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Releasing the power to everyone.

Apple announces file sharing, CD-ROM

March was a pretty exciting month in the Apple II world, as Apple announced a new CD-ROM drive and new network products that allow file sharing among Apple IIs using AppleTalk.

The file-sharing system is targeted at the education market. It allows enhanced Apple IIe and IIgs computers to be connected to a Macintosh-based "file-server." Files and programs to be used by networked IIs can be stored on a hard disk (or CD-ROM) hooked to the Macintosh. Other Macintoshes and MS-DOS computers can also be plugged into the network and all computers on the network can share data files.

Files are stored in folders (previously known as subdirectories). AppleShare allows controlled access to files by means of special-purpose folders. A folder can be private, in which case only the owner can see or change the files stored in it; shared, in which case everyone can see the files in the folder (but the owner still decides whether outsiders can change the files); or "drop-box," in which case outsiders can't see what's in a folder but they can copy files into it.

The new network products include one new piece of hardware, the Apple II Workstation Card (\$249), which allows an enhanced, 128K IIe to be plugged into an AppleTalk network. You need one workstation card for each IIe on the network. The card has an on-board 65C02 microprocessor, 16K of RAM, 64K of ROM, and two 8-pin connectors. One connector is for AppleTalk, the other is a super serial port that lets you directly connect the computer to a local printer without additional hardware.

The Apple IIgs already has the equivalent of this card built in. However, internally this "card" looks like a serial port rather than a disk drive. Thus, to use a IIgs with AppleShare you need *Apple IIgs Workstation Software* (\$99, one package per server). This software can be run from a disk drive connected to a IIgs, or it can be stored on the file server itself and started up from there. The software also requires that each IIgs on the network have at least 512K of extra memory installed (768K total).

The rest of the file-sharing system consists of software that runs on a Macintosh Plus, SE, or II. Since each network needs only one Macintosh, you buy just one copy of these programs for each network.

The heart of the system is a software package called *AppleShare File Server 2.0* (\$799). This software receives the requests for files from the networked computers, gets the files off the Mac's disks, and sends them back over the network. To the Apple II user, AppleShare appears to be just another, albeit slow, ProDOS-only disk drive. Accessible files on the drive can be manipulated with standard ProDOS 8 or 16 utilities. The drive is also bootable, so it is possible to have networked Apple IIs without their own disk drives.

In this case, however, the software stored on the file server must be "AppleShare aware." Programs you run from an Apple II's own disk drives can access server-based data files without being share-aware, but programs stored on and run from the server won't work unless they are share-aware. This means none of today's software will actually run off the file server without some modifications.

A bunch of companies have announced they will write share-aware software, including Beagle Bros, Claris, Pinpoint, Roger Wagner Publishing, Sensible Software, Stone Edge Technologies, StyleWare, TMI Systems, and a number of publishers in the education field.

So far, the share-aware software these companies have announced is priced to reflect the fact that all of the users on a network can run the software simultaneously. For example, Claris has priced *AppleWorks/Network* at \$1616 per server. Beagle Bros' *TimeOut* pack-

ages range from \$249 to \$445 per server and Stone Edge Technology's *DB Master Version Five/Multi-user* is \$500 per server (up to 16 users per file).

If you'd like to have the computers on your network be able to go on about their business immediately after printing, you can get an additional package called the *AppleShare Print Server* (\$299). This allows the Macintosh to capture files that users want to print. It then feeds (or "spools") them to the printers on the network as the printers become available. Without this software, users trying to print have to wait until the other guy's print job finishes, and then they have to wait again while their own job prints.

The final piece of new network software is a program selector, called *Aristotle*, designed specially for schools (\$199). It consists of two related programs, one that displays menus and one that manages (edits) them. The display program shows users menus that list teacher names, the classes they teach, and the applications available for each class. It's a ProDOS 8, point and select, text-based, share-aware program. The menu manager allows teachers or the network administrator to design specific menus for each user at any time, from any workstation. However, the management software requires a IIe with a mouse and a 256K memory expansion card or a IIgs with a 1 megabyte memory card.

Aristotle comes with 25 reference cards for individual workstations. An AppleShare network can have up to 32 nodes. Each workstation and printer on the network, as well as the Macintosh file server, uses one node.

Apple announced its new network products the first week of March during an eight-city Apple tour called "Education Connections." Delivery will not actually begin until summer.

Apple's network and education marketing wizards, apparently still frightened that the secret of the Apple II will get out to universities and



businesses, took extra care to see that only elementary and high school teachers and administrators heard about the availability of Apple IIs on AppleShare. (In fact, Apple's sales brochure isn't even titled 'AppleShare and the Apple II,' but 'AppleShare in K-12 Education.')

Here's a report from one of our correspondents who attended 'Education Connections' in Boston.

There were two conferences at each site sharing only the keynote address and lunch. One was the K-12 conference (green program, green badge) and the other was the Higher Education conference (rose program, rose badge). Door monitors (Apple employees) prevented people with the wrong color badge from entering sessions not suited for their market. You are not supposed to be interested. But seminar rooms have side doors and Apple employees get tired in the afternoon so this correspondent did get around.

The Higher Education program was all Macintosh. A scholar's workstation is a Mac II with 4 megabytes of RAM running MultiFinder and HyperCard. A very well-informed Apple employee did an excellent presentation on networking Macs. The existence of AppleShare 2.0 was made known to the Higher Education people but only its Mac features were discussed (bug fixes and management enhancements over version 1.0).

