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Releasing the power to everyone.

Apple rediscovers the Apple II

It's been a long, lonesome four years for Apple II enthusiasts, but now that Apple has succeeded in business with its Macintosh line, it is readmitting to and recommitting to the Apple II. Apple demonstrated its born-again Apple II attitude at September's AppleFest in San Francisco with major new product announcements; with a confession from Apple's president, John Sculley, about Apple's treatment of the Apple II; and with a commitment to continue investing major research and development dollars in the Apple II family.

New product introductions included GS/OS, the 16-bit operating system written specifically for the Apple IIs that we've been waiting for, and the IIC-Plus. You'll find a major article on GS/OS later in this issue of **Open-Apple**.

The most striking feature of the IIC-Plus is its price. Just a week after Apple announced price increases on most of its products, it introduced a new, more-powerful IIC at a price 15 per cent less than the previous model. The suggested retail price on the IIC-Plus is \$675, down from \$799 previously. Sculley predicted that a IIC-Plus color system (including the AppleColor Composite Monitor at \$429 suggested retail) would have a street price under \$1,000.

The IIC-Plus also includes a built-in Apple 3.5 drive (not UniDisk 3.5), an accelerator that allows the computer to run three to four times faster than the previous IIC, and changes that make it more compatible with other Apple products, such as a slightly redesigned keyboard and mini-DIN-8 serial connectors.

The power supply "brick" is now built into the computer. You can plug the IIC-Plus directly into a power outlet. (Unfortunately, you can't plug the IIC-Plus into a car's cigarette lighter, as you can the old model, but since not more than half-a-dozen people besides me have ever done that, it's probably not a great loss.)

The IIC-Plus has internal connectors for a memory expansion card and for a modem. The memory expansion connector is different from

the connector in the previous Apple IIc—Apple's own IIc memory expansion cards will not work in this computer. Furthermore, Apple does not intend to produce a memory card, a modem, or a flat-panel display for the IIc-Plus, but will leave development of these products to the third-party community.

Up to three additional drives can be connected to the IIc-Plus SmartPort connector. These can be a mix of Apple 3.5, UniDisk 3.5, or (one or two) 5.25 drives. A SmartPort-compatible hard disk for the IIc was also introduced at AppleFest by Chinook Technology.

The IIc-Plus weighs in at 7 pounds (3.2 kg).

I thought there were serious tones of rapprochement in John Sculley's AppleFest keynote speech. I liked Sculley's speech so much I've decided to print an edited and abridged transcript:

Apple II users were and are very special kinds of people. They've always been pioneers. They were among the first to see the importance of integrating personal computing into their daily environment....

There's such an incredible range of things that you can do with an Apple II. Remember Barney Clark, the courageous man who struggled to stay alive with an artificial heart? He did that with the help of an Apple II, which managed his artificial heart. You know that an Apple IIc has made it all the way to the top of Mt. Everest, carried through that perilous climb. Remember the Voyager, the plane that flew non-stop around the world? Dick Rutan, who designed that plane, did it with the help of an Apple II.... And when America returns to space with our next shuttle mission, Discovery, there'll be an Apple IIc on board.... No computer in the world has inspired a greater range of user-driven applications than the Apple II....

I have a bit of a public confession to make to all of you. But I'd like to give you some perspective first. In 1985 we at Apple were in a crisis of corporate survival. We had to prove that the Macintosh could succeed in business. We had to deliver the Macintosh Plus in 1986 to deliver on some missing promises. The Macintosh SE and the Macintosh II have achieved our original Macintosh vision and the momentum is very strong. Competitors are in some confusion today with bus wars, with interface wars, and with standards wars.

Yocam to give just one more year

In early October Apple announced that Del Yocam has decided to leave Apple on his tenth anniversary with the company in November 1989. During his final year with Apple, Yocam will continue as president of Apple Pacific.

The Apple Education group, which Yocam has headed since mid-August (see October, page 4.67) is being moved under the Apple USA division, headed by Allan Z. Loren. Loren has created an Apple USA Marketing group, which includes three separate U.S. marketing organizations—Education, Business, and Channel—as well as Apple's Marketing Communications group. David Hancock, previously vice president of Apple Pacific, has been promoted and appointed to lead this group as senior vice president of marketing, Apple USA, reporting to Loren.

Loren also announced the creation of two new geographic units in the Apple USA Sales group, reporting to Charles M. Boesenberg, senior vice president of sales, Apple USA. As a result, five units now constitute the division's field organization: Northwestern (William B. Coldrick, VP: Northern California, Washington, Oregon, Idaho, Northern Nevada, Montana, Alaska, Utah, Wyoming, Colorado), Southwestern (Southern California, Southern Nevada, Arizona, New Mexico, Hawaii), Central (James J. Buckley, VP: Illinois, Michigan, Indiana, Ohio, Kansas, Minnesota, Iowa, Missouri, Wisconsin, Kentucky, West Virginia, Nebraska, North and South Dakota), Southern (Georgia, Florida, Texas, Oklahoma, Arkansas, Louisiana, Tennessee, Mississippi, Alabama, North and South Carolina), and Northeastern (Harry D. Copperman, VP: New York, New Jersey, Pennsylvania, Connecticut, Massachusetts, Virginia, Delaware, Maryland, Rhode Island, New Hampshire, Vermont, Maine). These groups are responsible for all sales, support, service, field reseller, and field marketing activities in their regions. In addition, Apple USA's Channel Sales (Godfrey Sullivan, director), Federal Systems (Lloyd Mahaffey, director), and Product Distribution (Steven Acers, director) groups now report directly to Boesenberg.



But to make the Macintosh a success we took our eye off of the Apple II. And we did it intentionally. That shifted the burden of responsibility to a few key Apple II champions inside our company. And it shifted the responsibility to K-12 education people. And it shifted responsibility to developers and to user groups and to enthusiasts. This was a pretty lonely time for many Apple II lovers.

It was a crucial time for us. We had to change the perception that Apple was just a home computer company. Therefore, we focused the Apple II on education, both in the schools and in the home. We did this even as users and developers continued to use and create Apple II applications for the home office, for small business, for home productivity, for entertainment, for music, and for desktop publishing....

Apple II is over a billion dollar business for Apple Computer. In fact, its sales are larger than all of Sun Microsystems's sales worldwide. There are over 4.5 million Apple IIs out there in the installed base. That's about two times the number of Macintoshes in the world. We have a 60 per cent share of market in K-12 with over 6,500 Apple II computer clubs in schools. We are the leading brand in the home with over 650 user groups. There are great Apple II loyalists, both in the user and in the developer community. And AppleFest attendance grows each time this event is held....

People who have done research on the home computer industry estimate that there is about 19 to 20 per cent penetration of home computers today. By 1992 that is expected to increase to approximately 30 per cent. There is a bright future ahead for the Apple II in homes....

The Apple II is alive and well. It has a distinct group of core loyalists with a following that is very broad in interest from small business, to entertainment, to education, to home office, to home productivity. I think what you will see here at AppleFest will be living proof of just how exciting the future is for the Apple II.

