time zones are in the US, so you can add at least three months for local availability.

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<td>VIP PROFESSIONAL</td>
<td>DITEC (SWITZERLAND)</td>
<td>191.90</td>
<td>NOW</td>
</tr>
<tr>
<td>VISION PLUS</td>
<td>VISION PLUS</td>
<td>VISION PLUS</td>
<td>DITEC (SWITZERLAND)</td>
<td>191.90</td>
<td>NOW</td>
</tr>
<tr>
<td>VISUALIZER</td>
<td>VISUALIZER</td>
<td>VISUALIZER</td>
<td>DITEC (SWITZERLAND)</td>
<td>191.90</td>
<td>NOW</td>
</tr>
<tr>
<td>WIND PROFESSIONAL</td>
<td>WIND PROFESSIONAL</td>
<td>WIND PROFESSIONAL</td>
<td>DITEC (SWITZERLAND)</td>
<td>191.90</td>
<td>NOW</td>
</tr>
<tr>
<td>WRIT'S CHOICE ELITE</td>
<td>WRIT'S CHOICE ELITE</td>
<td>WRIT'S CHOICE ELITE</td>
<td>DITEC (SWITZERLAND)</td>
<td>191.90</td>
<td>NOW</td>
</tr>
</tbody>
</table>

### Apple II Software List

With all the Apple II software on the market, it's hard to keep up with what's available, such as the latest versions of your favorite Apple programs. To help keep you up to date, here's a list of all Apple II software distributed by Apple as of February, 1987.
Using the Apple IIgs, ProDOS 16

and the Program Launcher.

By Chris Nelligan.

Introduction

With the introduction of Apple's IIgs, a new operating system has been released, this being ProDOS 16. P16 is the central part, or kernel, of the IIgs' operating system. Although other software components may be thought of as part of the overall operating system, P16 is the key component. It manages the creation and modification of files. It accesses the disk devices through which files are stored and retrieved. It also controls procedures for quitting programs and starting new ones.

This article is not on how ProDOS 16 works but rather what happens as it is loaded, and the launching of Applications using the 'Apple IIgs Program Launcher.'

Loading ProDOS 16

The most noticeable thing about ProDOS 16 is the speed at which it is loaded. When some of us converted to use ProDOS from DOS 3.3, we thought the loading time of ProDOS was slow, but P16 takes even longer, on average approximately 50 seconds from floppy disk.

When ProDOS 16 is initially loaded, the title screen is displayed stating its version and the usual copyright notices. After a short while a message 'One moment please...' is displayed. A moment is an understatement.

On each ProDOS 16 Master disk the following should be found...

<table>
<thead>
<tr>
<th>Directory/File</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRODOS</td>
<td>A routine that loads the proper operating system and selects an application</td>
</tr>
<tr>
<td>SYSTEM/</td>
<td>A subdirectory containing</td>
</tr>
<tr>
<td>PRODOS</td>
<td>ProDOS 16 operating system</td>
</tr>
<tr>
<td>P16</td>
<td>ProDOS 16 operating system</td>
</tr>
<tr>
<td>LOADER</td>
<td>The IIgs System Loader</td>
</tr>
<tr>
<td>START</td>
<td>Typically a program selector</td>
</tr>
<tr>
<td>LIBS/</td>
<td>Subdirectory with standard system libraries</td>
</tr>
<tr>
<td>TOOLS/</td>
<td>Subdirectory containing all RAM based tools</td>
</tr>
<tr>
<td>DESK.ACCS/</td>
<td>Subdirectory containing all fonts</td>
</tr>
<tr>
<td>SYSTERM.SETUP/</td>
<td>Subdirectory containing system init programs</td>
</tr>
<tr>
<td>TOOL.SETUP</td>
<td>A load file containing patches to ROM and a program to install them.</td>
</tr>
<tr>
<td>BASIC.SYSTM</td>
<td>The Applesoft BASIC system file interface</td>
</tr>
</tbody>
</table>

Selecting files

Within the select window, files are displayed in alphabetical sequence. Scroll bars may be used to display files that are not within the current window.

The House may be used to select any files highlighted as being available, dimmed filenames indicate they can not be selected. A 'click' of the mouse will select it, a 'double click' will execute it (pressing RETURN or clicking OPEN will also execute it).

The Arrow keys, Up, Down, Left and Right will move between selectable applications.

Letters of the alphabet A-Z can be used to select applications.

When in Subdirectories, pressing the ESCape key, clicking the CLOSE button or clicking the folder icon above the filename window will reopen the calling directory.

Returning to the Program Launcher

Upon quitting from an application, control is usually passed back to the Program Launcher. This then allows selection of further applications. Some programs are re-executable from memory, that is they are restartable. If you quit a program and then reselect it from the Launcher, it may startup again without going to disk to reload.

The handling of Memory and what resides where is handled by the Memory Manager, this is an article of its own. Let it be known that more than one program can reside in memory at the one time. There is a supposed program similar to 'Switcher' on the file that will be available for 65 owners.