The K-12 program was more exciting for those interested in the Apple II. AppleShare 2.0's ability to network Apple IIs was discussed at this conference. *Aristotle* was demonstrated. It has a magic-menu interface—no graphics or mouse. In response to a question, the speaker said that the IIGs *Finder* is not 'AppleShare aware' and it won't be anytime soon.

There were two product demonstration rooms. But only the people with green badges were supposed to know about the room with people from TML, Pinpoint, MECC, Sensible Software, and numerous others demonstrating AppleShare versions of their products. Claris was present in the network room also, but had nothing to show but an empty, shrinkwrapped AppleWorks box with a sticker that said 'Special Network Version.' When I got there, the Claris representative was busy taking notes from a customer about needed improvements in AppleWorks. The customer knew a lot more about AppleWorks than the Claris person did. The next person wanted information on spell checkers for AppleWorks. He wanted something he could use from inside AppleWorks. The Claris representative didn't have an answer. I suggested TimeOut Quickspell. The Claris person had never heard of Beagle Bros.

Over in the other product demonstration room Claris had MacDraw, MacWrite, and MacPaint running. They were distributing a corporate brochure entitled 'Introducing Claris. Software from the people who made Macintosh.' The brochure goes on for 10 pages about the Macintosh but manages to squeeze in, on the final page, only three small paragraphs about 'one of the best-selling software programs of all time.' I met the Claris manager for education markets, a Macintosh enthusiast who gave no sense that he even knew the Claris manager for AppleWorks. This is sad—not only does AppleWorks define the Apple II but it also defines and dominates the Apple elementary and secondary education market.

Meanwhile, over on the other side of the country, at Microsoft's CD-ROM Conference in Seattle, a different group of Apple people introduced Apple's new CD-ROM drive (\$1,199). At this conference, however, Apple's people went out of their way to say the words 'Apple II' every time they said 'Macintosh,' according to our correspondents. We salute them for it.

The new drive, called the AppleSC CD, is a drive of the style, size, and footprint of Apple's SCSI hard disks. Rather than using magnetic media, however, these drives read (and only read, they can't write) standard, optical, compact disks. A single 4.72 inch (12 cm) disk can hold the equivalent of a small library—550 megabytes of storage. This is the equivalent of about 700 3.5 disks.

The drives connect to the SCSI port on newer Macintoshes or to Apple II SCSI cards (revision C). Each drive can be daisy-chained to as many as six other SCSI peripherals. In addition to being able to read compact disks holding computer data, the drives can also play standard audio compact disks. Each drive includes a headphone jack and two RCA jacks for connection to a stereo amplifier.

The Apple drives can read disks written with ProDOS, Macintosh, or 'High Sierra' file formats. High Sierra is an international standard for placing data on compact disks. If you insert a disk with ProDOS formatting into a CD drive hooked to an Apple II, the drive appears to be multiple drives, as ProDOS volumes have a maximum size of 32 megabytes. There's room for more than 17 volumes this size on a single compact disk, but current versions of ProDOS don't support that many volumes online simultaneously.

However, most data-holding compact disks will probably be released in the universal, High Sierra format. Although the disks themselves will be universal, it's important to note that most of these disks will probably use special software for accessing the actual data on the disk. And, as always, this software will have to be written for specific machines.

Early applications for data-holding compact disks have been primarily text-based, such as encyclopedias, medical abstracts, catalogs, parts lists, and other reference material. However, newer applications are expected to be 'multimedia,' with sounds, graphics, text, and maybe even programs all on the same disk.

Apple expects to start shipping the AppleSC CD in May.

A revision C SCSI card for the Apple II was announced at the same time as the CD player. The primary change is a new ROM that fixes a number of bugs in the older card. Among the changes was a repositioning of the SCSI Format command. This command used to look exactly like the 3.5 drive's Eject Disk command. Programs that made the call thinking the SCSI drive was a 3.5 erased the drive. Now they really will eject the disk. ROM updates for earlier SCSI cards are expected to be available from dealers, although Apple hasn't sent a service bulletin on this yet.

We have been getting questions about the Apple SCSI card's support of 'partitioning.' Because ProDOS has a maximum volume size of 32 megabytes, 40, 60, and 80 megabyte hard drives must be partitioned into two or more volumes to take advantage of all the space they offer. Our sources at Apple tell us the Apple II SCSI card definitely supports partitioning (else ProDOS-formatted CDs would hold only 32 megabytes of data). However, partitioning data is stored on the hard drive or on the compact disk. This data tells the SCSI card how the disk is partitioned. At the moment, there is no commercial-grade software available for the Apple II that knows how to write this partitioning information onto a SCSI hard drive. Here is a small window of opportunity for one of you hackers.

David Szetela, until recently the editor of Nibble, is now the head of Apple's Developer Services organization. Developer Services includes four groups—Evangelism (provides encouragement for developers and information about Apple's product strategies, 408-973-3289), Developer Programs (manages the Certified Developer Program, its mailings, and equipment orders, 408-973-4897), Developer Technical Support (answers technical questions, phone unlisted), and Developer Events (manages conferences for developers). Szetela moves into the new post after a short 'training period' as Apple's Manager of Evangelism, a job he took a few weeks ago in December. Szetela's entire 'Developer Central' moved to a new building at the end of February.