Let me reach down and rescue one other important paragraph that fell on the floor while I was editing Sculley's speech...ah, here it is:

These two major new product announcements are just the beginning. We expect that the IIC-Plus is going to get very strong reports from third-party developers of both hardware and software. We expect that there will be more enhancements to GS/OS in the future. And we are still working on more Apple IIs. In fact, we expect to be able to introduce another Apple II between a year and 18 months from now.

As I mentioned earlier, Apple increased the prices of a number of its products, including the Apple IIs, on September 12. The price of the IIe was left unchanged. With the drop in the price of the IIC, Apple's products line up like this, suggested-retail-price-wise:

item	new price	old price	% chg
Apple IIC-Plus	\$675.00	\$799.00	-16%
Apple IIe	\$829.00	\$829.00	0%
Apple IIgs	\$1,149.00	\$999.00	15%
Apple Monochrome Monitor	\$159.00	\$129.00	23%
AppleColor Composite Monitor	\$399.00	\$379.00	5%
AppleColor RGB Monitor	\$599.00	\$499.00	20%
Apple 3.5 Drive	\$429.00	\$399.00	8%
Apple 5.25 Drive	\$329.00	\$299.00	10%
Apple IIgs Memory Expansion Card	\$229.00	\$129.00	78%
Apple II 256K Memory Kit	\$159.00	\$69.00	130%
IIC-Plus Monochrome System	\$859.00	includes \$25 Monitor Stand	
IIC-Plus Color System	\$1,099.00	"	
Mac-Plus Monochrome System	\$1,799.00		

Notice that the entry-level IIC-Plus monochrome system costs less than half than the entry-level Macintosh system. Geeze, you can buy an Apple 3.5 drive and get the rest of the IIC-Plus thrown in for less than \$250. It appears to me that Apple has finally decided to attack the IBM clones in the home market, and that its weapon of choice will be the IIC-Plus. A sneak preview that Sculley gave his keynote audience of one of Apple's fall television commercials confirms this—Apple is once again aiming the Apple II at individuals rather than at kids.

Exhibit space at AppleFest '88 in San Francisco was more than dou-

bled from the year before and attendance was 26,000 people, a 17 per cent increase from last year. I got to be an attender rather than an exhibitor for the first time. I personally found this AppleFest far more exciting and inspiring than the previous two—perhaps because of my status as an attender, but probably because more exciting and inspiring things were happening. Here are a few highlights in addition to GS/OS and the IIC-Plus:

A new generation of data projection panels was being used in all the seminar rooms and being demonstrated in a number of exhibitor's booths. These panels allow you to use an overhead projector to enlarge a computer screen's image so that a roomful of people can see it. The panel lays on top of the overhead projector and is connected to the video output of the computer. The panels being demonstrated all enlarged readable, 80-column monochrome text easily. Some claimed to do color, but the result was imperfect, as was the result of enlarging IIGs Super High Resolution graphics. Four different manufacturers appear to be making these panels—a number of different companies are buying from the manufacturers and putting their own brand names on the products. Prices seem to run from about \$600 to \$1200. Schools will snap up thousands of these.

I had the opportunity to meet the president of Claris, Bill Campbell, at a press breakfast, so of course I immediately asked him why publications were always quoting him saying that Claris is a Macintosh software company. His response was that Claris is an Apple software company, but business reporters are always asking him if Claris will produce any MS-DOS software. He said the 'Macintosh software company' remark sometimes slips out in response to that question.

In a speech at the breakfast, Campbell said he was aware that there has been some doubt in the Apple II community about how committed Claris was to the II. He said Claris decided to erase that doubt with results rather than with talk, and pointed to the acquisition of StyleWare and the upcoming AppleWorks GS as results that should begin to make Apple II users believers. I have to admit, it has worked with me. While I'm still not convinced that Campbell and company had serious plans for the Apple II when Claris was launched, I am convinced that they've since figured out just how important the Apple II is to their future.

Two nice features of Claris are its commitment to customer support and to upgrade paths for customers. Claris sends its registered customers notification of upgrades by mail. If you aren't registered with Claris, either because you didn't send in the registration card or because you bought your software in the days of the Apple box rather than the Claris box, here's a list of upgrades currently available:

from	to	price
AppleWorks (v1.x)	AppleWorks 2.1	\$75
AppleWorks (v2.0)	AppleWorks 2.1	free
Apple Writer	AppleWorks 2.1	\$75
MultiScribe	AppleWorks 2.1	\$169
MultiScribe GS	AppleWorks 2.1	\$149
AppleWorks (v1.x)	AppleWorks GS	\$169
AppleWorks (v2.x)	AppleWorks GS	\$99
Apple Writer	AppleWorks GS	\$169
MultiScribe	AppleWorks GS	\$169
MultiScribe GS	AppleWorks GS	\$149
AppleWorks 10-pack	AppleWorks Network	\$195

(education customers only)

If you just skimmed that list, go back and notice that you can upgrade either *Apple Writer* or *MultiScribe* to either *AppleWorks 2.1* or *AppleWorks GS*. If you're not registered with Claris, you can find out how to get registered by calling 800-544-8554 (or 415-962-8946) between 8:30 and 5:30 Pacific time. The free *AppleWorks 2.0* to *AppleWorks 2.1* upgrade program has a new deadline of December 31, 1988 (see our September issue for more information). *AppleWorks 2.1* sells for a suggested retail price of \$249; *AppleWorks GS* for \$299.

All you old Applesoft hackers who have moved up to the IIGs should give some consideration to also moving up to *Micol Advanced Basic*, which was also introduced at AppleFest. What I like about this program is that anyone who knows Applesoft can sit down with it and

have a simple program running in less than half-an-hour. There's almost nothing new to learn to get started. This just isn't possible with any of the other IIgs programming languages I've seen. Just start it up—you are in a full-screen editor. Write your program using the Applesoft commands you already know (with or without line numbers) press open-apple-K(ompile), and your program is compiled, linked, and executed. If there's an error in the program that prevents it from being compiled, you are given a message and returned to the editor at the point of error.

Yet, on the other hand, *Micol Advanced Basic* doesn't have any of the many limits of Applesoft. It runs under GS/OS and can use the full 8 megabytes of IIgs RAM. It has all kinds of stuff you can't find in Applesoft: named procedures with parameter passing, structured loop commands, a CASE statement, a PRINT USING command, and support for strings up 1,023 characters long. There's no license fee to distribute your own programs, and it isn't copy protected.

Micol Advanced Basic provides full access to the IIgs toolbox, but if your goal is to write "desktop" programs, you'd probably do better with one of the ORCA packages from ByteWorks (the best prices are from APDA). However, if you're a weekend programmer who wants to escape the many limits of Applesoft and take advantage of the full power of the IIgs, I have yet to see a better programming language for you than this one (\$145, Micol Systems, 9 Lynch Rd, Toronto, Ont M2J 2V6 Canada 416-495-6864).