Apple IIgs

Monitor commands

~~~~~~~~~~~~~~~~~~~~

Article number one.

A file describing the new monitor commands available for the Apple IIgs.

Some texts and samples taken from IIgs technical documentation.


Contents

1. Introduction to this article
2. Native and Emulation modes
3. Summary commands for modifying memory
4. Summary commands for modifying registers
5. Summary of miscellaneous monitor commands
6. Commands for program execution and debugging
7. Displaying and modifying memory
8. ASCII Text Input
9. ASCII Text filters
10. Next article contents

Introduction.

The following file describes the entire Apple IIgs monitor commands. There are many new system monitor commands within the IIgs than the ordinary Apple II. These help not only in debugging programs, but also when working closely within the machine.

The IIgs operates under a multi memory bank setup. To access the different banks within the IIgs, the forward slash (/) is used. For example to switch to memory bank #90, the following line would be entered.

*0B [RETURN]

To examine the memory location $392A in Memory bank $27, the following line would be entered.

*27/392A [RETURN]

In notational form the above line would be 'br/addr'.

Native and Emulation modes.

Since the Apple IIgs uses the 65816 chip, this allows compatibility with the old 6502 and 65C02. The 65B16 is a 16 bit processor whilst the older chips are 8 bit. For example, under Native mode on the 65C016, the accumulator and index registers are 16 bits wide, and on the older chips they are 8 bits wide.

The IIgs when switched on defaults to 8 bit emulation mode, this is to allow existing Apple II software to
run. However, new Apple IIgs software is most now being written in 16bit. I will not go into the differences between the commands between the chips, but just to say that they vary.

**Switching.**

When CONTROL-E is pressed to display registers, a lowercase m.x and e appear. These are the state of the machine, 'm' for Accumulator, 'x' for index registers and 'e' for Emulation mode. It is possible to run the 65816 with 16 bit accumulator in Emulator mode. To change between the two

*0e on m.0 is x (Switches to Full 16bit mode)

*1e on m.1 is x (Switches to 8bit Emulation)

For more information on the 65816 and how it operates I recommend the following book.

65816/65802 Assembly Language Programming
Author: Michael Fischer
Publisher: Osbourne/McGraw-Hill
(I got mine from Dymocks for $41.95)

**Commands for viewing or modifying memory.**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Display single memory location</strong></td>
<td>[from ba] (to ba)</td>
</tr>
<tr>
<td><strong>Display multiple memory locations</strong></td>
<td>[from ba] (to ba)</td>
</tr>
<tr>
<td><strong>Modify consecutive memory</strong></td>
<td>[dest ba][val 1] [val 2]</td>
</tr>
<tr>
<td><strong>Move data in memory</strong></td>
<td>[dest ba] [from ba] (to ba)</td>
</tr>
<tr>
<td><strong>Verify memory contents</strong></td>
<td>[dest ba] [from ba] (to ba)</td>
</tr>
<tr>
<td><strong>Fill memory with byte</strong></td>
<td>[val 1] [from ba] (to ba)</td>
</tr>
<tr>
<td><strong>Pattern search</strong></td>
<td>[from ba] (to ba)</td>
</tr>
<tr>
<td><strong>Displaying and changing memory locations</strong></td>
<td>[literal ASCII] &lt;from ba&gt; (to ba)</td>
</tr>
</tbody>
</table>

**Miscellaneous Monitor commands**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inverse text</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Normal text</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Change date and time</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Display date and time</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Redirect input hooks</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Redirect Output hooks</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Change screen display to text</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Change cursor</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Convert decimal to hexadecimal</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Convert hexadecimal to decimal</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Perform hexadecimal math** | [val 1] +[val 2] |
**Jump to Coldstart BASIC** | CONTROL-B |
**Jump to Warmstart BASIC** | CONTROL-C |
**Jump to User vector** | CONTROL-Y |
**Quit monitor** | G |

**Commands for program execution**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Go (begin) program in bank $00</strong></td>
<td>(addr 3)</td>
</tr>
<tr>
<td><strong>Execute program from any bank</strong></td>
<td>(addr 3)</td>
</tr>
<tr>
<td><strong>Resume execution</strong></td>
<td>CONTROL-R</td>
</tr>
<tr>
<td><strong>Perform a program step (not active)</strong></td>
<td>(addr 3)</td>
</tr>
<tr>
<td><strong>Perform a program trace (not active)</strong></td>
<td>(addr 3)</td>
</tr>
<tr>
<td><strong>Disassemble (list memory)</strong></td>
<td>(addr 3)</td>
</tr>
</tbody>
</table>

**Displaying and changing memory locations**

To display the contents of memory is a simple task. The Apple IIgs has not only display the disassembly of program code but displays the ASCII text values as well. Back in the days of older it's one would have to move memory ranges to the text screen to check and see if it was ASCII you were looking at.

**Displaying**

*0200 [RETURN]

00/2000: 41 -H

*2000: 2005 [RETURN]

00/2000: 41 42 43 44 45 =H E L L O

*02/2000 [RETURN]

02/2000: 50 -P


*02/2000L [RETURN] Performs a program disassembly from $2000 in Bank $02.

**Changing**

*0100:41 [RETURN]: Change
memory location $1000 in current bank to 141

*03/1000:CC [RETURN] Change
memory location $1000 in bank $03 to $0C.
ASCII Filters for stored data

When you perform any manipulation of ASCII code, you must consider the literal ASCII format of the stored data. For example, do you want the data to be stored in ASCII with the most significant bit set (to be compatible with the I/O firmware for display purposes) or direct in true ASCII format where what you type exactly follows ASCII standard? The format can be changed using any filters provided by the monitor. The filter can be any hex value from $00$ (maximum filtering) to $FF$ (no filtering, i.e. all source bits pass through the filter unmodified).

The syntax for changing the filters is:

\[
\text{FILTER value}\langle \text{RETURN} \rangle
\]

For example, $7F$ (RETURN), the system then uses the $7F$ filter format.

This means that when you search for any pattern in memory, you must know which format is used. If FF is used, abc would appear in hex as $E1\ E2\ E3$; if $7F$ is used abc would appear as $61\ 62\ 63$. Thus if you performed a pattern search for $E1\ E2\ E3$ and the format used was $7F$, you would not find the correct pattern.

The input ASCII character is ANEd with the filter value, then is stored in the search buffer.

The filter formats are as follows:

<table>
<thead>
<tr>
<th>Entry</th>
<th>Filter</th>
<th>Format of stored data</th>
</tr>
</thead>
<tbody>
<tr>
<td>'abcdefgijkl'</td>
<td>FF (Default)</td>
<td>$E1\ E2\ E3\ E4\ E5\ E6\ E7\ E8\ E9\ EA\ EB\ EC</td>
</tr>
<tr>
<td></td>
<td>$7F$</td>
<td>$61\ 62\ 63\ 64\ 65\ 66\ 67\ 68\ 69\ 6A\ 6B\ 6C</td>
</tr>
<tr>
<td></td>
<td>$3F$</td>
<td>$21\ 22\ 23\ 24\ 25\ 26\ 27\ 28\ 29\ 2A\ 2B\ 2C</td>
</tr>
</tbody>
</table>

Questions & Answers

Some of the literature I read talks of Apple // disks with 34 tracks, other sources talk of 22 tracks. Which is right?

Both are right, provided you remember that the first track is track zero. What is happening is that the first figure is in decimal (the numbers you learned in school), the second in hexadecimal. It is better to write $22$ to emphasize that it is in hexadecimal. (Usually "hex" for short.)

$22$ means two sixteen and two ones (just as $34$ means three tens and four ones): $2 \times 16 + 2 = 34$.

In fact there are 35 tracks, because we start with track zero. That gives us $35 \times 16 = 560$ sectors on the disk or a potential 140 kilobytes of storage. Less a bit for directory information and DOS.

From Anonymous

Actually, I knew who this was from but I have forgotten. Sorry.

I wrote the attached program to make my fortune (it is a lotto numbers generator). BUT, every time I ran it I got the same numbers. What is the problem?

I won't quote the whole program, but the offending line is:

\[ 110\ N(\ RND) = \text{INT}(40 \times \text{RND}(1) + 1) \]

the problem is that the random number generator always delivers the same numbers from the same seed.

This is not particularly easy to fix. I experimented for rather longer than I expected before I came up with the following:

\[ 40 \text{PRINT} "\text{HIT ANY KEY}": \text{GET A}\]
\[ 45\ J = \text{PEEK}(78) \]
\[ 50\ K = \text{RND}(1) \]
\[ 110\ N(\ RND) = \text{INT}(40 \times \text{RND}(1) + 1) \]

Line 45 could be replaced by:

\[ 45\ J = \text{PEEK}(78) + 256 \times \text{PEEK}(79) \]

Answers by Ken Ozanne

From Ben Morell (rapidly overtaking anonymous as our most regular correspondent)

for a wider range of possibilities

Line 40 is simply designed to wait for an unpredictable length of time so that the keyboard counter (which uses locations 78 and 79) will have an unpredictable number in it. Line 50 reseeds the random number generator into one of 256 possible patterns if the first line 45 is used, one of 65536 if the second line 45 is used.

Obviously some line numbers in the original program will have to be changed so as not to conflict with the ones I have used. (Or vice-versa, of course.)

Please let me know if there is any remaining problem. The RND function in AppleSoft is notoriously flawed and this modification would not be enough in a more complex application.

For NEW AppleSoft programmers here are some handy hints.

When programming in Basic, place GOTOs at the top of the program. Since Basic searches from the top to the bottom of the program, searching for a particular line number, if the line number it is looking for, is at the top of the program, the compiler will find it faster.

Don't use constants in a FOR-NEXT loop.

DO ------ C = 23.14: FOR A = 1 TO 100: B = A/23.12

and define all your variables at the beginning of the program.

A:ip for the //65

To coin a phrase - "Since the beginning" I have used timing loops within my programs. I always found that the following loop gave me just the right amount of time for displaying a program's title page.

1 FOR I = 1 TO 3000: NEXT

Now with the //65 running almost three times the speed the rest of the Apple // family, it becomes necessary to make the following change to my programs as follows.

10 A = PEEK(64435): B = PEEK(64446)
20 IF A = 6 AND B = 244 THEN TIME = 10000
30 TIME = 3000

1000 FOR I = 1 TO TIME: NEXT

If the value of A is 6 and the value of B is 244 then the software will recognize it is running on a 65.
The Apple Mouse on the //c and //e.

From Apple // Technical Notes
Reprinted courtesy of Apple Computer Australia.

There are differences between how the mouse works on the Apple //e and how it works on the Apple //c. This technical note explains what is causing these differences.

A clarification of the effects disabling interrupts has on mouse data has been added.

INTRODUCTION

As advertised, if you use the mouse firmware routines such as SETMOUS to control the mouse then these routines will perform the same function in the Apple //c as they do in the Apple //e. This does not mean that a program which uses the mouse will behave the same in both computers. There are two reasons for this. One is that if a program has not properly set the environment prior to calling these routines it is possible for the program to work in one machine and not in the other. The second reason is that there are differences in the machines and although the ROM routines perform the same functions there may be noticeable differences in the "behaviour" of the mouse. This technical note will explain the fundamental differences between the way the mice in the two machines work. It will then point out precautions that need to be taken to make sure that your machine language program will work on both machines. With the exception of movement scaling described below BASIC and Pascal programs do not need to be concerned about setting the proper environment.

The Apple //e mouse card has a microprocessor on it which constantly polls the mouse to get status and position information. This data is then kept on the card and is available whenever the program requests it through the READMOUSE routine. If the mouse is in passive mode this information will be picked up by the main program whenever it gets around to it. The 8k TIMBUS routine can set the mouse card to issue interrupts under certain conditions. When the mouse card determines that such conditions exist it issues an interrupt. This stops the main computer and goes to what ever interrupt handling routine has been set up. This routine will then read the information from where the card processor saved it and puts it in the screen holes. When using a mouse on an Apple //c with a mouse card your program is only interrupted if your program has requested it. And the data in the screen holes is being changed only when the program's interrupt handler or polling routine has called READMOUSE. Also enabling and inhibiting interrupts does not affect the updating of mouse information by the card's microprocessor.

The Apple //c mouse does not have a card microprocessor and so mouse information is collected by interrupting the Apple //c's microprocessor. When the interrupt happens the firmware captures it and processes it which includes updating the screen holes. The interrupt is passed on only if SETMOUS set the conditions to do so. However, having the mouse interrupt the computer's microprocessor means that your program is being constantly interrupted. This will affect program timing. It also means that the screen holes are constantly being updated with X and Y information even in passive mode since this information must be kept somewhere and there is no card to keep it on. Also, if you have disabled interrupts then the mouse can never interrupt the processor and so the X and Y values are never updated and calling READMOUSE will indicate that there has been no mouse movement.

Since the Apple //c is constantly being interrupted while the mouse is on, the program's performance may be affected. To minimize this effect the Apple //c responds one-half as frequently as mouse movements do the mouse card. The noticeable result of this is that the mouse must be moved twice as far to create the same effect as the same behaviour on both machines then multiply the Apple //c X and Y values by two and clamping to 1/2 the //e value before using them.

With the exception of having to double the Apple //c mouse movement your program can ignore which machine it is running on by following the precautions listed below. If you are working from BASIC or Pascal these conditions are taken care of for you.

Some programs may need to turn off interrupts for purposes other then reading the mouse. This is sometimes done on the Apple //e to keep from having to handle interrupts while in auxiliary memory. If interrupts are turned off and then back on, the first call to READMOUSE may give incorrect values. Subsequent calls to READMOUSE will return correct values until interrupts are turned off and on again. Turning off interrupts for mouse calls does not create this problem. If you are watching numbers coming from the mouse while moving it in a direction that would increase values you might see the following: 6, 7, 6, 5, 6, 9, 10. In practice this is not a problem. If you keep this "glitch" from happening then do not keep interrupts off for more than 40 microseconds or be sure that at least one mouse interrupt has taken place since interrupts were turned back on.

DEVELOPMENT TOOLS FROM FIRMWARE DESIGN:

TML Pascal (Mac) $198
TML Source Code Library (Mac) $180
TML Database Toolkit (Mac) $198
TML Module-2 (Mac) $198
TML Pascal (GS) $252
TML Source Code Library (GS) $108
TML Speech Toolkit (GS) $144

Consulair MacC Jr $168
Consulair MDS $168
Mack2 $240
MacScheme $276
MacTran77 $420

MacExpress $420
Invention Progr. Extender $198
Invention Comms Extender $210

Fedit Plus $84
QUED/1M $192
MacNose $180
TMON $228

MacTutor (per issue) $9.50
MacTutor (12 issues) $95
The best of MacTutor vol 1 $54.95
The best of MacTutor vol 2 $54.95

Just released. TML Module-2 for the Macintosh. Implemented as a Macintosh Programmers Workshop (MPW) tool, exploiting the full power of MPW. At last a fast, complete and compatible Module-2!

Version 2.5 of the Macintosh Compiler now provides interfaces for the new Mac SE and Mac II Toolbox routines and direct access to the 68881 floating point co-processor.

The availability of complementary products such as the Source Code Library, Database Toolkit, MacExpress and Invention Programmer's Helper gives the programmer-developer a head start in developing applications. Registered Users have access to Firmware Design's technical support, regular newsletters and will always have access to the latest version of the Compiler.

TML Pascal is now also available for the GS. The compiler creates standalone ProDOS16 applications, shell applications as well as desk accessories. Complete access is available to all GS ROM Tools.

Our efficient mail and phone order system will give you the latest in languages, utilities, books and other products for software development on the Macintosh. Ask for our free regular newsletter/catalogue.

BankCard and MasterCard welcome.
HIGHLIGHTS

The Big Bad matrix
Specialty Printer Functions

ThunderScanning
The Beast in the Machine
WHO'S AFRAID OF THE BIG BAD MATRIX

By Keith Brewster

Original article by courtesy Creative Computing December 1981

Beginners in Basic, as well as many people with quite a lot of experience, have real trouble understanding arrays and matrices. This may be because it is a little difficult at first to see the real value of these concepts. Once the techniques are mastered, and it becomes possible to 'visualise' an array or matrix, these extremely powerful features of Basic and many other high level languages become useful tools. The purpose of this article is to introduce these concepts and a few of the techniques involved in matrix/array programming, and to point out some of the places where arrays can be used.

What is an array?

An 'array' is like a list. Visualise it as a vertical stack of boxes. The boxes are piled up, and the stack is one box wide and several boxes high. Thus the pile has only one dimension, that of height. It is only one box wide, so it has no width. There is no depth either.

The computer doesn't see things quite this way, but since what it does is totally 'transparent' or 'invisible' to the user, we don't really care. The stack of boxes is convenient for human minds to picture, and we can draw it on a piece of paper. But what good is a pile of boxes if the boxes are empty? Can we put something useful in them? The boxes are called variables, and they function just as any other Basic variable functions. Each box can store a number or a string.

--------
| 8 | (Box 1 contains 8) |
| 7 | (Box 2 contains 7) |
| 3 | (Box 3 contains 3) |
| 1 | (Box 4 contains 1) |
| 6 | (Box 5 contains 6) |
--------

--- Figure 1. ---

Figure 1 shows how our stack of boxes or variables collectively called an array, should be visualised.

When an array is first DIMensioned (more on this later), it has nothing stored in the boxes. Most Basics automatically initialise the boxes to 0, but if there is any doubt, it's good practice to initialise them as part of the program. There are many ways to put values in the boxes.

Firstly, they can be 'stuffed' in by direct assignment statement. To do this, we must know the name of the array. Let's call it array A. The boxes have numbers automatically, numbering from A(1) to A(N), where N is the number of the boxes. In our example, the boxes (called elements) are numbered from 1 to 5. To specify the array and the box to be 'stuffed', we use the following format:

\[
\text{ARRAYNAME(ELEMENTNUMBER)}
\]

For example, in our example, if we want to put 100 into box 3, we can do it like this:

\[
A(3) = 100
\]

In a typical Basic manner, we can use a variable to represent the box, too. Since we are going to get used to using the word 'element' instead of box, we'll choose the variable name E (for element). Now we can do this:

\[
E = 3; A(E) = 100
\]

Once gair, the value 100 has been stored in the element that is numbered A(3).

The wheek are going around in the mind, and the question is about to be asked: Why should I use a variable to stand for the element number? Well, you don't need to do this to assign values to elements directly, but what if you want to READ out the DATA statement into your array? Here's how this is done:

10 REM STUFF ARRAY A FROM DATA STATEMENT
20 DIM A(10)
30 FOR E = 1 TO 5
40 READ A(E)
50 NEXT E
60 DATA 2, 3, 4, 5, 6

This little routine reads the values from your data statement (line 60) and stuffs them in sequence into the array. Note the DIM statement in line 20. This just reserves memory space for a ten-element array. You can DIM an array for practically any number of elements, but remember that unused elements use memory, so don't get carried away! Note, too, that you are allowed a ten-element array without a DIM statement. The word DIM stands for DIMension.

Now we know how to loop using FOR NEXT until our array is full. But what happens if there are elements in the array and only six numbers in the DATA statement?

We get an OUT OF DATA error message. What can we do to prevent this? The easiest and most widely used method is to place an end-of-data marker as the last piece of data in the DATA statement. A number -- selected so that it would not otherwise appear in the data statement -- is used for this purpose. A good example might be 10000. Listing 1 is a typical routine that uses this technique.

10 REM EXAMPLE OF END MARKER
20 E = 0
30 E = E + 1
40 READ A(E)
50 IF A(E) = 10000 THEN A(E) = 6: GOTO 100
60 GOTO 100
70 DATA 8, 3, 1, 6, 10000
80 100 REM REST OF PROGRAM CONTINUES

--- Listing 1. ---

Another way to load an array is by use of the INPUT statement. This allows you to put numbers directly into the array from the keyboard. To do this, simply substitute for line 40:

40 INPUT "NUMBER, PLEASE "; A(E)

When all your numbers are in, you can enter 10000, and the program will jump out of the loop and proceed from line 100.

Before we leave the array and start talking about the matrix, there are a couple more things you should know. In most basics, you can store strings as well as numbers. But you can't put strings in a numeric array. You must DIM the array as follows:

DIM A$ (10)

Now, anything you put into any of the elements of array A$ (pronounced "A dollar" or "A string") will be stored that way, so you can't put numbers into a string array and expect to do calculations with them. Of course you can use VAL to convert numbers stored as strings to pure numbers.

An excellent example of string use is when you want to sort a bunch of words in (for example) alphabetical order. See listing 2 for an example of this:

10 REM "" ALPHABETIC SORT ""
20 REM "" HOUSEKEEPING ""
30 DIM A$(10): REM DIMENSION STRING ARRAY TO HOLD UP TO 10 STRINGS
40 HOME
50 REM "" LOAD STRING ARRAY AS FROM CONTENTS OF DATA STATEMENT AT LINE 15 ""
60 REM "" NOTE THERE ARE 6 ITEMS IN THE DATA STATEMENT ""
70 REM "" PUT DATA ITEMS INTO ARRAY ELEMENTS ""
80 NEXT E
90 DATA A$ (E) = "" ASC (A$E) THEN GOSUB 1000: REM "" SWAP SUB ""
100 REM "" SORT ARRAY AS USING ASCII VALUES REPRESENTING FIRST LETTER OF EACH ITEM IN THE ARRAY ""
110 FOR E = 1 TO 6: FOR E = 1 TO 5
120 IF ASC (A$(E)) > ASC (A$(E + 1)) THEN GOSUB 1000: REM "" SWAP SUB ""
130 NEXT E
140 NEXT I
150 REM "" PRINT OUT SORTED ARRAY ""
160 HOME
170 PRINT A$(E)
180 NEXT E
190 GOTO 1000
200 END

--- Listing 2 ---

THE DIM STATEMENT

Now let's take a quick look at the DIM statement. This should go towards the beginning of your program, certainly before the array is used. Remember, too, that more than one DIM for the same array is illegal. Your program will be interrupted by a rude error message if you use a GOTO to send the program back to a line before the original DIM statement! So get the DIM out of the way at the beginning of the program, then don't let the program loop back to a line number lower than the DIM number.

Although AppleSoft gives you the first 10 elements without a DIM, get into the habit of DIMning all arrays (and matrices) just in case.

In summary, any time you want to enter a significant number of words, sentences, or numbers using INPUT or want to READ them from disk or DATA

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---
statements, use an array.
When you are done print out the list with the program in listing 3
200 REM * PRINT CONTENTS OF ARRAY AS *
210 B=0
220 E=B+1
230 IF A(E)=1000 THEN 300
240 PRINT A(E)
250 GOTO 220
300 REM PROGRAM CONTINUES.
-- Listing 3. --

MATRICES
Now bring on those big bad matrices.
No, a matrix isn't something you sleep on (nor is
array some kind of disk-shaped fish): A matrix is an
array with more than one dimension! Remember we
said an array is "one dimensional" because it has
only height, and no width or depth? A matrix has
more than one dimension, (usually two, but three -
and even four dimensional matrices are not really
unusual).
To keep it simple we'll discuss two dimensional
matrices in this article. Think of a matrix as several
arrays, all of the same length (height) set beside
side. The result is often called a "table", but
computer people say matrix. There's one in
figure 2.

MATRICES
Col.1 Col.2 Col.3 Col.4
--------+--------
Row 1 ! 45 ! 20 ! 65 ! 25 ! 30 ! 40 ! 30
Row 2 ! 30 ! 10 ! 40 ! 20 ! 40 ! 50 ! 70 ! 60
Row 3 ! 15 ! 50 ! 30 ! 75 ! 105 ! 80 ! 100 ! 70
Row 4 ! 30 ! 30 ! 50 ! 250 ! 50 ! 150 ! 45 ! 30
--------+--------

---- Figure 2. ----

Anything true of an array is essentially true of a
matrix, too. You can assign both Row and Column
numbers to variables. The DIM procedure is similar
but not identical. The following is a correct DIM
statement for our example matrix that has five
columns and four rows:

DIM M(5,4)

Notice that the number of rows to be used is always
the first number in parentheses, it is followed
immediately, without so much as a space, by a comma,
and the immediately by the number of columns you want to DIM. Remember, that the rows
are horizontal and the columns are vertical. The
DIM statement takes the following form:

DIM MATRIXNAME (ROW,COLUMN)

For convenience, we'll use these matrix variables: R
is the Row variable, and C is the Column variable.
Let's assume we want to load the matrix we have
created with DIM M (5,4) statement above, and we
want to use the values shown in the earlier
example. What should the DATA statement look
like, and how can we READ into such a matrix?
The easiest way is use two nested FOR NEXT
loops, one to handle the columns, and the other for
the rows. Let's assume that we want to load the
matrix horizontally. That is, the first four
numbers in the DATA statement will go into row 1,
columns 1,2,3,4 in that order. Listing 4 shows how to
do this.

10 REM STUFF MATRIX FM DATA STM T
20 R=1
30 FOR C=1 TO 4
40 READ M(R,C)
50 NEXT C
60 DATA 45,20,65,25,30,10,40,20,105,20,305,95,
300,50,350,50,350,250,75,30,105,45
-- Listing 4. --

When we RUN this program the first four numbers
in the DATA statement will be stuffed into the first
horizontal row of the matrix. Now we need to add
an outer loop that will cycle through the Row
values, 1 to 5. Listing 5 is the same program with
the two loops.

10 REM STUFF MATRIX FM DATA STM T
20 FOR R=1 TO 5
30 FOR C=1 TO 4
40 READ M(R,C)
50 NEXT C
60 NEXT R
70 DATA 45,20,65,25,30,10,40,20,105,20,305,95,
300,50,350,50,350,250,75,30,105,45
100 DATA 105,45
-- Listing 5. --

RUNning this program will load the matrix with the
values shown in the example.
To print it on the screen, try Listing 6.

200 REM PRINT MATRIX CONTENTS
210 FOR R=1 TO 5
220 FOR C=1 TO 4
230 PRINT R: " C: "; STORES; M(R,C)
240 NEXT R
250 NEXT C
-- Listing 6. --

You can "format" the print-out to fit your particular
system...
Here are a few ideas for programming using
matrices:

* Look-up tables
* Storing numbers or strings for later use.
* Mathematical manipulations such as adding the
first column to the second column, and putting the
sum in the third column.
* Multiplying a whole potful of numbers by another
number.
* Storing files as a table. For example you could
write a chequebook balancer that stores old balance
in column 1, cheque or deposit in column 2, new
balance in column 3, date in column 4, and cheque
number in column 5. Or you could store data on
people's name in the first column, address in column 2,
phone in column 3, etc.

Assuming you have "loaded" a 4 column by 5 row
matrix like the one described, here's how to do
arithmetic manipulations with it's elements.

MULTIPLY COL 1 BY COL 2

(Store product in Col 3)

300 FOR R=1 TO 5
310 M(R,3)=M(R,1)*M(R,2)
320 NEXT R

Notice here that only three Basic lines need to be
used to multiply practically any number of
elements! Division, addition, subtraction, and the
various Basic functions can also be used in this
manner. Here's a short routine to look up numbers
in a matrix that are related to the number in column 1.
For example, if you store the amount of each cheque
written in column 1, and you want to print out only
those cheques written for a certain amount, you can
do it like this.

400 INPUT "ENTER AMOUNT "; AM
410 FOR R=1 TO 5
420 IF AM=M(R,1) THEN PRINT M(R,1): ";
"M(R,2): ""M(R,3): ";"M(R,4)
430 NEXT R

The program loops through the row numbers,
checking column 1 in each row for equality with the
number you have entered as AM. When it finds a
match, it prints out the contents of the other columns
on that row. These columns can be used for
practically anything you want! In the case of string
matrices, they could be addresses, phone numbers,
birth dates, anything you might want to look up. In
this case, column 1 would contain the names's name,
and the AM would of course have to be AMs, and
the matrix would have to be dimensioned as a string
matrix.

By now your curiosity should have been aroused,
and you should be thinking of ways to use matrices
and arrays in your programming. They are a
powerful way to store data. You can READ in the
data either from a DATA statement, or from disk.
Disk operations are far too system-dependent to
cover in a general article, but read your DOS and
BASIC operating manuals.

Each system is different in terms of the RAM
memory used to store each matrix/array element.
This information is in one of the books supplied with
your system.
If you can't find it, you can write a Basic program
that DIMs, then stuffs a matrix by using PRINT
FRED(0) that tells your system to print out the
remaining user memory. A little experimentation
will let you find out how much RAM is used each
time you use these powerful features of Basic.

In closing, you should know that matrices and arrays
give you one "free" element that you can use any
time you DIM an array or matrix. This is row
(matrices), or element (arrays) 0. For example, you
can store a number like this:

M(0,0)=100

Or in a matrix, you can do this:

M(0,0)=100
M(1,0)=101
M(2,0)=102
M(3,0)=103

and so forth.
Element 0, Row 0, and Column 0 are always there,
and you should be using them if you have very
limited memory available.

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DOS Files

Original article by courtesy of Michigan APPLE-gam.

Everything stored on a diskette which is not a BASIC program and not a BINARY data file, is considered to be TEXT. A data file of all numbers for example by a program is considered TEXT. A mailing list is considered text. Everything but SAVE or BSAVE files are TEXT files.

In the most general sense, a FILE is an orderly collection of data referred to as one unit, normally under one name, the FILE NAME (in APPLE DOS, this name can be from 1 to 30 characters).

Inside a FILE are one or more sub-divisions of data known as RECORDS. Ordinarily one RECORD is synonymous with a line of text string or numeric data. Further sub-divisions are possible. For instance, a FIELD is a part of a RECORD and a SUBFIELD is a sub-set of a FIELD.

Let's set up a realistic example: Suppose we wanted to define a name, address, and phone number field.

The field might be defined like:

FILE NAME: MAIL LIST
RECORD: ONE PERSON'S DATA
FIELD 1: LAST NAME
FIELD 2: FIRST NAME MID INITIAL
SUBFIELD 1: FIRST NAME
SUBFIELD 2: MIDDLE INITIAL
FIELD 3: ADDRESS
SUBFIELD 1: STREET NUMBER
SUBFIELD 2: STREET NAME
SUBFIELD 3: APARTMENT NUMBER
FIELD 4: CITY
FIELD 5: STATE
FIELD 6: POST CODE
FIELD 7: PHONE NUMBER
SUBFIELD 1: AREA CODE
SUBFIELD 2: PHONE NUMBER

Even though a computer demands a highly structured way of defining and storing data, it can be done in a way conducive to good understanding by the people the program is supposed to benefit.

Once you have decided WHAT you want to tabulate and record, you must then find a way HOW to store the data. This requires you to know something about FIELD STRUCTURE. I know you have all heard of types of file structures, like sequential and random. But what do these words mean.

In a SEQUENTIAL file, all information is physically stored in the file IN THE ORDER IT IS WRITTEN TO THE FILE. An example of this is an ordinary music tape recorder. When you play back the songs, you must listen to them in the order in which you first recorded them. If that isn't what you want to hear, the only choice is to "fast forward" over songs you want to by-pass. But you must PASS OVER EVERY SONG on the way.

Contrasted to a tape recording is the LP record. Here you can listen to each song in sequence, OR skip a song, or a group of songs by lifting the needle and putting it down at the location of the song you want to hear next. What you did was select a song RANDOMLY! A cassette tape with your programs or data on it is another type of sequential access file structure. A diskette is an example of RANDOM ACCESS.

Within the major grouping of random file structures, other sub-groups have been defined such as indexed sequential work addeessable, keyed sequential, actual key, direct access and many others.

On the APPLE, we'll have stick with straight SEQUENTIAL, and RANDOM access by RECORD number. First we'll cover the sequential method.

In a sequential file, you put data on a disk file with a regular PRINT statement without worrying about how long a line or RECORD of data is. That is, it is a random length file.

To take advantage of RANDOM file access you must use a FIXED LENGTH RECORD. The upshot of this is that you must make an effort in your program to keep any line PRINTed to the disk the same length. A good way to do this is to 'pad' unused positions in the record with blanks.

(For this in the RANDOM ACCESS example program presented later on.) A word or two is now in order on the 'format of the TEXT FILE data on the diskette. As you would surmise, since all data stored within the Apple is encoded using ASCII numbers for each character, this would be a logical way to put data onto a diskette. In fact this is exactly how it is done (however, even though REAL and INTEGER numbers are stored in internal binary format: they too go out on the diskette as ASCII characters).

A little known 'feature' of APPLE DOS is that all characters are 'packed' together as they are written to a disk file. Ordinarily this is good, since it wastes no space on the diskette. But a problem can arise if you don't take the packing into account.

To illustrate this, let u define three variables X, Y, and Z: X=1; Y=2; Z=3

If you PRINTed them with PRINT X, Y, Z you would expect the output to be:

1 2 3

But if you were sending these numbers to a disk file, the record would be:

123

(How did that happen??)

What happened was this: the numbers were 'packed' together into one string!!

Can this 'feature' be worked around?? Yes. There are two main ways to solve a dilemma of this kind. First we can always print command() between each number or we can print each on a separate line of data. Let's look at both ways:

PRINT X; "", Y; "", Z; gives: X,Y,Z
PRINT X; PRINT Y; PRINT Z puts each of the variables on it's own line.

Anybody care to guess how the APPLE can figure out which way we did it?? As is normal for INPUT statements, a comma is considered a separator, so the first method works OK as long as you use a separate INPUT statement for each one.

(What is actually going on is this: at the end of each line of data written to a SEQUENTIAL disk file, a carriage return character (ASCII 13) is appended to the end of each line. In this way, you can use lines of variable length).

Now that we've specified the structure of our file, all that's left is to OPEN the file to WRITE to it and we're done.

Wait a minute!! What's this OPEN and WRITE to it and we're done.

Once a file is OPEN, we must then tell the DOS if we are putting data onto your disk (WRITE) or getting data back that is already there (READ). Lastly, when we have finished with the file, we always CLOSE it prevent loss of data.

Let's examine the syntax for each:

OPEN F (LJ) (So) (Dd) (Vv)
READ F (Jr) (Jb)
WRITE F (Sr) (Jb)
CLOSE (F,S) (S) (Dd) (Vv)

In each of the statements above:

F is the FILE NAME
L is the record character length
R is the record number
B is the byte number
S is the disk controller slot #
D is the disk drive No 1 or 2
V is the diskette volume number

Parenthesis () indicate optional parameters you may use if needed.

Looks awfully complicated. Not really.

First off, the parameters LR, and B are only used in RANDOM access files. S and D are only required if you have two or disk drives and controllers. The volume number is no problem; just put a number in for the volume number you are using or simply use V0.

Below is a very small program to write three variables to disk then READ them back again (APPLESOFT PROGRAM).

| 10 D$=CHR$(4):REM CTRL-D |
| 20 INPUT "WHAT FILE NAME?":F |
| 30 PRINT D$:"OPEN ";F:REM OPEN FILE |
| 35 PRINT D$:"WRITE ";F$:REM WRITE SET |
| 40 S=1:Y=2:Z=3:REM DEFINE VARIABLES |
| 45 REM |
| 50 REM FILE OPEN, PRINT DATA |
| 55 REM |
| 60 PRINT X : PRINT Y : PRINT Z |
| 65 PRINT D$:"CLOSE ";F$:REM CLOSE FILE |
| 70 REM |
| 75 X=0:Y=0:Z=0:REM CLEAR VARIABLES |
| 80 REM |
| 85 REM RETRIEVE DATA FROM DISK |
| 90 REM |
| 95 PRINT D$:"OPEN ";F$:REM RE-OPEN FILE |
| 100 PRINT D$:"OPEN ";F$:REM READ SET |
| 105 REM |
| 110 REM NOW INPUT DATA INTO MEMORY |
| 115 REM |
| 120 INPUT X : INPUT Y : INPUT Z |
| 125 PRINT D$:"CLOSE";F$:REM CLOSE FILE |

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Apple //c Versions

Written by: Guillermo Ortiz November 1, 1987
Reproduced from Apple Technical Notes, by courtesy of Apple Computer Australia.

Since its introduction the Apple //c has been revised three times; the following paragraphs document the main differences between the four different //c ROM versions.

Original //c (FBBF = $FF )

- It can use the /c External Drive only
- No AppleTalk Firmware
- PD7 boots the second drive
- Mouse Firmware Maps to Slot 4
- Serial Firmware does not mask incoming line feed characters
- Serial Firmware does not support XON/XOFF protocol

3.5 ROM //c (FBBF = $00)

- It can use the /c External Drive and 3.5" Drives.
- AppleTalk Firmware
- PD7 gets the message "AppleTalk Off Line"
- Mouse Firmware Maps to Slot 4
- Serial Firmware defaults to masking of all incoming line feed characters
- Serial Firmware supports XON/XOFF protocol

Original "Memory Expandable" //c (FBBF = $03)

- It can use the //c External Drive, 3.5" Drives and //c Memory Expansion Card.
- Mouse moved to Slot 7
- No AppleTalk Firmware
- PD7 kills the system
- Serial Firmware defaults to masking of all incoming line feed characters
- Serial Firmware supports XON/XOFF protocol

Revised "Memory Expandable" //c (FBBF = $04)

- Same as Original Memory Expandable, plus
- Keyboard Buffering firmware bug fixed
- Firmware returns correct information when the Memory Expansion Card is not present.

Apple // Family Identification

Written by: Cameron Birse December 15, 1986
Revised by: Guillermo Ortiz November 1, 1987
Reproduced from Apple Technical Notes, by courtesy of Apple Computer Australia.

This note describes the ROM Identification Bytes in the Apple // Family.

Apple // Family Identification
Machine
$FB83 $FB81 $FB8C $FBBF
Apple // Serial no. $38
Apple // (+) $EA $AD
Apple // (em) $EA $EA
Apple // /e $06 $3A
Apple // (enhanced) $06 $DE
Apple // /c $06 $00 $FF
Apple // (3.5 ROM) $06 $00 $00
Apple // (Rev. Men. Exp.) $06 $00 $04
Apple // 1IG6 $06 $00

In addition to checking the value of these bytes, you now must also call a monitor routine to determine compatibility between existing machines and future machines. As you can see, the Apple IIGS looks like an Apple //c, until you call the monitor subroutine. The call would look like this:

SEC SET carry bit (flag)
JSR SFEIF ;Call to the monitor
BCC OLD MACHINE If carry is still set, then old machine
BCC NEW MACHINE If carry is clear, then new machine

In all the current Apple // ROMs, SFEIF contains an RTS. In the Apple IIGS, there is a routine that returns compatibility information in the A, X, and Y registers. This is described on the next page.
PRODOS NEW YEAR PRESENT

By Colin Rutherford

On new years day - while running Appleworks, which uses Prodos and a clock card, I was annoyed to see the Appleworks date and all file dates appearing as 1-Jan-82.

This happens when reading a clock card because Prodos, versions up to 1.1.1 and maybe later, has a lookup table for the year which runs from '82 to '87.

My immediate fix was to copy Prodos 8 V1.4 from my latest Beagle Bros disk to the Appleworks start-up disk. This is a patched Prodos, because it also includes BIRD'S BETTER BYE as the quit program so maybe the original Apple V1.4 still has the date limitation. Incidentally the new quit program allows you to scan all volumes that are on line and select your next application.

If you want to stay with V1.1.1 to avoid problems you have encountered in later versions then you can alter the lookup table on the start up disk.

First make sure the Prodos version that you are going to BLOAD is V1.1.1. Get into Basic from your utilities disk or by your usual method.

BLOAD PRODOS,AS2000,TSYS.

Enter the monitor by typing CALL -151 and type in new hex values as follows.

* 4F765A 59 58 58 Return Return to basic with control-C and put your Appleworks startup disk in the drive.

BSAVE PRODOS,AS2000,TSYS.

Note: you might have to UNLOCK PRODOS first. This will now date correctly up to 1990.

A more detailed coverage of this problem appears in Open Apple, October 1988 and various other magazines.

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Use of NESTED FUNCTIONS in APPLESOFT

By Ken Ozanne

I started out with the following rather messy function and tried to write an Applesoft program to calculate it:

$$1 \times x + x \times x \times \exp(1 \times x) \times \arcsinh(1 \times x)$$

$$\log(1 + 2 \times x + 5 \times x)$$

In fact this is really not very complex at all and it could be handled as a single function by:

100 REM DEF FN BA(X)=((x+x^2+x^3+arcsinh(x*3)/sinh(3x)))/
LOG(1+2*x+5*x)

- or at least it could if we had built in ARCSINH and SINH functions on the Apple. For those one or two people who don't have this feature in memory, a quick glance at the Applesoft Manual, pages 102-104, will remind you that these functions are not given although methods of defining them are.

I could have changed to something more complex, but I thought some of my readers might prefer me to keep things relatively simple.

So please pretend that the function above is sufficiently complex to force something like the following development on us. I can assure you that Tom Thompson that I can quite easily find something much more complex! (And, if I hear any dissent in the ranks I will.)

I wrote the following little program with the object of demonstrating that you may build up functions of arbitrary complexity in the Apple by means of a series of functions each defined partly in terms of previous ones.

480 REM Don't get too involved in the wonders of this program, because it doesn't actually work!
500 DEF FN AA(X)=X*(X+5)+1
520 DEF FN AB(X)=LOG (FN AA(X))
530 REM SINH(X)
540 DEF FN AC(X)=EXP (00 - EXP (X)/2) / 2
560 DEF FN AD(X)=2*AC(X)*X+1
580 DEF FN AE(X)=ATN (X / SQRT (1 - X^2))
600 REM ARCSINE
620 DEF FN AF(X)=ARCSINH (X)
640 DEF FN AG(X)=EXP (X)*AC (1.0)*X
660 DEF FN AH(X)=2*AC(X)*X+1
680 DEF FN AI(X)=FN A0(X) / FN AE(X)

1000 Z = FN AB3(X); PRINT Z
1100 Z2 = FN AC3 (PRINT Z)
1200 Z1 = FN AD3 (PRINT Z)
1300 Z0 = FN AJ0 (PRINT Z)

I'd suggest that anyone seriously interested work through the above seeing how it all builds up to the original large function. It will be difficult to actually learn anything from this article if you don't. In the nature of things this must be a little complex to be at all realistic.

At times, I had various other lines between 1200 and 1300, but these serve to demonstrate the problem. References by one function to another are handled via the stack and this reference is proddal of memory. It would appear that references by one function to another can be nested not more than seven deep before you run out of stack. (You get an OUT OF MEMORY error, which I have explained elsewhere frequently means OUT OF STACK.)

In the Apple, the user is always in complete control, so you can certainly do something about this limitation. However, it is not the sort of thing most of us would want to get involved in casually. (If anyone does produce a good way around this, please publish it.)

What I did was first to dig out what was going wrong and second to reduce the complexity of the nesting by setting variables to values calculated by some of the functions and continuing calculations in terms of these variables. (Variables Z2 to Z6 in the following program.) In fact this is generally better technique in giving easier to read code and the following program would be improved by some more of it.

The second program came out looking like this. This one will actually run.

500 DEF FN AA(X)=X*(X+5)+1
520 DEF FN AB(X)=LOG (FN AA(X))
530 REM SINH(X)
540 DEF FN AC(X)=EXP (X)/EXP (X)/2.0
560 DEF FN AD(X)=2*AC(X)*X+1
580 DEF FN AE(X)=ATN (X / SQRT (1 - X^2))
600 REM ARCSINE
620 DEF FN AF(X)=ARCSINH (X)
640 DEF FN AG(X)=EXP (X)*AC (1.0)*X
660 DEF FN AH(X)=2*AC(X)*X+1
680 DEF FN AI(X)=FN A0(X) / FN AE(X)

1220 Z2 = FN AH(0.08); PRINT Z2
1230 Z0 = 0.08
1240 Z3 = 1 + X + Z2
1250 PRINT Z3
1260 Z5 = FN ABO
1270 PRINT Z5
1280 Z6 = Z3 / Z5
1290 PRINT Z6 +

An additional problem, inherent in this kind of thing, was to find a number for which the complicated function actually exists and is of reasonable size. The value of 0.08 above is not accidental. (You may care to calculate the rather narrow range of values of X for which it is defined.)

In fact this type of procedure can be extended to handle functions of arbitrary complexity (there is enough in the foregoing to allow this), but only if they can be defined in terms of the built-in Apple functions. There are plenty of functions that cannot be defined thus and it is then necessary to adopt quite different procedures to define them. However, examples of that kind will have to wait for another article.

Applesoft Hints

For NEW Applesoft programmers here are some handy hints.

When programming in Basic, place GOTOs at the top of the program. Since Basic searches from the top to the bottom of the program, searching for a particular line number. If the line number is looking for, is at the top of the program, the computer will find it faster.

Don't use constant in a FOR-NEXT loop.

DON'T--
For A = 1 TO 100: B = A / 23.12
DO-------
C=23.14: FOR A = 1 TO 100: B = A/C

and define all your variables at the beginning of the program.

---

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How to Print Specialty Printer Functions into AppleWorks

By Doug Peter, courtesy of Northern Illinois Computer Society

I'm sure that all of us have gone to the local computer store at one time or another - in search of the perfect printer. We bring it home, stare in our eyes, only to find that none of our programs work with it.

Or, the print driver program does work with the printer, but does not access all of the functions we need.