The Developer Services organization is one of five groups in Apple's Product Planning and Evangelism arm. Two of the five are related to developers, two to product planning, and one, Publications Services, is devoted to the manufacturing of manuals and other documentation.

The other developer-related group in Product Planning and Evangelism is the Developer Products Group, which is headed by Sue Espinosa. Espinosa was previously Director of Customer Publications. This group creates development tools and technical documentation for developers.

The two product-planning groups are divided into Networking and Communications Products and all other. The all other group is officially known as the CPU, Software, and Peripherals Products group and is now under the charge of Brodie Keast, who spent the last two years in charge of Apple's Printing and Imaging Product Management group.

The new organization and its new leaders mean good things for the Apple II. It's a relief to see Apple II champions like Szetela being promoted to influential positions within the company. Even the marketing department is starting to soften. Next we badly need an Apple II champion in Apple's Public Relations department, which is one of the most negative places in Cupertino for people who believe in Apple IIs.

The price of RAM chips has been extremely volatile since the first of the year. A standard 256K chip that sold in the \$2.25 to \$2.50 range during 1987 suddenly costs \$8 to \$10 (mid-March). You need 32 of these babies to make a megabyte of memory. Because of the price increase, RAM card sales have taken a steep drop.

The price increase has been blamed by many people on U.S. trade policy, however, the folks at Microprocessors Unlimited (recommended here a number of times as a good place to buy chips: 24000 S Peoria Ave, Beggs, OK 74421 918-267-4961) say they are still getting lots of chip requests from customers outside the U.S., which could indicate a serious world-wide shortage of chips.

The sharp price increase was probably caused in part by the natural inclination of humans to hoard stuff that is rapidly getting more expen-

sive. Look for prices to fall just as rapidly as they went up, probably before the end of the year. Let's hope they continue to fall rapidly after that—as they have year in and year out since RAM chips were first produced—because progress in computing depends to a great extent on falling memory prices. Besides, I want a full 8 megs in my IIGs.

Two new tips for DOS 3.3 users: Raised Dot Computing, developers of a number of products for visually impaired people, has a new program that will create a DOS 3.3 RAMdisk in IIGs internal memory. The program, *RAM 3.3*, is \$40. Raised Dot has also finished a companion product, *BOSS 3.3*, that lets you use DOS 3.3 with 3.5 disks and IIE, IIC, or IIGs memory cards. Either product can be licensed by developers for inclusion in their software. For more information write to Raised Dot Computing, 408 S. Baldwin St, Madison, WI 53703.

Back in April 1987 ("FIDDLE Sticks," page 3.23) a reader pointed out that tricks we had given earlier to automate FID with an exec file ("RAM Van Lines," December 1986, page 2.87) didn't work sometimes. In particular, if you tried to copy a file so large that it wouldn't all fit in memory at once, but had to be copied in pieces, the EXEC would quietly die.

At long last, we have figured out that the problem is that FID overwrites the lowest DOS buffer when copying long files. Invariably, this is the same DOS buffer that your EXEC is using. The use of this memory is apparently hard-coded into FID, so we determined the simplest solution is to reduce the number of DOS buffers by one before starting FID. But you can't do this from the EXEC file itself (you'd pull the rug out from under yourself). The solution is to let your startup program do it. Here's a modified version of the startup program we presented back on page 2.87:

```
10 PRINT CHR$(4);"MAXFILES 2" : REM allow only 2 file buffers
20 REM install RAMdisk driver, if necessary, here
30 PRINT CHR$(4);"EXEC COPY.ALL.FILES": REM load RAM disk
```

The contents of *COPY.ALL.FILES* would be set up as we described before. You could also add a line at the end, after quitting FID, to increase *MAXFILES* back to 3; this is legal within an EXEC file.

Apple's utility for backing up hard drives, Backup II, version 1.1, crashes when run under newer versions of ProDOS 8, as I mentioned last month (page 4.11). It turns out that the only problem is that the program doesn't follow Apple's own protocol for making ProDOS machine language calls. It calls an "undocumented entry point." In fact, it calls a routine in an area about which the *ProDOS Technical Reference Manual* says, "The following space is reserved for Language Card bank-switching routines. All routines and addresses are subject to change at any time without notice." Fortunately, Glen Bredon tells us the problem is easy to fix—just look through the first page or two of *Backup II* for a JSR \$BFB7 (\$20 B7 BF) and change the \$B7 to \$00.

Apple has revised the expandable IIC ROMs, as I mentioned back in January (page 3.94). Any IIC with 738 or greater as the first three digits of the serial number have the new ROMs. If you have an older expandable IIC (a IIC that will accept an Apple memory card) your dealer is supposed to upgrade your ROMs for free if you show proof of purchase of a modem or if you can demonstrate problems with the IIC's terminal mode.