I bought a copy of Roger Wagner Publishing's *SoftSwitch* (\$59.95) at AppleFest. While we have the opportunity to see review copies of a lot of software (including an early version of *SoftSwitch*) here at **Open-Apple**, there are very few programs that we actually end up using regularly. *SoftSwitch* is one of those few, so I thought I should pay real money for the latest version.

SoftSwitch allows you to startup several different programs at once on an Apple IIgs and switch between them with a few keystrokes. I almost always have my IIgs running with AppleWorks in the first *SoftSwitch* workspace, a communications program in the second workspace, and Applesoft or a disk utility in the third.

We had some animated discussions about *SoftSwitch* here in **Open-Apple** last year (July 1987, pages 3.41-3.42; September 1987, page 3.62). The current version of the program (v8.9) answers the few complaints I had about the program then and adds other enhancements as well. The battery RAM "copy protection" scheme has been removed from the current version. And it is now a true Classic Desk Accessory that lives in the DESK.ACCS subdirectory. As such, it can be used on a IIgs without booting GS/OS or ProDOS 16 if you have a program such as Roger Wagner Publishing's *P8CDA* (see "Loading Desk Accessories," June 1988, page 4.38).

Other enhancements are an increase in the number of available workspaces from three to nine, use of and support for the Super High Resolution screen, a "fast path" option that takes you straight to *SoftSwitch* when you press open-apple/control/escape, and the ability to capture text screens as text. Remaining limitations are that it won't switch ProDOS 16-GS/OS programs (you can run a ProDOS 16 program in one of the workspaces while any ProDOS 8 program—except AppleWorks 2.x—is suspended in another workspace, however, you have to quit back to ProDOS 8 before you can switch in another workspace.)

Wagner's company also introduced two other new products, *MacroMate* (\$49.95), a Igs universal macro desk accessory, and *HyperStudio* (\$124.95), a HyperCard-like product that takes full advantage of the sound and color capabilities of the IIgs. *HyperStudio* should ship before the end of November and when it does it will come with a microphone, a speaker, and a small sound digitizing card that gets its power from the Igs fan outlet, rather than take up a slot. The software will include sound editing tools as well as much of HyperCard's power on the Macintosh, although it will not include a programming language. (Roger Wagner Publishing, 1050 Pioneer Way, Suite P, El Cajon, CA 92020 619-442-0522.)

The **Apple Programmer's and Developer's Association** booth was a busy place at AppleFest. With the release of GS/OS, APDA has a number of new products:

Apple IIgs System Disk 4.0	\$13.50 + 1.00
2 disks and 106 pages of release notes	
GS/OS Reference, Volume 1, Beta Draft	\$24.95 + 2.13
disk with GS/OS exerciser, 352 pages	
Apple IIgs Toolbox Reference Update, Beta Draft	\$14.95 + 1.44
216 pages of new toolbox information	
Apple Programmer's Workshop v1.0.2	\$100.00 + 3.38
Host shell & assembler, 2 disks, 600+ pages	
v1.0.2 update for versions prior to 1.0	\$30.00 + 3.38
v1.0.2 update for indexed v1.0 and later	\$10.00 + 0.41
APW C v1.0.2	\$75.00 + 1.50
v1.0.2 update for versions prior to 1.0	17.75 + 1.50
v1.0.2 update for indexed v1.0 and later	\$10.00 + 0.44
Apple IIgs Source Code Sampler, Volume 1	\$18.75 + 0.75
Source code examples from Apple Developer Tech Support	

Breaking the incompatibility barrier: An introduction to Apple's GS/OS

Almost five years ago, I wrote an article for *Softalk* called "Breaking the Floppy Barrier: An Introduction to Apple's ProDOS". It explained why Apple had developed ProDOS and what the new operating system's ramifications would be (January 1984, pages 112-118). I think its first few paragraphs lend some historical perspective to Apple's September introduction of GS/OS, the new operating system for the IIgs—easily the most significant new goodie announced at AppleFest.

The Apple II is, above all else, flexible. It rides the space shuttle and it plays arcade games. It talks to other computers, big and small; it controls industrial machinery; it helps first-graders learn.

Along with its flexibility, the Apple II has plenty of power for applications such as word processing and financial modeling. And since all its power is dedicated to a single user, the Apple's response time is usually faster than that of larger, multiuser computers.

More powerful than a locomotive, faster than a speeding bullet, able to leap tall competitors in a single bound...is there anything an Apple II can't do?

Well, there used to be. And it was a major weakness. The first thing most people expect from a computer is the ability to organize large amounts of data. But keeping even moderately sized inventory, mailing list, or accounting files on an Apple has always been very difficult.

The Apple II, remember, was born in a garage. Its designers' primary goal was to develop a computer that individual people could afford to own; one of the things they clearly could not afford in 1976 was high-capacity computer storage devices. Thus, the primary storage device used with early Apples was the cassette tape recorder.

Later, the built-in flexibility of the Apple was called upon to support floppy disks. A disk operating system was developed, modified a few times, and ultimately named Apple DOS 3.3. In short order it became the most widely used disk operating system in the world.

DOS 3.3 was optimized for 5.25-inch, single-sided floppy disks and for individual, nonprofessional computer users. It remains the best disk operating system anywhere for computer systems using one floppy drive.

But the times, they keep a-changin'. Nowadays, high-capacity disk drives are no novelty. And nowadays, using ProDOS, the Apple II's newest disk operating system, the flexible little Apple II can quickly and easily handle files containing more than 16 million characters of information. This is the equivalent of more than 114 DOS 3.3 disks in a single file.

The floppy barrier has been broken. What people will do with Apples now will amaze us all....

Five years after that was written, we have GS/OS, the new 16-bit operating system designed specifically for the Apple IIgs. It is as different from ProDOS as the IIgs is from the IIe. Yet, it's also very similar to ProDOS, as the IIgs is to the IIe.

Similarities include a hierarchical file structure (directories and sub-directories or "file folders within file folders") and the ability to directly use ProDOS disks (no need to CONVERT files from one operating system to another as in the days of DOS 3.3 to ProDOS).

Differences include a maximum volume size of 4 gigabytes, compared to the 32 megabyte limit of ProDOS. Four gigabytes is 4,294,967,296 characters—enough to hold the full text of every issue of **Open-Apple** for 5 million years; enough to store half a dozen copies of a mailing list that includes the name and address of every person in the world who has ever purchased an Apple II. GS/OS is designed to handle this much information in a single file on a single disk, should such a device exist.

Differences include scope. GS/OS is a *full* operating system, able to deal with any type of device connected to an Apple IIgs—including the keyboard, the screen, printers, modems, and devices yet unthought of. ProDOS, on the other hand, is simply a *disk* operating system. It just doesn't deal with character-based devices like keyboards, screens, and printers.

But the most significant difference is that GS/OS, with the help of 'file system translators' or 'FSTs', has the ability to directly use disks originally formatted for *any* operating system.