The writers of AppleWorks knew of this agony. If we wish, we can re-program AppleWorks to use different printer commands, and use different printers. This sounds like a complex task, but it is really quite simple. Most of the actual programming is done by AppleWorks, all we need is tell which function we want and the sequence of command codes needed to activate it.

The modern dot-matrix printer has its own little computer built right in. It controls functions like different fonts, different line spacings, and so forth. The Apple computer tells the printer to change its print mode by sending signals to the printer along with the text that is to be printed. These signals are numbers, usually from 0 to 127. For example, if the Apple sent the codes 15 72 73 13 10 to the printer, the printer would go to compressed mode, 17 characters per inch printing (15), print "Hi" (72,73), and return the print head to the beginning of the next line (13,10). These code numbers are in decimal, and are for the Epson printer. The codes that tell the printer to print letters are called ASCII code (short for the "American Standard Code for Information Interchange"). Like the name says, it's standard - used by all but the most exotic computers. However, the codes that change printer functions have as many variations as there are printers, which is why you must have the printer manual to do any programming. The manual will contain the codes needed to change the printer functions. It should also contain a chart of the ASCII codes. Incidentally, most of today's printers are set up to use the Epson command set. You should try using one of the Epson print drivers that come with AppleWorks before writing your own print driver.

Writing the Printer Driver

To start with, you will need the manual for the printer, and pencil and paper. You must make a list of functions your printer has, and the numeric codes that the computer must send to the printer to turn each function on and off. Leave a few lines of space between each function.

Most manuals have a chart like this already in them. You might want to make your own chart anyway, since more information is needed for entering the control codes into AppleWorks.

Theoretically, you should be able to enter these codes into AppleWorks and be done with it. However, AW doesn't accept numeric command codes, only ASCII keycodes. Therefore you must translate your chart of numeric codes into a chart of ASCII codes (now you see why I said to leave some space between functions; this is where you write in the ASCII codes).

For instance, if I wanted to enter a 66 into the print driver, I would press the B key in ASCII (66), or, if I needed to enter a 3, I would press the # key (shift-2).

However, the ASCII code has no corresponding letters from 0 to 31. To enter these codes, you must press a combination of a character and the Control key (CTRL). For example, if I3 is needed, I would hold down CTRL and type 0 at the same time. The common way of writing "CTRL and 0" is to put a caret sign in its place (\"A\" means "hold down CTRL while pressing A\")

Table 1 shows the ASCII table with all the keycodes from 0 to 31 included. Use it to convert the print codes on your table to ASCII keycodes acceptable to AppleWorks.

Table 2 shows you an example list of printer codes and their ASCII equivalents. This chart is for an Epson LX-80 printer, like an MX-80 but with Near-Letter-Quality, and a few other extra things thrown in.

I know that making a table like that is difficult, but that is the hardest. Once you have that finished, you are almost through writing the print driver. All that remains is entering the ASCII keycodes into AppleWorks.

Entry into AppleWorks

We will run through the code step by step. It's not hard at all, only a bit tedious. Plus, we have AppleWorks' user-friendliness on our side, so it will be reasonably quick to enter the values, and mistakes will be easy to correct. Take it from me, it's much better than WordStar at entering new printer codes.

First, boot up AppleWorks. When you come up to the main menu it will have choices like "Add files to the desktop", etc. for options. Choose option 5, "Other Activities."

The "Other Activities" menu will overlay itself on the "Main Menu". Choose option 7, "Specify Information about your printer."

The "Printer Information" menu will overlay itself on the "Other Activities" menu. Choose option 2, "Add a Printer."

AppleWorks will now give you a list of printers it supports. Choose the Custom Printer option.

NOTE: Although AppleWorks can support 3 printers at the same time, only one can be a custom printer. The other two must be from a list of pre-programmed printer drivers. This is a big limitation in my opinion, since it forces me to work with at least 3 back-ups (one for my LX-80 printer, one for my mother's MX-80, and one for printing to a disk file instead of a printer).

If there is no other custom printer, AppleWorks will ask you for the name of your printer, and the slot number of the printer card.

Page Formatting Setup

After entering this information, AW will then automatically go to the "Change Printer Specifications" menu. It will offer you some choices about page formatting and printer codes. We'll start at the top.

The Apple Parallel Interface card (which I have fitted) will automatically add a new line feed command to each carriage return, so I answered No to the question, "Needs Line Feed after each Return?"

Most printers can remember where the top of the page is, and accept a command to go to the page top by themselves. However, even if your printer has this capability, I suggest you answer No to this question, "Accept top-of-page command?" This forces AppleWorks to keep track of the page top, and allows for better form control.

If you plan to use single sheets of paper, answer Yes to "Stop at the end of page?" If (like most of us) you use continuous fan-fold paper, answer No. If you change paper types some time in the future, you can easily change your answer later.

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[Continued on next page]
After you have finished with the line spacing commands, hit Esc to return to the Printer Codes menu. Choose the "Characters per inch" option.

21 Choices of CPI - Plenty of Spares!
AW will prompt you for the codes for changing the printer to print in different character widths. You can enter codes to change the print width from 4 characters per inch (CPI) to 25 characters per inch. However, my printer only supports 3 of these widths, 10 CPI (Pica), 5 CPI (double wide), and 17 CPI (compressed), so 18 of the above choices will go unused.

Once again, this is a simple-code option, where you can only enter the begin-code, and not the end-code. As stated above, each begin code may have to contain the end-codes for all of the other modes, and thus the code sequences may become rather involved. There is, however, an easier solution. Instead of telling the printer to turn each mode, simply include the "Reset" code in all sequences. This will shut off all other modes before switching to the desired print mode. This will also reset the printer's top-of-page, but that won't really matter since AppleWorks will not send the Top-of-Page command.

CPI Commands for Multiple uses
Also, we can include other commands in the characters-per-inch sequence. We can include the command for turning on Near-letter-Quality mode, or the italic mode, or whatever we want! My Epson doesn't allow for both NLQ and Italic to be on at the same time, but there is a way around that, as you will see.

So...Each code sequence for characters per inch in my print driver will contain the Reset code (Esc @), the NLQ code (Esc x ^A), and the begin code for whatever print width I want (Pica, compressed, or double-wide).

Choose the 10 option. This is for pica. There is no begin code for pica mode for the Epson, because it's the default mode (it comes on automatically after reset). So, enter the codes by pressing Esc @ Esc x ^A shift-6 (reset, NLQ and edit).

Now choose the 5 option (Double-wide printing). Enter the codes: Esc @ Esc x ^A Esc W @ shift-6 (reset, NLQ, double width, end edit).

Then choose the 7 option (compressed). As before - enter: Esc @ Esc x ^A ^O (same as above, but with compressed code instead of the double-width sequence at the end).

All Done - Ready to Test
You have now finished your new custom printer driver. All the codes have been entered, and all you need to do now is hit Esc several times to get back to the main menu. AppleWorks will automatically save your print driver. You should go to the word processor now and enter a short test document that contains examples of all print modes in it. Print it out as a test, to make sure that all your changes work with each other. If there is a problem, you can go back down to the "Change Printer Specs" menu and rework part of the print driver if necessary.

Have fun with your supercharged version of AppleWorks, and remember: the computer works for you and it easy to change things around if things don't suit you.

What To Do With The Spare CPI Commands
Remember when I said we could program in any character width from 4 to 257? The above example only used 3 out of the 21 available widths, leaving 18 unused. While Epson XL-8E doesn't support any other character widths, there are many other features that it does support, like italics. We can trick AppleWorks into using these features by hiding them in one of the unused character width control sequences. For instance, when I tell AW to go to a width of 9 CPI (with the CPI option), the printer still prints at 10 CPI, but in Italic mode instead of NLQ mode. Similarly, CPIs of 4 and 16 can produce Lalic Wide, and Compressed respectively. The only problem is that I can't mix NLQ and Italic codes on the same line, and the margins are goofed up. Still - my print driver does support them, and my letters have never looked better.

FUNCTION ON-CODES OFF-CODES
Wide Print 27 87 0 27 87 1
(5 CPI) ESC W ^A ESC W ^B
Compressed 19 22 18
(17 CPI) 0 ^R
Lines per 27 2 (no code)
inch
Lines per 27 0 (no code)
inch
Emphasized 27 69 27 70
ESC E ESC F
Double Strike 27 71 27 72
ESC G ESC H
Subscript 27 83 1 27 84
ESC S ^A ESC T
Superscript 27 83 0 27 84
ESC S ^B ESC T
Underline 27 45 1 27 45 0
ESC - ^A ESC x ^B
Rear Letter 27 120 1 27 120 0
Quality ESC x ^C ESC x ^D
Italics 27 52 27 53
ESC 2 ESC 5
Reset 27 64 (no code)
ESC 8

Table 2: Sample chart of print functions and their control codes for the Epson LX-80. Numerical codes are decimal, and the codes beneath them are the keys you hit to enter the numerical codes. Again, ^ anything means to hit the CTRL key at the same time as the character.

Table 1: ASCII chart; column 1 is the decimal code number, column 2 is its hexadecimal equivalent, and column 3 is the ASCII code (the key needed to enter that code number into the computer).

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<td>1E</td>
<td>&quot; &quot;</td>
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<tr>
<td>31</td>
<td>1F</td>
<td>95</td>
</tr>
<tr>
<td>32</td>
<td>20</td>
<td>(SPACE) 96 60</td>
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<td>33</td>
<td>21</td>
<td>97    61 a</td>
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<td>34</td>
<td>22</td>
<td>98    62 b</td>
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<td>35</td>
<td>23</td>
<td>99    63 c</td>
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<td>100   64 d</td>
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<td>37</td>
<td>25</td>
<td>101   65 e</td>
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<td>102   66 f</td>
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<td>39</td>
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<td>40</td>
<td>28</td>
<td>( 104 68 h</td>
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<td>41</td>
<td>29</td>
<td>105   69 i</td>
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<tr>
<td>42</td>
<td>2A</td>
<td>106   6A j</td>
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<tr>
<td>43</td>
<td>2B</td>
<td>107   6B k</td>
</tr>
<tr>
<td>44</td>
<td>2C</td>
<td>108   6C l</td>
</tr>
<tr>
<td>45</td>
<td>2D</td>
<td>109   6D m</td>
</tr>
<tr>
<td>46</td>
<td>2E</td>
<td>110   6E n</td>
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<td>47</td>
<td>2F</td>
<td>/    111 6F o</td>
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<td>117   75 u</td>
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<td>121   79 y</td>
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<td>58</td>
<td>3A</td>
<td>122   7A z</td>
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<td>123   7B</td>
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<td>3C</td>
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<td>61</td>
<td>3D</td>
<td>125   7D</td>
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<td>62</td>
<td>3E</td>
<td>126   7E</td>
</tr>
<tr>
<td>63</td>
<td>3F</td>
<td>127   7F (DEL)</td>
</tr>
</tbody>
</table>

NOTE: A character proceeded by ^ (caret symbol) means that the CTRL key must be held down at the same time (for example, ^A means holding down the CTRL key and the A key at the same time).
ESCAPE FROM RUNGISTAN

Written by Bob Blauschild, Marketed by Sirius Software.
Reviewed by Mike Carlton.

Have you ever had the feeling that you were getting extremely bored of sitting in front of your battered terminal after firing several million aliens, or stabbing hundreds of angry pirates, or defusing endless nuclear reactors, or karate-chopping thousands of mindless Bruce Lee look-alikes, or...?

To tell the absolute truth, I have. As any loyal Apple fan would feel after a particularly drab session of, say, catching little blue horned creatures that put you to sleep whilst you play and hog up sectors on your disk, one is hit by a tremendous feeling to the effect that one would like to pick up the nearest drive and throw it at the monitor. (Sounds nasty, doesn't it?) I have come across the syndrome more than once more than twice. And it is frightfully to be feared and avoided.

There are only a few programs around these days that can confront the syndrome and beat it. Classics like BRODERBUND's "LODE RUNNER" and FIREBIRD's "ELITE", that hook you and glue you to the terminal. That enable your hands to endlessly press keys and move joystick. That make you wake up in the middle of the night in a cold sweat, images of Thargoids and GalCop dissipating back into your subconscious alter scoring the hell out of even your nightmares. Those readers who have experienced it will know what I mean. It is truly a bad thing if an Apple goes rotten. However, some months ago, in the middle of a particularly severe attack of digital depression, an old friend of mine, The Beta Pirate, came around to my place and, seeing my plight, gave me a copy of a game published by Sirius Software (before they unfortunately defuncted a year later in 1983) called "Escape from Rungistan." He told me to make at least thirty backups of it because he said that as soon as it hooked me, I would wear every copy of it to a frazzle from overuse. And he wasn't far wrong, either! I crawled from the television room upstairs to the room where my faithful 128K l.e. resided. Poppy in hand, stale cheese sandwich in mouth, I turned the old faithful on, and stuck my newly-acquired game into the drive. It booted up and told me who it was, who it was, it published it, the usual useless stuff you get on most disks... when, how, why, and the games objective.

It starts off by saying you have crossed the border into Rungistan, in Central Africa. (Please note: As proclaimed by most aliens, there is no such place as Rungistan. However, I have my suspicions; I think it's there, and in all likelihood, the South Africans have imposed a media blackout on it.) You have to get out of your prison cell and make it back across the border. It also says to look at things carefully. If you are to make it across the border, as I did, you will most certainly have to, because the game is fiendishly complex and more subtle than a tax increase.

The graphics are all that's needed for this type of game, although a little colour would go a long way. There is also the option of having music, which occurs at appropriate times and places. You can also kill the music if it begins to annoy you. The parser (The part of the program that accepts and interprets your commands) is only adequate, and this is demonstrated when you get to the saloon and try to open the lock on the cabinet. I got so angry with it that I reset and changed the listing near line 500. I had all the clues to open the lock, but I couldn't get it to accept the combination. Four-letter words and tears before teatime abounded. Still, it did highlight the parser's inadequacy.

The program has its own unique flavor. At various stages you will be hit with a pipe and told to shut up, told that you are a heartless brute, told that the Priest is playing Bingo, etc. That you have broken your neck on a fish, told that you ripped a severe outbreak of splinters in the face, told that you have been plunged under by a careless logger, told that you don't want to eat a dirty onklet, told all sorts of things that make you want to pick up the nearest Molotov cocktail and turn your Apple into a flambe. However, there is a respite from all this cheek and computerized idioty. You can ask the computer for help. A lot of the time, understandably, the machine tells you nothing of any great significance. But occasionally, the machine may give you a vital clue, and this can be most helpful if you are stumped by a peculiar problem.

In all, I think it is quite a good game for those who like this type of adventure. Despite the graphics and the inadequacy of the parser, it has a well thought out concept. I think that the Syndrome is on its way out when more like ESCAPE FROM RUNGISTAN hit the shelves. Below, I've included a few hints I found in the hint file on the disk itself using The Sector Editor from Copy II plus 5.4. (C) 1983 Central Point Software. I hope you find some of them useful.

HINTS:
You didn't read the book in the cell?
The last number is east of the rebel.
Don't cross the river again.
These doors look like they'll float.
Wait for the helicopter.
Did you look in the cabinet in the saloon?
Try calling the guard.
Did you look at the food before you ate it?
Have you gone east for some wood for a raft?
Find the cannery here and go southwest to fill it.
Did you catch the mouse in the jail cell?
You need some dynamite.
Look in the jangle.
Go past the end of the road south of the farm.
You should have read both books in the cell (left one first).
Have you looked southwest of the gas station?

BULK PURCHASE NOTES

Some very good programs have been provided for the Apple // range. The Beagle Bros. software is very new and has received accolades from reviewers. Other programs are just good value or very popular. These items will be carried for a limited period only, so place your order early, while the US$ exchange rate is good.

New TIMEOUT Series - from Beagle Bros.

TIMEOUT - QUICKSPELL;
Check Your spelling without leaving you AppleWorks program - $95
TIMEOUT - GRAPH;
Turns your Spreadsheets into great looking graphs from within AppleWorks - $122
TIMEOUT - ULTRAMACWORKS;
The most powerful Macro program written for AppleWorks. $83
TIMEOUT - DESKTOOLS;
Makes the best desktop tools available from within AppleWorks $77

Did you look southwest of the gas station?
Look for work on the farm.
You are cleared for takeoff.
A smart pilot would look at the controls.
Have you read the graffiti on the sidewalk in the valley?
Light the dynamite, throw it, and run!
You might need the rope later.
If you see a snake - don't move.
You need to run, then jump.
Follow the path.
Check out the cave.
Did you find the knife in the desert?
Did you find the canteen in the mountain and fill it?
Did you look in the cave in the cliffs?
Try violence! <THE PREDATOR>

GAMES

THINKQUICK; (Ages 7-14)
An adventure game that builds thinking skills from The Learning Company $89
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An exiting Adventure Game $87
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UTILITIES

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The ultimate editor for AppleSoft Basic Programming $72

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Setting Up Epson Printers with the Apple IIc

If the Epson Serial Cards are set up to the IIc's default values, (ie 8 Data Bits/2 Stop Bits, 9600 bps & No Parity) text is printed in italics. This is due to the way in which Apple treat the eighth data bit. Apple set the eighth bit to a logic 'high'. This selects the alternate character set, which happens to select italics characters in the Epson printers international character set.

This can be overcome by setting up the dip switches on the Epson serial card as in diagram 1. This changes the printers serial port to 7 Data Bits/2 Stop Bits, 9600 bps & No Parity.

The result of this is that text is printed normally. Most Application Software Packages will run without problems. A solution to problems with other packages (eg Printshop) will be covered in User Tips #2.

NOTE: This document does not apply to the GX-80 / 8099 PIC.

Dip Switch Settings for Epson Serial Cards.

NOTE: These settings configure the serial cards for 7 Data Bits, No Parity and 9600 BPS. This is not the default values of the Apple IIc Serial Port No. 1.

Epson Serial Interfaces

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Timeout ULTRAMACROS for Appleworks

By Colin Rutherford

I bought this program from Chris at the December meeting. It is version 1.1 and was first released by Beagle Bros in September 1987. This is one of a family of Timeout enhancements for Appleworks and is the most recent of a succession of macro programs that allow a series of keystrokes to be performed in one operation.

Consider how many keys you press to set the left margin in the word processor. This and many more actions can be performed simply by pressing Solid-Apple and another key. The extensive manual describes all the basic functions and notes on the disk go further to introduce you to what is virtually a programming language which can do tasks as simple or as complex as you desire. The installation instructions contain some errors which can confuse at first but when you come to understand the Timeout system there is no problem. The 5.25 inch disk is not double-sided as they claim.

Timeout is an applications selection program with its own menu inside Appleworks that pops up when you press Open-Apple-Escape. Applications are programs that are loaded from an 'applications disk' when needed. They apply to the whole range of Timeout programs, not just Ultramacros.

Ultramacros is a modification to the file Appleworks system on your start-up disk. The installation procedure makes the necessary changes to you Appleworks Start-up disk. The program disk is not altered. When Appleworks is started up a Timeout title appears and later a second title is displayed just before the main menu. At this point it is trying to find some 'applications' files on a disk, and if you are using the usual two 5.25 disk Appleworks package, it reports an error. The first time user doesn't realise that Ultramacros will still work if you ignore the error.

Later on you will appreciate the following points;

(a) The four files named on the Ultramacros disk and beginning with TO. must be on an 'applications disk'. (The book mentions only three and says they are only required if you have other Timeout programs.)

(b) If you want to use the start-up disk as an 'applications disk' you will have to copy these files over using a separate copy program. If you don't want to do this then use a copy of the original Ultramacros disk as your 'applications disk'.

(c) The questions you answer in the Timeout will go to when it wants an application. This may be 'on start-up disk in slot 6 drive 1' or you could select not on start-up disk but just 'slot 6 drive 1' in which case you could use the original Ultramacros disk whenever Timeout wants them.

I said earlier that Ultramacros can be used even if you ignore the errors when applications can't be loaded. However you would be limited to the set of commands already provided. You will need the applications to alter or make new macros and to use some of the other nice features. All stored macros are kept on disk in word processor files. You use the Compiler application while in the word processor and that set of macros becomes immediately effective. The compiled versions except that a set of macros is always ready to use when you start up. This set can be replaced by the current set you are using through one of the Timeout applications.

All the features of Ultramacros are too numerous to list here but some that I like are the screen preserver that blanks the screen if you haven't used the keyboard for a while and the key that prints the date anywhere. Similarly if you have a clock card, the time can be put into a document and there are programmed tasks like saving your work automatically every ten minutes. There is an automatic start up that will take you straight to the spreadsheet database, or wordprocessor file that you want to work on and of course the usual macros like entering your name. The compiled versions are not a problem. The only bug I have found is that the 'rem' token for inserting comments in a compiled version actually prints the comments to the screen.

If you like the thought of using macros then you'll like Ultramacros.
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Copy is always needed for the user group magazine. This can be programs, or useful subroutines - with sufficient documentation. The greatest value is obtained when a technique can be understood by the readers so that it can be further utilised. Articles on specific topics may be paid for at the discretion of the editor. Reviews are popular because they enable other Apple owners to assess the usefulness of a product. Business techniques or modifications particularly welcome. Hardware modifications should be supplied with clear constructional details, and pictures if possible.

All material is preferred supplied in text format on a disk, and printed out. For Apple II / - DOS 3.3 or Appleworks files on 3.5 inch, or Macintosh TEXT files on 3 inch disks are preferred. Please keep a master copy in case of loss.

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As well as:
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"Hayes Micro-Modem Compatible" modem
with 1200/1200 full duplex, plus 2400/75, 75/2400, 300/300.
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PRICE: $299.00 fully built and tested.

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Step inside the US Enterprise as it shifts from impetus to warp drive.

Capture the raw power of lightyears before it plummets to the Earth. Stand on the flight deck and key-as-the micro-code to control your destiny.

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Very energetic stuff, right? But I did want you to get your attention and now I have that, read on — it gets more interesting.

This is a computer kit based on the Novice 4000 processor. There are many extraordinary things about this chip. For instance: there is no internal micro-code which means there is no delay between your application program in high level Form, with no speed penalty.

The Novice 4000 has many of the qualities of the Translator or the RISC-type processors, but even more incredible is its ability to jump to subroutines and back in one cycle.

The board is supplied with an on-board EPROM programmer, programmable (0 to 8 MHz) processor clock and on-board facilities in the circuit, or from a file system from EPROM to fast RAM. It can be plugged into an IBM slot, or used with a serial link with any computer or stand-alone with its own video and keyboard controller.

PRICE: $699.00

This is a great machine but not an experimental kit.

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APRIL 1988

HIGHLIGHTS

Enriching AppleWorks
Industrial Arts - C.A.I.

MacBBS - Screens
MacPublisher III Review

THE PUBLICATION OF THE
APPLE USERS GROUP (SYDNEY)
Incorporated in N.S.W.
Enriching the AppleWorks Environment

TurboCharged AppleWorks

By Marc Aplestid, courtesy of Call-A.P.P.L.E.

AppleWorks established itself a long time ago as the application program for the Apple II. As Tom Weisheiser is fond of saying in his "Open-Apple" newsletter, the program meets the needs of about 80% of the users - a very commendable ratio. There are things about the program that can stand enhancement, either to eliminate shortcomings, or to add useful features.

This article will look at a host of relatively new additions to the AppleWorks arena - the TimeOut Series from Beagle Bros., Printrix from Data Transforms and Graphic Edge and ProFilter 3.0 from PinPoint Publishing. I will try to lay out an overview of the major features of each, so that you will have a chance to decide which might help you to use AppleWorks more efficiently. It is a real pleasure to note that "hot one of these programs is copy-protected". Three cheers for common sense, cooperation, and the end user!

TimeOut Series

This group of accessory programs builds on the concept of available functions inside AppleWorks. Beagle authors Mark Simonsen and Alan Bird worked cooperatively with a number of others to market. Let's begin by explaining the overall file structure and installation process, and then look at each of the applications individually. In order to save space, please allow the frequent substitution of TimeOut for the full series title.

The TimeOut shell, when in place, hooks into AppleWorks and provides a menu system for all of the various utilities. The shell is accessed by pressing OA and Escape simultaneously. At that point, the available selections pop up on the screen. AppleWorks, as shown in Figure 1.

I personally find this series very exciting. The problem for you as a user will be deciding "which" and "in which order" to add these to your library. In addition, here is the sparkle for the /e user who has been feeling neglected during the wave of new IIgs software - a true increase in flexibility and power of the base program for your machine. I used to have the same lost feeling of being behind the times when the Mac first came out, yet my trusty /e is still a superb tool. Every disk comes with the TimeOut utility and installation program. After booting the back-up copy of the software (which you "always" make, right?), you select to "Update AppleWorks" and install the TimeOut system. You need to copy over the appropriate files (listed in your manual) to your TimeOut disk or directory, which you set when installing the system. In talking to Beagle Bros about the installing process, they're finding that users are confused by some of the file copying needed, so you may find a much more automated procedure in place by the time this appears in print.

For now, the current versions require the use of Filter, Finder, Copy II+, ProSel, or some other transfer utility in order to set up the disks. Installation then is a two-step process: place TimeOut on your copy of AppleWorks, then transfer the necessary files to your "application disk". If you are installing the "whole thing" (the entire series), plan on spending a big chunk of the evening - especially if you are using the Finder on a GS. You probably need a good-sized RAM disk, 3.5 inch drive, or floppy too, if you want to run these space-intensive programs. Most of the applications are very compact but the FONT/TYPEFACE programs take up a lot of room on the disk. Beagle Bros. has modified the TimeOut software to allow for multiple TimeOut application disks, so that you can run the whole thing from a floppy if you desire. Personally, I'd use the excuse to ask for a RAM card.

Installing. TimeOut on AppleWorks gives you access to the TimeOut Utilities menu, allowing you to configure the various applications for default paths, printer type and slot, and other features. In addition you can load applications to memory for faster operation, and specify automatic loading of individual programs at startup - most useful on systems with expanded memory. Looking across the entire package, I'd have to say that the main menu and programming detail is excellent. In some instances, however, the documentation covers some major features in less than complete fashion. SuperFont picture importing for example doesn't mention the applicability of inverse commands to picture files. It is up to the user to experiment and find the full power and flexibility within each application.

Let's take a look at each of the individual program sets. It will certainly be a quick skin over the top, since the entire environment would take a series of articles and months of use and exploration to cover in-depth.

UltraMacro is an extension beyond SuperMacroWorks. Users of the earlier program will find that the menus and procedures in Beagle Bros. even has an upgrade path for you upon request. SuperMacroWorks is TimeOut compatible, too, if you don't wish to change. Like its predecessors, UltraMacro provides extensive group and macro utility returning to the main Menu - no more heart attacks at the thought of a system lockup. There is an option on the UltraMacroWorks disk to patch AppleWorks for the Control-# bug, too. UltraMacroWorks has expanded the macro keystroke buffer to over 4,000, and the disk comes with a number of sets of pre-defined macros for the various TimeOut applications. The programming language side of macros has been expanded by the addition of a host of new tokens. Time functions, definition of string and numeric variables, and if-then-else logic are all available, along with the powerful (and dangerous) ability to POKE machine language routines and CALL them. If you plan to write complex macro routines, UltraMacroWorks contains an option to single-step through them during the debugging process.

UltraMacroWorks gives you mouse control, and a new set of additional options too, like automatic screen taking and handling. As the third generation macro product from Beagle Bros. UltraMacroWorks is thoroughly worthy of the name it bears - it's ultra-powerful.

TimeOut DesksTool is a collection of useful utilities, including the usual Clock, Calendar, Calculator, NotePad, and Puzzle, along with some surprises. The clock pops up to show the time, but the clock must be closed on your document again - it is not co-resident. The calendar is functional, and stores the data in an AppleWorks database file. The current Calculator has a minor bug - OpenApple-H for "hard copy" is neither locked out nor properly supported. I got a printout scattered across about 4 pages of paper! There is a Dialer included in DesksTool as well, and the documentation isn't clear at all as to the required hardware. The program expects a Hayes compatible or AppleScript modem connected to a serial card. The Dialer maintains a set of "quick" numbers and is capable of using a prefix number for those of us who must enter an extra digit for an outside line. This is a simple dialer, not a full communications program - a possibility in the next round of programs sometime in the future. As a simple phone file dialing system the program performs quickly and efficiently, and you don't have to leave AppleWorks to use it. Gee, that phrase could appear about every third line of this article, couldn't it. There is an Envelope Addresser, and a File Encrypter which scrambles and un-scrambles files for sensitive materials. As one possible use for the Envelope Addresser, I've used it to produce school grade spreadsheets, but don't let your students near them unattended, who knows what encryption key they would try? For those who manage to lose access to a file, Beagle Bros. has provided the know-how, for a $10.00 charge. There is also a Page Preview mode to let you view formatting of wordprocessor documents.

One are the days of eternal slumbering of forced new page commands, interspersed with printing to the screen. Actually, I had some problems with this option. It never worked properly with the "custom printer". On the ProWriter at home, the program crashed into the monitor, and at the office, the Brother definition was ignored. Selecting the ImageWriter revealed the expected results - three pages at a time, graphically, and numbered on across the screen. I haven't had a chance to report the problem, but I have no doubt that it will be fixed as soon as they know about it. That's the quick and efficient way and even supports an Apple?-help? menu. You can specify the "save-to" file name, so multiple sets of notes are a breeze. While there isn't a "clipboard" copy back to AppleWorks, the files are standard "text" files and can be loaded into the wordprocessor. For me personally, the File Encrypter would be a most welcome feature. The ProWriter at home, the program would justify purchase of the DesksTool program.

TimeOut Quickspell is similar to many other spelling programs, but adds a word bank, and a second dictionary with its own operating characteristics. It scans the current document, comparing against main and custom dictionaries. If you have the memory space, the program can also

Applications

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April 1988

TimeOut Quickspell
In Congress, July 4, 1776

The unanimous Declaration of the thirteen United States of America,

When in the course of human events, it becomes necessary for one people to dissolve the political bonds which have connected them with another, and to assume among the powers

Printed with SUPERTOWN on a C. Ithaka ProWriter

A variety of printers instead of just the ImageWriter.

TimeOut Filemaster adds disk and file copy options within AppleWorks. So, you say, I can already format a disk and change directories from within a Basic program. What good is it, for one am eternally forgetting to add separate directory headings on my hard disk. File Master offers a "change current drive" option with a twist, "add or drop a subdirectory." You can literally step through the complicated paths, without having to type them from the keyboard. At most (but not all) FileMaster prompts, Open-Apple-Return will let you redefine the current disk and/or subdirectory. One caution about that key combination: when files are selected for deletion, etc., Open-Apple-Return is an "expert mode" command which takes the "do you want to do this?" sort of prompting. FileMaster maintains a set of default paths for file copy, and supports sorted lists of files for viewing. The program has one quirk, which makes it difficult from the other TimeOut applications - entertaining Escape at the top menu won't exit back to AppleWorks. Instead, you must select the menu option. As I understand it, that was a conscious decision to prevent accidental exit on floppy drive systems. Basically, FileMaster eliminates a lot of redundant menu stepping that I used to do when managing files.

TimeOut SideSpread duplicates the functionality of several currently marketed products, but, from "inside" AppleWorks, and with a host of font sizes and type styles supported. It is also very nice to see graphics-based programming which supports a mode, so you can see the layout before starting a long printing process. If you're running the program on a colour monitor, fuzz and bleed will make the screen illegible. On a GS, exit to control Panel and set the Display to monochrome to eliminate the problem. SuperFont offers great resolution, font flexibility, and support for a variety of printing equipment. I think that it will be at the top of most "wish lists." Besides, you won't have to leave... (I know!)

TimeOut Graph, completes the first round of releases for the series. The program offers a real plus over stand-alone packages, because it is easy to get back into your spreadsheet for alterations of data. Standard graph types are available (pie, bar, stacked bar, area), and data is "mouse selectable." Heads are typed in rather than being picked up from the spreadsheet. Headings and legends are placed by the program, so the user has to accept the defaults in that regard. I had one data set overwrite headings in a pie chart, when a small slice occurred at the bottom of the graph. The only other minor bug I encountered was in the data entry - scaling for X and Y came up with a default zero, which was pushed along as characters were entered. What I intended as a maximum of 70,000 bytes test data became 700,000. Gracious, the scales looked insignificant. Print quality is very good. Three sizes are available: 1" produces a readable image of approximately 3.5 x 3 inches. Selecting 2" gives 6.5 x 5.5 inches, and 3" automatically prints the graph sideways. Resolution is quite acceptable at the smallest size, typical Double HiRes (distinguishable dots) at the "2" setting. I wish that there were an option for "double pass" printing, which might darken the image a bit. On the whole, the quality is very good for most purposes, and is very simple to adjust data and settings. Figure 3 shows a representative printout from TimeOut Graph. Background pictures can be imported (as Nixon was in this case), but you need to plan where the image shows for best effect.

As you can see, I'm getting highly into the quality and functionality of the entire TimeOut series. As with most new products, you can expect a certain "settling out period," while features users request are weighed and sometimes added. The entire series of programs belongs inside of every serious AppleWorks users' repertoire!

Printrix

Printrix, from data Transforms, is another new printing enhancement available for font-type printing of your AppleWorks files. It also supports files from AppleWriter, WordPerfect, Word Juggler, and plain old ProDOS ASCII files from just about anywhere. The basic concept is the same as SuperFont, except that Printrix is a "postprocessor." You save your document, complete with embedded commands to control print formatting, then run Printrix to produce your printout. In the case of Printrix, "caret" symbols (') precede format commands. The program's newest release contains the much requested Page Preview function. Having set all of the parameters (and there are a legion), you can select print to screen and see a Hi-Res depiction of your page layout. The program supports a host of different printers and interfaces, and the software seems to milk...
maximum from all that I have tried. Figure 4 shows a large font dump with a clip-art graphic included.

Data Transforms provided the Apple world with the first "larger than one screen" graphics software years ago, with the release of Fontrix. In keeping with the spirit of compatibility, Printix is able to import and use the entire set of Fonts disks (15 at last count) available for Fontrix. The ImageWriter driver supports quad density printing, and the print quality is among the best available. If you remember Fontrix, stepping through all those menus becomes a chore at times. Printix is much more streamlined to operate, with menus and submenus. The program does run more efficiently from a 3.5 inch drive, hard drive or RAM disk drive, since font manipulation is memory intensive. It is possible to run the systemfloppies, although there is some shuffling of disks involved as you move between the actual program and the configuration section. The program has quite an "IBM" system feel for the menus, with blocks of text, prompts, etc. laid out in the upper portion of the screen. Selections are made by keyboard entry (no mouse), and the system is very efficient to use. When you select "Page Control" from the menus, a page from within the text file, Printix uses blocks of "default" layouts or characteristics. In many ways, that is an effective use of control if you do nnumbers on the same format. Pathname prompting could use a bit of cleaning up - the program does not recognise the Apple standard of drive and directory. You must enter: "A:" but you "arrow through" extra characters and then delete them with the Delete key. In addition, the program doesn't filter out spaces from filenames, real "no" for ProDOS. Printix is capable of importing clipart and pictures from Single Hi-Res applications only if there is a "Double Hi-Res" support. There are so many programs and clipart items available that this doesn't need to be a fatal flaw. If you are also a Fontrix user, the GRAFFILE format is accessible after you copy the files over to ProDOS. Two-column printing is supported, providing a basic level of function for newsletters and the like. In operation, you must specify up to four fonts for use in printing the document, the location and any graphics. If an item can't be located the program prompts you to enter a new pathname to search. I'll be frank. I had sort of "retired" my Fontrix program after MultiScribe made E. font based wordprocessing so easy.

Printix addresses many of the features on my wish list for Fontrix, and it gives a great deal of power over the printed output. To be sure, the program may not suit everyone. If you don't mind working with

Single Hi-Res graphics and controlling the printed output at a very basic level, the font variety available and page control at your disposal are truly worth the effort. No other program does large fonts as well at this point. Besides, if you use another ProDOS based word processor, here's a program to give you a "Mac Fonts" on your printer, from your software!

**Graphic Edge**

Graphic Edge, from PinPoint Publishing, matches basic functionality with TimeOut Graph, but the programs are built around two very different implementations. Graphic Edge is a "post processing" graph tool for AppleWorks spreadsheet files. The primary "twist" to the program is the use of "object graphics" rather than a drawing environment. This means that the user can adjust and relocate the images until the effect is exactly right. In addition, a utility program under development lets the C.E. files be imported "directly to the Mac" for further manipulation by graphics programs! The quality of printed output from Graphic Edge far surpasses anything available today. The user can even specify multiple printer penses to enhance contrast, and the new ImageWriter LQ is automatically recognised and supported in a 40 dot per inch mode. The program works in Double Hi-Res mode, but a menu option allows direct importation and conversion of Single Hi-Res pictures. Clipart is supported, and background pictures can also be used. Figure 5 uses clipart from Beagle Bros Mini-Tix disk #1, along with the same mythical data set used for TimeOut Graph. Graphic Edge allows the user to define up to ten sets of graph parameters, which are linked to the spreadsheet file. One caution. "Don't use your spreadsheet file name by mistake!" I lost a whole set of spreadsheet data when information was overwritten by the configuring file. It would be ideal if the program prompted with a default and a suffix tagged on the end or something. There are a few things in Graphic Edge that make it feel like version 1.0, but PinPoint is being up front about it.

Purchasers of the current version up to December '87, are encouraged to provide comments and feedback about improvements, and they will be updated for free to the next level of release. I like that approach. Here are a few suggestions I'd make:

First of all, the program is keyboard driven, and I miss my mouse. I understand "backwards compatibility" with the //e and //c world, but it is very awkward to step through graphical items one at a time. Even "dragging" here (a set of about 50 individual objects) to adjust location or parameters.

After one is moved, you need to start all over again at the spreadsheet object list. Perhaps AppleNumber keys to skip through, or Apple-Arrow skip by data set?

The documentation warns not to use "area" graphs with data beyond the scale maximums. "Believe it! (I believe)! Couldn't that be checked and flagged? You also need to consider setting a section of your spreadsheet aside for "configuration data" - things like titles, labels, ranges, maximums, etc. The program also expects contiguous blocks of data, so blank columns between information cause problems.

Graphic Edge can be a bit awkward to manipulate around the spread sheet. First you start in an editing interface, then flip into a graphics environment with menu listings at the bottom of the screen when a graph is plotted. It would be nice if the program is definitely longer and steeper, but for a good reason - the program is more powerful and flexible.