Our AppleWorks guru Alan Bird has sent us a couple of new patches in response to subscriber requests. Unfortunately, we can't find the requests, but here, at least, are the patches (this time, use Basic.system 1.1 and AppleWorks 2.0 only):

Avoid disabling of features at end of line

```
BLOAD SEG.M1,T$00,A$2400,L$1000,B$871B
POKE 12574,44 : REM boldface
POKE 12579,44 : REM underline
POKE 12550,44 : REM superscript
POKE 12555,44 : REM subscript
BSAVE SEG.M1,T$00,A$2400,L$1000,B$871B
```

Default to Overstrike, not Insert, Cursor

```
POKE 768,1
BSAVE APLWORKS.SYSTEM,TSYS,A768,I1,B$18D8
```

Five new typefaces, each available in four to six different sizes, are available for *Printrix* from the program's publisher, Data Transforms (616 Washington St, Denver, CO 80203). The fonts, on a disk called *Monster FontPak Volume 1*, cost \$30 and also work with other ProDOS products from Data Transforms.

One of our subscribers teaches at a 140-student high school

that recently bought a Macintosh II with a 60 megabyte hard drive and a LaserWriter. The system cost nearly \$10,000. The primary uses will be word processing and student records. Am I crazy or is this an extraordinary waste of taxpayers' money? They could have gotten equipment that would do the job for three or four schools if they had purchased Apple IIs, AppleWorks, ImageWriters and third-party hard drives. Apple should be ashamed of itself for participating in sales like this.

Don't see your dealer, Apple says for the first time ever, if your technical questions are for Apple's new UNIX implementation for the Macintosh II, called A/UX. Instead, Apple is offering its A/UX customers a support program that includes software and manual updates and a toll-free support hotline. Cost of this service is a mere \$3,395 a year. If that seems a little steep, you could just read the manuals, which are available as a separate product for \$649.

We're often asked how to easily convert data from data base programs such as *PFS*, *DB Master*, *Data Factory*, or *Data Handler* to AppleWorks. We have a new answer. Here's a company that will do the conversion for you: Burke Software, PO Box 515, Park Ridge, IL 60068 312-823-1357.

A few modems, including the Datalink from Applied Engineering, default to auto-answer mode. (There may be a good reason for this, but it looks like a questionable design choice to me.) This means that if you, for example, use your modem from within AppleWorks with a phone dialer, the modem will answer the phone the next time someone calls. In some cases this will crash your system. In all cases it will tweak the ears of your friends. Those of you who write software that accesses modems can avoid this problem by always turning auto-answer off when you use the modem. The Hayes-compatible command for this is 'ATSO=0'. This command is wasted on modems that have the more sensible start-up default of auto-answer off, but it won't hurt them either.

I promised more about GENie this month, but not much will fit. Perhaps I should mention that we have real-time online conferences, which resemble 50-ring circuses, every Tuesday evening at 9:30 eastern time. We have a new conference leader, Tyler Weisman, who is lining up some great acts for the weeks to come.

To attend, sign on to GENie at 9:30, 8:30, 7:30, or 6:30, depending on your time zone, and follow the menus to the Apple II RoundTable, or simply enter "A2" at the top menu. Once you're in our RoundTable, select "2" from the menu to get to the Conference Room Lobby. At that point you have your choice of three rooms to enter. The evening's official conference is almost always in room 1. If you see people in the other rooms, they probably left the main conference because of the noise.

Once you get into the conference room, use the /NAME command to give yourself a name. Anything you type that doesn't begin with a "/" will be sent to everyone in the room when you press Return. The message will be tagged with your mail address and the /NAME you have chosen. Everything that other people type will appear on your screen. During a well-balanced conference there are about 2.87 conversations going on at the same time. If there are fewer than that, things get kind of slow as you wait for people to type in what they're trying to say. If there are more than that, things get fairly confusing as you start to lose the thread of the conversations.

A few other helpful commands are /USERS, which shows you how many people are in the conference room; /STATUS n (where n is the number of the room you are interested in), which shows you the names of the people in that room; /ROOM n, which allows you to move to another room; /BLA, which inserts a blank line between speakers; /HELP, which will give you a list of all these commands and umpteen more; and /EXIT or /QUIT, which is what you use when you've had enough and can take no more.

If things get harried and the evening's guest has trouble getting a word in edgewise, the meeting leader may put the room into listen-only mode. In this case, the leader controls whose messages are displayed. To tell the leader you'd like to talk or ask a question, you use the command /RAISE HAND.

It's very helpful to have communications software that supports a "split-screen" when you're at a real-time conference. Software that supports this feature allows you to see what other people are saying on one part of your screen and to see what you are typing on another part. Without a split screen feature the two get mixed together like pancake batter and you can easily lose track of what you are saying.

Now where was I?



Ask (or tell) Uncle DOS

The hidden business market

I thoroughly enjoyed George Smith's 'Getting down to business' letter in the February 1988 *Open-Apple* (page 4.5). The office where I work (the Clinical Engineering Department at Wesley Medical Center) has been using various Apple II and compatible computers for several years now to maintain our equipment files and work order system. All of the programs for this system have been written by my boss, Woody Adamson. We are currently in the process of LANing the office systems and will be expanding this network to include our four shop areas.

Despite the fact that we have to keep a duplicate equipment record on the hospital's IBM mainframe, we still prefer our Apples for record keeping. It is much easier to make changes to the software program when needed, to print special reports, or to make global changes to data files on the Apple system.

We, too, have had the same problems with obtaining Apple II information or hardware from local vendors. A local computer store was listed by First Class Peripherals as their Sider hard disk supplier for this area, however, when I contacted them to place an order the sales person was totally lost. Like most of the other ancillary hardware we own, this drive was eventually purchased through a mail order company. We are fortunate to have several firms that do very good repair work on Apples and that carry the basic line of equipment. The unfortunate side is that no one seems to believe business applications for the Apple II are a part of the basic line.