The incompatibility barrier has been broken. What people will do with Apples now will truly amaze us all...

GS/OS already has FSTs that allow it to use files on ProDOS and High Sierra (CD-ROM) disks. An Apple FST for hierarchical Macintosh disks is certainly forthcoming and an Apple FST for MS-DOS disks is probably a good bet, too. DOS 3.3, Apple Pascal, and Apple CP/M FSTs are third-party possibilities. Apple has even assigned 'file system ids' for DOS 3.2, 400K Macintosh, and Lisa disks, though it's less certain we'll ever see FSTs developed for these outdated operating systems.

FSTs have the potential to make the Apple IIgs the 3CPO of the computer world—remember the golden-skinned robot from Star Wars who specialized in translations? With the right FSTs, you could use the IIgs to copy a file from a 9-track mainframe tape to an MS-DOS disk—and it would be exactly the same as copying a file from one ProDOS disk to another. Application software doesn't need to know or care what operating system a disk was formatted with. The fade on problems associated with disparate storage formats begins here.

Other enhancements in GS/OS are increased speed compared to ProDOS because it is written entirely in 16-bit, rather than 8-bit, assembly language and because it supports disk caching and multiple-block reads and writes. It allows any number of open files (ProDOS has a limit of eight) and any number of devices per slot (ProDOS has a limit of two or, in some cases, four).

'Well-behaved' application software written for the interim IIgs operating system, ProDOS 16, will run without modification under GS/OS. However, applications written specifically for GS/OS will not run under ProDOS 16, which will soon be obsolete. Since GS/OS requires a IIgs and will not run on classic Apples, ProDOS 8 remains the operating system of choice for the II-Plus, IIe, and IIc.

GS/OS is available from several different sources in several different packages. Officially, it's called "Apple IIgs System Software 4.0," which, in addition to the GS/OS kernel and associated files, includes a new version of *Finder* (1.2), a new utility for formatting and partitioning disks called *Advanced Disk Utility*; and a new program to ease the updating of System Disks called *Installer*. All of this stuff no longer fits on a single 3.5 disk, so it's split over two disks, one called /SYSTEM.DISK, and one called /SYSTEM.TOOLS.

Apple is encouraging efforts to make the disks available free of charge from dealers, users groups, and online services. (GS/OS requires a minimum of 512K RAM; IIgs ROM version 01; and if you use an Apple SCSI card, ROM revision C for that card—other brands of SCSI cards may also require a ROM update.)

Apple is also encouraging dealers to sell a \$39 system software package that includes the two disks and, in addition, two books—the *System Disk User's Guide*, and the *System Tools* manual. We haven't seen either of these books yet, so we're not sure if they're as useless as previous Apple user's guides have sometimes been, but we recommend caution. This \$39 package comes free with all new Apple IIgs computers and is available at no charge to users who purchased an Apple IIgs after August 15, according to an Apple press release.

As mentioned earlier, a IIgs System Disk 4.0 developer package is available from the Apple Programmer's and Developer's Association. This package includes the two disks and 106 pages of developer documentation describing bug fixes, additions to the software, and docu-

ments about custom windows and sound tools. APDA also has available a beta draft of the *GS/OS Reference, Volume 1* for \$24.95 + \$2.13. It describes all the application-level GS/OS calls and describes the ProDOS and High Sierra FSTs. It comes with a GS/OS call exerciser on disk. A second volume is also planned that will describe how to bypass the FSTs from GS/OS and access hardware devices directly.

One of the most important concepts IIgs users have needed to understand, even under ProDOS 16, is that of the 'System Disk'. As mentioned here in January (page 3.90), you have to distinguish between disks that have the volume name /SYSTEM.DISK, disks that have the potential to be system disks, and disks that really are System Disks. Here in **Open-Apple**, your 'System Disk' (capitalized) is the disk you booted from.

If you boot from a DOS 3.3 or ProDOS 8 disk, you can remove it from your disk drive, replace it with a disk holding an application program, and run the application. In fact, this is exactly what happens when AppleWorks users are prompted to insert the 'program' disk immediately after starting AppleWorks. DOS 3.3 and ProDOS 8 are loaded into your computer's memory in their entirety when you boot.

On the other hand, with GS/OS, as with ProDOS 16, many modules of the operating system are not loaded at boot time. These modules are kept on the System Disk and are loaded only when they are needed (if they are needed).

GS/OS's use of modules makes it much easier to expand and enhance your computer system. Different kinds of modules are kept in different subdirectories on the System Disk. For example, fonts are kept in a subdirectory on the System Disk called SYSTEM/FONTS. Any font in that subdirectory is accessible to GS/OS programs. Fonts not in that subdirectory are not accessible—even if they are in the SYSTEM/FONTS subdirectory of another disk. They **must** be on the disk you booted from to be used.

In addition to FONTS, you'll find the follow subdirectories inside the SYSTEM subdirectory on a GS/OS system disk: FSTS, DRIVERS, TOOLS, and DESK.ACDS.

Apple currently has three modules available for the FST subdirectory. On your personal System Disk, you only need to include FSTs for the kind of file systems you have connected to your computer. Apple's three current choices are:

Filename	Blocks	Type	Modified	Created	Length	Subtype
...FSTS	1	DIR	18-AUG-88	18-AUG-88	\$200	\$0000
...PRO.FST	42	\$BD	17-AUG-88	17-AUG-88	\$51B9	\$0000
...CHAR.FST	4	\$BD	17-AUG-88	17-AUG-88	\$5AC	\$0000
...HS.FST	20	\$BD	17-AUG-88	17-AUG-88	\$2502	\$2020

PRO.FST is the file system translator for ProDOS-formatted disks. CHAR.FST is the file system translator for character-oriented devices such as the keyboard, screen, printers, and modems. Under GS/OS, character devices are just another kind of file system. HS.FST is the file system translator for High Sierra-formatted CD-ROM disks.

Drivers are the software modules that actually tickle the memory locations that control hardware devices. Again, on your personal System Disk, you only need drivers for the devices you have connected to your computer. System 4.0 comes with the following drivers:

Filename	Blocks	Type	Modified	Created	Length	Subtype
..DRIVERS	1	DIR	18-AUG-88	18-AUG-88	\$200	\$0000
...IMAGEWRTWR	46	\$BB	17-AUG-88	17-AUG-88	\$5825	\$0001
...IMAGEWRTWR.IQ	46	\$BB	17-AUG-88	17-AUG-88	\$581C	\$0001
...LASERWRITER	74	\$BB	17-AUG-88	17-AUG-88	\$90EF	\$0001
...EPSON	45	\$BB	17-AUG-88	17-AUG-88	\$5616	\$0001
...PRINTER	5	\$BB	17-AUG-88	17-AUG-88	\$6DD	\$0002
...PARALLEL.CARD	5	\$BB	17-AUG-88	17-AUG-88	\$662	\$0002
...MODEM	5	\$BB	17-AUG-88	17-AUG-88	\$712	\$0002
...APPLETALK	7	\$BB	17-AUG-88	17-AUG-88	\$B14	\$0003
...CONSOLE.DRIVER	14	\$BB	17-AUG-88	17-AUG-88	\$196A	\$0101
...APPLEDISK3.5	5	\$BB	18-AUG-88	18-AUG-88	\$645	\$0102
...UNIDISK3.5	5	\$BB	17-AUG-88	17-AUG-88	\$62E	\$0104
...APPLEDISK5.25	13	\$BB	17-AUG-88	17-AUG-88	\$1673	\$010E
...SCSI.DRIVER	14	\$BB	17-AUG-88	17-AUG-88	\$1925	\$0131
...APPLE.MIDI	4	\$BB	28-JUL-88	28-JUL-88	\$450	\$0300
...CARD6850.MIDI	4	\$BB	28-JUL-88	28-JUL-88	\$40E	\$0300

Notice that these files all have a file type of \$BB. In the above listing, I've placed drivers with similar subtypes together.