Quite frankly, it's hard to recommend Graphic Edge or TimeOut Graph as the "one" product you should have. I'd personally suggest TimeOut Graph if you wish to work from inside AppleWorks, and it is easy to instantly manipulate any data set. As first, you start in it a file editing interface, then flip into a graphics environment with menu listings at the bottom of the screen when a graph is plotted. The problem is that the program is definitely longer and steeper, but for a good reason - the program is more powerful and flexible.

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Industrial Arts Computer Aided Instruction

Since the introduction of Computer Technology into secondary schools over the last few years, there has been a definite need for subject specific software for Industrial Arts, as there is very little known software available for this subject area.

As a result of a successful submission to the 1984 Apple education Foundation, a grant of Apple //e Computer hardware was provided to Lachlan Turner, a teacher of Industrial Arts at Carlingford High School. As the Principal Investigator and author in this project, he has completed two tutorial Packages of Computer Software that will operate on the Apple // family of computers. The Software is being distributed by The Northern Districts Education Centre, 179 Beecroft Rd., Cheltenham, N.S.W., 2119 (Phone (02) 888-1533.

Entitled Industrial Arts Computer Aided Instruction (or IACAI), these two tutorial computer packages introduce many elementary processes commonly dealt with in the introductory stages of general Woodwork and Technical Drawing.

Both theoretical knowledge and practical applications are dealt with throughout each package. They are targeted for years 7, 8 & 9 classes in the secondary school, which is the 12 to 15 years age groups.

Whilst the subject material is based on N.S.W. curriculum, the manner in which it is presented would make it equally adaptable to the introductory or basic courses conducted in all states.

There are FOUR programs in the series TECHNICAL Drawing. The series on General Woodwork contains Five programs. Each program is contained on two double-sided disks. Eight disks for the Technical Drawing package, and Ten disks for the General Woodwork package. Disk 1 of each program is required as the "Start-up" disk, and each session must start disk 1; Disk 2 and 3 of each program are data disk only. Disk 4 is the Pupil Review Module, can be operated on its own or in conjunction with the Tutorials.

The programs have numerous applications, depending on the individual teacher's requirements and approach to the subject material offered.

-- Individual tuition (introductory, revision or catch-up for absentee pupils).
-- Small group discussion and reinforcement of principles.
-- Class group where large screen viewing is available.
-- Review "testing" of the tutorial material.

All programs are self directed, making the software useable by students with varying levels of achievement.

There is a total package contents, as well as an individual program contents supplied within the printed portion of the package. This enables the teacher to select relevant sections within the package that can be used concurrently with his/her teaching program.

As well as introducing new material, each subsequent programs of the Teaching Tutorial section ideally assumes and uses information learned from previous programs.

It is stressed by the authors, that these programs are not designed to replace, or supercede the classroom teacher, but are rather offered:

-- To supplement his/her teaching technique.
-- As a means of revising pupil skills and knowledge.
-- To stimulate calculated discussion.

Both packages supply a Copy master for each of the six Tutorial Modules contained in each program. The computer breaks a module up into a number of separate pictures or sections (ranging from 3 to 7), depending on which module is being viewed. Included on the Copy Master are the 3 discussion or research Questions along with the 5 Vocabulary words (Questions and Vocabulary also appear as options within the Tutorials). The Copy masters are offered as pupil support material and may be used to produce overhead projector transparencies, or copied for any other educational purpose that the teacher wishes.

The IACAI Master disks supplied with these packages are copyright, and may NOT be copied, except for the purpose of the back-up made by the purchasers for their own use at their own school.

The Pupil Review Module (operating separately on disk 4 of each program), offers the opportunity to evaluate pupil understanding and progress. There are Twelve Review screens in each program using diagrams previously encountered in that Tutorial Module. The pupil is allowed two opportunities to respond to each of the Review screens. The computer is programmed to highlight incorrect responses so that correct responses can be determined on the second attempt. When the pupil has finished each Review screen, the correct answers are displayed for verification.

The inbuilt scoring function is a special feature of the Review Module. At the end of each Review screen, the percentage score is also displayed with the correct answers. A copy of the correct responses is supplied with the documentation that comes with the package.

The Pupil Review Module does not comprehensively cover all aspects of any one program, but is representative of the subject material in that program. Choices given on-screen, from which the pupil may select, often reflect typical answers offered by the pupils when completing the more conventional style of written tests. In most cases the pupil needs to enter responses in a given order, in some cases the order is not important. The computer is programmed to sort this out.
At the completion of the Pupil Review Module an Achievement Certificate appears on the screen, displaying the pupil's name and his/her score. If a printer is connected, and identical copy of this certificate may be printed for the pupil to keep.

The teacher may also wish to tab this information for his own records which can then assist in pupil assessment.

It is possible to move quickly and conveniently between the Tutorial Module and the Review Module by making selections when the applicable menu is on-screen. Also the ability to move between options whilst in the middle of a tutorial allows considerable flexibility to the teacher using this concept.

Throughout these programs all that is required in order to proceed is to select one of seven numbers, or one of seven letters. Some of these are followed by pressing the Space Bar, or Return key.

Full documentation comes with each package, and when read in conjunction with the abbreviated on-screen directions, it is easy to work through the programs from start to finish. Even in the event of an incorrect disk being placed in the drive, an appropriate instructional message appears on-screen so that the program can proceed without interruption.

The total concept was devised and written by Lachlan Turner, with assistance by Rolf Ballin, both teachers in Industrial Arts. The programming code for the computer operation was achieved by Peter Merry, a teacher in Mathematics. All were teachers at Carlingford High School during the early days of the project. The IACAI packages represent a considerable flexible classroom application for the Apple // computer in industrial arts, and may be purchased from the Northern Districts Education Centre.

The four program package on Technical Drawing costs $75. A five program package on General Woodwork costs $95. When both packages are purchased together the cost is $160 Module.
USA Update continued

Multi-Scribe version 3.0
Features on-line spell checking and error correction. The Spell Checker uses a 50,000 word dictionary, lets you search for words, correct spelling, and save new words. Multi-Scribe has a variety of special fonts, character sizes, and styles, as well as editing of individual characters. It runs on the Ile and Iliii with 128K RAM and sells for US$79.95

StyleWare
Suite ZE, 5250 Guilford Street, HOUSTON, TEXAS 77008, U.S.A. (0101) 713 768-1360

PC Transporter (expansion board)
With PC Transporter, MS-DOS programs run on your PC II like they do on an IBM PC. The card runs three times faster than an IBM PC/XT and, to speed you through number crunching tasks, you can use the optional 8087-2 math co-processor chip. Put a PC Transporter, MS-DOS program into your Apple hardware as IBM hardware. This card adds up to 768K of extra RAM. For the Apple II+ you require the optional IBM-style keyboard. PC Transporter reads MS-DOS and translates it into Apple ProDOS. You can store IBM programs and data on any ProDOS storage device including the Apple 3.5 Drive, Apple OneDisk 3.5, Apple 5.25 drive, SC51 or ProDOS compatible hard disks.

PC Transporter memory choices

Prices

US$ 38K
$499.00

512K
$529.00

640K
$599.00

768K
$699.00

Ilgs Installation Kit $ 49.00
Ile/II Plus Install Kit $ 39.00
5.25 IBM drive Diskettes $259.00
Dual-Drive $399.00
Half-Height $115.00
IBM-Style Keyboard $135.00
IBM keyboard Cable $34.00
8087-2 Co-processor $225.00
Heavy Duty Power Supply $ 65.00

Applied Engineering
P.O. Box 798,
CARRUTHER, TX 75006
U.S.A.
(0101) 214 241-6060

Prodel (Disk utility for the Apple II range)
A startlingly comprehensive collection of more than a dozen disk utilities from disk-file manager to sector editor, 'file finder, and Mr. Fixit directory repairman. A bargain available only by mail. Price US$80. Requires: Apple II Plus, Ile, Ilii, or Ilgs; 64K RAM.

Glen Breden
511 State Road,
PRINCETON, NJ 08540
U.S.A.

Mousefiller (Disk file manager)
Macintosh-like mouse-driven menus and windows created on an 80-column text screen make Mousefiller the favorite of double-clickers everywhere. Efficient to use and skillfully executed. Price US$89.95. Requires: Apple Ile (enhanced), Ilii, or Ilgs; 128K RAM.

Harbor Software Inc.
Suite 8
443 Great Road,
ACTON, MA 01720
U.S.A.
Tel: (0101) 617 263-1870

Copy II Plus
Yes, Copy II plus does duplicate copy-protected software, but it also includes a library of disk utilities. Works with both DOS 3.2 and ProDOS disks, allows file copying between the two, and takes care of necessary conversions. Also copies smaller disk to image file on larger disk. Price US$39.95 requires: Apple II Plus, Ile, IIliii, or Ilgs; 64K RAM.

Central Point Software
Suite 100,
9700 SW Capital Highway,
PORTLAND, OR 97219
U.S.A.
Tel: (0101) 503 244-5782

Diversi-CACHE
Disk-caching program for the Ilgs speeds 3.5-inch disk operations by copying disk data blocks to RAM. Cache size is configurable and survives a hard reset. Price US$105 requires: Apple Ilgs; 512K RAM, Diversiied Software Research Inc.
34800 Dunker Hill,
FARMINGTON, MI 48018
U.S.A.
Tel: (0101) 313 553-9460

SALES UPDATE 1998

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USA Update

Starting off... I will tell you how to purchase goods from the U.S.A. and, in the near future, tell you of the dealers and/or manufacturers successfully dealing with our readers. Here is something to think about! If our Australian retailers did their jobs properly there would be no need for this column. So... RETAILERS TAKE NOTE

Most U.S. retail outlets you see in magazines deal in 'MAIL ORDER' ie. They will post to you, goods which you have ordered and paid for. This procedure of pay before you receive is not very comforting when you have to send money overseas. Here's where this column can help. As I encourage you to participate in this money game of throwing your money to the wind and hoping something comes back you will ring or write to me of the pleasure (or pain) of your successful U.S. purchase. Thus heralding the name of dealers who are good and dashing those who are not. You see... we all benefit.

Please write to: Graham Clarke
P.O. Box 224,
Wilnghugh, 086
or telephone: (02) 956-2709

There are three, recognised ways of sending money overseas:

The first is by 'TELEGRAFIC TANSFER'. That is, you do the conversion to U.S. dollars at your bank and pay the prescribed amount to match the U.S. dollar value plus a fee. The bank then tells the bank you specify of that amount. This method assumes you have a bank to send too. Who does?

The second is by 'BANK CHEQUE'. For the U.S. this cheque must be made out in U.S. dollars. Once again you do the conversion at the time you buy the cheque at your bank. You get the current rate of exchange, for that day, between the Australian and U.S. dollar.

The third is by 'CREDIT CARD' and for most of the US you may use 'MASTERCARD' or 'VISIA'. Rarely may you use 'AMERICAN EXPRESS' or 'DISCOVER CLUB'. Shopping by credit card is probably the easiest way of doing business. You need only write a letter. Include your credit card 'ACCOUNT NAME', 'ACCOUNT NUMBER', 'EXPIRY DATE' and SIGNATURE.

You will have to include postage in your purchase price so read the advertisement carefully as most mail prices are included. If you wish your purchase to arrive by 'AIR MAIL' you need only inform the retailer and he will add the additional price to the bill. This method of payment differs from the previous two in that the conversion to the U.S. dollar occurs in the U.S. and if the Australian dollar is getting stronger you will get a better rate.

This mode of purchase may be implemented by telephone but be careful there is a difference in time not only between Australia and the U.S. but across the U.S. itself. The telephone can be very useful when you are not positive of price or availability, postal charges or exchange rates. But don't linger long it costs a fortune on I.O.D.

Now that you have decided to make that overseas purchase, what should you buy? Here are a few interesting items:

Print-Quick version 4.0
Supports the Ilgs, ImageWriter II colour printing and improved operating speed. Print-Quick combines font design and downloading, printer-format setup, typewriter emulation, Hi-res picture-file printing, and text-file display and printing. It's good value at US$50.00

Third Wave Technology
I.S.D. (0101) 216 671-8991

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RAMWORKS III by Applied Engineering.

By Robert Brown.

Since about three years ago, RAM (Random Access Memory) has dropped dramatically in its price and because of the wide open architecture of the Apple II computers there has been an advent of RAM Cards. One of these in particular has been the RamWorks III from Applied Engineering, who now is one of the most respected third party hardware and software developers for the Apple range of computers including the Apple GS.

The RamWorks III plugs directly into the Auxiliary slot in any Apple IIe whether it be the American model or the European model. The card replaces the normal 80 column card or the extended 80 column card and supplies both display as well as new routines to give flicker free scrolling and various commands to clear the screen and positioning of the cursor. The 80 column display and its commands are compatible with the languages of Applesoft basic, CP/M and Pascal.

RamWorks III can come with any memory configuration starting at 64 Kilobytes to 16 Megabytes. The card has provisions for expansion cards such as an RGB card with both APPE Analogue and IBM digital RGB monitor outputs, or if you want the full 16 Megabytes, you install Memory Expansion cards. Other expansion cards include 16 bit option and hopefully in the near future, battery backed RAM.

I would like, at this point, to point out about the RamWorks and Ram Cards in general. Some reviews lately of Ram Cards (I won't mention which ones) are pointing out that..."any Ram Card you install into your Apple computer is a waste of time because the memory is MORE volatile than your main memory and resulting in more frequent crashes and loss of memory...". This is really a load of rubbish. The memory on these Ram Cards is as volatile as your main memory and usually in a glitch you lose your position in the program such as burning out into the monitor or just hanging up when in 90% of cases you can press Control Reset and get the prompt back with all data in the extended memory intact.

The card comes complete with two disks, three sides full of programs. The first side gives you all of the small programs such as PRODRIVE which lets you install your Ram Disk as a Ram Drive. The version of RamWorks III I reviewed was 1 Megabyte and I therefore got 960 Kilobytes to use. Why 960K and not 1 Meg? The Ram Card and software allows for 64K for the Apple to function as a standard 128K machine as well as having 960K on top of that, therefore 1 Megabyte. Other software on the first side includes a PARTITION program. If you don't want the 960K Ram Disk, the partition program allows you to have any size Ram Disk between 0K and 960K. The other sides of the disk are all the install software required for AppleWorks version 1.1 to 2.1 including the German version 1.4.

New AppleWorks 2.0 features (1 Megabyte version).

Applied Engineering are the only ones that extend all versions of AppleWorks with new and extended facilities. First of all, AppleWorks desktop is increased from the lowy 56K to 750K and AppleWorks sees the 274K left for reloading itself into it and for its house keeping. Therefore once AppleWorks has loaded, about 20 seconds, it never goes back to the disk. The maximum number of records available are increased from 1,350 to over 22,000. For the Word Processor freaks, that run out of lines when they reach 2,250 don't have any worry now because they get over 22,000 lines as well. And then for those that get frustrated with 250 Clipboard lines, you now get 2,042 lines to play with. Also included is a built in printer buffer ONLY if you have a printer card that complies with Pascal 1.1 standards such as a Grappler +, Super Serial Card or an Epson Parallel Card. Auto segmentation is another feature. If you have a file longer that what will fit on a data disk for example a word processor file that is 150K long, then the auto segmentation becomes active. What it does is to save as much as it can onto one disk as Segment 1, then providing you have a disk formatted with the same name as the first disk, it will save as Segment 2 and so on until you have saved your file. If you have a ProDCS compatible clock in your system that AppleWorks won't look at, the Applied Engineering software allows you to configure AppleWorks to recognize it. It is placed down the bottom right of the screen in the form of MM/DD/YY HH:MM AM or PM. Other commands are incorporated in the Database such as if you have a Category such as DATE or TIME but not both, typing 'W' will automatically place the date or time into that Category, without you typing it.

Also, apart from having AppleWorks installed into the Ram Disk, you can stick in Pinpoint or other software you use in conjunction with AppleWorks into the Ram Disk as well but of course your desktop size reduces. In my case with AppleWorks 2.0 and Pinpoint with 12 desktop accessories installed and a Ram Disk I get 350K for the AppleWorks desktop which is still far more than I need.

Conclusion

The Applied Engineering RamWorks III is by far the best Ram Card for the Apple IIe computer. It is the easiest to use and to install AppleWorks with the user-friendly software is a breeze. I thoroughly recommend that you have a look at this card before you buy your extra memory.

Review copy courtesy of Brian Robinson.

POWER TECHNIK, P.O. Box 143, Killara, NSW. PH: 498 - 4711 (Business hours).

SILENT SERVICE GS

A Review by John Paske.

Recently I had the opportunity to look at a very good product from Micropro entitled Silent Service GS. It is a good product for two reasons, user-friendliness and price.

In this simulation you captain your own World War II Submarine through the dangerous waters of the Pacific Ocean. The program is structured so that over a humble reviewer can ease his way into a full-blooded simulation. Ranging from simple target practice, to a campaign lasting several months, SS incorporates such features as, degrees of difficulty from Midshipman to Captain and Reality levels such as limited visibility, dud torpedoes, expert destroyers and port repairs. Once you are confident at shooting "ducks on a pond" you can graduate from torpedo practice to some thing more difficult such as one of the Convoy Actions or perhaps a War Patrol.

The simulation is run from a series five screens depicting, the bridge, the instruments, the map room, damage reports and quartermaster's log. It is on the bridge that most of the action occurs, firing torpedoes and issuing orders while keeping an ever-watchful eye on the enemy through the periscope. This simulation is historically correct to the extent that prior to August 1943 maximum safe diving depth was 300 ft. after August 1943, 425 ft. was safe. Also in late 1944 the electric torpedo was introduced, although slower this didn't have the tell-tale wake of the steam torpedo.

Silent Service was released some years ago for Apple II, IIe and IIc and the transportation of a successful program to the GS mode has been more than worthwhile. The GS version with its improved graphics and sound make this simulation easy to play with the aid of the mouse and at a price of less than $50 it has to be very good value.

Review program by courtesy of IMAGINEERING.

Letter to the Editor

Dear Sir,

I am presently in my first year as a member of the Apple Users (Group Sydney) and as well as enjoying the benefits and expertise which the club has to offer, I try to attend as many meetings and special interest groups as possible despite the irregular hours which my primary job demands.

However, the reason for my letter is to voice my concern and annoyance at the number of club members, particularly those in the younger age group, who persist in displaying their ignorance by continuously talking amongst themselves, whilst persons are out the front addressing the meeting. This is not an isolated occurrence and appears to happen at most Apple II meetings.

Last night was a typical example when, during the TimeOut demonstration, a minority in the back rows showed little respect to the speaker or other club members who were trying to hear what was being said. I'm sure that if this recurring problem distracts and annoys me then surely it must do the same to others.

I request that you publish my complaint in Applications, so that those involved will hopefully get the message and therefore give everybody else a fair go.

I thank you for your time.

Yours sincerely,

Lance Haswood - Panania
**ProDOS 16 Hints**

By Mark Bouthiller

If you have looked at the public domain libraries lately you will have noticed that there are a growing number of Apple /GS programs appearing. Unfortunately you can't just RUN or BRUN most /GS programs.

Those with a .BS3 filetype can only be run under ProDOS 16. If you wish to use .BS3 programs, here's a list of the steps you should follow:

1. Make a copy of your Apple /GS System marker. Most programs will specify the version of ProDOS 16 that is required.

2. Delete all files in the main subdirectory with a .BS3 file type. DO NOT delete any fonts, desk accessories, or tools. If you delete a necessary subdirectory, the ProDOS 16 programs will not transfer to this disk and may not work.

3. Copy your ProDOS 16 (.BS3) files into the main subdirectory. Now whenever you boot the disk, you will be shown the Apple /GS program Launcher with your newly added programs listed.

To run one, simply double-click its filename. If you only have one program on a disk, the Program Launcher becomes a nuisance rather than a convenience. In such a case, you may wish to make that program self-loading. To do this, simply...

1. Rename the file you wish to self-load with a "SYS16" ending.

   For example, if you were using a program entitled "FREEPAINT", you would rename it "FREEPAINT-SYS16".

2. Delete the file named "START" in the SYSTEM subdirectory. Now whenever you boot that ProDOS 16 disk, your program will automatically load.

   If you wish to make PaintWorks Plus or another copy-protected program self-loading, you should not tamper with the original disk. Instead, make a working copy with Copy II+ and alter that disk.

   Now, you may be thinking to yourself, "If PaintWorks Plus is copy-protected, how can I make a copy?" Most copy-protected programs have only one protected block. If you try to make a back-up copy, you will be able to copy all but one block. When you boot this back-up disk, the program will load but will prompt you to insert your original disk for verification. Because the computer only accesses the original disk to make sure you really copied the program, all changes you make to the working copy without fear of harming your original disk. In addition, if you have access to any desk accessories, you can add them to your working copy. I hope this gives you a few helpful hints for getting more out of ProDOS 16 and your Apple /GS.

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**Teacher's Best Appleworks Tips**

By David Chesbrough, courtesy of "The Works"

Two most useful, yet little known Open-Apple commands: OpenApple-Y will work throughout AppleWorks to delete from the cursor to the end of the line or category.

In the data base, OpenApple-~ allows you to copy a category entry down through existing records in multiple record format.

Print Single Sheet from Multiple Page Document: Imbed print command OpenApple-O PE (pause each page) at the beginning of the file. Press OpenApple-K to calculate page breaks. Place the cursor on the first line of the desired page. Press OpenApple-P to print, and select "This Page". When the page is printed and printer pauses, press ESC to exit printing.

Use OpenApple-K Prior to Saving Word Processing File: When you print a file, its status will remain SAVED allowing you to keep better track of changes and need to save.

Arrange Data Base File Before Printing Report: (do this within Report format) If printing process is aborted (jammed paper, etc.), printing can be picked up from point of aborted record using OpenApple-R and selecting records "greater than".

Create Flexible Data Base: When creating new, add extra categories (mark with :) which can then be modified later with new names. You won't lose special formatting as you would in adding new categories.

Use OpenApple-L in Single Record Format: Alter form for easy entry and readability, more or less space per category.

Print Mail Labels Right: Enter printer options OpenApple-Q, set page length (FL) to length of individual label, platen width (PW) to width of label, "No" to print heading (FH), and "Yes" to both Omit Heading (UL) and KS Keep No. of lines same.

Spreadsheet Layout Tip: To change layout (such as having numbers appear in standard dollars format so that all subsequent entries will also be affected, use OpenApple-L "Block" to highlight the area. Choosing Rows or Columns only affects existing entries.

---

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**Spreadsheet Power for Data base Info:** Print report of data base information to DIF file on disk. Create "New" spreadsheet from the DIF file and information will be organised in columns. Use spreadsheet functions as needed. A student graddbook can be created from data base of students, reducing duplicate typing. Refer to the manual for an explanation of how to use PathNames.

**Error Trapping in Spreadsheet:** Order of calculation is critical. Try to keep calculated numbers to lower right of values needed in formula for calculation. When in doubt, press OpenApple-K to recompute values, check sample values with calculator.

**Single Word Processing File for all Individual Students:** After writing and editing student reports, add printer options NP (New Page) and PE (pause each) at the beginning of a file. Show with OpenApple-Z, copy to Clipboard with OperApe-C, and insert between each report by pasting from the Clipboard. When printing, position report form and press "Space" to print. When the form is completed, printing will stop until you please new form, and press space again.

**Keep Sections Together:** Use printer options OperApe-O CB (group begin) and GE (group end) before and after each section, such as matching, to avoid having them split between pages. Be careful though - this can cause too much skipping with large sections.

**Templates Save Time:** Create templates of forms, reports, schedule calendars you create, etc., and save to a TEMPLATE disk. Start task by adding template from disk and change name with OperApe-N.

**Lock files for safety:** Use System Utilities Disk (copy with the computer) to LOCK files on template and Resource Disks to avoid saving changes over them accidentally. Files can be UNLOCKED with System Utility before necessary changes.

**Free desktop calculator:** Add a new spreadsheet file CALC when starting up with AppleWorks. Use OpenApple-Q to access and use it as a calculator when needed.

The Works is a specialist AppleWorks user group. To subscribe, write to: The Works, P.O.Box 72, Leedale, PA 15056, U.S.A. Membership: US$20 + $12 postage
April 1989

HIGHLIGHTS

Apple // Hints
BASIC Utilities
DaisyChaining drives

Transfers (RS232)
VaporWare
Hypercard Windoid

THE PUBLICATION OF THE
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The Red Fan
(or - At last “Applecations” gets a touch of culture!)

An introduction by Michael Bannigan.

Last October members who attended our regular monthly meeting in the Stephen Roberts Lecture Theatre were surprised to find some scaffolding erected along the right-hand side of the auditorium. It seemed clear that it was there to enable the mounting of an unusual piece of art. In response to many requests for more information about this art work, I managed to prevail upon the Curator of the University Art Collection, Mrs Pamela Bell, to write a few paragraphs about it. Perhaps after reading Mrs Bell’s article, readers may have yet other interpretations of the work.

Tim Storrier: The Red Fan

By Pamela Bell, Curator of the University Collection.

Tim Storrier’s diptych “The Red Fan” of 1983 when hung side by side creates a fan-shaped object which can at present be seen in the Stephen Roberts Theatre. Storrier is a print maker, sculptor and painter; he is on the Board of Trustees for the Art Gallery of New South Wales and was a judge in the 1988 Archibald Prize. He is perhaps best known to the general public for a series of fetischistic or ritual objects which represent a link with the landscape tradition in Australian art. As such these objects, although products of the 1980s have an aspect of romanticism in the desire expressed by the artist to capture something of the past of this country.

“The Red Fan” had its genesis in Central Australia, and is part of a series which includes “Bushfire Danger Fan” 1980 and “Sunset Fan” of 1981. The principal inspiration for this work derived from an object commonly seen in the outback, the bushfire indicator, with its half-circle of coloured segments and a pointer like a clock hand indicating bushfire conditions which Storrier has interpreted in media such as canvas, rope thongs and crude bush sticks. These materials are traditionally used for bush camps, but canvas and paint are also, of course, the traditional materials of the artist. The shape and colour of the work also allude to the frequently-used sunset motif in Australian culture. Two common instances of this are the logo of the now defunct Sun newspaper and the rising sun badge of the Australian Army used in the two World Wars. On a more prosaic level “The Red Fan” may also suggest the searing heat of inland Australia.

This interesting work with its many layers of possible interpretation was a gift to the University of Sydney Collection from Mr G Hassall in 1980 through the Tax Incentive for the Arts Scheme.

PC 89

After the 1988 absence of any Apple attendance, and the resulting comments from members, it was decided that the group should have a presence at this year’s show. The success of our attendance at the MacWorld show in November 1988 caused the committee to be optimistic about the financial outcome of PC 89.

I feel, with many others, that our presence at these shows is a real service to our members. Judging by the many overseas and out-of-town members we spoke to, this is true. For many of these members - who make up two-thirds of our numbers - their only contact is through the magazine. A computer show can be the excuse needed to keep in touch with others, as well as seeing what is new in their hobby.

We also assisted many members from other - smaller user groups, whose club had membership in AUG(Sydney), and thus were treated as members.

The overall cost of this show, which saw us hiring a double stand - one side Apple // and the other Mac - was beyond our available budget, so we must thank Apple Australia, and notably Frank Revill for their support.

What did we offer to callers;
In line with our stated aims - to support members, special prices were obtained for disks, and assorted software/hardware, both for Apple // and Mac. Again our Librarians excelled themselves in offering the latest public domain goodies on disk.
To attract new members, Sample Bags were available for purchase by non-members. These contained software, club disks, novelty items, etc. Although no final tally was available at this time, I believe that we sold about 400 bags in all.

Members’ Support;
The attendance and support by members was excellent. At all times we had at least four persons present. Those who came for just a short period, often staid on because of the rush.

Many thanks to all who helped.

It was pleasing to have both Apple //, GS, and Mac users present, because of the many involved questions we had to field. President Ken wondered what qualification was needed to be a user these days, after trying to answer so many complex questions.

About the show;
Largely an IBM-compatible affair, there was however a Mac on most stands, since that was probably the best computer to show graphics capability (a little bias here).
StatusGraph and PC Extras were the only retailers of “Apple” items.

Because of the total absence of “Apple” dealers, the User Group became the ‘de-facto’ Apple dealer, particularly in regard to Apple // phones.
Had commissions been paid, our sales would have been high.

Notably the open day by the who promoted themselves with the group were Seaborn and Datashow. They had a good advertisement in the Australian magazine and made available promotional material, avoiding us telling enquirers to look in the phone

book. Other information came from Roger Keating and Firmware Design.

What about next show;
1. Yes we need to be there!
2. We must have more contact with other user groups to promote local attendance.
3. We must go in with at least one Apple dealer at a nearby stand.

April 1989
BASIC Utilities

By Lewis Prichard.

As some of you are no doubt aware, the speed advantages of ProDos are soon eroded by directory blocks being allocated all over the disk surface, resulting in much unnecessary and time-wasting head movement. (Note that these problems rarely become very significant on a 140K floppy disk, but once you move on to larger capacity storage media, the delays can be quite noticeable, and annoying.)

This can be avoided in many cases by creating all your subdirectories before placing any files on the disk. It's a good idea to create a couple more than you need, to allow for future use. Unfortunately, even this doesn't help if you copy more than 12 files into a subdirectory, in which case the single allocated directory block is insufficient, and so another is allocated. As usual when allocating disk blocks, ProDos simply takes the first available block.

Regrettably, by this time that could mean anywhere on the disk. Next time you access something in this directory, ProDos will go hunting across the disk for these further directory blocks, before even thinking about looking for the file.

Possibly disk-optimisation software marketed with (or at least for use with) hard disks addresses these directory-fragmentation problems, but I wouldn't know. I have found that these delays can be overcome by creating large directories to start with, say 5 blocks long if you are putting a lot of files in them. Since you have never found any utility which would allow me to do this, and ProDos certainly doesn't want to know anything about it, I have for some time been performing the process manually.

To start with, I created a subdirectory, then went into something like Copy II+ sector editor and manually marked off blocks in the bit map, also storing appropriate values in the blocks, as determined from 'Beneath Apple ProDos'. After a while I decided the risks of mucking up a directory were not worth it, and came up with another scheme which, using Copy II+ file utilities, allowed ProDos to do all the work (a lot safer, of course). This involved a rather complicated and laborious process of creating a subdirectory, creating files in the root directory to reserve disk space, copying files into the subdirectory until it was about to require another block allocated to it, deleting one of the files from the directory, then freeing a block by copying another file into the subdirectory, which had to be expanded first, thus using the freed block at the start of the disk.

As you can imagine, this takes some time and some care to ensure you get everything in the right order, etc. So I finally decided to automate the process. The result was the accompanying program, SubDir Expander. It should be used on a blank ProDos disk called /BLANK. After asking you how many blocks you wish to allocate to the directory, the program uses a directory named BIDGR with that number of blocks allocated to it, all at the start of available disk space to speed access as much as possible.

I think you will know if you have the sort of problems I'm talking about. When you access files, the drive spends ages whirring back and forth getting blocks of directories and files all over the place. If this is the case, SubDir Expander may be just what you need. Format yourself a ProDos disk, calling it /BLANK, check out how many blocks your subdirectories currently use, then run the program once for each of them, renaming BIDGR after each run to match your existing ones.

If your large subdirectories are inside other subdirectories, you can simply modify Expander by changing /BLANK/BIDGR to /BLANK/directory1/directory2 and so on. This would involve modifying the pathnames in lines 210, 240, 260 and 300. Although this program is a lot faster than creating these large subdirectories yourself, you should be aware that it could still take some minutes to accomplish. For example, to create a 5 block subdirectory on a blank 800K Unidisk 3.5 took approximately 3 minutes 11 seconds, while a 10 block directory under the same conditions took 8 minutes 52 seconds. If you care to try it yourself, you'll find there are one hell of a lot of files to be created and deleted. Nevertheless, when your drive is getting too slow it can be well worth it.

Listing of program SUBDIR EXPAND by Lewis Prichard, Oct. '88.


50 PRINT "lot faster, without grinding back and forth all over the disk so much, this' 60 PRINT "program allows you to create, preferably on a blank disk, the same subdirectory with as many blocks allocated as you like, all in a bunch at the start of available" 70 PRINT "space. That way, you can start with a subdirectory, and not have blocks" 80 PRINT "allocated all over the disk as it's extended, slowing things down."

90 PRINT "Note that this is particularly useful if you use the utilities in Copy II+.") 100 PRINT "as every time you access a disk it thoroughly reads all directories on the" 120 PRINT "disk, if they're split up, you'll hear GRIND...GRIND...GRIND... as" 130 PRINT "it checks them all out. Making things big enough to start with avoids this."

135 PRINT: PRINT "* WARNING: This program is written to work with a ProDos disk call /BLANK/"

140 PRINT 150 INPUT "How many blocks do you want to allocate to the subdirectory »»»»?«» 160 IF A$ = " " THEN PRINT D8"/CATALOG": GOTO 140 161 A$ = "NONE" OR A$ = 0 THEN PRINT: PRINT "Please yourself."; END 170 IF VAL(A$) = 0 THEN CALL -151: PRINT "Please enter the number of blocks or ‘NONE’": GOTO 140 180 A$ = VAL(A$): BLKS = A$; 1:FILES = BLKS * 13 190 HOME: PRINT "Please wait, this could take a while I’ll give you a countdown..."; PRINT: PRINT 195 PRINT: PRINT "Setting up to create A block subdirectory..."

200 REM Start with, create the dir. (hopefully disk block 0) 210 PRINT: PRINT D$" CREATE/BLANK/BIDGR" 215 REM Reserve the next n’ blocks of the disk by creating a blank file 220 FOR K = 1 TO BLKS: PRINT D$"CREATE/ BLANK/DELETE ME.K",TXT: NEXT 225 PRINT: PRINT "Working..."

230 FOR K = 1 TO BLKS: HTAB 11 + (A$ > 10) AND ((A$ - K) = 10): PRINT K: A$ = K: REM The countdown. 235 REM Create 12 files within the subdir. I more will extend it. 240 PRINT 1 TO 12: PRINT D$"CREATE/BLANK/ BIDGR/DELETE ME.K",TXT: NEXT 245 REM About to allocate block to dir, so free a reserved disk block 250 PRINT D$"DELETE/BLANK/DELETE ME.K"

255 REM Creating the 13th file actually allocates another dir. block 260 PRINT D$"CREATE/BLANK/BIDGR/DELETE ME.K"
Comparison of 6502 and 65816

Episode 4

By Simon Walsmsley.

Welcome! We've covered a bit of territory so far. Over the last few months we've looked at various aspects of the 6502 - zero page, the stack, registers, I/O etc. Now its time to be a little theoretical (not for too long) and look at a few features of the chip that aren't so hot.

Orthogonality:

This is a measure of the degree to which any instruction can be used with any addressing mode. Although there are 56 general instructions and 13 different addressing modes (remember that data sheet for the 6502), not all the 13 addressing modes can be used with the 56 instructions. Some opcodes will not be able to use all of the addressing modes by their very nature i.e some combinations of instruction and addressing mode are inappropriate. However it is not only the fact that the instruction/ addressing combination is inappropriate that is important to see that the addressing modes THEMSELVES are not orthogonal. This month will examine two issues with the 6502's orthogonality. Firstly the orthogonality of the addressing modes, and secondly the orthogonality of the instruction/addressing mode combinations.

1) Addressing modes:

An examination of the 13 addressing modes (see 6502 data sheet) reveals that the set of addressing modes is 'nearly' orthogonal, and contains a fair number of different modes apart from the fact that the accumulator cannot be used as an index register. Immediate, relative and implied addressing are provided. The direct zero page addressing mode is orthogonal in that any (or none) of the index registers may be used to generate the effective address of the operand in zero page.

These modes are:

- Zero Page addressing
- Zero Page Indexed addressing, using either X or Y
- Indirect addressing, using either X or Y

Similarly, direct absolute addressing modes are orthogonal in that any of the index registers may be used to generate the effective address of the operand anywhere in memory.

These modes are:

- Absolute addressing
- Absolute Indexed addressing, using either X or Y
- Indirect addressing is not orthogonal however, as there are certain restrictions on the index register which can be used in a particular addressing mode.

Lack of logic space on the chip was the most likely reason for this, together with the fact that this chip was designed for supporting high level languages. Of course it is possible to simulate the stack relative addressing mode, but it makes programming more difficult, and programs are harder to understand.

2) Instructions/addressing modes:

Simple arithmetic leads us to assume that the 6502 is a limited instruction set. However, in its instruction set, there are 56 instructions and 13 addressing modes. The fact that there are only 151 valid opcodes means that there are, on average, fewer than 3 addressable fields per instruction. However the picture is not as gloomy as it might seem, for the use of certain addressing modes with some instructions logically predices the use of other addressing modes. For instance: The opcode INX has an addressing mode of implied. It would not be logical to have an instruction of the form INX <address>, for this instruction itself implies the operand. Similarly, the LDA instruction needs an operand. It would not be logical to have an instruction as simply LDA, for the instruction itself implies the operand. Consequently some instructions and addressing modes are mutually exclusive. This accounts for some of the non-orthogonality. It is possible to LDA (EED), but not to LDX (EED). While this might initially seem a drawback, and it is to some extent, it is necessary to recall that the particular register in the architecture of the processor is present to perform the simulation of the LDX (EED), Y instruction using two instructions: LDA (EED), Y and TAX. If the accumulator must be preserved, then 4 instructions are necessary: PHA, LDA (EED), Y, TAX and PLA. All logical functions and arithmetic operations are performed in the accumulator. This register therefore, needs to have the most addressing modes available to it. The 6502 is the case. If the index is for array processing, this can be done in the accumulator. However index register increments and decrements are common in array processing, so special instructions (INX, INY, DEY, Dex) are included in the instruction set to accomplish these tasks.

Unfortunately however, even though there are a large number of unused opcodes, certain addressing modes are not possible with the accumulator for various instructions. In particular, any instruction that performs a read/ modify/ write sequence, e.g: ROR <address>, INC <address> can only use the X register, both absolute and zero page references. Otherwise all logical and arithmetic operations can use both the X and Y registers for indexing in absolute addressing. Strangely enough, the only instructions allowed to use the addressing mode ZeroPage, Y are the LDX and STX instructions. No instruction exists for the accumulator to access memory using this addressing mode. This is not because it shouldn't be the case, although the same effects can be achieved using other instructions.

It is a pity that relative addressing is only available to branch instructions.

While it is possible to write position independent code using branches (so long as the branch is less than +128 bytes to -127 bytes), it is possible to write position dependent code using zero page memory, and this is what we are interested in. The 6502 has a 16 bit address of the data at run-time. However it is quite cumbersome to write code to achieve this, and the finished program will run considerably slower than if relative instructions were available. Similarly there are no indirect subroutine calls, although there is an indirect jump.

Pipelining:

The 6502 was one of the first microprocessors to use pipelining to increase performance. All instructions take at least 2 cycles, one to fetch the address, and a second to fetch the instruction. Only 6 exceptions, the number of cycles that an instruction takes is equal to the number of times that memory must be addressed. Two examples are shown below, (a) 3 instructions, (b) 4 instructions. The first is a simple add instruction, and the second is a branch to show the effects on the pipeline when the branch instruction is taken. The major point to be noted here is that every clock cycle in the 6502 is a memory cycle in which memory is either read or written. Simultaneously with the read or write of memory, and internal operation of the microprocessor is also occurring.

Example 1 & 2

In the first demonstration, where the branch is not taken, the effective number of cycles needed to execute the instruction is 2. This is because the next instruction is being fetched in cycle 3, and effectively, this is only 2 memory cycles after the branch instruction was fetched. However if the branch is taken, then 1 cycle bubble occurs in the pipeline (seen at cycle 3) where the opcode following the branch is read. Think any branch that does not cross a page boundary requires 3 cycles to address any data in the page. Suppose the branch crosses a page boundary, then the 4th cycle generates an invalid read as well, as the PCH is incorrect. Thus the effective cycle time for this kind of branch is 4 cycles.

This can be summarised:
Example 1:  