If anyone does get a 'business only' users group started, please count me in. Perhaps the shared knowledge of people who have had to create their business systems from scratch will open up some new avenues for development and vendor support.

Donita Dupslaff
Wichita, Kans.

Control-@ problems

I have been in search of slashed zeros on the ImageWriter II, both in and out of AppleWorks, for years. When I saw the 'Slashed zeros for ImageWriter II' tip in your last issue (page 4.16) I thought 'Wow! This will be worth the price of *Open-Apple* for another year. Alas, however, the codes you gave work only if you're willing to put up with double spacing. Besides, how do you know the control-@ characters are really there? They don't show up on the screen when you type them in.

Mark D. Johns
Cedar Falls, Iowa

Wow! is right. We can't believe how many

letters we got telling us the tip wouldn't work. Slashed zeros appear to be quite popular.

The problem is that AppleWorks 2.0 won't accept control-@ as a code. That's also why control-@ doesn't appear on your screen when you enter it. The easiest way to proceed is to boot up an older version of AppleWorks, enter the codes as shown last month, exit AppleWorks, and then copy the SEG.PR file from your older disk to the disk you use for AppleWorks 2.0. Older AppleWorks versions don't have any problems with control-@, and the SEG.PR (printer configuration) file is the same for all versions of AppleWorks.

And the magic solution is...

You mention that 'printer/typewriter technicians have some kind of chemical solution' to clean slippery platens ('Database bug, first line squashed,' March, page 4.16). When my antique C. Itoh printer starts slipping with single sheets I just clean the platen with rubbing alcohol. It's worked great for five years.

Ed Smith
Sioux Center, Iowa

Another thing that can garble or squash the first line out of a printer is rotating the paper up after printing (to tear it off), then rotating back down to the next sheet of paper. If you do this, you also need to knock out the select button, hit the line feed button one time, then turn the select button back on. This lets the printer set the 'gears' correctly.

Leland D. Ho
Firebaugh, Calif.

Pathname lengths limited

I have a IIgs with an Apple 20meg SCSI hard drive. I have copied AppleWorks 2.0 to a subdirectory on the hard disk called /HD.20SC/APPLEWORKS. When I try to start AppleWorks with the IIgs Launcher, I get the message 'ProDOS Pathname too Long' and that's it. What do I have to do to get AppleWorks to work from the hard disk?

Bruno E. Kolodgie
Nanticoke, Penn.

We couldn't duplicate this with the current version of the Launcher, however, we discovered that AppleWorks itself will refuse to load SEG.00 if the pathname to the AppleWorks subdirectory is longer than 20 characters (slashes included). So much for the 'advanced hierarchical file structure' of ProDOS.

To work around the 20-character limit you have to shorten the pathname. To shorten the pathname, rename your hard disk or the APPLEWORKS subdirectory. From the **Finder**, select the object you want to rename and select **RENAME** from the **FILE** menu. Or use Basic.system's **RENAME** command from Applesoft.

Let's add, however, that it's pretty disappointing to find software choking on such relatively short pathnames. The names you've chosen are reasonable. It seems to me that all software should at least support the maximum ProDOS pathname length of 64 characters. By pulling tricks with the prefix, programmers can theoretically support pathnames with lengths of 128 characters—but no tricks are required to support 64.

According to the literature for AppleWorks/Network, it will support longer pathnames and more files in a subdirectory.

AppleWorks and directories

I finally decided to make some use of ProDOS subdirectories. So I used a disk utility program to put a number of my AppleWorks files in a subdirectory with the pathname /GENERAL/USPS. But now after I boot AppleWorks and ask it for a file on the current working disk, it replies, 'There are no AppleWorks files on this disk.' What am I doing wrong?

William E. Coleman
St Petersburg, Fla.

That message has probably caused more unnecessary heart attacks than any error message in the history of AppleWorks. What it should say is 'There are no AppleWorks files in this subdirectory,' but most AppleWorks users don't know what a 'subdirectory' is, so the human interface people decided to use 'disk' instead.

To find your files, tell AppleWorks you want to 'Get files from: A different disk.' It will show you a list of disk devices hooked to your computer. Choose the last one, 'ProDOS directory,' and then type in (yes, type in) the pathname of the subdirectory your AppleWorks files are in (/GENERAL/USPS, in this example). Let's hope future versions of AppleWorks allow subdirectory selection by the point-and-shoot method rather than by the hunt-and-peck method.

Mail merge, copy, and dates

If you open-apple-(C)opy AppleWorks data base records to the clipboard and then try to use the data in a mail merge document, the data will merge properly except for dates. The program saves the date to the clipboard in AppleWork's internal format. The problem only happens when you copy the data, instead of printing it, to the clipboard.

John M. Wargo
Akron, Ohio

Statistics and the Apple II

I am a research scientist and I am very interested in learning about software that can perform statistical analysis on my IIe. Instead of using the mainframe at work.

Barry Dunayer
Flushing, N.Y.

There's an abundance of statistical software for the Apple II. These programs tend to be written in higher-level languages, which makes them calculate more slowly than what you'd expect after using something like AppleWorks. Even so, thousands of scientists have been liberated from the mainframe by these programs.