The drivers in the first group are printer drivers. They are used by the IIGS Print Manager when you print from a GS/OS (or ProDOS 16) application. In the 'File' menu of these applications you'll find a selection called "Choose Printer". Select this and a dialog box will appear. With the GS/OS version of the Print Manager, near the top of the dialog box will be a list of all the printer drivers in the DRIVERS subdirectory of your System Disk. Notice that System 4.0 includes an EPSON driver. According to Apple's release notes, "This driver supports the RX, LX, and FX series of Epson printers in 80-column printing mode."

The drivers in the second group are all 'port' drivers. Like the printer drivers, they are used by the IIGS Print Manager. In the middle of the new 'Choose Printer' dialog box will be a list of all the port drivers in the DRIVERS subdirectory of your System Disk. Note that if you are using a parallel Epson printer, you'll have to select the new PARALLEL.CARD port driver.

(I don't show it here, but you'll also find a file in the DRIVERS subdirectory called PRINTER.SETUP. The Print Manager uses this file to remember what printer and port you have selected. If there is no PRINTER.SETUP file in your DRIVERS subdirectory, the Print Manager will create one—defaulting to the first printer driver and the first port driver it finds in your DRIVERS subdirectory.)

The drivers in the third group are all 'disk' drivers. Notice that in order to use a 5.25 drive or a 3.5 UniDisk with GS/OS you have to put the correct driver in the DRIVERS subdirectory on your System Disk before you boot it. The only disk driver already in the DRIVERS subdirectory on the System 4.0 /SYSTEM.DISK is APPLIEDISK3.5. The others are on /SYSTEM.TOOLS. The CONSOLE.DRIVER is used by the CHAR.FST to deal with the screen and keyboard.

The drivers in the fourth group are needed to use a MIDI (music) interface with GS/OS.

Files in the SYSTEM.SETUP and TOOLS subdirectories have been updated with System 4.0, but no new files have been added. Since GS/OS requires a IIGS with upgraded ROMs, the TS1 file from SYSTEM.SETUP, which is used only with original ROMs, has been removed. The files in the FONTS subdirectory have not been changed. The DESK.ACCS subdirectory has a new file, called CACHE.NDA. This desk accessory allows you to modify the maximum amount of memory that will be used by the GS/OS disk cache. If your primary disks are RAMdisks, for example, you should get better performance if you set the disk cache to zero.

GS/OS itself lives in three files, START.GS.OS, GS.OS, and ERROR.MSG. The *Finder* now lives inside the file called START.P8 now comes up as version 1.7.

As with System 3.2, discussed here in August (pages 4.50-4.51), a number of the files in System 4.0 are for AppleTalk network support. If you don't use AppleTalk, you don't need to include these files on your personal System Disk. These include the APPLETALK subdirectory and all the files inside it, all the files in SYSTEM.SETUP except TOOL.SETUP and TS2, and the APPLETALK file in DRIVERS.

The SYS.UTILS subdirectory and the files within it are missing from System Disk 4.0. They are, of course, still present on Apple's ProDOS 8 system disk. System 4.0 does come with two new utilities, on the other hand, the *Advanced Disk Utility*, which allows you to format and partition disks, and the *Installer*, which copies files from one disk to another based on a 'script'.

The *Advanced Disk Utility* (as well as *Finder 1.2*) allows you to format 3.5 disks with either a 4:1 or 2:1 interleave. Heretofore, 4:1 was standard. 2:1 is usually faster with Apple 3.5 drives, usually slower with UniDisk 3.5 drives.

The best way to grasp the concept of interleave is to imagine a merry-go-round. You are standing on the ground giving bags of popcorn to all the riders as they pass—in strict numerical order. If kid 3 is on the horse right after kid 2 right after kid 1, the kids fly by so fast you don't have enough time to reach the next bag of popcorn between kids. Consequently, it takes an entire revolution of the merry-go-round for each bag. If there are 16 kids on the merry-go-round, it will take 16 revolutions to make all the kids happy. If you interleave the kids, though, so that three other kids pass between 1 and 2, you'll have enough time to reach the next bag and get ready. This would be a 4:1 interleave and would require only four revolutions of the merry-go-round to make all the kids happy. If you get real

good at this, you may need only one other kid between 1 and 2. This would be a 2:1 interleave. You'd need only two revolutions of the merry-go-round to make all the kids happy and you'd do it eight times faster than with no interleave at all.

The optimum interleave, however, is an elusive thing. It depends on such things as how fast the disk is spinning, how many blocks or sectors are on each track, how fast the device can accept and spew out data, how fast the operating system can accept and spew out data, and how fast the application software can accept and spew out data. Even if you optimize interleave for the operating system and type of drives you have, you'll find that specific applications send read and write requests to the system at different speeds. An interleave that is very fast for one program/operating system/drive might slow another down. For example, a System Disk 4.0 with 2:1 interleave will boot faster than one with 4:1 interleave on an Apple 3.5 drive, but slower on a UniDisk 3.5. And even with everything else exactly the same, an interleave that is optimized for reading can be terrible for writing.

If your primary interest is GS/OS boot time, the fastest possibility (ignoring RAMdisks and hard disks) is an Apple 3.5 and a 2:1 System Disk (35 seconds). An Apple 3.5 and a 4:1 System Disk takes about 10 seconds longer (45 seconds). On the other hand, the best you can do with a UniDisk 3.5 is with a 4:1 System Disk (67 seconds—about twice as long as the fastest with an Apple 3.5). The slowest boot occurs with a UniDisk 3.5 and a 2:1 System Disk (124 seconds). Based on these timings, the 'optimal interleave' for commercially distributed software appears to be 4:1. There's a slight penalty with Apple 3.5s, but a large gain with UniDisk 3.5s (or maybe we should all sell our UniDisks to IIGS owners?).

The *Advanced Disk Utility* can also do "disk partitioning." This is a subject that has me pretty confused at the moment. I think it's because the words "disk partition" are used to describe several very different kinds of things you can do to a disk.