```
8000: ADDR <16 bit address>
8003: STA <16 bit address>
```

Clock Cycles | External Operation | Address | Date | Internal Operation
--- | --- | --- | --- | ---
1 | Fetch Opcode | 8000 | | ADC
2 | Fetch first address | 8001 | | ADL
3 | Fetch second addr | 8002 | | ADH
4 | Fetch operand from memory | 8003 | | AH
5 | Fetch next opcode from memory | 8004 | | BLK
6 | Fetch first address | 8005 | | C1
7 | Fetch next address | 8006 | | C2
8 | Fetch operand from memory | 8007 | | C3
9 | Fetch last address | 8008 | | C4

Clock Cycles | External Operation | Address | Date | Internal Operation
--- | --- | --- | --- | ---
10 | Final Opcode | 8009 | | DH
11 | Final Address | 8010 | | D1
12 | Final Operand from memory | 8011 | | D2
13 | Final Last Address | 8012 | | D3
14 | Final Opcode | 8013 | | D4

- branch not taken (2 cycles)
- branch taken, no crossing of page boundary
- branch taken, page boundary crossed (4 cycles)

This information is critical in loops that depend on timing, but in average programs, can be ignored.

However the fact that invalid reads and writes occur due to piping delay that the memory designers and any I/O devices (since the 6502 uses memory mapped I/O) must take these invalid reads and writes into account. This actually led to problems with the introduction of the 65C02 concerning the read/modify/write instructions such as DEC <address>. What was happening was the 6502 was issuing 1 read, 1 valid, and 1 invalid write. The 65C02 produced by NCR produced 2 reads (1 valid, 1 invalid) and 1 write. The systems that relied on the 6502 read/write cycles failed when the 65C02 was used. Similar problems occurred with the instructions that used indexing across page boundaries. This is why some versions of the 65C02 won't work in Apple II.

Next month we wrap up our look at the 6502, so we can get on with the 65816. See you then!

---

**Timeout Quickspell**

Reviewed by Godfrey Gamble

The Timeout programs are utilities that work with Appleworks, and within Appleworks on /e, /lc and /GS machines. The process is as follows, you modify a copy of your Appleworks startup disk using the menu driven program on the Timeout disk. Then when you load Appleworks next time - the process will pause and ask you to insert your Timeout application disk (or disks) after reading the index information from these disks Appleworks will continue loading. You then can run Appleworks normally.

Now for the differences.

At any time while running Appleworks (even during the 'Main Menu' screen) pressing Open-Apple-Escape will produce a menu on top of the current screen display. Selections can be made on this menu with the up and down arrows or by directly typing the item number. The contents of this menu depend on which applications were loaded during the Appleworks boot process.

Timeout Quickspell is a spell checker for use within Appleworks. It allows you to check spelling within context or just simply via a word list. The Excellent for getting rid of all the proper nouns before actually checking the document). You approach it in the standard Timeout manner (Open-Apple-Esc). And it immediately begins checking against its three dictionaries.

1. An internal dictionary of commonly used words.
2. The custom dictionary which you expand as you go.
3. The main dictionary of 80,000 words.

When it has finished it gives you a list of "unknown" words and asks if you want to replace, ignore, add to custom dictionary or correct in context. It has an added feature in that it will also highlight 'double' words. When correcting "in context" it will give you the option of directly typing in an alternative, skipping the word or most importantly it will get suggestions. This produces on screen list of 29 possible words that you might have been trying to spell. You simply highlight the one you want and it will be replaced in the document. If its not on the list selecting 'more' will produce another 29 possible spellings.

The Spellcheckers work quite fast and is an obvious asset to the Appleworks word processor. The disk also includes a utility which will do a word count on your document, useful for school and university assignments! However as the main dictionary takes up nearly on whole 5.25inch disk as your custom dictionary grows some disk swapping during the spellcheck process is required. Its a program which would benefit from 3.5inch disks or a memory expansion system. The program is very good value for money and worth searching-out at your favorite software supplier. The Beagle Bros "TimeOut" series are now distributed by Dataflow.

---

**Files Sample File**

<table>
<thead>
<tr>
<th>SUGGEST SPELLINGS</th>
<th>Escape: Correct word</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. BULLETIN</strong></td>
<td><strong>16. BALLOT</strong></td>
</tr>
<tr>
<td><strong>2. BULLETIN</strong></td>
<td><strong>17. BALLOT</strong></td>
</tr>
<tr>
<td><strong>3. BULLETIONS</strong></td>
<td><strong>18. BALLOTS</strong></td>
</tr>
<tr>
<td><strong>4. BALLET</strong></td>
<td><strong>19. BALLET</strong></td>
</tr>
<tr>
<td><strong>5. BELLWETHER</strong></td>
<td><strong>20. BALLET</strong></td>
</tr>
<tr>
<td><strong>6. BELLE</strong></td>
<td><strong>21. BALLET</strong></td>
</tr>
<tr>
<td><strong>7. BELLPHIL</strong></td>
<td><strong>22. BALLET</strong></td>
</tr>
<tr>
<td><strong>8. BELLPHILIPS</strong></td>
<td><strong>23. BALLET</strong></td>
</tr>
<tr>
<td><strong>9. BLUE</strong></td>
<td><strong>24. BALLET</strong></td>
</tr>
<tr>
<td><strong>10. BALLET</strong></td>
<td><strong>25. BALLET</strong></td>
</tr>
<tr>
<td><strong>11. BULLETS</strong></td>
<td><strong>26. BALLET</strong></td>
</tr>
<tr>
<td><strong>12. BULLION</strong></td>
<td><strong>27. BALLET</strong></td>
</tr>
<tr>
<td><strong>13. BULLION</strong></td>
<td><strong>28. BALLET</strong></td>
</tr>
<tr>
<td><strong>14. BULLIONS</strong></td>
<td><strong>29. BALLET</strong></td>
</tr>
<tr>
<td><strong>15. BULLION</strong></td>
<td><strong>30. BALLET</strong></td>
</tr>
</tbody>
</table>

Type number, or use arrows, then press Return

---

**Files Sample File**

<table>
<thead>
<tr>
<th>SUGGEST SPELLINGS</th>
<th>Escape: Review/Add/Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Select words to</strong></td>
<td><strong>Ch 17 unknown / 2 double words</strong></td>
</tr>
<tr>
<td>1. Correct in context</td>
<td><strong>CHOCOLATE</strong></td>
</tr>
<tr>
<td>2. Replace</td>
<td><strong>COPY</strong></td>
</tr>
<tr>
<td>3. Add to custom dictionary</td>
<td><strong>COPYRIGHT</strong></td>
</tr>
<tr>
<td>4. Ignore</td>
<td><strong>HOPEFULLY</strong></td>
</tr>
<tr>
<td>5. Remove double words</td>
<td><strong>HOPEFULLY</strong></td>
</tr>
<tr>
<td>6. Correct ALL in context</td>
<td><strong>INSTRUCTION</strong></td>
</tr>
</tbody>
</table>

Type number, or use arrows, then press Return

---

**April 1989**
Apple II Hints

By courtesy of Apple Computer Australia.

Apple II Family: 80-Column Card
Control Codes

A "CHR$(21)" response to a "GET A$" input statement in a BASIC program may disable the 80-column card on an Apple IIGS, Apple IIe, Apple IIc, (but not an Apple II Plus with Applied Engineering's Viewmaster 80).

The 80-Column Text Card Manual for the Apple II contains a table of CONTROL character functions for the text card:

CONTROL-Q CHR$(17) Sets display to 40 cols
CONTROL-R CHR$(18) Sets display to 80 cols
CONTROL-U CHR$(21) Deactivates 80-Column Text Card, homes cursor, and clears screen

These functions are part of the 80-column ROM routines. Any time the codes are entered, these actions take place.

To halt the CONTROL-U function, the CONTROL-U keystroke needs to be trapped on input. Using the "GET A$" method:

10 GET A$
20 IF A$ = "CHR$(21)" THEN A$ = "" :REM traps the CONTROL-U, sets it to blank
30 PRINT A$
40 GOTO 10

What Version ROM Shortcut

When you want to see if a /c has the new ROMs, from the BASIC prompt just type PR?7. If it comes up with, "APPLETALK(R) OFFLINE" then you have the new ROMs.

I'm not sure how scientific that is, but I know it sure is a lot easier to remember."

AppleWorks Access to ImageWriter LQ Proportional Font

AppleWorks offers the option of using either the Proportional 1 or Proportional 2 font. The printer must be set correctly (DIP switches 1-6 and 1-7 set closed), and both lights on the Print Quality button (on the control panel of the printer) must be on.

It appears that the only major differences between a sample printed with: "Proportional 1" and one printed with "Proportional 2" are line length and spacing. The fonts look identical. One example shows some anomalies in spacing—underscore lines do not align properly, and tabs are misaligned. There seems to be some difference in the way the application handles spacing and the way the ImageWriter LQ fonts handle spacing, which causes the problems.

AppleWorks 2.0: Custom Printer Driver and Control-@ Print Command

When configuring a custom printer driver in AppleWorks 2.0, you can't enter a CTRL-@ (ASCII 0) in a printer command string. This is because AppleWorks 2.0, in order to ignore input processed by an accessory, looks for CTRL-@'s ASCII value in the accumulator after the AFReadTest routine.

Because of the obvious need to enter Control-@'s, the program has been changed to test the status of the carry bit rather than the accumulator when AFReadTest returns. In addition, a BASIC program ("AppleWorks Control-@ Patch Utility for AppleWorks 2.0 ONLY", March 1987 - supplied to dealers and support personnel) patches existing AppleWorks 2.0 disks to ignore the test for a Control-@ and process the character normally. The lines that perform the patch are:

20 D$ = CHR$(4)
360 PRINT D$:"/LOAD APPLEWORKS/APLWORKS.SYSTEM,AS2000,TFF"
370 IF PEEK (13055) <> 46 THEN 525 : REM Check
the version number
380 POKE 13007,112 : REM Changes the version number
390 POKE 11760,242 : REM Replaces $4 with F2 in DEED offset
400 PRINT D$:"SAVE APPLEWORKS/APLWORKS.SYSTEM,AS2000,LS531,TFF"
410 GOTO 999
525 PRINT "This is not an AppleWorks 2.0 disk"
999 END

Implemented to facilitate communications between AppleWorks and add-ons like FinPoint utilities, the new feature works like this: once read from the keyboard, a character is passed to the routine AFReadTest. Here an accessory can examine the character. If the accessory decides to do nothing with the character, it is passed back. If the accessory does perform some action based on which key was pressed, then the accessory sets the accumulator to zero, which also happens to be the ASCII value of a Control-@. Therefore, if a user were to type Control-@ from the keyboard, AppleWorks would ignore it because it assumes that that keypress had been handled by an accessory.

AppleWorks 2.0: Memory Management on the Apple IIGS

After recognizing that it is running on an Apple IIGS, AppleWorks 2.0 uses the built-in memory manager to allocate all memory use. If the Apple IIGS is cold started, several of the tools in ROM are initialized and given small portions of memory for their own use. These tools include the Tool Locator, Memory Manager, and Desktop Manager. Also, the RAMDisk is defined, either as the number specified as the 'Minimum RAMDisk size' or 16K, whichever is larger.

When AppleWorks runs, it starts by allocating most of the first 64K bank and portions of the second 64K for itself. The rest of the memory remains free, available for expansion by the AppleWorks desktop and the RAMDisk.

Therefore, the amount stated by AppleWorks as 'Kn free' is the sum of:

- the memory not allocated by the memory manager
- plus the memory already owned by AppleWorks
- less the memory owned by AppleWorks but occupied by documents currently on the desktop.

As AppleWorks runs, this Kn of free space gets consumed either by AppleWorks, by the RAMDisk, or by add-on accessory programs.

AppleWorks allocates memory to:

- files that appear on the desktop
- portions, or all, of the AppleWorks program
- free space

As in all earlier versions, AppleWorks removes portions of itself from its portion of RAM if the memory is needed to store data files.

Printing From an Apple IIGS to ImageWriter LQ on an AppleTalk Network

System 3.1 (the current version) does not support printing to an ImageWriter LQ on a network. You can print only to an ImageWriter II. Your dealer can get a patch that allows you to print only to an ImageWriter LQ on the network.

The next release of Apple IIGS System software is expected to allow users to print to both the ImageWriter II and ImageWriter LQ—the same as with a Macintosh.

The manual says that you can print to the ImageWriter LQ on the network with no problem; however, because the system disk that supported this feature has slipped, this is incorrect.

Other Fonts for the ImageWriter LQ and ImageWriter SC

A few companies are working on 3x and 4x fonts for the ImageWriter LQ and LaserWriter SC; however, none is available at this time. Fontastic Plus 2.0 gives users the ability to do bitmap editing and create their own 3x and 4x fonts. We haven't tested this yet. At this time, Apple doesn't have any.

Apple IIGS: Printing To A LaserWriter Using ImageWriter Emulation

Apple IIGS users who want to print to any type of LaserWriter using an application that does not support PostScript (such as AppleWorks) need to follow the following instructions:

Run Chooser II BEFORE using the LaserWriter from your application on an Apple IIGS. Chooser II works much like the Macintosh Chooser desc accessory, except that it is a stand-alone application. When the LaserWriter is selected, Chooser II will check the LaserWriter to verify the presence of the ImageWriter Emulator.

The ImageWriter Emulator (IWEB) is a PostScript file that is downloaded into the LaserWriter. If the IWEB is not present, Chooser II will download the file. If IWEB is present in the LaserWriter, Chooser II will acknowledge and not download.

The ImageWriter Emulator understands all of the standard features of the ImageWriter I and II, including boldface, underline, superscript and subscript in the default font, Proportional-1 font and Proportional-2 font.

The ImageWriter Emulator defaults to Courier at 12 characters-per-inch, unless you have specified Proportional-1 or Proportional-2 in the Open-Apple-O printing options.

With ImageWriter Emulator version 1.1.2, Times Roman will be selected for Proportional-1 and Times Bold will be selected for Proportional-2. If you use the characters-per-inch option, this will cause Courier to be selected and printed at the CPI you specify.
Speed Advantages of Using Diversi-Cache on the IIGS

Thanks to Steve King for the following information.

Here are the results of the testing I did using the Diversi-Cache program from DSR Inc. in Farmington MI on the Apple IIGS.

The hardware configuration was:

- Apple IIGS with new ROMs and 1.25M RAM
- HD20SC Hard Disk attached through slot 1.
- Two (2) Apple 3.5 floppys on the Smartport
- (One) Apple 5.25 drive daisy-chained on the 3.5 drives.

I did not disable slot 6 for this test. This would have sped up the booting process because the 5.25 drive would not have been accessed during the boot. Disabling the slot would have decreased the times approximately 21/2 seconds.

This software stays intact in the Apple IIGS's memory even after a warm-boot!

For instance, you can warm boot to go from floppy boot to Hard Disk and still use Diversi-Cache. However, after you power down, you must boot up with a disk that has been installed with the Diversi-Cache software.

I tested such things as the time to mount a diskette, eject a diskette, boot a floppy, launch a program, etc. both with Diversi-Cache on and off. With Diversi-Cache on, I also tested with the cache set at various increments, 0 thru 364K. I tested Diversi-Cache no cache allocated to determine if any improvements exist when are RAM contraints.

You may set up a cache using the Diversi-Cache Classic disk accessory in increments of: 8, 16, 24, 32, 40, 48, 56, and 64K. Cache settings past 64K are in increments of 32K up to 800K. I only tested 0, 128, 256 and 384K to save time and because when the cache is set to more than 384K, the available RAM begins to shrink and some programs won't run. For instance, when I set the cache to over 416K, I had some peculiar problems with programs like Paintworks Plus and Appleworks. These programs would not load properly. (I forwarded those results to the manufacturers for correction.)

The main thing I found was, with a cache of 128K, the disk drive access became significantly faster. The time to boot from floppy, mount the 5.25 drive icon and mount my hard disk icon (the disk window was closed) was cut by 23 seconds! This alone made the product well worth its price. My results suggest a cache setting of more than 128K though gives you only an incremental additional increase in speed.

You will note that this product is designed primarily to speed up floppy access ONLY. The times illustrate the software does practically nothing to speed up access of a HD20SC.

I talked with the programmer, president and main salesperson for the company-- in otherwords THE COMPANY-- Bill Basham. He said his software patches the memory manager sections that control disk I/O to achieve what it does. Bill also stated the Apple engineer who wrote this manager liked the way the software worked, but was concerned that Bill patched into some routines preventing a warm-boot from clearing the cache. I don't know what this will mean for any updates to the Apple IIGS, but for now it works fine.

Following are the results for the normal Finder and Diversi-Cache (D-C):

<table>
<thead>
<tr>
<th>Finder</th>
<th>D-C</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Cache Setting</td>
<td>0k</td>
</tr>
<tr>
<td>Mount a Diskette</td>
<td>6.5</td>
</tr>
<tr>
<td>Eject a Diskette</td>
<td>4.3</td>
</tr>
<tr>
<td>Copy the ProDOS File</td>
<td>8.3</td>
</tr>
<tr>
<td>Diskette to Diskette</td>
<td>6.7</td>
</tr>
<tr>
<td>Boot a Floppy</td>
<td>1:23.4</td>
</tr>
<tr>
<td>SCSI Boot</td>
<td>47.4</td>
</tr>
<tr>
<td>Launch Paintworks Plus from HD20</td>
<td>38</td>
</tr>
<tr>
<td>Launch Paintworks Plus from Floppy</td>
<td>42</td>
</tr>
<tr>
<td>D-C</td>
<td>D-C</td>
</tr>
<tr>
<td>0k</td>
<td>128k</td>
</tr>
<tr>
<td>4.4</td>
<td>4.4</td>
</tr>
<tr>
<td>4.2</td>
<td>4.2</td>
</tr>
<tr>
<td>6.2</td>
<td>6.1</td>
</tr>
<tr>
<td>47.2</td>
<td>47.3</td>
</tr>
<tr>
<td>47.4</td>
<td>47.4</td>
</tr>
<tr>
<td>35.6</td>
<td>35.6</td>
</tr>
<tr>
<td>31.8</td>
<td>31.8</td>
</tr>
</tbody>
</table>

Apple IIGS: Printing Low-Res/High-Res Graphics Files

A low-resolution graphics file on the Apple IIGS can be printed from BASIC without using any specific interface cards (for instance, an Apple IIGS with an ImageWriter II connected to the serial port) using Triple-Dump from Beagle Brothers.

This application lets any Apple II prints not only low-resolution, but high-resolution, double-high-resolution, and double-low-resolution files, as well as 40-column and 80-column text. Triple-Dump routines can also be used as part of BASIC programs.

Apple IIGS: Characters Print Larger Than Specified Point Size

The Apple IIGS screen can display 320 by 200, or 640 by 200 pixels. The Apple IIGS print driver's default is to match the vertical resolution of the screen. This does not give you a true point size -- a 'point' being 1/72 inch -- as the Macintosh does. The Apple IIGS print driver's default is to print in screen pixels, not in points. This causes the characters to print larger than the Macintosh characters of the same font and size.

If you choose 'Condensed' in the Page Setup dialog, the print driver will print in points instead of screen pixels. The printed characters will approximate the size of the equivalent Macintosh characters.

How to PRINT TAB on an ImageWriter Using a IIGS

Q. How do you get a BASIC "PRINT TAB" statement like:

PRINT TAB(10);"A"; TAB(20);"B"; TAB(30);"C"

work on the Apple IIGS and ImageWriter II? The same statement works on the Apple IIe and ImageWriter II, provided the statement:

PRINT CHR$(9);"T" E

(Tab Enable) is issued before the PRINT TAB statement is executed. Using the Apple IIGS, the statement results in spacing 10 or 20 spaces rather than tabbing to those columns.

A. When printing hardcopy, PRINT TAB appears to be tabbing the specified spaces from last character. For example:

50 PRINT TAB(20);"Column 20";TAB(40);"Column 40"

causes the first tab to be placed at column 20, but the second tab is placed at column 68. "Column 20" is 9 spaces, first character is placed at 20, adding the next 8 characters, placing the last character at column 28. When the TAB statement is executed, 40 spaces are added to the last cursor location (column 28), placing the cursor at column 68.

When using PRINT TAB for screen formatting, we consistently got good results. Only when this was used for hardcopy, it did not work.

For hardcopy printouts, use the HTAB statement to format columns correctly:

40 HTAB 40:PRINT "Column 40":HTAB 60:PRINT "Column 60"

Old Apple II manuals state that this is not possible, but the HTAB statement works correctly on the Apple IIGS, both on the screen and on the printer.

Overall, TAB and HTAB work as expected on the screen. When TAB and HTAB are used for printing, three factors must be considered:

- the Apple II being used
- the interface card it has
- the printer being imported to

Each of these variables affect the TAB and HTAB commands when used in hardcopy printing.

Printing From Apple IIGS to LaserWriter

Connecting a LaserWriter IIN via LocalTalk cables to a Macintosh Plus with a 20MB hard drive, a Macintosh SE with an HD20 SC, and an Apple IIGS.

Q. When printing with AppleWorks from the Apple IIGS, will the LaserWriter IIN respond correctly to printing options, such as characters per inch, boldface, underline, superscript, and subscript?

A. Before using the LaserWriter from AppleWorks on an Apple IIGS, run Chooser II. Chooser II works similar to the Macintosh Chooser desk accessory except it is a stand-alone application. When the LaserWriter is chosen, Chooser II checks the LaserWriter to verify that the ImageWriter Emulator is present. The ImageWriter Emulator (IWE) is a PostScript file that is downloaded to the LaserWriter. If the IWE is not present, Chooser II downloads the file. If IWE is present in the LaserWriter, Chooser II acknowledges and does not download.
Recovering a Hard Disk When Directory is Damaged

Q. I have run across a serious problem with an HD-20SC and data. My Apple IIGS will not recognize the drive as a ProDos drive. It has about 10MB of AppleWorks data on the drive with no way to access it and no backups. Yes, I know that I should have backed up the drive, but didn't.

I was unable to get any of the standard filei tools to work with the drive, and Copy II Plus was unable to read the directory. I was able to use the Bag of Tricks Program (Quick Software) to partially restore the directory and now am able to get a partial catalog. However, the problem remains:

AppleWorks will not read the files because the first parts of the directory are too scrambled.

Bag of Tricks generates a "directory too large" message when trying to rebuild it. I suspect that this is because it is an old piece of software, and it expects the directory to be the size of what one might find on a 5.25" floppy.

The gentleman has his complete psychiatric practice records and information on the drive in addition to a book he is writing. Needless to say, he would appreciate any help that might lead to a solution to restoring this drive. The problem is not necessarily one you can solve, but I thought you might be able to point to a source that could manually rebuild the directory. I suspect that the data is fine, just the directory is trashed.

A. By using a copy of the AppleWorks file format document and a disk editor, some of the files may be able to be rescued from this problem. The directory information of the AppleWorks file header information is not easy, but it can be done.

Another possibility is to change the file type information on the files via a disk editor or anything that can read the directory blocks of the hard disk. If the file type can be changed to text, then it could be read into AppleWorks as a text file. AppleWorks database files possibly could be read into Profiler by PinPoint as AppleWorks files. If changed to text files, they could be read into AppleWriter.

If Bag of Tricks did some good restoring directory information on some files, we might also suggest moving any files that can be read to another disk and also removing them from the hard disk. This would ease the task of whatever utility may be used later. The probability exists, although slim, that eventually Bag of Tricks could complete a directory rebuild if enough files were removed.

Understanding SCSI or Who Gets Terminated?

By Sue Goodin

The best resource to date that we've found for information on how to hook up SCSI devices is still the Apple SCSI Cable System that is included in the box with every SCSI cable sold by Apple.

THE COMPONENTS

1. The CPU - If you are connecting a SCSI device into an Apple II computer (+, //e or IIgs), you will need an Apple II SCSI card. On a Macintosh, you do not need a SCSI card: You can hook up SCSI devices directly to the SCSI port of your CPU (Macintosh Plus, Macintosh SE, Macintosh II).

2. A SCSI host device - most frequently, this will be a hard drive, some Laser printers (Apple's LaserWriter IIISC), although other types of SCSI devices are available as well.

3. System Cable (M0200) - This is the cable you will use to connect the first external SCSI device to your CPU.

4. I/O Panel Interface Cable (M0207) - This is the cable you will use to make a connection between two external SCSI devices.

5. Cable Extender (M0208) - You may require a longer cable between your CPU and a SCSI device, or between two SCSI devices. The cable extender gives you this extra distance. The maximum length of a SCSI cable (including cable extenders) is 21 feet (7 meters).

6. Terminator (M0209) - The terminator is a noise damper, and keeps signals from bouncing back from the end of the line which can cause interference with new messages and damage the SCSI chip inside your computer.

NON-APPLE SCSI CONNECTIONS

Apple External SCSI devices are not terminated. Some third party SCSI devices may be terminated, and you will need to check your documentation on the third party device to determine whether or not termination is built in or not. If there is no internal termination, follow the procedures as though for an Apple SCSI device. If the device IS terminated, and there is no way in which to disable the termination (there is usually some provision for removing the termination), then you should connect the device as the LAST device in the SCSI chain, and NO additional termination at the end is required.

IMPORTANT You can have no more than TWO terminators in the entire SCSI chain.

IIGS and SCSI Drive Problems

Q. Some users have complained that they are having problems with their HD 20SC drives on the Apple IIGS. It does not seem to happen on all systems, however. Do we have a rash of bad hard drives?

A. No, not in the least. The problem occurs on systems with old versions of the SCSI controller card. The IIGS seems unable to recognize these cards as boot devices. Check the ROM at location A3 on the SCSI controller card and determine its version number. If this ROM is part number 341-0112A, you have the old ROM and you will need to upgrade to the Rev B (341-0112B) ROM. This is a free upgrade available through Apple Authorized Dealers.

How To Use GS/OS With a ProFile

When using GS/OS under Apple IIGS System Disk 4.0 with a 5MB ProFile, be sure you are using the latest ProFile ROM revision.

A 5MB ProFile needs the 341-0299 ROM revision to work correctly with GS/OS.

If you have problems formatting, or receiving a message stating that your drive appears to be damaged, you need the new ROM.

(NOTE: This ROM is a service part, and is available from your Apple dealer)

Before using GS/OS with a ProFile:

- Ensure that the ProFile Interface Card has the 341-0299 ROM
- Ensure that the ProFile Interface Card has been modified for use with the Apple IIGS.

Procedure for Using GS/OS With a ProFile

NOTE: The Partition and Zero option of the Advance Disk Utility does not work with the ProFile; it works with SCSI drives only.

1. Select a slot for the ProFile Interface Card (slot 7 is used in this procedure).
2. Install the ProFile Interface Card and turn on the Apple IIGS.
3. Press APPLE-CONTROL-ESC to enter the Control Panel. In the Control Panel, under the SLOTS item:
   a. Set SLOT 7 to "Your Card".
   b. Set STARTUP SLOT to "5".
   c. Press RETURN, ESC, RETURN to exit from the Control Panel.
4. Turn the computer off.
5. Insert the Apple IIgs System Disk in the first 3.5" drive and the System Tools disk in the second 3.5" drive (if available).

6. Turn the computer on.

7. After the system starts up, the SYSTEM.DISK, SYSTEM.TOOLS, and ProFile are on the desktop.

NOTE: If the ProFile was not formatted for ProDISK, GS/OS asks if the volume should be initialized.

To initialize:
. a. Select "Initialize"
. b. Name the volume.

This should take only a few seconds.

8. Open the System Tools disk and run the Installer program.

NOTE: If you have only one drive, eject the System Disk and insert the System Tools disk. The Installer program prompts you with Eject/Insert dialog boxes.

a. A list of items to install appears.
. b. Select "Install System Files".
. c. Use the "Volume" button to bring the ProFile disk name to the top right of the screen.
. d. Select "Install".

The Installer program copies the System files from the SYSTEM.DISK and the SYSTEM.TOOLS disks to the ProFile. Old System files are replaced, but Desk Accessories, Fonts, and other files in "SYSTEM FOLDER" are not deleted.

9. To add other items, such as the SCXI card or 5.25" drive:
. a. Select the item.
. b. Click Install.

10. Install a printer driver:
. a. Select the item.
. b. Click Install.

11. Set the Control Panel to start up from slot 7.

12. Restart the system using the ProFile.

The ProFile is now set up for use with GS/OS.

NOTE: If you copy applications to the ProFile, copy only the program and data files—DO NOT copy the System Folder from the application disks.

Hooking Up Two Joysticks on the IIgs?

There is no Apple solution to this, but alternatives are available from third party sources. At least one such solution is available from CRG (California Research Group) a: 805/529-2082. They advertise a product called "Paddle Adapter".

MS-DOS on the IIgs?

Applied Engineering has announced their "PC Transporter" that allows MS-DOS to run on the IIgs. Prices vary depending on memory configuration. They are also selling a 5.25" 360K PC compatible disk drive. For full details, contact Applied Engineering, Carrollton, TX (214-241-6060).

Formatting a SCSI drive on an IIgs

The answer to this lies in the Technical Procedures Manuals under Hard Disk 20SC. In the basics section, there is a heading "Reinitializing with an Apple IIgs or Apple IIe". In brief, the section tells you to first initialize with Apple II SCSI Diagnostic Diskette and then use the System Utilities. Both disks must be used in conjunction with the Tech. Procedures to format the disk properly.

AppleCD SC Is Compatible With ProDISK

Concerning the Apple II, current ProDISK applications can use the AppleCD SC. For example, an AppleWorks database on CD-ROM can be accessed as though the file resides on a hard disk. Because CDs are read-only, you can't record any changes made back to the CD-ROM, though these changes can be written to other media with no difficulties.

Some things to keep in mind:

- The Apple II SCSI card requires the Rev "C" ROM.
- There is a volume limit of 32MB, resulting in several partitions on a single CD-ROM.
- The AppleCD SC appears the same as any SCSI drive to ProDISK.

IIgs Apple:

Changing Control Panel Settings

Toolbox routines, explained in the Addison-Wesley manuals Apple IIgs Toolbox Reference and Programmer's Introduction to the Apple IIgs, allow Pascal, assembly, and Apple IIgs BASIC programmers to change Control Panel settings from within a program. Changing the settings from AppleSoft, however, is not possible.

Apple IIgs Chooser

Q. When using Apple IIgs's on an AppleTalk network with ImageWriter II's with AppleTalk cards, how will a person be able to which printer they will print their files on from within programs such as AppleWorks or Print Shop?

From within either program you can select slot, machine, and interface, but not which networked machines to print on. I have used CHOOSER on the GS system utilities to choose the LaserWriter or ImageWriter before booting AppleWorks, is that what must be done for each machine each time the machine is turned on?

A. Currently, this is the only way choose an AppleTalk Printer (by using the Chooser on startup). Future solutions could include: a startup application that will let you choose a printer or automatically choose a default printer; a Classic Desk Accessory that will act like the Macintosh Chooser and let you change the printer on the fly. The Apple IIgs Printing Manager will offer the ability to choose and remember a printer, but will only work from the Super Hires interface.

GS/OS and Boot Volume Name

Q. I encountered a problem with GS/OS (System disk 4.0, Finder 1.2) when I changed the boot volume name:

1. Started up in the GS Finder.
2. Changed the name of the boot volume from "system.disk" to "ralph".
3. Ran a ProDISK 8 program.

After quitting the application, a dialog box appeared asking for the "system.disk" to be inserted. Since this was not possible, I had to press the "cancel" button. GS/OS reported an error, and the system had to be restarted.

A. All portions of GS/OS that need to know of a disk name change are notified when the change is made—except one, the Loader. After quitting an application, the Loader reloads the Finder. Because the Loader is not notified of the name change of the start-up disk, the dialog box you saw is generated.

Apple IIgs: Composite and analog video

The Apple IIgs has two video ports: an RCA phono jack and a 15-pin D-Type connector. An EIA-standard composite video signal (2.0V white, 0.75V black, 0.0V sync., 75-ohm impedance) is available from both connectors. This composite signal drives many monitors such as the AppleColor Composite Monitor, the Apple Monochrome Monitor, and a TV unit with an RF modulator. While composite video monitors can be used with the Apple IIgs, they don't fully render the 320 x 200- and 640 x 200-pixel color graphics potential of the new system.

The 15-pin connector accepts an RGB signal to provide full color graphics display capability. Note that the Apple IIgs outputs analog, not digital, RGB signals. The designers preferred the unrestricted character of an analog signal for the ability of the Apple IIgs to support 4096 colors. Apple offers a new platinum Apple Color RGB Monitor for the Apple IIgs. Other analog RGB monitors known to work with the Apple IIgs include several models by Hitachi, Panasonic, Sanyo, Mitsubishi, Conrad, and Commodore.

To check if your monitor is analog RGB, consult the manual. Check the pinouts before connecting the monitor to an Apple IIgs to make sure your monitor is compatible with pins 7 and 8. The Apple IIgs's 15-pin RGB video signals are as follows:

Pin Signal
1. Signal ground (Red)
2. Analog RED with sync
3. Composite sync
4. No connection
5. Analog GREEN with sync
6. Signal ground (Green)
7. -5 volts DC
8. +12 volts DC
9. Analog BLUE with sync
10. No connection
11. Sound 1V peak-to-peak
12. NTSC/composite color video out
13. Signal ground (Blue)
14. No connection
15. No connection
16. Shield System ground

There's no simple, straightforward way to invert sync or to separate horizontal and vertical sync on the composite signal for incompatible monitors, but it could be done as an interface product.

Some types and makes of monitors won't work at all. Digital RGB monitors either won't work at all or will work with unpredictable results. Digital RGB monitors with these problems are Apple's older Color Monitor 100 and IBM RGB monitors (IBM's RGB monitors need inverted sync in addition to TTL video signals). Apple's Flat Panel Display has incompatible signals.

Do NOT assume that a DB-15 connector on your color

April 1989
Applying Machine Language Routines To Apple BASIC

By Steven Zanker

This article will show you how to apply machine language routines to either Applesoft or Integer Basic. Why append the routine?

Appended routines use less space in memory and on disk than DATA or POKE statements. Execution time is also reduced. In Applesoft, using a FOR/NEXT loop to read and poke DATA can use up to 5 times the space taken by the resulting routine.

By appending the routine much space can be saved, both in RAM and disk memory.

Routines to be appended either should be relocatable, that execute in any portion of RAM, or have a short move routine prefixed (as an example is given later).

Applesoft BASIC:

An Applesoft program line appears in memory under the following format: the first 2 bytes contain the absolute address of the next 1 byte; bytes 3 & 4 contain the line number; the tokenised line then appears; and an end of line indicator (0) follows.

For the end of the program both address bytes contain zero.

To append, first run the existing program to get the routine poked into memory, or key it in using the monitor. Append 3 zeros to the routine, then SAVE it onto disk and delete the now un-needed POKE and DATA statements, then enter the following program line, exactly as shown:

```
63999 RD = PEEK(121) + PEEK(122) * 256 + 33: RETURN
```

Line number 63999 is used because it is the highest permissible line number, and any appended routine will be lost if a line is added between it and the appended routine. Locations 121/2 will contain the address of that line when executed, and the constant 33 is the lines length. Any character variable name may be used. To set variable, GOSUB 63999.

Now enter the monitor with CALL-151 and locate the end of the program using the end of program pointer (175/6 dec) by keying:

```
*AF00 <return>
```

The monitor will respond with the lowbyte of the address on one line and the highbyte on the next.

Now BLOAD the machine language routine, using the A$ parameter, at that address, then find the end of the routine by keying successive list commands (L <return> ). The first location following the 5 zeros is now the end of the program.

Change the end of program pointer by entering:

```
*AF18 hb <return>
```

where lb & hb are the low & high bytes of the location.

The LOMEM pointer must also be changed; enter:

```
*681b hb <return>
```

and re-enter Applesoft with control-C.

The appending is now complete, and any line, with the exception of the last, may be added, changed or deleted without loss of the routine.

WARNING: using RENUMBER will cause loss of routine, BSAV2 and re-append the routine.

Where the routine must be moved to a specific location to execute properly, prefix with the following routine:

```
300- 20 58 FF JSR SFSH: save address
303- BA TSK
304- BD 00 01 LDA #0100,X ;get low-byte of address
307- A8 TAY
308- CA DEX
309- BD 00 01 LDA #0100,X ;high-byte of address
310- 26 3B CLC
310- 26 3B ADC #632 ;this routines length
310- 90 01 BCC 3512
311- CB INY
312- 85 3C STA #3C ;start low
314- 85 3D STY $3D ;start high
316- 18 CLC
317- 69 11 ADC #111 ;11
```

The bytes 11, 12, dl & dh must be supplied by you: dl + 12 must add up to the length of your routine less 1. Two additions enable routines of up to 510 (dec) bytes to be moved. For less than 256, use zero in 11. Bytes dl & dh are the low & high bytes of the destination address.

Integer BASIC:

Appending to Integer is entirely different. The program loads from HIMEM (45C & 4D) down, the start being pointed to by SCA & CB. The program is stored in the following format: the first byte indicates the length of the line; followed by a two byte line number; then the tokenised line; with a end of line indicator (1) byte bringing up the end.

Integer basic does not have read or data statements, therefore each byte of a machine language routine must be POKE'd into memory wasting an inconsiderable amount of space.

To append, first BSAVE the routine onto disk, making a note of its exact length, then delete all unnecessary poke statements, and insert the following line, exactly as shown:

```
32767 RD = PEEK(228) + PEEK(229) * 256 + 30: RETURN
```

Line number 32767 is used, to prevent insertion of line between it and the routine, which would be destroyed. As with applesoft, GOSUB 32767, and the variable will be set to the starting address of the routine. Now enter the monitor with CALL-151 and locate the beginning of the program:

```
*CA CB <return>
and also HIMEM: *CA4D <return>
```

The program must now be moved down the length of the routine, using a memory move command; eg if the program begins at $7633 and ends at $8000 and the routine to be appended is $52 (82 dec) bytes long, enter:

```
*7DEI < 7E38000M <return>
```

($7DEI = $7E38 - $53). Now reset CA & CB to point to the new starting location, and calculate the new end location (eg $8000 - $52 = $7FAE), then BLOAD the routine at that location.

Re-enter basic with control-C. The program can now have lines deleted, inserted or changed (with the exception of the last) with no ill effect.

Unfortunately the Integer basic interpreter will list the program from start to HIMEM, meaning the routine appears as garbage lines at the end of the program.

Warning: HIMEM must never be > $3763 ($0000) otherwise a fatal error message will generate.

NOTES:

1. Routines may be moved to a location away from either basic program instead of BSAVING it.
2. Where 2 or more routines need to be appended, combine before actually appending.

To find the starting address of each routine add the length to its starting address, giving the next, eg: 100 GOSUB 63999 : R1 = R0 + 36 : R2 = R1 + 20 routines start at R0,R1&R2
3. Shape tables and other data can also be appended.

BUY - SELL - TRADE

FOR SALE
Appli-Card and disc $ 80
"The Word" Bible research discs, manual and complete Bible text. Was $350, now $ 80
Contact David at Tel 419 - 7125

FOR SALE
- to suit Apple II
Micron Eye Sensing System
Super Serial Card
MicroSoft 280 Goldcard
SAM speech synthesiser card
Any color considered
Contact Brian at Tel: (02) 484-3062

FOR SALE
Genuine Apple II Memory Expansion Card
(1 Meg.) with documentation in original box. At half current retail $ 400
Contact Alan at
Tel: (049) 26-5438 bus or (049) 43-0803 ah

Applications

April 1989

22
By Michael Hickey

No doubt there are a few of you out there surviving, even thriving on older model Apple ][s. Many of you will be considering upgrading to the newer Apple IIgs computer. But what about the large software investment you’ve put into your beloved Apple ][! The good news is that the Apple IIgs IS highly compatible with Apple ][e and ][c software. The sad news is that it appears that if you want to keep one of your Disk ][s you’ll also have to keep your disk controller card to drive it, reducing the resale value of your old system. Gladly, this is not the case!

Several third party dealers in Australia sell adapter cables to enable the humble Disk ][ to run from the smart port / daisy chain port on both the IIgs and ][c. This enables the Disk ][ to run as slot 6 drive 1 without an interface card in slot 6.

If you only need one 5 1/4" disk drive this is the way to go.

First SWITCH OFF YOUR APPLE!!

Remove the Disk ][ interface and disconnect the drive you wish to alter. Then carefully unscrew and open the case on your Disk ][ and replace the 20 way ribbon cable with the new cable making sure that the notches line up on both the interface board in the Disk ][ and the connector on the new cable. Replace the case and plug the 20 pin connector into the last device on the smart port daisy chain. When you have tidied up and are ready to try it out, turn your IIgs on and alter the Control Panel to show slot 6 Disk Port and the Start up slot to Scan. Now when you startup your IIgs the computer will attempt to boot from the terminating Disk ][ first and if no bootable disk is found it will poll the Apple 3.5 drive.

If you have two Disk ][s to daisy chain the problem is a little more difficult in that you should get a cheque drawn on a US bank to the order of $350 and send it to:

Micro-Educational Unit 8, 235 D

4. How important are these mailing events?

5. Demonstration of hardware

6. Demonstration of software

7. Question & answer sessions

8. Tea and coffee breaks

9. Special Interest Group reports

10. Mac and Medical

11. Which Special Interest Group do you attend?

12. How often are you a D.A.G. on SATURDAY?

13. Would you attend a D.A.G. which you do not wish to attend?

14. How many meetings do you attend per year?

15. Would you attend a meeting on a SUNDAY?

16. How often do you believe D.A.G. meetings should be held?

The Apple Users Group (Sydney) Inc.

MEMBERSHIP SURVEY

The management of AUG (Sydney) often wonders about the wishes and interests of its members. To be able to get the facts, a questionnaire has been placed in the centre of this month's 'Applications'.

Please complete the questions by circling the appropriate answers (for you).

Then pull the form out of the stapler and fold it in thirds along the dotted line so that the return address is on the front, and AUG logo is on the back.

NO STAMP is needed for posting.

Be a WINNER

Your name is NOT needed on the survey form, but if you enclose your mailing label with the survey, you will be eligible for the lucky draw.

Please write the computer of your choice on the back of the label.
LETRA STUDIO — CHILDS PLAY

- Review by Jan Howley

THE PUBLICATION OF THE
APPLE USER GROUP (SYDNEY)
Incorporated in N.S.W.
Apple // File Type Notes

Developer Technical Support File Type Assignments November 1989

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These formats are identified in the appropriate Notes, and you should treat them with respect to the applicable copyright laws.

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Assignments with a date indicate the release date of the File Type Note for that assignment, and all file types and auxiliary types which are not listed in this Note are reserved and should not be used.

* = Finder identifies for System Software 5.0 New *** + = Finder identifies for System Software 5.0 only on machines Revised *R* with more than 512K memory

File Aux. Type Type File Type Description Auxiliary TypeDescription Date

$00* Unknown

$01* Bad blocks
$02+ Apple /// Pascal code
$03+ ASCII text
$04+ Random-access record-length
$05+ Apple /// Pascal data
$06+ Binary Load address in bank 0
$07+ Apple /// Font
$08+ Apple II or /// Graphics 05/89
$09+ $4000 Packed Hi-Res Image Format 11/88
$10+ $80400 Packed Double Hi-Res Image Format 11/88
$11+ Apple /// BASIC program
$12+ Apple /// BASIC data
$13+ Apple /// Word Processor
$14+ Apple /// SOS System
$15+ Folder
$16+ Apple /// RPS data
$17+ Apple /// RPS index
$18+ Apple /// AppleFile discard
$19+ Apple /// AppleFile model
$20+ Apple /// AppleFile report format
$21+ Apple /// screen library
$22+ PFS document
$23+ $0001 PFS:File document
$24+ $0002 PFS:Write document
$25+ Program Specific
$26+ $0003 PFS:Graph document
$27+ Program Specific
$28+ $0004 PFS:Plan document
$29+ Program Specific
$30+ $0016 PFS internal data
$31+ AppleWorks Data Base
$32+ Upper-case/foreground in name 09/89
$33+ $0017 AppleWorks Word Processor
$34+ Upper-case/foreground in name 09/89
$35+ $0018 AppleWorks Spreadsheet
$36+ Upper-case/foreground in name 09/89
$37+ $0019 AppleWorks Dictionary
$38+ $0020 Apple /// SOD Dictionary
$39+ $0021 Apple /// Apple II Source Code
$40+ Application Specific
$41+ Apple II Object Code
$42+ Application Specific
$43+ Apple II Interpret-ed Code
$44+ Application Specific
$45+ $0026 Apple II Language Data
$46+ Application Specific
$47+ $0027 File Type Names
$48+ Search order 07/89
$49+ $0028 Apple IIGS Word Processor
$50+ $0029 $8001 DeluxeWrite document
$51+ Application Specific
$52+ $8010 AppleWorks GS

APPLEWORKS
By Claris Corporation

Although it is still largely an in house development of Apple's, there are some familiar names that pop up now and again for renouned for their work with Bean-gle Brothers and while using AppleWorks 3.0, you notice some nice additions, one which comes to mind is that of pressing REST. Now, you don't lose your work, you just pop back to the main menu.

Basically AppleWorks 3.0 is the same as AppleWorks 2.1 with some exceptional nice features. It now communicates with a Ramdisk that is not just Apple's Ramcards such as Applied Engineering's Ramfaster and Ramworks are now recognised. There is now preloading of any ram-drive or configuration software, AppleWorks 3.0 already automatically find the ram, then configure itself to the available ram. In the case of a one megabyte board, you will end up with a desktop of around 680 to 720 kilobytes. Other main features incorporated into AppleWorks 3.0 is a SpellChecker. If anyone uses or has seen the Out- of-Sight spellCheck, then will instantly recognise this spellchecker.

The Database looks the same on the outside but inside it has changed. In the older versions of Applications which were used in, you could only see the fileds or categories that were on the screen. The new version will scroll slightly and allow all of the categories definded. Title highlighting and highlighting of category names is another added feature. You can now sort on multiple categories, and find on just one. Remember when you had a Report Layout and wanted to transfer it to a Record Layout and you couldn't. Well AppleWorks 3.0 will let you do transport a Report Layout to a Record Layout or Vice Versa.

The Spreadsheet is much the same as the Database but you can see on the outside but wait to see the inside. There are now 26 new functions including ACOS, ASIN, ATAN, EXP, SIN, LOG, MOD, DEG, RAD, DI, DTR (Internal Rate Of Revenue), IFV (Future Value), IFV (Present Value), TER, PMT, RATE, FV, pv, TRUE, FALSE, in, ISBLANK, ISERROR, and ISNA with the ability of the formulas to use either a LABEL or a VALUE. An example could be =IF(PA=66, "Working", "Retired"). Depending on the value in A6, Appleworks would display either WORKING or RETIRED. It's copy and move functions have been changed slightly and you now have the

Reviewed by Robert Brown.

ability of copying or moving not just rows or columns, but blocks as well.

The Word Processor has slightly changed. It now has a new looking tab line, with REAL tabs such as left, right, centre or decimal. It has more commands when adding printing commands to your document. There is now some formatting shortcut keys (Macros, but not in the real sense), and as mentioned before, a SpellChecker with 'context' and 'list' modes, as well as a summary that can go to the printer, screen or into your file that you are working on.

Remember the time that you wanted to transfer some info from one module such as the Spreadsheet to another such as the Database through the CLIPBOARD. It was a hassle. You had to print it to the clipboard, you just couldn't move it. Now with AppleWorks 3.0, you can MOVE it to the clipboard, then change to the other module and move it from the clipboard to that file you are using.

Other small enhancements include an unlimited clipboard (lines in clipboard and according to how much available memory), enormous files on machines with 256K or greater (9999 spreadsheet rows, 16,000+ database records or word processor lines), improved ASCII import/export handling, and last but not least subdirectory navigation (which unless you read the manual and know how to use subdirectories you won't get very far. If you are like me and have four drives plus a Ramdrive, you can pick where you want to go looking for a subdirectory. Apple-
Street Sports Soccer

A review
By Grant Kwai

The local bunch of kids are out and it's time for that long awaited soccer match! Choose your team from a group of 8 players. All have their own special characteristics; some are top goal shooters, others are good goal keepers. There are 5 male and 3 female players and any combination can win.

This fast moving arcade style game can be played by you matching your wits and skills against the computer, or against a friend in a 2 player match. For first time players, there is a beginners level, and intermediate and finally, the difficult level.

You have a team of three players. You can either choose a preset team, create your own teams or let the computer pick 2 teams at random. You are then faced with the option of which field you want to play on. Do you want to play on the streets or on the park field? Beware of all the obstacles on the street though!

The game can end after a certain amount of time which you set, or if you hate playing to a time limit, you can play to a certain goal score is reached (20 goal max). After that menu, it's on with the game!

You control one of the players with either the joystick or the keyboard controls. The player has control of appears with a white shirt on to distinguish it from the other players. Like in real soccer, you can pass, dribble, take shots at goal, steal the ball and even do headers. You can allow your goalie to run as well to create a 3 on 2 encounter but beware, if the opposition gain possession of the ball, they have an open goal!

The double hires graphics are excellent and provide a free flowing game. The manual is only a few pages. It provides information about the controls, a statistics file on each of the eight players, techniques of play and also the rules. The package includes 1 program disk, 1 manual, 1 warranty form (Mine was for the US though), and a quick reference card.

It takes a long time to load up since it is copy protected. No backup is provided, nor an option in receiving a back-up copy. While loading, it makes the disk drive 'whirr' due to all the protection. This makes me wonder how long my disk will last, especially with no backup.

Overall, this is a fantastic arcade game which will keep you peering into the screen for hours on end. There is little sound except for when you kick the ball and when you score a goal.

Although it's better late than never, I'm going to discuss viruses on the Apple //.

And since most viruses were set to go off in 1989, it's probably bad timing to now come out with an article on the subject.

The various points I'm going to raise are collectively from personal experience, a virus warning note from Big Red Computer Club, and a talk/discussion I gave at a recent Ilgs SIG meeting.

My main emphasis will be on a virus called 'Lode Runner', which went off in October 1989.

Apart from the fact that it's already gone off, it's probably the best example of how a virus would infect an Apple II.

Lode Runner sits (or sat) on the boot blocks of a ProDIS disk.

When the disk is booted, it installs itself into memory and infects every other disk that is booted.

It does this by hooking into the _Boot INIT code in the ROM, through the Memory Manager Tool Pointer Table.

Hence it is a Ilgs only virus.

The beauty of this is, that it's undetectable while it's going about it's business and an open-applet reset won't disturb it in the slightest.

It takes about a quarter of a second to infect each disk, and it is done whilst the disk is actually booting.

Before you know it, you could have infected disks all over the place.

The only way to stop it, is by turning the computer off, or by doing a self-test (option-open-applet-reset).

Another well known virus, which came out well before Lode Runner, was called 'Festering Hate', and spread by attaching itself to SYSTEM files while they were being run.

This virus worked on all Apple IIs, but was easier to find, since the virus would copy itself to every disk it could find when it was activated.

Any program that boots up and accesses all your disk drives once at a time, and spends a couple of seconds on each, is surely suspect!

At this stage, I am yet to see this virus, and actually doubt that it made its way into Australia. (These Americans!)

The final one I'm going to mention is one called FONT.BUILD.

It sits in the SYSTEM.SETUP directory of a ProDIS disk, and hooks itself into the Ilgs system loader.

Whenever a program is loaded, the virus writes itself out to any
When a virus "goes off", you'll know about it!

The usual method is to erase your catalog for you, or some other destructive technique. But by being careful in the first place, you'll be lucky enough never to see one go off.

And one more thing, don't be dazzled by the pretty screens and neat displays that viruses generate, as these are all tricks to take your attention away from what they're really doing, and that's destroying your programs and data!

The Lode Runner virus was written in France. Most probably by friends of the guys who wrote Nucleus and the various other French graphic demos (which I think are in the AUG library).

It was originally distributed inside a program called 'SpeedySmith'. SpeedySmith is a public domain FAST! disk copier that formats and writes on the fly.

It seems a logical step to then hide a virus inside it. So what do you get when you give a copy of a super FAST! disk copier to a group of Apple enthusiasts?

You get the Lode Runner virus spreading like wild fire.

So how do you know if you've been infected by a virus?

1 - It goes off! Not very helpful at all.

2 - You notice strange goings on with your disk drives. Like boot up times and various disk drives being accessed when completely unnecessary.

3 - You actually look for one, and find it!

The first is a sure fire method of finding a virus. Unfortunately, it's not very helpful apart from letting you know that you're about to spend your weekend reconstructing all your disks again.

The third method is the preferred one, and I'll talk about that a bit later.

The second method is the most important. Most people ignore the early warning signs of a virus, even when they're completely obvious.

You should take note of (roughly) how long it takes to boot a program.

This means that if you are infected, you'll know because of the extra time it takes to boot.

Also take note of which disk drives are accessed and for how long, as the only way a virus can spread, is by writing itself out to another disk.

When a disk is read, depending on the size, ProDOS only has to read the beginning of the disk once or twice before the program is read in.

When writing to a disk (such as a virus at work!), the drive arm will move to the beginning and middle/end of the disk quite a number of times whilst it updates the catalog.

A handy hint is to watch the GS/OS startup thermometer.

When you add a new startup routine, or a disk accessory, the thermometer will usually not reach the end of the scale before loading finder.

Subsequent boots however will be ok, as the correct timing for the startup has by then been calculated. If a virus writes itself out to GS/OS in some way, the thermometer will obviously change it's length the first time after the virus has infected the disk.

Actually looking for, and finding, a virus can be quite involved. If you know you've been infected, then you obviously know roughly where to look.

If you don't know where, then you'll basically have to check your entire system.

It seems logical that if a particular method of implementing a virus has been worked out, then there would either be a virus detector or an actual virus to take on the method. It therefore seems unlikely that virus detectors can predict how to detect and/or remove a particular virus until that virus actually exists.

This is the main plus in the favour of the virus.

The best we can really do, is detect known viruses and attempt to detect very obvious viruses that are yet to be written. i.e.

Someone has to be the first to be infected by a virus.

It might as well be you!

With the Lode Runner virus, there are several ways of detecting it.

The first, is by getting a block editor (Bag of Tricks II, ProSel Block Warden, Copy II Plus) and checking block 0 of your disk.

If the block starts with the bytes 01 A9 50, then you have been infected by the virus.

As you can see by the third byte, Lode Runner will only infect disks in slot 5.

This rules out 5.25 drives and hard drives.

Another way of checking for the virus is as follows, and our thanks to the Big Red Computer Club for this method:

Get your original Space Quest I disk (that has probably ruled most people out), and write protect it.

Now boot each disk you suspect as being infected, and boot Space Quest after each of them.

If Space Quest bombs with an error #206 instead of getting to the joystick centering routine, then the last disk you booted was infected.

The other simple way of detecting Lode Runner (the method I use), is by using ILTS. From ILTS v1.12 upward, you can set it up to automatically install your control panel settings on bootup.

Considering ILTS lives at the same place as Lode Runner, simply installing ILTS will destroy the virus completely.

Now whenever the disk boots, ILTS displays a short message to say that it has installed your control panel settings correctly.

If the disk ever gets infected again, the ILTS message won't appear anymore, and hey Presto! ILTS is available from AUGABBS in the filing cabinet.

Thanks to the way the Apple II was designed, we aren't seeing as many viruses as on the Mac and IBM machines.

Last week, a so called 'virus expert' even flew in from the UK to give some lectures on viruses.

We can probably therefore think ourselves lucky that we own Apples and not IBMs!

Although there are no laws yet governing computer viruses, there are several cases ready to stand trial in 1990.

Most notably, the case of a Swinburne Institute student who tried to infect their PC network.

Ignoring the legal and moral arguments involved, the facts remain the same; If you are sensible about using public domain and/or (dare I say it) pirated software, then chances are you won't have any problems.

If you only use software that you've bought from a computer store (i.e. not public domain, shareware, freeware, or pirated), then you have no need to worry at all.

Of course if you are infected, let someone in the club know about it.

By simply being aware that it exists, a detector can then be written to destroy the virus.

If you want to contact me, I am user #19 on AUGABBS.

Various virus detectors are available from AUGABBS as well as ILTS, and I think they're also in the AUG disk library.

The SpeedySmith that I have (version 2.1) is clean, and I think this is the one that the club has in the library also, so that is ok to use.

But be careful...

Isn't it a virus detector or copy program the best way to distribute a virus??
Apple //
File Type Notes

Developer Technical Support  File Type Assignments November 1989
This is an updated list of all currently assigned Apple II file types and auxiliary types.

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* = Finder identifies for System Software 5.0 New *** + = Finder identifies for System Software 5.0 only on machines Revised *R* ** with more than 512K memory

File Aux Type Type File Type Description Auxiliary TypeDescription Date
$00* Unknown

$01* Bad blocks
$02+ code
$03+ text
$04+ ASCII text
$05+ Apple II Packed Hi-Res Image Format
$08+ $4001 Packed Double Hi-Res Image Format
$09+ Apple II BASIC program
$0A+ Apple II BASIC data
$0B+ Apple II Word Processor
$0C+ Apple II System
$0D+ Folder
$10+ Apple II RPS data
$11+ Apple II RPS index
$12+ Apple II Application File
$13+ Apple II Model
$14+ Apple II File report format
$15+ Apple /// screen library
$16+ PFS document
$16+ $0001 PFS: File document
$16+ $0002 PFS:Write document
$16+ $0003 PFS:Graph document
$16+ $0004 PFS:Plan document
$16+ $0016 PFS internal data
$19+ AppleWorks Data Base Upper/lowercase in name 09/89
$1A+ AppleWorks Word Processor Upper/lowercase in name 09/89
$1B+ AppleWorks Spreadsheet Upper/lowercase in name 09/89
$20+ Desktop Manager document
$29+ Apple /// SDIC
$2A+ Apple II Source Code Specific
$2B+ Apple II Object Code Specific
$2C+ Apple II Interpreted Code Specific
$2D+ Apple II Language Data Application Specific
$42+ File Type Name Search order 07/89
$50+ Apple II Graph Monitor Processor
$50+ Apple II Graph Monitor deluxe PFS:File document
$50+ $0801 AppleWorks GS Communications Application Specific

Applications

Word Processor Application Specific
$51* Apple IIGS
Spreadsheet Application Specific
$51+ $8010 AppleWorks GS Spreadsheet Application Specific
$52* Apple II GS Data Base
$52+ $8010 AppleWorks GS Data Base Application Specific
$52+ $8011 AppleWorks GS DB Template Application Specific
$53* Drawing
$53+ $8010 AppleWorks GS Graphics Application Specific
$54+ Desktop Publishing
$54+ $8010 AppleWorks GS Page Layout Application Specific
$54+ $DD3E Medley document Application Specific
$55+ Hypermedia Application Specific
$55+ $8001 Tutor-Tech document Application Specific
$55+ $8002 HyperStudio document Application Specific
$56+ Educational Data Application Specific
$56+ $8001 Tutor-Tech Scores Application Specific
$57+ Stationery
$58+ Help File
$59+ Communications File Application Specific
$59+ $8010 AppleWorks GS Communications Application Specific

Word Processor Application Specific
$5A* Configuration file
Spreadsheet Application Specific
$5A+ $8001 Master Tracks Jr. preferences
$5A+ $8010 AppleWorks GS configuration Application Specific
$5B* Animation file
Application Specific
$5B+ $8001 Cartoons movie
Application Specific
$5B+ $8002 Cartoons actors
Application Specific
$5B+ $8003 Cartoons composers
Application Specific
$5B+ $8004 Cartoons scripts
Application Specific

WordProcessor Application Specific
$6A* APW Linker
$6A* $8010 AppleWorks GS

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Carolina System Software
$E0 $0001 AppleSingle File Application Specific 03/89
$E0 $0002 AppleDouble Data File Application Specific 03/89
$E0 $0003 AppleDouble Data File Application Specific 03/89
$E0 $0000 Binary II File Application Specific 07/89
$E0+$8001 AppleLink ACU document Application Specific
$E0+$8002 ShrinkIt (NuFX) document Application Specific 07/89
$E2* AppleTalk data
$E5* Video display data
$F0+ BASIC command
$F1+ User #1
$F2+ User #2
$F3+ User #3
$F4+ User #4
$F5+ User #5
$F6+ User #6
$F7+ User #7
$F8+ User #8
$F9+ GS/OS System file
$FA+ Integer BASIC program
$FB+ Integer BASIC variables
$FC+ AppleSoft BASIC program
$FD+ AppleSoft BASIC variables
$FE+ Relocatable code
$FF* ProDOS 8 application

**Carolina System Software**

Apple Single File Application Specific 03/89
Apple Double Data File Application Specific 03/89
Apple Double Data File Application Specific 03/89
Apple Double Data File Application Specific 07/89
AppleLink ACU document Application Specific
ShrinkIt (NuFX) document Application Specific 07/89
AppleTalk data
Video display data
BASIC command
User #1
User #2
User #3
User #4
User #5
User #6
User #7
User #8
GS/OS System file
Integer BASIC program
Integer BASIC variables
AppleSoft BASIC program
AppleSoft BASIC variables
Relocatable code
ProDOS 8 application

**Dynamic Update of Classic Desk Accessories**

By Richard Bennett

If you've ever written a CDA, you'll know how frustrating it is to reboot after each assembly, just to test the darn thing.

If the CDA gets fairly big, development starts to slow down quite considerably. What is needed, is a way to re-install CDAs dynamically. Also, considering that it's a CDA, you could then test, debug, and re-assemble the entire thing without ever leaving the assembler.

First off, we have to consider a few posing questions:
1. How do we invoke the re-install?
2. What tools and environment are necessary for the re-install?
3. How do we perform the re-install?

This is necessary, as all memory allocations the CDA does, are allocated by the User ID obtained from the startup, e.g. your CDA requires a User ID to allocate memory, you should do the following:

GetNewUserID

MIMStartup

Get a new Master ID

PLA

Retrieve it

STA UserID

Save it

ORA $100

Make a new Aux ID

STA AllocID

Use it for allocating memory

Now, we've got the UserID, all we need now is the pathname; FindMyPath

Some space

PHA

PEI MyID

First parameter is UserID to find

PEA 0

Next is the segment number

LGetPathname

PullLong PathAddr

Retrieve the address of the path

RTS

Ok, now to load the file.

How do we do it?

There are a few problems here. The first, is that we have no idea who we are, pathname wise.

This is where the System Loader comes in handy, as the tool call _LGetPathname2_ will return a GS/OS pathname when supplied with the UserID (_LGetPathname will also do, but will only return a class 0 string pathname_).

This is great, but how do we get the UserID?

The original User ID that the System Loader used to load the CDA, is unknown to the CDA at the moment, but the easiest way to get it is as follows:

FindMyUserID

PHA

PushLong #FindMyUserID : Push my address on the stack

FindHandle : Find my handle (allocated by the System Loader on bootup)

PullLong 0 : Retrieve my handle

LDY #6 : Offset in HandleRec of UserID

LDA [w],Y : Get my UserID

STA MyID

RTS

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To do this, we call InitialLoad2, which loads the file and returns with its address, which we can find the handle for, and use it to install it in the CDA menu by using InstallICDA.

The next step is to discard myself. To start off, we should dispose of any memory we've allocated privately.

Now, the hard part is to dispose of myself, delete my UserID, discard my entry in the System Loader pathname table, and either return to the CDA menu, or call the new CDA directly (we have the pointer to it remember).

The call to do all this, is _UserShutdown.

The Memory Manager won't move or purge any memory if the system is currently running under an interrupt request.

This includes the Desk Accessory menu so theoretically, we can simply dispose of ourself, and THEN either return, or call the new CDA.

Unfortunately, it isn't that simple.

If, in future versions of the system software, the _UserShutdown call decides to allocate any memory (for work areas such as re-building the pathname table, or the Memory Manager re-building the UserID list), and the CDA memory was already purged, and memory is almost full, the allocations it makes could overwrite where I was calling from.

When the System Loader returns, I may not necessarily be still there!

Also, executing code from a purged memory segment isn't very clever programming.

A way around this, is to call _UserShutdown from somewhere in bank 0 (say at 000000) where the Memory Manager can't touch you, or simply play the odds (like I do) that the above will never happen (after all, it's only a debugging feature that'll be removed when you've finished writing it).

So, to summarize, these are the steps to follow:
1. Get the UserID that the CDA was loaded with (_FindHandle).
3. Call _InitialLoad2 to load myself from disk.
4. Install it into the CDA menu (_InstallICDA).
5. Remove myself from the CDA menu (_RemoveCDA).
6. Dispose all of the memory that I've allocated privately.
7. Call _UserShutdown to dispose of everything, and optionally call the new CDA.

The entire code (in Merlin format, WITHOUT supermacros) follows;

ReplCDA PHA: _Find me PHA
  PushLong #_FindHandle
  _FindHandle
  PushLong MyHandle
  LDY #6
  LDA [MyHandle],Y
  STA MyID
  _Push space for _InitialLoad2
  _InitialLoad2
  PushLong PHA
  _Get UserID
  PHA
  PHA
  PHA
  _PEA $5000
  _UserID type for loaded file
  PHA
  _Push space and UserID for _Get
  PHA
  PHA
  _PEA 0
  _Segment number
  _GetPathnme2
  _Leave results on stack
  _PEA $FFFF
  _Don't use special memory
  _PEA 1
  _Loader type 1
  _InitialLoad2
  _Load the CDA
  _Get the UserID assigned
  _FindHandle
  _Address and DP/S on stack still
  _InstallICDA
  _Install the CDA
  _PushLong MyHandle
  _Now remove myself from the menu
  _RemoveCDA
  PHA
  _Space for _UserShutdown
  PHA
  MyID
  _UserShutdown
  PHA
  _Shut down who?
  PHA
  0
  _Kill everything!
  _UserShutdown
  PHA
  _Return to Desk Manager
  _normal CDA quit)

Here is the list of tool calls used;
  _FindHandle $1403
  Memory Manager
  _GetPathname2 $2211
  System Loader
  _InitialLoad2 $2011
  System Loader
  _InstallICDA $0F05
  Desk Manager
  _RemoveCDA $2105
  Desk Manager
  _UserShutdown $1211
  System Loader

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**APPLE ANNOUNCES**
**NEW MICRO LINE**

*By Ken Chapman*

Reprinted from Maple Orchard Vol 8, No 3; May/June 1988

Apple Computer, Inc. recently announced the release of a completely new product line.

The new series of microcomputers will be based on the earlier Apple /// system, using an enhanced Motorola 65116 processor, as well as math, graphics, sound and HyperTalk co-processors.

The new series will have the same look and feel as the earlier Apple ///, although there will be a completely new revolutionary sound system installed at the optional discretion of the purchaser.

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Apple /// enhanced model."

Another spokesperson inside Apple Computer who wished to remain unidentified confirmed that parts and supplies for the Macintosh products have not been re-ordered, and minimum stocking levels have been considerably reduced.

"We just want to get out of that mess. We know that the new Apple /// will be a winner. We all feel it. The excitement around here is so intense, everyone is actually running into work every morning, and the only grumbling heard around here now is at quitting time and we're ordered to leave by the armed security personnel."

Rumours of the new product line first began circulating when some third-party developers began talking about new developments they were working on. For example, Supercac Technologies is said to be ready to announce a new 150-gigabyte, 5.25" floppy drive system that just happens to fit snugly into the earlier Apple /// drive casing.

Rumours have also leaked out of Redmond, Washington, that Microsoft is already working on a new Presentation Manager system for the Apple /// that and Excel had originally been designed to run under SOS but had to be slowed down to accommodate the Macintosh User Interface.

Bill Gates was once heard to remark to a group of IBM supporters that he only wished the new OS/2 could come close to the power and speed of "good old SOS."

Microsoft is also rumoured to be developing a speller version of Unix for the Apple ///, as well as Fortran, COBOL, BASIC and...
LOGO packages.

Asked if their new product developments included a Pascal compiler, Microsoft Chairman Bill Gates replied

"No comment!"

Steve Jobs of NeXT Inc., when asked if there could be any substance to the reports, replied, "No comment!"

However it is known that someone in his company recently placed an order with Motorola for 1,000,000 if the new 68516e chips.

Industry analysts have responded to the news with enthusiasm.

DataQuest Research claims, if the rumours are true, Apple Computer will clearly outpace IBM in "gross sales" within six months.

Wall Street analysts, on the other hand, are more cautious. "If it's true", commented one rue savante, "there could be major upheavals in current market trends that could have far-reaching effects in the long-term outlook.

They will incorporate the graphics for the GS and Music using Mini.

With the ongoing enthusiasm of the members who attended last year and any new attendees this year, we will produce a disk for our club library.

This year we will continue to demonstrate new hardware and software to our members.
Starting QuickDraw Auxiliary when the application has not started can get you into a lot of trouble: an application that correctly implements 320/640 mode will call QDShutDown and QDSStartup.

QuickDraw Auxiliary depends heavily on QuickDraw, and restarting QuickDraw while QuickDraw Auxiliary is active will easily toast you.

If your NDA allocates bank-zero work area space for tool sets, be sure to dispose of it at DeskShutDown time (when your DAINit entry is called for shutdown).

If you don't, the system will die with error $0201 when trying to launch a ProDOS application, since GS/OS needs all of banks 0 and 1 to start ProDOS 8.

Sound tools provide the one exception to the rule of freely using a tool which is already started. Refer to the section on System Parameters for more details on using sound tools.

NDA's must not shut down tools which have not started.

CDA's are nearly always median, but by using the HeartBeat interrupt queue or other mechanisms, they can get control when the user is no longer "in" the CDA.

The list of guaranteed tools for NDAs does not apply to CDAs, and CDAs must be prepared to deal with the ProDOS 8 environment as well as GS/OS.

System Parameters

A desk accessory (CDA or NDA) must not change a system resource or parameter which cannot be restored to its original condition.

A trivial, but illustrative, example of this is the number of times a pull-down menu item blinks when you select it.

This number (three by default) may be changed with the SetItemBlink call, but there is no corresponding GetItemBlink call, so you cannot retrieve the current value.

Therefore, a desk accessory must not change this parameter, and the same rule applies to any other system parameter for which you cannot determine a current value.

This idea extends to calling tool startup functions.

Even though a tool's startup function may not return an error when the tool is already active, the startup function could reset certain parameters upon which the application depends.

An example of this is TLStartUp for the Tool Locator. A seemingly innocuous call, TLStartUp actually disconnects all tool set numbers present, which, in this case, would most likely have been installed by the current application. CDAs and NDAs must never call TLStartUp or TLShutDown.

A desk accessory should not call any tool's startup function if the tool is already active.

The one exception to this rule is the Memory Manager's MMSStartup call, which a desk accessory may make to obtain its User ID. Think of MMSStartup as a "GetMyID" call.

A desk accessory cannot use any of the sound tools if they are already started.

This is contrary to the rule for other tool sets, but it is required because there is no memory management of the sound RAM (or "DOC RAM").

If the Sound Tools (#8) are started, the application has exclusive control of the 64K DOC RAM used to play sounds.

Anything your desk accessory might put there could overwrite information the application needs.

Saving and restoring DOC RAM around desk accessory usage is not sufficient.

Many of the sound functions and their arguments, altering the contents of DOC RAM only during sound interrupts, so your desk accessory might attempt to replace parts of DOC RAM which are being played.

Since there is no memory management of DOC RAM, desk accessories must avoid the sound functions of the IIGS if the application is already using them.

A desk accessory should not install user tool sets because there is no arbitration of user tool set numbers. User tool sets are the sole property of the current application.

Application Guidelines

To coexist peacefully with desk accessories, particularly NDAs, applications generally need to follow the guidelines listed in the Desk Manager chapter of the Apple IIGS Toolbox Reference, Volume 1.

However, those applications which wish to ensure maximum compatibility now and in the future will also want to adhere to the following:

Don't just start the Scrap Manager - use it.

Many desk accessories support cutting and pasting to exchange text and pictures with other applications and DAs.

Start tools at the beginning of your application and leave them started.

An application with some memory to spare can save NDAs time by providing them the additional tools which they are most likely to use.

If a desk accessory needs the Scrap Manager and your application starts it, the desk accessory will run faster since it can avoid loading and starting the tool every time it gets control.

The most common tools which desk accessories require besides those available in the standard Desk Manager set are QuickDraw Auxiliary #16, the Print Manager #19, Standard File #23, the Font Manager #27, and the List Manager #28.

QuickDraw Auxiliary and the Font Manager are especially important - not only do they work well together, but they are also widely used. In addition, FMStartup can take a long time, and waiting for it every time you activate an NDA window can be really frustrating.

Many desk accessories also use the Print Manager, the List Manager, and Standard File, and if they are always available, desk accessories will work more smoothly with your application.

Further Reference:

Apple IIGS Toolbox Reference, Volume 1
Programmer's Introduction to the Apple IIGS
Welcome to what I hope will be a regular feature in each edition of "Applications". The reason for creating this layout is to keep you informed about what’s going on in the Apple II World. From time to time I will grant myself license to speculate as to what may or may not occur - hence the layout's title.

NEW COMMERCIAL SOFTWARE.
In the last few months some interesting software has been released. This includes the latest version of "Hyper Studio", "Revolution '76" and "2088 The Cryllan Mission". Roger Wagner has sent us some demo disks of "Hyper Studio" that will be going into the library, "Real Soon Now" together with a demo of "2088 The Cryllan Mission". For those that are into role-play "2088 The Cryllan Mission", is a program that has been written exclusively for the G.S. using System S. Your mission (should you decide to accept it) involves travelling to Cryllan in search of a lost expedition of space travellers. Spread out over four disks this adventure promises many hours of enjoyment for role-playing enthusiasts. "Revolution '76" for the G.S. is a simulation of the War of Independence using colourful graphics and stimulating sound effects.

IN THE PIPELINE.
Some new products about to be released are:
The New Print Shop.
Renegade.
The Three Stooges.
and Downhill challenge.
Bye for now F.P.

NEW APPLE CENTRE.
A new Apple Centre has opened recently over-looking Darling Harbour. A friend of mine upon visiting there was horrified to find not a single Apple II, instead the salesman tried to flog him a Mac using a leaflet bearing not only the claim "The Mac Plus the most powerful Mac of all," but also Apple's North Ryde address. My- how far are the Macs behind.

NEW W PUBLIC DOMAIN SOFTWARE.
Some new P.D. software will be available this month. Among the offerings for the G.S. are Nucleus, a demonstration of just what the G.S. graphics and sound can do. There is also a neat role-play game, some Music Studio songs, Jump Start (G.S. Launcher) and that all time favourite many, many more.

DATAFLOW SALE.
Just before Christmas Dataflow had a sale. While I am sure it was a big success for that company, it was a pity that A.U.G. members were not notified of this event.

Latest
Revolution
//GS

By Andrew Roughan

The indication that the new //GS will be a winner is proven by the fact that Apple Computer staff do not as yet have one on their desks to "play with".

Frank Revill, Marketing Manager of Apple Computer Australia, remarked at a the December AOG meeting that demand for the new GS was so high that he hadn't had a chance to evaluate it himself.

A huge educational order for the new GS was placed late last year and hopes that stock would arrive before the end of the year were in vain.

Most deliveries won't be finalised before well into the start of the new school term.

So, what is creating all the fuss?

The new Apple //GS has only a few improvements over the older model and an upgrade is not expected because it is just not feasible.

What makes it a relative bargain, though, is the price.

The new GS has been introduced at the same price as the old revision, in line with Apple's marketing strategy.
APPLE// SOFTWARE LIBRARY
NEW RELEASES

AUG.94 Side 1
Five utility type programs -

COLUMNIST - Produces two columns of text from Appleworks and text files. Allows adjustment of the file for justification and evenness of the end of the page. Columnist will print the result when it has been adjusted to your requirements.

SHRINKIT - A file compressor to create archived files. Great for transmitting via modem (less cost).

EXECUTIONER - Written by Glen Bredon (Prosel, etc) this program produces an executable text file of any ProDOS file.

CHANGE FONT TYPE - So much for doing this through the Sector Editor, this program changes font files from $C3 to $F7 and back. There are three font files on the disk to use and for practice.

HYPER FORMAT - Formats disks and scans for bad blocks.

AUG.94 Side 2
Two Utility programs for both the Apple// and the /GS.

BINAR LIBRARY UTILITY (BLU) - This program squeezes and un squeezing file. A2-Central recently released a 3.5in disk with all the Apple Technical Documents on it. You have to un squeeze them with BLU to read them.

II Gif - Allows you to view pictures in different formats and convert from one format to another.

AUG.95 Side 1
Utilities and Games - all with documentation or instructions.

WINDOWS - A very useful menu program. You can use this to find the bonus program DOGPAW and its documentation.

FLIGHT SIMULATOR - Written in BASIC this is a very simple flight simulator program. Read the documentation before you try it.

FONTIX TO MULTISCRIBE - This program allows to to convert some of your DOS 3.3 Fontix Fonts to use them with MultiscrIBE (Beagle Write).

AUG.95 Side 2
Utilities

SUPERPATCH 3.1 - All the patches you have ever wanted for Appleworks 2.0 and 2.1 - and a few more. Your copy of Appleworks can now say "Carelessly saving the file" and constantly show on the screen the number of K's available as you create and save your document.

SMARTPORT (SCSI) - Not real sure about this as I do not have a SCSI card. Currently it reads my 3.5in drive in slot 5 and tells me information about the readiness of that drive.

FILE TYPE CHANGE - Change any file file type to whatever you want - some protection for your own programs by changing your BASIC startup file to a 'SYS' file.

AUG.96 Side 1
Shareware programs
POWERSFUL, EXCITING SOFTWARE for APPLE ENTHUSIASTS!

GEOPUBLISH

GEOPUBLISH: Powerful and exciting desk-top publishing. A full featured desk-top publisher for all Apple II computers, with object-oriented drawing tools, full-featured word processor, graphics scaling, laserwriter support, true side-ways text, plus many more features.

GeoFile: a presentation-oriented database and forms generator, utilising mouse point-and-click interface. Database storage up to 115 fields per file, including graphics presentation and compatibility with AppleWorks.

GeoCalc: A versatile worksheet program for creating spreadsheets, incorporating chart and graphing applications.

Complete specification product sheets are available for GEOS, GEOPUBLISH, GEOFILE and GEOCALC.

GEOS

BERKELEY SOFTWARE
APPLE 128K, YEARS 6-12

GEOS (Graphic Environment Operating System) opens up your Apple IIe/IIc/IIGS to a new world of integrated and graphically-oriented "Mac-like" applications. The total package features four applications, three utility programs, five desk-top accessories, six fonts all controlled by the desk-top file manager.

Selecting applications, loading and saving files, printing, closing and opening new applications is made easy through an icon display, point-and-click mouse interface.

GEOS includes over 60 special features supporting four applications, GEOWRITe, word processor, GEOPAINT, paint program, GEOSPELL and GEOMERGE. Desk top accessories include Note Pad, Calculator, Alarm Clock, Photo Manager and Text Manager.

Requirements: Apple IIe/IIc/IIGS (128K), 2 drives, Apple Mouse, recommended, supports memory cards, hard disks, not copy-protected.

PLUS INTERGRATION ACROSS TO:

GEOPUBLISH  
GEOWRITE  
GEOPAINT  
GEOSPELL  
GEOMERGE  
APPLE II SOFTWARE

COMPUTER FORCE Pty.Ltd.  
P.O. Box 224  
WILLOUGHBY 2068  
TEL: 958-2710
THE APPLE IIGS AND YOU!  
The past, present and future!  
Written by Richard Bennett.

It's almost three years since my original review article on the Apple IIGs, and almost a year since the follow up. In this the fourth year of the IIGs' commercial existence, I thought it was about time I wrote yet another follow up.

Please keep in mind, the ideas, rantings and ravings of the follow text is wholly mine and is in no way related to the ideals of Apple Computer Inc.

Although I have taken great care in my research, any misleading or incorrect statements are accidental, and I therefore hold no responsibility for anything said.

INTRODUCTION

Since the IIGs was released in September 1986 (three and a half years ago), we have seen many developments in the areas of software and hardware, each of which I will cover separately in the following sections. Other major issues to raise their heads include various debates on local software and hardware support, local developers, viruses, and above all, new machines.

THE 1986 IIGS

When I bought my IIGs way back in 1986, I was looking forward to an all singing and dancing super 6502 machine that ran at super speeds and could perform like a Mac (if you so wished!).

What I got in fact, was an all singing and dancing super 6502 machine that crashed at super speeds and could perform like a Mac if you could afford the software and hardware expansion costs.

Yes, the graphics were and still are incredible. Yes, the sound was and still is brilliant. Yes, the speed was very fast, although now it seems it is not fast enough. Ok, if I wanted a Mac, I'd bloody well buy one.

Compatibility was a major issue at the time, but has since disappeared. Many of the older Apple II programs simply did not work on the IIGs, or they crashed while running or while exiting the control panel. Many of the people I know (including myself), still had their /es and /es setup next to the IIGs so they could run the stuff that didn't work. Fortunately, this is no longer a problem. Companies now make sure that their software is compatible with the IIGs, and in fact I haven't seen one non-compatible program for about two years now. (And hence my /e hasn't been powered on in just about as long)

When the IIGs was designed, the chip (65C816) could only handle a maximum speed of 2.8 Mhz. At first, this seemed to be amble. "Wow, Appleworks and Merlin run at super speed". When desktop publishing and other Mac like applications started to appear (such as Appleworks GS - the small), the speed problem started to rear it's ugly head. Great for Apple II users, but getting on the slow side for full Super Hires Mac type applications. Apple at that time couldn't respond, because the manufacturer of the chip (our old mate Bill Mench) couldn't supply bulk with faster chips at a reasonable cost to the end user.

It was this joss up that unfortunately turned some IIGS users
The Apple Users' Group (Sydney) will be at the PC'90 Exhibition, March 6th through to the 9th.

The exhibition is huge (two halls)! Come and see us at the stand enjoy all the excitement that these shows generate.

The exhibition will be held at Darling Harbour. Our Stand number is 1047 in Hall 4 (near the Kiosk).

If you would like to help out either by "manning" the stand or anything else, contact Jan Howley (ah: 953-3624) before 6/3/90.

away. Apple had to decide, and did so correctly, between two choices; a 2.8 machine (nearly three times faster than the then current Apple /e) at a price most people could afford, or a super fast machine designed with Mac type applications as its mainstay at an excessive cost to the user. The conclusion? Until now the 2.8 Mhz restriction has sufficed, but to compete with the last /e (internal 3.5" drive and 4 Mhz 65C02), something had to be done. Apple, in there usual wisdom, have called once again on third party developers for the answer, which I will discuss later.

Aside from the rumours of a new graphics mode, developers still seem to impress even the most fanatical enthusiasts. The non-interlace mode of the Super Hires screen as well as the palette layout of the colours have been the two main strong points. With the release of the Sierra Online and Icon range of adventures and the Activision and Mindscape latest games, the call for higher graphics resolution has all but disappeared. The 640 x 200 pixel mode is high enough for most desktop publishing and cad applications, although the 200 vertical limitation is starting to create waves within the industry. Considering the Apple II standard hires of 140 x 192 colour, and that the Super Hires screen is in fact physically longer than the standard hires, the vertical resolution could be improved somewhat. Yet the Ilgs graphics still seem to amaze us all. If you were at the November meeting of the AUG, you would have seen the latest version of The Graphics Exchange (by local developer John MacLean) displaying GIF pictures. It basically blew away everyone present!

The sound of the Ilgs is driven through a 22 channel ensonic synthesizer chip, which was then quickly sussed out and used by the Mac people. Apple now have their own sound chip, which is yet to be used in the Ilgs. At last, the power of sound, and the Ilgs sound in particular, is starting to be recognised. Even the mono jack on the back of the Ilgs is now stereo (although the output is still mono).

My last two reviews couldn't really make a decision on the Ilgs keyboard. Originally, I preferred the /e keyboard, and then the Ilgs and Mac II keyboards. Well now I actually use a Mac II keyboard (yes you can get them from a dealer), and prefer it over all the others. It actually has side rests, and a proper keyboard feel.

Although the Ilgs keyboard is still faster (yes, Mac owners can buy them from a dealer), it is too plastic (such a word?) and light for long hours of proper typing.

SOFTWARE
The Ilgs software base came through two major splurges during it's relatively short history. The first being the wave of pre-release software developed before and slightly after the Ilgs' original release. These packages all showed off the tremendous power of the latest member of the Apple II family. The second wave came with the release by Apple of GS/OS.

Many third party products were actually held back until it's release, which seemed to be delayed by Apple for various reasons for a couple of months. Now, Ilgs software is appearing faster than ever before.

Considering the graphics and sound of the Ilgs, and it's education history, it's no wonder that most of the software coming out now is either educational, or games oriented. However, if the current trends in speed and storage continue, the Ilgs should see some pretty powerful productivity stuff soon.

HARDWARE
The obvious improvement here, as I mentioned before, is in the area of accelerators. With Applied Engineering, Zip, and Rocket (R.I.P) all bragging 10 Mhz chips, it's a wonder that Apple still slogs away with it's measly 2.8. After using Cameron's (Cameron Brown Systems) 6 Mhz Transwarp for a weekend, I finally realised what all the fuss was about.

If your applications do a lot of invisible work (calculations, manipulations etc), then you sure can notice the difference. However, if you're simply using Finder and a few screen oriented programs, then System 5 is really all you need. After using the Transwarp for a weekend, I'm still running at the standard 2.8 under System 5.

Rumours of 20 Mhz and greater are starting to appear as well now, so maybe by the end of 1990 I will have a faster machine, however I don't think Apple can actually hold out much longer without doing something about it. Apple's line so far has been "We'll do the software and disk stuff, you guys can do the processor!". It took them 4-5 years to make a 4 Mhz /e, but considering the work
now going into the Igs (apparent from System 5 and the Apple statement of supporting the Apple II until at least 1995), this shouldn’t be as long with the Igs.

Hard disks. Gone are the days of 5 megabyte hard disks. In the last couple of years, hard disks have really taken off, with the average size currently at about 60-80 megabytes. CMS and other developers are now marketing drives of up to 300 and 600 megabytes. Apart from the fact that no-one has a phone list that big, it is quite astounding to compare that with the Apple 5 megabyte profile (slofie) of 1983. Not only is it larger storage, but it is also a faster transfer rate, and it’s physically smaller in size. I currently have a 100 meg drive (I spend most of my time trying to fill it up, but you can only write so many programs and letters), which flies at some incredible speed which gets close to rivalling my RAM disk, and it’s no where near as leading edge as some hard disks I’ve seen. Yep, hard disks are now a part of life, although with the way optical media in general is currently going, they may not be here for much longer!

WHAT TO READ

Various magazines have come and gone throughout the years, but which ones are the ones to read? With the down fall of Softalk magazine in 1985, quite a few magazines have taken that in their stride and carried on. Softalk was the definitive magazine for Apple II users/enthusiasts, which during it’s heyday was known to contain up to and over 350 pages per issue. Considering that it was a monthly magazine, this is quite staggering considering that Byte magazine (covering all types of computers) currently reaches the 300-450 page mark. Softalk started quite a few institutions, these being:

“Assembly Lines" - The Assembler Language column by none other than Roger Wagner. The book of the column was available after a while, and was called “Assembly Lines the book”, which quickly became the definitive book for learning assembler.


“DOSTalk" - By Bert “Beagle Bros. DOS BOSS” Kersey.

“Compute’s Apple" - More or less a beginner’s guide to the Apple II. Although some of the articles are quite technical, it’s main niche is the education and home market. Compute also release books on many Apple topics, one being “Compute’s guide to the IIgs toolbox”

“Hardcore" - Starting out as simply a newsletter detailing how to crack (remove copy protection from) programs, it has expanded over the years into magazine format with not only cracking details, but many technical articles on the more advanced topics of the Apple II range, including unfortunately, piracy. It seems to sell only by subscription in Australia, and in most areas Hardcore is a dirty word and instantaneous associated with software pirates.

And now a few of the various general computer magazines that contain Apple II sections;

“Your Computer" - When You Computer first came out (with Peter Sandsys as editor of the "Your Apple" column), over 50% of the magazine was dedicated to the Apple II. This gradually started to decrease, although Apple, Amstrad and IBM machines took over. These days, if you’re lucky, you can find a one or two page article in the back entitled “Your Apple II” or “Your Apple Igs". Your Computer’s almost total MS-DOS dedication has been it’s downfall as far as non-MS-DOS users go, and most of the original subscribers no longer bother with it. Your Computer is known in the Apple world as "Your IBM". If you want to cover the Australian computer industry in general (or in MS-DOS as the case may be), then this is the one for you. Peter Phillips, who writes for the Apple II section, must surely be dedicated. For this, Peter we thank you.

“Australian Personal Computer" - APC was one of the first Australian computer magazines. It never concentrated too much on one particular variety of machine, and because of this never really made number one. As far as I know, APC is still going, but I don’t know how the Apple II coverage is handled. (Anyone else fill us in on this?)

Deceased magazines;

“Softalk" - Of course.

“Australian Apple review" - Locally produced and edited by none other than Gareth Powell. The copy was printed on a laser-writer, and hence the magazine had a very homely feel. It covered most of the issues concerning the Australian scene, and the very products that were available here. Very never a technical magazine, but great to keep in touch with the local scene. All this was fund ed personally by Gareth Powell, but was dumped a year or so ago because it couldn’t support itself.

“Apple assembly lines" - An Apple statement of supporting the Apple II magazine. Rather small in size, but technical content was quite significant. Almost an underground magazine for Apple II hackers, but unfortunately no longer exists.

Of course the various Apple computer clubs around the world also produce their own monthly magazines, of which the AUG is no exception. For information on magazines by other clubs, contact the AUG on one of the numbers listed in the front of Applecations.

WHERE TO GO, WHO TO SEE

Interest in the Igs has seemed to increased in the last year or so, and this is reflected in the number of hardware and software packages now becoming available. The user base seems to be now split up into a couple of major groups? Education (School and home), Personal productivity (Apple II users from way back, or purchases recommended from current owners), and Enthusiasts (Ever since 1976, these people have just loved to hack out the inner workings of each new Apple II).

The AUG holds a GS special interest group, which at times has a greater attendance than the Apple II main meeting. The GS covers new software and hardware releases, demonstrations of many of these new products, problems users have experienced, news of the industry in general, and close links with various dealers, suppliers and developers. If you have a particular problem with the use or understanding, or even programming of the Igs, chances are that someone in the group can help.

The GS sig meeting is held on the first monday of each month at Sydney University. (Where the usual AUG Apple II main meeting is held on the second Monday of each month)

LOCAL DEALERS

Dealers have come and go during the past couple of years, but many have stayed, with name changes or smudges on their reputations. The problem still being the lack of software being supplied by these dealers, and the Apple II experience of the employees. However, there are dealers out there with a genuine Apple II background, and once you’ve found them you’ll never look back.

Imagining have recently sold off their Apple II interests (stop charming please!) to Oz Software (coming back into the Apple II arena?) and GS Sales and Imports (part of Terry Cass’ Igs communy).

Greyware is becoming a pretty hot issue now, with a new local dealer called Two Second Software attempting to sell software and hardware at reduced (more realistic) prices. And of course we still have Techflow and Dataflow supporting the Apple II as importers and distributors.

LOCAL DEVELOPERS/ENTHUSIASTS

Local developers are starting to spring up everywhere these days. So much so, that the Australian Apple Programmers and Developers Association (AAPDA) is now running meetings in Sydney (at their offices on the second
Tuesday of each month), helped out by AAPDA and Apple employees. Also featuring quite a few developers, is the GS sig of the AUG.

The first Apple developer conference in Canberra during 1987, turned up very few Ilgs developers. Peter Sandsy's total commitment to the product was one of the main strong points of the breakout sessions, but he was unfortunately moved to Apple Inc. state side shortly afterward. The second, in 1988, actually featured quite a few Ilgs developers, but most from the 1987 effort didn’t attend due to both lack of interest the first time, and the rather high expense of spending a long weekend in the blue mountains.

This left Frank Revell to refuel the Ilgs fire, a role which he fitted into perfectly.

The two main events of the past year, were the Apple user group conference in Manly during April (thank you Frank), and the Apple II developers conference (again in Manly) last August organised by Godfrey Gamble and Co. in his new position at Apple (thank you Godfrey). The next big event, is the 1990 Apple user group conference which, knowing Frank, should be even bigger and better than the last.

THE NEW IIGS
Finally, the new Ilgs was released. But, it wasn't REALLY what we were all expecting, was it? If you believed the various rumours, we were about to get a super charged 8 Mhz Ilgs with built in 3.5” superdrive, SC51 port, 640x400 graphics, 4 meg on board, and at a cost of only about $3000.

What did we get? Well, it had more memory (1128K). It had more features for programmers. And more importantly, it had a larger percentage of the System 5 tools in a ROM that was double the size of the last machine. For users, the question still remains: What did Apple actually spend two years doing? If you’re a programmer, then you know the obvious answer.

The tools and improvements implemented in System 5 were incredible. Timings between System 4 and System 5 were unbelievable. You can actually check out some of the enhancements by using the new Control Panel NDA from Finder, as it actually uses a lot of the newer tools. Overall however, the main enhancements have been invisible ones. On closer examination, you can tell that Apple definitely has something in mind for the Ilgs, and if you think the current System 5 is powerful, then you’d better think again.

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**SUMMARY**

The Ilgs is finally coming through the rough waters as far as user support is concerned. The future of the machine is starting to look a lot rosier.

The beginning of the Apple II developers conference seemed to be marking the death toll of the Apple II, but after a weekend of talking to other developers, and more significantly the engineers who actually came out from the US, most people came back with a breath of fresh air.

As I mentioned in the last article, the future of the Ilgs is totally dependent on the support of it’s user base, and as such it’s up to us to keep the thing alive. I am yet to meet an Ilgs owner who was not happy with his machine, yet we all hear constant complaints.

Everyone complains about the Ilgs and it’s limitations, yet few people actually put their money where their mouth is and get rid of it. Why? Because it still does things other computers only dream of, and even the most mundane computer tasks only much better, and with more style and class than any of it’s competitors!

Apple enthusiasts have always been the lucky ones. What with their memory restrictions, speed restrictions, storage restrictions etc etc etc whilst the IBM world constantly complains about all of the above. Well now it’s our turn to face the music, and I think we, and Apple, are finally ready to take the Apple II seriously! Bring on the next decade!

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**Sound Sampling on an Apple ][,][+,//e.**

Written by John MacLean, technical assistance by Richard Bennett.

With the recent introduction of the Apple IIGS there has been much interest in sound sampling and digitising. I was recently surprised by the quality of some digitised sound generated on a /+, so I uncovered my old ][+, borrowed a drive off my GS and went to work.

The sound is sampled through the old cassette port so if you've kept your cassette leads over the years they may finally get used (again). The sound is played back through the internal speaker, so all you need is a cassette player or a CD for better sound quality. With the routines I will present here, you can achieve about 30 seconds of digitised sound in a 48K machine. The routines are written in assembler, but you can type them and enjoy them without knowing how they work.

The routines are surprisingly simple:

The cassette-in port (location $0C60) changes sign (the high bit changes) whenever there is a change in the electrical signal coming from the external sound. If the speaker is clicked every time the external signal changes, the sound is reproduced. This leads to the first program:

```
LOOP1 LDA $0C60 ;Loop until the cassette-in goes BPL LOOP1 ;negative.
LDA $0C30 ;Click the speaker.
BIT $00 ;Wait 3 machine cycles.

LOOP2 LDA $0C60 ;Loop until the cassette-in goes BMI LOOP2 ;positive.
LDA $0C30 ;Click the speaker.
JMP LOOP1 ;Keep going
```

This short routine takes the signal straight from the cassette-in port and reproduces the sound on the internal speaker. Note the BIT $00 instruction to waste 3 machine cycles - all loops should be the same number of machine cycles for the best quality sound reproduction. This routine is useful for adjusting your volume (and equalising if you have the equipment) to produce the best quality sound.

Now what is needed is some way of recording the signal from the cassette-in port so the sound can be replayed later. The next routine does that recording:

```
CASSPORT EQU $0C60

SET UP THE BUFFER
LDA $0800
STA BUFFER
LDA $0A8
STA BUFFER+1
LDY $080

FILL BUFFER WITH ZEROS TO ALLOW FOR TIME OUTS
LDA $080
STA BUFFER
ZLOOP STA (BUFFER),Y
INY
BNE ZLOOP
INC BUFFER+1
BPL ZLOOP

RESET THE BUFFER
LDA $080
STA BUFFER+1
```
• LOOP HERE UNTIL CASSPORT BECOMES POSITIVE

MLOOP0 PHA .3
PTA .4
MLOOP1 LDA #$01 .2
MLOOP2 LDA CASSPORT .4
BPL PSAVE .2+
BIT ZPAGE .3
INX .2
BEQ MSKIP .2+
JSR MDELAY12 .12
JMP MLOOP2 .3
MSAVE TXA .2
STA (BUFF),Y .5+
MSKIP INY .2
BNE MLOOP0 .2+
INC BUFF+1 .5
BPL MLOOP1 .2+
MDELAY12 RTS

* LOOP HERE UNTIL CASSPORT BECOMES NEGATIVE

PLOOP0 PHA .3
PLA .4
PLOOP1 LDX #$01 .2
PLOOP2 LDA CASSPORT .4
BMI MSAVE .2+
BIT ZPAGE .3
INX .2
BEQ PSKIP .2+
JSR PDELAY12 .12
JMP PLOOP2 .3
PSAVE TXA .2
STA (BUFF),Y .5+
PSKIP INY .2
BNE PLOOP0 .2+
INC BUFF+1 .5
BPL PLOOP1 .2+
PDELAY12 RTS

The time interval between each change in sign of the cassette-in port is recorded sequentially from $9800 to $8000 in main memory. This is done by incrementing the X register each time the port is tested and unchanged. When it finally changes the X register is buffered. The routine consists of two almost identical smaller routines. These routines could be combined into one general routine, at the cost of about 10 machine cycles. The faster the loops, the higher the sampling rate, and thus the sampled sound is of higher quality. The unusual coding ensures that the number of cycles between each sampling of the cassette-in port is the same regardless of the branches taken.

The sound is now recorded (at 28 machine cycle intervals) and must be played back at exactly the same speed. This is achieved by decrementing the buffered values and clicking the speaker once they become zero. In this way, the intervals between speaker clicks will be the same as the intervals between changes of sign of the cassette-in port during recording. The following code plays back the sound as described. It uses unconventional techniques to get the loops down to 28 machine cycles each so the sound will be accurately reproduced.

* Memory to Speaker Program. * Written by John Maclean 1987 *

LST OFF

ORG $8200

* Zero Page Locations

BUFF EQU $06
ZPAGE EQU $08

* Hardware Page Locations

SPEAKER EQU $0C39

* Set Up the Buffer

START LDA #$00
STA BUFF
LDA #$08
STA BUFF+1
LDY #$00
JMP LOOP1

* Read the Next Byte from the Buffer

LOOP0 INC BUFF+1 .5

LOOP1 LDA (BUFF),Y .5+
TAX .2
DEX .2
BEQ SKIP1 .2+

* Check for Zero (Time Out) and Handle Separately
* Otherwise Delay 28 Cycles Times the Value in the X Register

CPX #$FF .2\n(WAS IT A ZERO?)

BYTE?)

BNE DELAYX .2+
JSR DELAY12 .12
JSR DELAY12 .12
NOL .2
BNE LOOP2 .2+

* Delay (254 * 2) + 1 Cycles

DEX .2
JSR DELAY12 .12
BIT ZPAGE .3
BIT ZPAGE .3
NOL .2
NOL .2
NOL .2

* Go and Increment the Buffer Pointer But Do Not Click
* Speaker

JMP SKIP2 ;3

* Use Up the Rest of Another 28 Cycles Timing It So We Can
* Branch to the Rest of the Loop Completing 56 (2 * 28)

* Cycles

ON QUEUE. IF X WAS GREATER THAN 2 THEN
DELAY 28 CYCLES FOR
* Each Remaining Decrement of the X Register

DELAYX JSR DELAY12 .12
BIT ZPAGE .3
NOL .2
NOL .2

* This Routine Will Delay 28 Cycles Times the X Register
* Note the NOP Makes Up for the Previous Branch Not Being
* Taken (1 Cycle) and the Last Branch of the Delay Loop Not
* Being Taken the Last Time Through the Loop (1 Cycle)

LOOP2 JSR DELAY12 .12
BIT ZPAGE .3
BIT ZPAGE .3
NOL .2
NOL .2

* Delay (254 * 2) + 1 Cycles

SKIP1 LDA SPEAKER .4
SKIP2 INY .2
BEQ LOOP0 .2+
BIT ZPAGE .3
BIT ZPAGE .3
NOL .2
JMP LOOP1 .3

DELAY12 RTS

Once you have recorded your favourite melodies, try modifying the routines. Possible modifications are:

Slow down the recording program (add some NOP's) and the sound will play back faster.
Slow down the play back program and the sound will play back slower.
Modify both the recording and playback routines to increase the recording time. Use the following buffers so the tests can be BEQ, BMI, and BPL at the end of the buffers:

Main memory: $0800 -> $7FFF, $BFFFF -> $8000, $D000 -> $F000 (on the language card),

Aux memory: $0800 -> $7FFF, $BFFFF -> $8000, $D000 -> $F000 (alternate language card).

Write a routine to play the sound in reverse (or just reverse the recorded buffer).

Happy sampling, and there's no need to feel left out if you don’t own a GS.
SONIC BLASTER REVEALED

By Chris Nelligan.

Applied Engineering are infamous for their high quality products for the Apple II range of computers, and their add-ons for the IIGS are coming thick and fast. One of their latest is the SONIC BLASTER, a stereo playback and recording card.

Every Apple IIGS has an Ensoniq digital synthesizer sound chip in it, this chip is used by professional musicians and studios to compose, synthesize and analyze up to 15 voices simultaneously.

As you would know, most applications on the IIGS take advantage of this sound chip producing unbelievable sounds. PBI software were one of the first.

The IIGS only produces a mono output from the socket at the back of the computer not unleash the real sound. That is where stereo cards come in.

The SONIC BLASTER plugs into a slot inside your computer and a cable is also connected to the stereo connector. The card is a phantom card (ie: you don't have to select your card in the control panel).

All you do then is plug in your external speakers to the jacks on the rear of the card, and presto out come amplified stereo sounds from your Apple IIGS.

Programs like Theader, Silent Service, Alien Mind, Tomahawk, Music studio and so on now come to life. The SONIC BLASTER also allows you to digitize your own sounds using a Record player, Tape player, CD player, TV, Video etc into the computer. Recordings can be made in either channel 1, 2 or both. This produces high quality sounds which can be played back at any time.

Software is included which allows playback and recording of sounds. An oscilloscope helps you to set correct sound levels and clean up the sound.

The software also allows you to distort, echo, repeat, speed up, slow down, copy, paste your sounds together. Sound files are saved to disk in just about every format including Apple's Audio Interchange File Format as used in the IIGS and the MAC.

My friends and I had a lot of fun recording our own sounds.

We used a CD player and a microphone, the results were great. Surfing with the Alien, Learning to Fly and Sweet Child of Mine never sounded so good. With about 800k of free RAM you can record 52 seconds of sound.

I saved about 15meg of recordings to my hard disk. Playing back sounds at a later date is great fun, especially if you have a start up file during GSOS boot. The only problem was getting the right connecting plug for the card, instead of using an RCA connection, it uses the small connection like the headphone jack on the rear of the computer.

Another great feature of the software was its ability to cut and paste sections of sounds. The time elapse to perform the special effects was substantially faster than other programs such as FutureSound.

Summing up. Since having the SONIC BLASTER in my computer, it is hard to go back to a machine which is not producing stereo sounds.

The software was great fun to use making my life easy. Digitizing was not at all that difficult, and in the future I will use these sounds in my own programs.

Sonic Blaster is avaliable from Two Series Software for $195. This is a good price considering it is an Applied Engineering product. The one card does both the playback and the recording. Lots of sample recordings are included with the package, with a easy to follow manual. Good software with stereo recording samples are included.

Sonic Blaster courtesy of Powertechnik.

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Disk Disintegrator Deluxe

A Review.
By Grant Kwai

One of the best disk compacting programs available on the Apple II series is a Shareware program called Disk Disintegrator Deluxe. The program is an American by the name of Louis Roy and he asks for a small fee of $US29.95 for his work.

You may now ask, "What use is this program to me?". Well, to answer that question, ask anyone with an Apple II and a modem. They will be quite aware of the power of this program. It has the ability to pack a non-protected 5.25" or 3.5" disk into a small compacted file. This makes life much easier when transferring files over a modem, by reducing the transfer time, and hence cost for STD calls.

To all the other Apple II users, this program can still be of benefit. If you are lucky enough to possess a hard drive, you can pack your standard floppies onto your hard drive, saving you approximately 40% of your hard drives space.

All you will then need to do is unpack the programs that you want and you'll be on your way! Another way would be to pack your disks, then store them on a tape backup unit, which can be run on an IBM, Macintosh or other.

ers, as long as you transfer the file onto that particular machines environment. All the data is safely stored in the file so it is possible to save these files on another type of machine then "bring them back to life" on the old trusty Apple II.

To pack a disk, it is a simple procedure of following the prompts. DDD is fully menu driven. You can pack disks to any drive available, even RAM cards if there is enough space. The program itself requires a minimum of 64k. If you have 128k, then DDD will make use of this as a 59.4k buffer to store and retrieve the compacted data.

If you possess a //gs, DDD can be configured to take full advantage of the extra memory. Also, if you have a Zip Chip or some other form of an accelerator, it also has the option of changing the speed of the machine (ie in MHz). The use of the mouse is also optional.

DDD only took about 2-3 minutes to pack a standard 5.25" ProDOS disk, that was completely full, and managed to shrink the original disk to about 63% of its original size.

DDD also allows the user to enter a small message at the beginning of each packed disk stating something which the packer has chosen. This information is stored with the final packed data. For example, it might say who packed it and when it was packed, with some other brief instructions. This information is re-displayed by DDD whenever that data is unpacked in the future.

Not only does it pack and unpack a disk, but is also contains other functions such as formatting disks, typing text or Appleworks Word processor files, renaming files and volumes plus many more.

There has obviously been much work put into this piece of software, and if you can, get a copy and try it out as it would be worth your time and effort. You can find the latest version, D.D Deluxe 5.0, on most bulletin boards and in most public domain Libraries.

Unfortunately, the documentation disk which is supposed to come with this program doesn't seem to have made it into Australia. DDD is fully menu driven and documentation is not really required. However, documentation for the older version, V4.2, is available if required.

DDD is available for downloading from the Apple II // BBS.
Little BITS
By Andrew Roughan

■ Well, what a great response last month's issue received! The article concerning the "new" Apple //e and //e+ caused quite a bit of stir. This article was in fact a humorous, farcical account. Unfortunately a few of our newer members were mislead. I apologise for that and I undertake to reproduce the entire article in future!

■ I now have my new GS and I have to say that it is a wonderful machine. One statement I made in the last magazine, concerning the new machine, was that there was 1.25 MB of on board RAM. This is incorrect, there is only 1.125 MB.

My only disappointment so far has been that I cannot run that fantastic graphics and sound demonstration program, NUCLEUS, because the authors have used ROM incorrectly for the new machine.

■ February's GS SIG was a very entertaining meeting. The main demonstration was of a MIDI system, comprising ROLAND keyboard and MasterTracks Jr software, given by John Paake. Attendees actually saw the new GS and the differences in the machines were pointed out.

Various hardware issues were discussed. Speed up hardware - ROCKET chips perform well if you can get them.

- TRANSWARP cards perform very well also.
- ZIP chips had a high failure rate and were not recommended

Various Hard drives and tape drives were discussed. Three attendees offered their 60MB

CMS hard drives for sale. They are buying 100 MB replacements! The demise of Call APPLE was lamented. Also the current problems of SEAHORSE were mentioned.

■ Frank Revill is no longer Marketing Manager for Apple Computer. He now holds the prestigious position of Customer Development Manager and can now "officially" support the A.UG. Keep up the great work Frank.

■ Two American publications, A2 Central and Sourceroys Apprentice, were hailed as very good investments. The latter is the only known regular Apple // technical publication besides Apple's own Technical Notes. The addresses for these publications are:

A2-Central: A2-Central
PO Box 11250, Overland Park,
Kansas 66207, Ph 913-469-6502
Sourceroys Apprentice:
Ariel Publishing
PO Box 266, Unakakleet, AK
99684, Ph 907-824-3161

■ After last month's review of Appleworks v3.0, I thought a few prices may be of interest.

Appleworks v3.0 is available from Dataflow RRP $375. Dataflow are offering upgrades from all previous Appleworks versions. Send them the front cover of your Appleworks Reference manual, together with $119.95 and $8 for postage & packing. Please state whether you need the 3.5" or 5.25" version.

Dataflow also handle the Time-Out application upgrades. Send them your original disk and $15.95. It is recommended that you call Dataflow to find out whether a TimeOut upgrade for your title is available yet or not.

Dataflow Computer
Services Pty Ltd.
134 Barrom Ave
Bushcutters Bay NSW 2011
02-331-6153

■ A new AE Expander revision for Appleworks v3.0 is due for USA release in February or early March. Expect it out here shortly after that.

■ Here are two questions I received about Appleworks v3.0. There were some others, but I am told the answers can be found in the Appleworks reference manual.

Q: Old files from Appleworks v2.0 have boldface continuing now where it shouldn't be. What's going on?
A: V2 automatically stops Boldface when it encounters a linefeed. V3 doesn't. Therefore to fix your problem, make sure each boldface begin command corresponds with a boldface end command.

Q: Can anyone tell me how to make a permanent change to the default options on the wordprocessor?
A: Use SuperPatch. Unfortunately I wasn't able to find out where SuperPatch was available from. Does anyone know?

■ Upgrades for Applied Engineering GS RAM and GS RAM+ cards, so that they will work with the new Apple //GS, are now available. Revisions A & E GS RAM and revisions A & D GS RAM+ can be upgraded with a $30 Pal chip exchange. The upgrade for revisions C & D GS RAM involves sending the card back to AE in the States. Contact Two Series Software (02) 606-9343 for details.

OK, I KNOW.
It was called the Apple II developer's conference, but the IIGS was centre stage the entire time, and the 'other IIs' didn't really get a look in. Odd, you may say, when the installed base (Apple's jargon for total number) of IIs far exceeds that of the IIGS.

IIGS DEVELOPMENTS

By Peter Phillips

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issue YOUR COMPUTER.
Used with permission.

But, I can assure you the IIGS is currently Apple's most highly supported computer and this conference, held at Manly in October 1989, was yet more proof of this. Printing lead times mean you don't get to read about it till January 1990, but better now than never! Here's an overview of the conference, as well as a brief look at some locally produced, commercially available IIGS products that were on show.

The conference was for developers only, and around 60 such individuals paid their money to attend the two day event. They came from Sydney, Perth, Melbourne, Queensland and Canberra. Apple Australia organised the event, and were able to convince Apple Inc. (USA) to send three of their front line presenters to present talks to the group. The conference was mainly that... talks and presentations, by both the US visitors and local developers.

I attended, as a developer, presenter and reporter, and came away more enthused about the IIGS than ever before. The Apple magic is far from dead - in fact I got the clear impression that the excitement of the early days is returning, evidenced to some extent by the presence of a number of very young developers.

Although all sessions were interesting, the most awaited were those presented by the US visitors - information that was given without hype, but with much humour, intelligence and honesty. These guys knew what they were on about and didn't mind sharing it. There were many highlights and I'll try and condense them.

The first speaker was Jonathon Fader, Manager of the Education and Multimedia Evangelism Group. It seems, according to Fader, that Apple is experiencing very little competition from the IBM DOS stable when it comes to computers in education. At least in the US the trend is clear, Apple IIe and IIGS computers are in schools covering kindergarten to Year 12, with Macintosh systems in higher learning institutions.

And Apple aren't about to let go of this. They recognise the seeding potential this strategy, in which today's students become
tomorrow’s Apple devotees. But to ward off the competition, Apple has several plans of attack, including concentrating on making the Mac and the IIs far more interactive. A complete networking system was established at the conference, using a Mac as the ‘server’ and some eight IGS computers as the ‘stations’, all interconnected using AppleTalk. I used it to download programs, install programs on the server, and to just get the feel of the system. Like all networked systems, it was slower than stand-alone, but it was reliable and easy to use with its mouse driven desktop interface. In fact, it was not much different to stand-alone, except for the presence of the server icon, which acted just like another drive.

Also attending the conference were developers from an Australian company (whose name I forgot to record, unfortunately) who are presently marketing an alternative system to AppleTalk. Their system is currently in contract for Australian schools, and they also export their system to the US. Both systems are compatible, and now the move is on for ‘network’ friendly software, we can expect to see networking in schools become even more popular. One interesting thing I discovered is that Appleworks classic is so network unfriendly, Apple convinced Claris to write a special version suitable for networking. This product is only available for such systems, and comes with a site license and all the necessary enhancements. But hardware is one thing, software is the other. Apple’s main push is for more and more educational software, but written to take advantage of the IIGS. In the States, many schools are updating to the IIGS as their II plus, Ile and Iic computers finally fall victim to student overload. And schools in the US have no more money that those in Australasia, so Fader made the point that such purchasers generally wanted a system that costs the minimum but lasts forever. In support of the costing, he referred to the new IIGS, with its onboard 1.125M of RAM, increased ROM, and other enhancements. This computer still costs the same as the old IIGS which came with only 256K of RAM.

During the Q and A session, I asked what Apple was doing to support third party printers, as I’ve always maintained the Imagewriter printer is overpriced when compared to other printers that will often outperform the Apple product. The answer was other encouragement. Apple have now made available full details of their printer driver requirements, and will support any individual or printer manufacturer who wants to write a driver routine to support a particular printer. I believe that as a result, we will soon see drivers that support printers such as the HP range (DeskJet, Fader so on), and all the various Epson types (those already supported as well as a range of others).

One potentially embarrassing question asked of Fader referred to the desirability of raising school students on Apples knowing they would be more likely to encounter MS-DOS machines in the work place. He replied that this was not perceived as being a problem by most educational institutions in the US, and that the Mac was becoming an industry standard. Because of its Mac-like qualities, the cheaper IIGS with its colour and sound enhancements thrown in, was seen by schools as being the best way to go, particularly when Fader made the point that such purchasers generally wanted a system that costs the minimum but lasts forever.

The other two US visitors were Ray Montagne and Matt Deatherage, who are both design engineers associated with the IIGS. These two ‘gods’ spoke about System 5.0 (we don’t call it GS/GS anymore), and also handed out copies of System 5.0.2 The new system cleans up a few bugs that crept into System 5.0, but doesn’t offer any further speed enhancements. But then, System 5.0 is a hard act to follow.

Their aim was to acquaint Australian developers with System 5.0, AppleTalk, tool routines, questions, and to answer questions. As well, they had a lot to say about Apple’s philosophy on software development. The big push is for AppleTalk ‘aware’ software, as well as the adherence to the human interface guidelines. This latter concept refers to the use of the desktop and to making all software look similar, so that users don’t need to spend unnecessary time learning new software.

Much of the talk presented by these two experts was of a technical nature and I’ll spare you the details. It’s sufficient to say that Apple see other software developers as being very important, whether in Australia or overseas. For example, System 5.0 includes a number of resource files, specifically for programmers and a whole session was spent on this topic.

Although many of the developers were from professional organisations, a number of young developers also attended. One young programmer (16 years old) showed me a game he had written that included high quality, interupt driven sound. He wrote the program with a combination of BASIC and assembler subrountines, using the monitor to write much of the assembler code. The game was mouse operated and in full colour, even though the software looked a bit like Ile code. What he had achieved would have been impossible on any other Apple II computer, and he had happily mastered the IIGS by building on experience gained from his Ile days.

The fundamental philosophy behind writing a program for the IIGS is to use the toolbox. Here you have all the routines to perform most of the heavy duty tasks, and a program in its simplest form is nothing more than a series of toolbox calls. In other words, Apple have done all the hard work for you, and with a few books - available from AAPDA, 36 Victoria St, Brakineville NSW 2043, (02) 550 5533.

Quite a number of those attending had already produced products for the IIGS; including three enterprising members of a Queensland based company called Power Up Technology. I was shown their IIGS stereo card which includes all the hardware to couple sound into as well as out of the IIGS. This card, compatible with any program that uses the Supersonic card, is available for around $89, and gives stereo, despite what you may have been told.

While on the subject of sound, several music programs yet to be released were demonstrated at the conference. Both programs were of the ‘playback variety, and believe me, you “ain’t heard nuthin’ yet.” There’s two reasons for this – programmers are starting to learn the sound system, and the sound tools have been improved.

On the software scene, developers have been active since the IIGS first hit the country. Readers may be familiar with Graphix, a program written by local developer John MacLean that handles any type of graphics you can think of, with the ability to convert from one form to another. For example, a standard 2D super resolution graphic from a GIS paint program can be converted to a Print Shop graphic and vice versa. It also includes scaled transfers, which allows a composite graphic to be constructed from a number of individual graphics from a range of sources.

A great program for handling graphics on the IIGS, and straight of Oz!

Power Up Technology gave me a review copy of their recently released communications software package called DataWorks. This program is text based and runs on the Ile and Iic as well as the IIGS, requiring keyboard operation rather than mouse. However, it supports the IIGS hardware, such as the modem port and, runs under ProDOS.

I ran the program through all its paces, and found it very easy to use and free of any nasties. It supports ASCII, Xmledem, Xmodem and Binary 2 file transfer protocols. Binary 2 is a protocol developed by Apple, based around the Xmledem system and is generally used when transferring data between two Apple computers. Dataworks also supports Vialstel, though with some limitations. The manual is one Power Up can be proud of, as it provides instructions to a level that suits a beginner without becoming patronising. Dataworks should be available through most dealers, at around $89. Otherwise try them direct at PO Box 295, Cannon Hill Qld 4170 (07) 395 6719.

Finally a shareware program, written by a Victorian developer, Peter Watson. Under the title of PAW, the disk has a number of utilities for use with the Apple Programmers Workshop (APW) or ORC/AM, both of which are assembler programs for the IIGS. Some of the utilities also run under ProDOS and others are for use with AppleSoft and GSBasic. The utilities include routines to compare text files, an Applesoft to GSBasic conversion, and one called MassFormat, which allows the user to format a whole lot of 3.5” disks in minimum time. The disk is a mere $25, or $10 if you don’t want the source code. Great value, and it’s available from Peter Watson, 33 Eram Rd Box Hill North Vic 3129.

There were other developers at the conference with products nearing completion -which I hope to be able to review when they are released.

So not all IIGS software/hardware is imported. Which is good news for us and the national debt.
Apple User Group
BOOK LIBRARY LIST.

This is a list of the books currently available to members through the AUG book library.

A selection of these titles are available at each Apple // General meeting. If you want a specific title, contact the librarian.

N.B. Members Library Book has been abbreviated to MLB. - Ed

Handbook # 1.
Hi-Res Secrets.
by Don Fudge.

Handbook # 2.
Keyboarding for Information Processing.
by Robert Hanson & Sue Rigby.

Handbook # 3.
Continuing Basic.
by P.E. Gosling.

Handbook # 4.
The Computer Connection.
by Arnold Wolff.

Handbook # 6.
M68000 16/32 bit Microprocessor.
by Motorola.

Handbook # 12.
Apple 5.25 Drive Owners Guide.
by Apple Computer.

Handbook # 15.
by Apple Computer.

Handbook # 18.
Discovering Computers.
by V.X. Glenhill.

Handbook # 20.
Apple // Users Guide.
by Lon Poole

MLB # 22.
by Apple Computer.

MLB # 23.

MLB # 24.
Apple Technical Notes Vol. 2.

MLB # 24A.
9 Washington Apple Pi Magazines.

MLB # 25.
7 Washington Apple Pi Magazines.

MLB # 26.
10 The Michigan Applegram Magazines.

MLB # 27.
11 Cider Press Magazines.

MLB # 28.
16 ACT Users Group Newsletters.

MLB # 28A.
11 AUG Applications Magazines.

MLB # 28B.
12 AUG Applications Magazines.

MLB # 29.
12 Washington Apple Pi Magazines.

MLB # 30.
4 Washington Apple Pi Magazines.

MLB # 31.
5 Apple Orchard Magazines.

MLB # 32.

MLB # 33.

MLB # 34.
6 Apple Orchard Magazines.

MLB # 35.
10 Open-Apple Magazines.

MLB # 36.
By Apple Computer (copy).

MLB # 50.
10 Applications Magazines.

MLB # 51.
10 Applications Magazines.

MLB # 52.
11 Applications Magazines.

9 Washington Apple Pi Magazines.

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DEALER NEWS.
This month a couple of items have popped up about dealers (no I'm not into dealer bashing, yet. They can be quiet helpful, as long as you have a Mac) The first item concerns the drop in price in the U S of Mac SE to $1800 about $US2400. The going price in Australia for a SE ranges between $4800 & $5400. It would be interesting to be a fly on the wall at the next reseller conference (Feb 16-18) when new prices for this mac are discussed. The second item concerns a dealer with financial problems. The Seahorse Group is at present in receivership & are trading out of it. In fact by the time you read this those of you at the Market Day will have seen them there. Perhaps if they were open Thursday nights Sep or Saturday things may have been better.

MODEMS
Those members who don't own a modem, or those wishing to upgrade existing ones should get in touch with Russell Coward at Avlok (02-888-5333). His company are going to support User Groups to a greater extent in 1990. As an example a Mega Modem 1234, cable for the GS or Mac together with Mac software is available for $300.00.

SSG
News from Roger Keating (no relation to the one in Canberra) is that his company Strategic Studies Group will be releasing three GS programs during the year. In March "Halls of Montesuma", in June "Gold of the Americas" & in July "Rommel". This is great news for GS strategy fans as Roger really turns out a mean game.

FREE TOOLS ASSOCIATION.
This organisation, based in France has done it again. Following on from "Nucleus", FTA has released another program called "Photonix". This is a GS copy program with brilliant graphics, useful utilities & unusual cursor, also has the ability to format disks 2:1 as it copies data. The downside of this program is that it will not work with the new GS.

IN THE PIPELINE.
Some new products about to be released are:

For the IIe, c & GS.
CopyIt 9.0
Where In Time Is Carmen Sandiego.

For the GS. Ancient Land Of Ys.
Jam Session.
Life & Death.

Bye for now, F.P.

Being basically technically oriented, accounting always scares me. It therefore became a nightmare when I took on the Secretary/Treasurer's job in my unit building.

Running the day-to-day affairs was not a problem, but when it came to preparing the books for the A.G.M. I was struck by panic. No matter how much data I could make the same totals twice, and even worse I found it difficult to budget for items like insurance, repairs, etc.

Some years ago we were asked for advice on a program to run a small business. My wife Anne, who is strong in accounting suggested the use of a "Cashbook" (or chequebook) program.

A Chequebook program basically records all the transactions made in your cheque account, and as businesses run on cheques, this would then give you a total reporting facility on your business.

Quicken is such a chequebook (or checkbook in American) program. Once the program is set up for your account, it simply means that you can enter every transaction you make, allocating the reasons for the cheque.

When you get your bank statement you can enter the bank charges, and let the program know which cheques have been cashed. Then you can make the program report, and you can quickly see your financial status.

More importantly however you can easily track any mistakes you have made. This is generally one of the problems you strike at tax time - mistakes.

Another problem is tax deductability! Mr. Keating just loves small business persons - and wage earners too - who, far from avoiding or evading taxes, actually overbook tax-deductable items (don't forget to claim the Quicken program). "Quicken" very simply helps you get your act together.

Just an aside; If you are using your computer for work - and many of us do - don't forget to put in a tax deduction. For it. If your tax man won't help you then try Robert Barbieri in Five Dock, he understands computers.

Now for the review. Quicken follows the Macintosh interface with simple menus and windows which are open simultaneously, so that you can move from one activity to another. Only two things will trick you at first, Cmd-F is not Print, but Print Cheques, and the black-bordered Accept button is used with the Enter key not the Return key.

When you start a new Chequebook you are offered an initial choice of Home, Business, Macintosh or None selections of categories.

Think of Categories as the names on the envelopes you put the docketts into in your drawer at home. Whether the bill is Council Rates or Equipment Repairs, or Computer Paper, etc. The category selections are slightly different for home use than they are for business use so you are given a startup selection. You can add, change, or delete them at any time so don't worry.

Just a warning though - once you have used a category - say Gas Bill, you can't change it to Gas Account, because the program will not relate Gas Bill entries to the Gas Account category. Makes sense - but means that you need to go back and change the earlier entries up to the later wording. Some chequebook programs use numbers for categories but here the wording is important. Do have a look at every category in the list you have selected. I couldn't relate to COG-Labor until my wife told me it was Cost Of Goods-Labor. When I clicked on it I understood.

The next tricky thing to know is your Beginning Balance. Take your bank statements and decide from which statement date you will start. The amount you want, is at the top of that statement! One things to remember is that you may need to include cheques written before your starting date which have not been presented until after your starting date.

If you have been thrown off by all this, remember you only have to set up you chequebook once. After this it becomes a piece of
POWERFUL, EXCITING SOFTWARE for APPLE ENTHUSIASTS!

GEOS
BERKELEY SOFTWARE
APPLE 128K, YEARS 6-12

GEOS (Graphic Environment Operating System) opens up your Apple IIe/IIc/llgs to a new world of integrated and graphically-oriented "Mac-like" applications. The total package features four applications, three utility programs, five desk-top accessories, six fonts all controlled by the desk-top file manager.

Selecting applications, loading and saving files, printing, closing and opening new applications is made easy through an icon display, point-and-click mouse interface.

GEOS includes over 60 special features supporting four applications, GEOWRITE, word processor, GEOPAINT, paint program, GEOSPELL and GEOMERGE. Desk top accessories include Note Pad, Calculator, Alarm Clock, Photo Manager and Text Manager.

Requirements: Apple IIe/IIc/llgs (128K), 2 drives, Apple Mouse, recommended, supports memory cards, hard disks, not copy-protected.

PLUS INTERGRATION ACROSS TO:

GeoPublish: Powerful and exciting desk-top publishing. A full featured desk-top publisher for all Apple II computers, with object-oriented drawing tools, full-featured word processor, graphics scaling, laserwriter support, true side-ways text, plus many more features.

GeoFile: a presentation-oriented database and forms generator, utilising mouse point-and-click interface. Database storage up to 115 fields per file, including graphics presentation and compatibility with AppleWorks.

GeoCalc: A versatile worksheet program for creating spreadsheets, incorporating chart and graphing applications.

Complete specification product sheets are available for GEOS, GEOPUBLISH, GEOFILE and GEOCALC.
Speed for the Apple // and breaking the 20Mhz barrier

Yes, there is still some speed left in the old beast after all. The Apple // is on the verge of becoming a VERY fast machine. But first, I’d like to thank Cameron Brawn (and the AUG) for the documentation on the club’s 4Mhz ZIP chip which runs the BBS, Darren Langer for the documentation on his RocketChip, and Cameron once again for the documentation on his TransWarp GS (before I bought mine).

Unfortunately however, the club’s ZIP chip died before I got a chance to have a good look at it.

Have you ever tried writing time critical code for the Apple //? In the old days it was easy, as every machine ran at roughly 1Mhz. These days, with so many different chip speeds, you have to be careful. Even Apple themselves have 5 different CPU speeds across the Apple // range (1 Mhz slow RAM in the []+ / [] and /GS, 1 Mhz fast RAM in the /[] , 2.8 Mhz slow RAM /[]/GS, 2.8 Mhz fast RAM /[]/GS, and 4 Mhz slow RAM /[]+). If your timings aren’t that critical, you can rule out the differences between fast RAM and slow RAM, and you’ve still got 3 different speeds.

Now add this on to the three TransWarpS for the /[] (all different speeds), the ZIP chip /[] (two top speeds), the RocketChip /[] (two top speeds), and the new ZIP chip /[]. This last chip is supposed to be shipping at the end of June 1990, but then again it’s ZIP technology, so...

Lucky enough, all these chips can be slowed down to a more uniform speed (such as 1 Mhz) But unless you code routines to look for every one of them (they are all controlled differently!), you’re still not going to get the same speed on every machine. Even then, the routine to actually slow the chip down would probably be longer than the entire routine you’re trying to write!

The ZIP chip

The ZIP chip is controlled via a bank of softswitches in the hardware page. The address lines on the chip are tested for these addresses, and acted upon as if they were part of the machine. The ZIP chip registers range from $C05A (normally set anannunciator 1 to $C05F (clear annunciator 3 and double hires off, depending on IOUDIS being on of course). To talk to the ZIP, you first have to tell it that you actually want to talk to it. To do this, write the value $5A to the ZIP lock/unlock switch. This will unlock the ZIP ready for your commands.

LDA #5A ;Unlocking value
STA $C05A ;Stick it 4 times
STA $C05A
STA $C05A
STA $C05A

To slow down to standard 1Mhz, simply write an invalid value to the lock/unlock register whilst it’s unlocked. So, following the previous section of code, you could do this;

LDA #0 ;Invalid value
STA $C05A ;Slow down to 1Mhz

This still leaves the ZIP unlocked, so your time dependent code should either lock the ZIP, or not go anywhere near the ZIP registers (or any code your routine calls, including ROM).

To speed it back up again to it’s original speed, make sure the ZIP is unlocked, and then do a write to location $C05B;

STA $C05B ;Speed up again

Of course you must now re-lock the ZIP again;

LDA #$A5 ;This is the locking value
STA $C05A ;Stick it in the lock/unlock register

Once the ZIP is locked, all accesses to it’s registers are ignored, except for a sequence of four $5A’s written to the lock/unlock register.

Changing the speed of the ZIP involves picking any of it’s twenty speed settings, which range from 0.6667 to 4.0 megahertz (or to 8Mhz for the latest ZIP), and sticking the appropriate index value into the speed register at $C05D (whilst the ZIP is unlocked).

The RocketChip

The Rocketchip has a maximum speed of 5Mhz, which is not surprising considering the engineer behind it originally worked with ZIP technologies. It also has twenty speed settings, this time getting down to 50Khz as opposed to the ZIP’s 500Khz. I am yet to see the technical manual on the Rocketchip, so I can’t really elaborate on how to program it.

Suffice to say that the speed selection emulates the TransWarp protocols, which is one of the reasons why Applied Engineering had licensed technology from BPT (Bits and Pieces Technology Inc., who make the Rocketchip) in it’s new TransWarp II. Of course when BPT lost the court case with ZIP, Applied Engineering had to quickly re-design the TransWarp II into the TransWarp III, which brings us nicely to the TransWarp.

The TransWarp

The TransWarp is configured by using dip switches on the card. The only hardware register in memory, is at $C074, and is purely a speed register. This location can contain three different values, which you can read or write at any time;

0 = Fastest speed (selected by switches on card, usually 3.6Mhz)
1 = Normal 1Mhz
3 = Disable the TransWarp completely until next cold-boot.

Theoretically, by reading from $C074 and checking for a 0, 1 or 3, you could tell if a TransWarp is installed. The manual doesn’t mention any way of recognising the card, so if any has a TransWarp that works (ie. mine doesn’t work), please let us know. Sample code for testing for a TransWarp would then be something like this;

LDA $C074 ;Get speed register if possible
CMP #2 ;Two is invalid
BEQ NOTW
AND #3 ;Strip all but bits 0 and 1
CMP $C074 ;Same as before?
BNE NOTW

YESTW EQU *

NOTW EQU *

This method ensures that the location is read at least twice to verify the TransWarp’s existence. If a TransWarp is not installed, this location should not only be garbage, but different garbage on each read. The likelihood of getting a value below $40 is pretty remote, let alone getting the same value twice below 4.

So, to slow down the TransWarp;

LDA $C074 ;Get current speed
STA SAVESP ;Save it
LDA #1
STA $C074 ;Slow down to 1Mhz

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Applicatons 7 July 1990
And to speed it up again;

LDA SAVESP ;Retrieve the old speed
STA $C074 ;Set it again

At the time of writing this article, my attempts to get the documentation on the /c+ had failed. However, rumors of the /c+ containing either a ZIP chip or a ZIP chip hybrid abound. Considering this and Apple's association with Applied Engineering and TransWarp GS, it would be safe to assume that the /c+ is controlled the same as either the ZIP chip, or the TransWarp (or RocketChip). Those of you requiring this information should contact Apple and see how you go. (Or if anyone has this information already, could you please let me know?)

**GS specific**

For the /GS, there are two methods to slow the machine down. Apart from running your code in bank $E0 or $E1, the Apple engineers have put in a CPU slowdown switch, and a 5.25" slow down sensor. The slowdown switch is at $E0/$C036, and in a normal system, is thus shadowed into bank 0 at $00/$C036. Bit7 is the select bit.

LDA $C036 ;Get current setting
AND #$7F ;Make bit7 = 0 to slow down
STA $C036 ;Stick it back in

Also, whenever the disk drive is activated, the machine is also slowed down. Although this isn't as simple as the above method, with a bit of fiddling you can arrive at the same solution. Considering the drives MUST run at 1Mhz, we can guarantee that activating the drive will slow down ALL CPU accelerators. Although they should all respect $E0/$C036 as well, this method still works fine. How the ZIP GS handles slow downs I don't know, but this method simply must work with it!

LDA $C02D ;Get the current slot settings

**TransWarp GS**

The TransWarp GS will respect the /GS speed register and slow down to 1Mhz whenever the system requires it, and of course speeding up once the speed register is restored to high speed. This means that most programs can simply slow down the /GS via $E0/$C036, perform their time critical code, and then restore $E0/$C036 again. TransWarp GS also has an IRQ slow down feature, which can come in handy. As an option, you can tell TransWarp GS to slow down to the current /GS speed whenever the interrupt bit in the status register is set. This effectively turns the TransWarp GS off, and enables the $E0/$C036 switch to toggle between 2.8Mhz and 1Mhz. So all you need to do is this;

```
PHA ;Save them
EOR #$40 ;Switch to the alternate setting
   ;ie. If currently internal Disk Port, select the card
   ;If currently card, select Disk
Port
   ;This will ensure that the drives do not get activated
STA $C02D ;Set the new slot settings
LDA $C0EE ;Set read mode just in case
LDA $C089 ;Drive on, /GS is now running at 1Mhz
PLA ;Restore original settings
STA $C02D ;Set them back again
```

Of course to restore it again;

```
LDA $C02D ;Get it
PHA ;Save it
EOR #$40 ;Flip it
STA $C02D ;Set the new
LDA $C089 ;Turn drive off (fake drive that is)
PLA
STA $C02D ;Restore the setting
```

Of course with System 5 and it's 14 slot architecture, this means that you would either have to disable interrupts, or not use this technique under GS/OS. Either way, the $C036 is of course preferable. (And if Matt deatherage finds out, don't dare tell him that I suggested it!)

Code Timing

So how does this all affect your time critical code? For starters, actually slowing down the chip can be a real pain. Recognising all the different accelerators can be a long winded process. What we should be able to do instead, is read the speed of all the chips at once, and use that value to generate extra delays in the code. Unfortunately, this requires recognizing each of the accelerators as well, so we may as well rule out the chip as part of a solution. Luckily enough, there are other parts of the hardware that generate a constant timer value across all of the machines, and a few extra ones in the /GS. For the /c+ and /e we can use the vertical blanking period as a timer. In the /c+ and /e with a mouse card, we could use, once again, the vertical blanking period, or a vertical blanking interrupt. In the /GS, we can use any of the following; the 1 second interrupt, the .25 second interrupt, the vertical blanking period, the heartbeat queue (driven from VBL interrupts), the tick counter (driven from the VBL interrupts), and scan-line interrupts.

**VBLs - Vertical Blanks**

The vertical blanking period is the time it takes the electron gun, inside the monitor, to get from the bottom right corner of the screen, to the top left corner of the screen. During this time, the screen display is not updated. This is perfect for re-drawing graphics in memory before the gun starts to re-trace the screen. Using this method, you have approximately 10819-10835 instruction cycles running at 1 Mhz on a 60 Hz screen, which occurs 60 times each second. As you can see, we now have a logical way of timing our code, independent of the actual speed of the CPU. Bit 7 of location $C019 indicates whether the vertical blanking (VBL) period is currently active or not. This is where we start to have problems.

On the pre-/GS machines, a one in bit 7 meant that a VBL was occurring, but on the /GS it's a zero. This means that if we require the current state of the electron gun, we have to code something like this;

```
SEC
JSR $FE1F ;Call standard /GS ID routine
ROR ;Drag the carry into the accumulator, bit 7
EOR $C019 ;Test bit 7 of the VBL indicator
BPL :VBLACT ;Yep, VBL is occurring
BMI :NOVBL ;Nup, must be re-tracing
```

However, if all we need is a timed delay for as close to one second as we can get, the following code will suffice.

```
JSL $BC/FF38 ;Enable IRQLogic call
   ;SEI now works fine.
   ;But to speed it up again, you should restore the original setting of the IRQLogic. So, starting with the slow down routine;
GOSLOW JSL $BC/FF3C ;GetTWConfig -
   ;Returns current config in A
   ;(Only four bits are actually used)
STA TWCONFIG ;Save the current config
JSL $BC/FF38 ;EnableIRQLogic
SEI ;Slow me down!

And the restore;

GOFAST CLI ;Speed me up!
LDA TWCONFIG ;Restore the original config settings
JSL $BC/FF40 ;SetTWConfig
```

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LDX #60 ;60 VBLs for 60 Hz (plus or minus up to one re-trace)
VBLOOP LDA $C019 ;Wots the gun doing?
  BPL *-3 ;Wait for it to go high
LDA $C019 ;Must be high now!
BMI *-3 ;Wait for it to go low again
DEX ;Done yet?
BNE VBLOOP
LDA $C019 ;Wait one more for non-alignment
BPL *-3

This routine will delay for one second, and considering that the position of the gun can't be read on pre-/GS machines, an extra poll is performed in case we started just before it went high (and wasted the first BPL). This of course is optional, and shouldn't be required unless you need AT LEAST one second of delay.

Waiting around at SFCA8
The WAIT routine in the /GS at $FF/FC8A (shadowed into $00/FC8A), automatically slows the machine down to 1MHz by changing the speed register at $C036. Once the delay period has ended, it restores the original value. Of course the TransWarp GS will respect this and slow down as well. However, more elaborate routines will require more control of timing than the overheads and limitations of the WAIT routine.

To use WAIT under GS/OS, you would either have to use a _FWEntry call, which incurs the overhead of the Toolbox, or setup a WAIT call routine in bank 0 to set up the appropriate environment before and after the call. For games which use the joystick, it is quite easy to set up and call a routine in bank 0 which calls the monitor paddle routines directly, so why not a WAIT routine as well?

Interrupts
Interrupts can be very handy. Here is a simple 1 second interrupt handler under P8. You can type it in at $300 if you wish;

START CLC ;Switch to native 65c816
  XCE
  REP $20 ;Use long m
  LDA #TIC
  STAL $E10055 ;Point the 1 second IRQ vector
SEP $20 ; to point to me
LDA #TIC
STAL $E10057
LDA #4 ;Turn on 1 second interrupts
TSB $C023
SEC ;Switch back and exit
XCE
RTS
TIC PHB ;Tick entry. Save data bank
PHK ;Get my bank
PLB
LDA $C030 ;Make a little tick noise
LDX #10
LOOP PHA
PLA
DEX
BPL LOOP
LDA $C030
LDA #$40 ;Reset 1 second interrupt
TSB $C032
PLB ;Restore the data bank
CLC ;Tell ROM that I handled it
RTL ;Exit

The RGM (and Toolbox) interrupt hooks all roughly work the same way as the above routine. It is usually up to the caller to clear the interrupt, and signal to the ROM if it was handled correctly. The Toolbox routines _IntSource and _SetVector should really be used for interrupt handling. However, if you need speed, you'll have to access the switches directly, as I did in the above example.

Apple Offerings
The latest in speed from Apple, is the new High Speed SCSI card. And because it was on the Apple//first, it's safe to say that all new Macs now use the Apple// SCSI technology. Whilst not a CPU accelerator card, it does accelerate access to SCSI devices. Whilst the old SCSI card was able to use pseudo-DMA, which still uses the CPU for the final transfer of the data, the new card has real DMA. The following figures are for loading 102 x 32k super hires pictures with the FAST! option of my Slide Master program (as demonstrated at the May Apple// meeting). All tests were run with GS/OS RAM cache turned off:

From /RAM5 took 43 seconds
From the new SCSI card took 22 seconds (who needs a TransWarp GS?)
From the new SCSI card with 7Mhz TransWarp GS took 16 seconds

What the future holds
As of finishing this article (31st May 1990), there were various rumours floating around about even faster CPUs. ZIP technology and a rating of 20Mhz has been mentioned, as has a 20Mhz TransWarp III. Also, the 21Mhz reverse engineered 65C816 should be released some time in the next couple of months, however a card to handle it may be a bit longer.

If you're interested in speeding up your Apple//, then there are quite a few choices already. With the seemingly impossible 20Mhz barrier apparently about to be broken on the //GS and /e, we can look forward to some pretty powerful machines.

For the latest on speed, try coming along to the //GS SIG, or logging on to AUGABBS. We usually mention, amongst many other things, the latest developments in accelerator technology.

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**FOR SALE**

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External disk drive for Macintosh computers. In perfect condition. Hardly used.

**only $250**

Contact Chris (02) 681 3731
BY-PASS SINGAPORE

WAL GLYNN

Twenty years ago I spent 12 months of my life living on Singapore Island, and I loved it.

Singapore is a duty-free port and the exchange rate at that time was $3.20 = $1.00. There were a great number of bargains, particularly if you were interested in the Asian Culture.

Early in June this year I had the opportunity to return to Singapore and I grabbed at the chance. I had a great sense of expectation about Singapore when I arrived, and it is probably this sense of expectation that caused most of my problems!

The population of Singapore is extremely well-behaved, there is no graffiti to be seen at all and that is in its favour but Singapore has lost a great deal of its character over the intervening years - it has a growing population who live (generally) in concrete high-rise buildings in the new towns that have been created - it is a wonder that Singapore does not sink under the weight of all that concrete.

Most of the visible population is very young - it was difficult to find an older person, they may have refrained from venturing into the city, of course. Gone are the villages (kampongs) and gone are the shopping places where one could bargain for some trinket or other. These have been replaced by department stores - even the Chinese Emporium (C.K.TANG's) looks like David Jones - with David Jones prices.

One would think that because a large amount of Apple hardware is made in Singapore that there would be bargains a plenty - forget it! As one shopkeeper said to me when I asked about the Apple 2 "The Apple is dead".

In one shopping centre - the FUNAN Centre (near Raffles) there are two floors of the centre given over to computer shops. One of these shops sells Macs, one shop sells software for the Mac and for the Apple 2 and 2GS, one shop sells Apple hardware and repairs Apples (the ones I saw were Redstone clones) all of the rest are given over to MS-DOS machines and software.

Some of the Mac software was reasonably priced but that is hardly a reason to make the trip to Singapore - the machines could be bought cheaper here in Australia.

Next January I am travelling to Hong Kong - I will report on that trip next year (I have a son who is a Qantas pilot) - I hope that I have better news then!

Applecations 12 July 1990

THE ANCIENT ART OF WAR

from Bröderbund.

Requirements:
Apple /e with at least 128K ram, /c or //GS.

Optional
Mouse, Joystick,
Colour Monitor.

Just sit back into your chair and let your mind go wandering back about 2500 years. Your mind wonders into China. A great man sits in front of you scribbling Chinese characters onto a scroll. What is he scribbling and what is his name?

His name is Sun Tzu, a man that basically started principles of military strategies and tactics of war that still remain valid to this day. Every great military leader has been influenced by Sun's writing with every major war practicing them. Now, it is your turn to place Sun's strategies and tactics with an added spice of your own into realistic warfare. The only other tool needed is 'The Ancient Art Of War' from Bröderbund.

'Anancient Art Of War' places you into the role of a famous military leader such as Athena, Alexander The Great, Geronimo, Crazy Ivan, Julius Caesar, Genghis Khan, Napoleon Bonaparte and Sun Tzu himself. There are eleven campaigns to choose from. These range from the "Race for the flags" through battles such as the "The Contest Of the Gods", "Sherwood Forest", "Custers Last Stand" and other historic battles. The campaigns can range between one hours playing time up to ten hours playing time. You are not limited to the eight military leaders or the nine or so games. One delightful feature of the program is the Game Editor. You can make either your own battle or world, or you can make and recreate famous battles. Different military personnel can be substituted and therefore different outcomes will follow. The game that you play can be saved and recalled at any time of play.

With an 'Ancient Art Of War' campaign, you must seek out the enemy while they seek out you. Once the enemy has been spotted, the computer beeps and displays a message on the screen. If you zoom in, you now have the controls of your armies that are at war. You must either outrun or kill your enemy. If you disable a party and march up beside them, the screen switches to a display of a side view of the two parties. There, you can fight it out between yourself and the enemy using swords. If you don't zoom in, the computer takes control of the battle. This is the easiest way when you are a beginner as while the battle is going on, you can read the manual and find out some of the commands.

The program comes in a superbly illustrated box, with a fifty page manual that is exquisitely designed. The manual is divided into three books. They are the instruction manual, planning guide including fighting strategies, and the last which gives a brief history of fighting and the historic wars that have been fought through the thousands of years.

'Anancient Art Of War' is a program designed by Bröderbund and those that know of Bröderbund will realize their programs are something special. 'Ancient Art Of War' is a very in depth strategic game that won awards for the Best Action/Strategy program of last year. It can be easy at times for the beginner or near impossible for the professional.

'Anancient Art Of War' is truly a pleasant and interesting program to play.

Program courtesy of DataFlow
134 Barcom Ave
Rushcutters Bay
NSW 2011
(02) 331-6153

Applecations 13 July 1990
More PEEKs, POKEs and CALLing

By Grant Kwai

Here are some more little commands you can try out in DOS 3.3 and ProDOS. Many of these are useless, but people, like me, who like to fiddle around with DOS to see what happens, may appreciate them.

Type these poke to display only the filename in a catalog:
POKE 44507,16:POKE 44508,54
POKE 47617,12 :Speeds disk access up.
PRINT PEEK(978) :Dos 3.3=157, ProDOS=190,
Applesoft=148
POKE 50,128 :Makes CATALOG invisible.
POKE 42350,60 :Prevents CATALOG.
POKE 42350,169 :Allows CATALOG.
POKE 49384,0 :Stops drive motor.
POKE 49385,0 :Starts drive motor.
(WARNING! Potentially dangerous for your data) CALL -756 :Wait for a key press.
CALL -1370 :Boots disk.
CALL -1401 :Also boots a disk!

I may be writing an article on how to put a number of simple commands into DOS 3.3 so as to protect your disk (to an extent) from prying eyes. The technique involves a number of POKES, PEEKS and CALL routines. The best thing though is that it will be CopyAble. However, don’t expect these to keep anyone with any knowledge of DOS from “cracking” your disk! I will write the article if demand is great enough. So if you want to know how, write me a message on the Apple // BBS or give me a call on (02) 872-2758

Where In Time Is Carmen Sandiego

Reviewed by Robert Brown [RB] and Wal Glynn [WG].

Requirements
- An Apple //e with at least 128k, //c, or //GS
- One disk drive preferably two

Optional
- Mouse or Joystick
- Colour Monitor

RB: The basic ideas of the other Carmen Sandiego games (Europe, USA, World) are there. That is, you piece together clues and follow her to different places but these places range from the 5th century up and including the 21st.

WG: "Carmen Sandiego" has stepped up a notch with this program from the very compelling, and educational, series about the adventures of this master criminal.

RB: You also have now in your possession a 'Chronoskimmer Model 3251'. What is that? It is your main tool for transportation through time, data entry, and clue searching. It is a display for your destination, current position, current year and time remaining.

WG: The use of the Time Leap is not threatening - you do not have to establish a time, the program does that for you in most instances. That is, if you assess that you have to go the Chico if you are normally presented with the one option and away you go! However, be careful, in one episode I was presented to two options to go to China - in different centuries, so be aware that you can be caught.

RB: ‘Where In Time’ is not just a game of playing detectives. It is a tool to teach the history of the world. All the facts, figures and events in the program are accurate.
Lower Case
Dos 3.3
By Grant Kwai

One of the major hassles with Dos 3.3 is it's inability to handle lower case characters. Luckily, this has been fixed with ProDOS. How many times have you typed in a line and pressed return only to discover that you get a syntax error because you forgot to press the Caps lock key down? Well, worry no more.

Below is an extract which I obtained from an old A2 central(Formally Open-Apple) magazine. It gives the Pokes required to allow lower case letters. This modification will work with most versions of DOS, including some modified versions of DOS.

```
10 POKE 40268,121
20 FOR I=0 TO 9:READ J:POKE 40290+I:J:NEXT
30 POKE 41374,32
40 POKE 41375,98
50 POKE 41376,157
60 DATA 142,93,170,201,224,144,2,41,223,96
```

You can use the above Pokes in two ways. Either you can save type in the program then save it as a file, or you can type it in, run it, then init a disk with it on so as to have a permanent lower case accepting DOS. With the first method of saving it as a file, just run it each time you want lower case.

Lower Case DOS.

```
You can get involved in this wonderful sport, but also try, and succeed at events we might never actually have the opportunity to participate in.

Game Mechanics or How the Skis Fit On
DC comes on two disks, one basically being the operating system, and the other containing the program and data files required for the game to function. (For some unknown reason, disk one contains ProDOS 16v1.2 as its operating system and the Apple //gs program launcher; since both these are now more than two years out of date, I am surprised that they are still being used.) It is produced by Bröderbund, a company well known for their excellent products.

Instructions within the package are sparse (almost too sparse), covering a multitude of computers, including the GS, but basically cover the booting of the game and rough game play. Considering the excellent programming and research that must have been performed to produce such a product, such scanty documentation is a great disappointment.

Once the game boots, the player is automatically confronted with excellent graphics, as you can choose to register in an event or practice an event. First time users would be well advised to practice a lot before attempting serious time trials. The game allows you to compete against a world-class computer opponent who know the slopes very well, or against multiple players (one at a time, named by the computer or by the player), or simply practice, any of the four events.