As higher-level languages for the IIgs become more readily available, look for more powerful IIgs statistical programs. Because of the large RAM space available on the IIgs, there's potential for mainframe-quality software for our machines.

When selecting statistical software, it's critical to know exactly which statistical tests you'd like to use and the maximum number of cases you'll ever have. Armed with that data, call up the publishers to find out which product best fits your needs. There may be other publishers besides those listed here, but we're sure all of these are active. Readers with comparative remarks on these or other statistical packages are encouraged to send their comments to Uncle DOS.

Statistix (\$99) 612-631-2852	NH Analytical Software PO Box 13204 Roseville, MN 55113
APP-STAT (\$99) 918-583-4149	StatSoft 2325 East 13th St Tulsa, OK 74104
Stats-Plus 818-993-8536	Human Systems Dynamics 9010 Reseda Blvd., Suite 222 Northridge, CA 91324
Statcalc (\$39.95) 412-422-6600	Zephyr Services 1900 Murray Ave. Pittsburgh, PA 15217
Statistical Processing System (\$36) 805-967-0192	Kinko's Academic Courseware Exchange 4141 State Street Santa Barbara, CA 93110-9989
ZSTAT (\$10) 312-482-4323	Dr. Steve White 411 N. Kensington Ave. LaGrange Park, IL 60525
Stat Talk (for visually-impaired users)	Stat Talk Computer Products 285 Hardenburgh Avenue Demarest, NJ 07627

Unknown filetype

A pet peeve about the *Finder*-why does the open-apple-I(nformation) function return the useless information 'Unknown filetype'? Is this another example of the Macintosh-style 'I don't know and I don't want to know' of interfacing? If *Finder* can't tell us that the in question is a 'Super-Res Image' then the least it can do is say, 'Unknown filetype (\$C1).'

Lorne Walton
Maple Ridge, B.C.

/COLDSTART and /RAM5

Your /COLDSTART bootup for automatically loading a RAMdisk (January, page 3.92) when the computer is turned on is a sensational time saver, but I had one problem with it that others may also have.

When you boot a IIgs from a 3.5 drive, the boot drive appears as slot 5, drive 1 and the internal IIgs RAMdisk appears as slot 5, drive 2. However, if you boot from the RAMdisk, it will be drive 1. The drive you boot from always becomes drive 1.

I had my IIgs up and running when I read the /COLDSTART piece, so I simply used BACKUP to save what I had there. I turned off the computer and restarted. But now /RAM5 was in drive 2 (/COLDSTART itself was in drive 1), while RESTORE was looking for /RAM5 where it had been when I ran BACKUP-drive 1. The lesson here is to make sure /RAM5 appears as drive 2 when you load it with the programs you want. If it appears as drive 1, reboot from your 3.5 before running BACKUP.

What are the consequences of having two different kinds of RAM cards in use in a IIgs? Does it become one big RAMdisk, or is it partitioned by slots? If the latter, how does a program choose which partition to expand into? I'm interested because if these ProDOS 16 programs drive me past the need for the 1.5 meg maximum in GS-RAM, that would be one logical way to expand.

Kirk Hollingsworth
New York, N.Y.

You make a very important point about our COLDSTART trick. The way the IIgs moves disk devices around, depending on which device

you booted from, creates a great deal of confusion, and consternation. It's the old player-in-motion trick. To survive, you have to get your defense ready.

The only kind of RAM that ProDOS 16 programs can get at naturally is RAM you attach through the IIgs memory expansion slot. RAM cards you add to the standard slots can be nothing but RAMdisks (under normal circumstances).

To get the maximum amount of memory for ProDOS 16 programs, the first step is to go into the control panel and reduce your internal RAMdisk to OK minimum and maximum. This leaves all of your memory-expansion-slot RAM for ProDOS 16 programs.

If you are addicted to a RAMdisk, as I am, you can feed that addiction with a standard-slot memory card. A major difficulty with this alternative, however, is that usable slots are hard to find in a IIgs. With some cards, you can partially solve this problem by putting the card in a slot and switching back and forth between the card and the built-in device by going into the control panel, changing the slot assignment, and pressing open-apple/control/reset.

You can't slot-share a RAMdisk however, because these cards erase themselves when the values in their 'screenholes' (a section of memory reserved for such devices) are changed. Using the built-in devices will do this. Because of the AppleTalk bug mentioned in March (page 4.11), it is impossible to use both AppleTalk and a standard slot memory card in a IIgs without giving up either the 80-column card, the mouse, 3.5 drives, or 5.25 drives.

One other possibility is to get a big RAM card for the memory expansion slot and use it for both a /RAMdisk and ProDOS 16 programs. If you decide to go this route, consider a plus-RAM GS8 from Cirtech Limited (Currie Road Industrial Estate, Galashiels Selkirkshire, Scotland TD1 2BP (0896) 57790). The advantage of this card is that it will expand to the full eight megabytes of memory that the IIgs supports, using only one card, with standard 1 megabyte chips. The standard card, with 1 meg installed and 56 empty sockets, sells for £249. Additional chips are about \$35 each right now (you need eight chips to add 1 meg). Thus, a fully loaded IIgs memory card can be had for not much more than \$2,000. But you don't need to buy all those chips at the same time. Add them as you need them.