For example, you can take very large hard disks and split them up into several 32 megabyte or smaller volumes so that ProDOS can deal with them. I think this should be called "volume partitioning."

You can also put a hard disk on a SCSI network with several computers. When you split the hard disk up into distinct areas for each computer, you have what I think should be called "user partitioning."

Then there's the possibility of splitting a hard disk, or even a RAMdisk, into different areas for ProDOS, CP/M, DOS 3.3, Apple Pascal, and so on. This should be called "operating system partitioning."

I'm not quite sure how all these types of partitioning relate to one another, but my guess is that the partitioning the *Advanced Disk Utility* does is volume partitioning. In my limited trials I haven't yet gotten the Partition Button in this utility activated (undimmed), so I don't know for sure.

The *Installer* exists to copy files from one disk to another. As the *Installer's* user, however, you don't have to be smart enough to know which files you want to copy. All you have to do is select the right 'script,' which tells *Installer* what to do. The *Installer* looks for scripts in a subdirectory called SCRIPTS that's on the same disk as *Installer* itself. System 4.0 comes with a number of scripts you can use to copy various sets of files from the System 4.0 disks to your own disks—3.5, hard, or RAM/ROM. The *Installer* can also be used to remove sets of files.

The *Installer* makes it easy for novices to prepare system disks without having to know what subdirectories to create or what files to put where. But it has some extra uses for more sophisticated users like **Open-Apple's** subscribers—for example, why not write your own scripts to load your RAMdisk with various sets of files?

Installer Scripts are standard text files. You can load them into your word processor or AppleWorks (make a New file for the word processor, from an ASCII file) and study them. For example, here's the script from the file called DCIMAGEWRITER:

SCRIPT

V1.00

RR

Direct-Connect ImageWriter

This script installs the files necessary for you to use an ImageWriter II printer connected directly to the printer port rather than through AppleTalk. The selected volume must be a startup volume.\

:SYSTEM.TOOLS-*

This is the Installer script necessary to move the Direct-Connect ImageWriter files from :SYSTEM.TOOLS to the user's startup volume.

~::~Workspace:::

1

System/Drivers/ImageWriter

System/Drivers/ImageWriter

~::~Workspace:::

1

System/Drivers/Printer

System/Drivers/Printer

~::~Workspace:::

1

System/Drivers/IW.Psetup

System/Drivers/Printer.Setup

~::~

If you want to create your own scripts, the easiest thing to do is to modify some of the existing ones.

Every script has to start with a header, which is essentially the part from the start of the file down to the asterisk after 'SYSTEM.TOOLS'. The sections that start with '~::~Workspace:::' are called 'File specification fields'. There can be any number of these.

The header field must begin with the word 'SCRIPT', followed by a

blank line, followed by the minimum version of *Installer* needed to deal with the script, followed by a blank line, followed by a 'Script-Flag'. Possible flags are 'RR', 'RN', 'XR', and 'XN'. If the first character is 'R', it means the installation must go into the root directory of a volume. 'X' means the user must specify the subdirectory where installation should take place. If the second character is 'R', it means the 'Remove' button should work for this script. 'N' means Remove is not valid and the Remove button should be dimmed.

Next comes another blank line and the name of the script as it will be displayed in the *Installer* script selection window. Next comes a paragraph or so of text that *Installer* will display if this script is selected and the user presses the 'Help' button. This section must end with two backslashes, as shown.

The next line is the prefix of the disk that holds the files to be copied. Notice in the above example this line begins with a colon. Under GS/OS, pathnames may begin with a colon as well as with the ProDOS slash. The tilde character marks the end of the prefix. If no prefix is given (only a tilde on this line), the name of the volume from which *Installer* was run will be the source prefix.

The tilde after the source prefix marks the end of the header. Comment and File Specification Fields follow. Comment fields begin with an asterisk, which must immediately follow a field- or header-ending tilde. Comment fields end with a tilde. There is one comment field in the sample script shown here. It follows the header.

File Specification Fields begin with a line that says, '~::~Workspace:::'. The tilde actually marks the end of the previous field, but must be on the same line as the other stuff. The next line must begin with '1', '2', '3', or '4'. These numbers tell *Installer* what to do when the user pushes the Install or Remove buttons.

'1' means that if the user has clicked Install, *Installer* should delete the file named in this File Specification Field's destination pathname (if it already exists) and copy the file named in the Field's source pathname to the destination pathname. If the user has clicked Remove, '1' means to remove the file from the destination disk (if it exists).

'2' is exactly the same as '1', except that Remove clicks are ignored.

'3' is exactly the same as '1', except the file named in the File Specification Field is only deleted from the destination disk—nothing



Ask (or tell) Uncle DOS

The classic toolbox market

A while back, it occurred to me that a marriage of Alan Bird's *Beagle Compiler* and Roger Wagner's *Wizard's Tool Box* routines would be a wondrous thing. Coupling all those fast, labor-saving ampersand routines with a fast, easy-to-use compiler that can take advantage of any available extra memory for variable storage would result in a powerful programming tool. But presently the two are incompatible; ampersand routines must be rewritten to link correctly with the compiler.

I wrote to Alan Bird, who said he would be willing to work with Roger Wagner Publishing to make the two utilities compatible. He suggested I contact Roger Wagner. Roger Wagner's company replied that it had contacted Beagle Bros, and after much discussion, agreed that it was a good idea. However, there are about 300 Toolbox routines that require alteration; each would require a couple of hours work, plus hours of

testing. Roger Wagner feels that there isn't a big enough market to justify spending that amount of time. But, 'this may change, should we get swamped with letters similar to yours.' So, if you have used either by itself, but would prefer to use both, make your feelings known by writing Roger Wagner Publishing at 1050 Pioneer Way, Suite P, El Cajon, CA 92020.

Rick Pedley
Kingston, Ont.

We've always thought the two should work together, but, like Wagner, are not convinced enough people would be willing to pay for new Toolbox routines to make it the project worthwhile. Convince us.

The why of boot blocks

The *Apple IIc Memory Expansion Card Owner's Guide* says that the card must be formatted as a startup disk (ProDOS itself automatically formats it when you turn on the power, but as a data disk) before booting can take place from the memory card. But the manual doesn't say why.

Henry Barr, III
St Louis, Mo.

The difference between a ProDOS 'startup' and a ProDOS 'data' disk is what's in the first two blocks (0 and 1) of the disk. These blocks are reserved for 'boot code', a small assembly language program that is loaded into memory and executed. It knows how to load the rest of ProDOS and get it started.

This usage of the word 'boot', in fact, comes from this process—the operating system kind of pulls itself up by the boot straps; first executing a tiny piece of code in ROM that loads and runs the boot code, which then loads and

runs the operating system.

The IIc's built-in RAMdisk, like other Apple-standard RAMdisks, doesn't automatically put the boot code in blocks zero and one at startup. The reason is simply that the code is about a thousand bytes long and there's no place to save it when the computer is turned off. Most disk-based disk-initialization utilities will put the boot code in the boot blocks as part of the initialization sequence, although some, such as AppleWorks' internal disk formatter, won't.