You can pause the game simply by pressing Control-p (so you can answer the phone when it
FILE MANAGEMENT

Catalog
Copy
Delete
Undelete
Lock/Unlock
Verify
Hide/Unhide
Deny Access
Change File Types
File Finder
Display Text Files
Display SHR Graphics
Display Icon Files
Display/Print Fonts
Sort Directory
Purge Memory Options
Enable/Disable/Install DAs
Enable/Disable CDEVS
Enable/Disable Init Files

SUPPORT UTILITIES
Backup/Restore
Optimiser
Disk Repair Utility
Block Editor

MISCELLANEOUS
Volume Copy
Print Buffering
Command Line Processor
PC Transporter Support

File Managers at a Glance

<table>
<thead>
<tr>
<th></th>
<th>ProSel-16</th>
<th>JumpStart</th>
<th>UtilityWorks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>8.1</td>
<td>2.5</td>
<td>0.8</td>
</tr>
<tr>
<td>Price ($US)</td>
<td>$60.00</td>
<td>$29.95</td>
<td>$25.00</td>
</tr>
<tr>
<td>Computer Model</td>
<td>/GS</td>
<td>/GS</td>
<td>/GS</td>
</tr>
<tr>
<td>Memory Required</td>
<td>512K</td>
<td>512K</td>
<td>512K</td>
</tr>
<tr>
<td>Operating System (GS/OS)</td>
<td>5.0.x</td>
<td>5.0.x</td>
<td>5.0.x</td>
</tr>
<tr>
<td>Graphic Interface</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Documentation</td>
<td>60 pages</td>
<td>24 pages</td>
<td>80 pages</td>
</tr>
<tr>
<td>On-Line Help</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

You can use the numeric keypad on the GS by simply hitting '8' when you are in the gate; this tells the game that you are aiming down and moving forward. Then, through various keypad and apple-keypad key combinations, the skier can be turned left or right, perform sharp turns, lean down or stand up and even do a stop turn.

Though the game states it can be played by mouse, keyboard and joystick, the latter would be the recommended means to do so. The mouse is a little too sensitive to be a great device. However, the instructions do NOT tell you how to access the joystick, and so persistent trials are necessary to get it to work with DC. Then there is nothing but speed and snow to get involved with. As you ski down, the snow and scenery, which include the crowd, trees and other obstacles, fly past, as the sound of running skies echoes across the room. Truly a great experience for the first time skier, or the expert ski jumper.

You can use the numeric keypad on the GS by simply hitting '8' when you are in the gate; this tells the game that you are aiming down and moving forward. Then, through various keypad and apple-keypad key combinations, the skier can be turned left or right, perform sharp turns, lean down or stand up and even do a stop turn.

The instructions, for they do not truly qualify as a manual, are very skimpy. No mention of copy protection, backing up, or using the optional interfaces (joystick, keyboard) can be found. I admit that the game is somewhat intuitive, but probably only for actual skiers or those who are glued to their televisions when the winter Olympics are on. For the new comers, it might take some getting used to and experimentation.

Overall Assessment

"Downhill Challenge: It's like having your own private ski mountain!"

Well this is certainly true, and the game is very worthwhile. Despite the minor annoyances, listed above, the game is quick, exciting and loads of fun. You will swear that you can feel the wind whip past your face on the Giant Slalom, and that shifting your chair helps your ski jumper gain those extra few metres.

With four events and three levels of play, Downhill Challenge should provide many hours of entertainment, during the long summer months until the ski season starts.

Go for it!!! Downhill Challenge comes on 2 x 3.5" disks: 1 system, 1 game disk; and is available for $49.95 from Dataflow.
GRAPHICS CONVERTER

from Pelican Software
Review by Robert Brown.

Requirements:
- Apple // series computer with at least 64K.
- SuperPrint(TM) graphic printing program.

The “Graphics Converter” program is one of those nice small add-ons to programs that then make the main program, in this case “SuperPrint”, a useful program. Basically the program converts graphics from PrintShop, HiRes Screens, Scholastics Slide Shop, and other known graphics programs. It also converts fonts from PrintShop, Fontrix and GS Fonts so they can be used with SuperPrint.

Converting graphics or fonts over usually entails hours of work trying to get the graphic you want and where it is going. The Graphics Converter makes this job relatively simple that even a child could do it. Most of the conversion is program driven. All operations can be carried out with ease from the main menu by selecting the choice and then pressing the return key.

After the operation of converting the graphic across is successful, you can then proceed with other special features. If it is in graphic form, these include changing the height, width or screen display, whether to invert it or keep it normal, flip it either horizontal or vertical, or mirror it left, right, top or bottom depending on the user’s preference.

Apart from importing fonts and graphics from other sources, the program lets you modify Superprint’s own fonts and graphics. The above listed features will also be implemented.

Graphics Converter is a reasonable program if you have SUPERPRINT. If you don’t have it, the program is fairly useless as the features it offers cannot work with any other program.

Review copy courtesy of DataFlow
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Rushcutters Bay NSW 2011
(02) 331 6153

SPREADSHEET STUFF AND THIS WINTER’S ELECTRICITY BILL

By Dave Stock.

All the material in this article will work with Appleworks v2.0 and upward.

Many of us have Appleworks and use only the word processor section. Here is a good use for the spreadsheet portion which could save you a lot of money if you can see more clearly where your electricity dollar is going. We are all only too familiar with the sight of the quarterly Power Bill from the SCC. The post-winter one is always the worst. Here is a sample of mine from last year:-

11 CALCULATION OF SCC POWER BILL FOR WINTER 1989

2 )3 = A - B - C - D - E - F -
3 $ Tariff Previous Present kWh Cents AMOUNT
4 Reading Reading per Block per kWh
5

6 Domestic 69527 71854 200 12.74 $25.48
7 Domestic 2127 9.22 $196.11
8 Off Peak 15416 16209 793 3.30 $26.17
9

10 $247.76
11

Formulae, Dollar Layout and Recalculate

Now boot up your Appleworks spreadsheet and starting from the top left corner, enter this example into it. Numbers and their symbols are easily accepted. If it is characters you want to enter and not numbers, the spreadsheet can generally understand that. If it does not, then you must start your entry with a quote mark. This will become clear to you when it spits out the “equals” signs which make quite a nice underline. Do not try to put $ signs until last. Also, the entries in the column under “AMOUNT” are entered as calculation formulae which can be started with a bracket. For example, where it reads $25.48, simply type this in:-(D6*E6/100). D and E are columns, 6 is the row, * means times and / means divide. Where it reads $196.11, enter (D7*E7/100). At $247.76, you guessed it, (D8*E8/100). Now to add up this column for the final tally of your bill. This command is a little different. Just type in @SUM(F6..F8). Now you can see the magic of the spreadsheet.

Now for those dollar signs. Position the screen cursor on the 25.48. Hold down the Open Apple key and press L. Now it’s asking you for the Layout. Press C for Column for a dollar format and press Return. Press V for Value, D for dollars, and of course, 2 for the decimal places which gives you the cents. Now if you want to change any of the meter readings you will notice that the spreadsheet will respond by recalculating this all over again. Should you want to stop this automatic feature during entries of large amounts of data, then press OA-V, R for Recalculate, F for frequency, M for manual. Now if you want the calculation to take place just hit Open-Apple-K.

Get your own power bill and enter it into this format. All you need to type in are the two meter readings for each tariff. Everything else is done automatically. Hopefully the rates have not been put up before this article gets to you!

Lookup Tables and Leap Years
You have probably noticed that the Council has made no mistake in calculating what you owe them. Their spreadsheet works too! Now if you
One nasty little problem comes up though. How can you count the days between meter readings? Well, this is a bit cumbersome, but not complex. Calculations can be made by processing the date entries. You must enter the month as a number to make this possible. The name “June” cannot be calculated. Its number 6 will indicate that 5 months have preceded. Zero will indicate that January has no months preceding it, and the day entry for January simply equals the number of days. This gives you the number of days into the new year, the “nth” day if you like.

What about February with its varying number of days you ask? O.K. this method is a bit awkward but works quite well. Remember that a leap year is calculated by dividing by 4. (Please do not remind me about the year 2000. We will just have to skip that non-leap-year!) There is a hardy function in the spreadsheet which will look up tables, so we must make up a table to calculate the days.

The function is written: =@LOOKUP (reference, range). It will return the adjacent value, just as in a table. Let’s say we will deal with the date 6th June. The entry would be 9-6-1990. If the function is directed to June by using the number 6, then it will go to 6 in the table alongside which we will have cleverly put the number of days it is up until June, i.e. 151.

The day entry will give the number of days in June. The total is 160. This enables us to count the days between two different dates. Now by using this method we are able to work out how many units of electricity we are using per day. We can also compare the summer bill with the winter bill etc.

If, Then, Else Choosing Function
There is another function we must use in this exercise which can be explained as a choosing process. It is an instruction which says “If this is true, then do that, otherwise do something else”. This function is typed in this way:- =IF (true, then, else). One must use numbers though, not words.

For example I mentioned that we must be able to identify a leap year from a common year, otherwise you would sometimes be a day out in reckoning. If the year divides by four and there is no remainder, then that is a Leap year, so go to the table for leap years. If there is a remainder, that is to say, if the remainder is greater than zero, then go to the table for Common years. Now you will have a better idea how the spreadsheet will calculate the number of days between one date and the next over the period of one year.

Believe it or not, you can insert the @LOOKUP command inside the @IF choosing function. In fact that is precisely what we are going to do to count the days. Study this expression. If it is a leap year, then LOOKUP this table, else LOOKUP that table. Now in Spreadsheet language it is written like this:- =IF (F5=366, @LOOKUP (B5,B37...R37)+A5, @LOOKUP (B5,B40...R40)+A5)

The formula looks complex but is not. It is simply clumsy, but it works and that’s the main thing. Notice that I have used the “less than” mathematical sign “<” to determine the common year from the leap year. This formula fits in with little room to spare as you will see!

When one is creating a new spreadsheet and there are empty cells where figures are yet Not Available it pays to use the function @NA. If you do not, then formulae relating to this empty cell will go berserk. First of all though, let’s provide for our headings to line up with the figures. Press Open-Apple V, L(label), R(right

The Tables
Now to make sure our @LOOKUP formulae has something to look at, let’s put in the look up tables. Starting at cell block A12, (30-odd cells to the right), put in MONT h, in AI2 put JAN, in AJ2 put FEB. Instead of pressing Return for each entry, simply press Right Arrow. Your entry will be accepted and your cell cursor will be placed at the adjacent position for the next entry. Continue until all months are in place, ending with DEC in AT2.

Now leave a row blank and put in COMMON in AH4, 1 in AI4, 2 in AJ4, continue until 12 is in AT4. Now in AH5 put YEAR DAYS, in AI5 put 0, in AS1 31, AK5 59, AL5 90, AN5 120, AN5 151, AO5 181, AP5 212, AQ5 243, AR5 273, AS5 304, AT5 334 . Now skip row 6. (This sounds like knitting.) In AH7 type LEAP, in AJ7 1, in AT7 2, continue up to 12 which should end up in AT7. Now in AH8 type YEAR DAYS, in AI8 0, in AJ8 31, AK8 60, AL8 91, AN8 121, AN8 152, AO8 182, AP8 213, AQ8 244, AR8 274, AS8 305, AT8 335 . You have probably noticed the extra day count after February in the Leap year table.

Protecting your entries
Hopefully you have entered this table and corrected all errors. Now is the time to protect this block of data from being altered. Press OA- L, B, highlight the whole block, Return, (P(rotection), (N)othing). Now it will not be easy to alter this table area. Do this with all of the formulae that you enter.

This will ensure that your spreadsheet will remain reliable, unaltered perhaps by an overstrike cursor or wrong key press.

Increasing Column Width
It should not be necessary at this stage to change the width of the columns. The standard setting of 9 will do. When later you may have to increase the width of a column press OA-L, C, Return, C, OA-Arrow right to increase, Return.

Typing in the Heading
Now let’s go to the heading. To try and make it clear in this article I have used a lower case alpha in front of each word block to mark the cell and a minus sign to indicate a blank cell. Do not type these symbols in or the commas either! We will work on one row at a time. Starting at cell block A1, B1, C1 etc. type in capitals each word followed by the Right Arrow:- aDAY bMONTH cYEAR dDOMESTIC eOFFEAK fLEAP or gDAY hBILLING iDOMESTIC jDOMESTIC kSEASON lDOMESTIC mBASE nDOMESTIC oDOMESTIC pDOMESTIC qOFFEAK rOFFEAK sSEASON tOFFEAK uOFFEAK vYEARLY wTOTAL xAVE/ANN yTOTAL zYEAR.

Now for row 2. a- b- c- d- e- rEADING fCOMMON gIN hDAYS iUNITS jUNITS k- iBASE mRATE nBASE oRATE pCHARGE qUNITS rUNITS s- iRATE tCHARGE uDAYS vUNITS xDAILY yFOR z- Row 3. a- b- c- d- e- iYEAR gYEAR h- iUSED jDAY k- iUNITS mPERUNIT nCHARGE oPERUNIT p- gUSED qREPDAY s- iPERUNIT t- vCHARGED uWSED xUNITS yYEAR z- Row 4. Starting with a quote symbol, fill A through Z with “= signs.

Entering the Formula
Before we do this, there are a couple of things we need to instruct the computer to do. One is to calculate in rows rather than columns. The other is not to calculate automatically every time you enter something, slowing down the whole job. Press OA-V, (Recalculate), (R(deter), (R(ows)). Press OA-V again, R, (F(requency), (M(anual).
If while entering a formula you get bipped, you have done something wrong, so double check your entry especially those brackets! Do not worry about the ERROR message in the cell. As long as we have those @NA's in place all is well. Row 5. @NA @B@NA @C@NA @D@NA @E@NA @F@IF($C$9>$@INT($C$9)/365.365) @G@IF($F$5=$366>$LOOKUP($5,A14..AT4)+A5,($ A5,LOOKUP($B5..AT7..AT7)) h- j- k- l \*m** n- o-** p- q- r- s- t- s** u- v- w- x- y- z. Protect those format! Now for some copying. Place cursor on A5. Press OA-C-W, highlight 5 NA's, Return, D(own) A(row), .(point), DA, DA, DA, Return. Place cursor on E5. OA-C, W, Return, DA, . DA, DA, DA, Return, R, R, R. Place cursor on G5. OA-C, W, Return, DA, . DA, DA, DA, Return, R, R, N, N, R, N. Note that when copying these formulae that this is the only place where you will answer NO CHANGE in the cell reference. Here it is referring to the tables we created. Since the table simply stays in the same place, the cell reference always remains the same. Do not worry about the ERROR prompts. As long as the formula remains unchaged in the lower left line on your screen when you have the cursor over the appropriate cell, all is still O.K. Be careful to get the formulae correct. The most common problem is getting the parentheses in their pairs. Look for pairs! Place cursor on H6. Enter @IF(G6>G5,G6-G5,G6-G5+F5). Now copy. OA-C, W, Return, DA, , D A , DA, Return, R, R, R, R, R. Cursor or J6. @IF(D6=D5,0,D6-D5). Copy. OA-C, W, Return, DA, , D A , DA, Return, R, R, R. Cursor or J6. (16/H6). Copy. OA-C, W, Return, DA, , D A , DA, Return, R, R. Layout. OA-L, C, Return, V, F. I Return. Place cursor on K6. Type in SUMMER. D(own) A(row). Type in AUTUMN, DA, WINTER, DA, SPRING. At L6 type in 200. Repeat down to L9. This figure could be changed by SCC in the future so mark the top of this column with an asterisk if not already done. At M6 enter 12.74 and repeat down to M9. Mark the top of this column also with asterisks. At N6 type (L6*M6/100). Copy down to N9. All cell references are Relative. Layout for Dollars. Cursor at O6. Enter 9.22 and copy down to O9 as before. This is the Domestic rate per unit. Asterisk markers above. At P6 enter this: -L6+H6/O6/100. Copy specifying Relative down to P9. Format for Dollars again. Watch alpha I and alpha O. They are not ones and zeros. At Q6 enter @IF(E6<E5,0,E6-E5). Replicate down to Q9 and as before specify Relative. At K6 Enter (Q6/T6). Copy down to R9. Layout for 1 decimal place. Starting from S6 type SUMMER, AUTUMN, WINTER, SPRING down to S9. At T6 enter the Offpeak Rate per unit 3.3. Copy down to T9. Place Asterisks above this one too. This Flag will make it easier to find when SCC increases its rates again. At U6 type (Q6*T6/100). Copy down to U9 specifying R. No format for Dollars. At V9 enter @SUM(H6..H9). Did you get that in row 9? At W6 enter (I6+Q6) and Copy down to W9. At X9, (W9/V9). Format for one decimal place. At Y9, @SUM(N6..N9,P6..P9,U6..U9). Layout for Dollars. Also this column may have to be widened. At Z9 type in (C9) Using Your New Creation Now you have your spreadsheet analyser for your quarterly electricity bill. All you have to do be used on an Apple /e or /c. A program selector contrasts with the icon based Finder where the desired application is highlighted on a user-defined menu and is executed by a press of a return key or a mouse click. Each menu has restricted number of titles per screen but other menus also can be invoked providing a flexible launching system. The use of multiple menus allows your favourite applications to be grouped by type if so desire i.e. all utilities to reside on one menu while all the games reside on another. PROSEL-16 ProSEL (PRogram SELector) is perhaps the most widely recognized file-management system. While similar to Prosel-8, Prosel-16 surpasses its predecessor in speed and power. Applications can be added to the program-selector menus via the ProSER editor, in automatic or manual modes.

The utility portion of the ProSel provides file and directory manipulation tools. Files can be copied, deleted, locked, unlocked, verified, and compared. A fast hard disk backup and restore program makes it easy to backup all or part of a volume.

Another option available from the ProSel utility menu will attempt to repair a damaged volume, correcting bitmap errors, correcting bad directory pointers and more. (The utility has the potential to be dangerous and should only be used on volumes that have been backed up.) A disk “zap” utility or Block Editor is available to read and write data to a disk. Data retrieved can be disassembled and even edited. (Not really a task for the novice!)

JUMPSTART JumpStart is a “shareware” package written by David R. Hill. It has all the refinements you would expect from a commercially available
now is enter the figures in the first five columns. Get out your first bill for 1990. On it you will see two reading dates. The first one is the Previous Reading date. Enter this date by numbers into the very first cells under the headings “day, month, year” right on top of the NA’s to wipe them out.

Now look on your bill for the “Previous Reading” alongside Tariff 321. This is the Domestic Tariff. Type this into the Domestic Reading at cell D5. If you have Offpeak hot water this is the Previous Reading alongside Tariff 331, the Offpeak Tariff. Type this into the Offpeak Reading at cell E5. You will never have to enter a Previous Reading again on this spreadsheet.

You are now ready to enter the data that you should copy from each bill as you receive it. Enter the Present Reading date, the Domestic Tariff Reading and the Offpeak Tariff Reading.

That is all; just those five data from each bill. Now press OA-K to do the calculation. Now the full magic of the spreadsheet shows its power. All the analysis is presented to you in a matter of seconds! From time to time you will notice a price change in the Cents Per kWh column. Enter these changes into the spreadsheet in their appropriate places. This is where the asterisk "flags" come in handy.

For each year you should copy the lower four rows further down on the spreadsheet for the next quarterly bills. After you do that, enter the @NA command into each of the first five columns, hitting OA-K to prepare for the next lot of entries.

Whenever you come across the @LOOKUP formula during replication, always remember to enter “No Change” when the references are to the Lookup Table. Everything else qualifies for the “Relative” instruction. It is a good idea to insert a blank row between the years for clarity. Do this only "after" replication.

Watch For Anything Unusual
As you study your spreadsheet, you will notice heavier demand for power in the winter months. Keep an eye on the Offpeak usage if you have it. Watch that this does not get too low in demand. If this happens, it is possible that your Offpeak switching is not operating properly. That means you will be paying the higher Domestic rate to heat your water.

Those of you who read this article outside New South Wales will have to change the values for your own local tariffs. This should not prove to be difficult, as most power reticulation bodies have a similar way of reckoning their charges.

Those who use gas could adapt the spreadsheet to function similarly. Unlike Telecom these organisations have meters on your property which you can check at any time. This is a fair practice which avoids disputes. They also give you the last reading too, which means if there is a reading error, there will be no overlap charging as it will even out in the next bill.

Printing it Out
If you are fortunate enough to have Timeout Sidespread, this is an excellent program to use to print out this spreadsheet sideways on your fanfold paper. That way you can get an uninterrupted printout to study.

If not, then you will have to be content with printing out a few columns at a time and sticking them together later. Try to configure your printer to print out the most condensed characters it possibly can in order to keep your printout smaller and save those trees!

software package: Super-Hires screens, pulldown menus, mouse implementation, and more.

This program selector provides you with a quick "Run List" or roster of frequently used programs. The list can be contained on an unlimited number of screen pages, each with 16 program titles. This list can be installed, edited, or deleted at any time via a point and click process with the mouse.

Launching EXEC files from JumpStart is also supported. An option is also provided from creating a small text file to be used for "EXEC"ing an application.

JumpStart also includes a set of file manipulation utilities. Volume copy and disk formatting are also available. Currently no facilities for full or partial backups of volumes are provided.

A nice touch is the 64K print buffer which comes in handy if you wish a print a large text file and then carry out some house-keeping on your files: no need to wait for all the text to print!

UTILITYWORKS
Utilityworks is another shareware product for the /GS. It consists of a separate launching program and a file management package.

The program launcher may have up to 10 menu screens with 30 selectable items configured on each. The desktop and background colors are programmable for each application when it is launched.

The main program, ‘UTILITYWORKS’, has file management options for both volumes and files. Files may now also be copied across an AppleShare network. Its latest revision also has the facility for backing up or restoring volumes / files / directories.

However it also has some interesting capabilities:
* A facility to display/print SHR graphics in either 640 or 320 mode
* A facility to display/print any font anywhere on a volume
* A facility to display/print the objects contained

CONCLUSIONS
Each program offers its own strengths: Prosel-16 offers many utilities for editing/repairing files or hard disks while Utilityworks offers unique facilities for displaying ICONS, SHR graphics and fonts.

PROSEL-16
Glen R. Bredon
521 State Road
Princeton, NJ 08540, USA
List Price: $60.00 (USD)

JUMPSTART
MainFrame Software
Box 315A, Cousins Island,
Yarmouth, ME 04096, USA
List Price: $29.95 (USD)

UTILITYWORKS
(launcher and utilities)
George R. Wilde
24402 Broadwell Ave.,
Harbor City, CA 90710, USA
List Price: $25.00 (USD)
MINES OF TITAN
from Infocom

Review by Robert Brown

Requirements
- An Apple /e with at least 128K ram, /c or /GS.
- One 5 1/4 inch drive.

Options
- Joystick
- Colour Monitor

It's taken a long while. Two years of cryogenic suspension. When you wake up from it, it seems like someone kicked you in the head. Two hours ago, sensors picked up the nearing of your destination, Titan, a small satellite of Saturn. As you started your final entry, a small rock flings from one of Saturn's rings and punctures your fuel tanks. Normally the hole would be plugged by sealant, but on final entry, the outer pipes are closed. Your fuel is spilling out into deep space. You think quick. Mining equipment, it would be insured. You jetison the equipment and save your life.

Unfortunately, the 'Paramount Mining Company' didn't think that saving a life was worth more than saving mining equipment. You have to sell your ship in order to pay for their equipment. You're stranded on Titan. There is no work for astronauts. The only work available is mining or bounty hunting. You choose to be a bounty hunter thinking that is easy work, until you are given your assignment.

'Mines Of Titan' is a role playing adventure set in the 21st century. As a bounty hunter, you must create and control a party of characters to explore the satellite. You must improve yours and your party's skills before entering the vast deserts on your mission. You must earn credits which are needed for training and buying special weapons. And what about this mission? The 'Paramount Mining Company' has lost a city. It was the newest city built on Titan and now, all telecommunications have been lost. The mission you are sent on involves seeking out the lost city and destroying anything that stands in your way. You must be aware of Titan's natural beings such as Crushers, Dust Worms, Sand Loins, Scorads, Thrashers, and Urchins. Each are deadly in their own different way.

Throughout the adventure, you will have to fight. Options of combat allow full computer control or full player control (the computer controlled is best when you are learning). Each city you visit is a labyrinth of computer terminals, Armory Shops, Bars, Gambling places and Police stations. One important fact to remember is in this game, the Police are your friends.

Most adventure games now have menu driven interfaces containing the commands needed to play the game. 'Mines Of Titan' is no exception. Screen layout is in the form of graphic windows displaying commands, aerial view and ground view of your present situation and your life statistics.

The game comes on one 5 1/4 inch disk, and is not copy protected. It is a difficult game to master and there are a lot of frustrating moments. Be prepared to spend at least 10 full hours in playing it.

Questions, Questions!

Q:
Gladys Lane wrote requesting some information on the type of educational disks that are available from the club library suitable for primary school use.

A:
The club library contains a large range of educational public domain software. The software is written in Integer, Applesoft, Pascal and CP/M formats. Specifically for the primary school group we have programs which deal with mainstream subjects such as basic mathematics and the alphabet, and diverse topics such as astronomy and nursery rhymes.

Being public domain software, the quality of the programs also varies. Some programs are incomplete, others adequate and some are brilliant.

A complete listing of all the clubs library software will be contained in the New Members Handbook which will be released with the August magazine. Alternatively, you are welcome to browse the listing folders at the bulk purchase tables at the meetings.

Q
Ray Ashton writes: My Kanematsu 3080 printer will not properly respond to PrintShop run on an Apple /e. Even though all printer and interface options have been attempted, the best result obtainable still has a portion of the left over written with a part which should appear on the right margin and a line space occurs every other line. Help!

A
I suggested to Ray that the line spacing could be due to the computer, interface card or printer outputting an extra line feed at the end of each line. Check the DIP settings on your printer, the default settings on your interface card and the software settings on the program to make sure that only one of them outputs a line feed when a carriage return is encountered.

I had an idea that the transposition could be due to the interface card outputting an extra carriage return when it has sent out 80 characters. Try sending CTRL-I ON to the interface card which will tell the card to ignore the amount of characters being transmitted. Ray didn't mention whether his interface card was serial or parallel.

If anyone has a solution to this problem then I'm sure he’d appreciate a call on (02)413-6795 BH,
Accelerating the Apple //GS

By John MacLean

At the heart of the Apple //GS is the 65816 processor, a 16 bit processor capable of full emulation of the 8 bit 65C02 found in previous Apple //s. This article is the first of two that explain how the Apple //GS could be accelerated through the use of enhanced 65816 processors, and other changes.

Faster Clock Speeds and Accelerator Cards

The 65816 in the current Apple //GS runs at approximately 2.7 MHz. This is 2.7 times the speed of previous Apple //s, but many users find that it is still too slow. A faster processor into the motherboard of the //GS has no effect, because the clock and the other components on the board restrict the speed to 2.7 MHz.

There are two solutions, either redesign the //GS or add an accelerator card. Currently, only the Transwarp GS is available (from Applied Engineering), but ZIP technology apparently demonstrated their GS board at the last ComputerFest (in May).

The Transwarp board is shipped with a 7 MHz processor, replacing the processor on the motherboard of the //GS. This delivers processing speed that is many times faster than a standard GS, but the processor must still slow down to 2.7 MHz when accessing the RAM on the motherboard of the GS and the memory expansion card.

The beauty of the Transwarp board is that it can be upgraded as faster chips become available (up to about 14 MHz). Upgrades up to 10 MHz can be made by simply replacing the processor and the clock crystal, while faster upgrades require faster static RAM chips on the Transwarp board.

Western Design Center (WDC) can currently ship 10 MHz processors, and 14 MHz processors (requiring a 6 volt power supply) in small quantities. Another company, ASIC Enterprises, has recently entered the market, and apparently has 68x16 processors capable of running at 18 to 24 MHz in production.

If they are successful, we are likely to see 14 MHz Transwarp cards immediately, and hopefully the introduction of the ZIP GS or a Transwarp GS II that can push the speed of the GS even further.

Enhancing The Instruction Set and the 65832

Bill Mench, designer of the 65816, has a dream of an enhanced 68016 that he calls the 6832. It would be fully pin compatible with the current 68016, and offer a larger and more powerful instruction set.

Bill Mench deliberately left one instruction (WDC) unused in the 68016 instruction set, so that 16 bit instructions could be implemented, thus adding up to 256 new instructions.

If such a chip was installed into a current //GS, or an accelerator card such as the Transwarp, there would be no immediate gain in performance. The benefits would only be seen in new software, written to take advantage of the new, more powerful instruction set.

For example, some low level operations, such as integer multiplication, currently take many machine instructions, and would probably be implemented as single instruction on the 65832. Features that would be likely in the 65832 include:

- Integer multiplication and division.
- Faster block move instructions (taking 3 cycles
These chips have two data lines and two sets of address lines, thus enabling video hardware and programs to access video memory simultaneously. Using these chips, programs could access video memory at full speed, and the video hardware could continue to read from it at 1 MHz.

Unfortunately, the video subsystem is not isolated sufficiently for it to be replaced by a third party product. This means that such an enhancement would either be expensive, or require a redesigned motherboard from Apple. The main advantage of such an enhancement, is that almost all software, including system software such as the Finder, would benefit from it.

It would be an essential feature in a new /GS, if such a machine ever eventuates.

Next Month
Part two of this article will investigate changes to the 65816 that reduce the number of machine cycles taken for each instruction, thus improving the performance of all existing and future /GS software. These changes include additional pipelining in the instruction set and a wider (16 bit) data bus for the 65816.

Removing the Video Bottleneck
The video hardware carried over from previous Apple //s requires access to the video RAM at 1 MHz. In order to cope with this, the //GS slows down to this speed whenever writes are required to video RAM.

This seemed quite a clever design at the time, but it has turned out to be a real bottleneck in the //GS system. Even with system software 5.0.X, the user interface of the //GS is simply not as responsive as it could be.

The solution to this is to use special RAM chips known as dual port video RAM, or VRAM.

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Apple 2 Software
July & August

AUG 112 - Sides 1 and 2 - EAMON ProDOS

The famous EAMON adventures returns (again) in ProDOS form. This disk contains the first of a number of disks that will be issued in the coming months. Some time ago a number of the adventures were updated by Bill Geltos and issued on a 3.5in disk (A1) these are coming from the Big Red Computer Club and will include another version of the Master Disk and a Graphics-based Main Hall and Practice Arena - these two should be available in the September software release. For those of you who have never played EAMON before, the complete Player Manual will be issued at the same time. There are enough instructions on this current release to allow you to enjoy this sample.

EAMON adventure games work on any Apple II with 64K. You must first run the Master Disk (AUG 112 - Side 1) and from there you can go on to an adventure. Side 2 contains the Beginners Cave and is entered by turning the disk over to side 2 and typing in the pathname /EAMON/BEGINNERS.CAVE.

These ProDOS versions will not work with the older DOS 3 3 Master Disk.

AUG 113 - Side 1 - Publish It2 Project Dsk. Cynthia Field, Columnist for Incider Magazine has released a Publish It2 Project Disk as a shareware offering, as a means of introducing her series of lowcost Publish It2 Desk Top Publishing Activity Disks.

This disk is intended to teach people how to get more out of using Publish It2. Included are fonts, graphics, and step-by-step instructional files.

Using this disk one will learn how to install/de-install fonts and learn how to avoid horizontal scrolling. By following the examples, users will be able to create 5.25in diskette protective sleeves, complete with a reference guide to Publish It2 and Quick Key commands, and customised letterhead stationery.

This disk will help any Publish It2 user to gain a better understanding of some of the intricacies of Desk Top Publishing. It requires Publish It 2 to run.

AUG 113 - Side 2 - ProDOS Games Disk.

This disk contains 12 games written in Applesoft BASICS. There is a good mix here, including strategy games, card games, adventure games, maze games and board games. Card or dice games include UNO, Greed, Superdice, and YAHTEE. A Baseball related adventure, a game that takes place at Candlestick Park during a ballgame is also included.

There are versions of Checkers and a 3-Dimensional game of TIC-TAC-TOE.

MAROONED is an educational game designed to teach about the Solar System. DAMEKS, OIL and DELECTO are all games that require Strategy to win.

Of all the games only RAT MAZE lacks instructions. Use LEFT and RIGHT ARROW Keys to turn and SPACE BAR to move FORWARD. Press ESC for a Top Down View of the MAZE.
This double-sided data disk contains clip art for use with Publish It, Superfonts or other programs capable of working with double hi-res graphics.

All of the files on this disk have been converted from Public Domain Macintosh graphics. This disk contains clip art related to the months of May, June and July. It includes Fourth of July graphics, summer scenes and flags.

This double-sided data disk contains clip art for use with Publish It, Superfonts or other programs capable of working with double hi-res graphics. All of the files on this disk have been converted from Public Domain Macintosh graphics. The theme of this disk is animals. It contains graphics of rabbits, elephants, birds, bugs, and many other animals.

For those of you who do not have a 1.5in drive and cannot download the fonts from the IIGS disks, these are for you. Accompanying this disk on side 1 is the change font program so if you are using Publish It then use this program to change the font type - if you are using Superfonts then you will not care what the font type is.

Fonts on side 1 are: Andover.9, Anglican.18, Athinai.12, Bombay.12, 24, Boston.18, Canterbury.14, Circuits.14, Clairvaux.10, 12.14, 18, 20, and 24.

On side 2 the fonts are: Clairaix.28, 36, 40, Columbia.9, 10, 12, 14, 18, 20, 24, Cream.10, Dethek.12, 24, Diacritics.9 and .12.

Each side of this disk is filled with the popular PS Graphics and is presented using two different forms of PS Viewer. The list of pictures is too long to detail (there are 94 graphics on side 1 alone). Side 2 contains 25 borders as well as more graphics.

This is a DOS 3.3 utilities program put together by Roger Wagner and is a series of program enhancers. There is Chart N 'Graph Toolbox; Video Toolbox; Database Toolbox; and the Wizard's Toolbox. Description and explanation come with each routine. If you are creating your own programs this one is a must!

This is a ProDOS shareware program that uses the Beagle Compiler. The program is menu-generated and has instructions built in. Its function is to present a number of stories on screen in large text that young children can read with ease. A useful program for the Infants School.

This one is also ProDOS shareware. Developed by Glen Bredon, there are comprehensive instructions available on two text files on the disk (Calc.Doc and Calc.Doc.2). There are 96 blocks of text in these two files - make sure you read them first or you may be reverse polished!

IIGS Software

GS46 - Tonight's Sky
GS46 is a disk that will be of value to anyone interested in astronomy or space exploration. Included are several planetarium programs, several Appleworks files describing some recent achievements of both the USA and USSR space programs, a program that demonstrates orbital mechanics and an update of the classic Lunar Lander which uses a IIGS SHR digitised photograph from the lunar surface as a backdrop.

There are two versions of Tonight's Sky on the disk, one is IIGS specific and displays the night time sky in SHR, and one which can be used on an enhanced Apple Ile, etc, which displays the sky in double hi-res.

GS47 - Desk Accessories
GS47 contains numerous programs, files and patches that allow any IIGS user to customise their desktop. Supplied are updates to older programs, and many brand new utilities designed to take advantage of System Disk v5.0.2.

Desk Accessories are programs that can be called up from within application programs such as Appleworks GS. New Desk Accessories (NDAs) are only available while running GS/OS applications, but Classic Desk Accessories (CDAs), once installed, are available from within any ProDOS 8 or GS/OS program. Supplied on this disk are Desk Accessories that are Paint Programs, Area Code references, Text File Readers, Word Processors, Screen Inverters, Alarm Clocks, Screen Blankers, Joystick Calibrators, Desktop Colour Modifiers, Memo Pads, Calculators and several utilities for Hard Disk users, including a full complement of SCSI formatting aids that will allow your drive to operate more efficiently and faster.

A useful INIT file expands the 2K built-in print buffer on the Imagewriter to either 32K or 64K.

(See our Macintosh programmers converters this for use on the MAC - or does it already exist?)

GS48 - GIF Files
GIF, or Graphic Interchange Format, is a type of file developed by Compuserve Information Network, that allows users of different non-compatible computer systems to share graphics with each other.

Included on this disk are over 75 graphics that can be viewed by any Apple Ile, Ilc, or IIGS. Although the majority of these graphics were created on the IIGS the ones here have been chosen because they look fine at any resolution.

Two GIF decoders are supplied. SHR Convert is a shareware program for the IIGS, GIFIF is freeware and works on any Apple.

GS49 & GS50 - Sound Smith Files
Sound Smith uses synthesized instruments that are in the standard ASIF format, making it easier for those who own sound digitisers, such as Future Sound or Audio Animator, to create additional instruments in minutes.

The program requires 1.25 megabytes, and System 5.0 or higher and will not run on a single 3.5in drive without modification of the System Disk. Elsewhere in this issue should be the fix for this problem.

GS49 contains 9 music files including Amegas, Behind, Blizzard, Cambodia, Duggar, End Theme, Garcon, Moments in Love, and S114.

GS50 contains 7 files. These are Axel F, Big in Japan, Forever, Jungle 2, File23, File35, and File42.
August

GS51 - Sound Smith Files

Sound Smith uses synthesized instruments that are in the standard ASIF format, making it easier for those who own sound digitisers, such as Future Sound or Audio Animator, to create additional instruments in minutes.

The program requires 1.25 megabytes, and System 5.0 or higher and will not run on a single 3.5in disk system without the fix to the System Disk written up in July's Application.

GS51 contains 8 music files; these are S118, Still, Jigsaw, Blue Monday, Impact, Nothing, Impact6, and Sarcochaser.

GS52 - Guadalcanal

This freeware game is probably the most richly detailed computerised war game ever developed. Written over a five-year period, it simulates the events that took place in the Pacific theatre in 1942. It is a two person game, playable in person or over a modem. It pits an American Admiral against a Japanese Admiral, with each Admiral commanding all the forces that were available at that time, including 170 naval vessels, hundreds of aircraft, and about 50,000 troops.

Complete instructions are provided. The game combines graphics and text quite nicely. Several different scenarios are provided.

Guadalcanal requires a 128K enhanced Ile, IIC or IIGS, and a 3.5in drive.

GS53 - Shareware Games

This disk contains two wonderful shareware games for the Apple IIGS - One Armed Battle, and Mage Maze.

One Armed Battle is a 1-4 player, 6-reel slot machine game. The game contains many humorous digitised sounds, and if a stereo card is attached to the IIGS it will playback in stereo.

Mage Maze is a richly detailed IIGS maze game. Each maze has 10 levels, and contains traps and doors that lead nowhere. All that is displayed on the screen is a compass, and an animation that charts the player's travels through the maze. There is also a module which allows you to create your own maze.

GS54 - Dave Hill's Shareware Disk

This disk contains several updated versions of Dave Hill's classic shareware programs JumpStart and Alarm Clock CDA, as well as two Public Domain Desk Accessories, Area Code CDA and MouseTrap CDA.

Area Code CDA lists all telephone area codes by two methods. One is in numerical order and the other in alphabetical order by State name. It automatically installs when the disk is booted and is useful for those who use the phone for long distance calling.

MouseTrap Classic Desk Accessory allows the keyboard to be used, rather than the mouse, with GS/Os specific programs. This CDA can be used by those people whose mobility is impaired and/or who cannot grasp a mouse. This makes this CDA a particularly important device for use with the disabled.

GS55 - Desk Accessories and Utilities

Several useful utilities are included on this disk for those of you who telecommunicate. NuPak GS allows one to un-ack Macintosh files that have been packed by StuffIt. Resource Spy allows you to take Mac Fonts and Icons that you have downloaded, and convert them to Apple IIGS format.

The Desk Accessories include one to format a disk while in a program that does not have this option, and several that will allow to copy files or view text files from within other programs. There are several that give added control over an Imaginator, a DA that lets you see what any font looks like, and many other useful DA's including one that is a Tetris-like game.

Dear Sir,
I have been a Mac owner for less than a year & am a newish member of the AUG.

Tonight, after about four hours typing some text in Word 4, I experienced my first DISASTER!

On returning to the Mac after answering the phone - BLANK SCREEN (well almost) and the cursor wouldn't open anything!!

I phoned Steve Hill whose name appears in the Phone Service Directory and he was WONDERFUL!! Although he could not figure out what had happened, or how - we managed to avert disaster and with Steve's guidance, I retrieved what I had been working on (lucky I had just saved before answering the phone).

Thank you AUG - thank you Applications - And THANK YOU Steve Hill.

D.M.

Cooge

You are more than welcome D.M. - glad we could be of assistance. Ed

The following are extracts from two letters - one from our Mac SYSOP and the other the reply he received.

To Claris Corporation
From Richard Kempe
Attention Mr R. Russell

Dear Sir,
When visiting a friend recently I had the opportunity to "audition" FileMaker II and I thought I would write and let you know how much I was impressed by your programme.