Cirtech also sells a 2-meg-maximum card, called the plusRAM GS2, for £99. It uses chips that aren't as dense and that don't cost as much.

IIgs system disk 3.1.x?

I have a copy of the IIgs system disk 3.1 that I got from my dealer. However, my friend, your system disk (January 1988, page 3.90) differs from mine in a few areas, as outlined below:

item	my date	your date
SYSTEM folder	8-27-87	9-23-87
DRIVERS folder	7-23-87	9-23-87
PRINTER.SETUP	don't have	9-23-87
CLIPBOARD	don't have	9-23-87
SYS.UTILS folder	7-23-87	11-05-87

What the heck? Did good ol' Apple Computer send me a beta version and then send you a good one?

Keith Whaley
Los Angeles, Calif.

Well, I'd like to blame Apple for this one, but

unfortunately, I have only myself to blame. Your dates are the correct ones; my virgin system disk had been defiled by running a ProDOS 16 program that created a few extra files. (But if mine was defiled, how come yours had fewer files?)

AppleWorks and P16

I find that whenever I run ProDOS 16 with New Desk Accessories that use more than about 12K of memory and then run AppleWorks 2.0, I either crash into the Monitor or get the error message 'Insufficient Desktop Memory.' A warm boot in between doesn't seem to help—a cold boot is required to run AppleWorks.

Bob Baker
Villa Hills, Ky.

Kevin Harvey, president and head programmer at Styleware, says the problem is that AppleWorks 2.0 tries to start up New Desk Accessories, which it shouldn't do, since New Desk Accessories require ProDOS 16. Styleware has solved the problem for the desk accessory package that it sells, but we sure hope Claris is working on this bug from their end as well.

Apelg

After having the IIgs ROM upgrade installed, my boot up screen is in 80 columns for about one second, then reverts to 40 column format with every other letter missing. I took the unit back to the dealer and had them investigate why this anomaly happened. The answer was that my slot 7 RamFactor was the cause. When I changed the startup slot from SCAN to 5 the display remained in 80 columns. Has any one else reported this?

James E. Bradley
Derby, Kans.

Don't need an outside report—mine does that, though I didn't pay much attention to it till I got your letter. Another way to solve the problem is to go into the IIgs control panel and set the screen default to 40 columns. (I'm told this is also necessary to get some IIe/IIc software to boot on the IIgs.) Looks like a cosmetic bug in the RamFactor firmware to me.

AppleWorks can't find S2, D1

A colleague couldn't get AppleWorks to recognize the second 3.5 drive plugged into the Smartport on her IIgs. Since ProSEL could find the drive (as slot 2, drive 1), I knew it was connected properly. After trying various ideas, I noticed ProDOS 1.1.1 was on her AppleWorks disk. Booting ProDOS 1.4 and then running AppleWorks solved the problem immediately.

Larry Mitlin
Rock Hill, S.C.

Those of you who deal with novice AppleWorks users should file this information with last month's 'Time to set the clock' (page 4.16). To get AppleWorks and the IIgs to live together in harmony, you have to put ProDOS 1.4 on the AppleWorks disk. This means AppleWorks will suddenly be able to read the IIgs clock, which means, as we saw last month, that the clock must be set to some year after 1983, or AppleWorks won't let you through the door. As of a few weeks ago, AppleWorks was still being shipped with ProDOS 1.1.1, so don't expect this problem to go away anytime soon.

MouseWrite, MultiScribe

The pages of **Open-Apple** are filled with AppleWorks, but folks should know that there are other good programs. *MouseWrite* is text based, fast, includes communications software, fonts, color, and a spelling checker, and is cheaper than AppleWorks, too.

A while back you reviewed *Printrix*. I think IIGs owners would be more satisfied with *MultiScribe IIGs 3.0*. It probably has fewer fonts available, can't print quite as large (48 pt vs 70 pt), but is much easier to use and supports IIGs graphics. The print quality is equally good and just as slow.

Is it possible that a person's 'learning-style' determines what type of user interface that person will prefer? A visually-oriented person may find pull-down menus easier to learn because they can more easily remember the place to point to. A kinetic learner, who more easily learns finger placement, or 'by feel,' may find the AppleWorks interface better.

Dennis Fay
Levering, Mich.

Word Perfect praised

I am writing to ask why you devote so much space to AppleWorks? Why not let the IIGs users know about *Word Perfect* for the Apple IIGs. It has all the options that AppleWorks lacks, at less than the cost of an AppleWorks add on.

I purchased *Word Perfect* because it offers more options in a word processor for less than half the cost of AppleWorks. And when *Word Perfect* was upgraded recently, I was sent the new version with no prompting on my part and at no charge. I was not required to pay a \$75 upgrade charge, as Claris charges for an upgrade of AppleWorks.

When I first purchased *Word Perfect*, I had trouble getting it installed and I called a telephone number listed in the manual and received friendly direction that led to successful installation.

Why should anyone pay \$250 for an inferior word processor and then turn around and spend more to upgrade it to passable status than it would cost to buy *Word Perfect* in the first place?

Ralph L. Jones
Garden City, Ga.

For those who need the features of *MouseWrite*, *MultiScribe*, or *Word Perfect*, they are solid programs published by solid companies. Two important features that each lacks when compared to AppleWorks, however, are a spreadsheet and a database.