Applesoft key-ins

I like to key in Applesoft programs. What books would you recommend for someone like me?

Peter van der Raadt
Moose Jam, Sask

You'd probably enjoy *Nibble* magazine (\$26.95/yr/U.S., \$34.95 in Canada, \$39.95 elsewhere). Many of the programs in *Nibble* are reprinted in books called *Nibble Express*. Seven volumes are currently available; 1 & 2 are \$7.95, 3 & 4 are \$17.95, and 5, 6, & 7 are \$19.95 (plus \$3 shipping US/Canada, \$6 elsewhere). Contact MicroSPARC, 52 Domino Dr, Concord, MA 01742 508-371-1660.

See-though tabs don't work

After purchasing a new Apple 5.25 disk drive and satisfying myself that its speed was ok, I tried it out with my favorite copy program—only to be advised to 'write protect original disk'. Well, it already was write protected. A few tests later I had confirmed that my new drive would initialize or save files on write-protected disks!

So...off to the store, where two other drives worked the same way. The conclusion—the

is copied to replace it. This feature can be used when an earlier version of some software included files that a newer version doesn't use.

"4" is exactly the same as "3", except that Remove clicks are ignored.

The following lines can contain any of the following optional flags—one flag per line:

"B" means the file designated by the source pathname holds boot code that is to replace blocks zero and one on the destination volume (must be used with flag "2", destination pathname must be blank). This feature is not implemented in *Installer 1.0*, but the code will be accepted without error.

"U" means to update the file only if it already exists on the destination disk. You might use this option with fonts or desk accessories if you're not sure whether the user has added them to his or her System Disk.

"F" means the file type and auxiliary type of the source file must match the types given in this specification field.

"C" means the creation date and time on the source file must match the creation date entry given in this specification field.

The next line is blank.

The next line is a series of hex digits indicating the file type and aux type. "000400001000" means file type \$0004, aux type \$001000. This line may be left blank if the optional "F" flag isn't used.

The next line is the creation date, as in "10 Jan 88 23:32". Leading zeros in the date should be replaced with space characters. This line may be left blank if the optional "C" flag isn't used.

The next line is the pathname of the source file. It may be either a full or partial pathname; if partial, the prefix given earlier will be used.

The next line is the pathname of the destination file. Only partial pathnames are acceptable—*Installer* sets the prefix to the volume or directory selected by the user.

The script ends with a double tilde.

Finder 1.2, the latest incarnation of Apple's desktop interface, has several improvements. One of the most stunning is the speed with which it can copy multiple files. It continues to be a very attractive program selector and disk maintenance utility for novice users. The *Finder* concept starts to falter, however, as the number of files online mounts. Having to use the *Finder* to copy files from a subdirectory nested three deep on one disk to a subdirectory nested three deep on another disk is like having to open all the windows in the Crystal Pavilion.

There's a paradox here. Apple fell in love with the *Finder* interface back in the days of 140K and 400K disks. The *Finder* metaphor works best with disks this size. But to *implement* the interface well, an operating system is required that's so big it won't fit on small disks. Like today's Macintosh operating system, GS/OS needs a hard disk for efficient operation. But with a hard disk, icons and windows can easily multiply beyond the point of manageability.

I didn't make all this up—I originally got the idea from a speech given by Apple's guru Alan Kay. Kay suggested the solution was to use "agents"—which I understood to be "intelligent" programs that could learn what you wanted and do it for you.

Meanwhile, back in the late-1980s, we already have a really good

alternative to the *Finder*, Glen Bredon's *ProSEL*. Simply rename the file called START on the GS/OS system disk to FINDER, and copy *ProSEL's* START into your System Disk's SYSTEM subdirectory. GS/OS will automatically boot into *ProSEL's* program selector. From there, you can run *ProSEL's* file maintenance utilities as required. *ProSEL* won't sell computers the way *Finder* will, but if what you really want is to be able to use your computer efficiently, it beats the pants off of *Finder*. (\$40, Glen Bredon, 521 State Road, Princeton, N.J. 08540)

Miscellanea

The winter 1988/1989 edition of the Sybex Computer Blue Book is hot off the press and we have it for sale (\$12.95). The book gives the suggested list price, four regional "street" prices, the wholesale price, and the used price of thousands of items—computers, add-on hardware, and software packages. The Apple II section alone has 27 pages with about 50 items listed per page. If you're interested in buying or selling used equipment, you should have a copy of this one.

Don Elton has upgraded his communications package *Talk is Cheap* to version 3.0 and pulled it off the shareware market. Registered users of the program can get the update for \$10; the cost to new customers is \$40. The strength of *Talk is Cheap* is a very robust "scripting" or "macro" language that allows you to automate its operation. Much of the upgrade enhances these abilities (Carolina System Software, 3207 Berkeley Forest Drive, Columbia, SC 29209).

Connect your IIGs to an analog-RGB compatible TV with the help of the folks at Redmond Cable (17371-A1 NE 67th Ct, Redmond, WA 98052, 206-882-2009). They have a variety of video cables and have figured out that Macintosh II RGB cables and Apple IIGs RGB cables have the same pinout. They have mini-DIN-8 cables and cable extenders. They also have a cable adapter that allows you to use old-style 5.25 drives (with a 20-pin "header" connector) on the IIGs or IIC (make sure you plug the drive in according to Redmond's directions, however, or you'll fry your equipment).

Central Point Software has moved. The new address is 15220 NW Greenbrier Parkway, #200, Beaverton, OR 97006. Sales and information 503-690-8090, Technical Support 503-690-8080, Laser Products 503-690-8086.

Apple has positions available for talented, experienced engineers in the Apple II/IIGs Systems, System Software, and Developer Technical Support Groups. To apply, send your resume to:

Apple Computer, Inc.
Human Resources, Dept PM-CA
20525 Mariani Ave, MS27-B
Cupertino, CA 95014

Totally unsubstantiated rumor department—From InfoWorld's gossip columnist, Robert X. Cringely, October 3, 1988: "Apple has a top secret box called Golden Gate in the works for introduction in late '89. A sort of a cross between the Apple IIGs and a Mac-Plus, this baby will run software for both machines, and looks to be the follow-on for the Plus, which will die in early 1990."

Apple drive has a photoelectric write-protection detector. For some time I have been using drafting tape for write-protect tabs, as it is cheap and comes in a handy dispenser. Like masking tape, it's a little translucent.

I also found that Apple's drives, including those in recent IIC's, can see through the dark red plastic-coated tape I tried as an alternative. Substituting the standard metallic or black plastic tabs that come with disks removed the problem, as did blackening my see-through tabs with a marker. So beware! Any disk that doesn't have a completely opaque write-protect tab is in danger.

C.A. Jarvis
Leavenworth, Kans.

AppleWorks as copier, v2.1

Here's an update for AppleWorks 2.1 to the patch that allows printing 255 copies (October 1987, page 3.71; November 1987, page 3.79):

```
POKE 768,255 : REM up to 255 copies
BSAVE SEG.MI,T$00,A768,L1,B9155 : REM fix DB
BSAVE SEG.MI,T$00,A768,L1,B36202 : REM fix WP
BSAVE SEG.MI,T$00,A768,L1,B66127 : REM fix SS
```

Mark Munz
Ft Lewis, Wash.

AppleWorks on ROM, cont.

In your September 1988 issue (page 4.61) David Ciotti asks for a patch to run AppleWorks from a write-protected drive, in his case, a ROMdisk. Try this:

```
POKE 768,96
BSAVE APLWORKS.SYSTEM,TSYS,A768,B$1835,L1 (v2.0)
or
BSAVE APLWORKS.SYSTEM,TSYS,A768,B$195D,L1 (v2.1)
```

I noticed one problem with this patch that you need to be aware of. When AppleWorks boots up, it saves not only the current date to SEG.PR, but also the current ProDOS Quit code. It then uses the Quit-code memory space for its own purposes.

With the patch, neither the date nor the Quit code are saved if the disk is write-protected, so when you quit AppleWorks, whatever Quit code was in SEG.PR when you write-protected the disk will be loaded and executed.

When I tested this, the last time I had used the write-protected disk was from ProDOS 16. The ProDOS 16 Quit code doesn't work very well if you boot up with ProDOS 8. The moral is,

if you use this patch, be consistent in running AppleWorks from either ProDOS 8 or ProDOS 16.

Alan L. Bird
Beagle Bros
San Diego, Calif.

Dennis noticed that the boot prefix is also saved in SEG.PR, so not only do you need to make sure your ROMdisk has the right Quit code, it may also need to have the right prefix embedded within it or Quit may be unable to find your program selector.

French accents, cont.

Just after reading last month's letter asking how to print French accents from within AppleWorks, I noticed an ad in the October *inCider*, page 114, for a product called *EuroWorks*. The ad says the program allows you to type accented French, German, Italian, or Spanish with the AppleWorks word processor, then, from inside AppleWorks, it will print your text on an ImageWriter or compatible.

Pat Marnett
St. Louis, Mo.

We have no experience with the product, but the ad says one language is \$20, all four are \$30, from S.A. AuTeur Co., PO Box 7459, Beaverton, OR 97007 503-645-2306.

Epson underlining, cont.

The escape sequences for MX-80 underlining are the same as those you gave for other Epson printers ("Print downhill no more," October 1988, page 4.70). However, the "1" and "0" in the codes you gave need to be CHR\$(1) (control-A) and CHR\$(0) (control-@), not the one and zero keys.

To control underlining in *Apple Writer*, enter:

```
underline on
control-V escape hyphen control-A control-V
underline off
control-V escape hyphen control-@ control-V
```

Paul Nix
Summit, N.J.

To embed a control-@ in a document with the DOS 3.3 *Apple Writer IIe* you need a special patch, published here in January 1986, page 1.104. With the ProDOS *Apple Writer 2.0*, control-underline sends control-@. Use it instead.



New MLI command verboten

In the September issue of *Open-Apple*, Douglas Mitton reports that the ProDOS 8 MLI accepts command \$42 and details how to access it. You respond that using this command "is feasible only if you're willing to forgo AppleTalk compatibility forever."

We are extremely disappointed to see you give even a limited recommendation to such a technique. Patching the operating system in a non-standard, unsupported way places any programs running under this patched version of ProDOS in great danger of ruining disks and crashing the system, all for very little benefit.

ProDOS 8 Technical Note #21 will present an Apple-approved method for determining which ProDOS volumes are network volumes. This method depends upon an unmodified command \$42. If AppleShare is not installed, a \$42 command should return a bad command error. (If AppleShare is installed, the note's method will return a list of network volumes). However, if someone has patched their own MLI command for \$42 into ProDOS, the method will instead do unexpected (and probably undesirable) things.

Patching the operating system ties a programmer to a particular version of ProDOS 8, which is also a bad thing. For example, versions of ProDOS 8 before 1.7 do not handle slot 3 in an Apple IIgs in a satisfactory way. A new version of ProDOS 8 Technical Note #15 will address this.

Replacing MLI commands with your own is something that can never be supported by Apple Computer and we strongly urge any programmers to avoid this practice so they won't have to rewrite their programs every time ProDOS 8 is updated.

Matt Deatherage
Apple II Developer Technical Support
Apple Computer, Inc.

What I hear you saying is that Apple Computer considers patching the operating system to be a mortal sin anytime, anywhere, anywhere. My own morals (as my ProntoDOS-past might lead one to believe) are looser and more situational, but I do have an appreciation for Apple's ethic.

No PAL of Australia

I've finally found something to complain about regarding *Open-Apple*.

Why does your editorial style not state the true origin of correspondence from this neck of the woods? In August, for example, you print letters from "Capital Federal, Argentina" and "San Vito Air Station, Italy", but then you have "Mordialloc, Vic." and "Yarrowonga, Vic." with no mention that "Vic." is in the land of Down Under.

I know that Apple Australia often seems to think our states are the fifty-somethingth states of the U.S. My pet peeve with Apple Australia has to do with television standards. Out here our television follows the PAL standard. PAL colour cards were available here for the II-Plus. The original IIe supplied locally was the European version with PAL composite video output.

But for the IIgs and the latest IIe, Apple Australia decided to bring in the U.S. NTSC version, even though a PAL version is being supplied to Europe. They can provide no logical explanation for this decision. We therefore miss out on the opportunity afforded to IIgs owners elsewhere in the world who can connect their video output to their videocassette recorders for making graphic titles using the advanced graphics and animation programs available for the IIgs. Nor can we make the sing-along follow-the-bouncing-ball videos as suggested by Bill Basham as an application of his marvelous *Diversi-Tune*.

I know that a person with a global awareness such as yourself can appreciate the implication here. There are more radical souls than I who would take sufficient umbrage as to send Paul Hogan round to dump a truckload of left-over prawn shells ("shrimps" to you) on your doorstep.

John D. Smyth
Blackburn, Vic.

I can't speak for my pals at Apple, but since the U.S., Canada, and Australia all have "states" and are the three places with the most *Open-Apple* subscribers, I decided some time ago to leave the country designation off of all three of them. I think most of our readers have such a well-developed knowledge of geography that a country designation isn't necessary. For the record, however:

The following are in Australia:

NSW New South Wales
Qld Queensland
SA South Australia
Tas Tasmania
Vic Victoria
WA West Australia
ACT Australian Capital Territory
NT Northern Territory

The following are in Canada:

Alta Alberta
BC British Columbia
Man Manitoba
NB New Brunswick
Nfld Newfoundland
NS Nova Scotia
Ont Ontario
PEI Prince Edward Island
Que Quebec
Sask Saskatchewan
Yuk Yukon
NWT Northwest Territory

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