I talk so much about AppleWorks here because it is far and away the most widely-used software product in the history of the Apple II. I continue to believe that AppleWorks should be in the box with every Apple II sold. Users who want to travel beyond where AppleWorks can take them, and there are definitely areas that AppleWorks can't go, should search out these more specialized packages.

For more on *Word Perfect*, incidentally, see 'Perfecting *Word Perfect*,' in the April 1988 A+, page 51.

Printer buffer useless

I have an ImageWriter II with an Imagebuffer card from Orange Micro, which gives me a 128K buffer. The buffer card apparently will only store

text data as graphic data from programs such as Styleware's *MultiScribe* or Beagle Bros' *SuperFonts* slows down the use of the computer when printing long documents. With AppleWorks I can dump up to 40 pages of text into the printer buffer and then keep using the computer. Is there some way around this problem?

I just received the latest version of *Copy II-Plus* and it won't bit copy with a UniDisk 3.5. Perhaps people should be aware of this when they are considering whether to get a UniDisk or an Apple 3.5 or compatible drive.

Brian Symonds
Powell River, B.C.

The problem isn't that graphics programs don't use your printer buffer. The problem is that a graphics printout requires many times more bytes of data than a text printout. Your buffer simply fills up with all this stuff. Another problem is that *MultiScribe* and *SuperFonts* have to figure out exactly what bytes to send to the printer to get the output you want. This is much more time consuming for graphic printouts than for text printouts.

Graphic output may be pretty, but nobody ever said it was fast. Combine looks with speed and, in my opinion, the ImageWriter's built-in proportional text font wins every time. I agree it's a matter of taste, but at least one other person in the world agrees with me....

TimeOut Graph, SuperFonts

Beagle Bros' *TimeOut Graph*, as noted in *Nibble* ('Chart Your Course,' an in-depth comparison of four graphing programs, February 1988, page 42), is a very good graphing program. I bought it thinking that I could use it to print graphs in an AppleWorks word processing document. However, that's not one of the things it does. To integrate a graph (or any other high-res or double-high-res image) into a word processing document, you must buy another program, *SuperFonts*.

SuperFonts turns the AppleWorks word processor into a semi graphics-based program. You compose your document in standard AppleWorks format, starting with commands to load whatever Mac-type fonts and pictures you want to use. You can preview your document by printing it to the double-high-res screen. For the actual printing, *SuperFonts* puts your printer into graphics mode. The result is very professional, almost 'desktop' quality. You have some choice of print quality and size, and vertical/horizontal proportions.

I have a few carping criticisms: As might be expected for graphics programs, memory requirements are considerable. In practice this means either a lot of disk swapping or buying extra memory for your bare bones IIc or IIe. When using *SuperFonts*, printer buffers will quickly become filled and printing can be very slow, especially in the high-quality mode. Not all of the Beagle fonts are included on the double-sided 5.25 disk; some are found only on the 3.5 disk—for the price, Beagle could have included a second 5.25 disk with the rest of the fonts.

But what annoys me the most is that I still don't have the feature I want the most—the ability to mix graphics with my printer's text mode. I don't think any of the Mac-type fonts I have tried are as nice as the ImageWriter's proportional text. And I haven't figured out a way to use *Print Shop* graphics.

David L. Smith
Metairie, La.

One of Pinpoint's desk accessories, *Graphic-Merge*, allows you to select, crop, merge, and print up to 16 standard single or double-high-resolution graphics in a single AppleWorks word processor document. The text of the document will be printed normally. (However, text and graphics must alternate through your document—they can't coexist side-by-side. Each horizontal line can have only one or the other, text or graphics.)

Pinpoint also sells *Graphic Edge*, another of the graphing programs examined in *Nibble*'s comparison. While *Graphic Edge* doesn't work from inside AppleWorks like *TimeOut Graph*, it has some interesting abilities. One of these is that it's an 'object-oriented' graphics program, which, among other things, means that *Graphic Edge* images can take advantage of the highest resolution a system offers. For example, the *Graphic Edge* package includes a ProDOS 16 utility program that will load *Graphic Edge* files and display them in super-high-res. A similar program is available for displaying these files on a Macintosh.

Graphic Edge can also easily be used to create simple 'word charts' or 'slides' for presentations. And it comes with a slide-show program. And it supports *Print Shop* graphics.

Pinpoint and Beagle Bros have both provided high-quality answers to the presentation graphics problem—choosing which company's products are best for you requires a careful analysis of what exactly it is you want to do. (However, I don't think you can go wrong with either product.)

Grappler dot density

After reading your note about the Grappler C/Mac/GS (March 1988, page 4.10), I called Orange Micro. I found out that when used with an Epson LQ series printer, the dot density is much lower than with the ImageWriter. Also, dot density on the LQ series will be about half the printer's capability—that is, it will not use the high-quality print head but will emulate a 9-pin head. In summary, those of us with the technically excellent Epson LQ remain out in the cold as far as print outs from IIGs-specific software goes.

Michael Stupinski
Ellington, Conn.

Desktop publishing problems

Publish It! (March, page 4.9) does not work with my system. My hardware includes a IIc, a Panasonic KX-P1091 printer, and an Orange Micro Grappler C interface. The hardware has performed well with every other program I have, including *Sideways*.

Publish It! meets most of my needs in terms of ease of use and options but it won't print on my printer. I have used every printer/interface option within the program to no avail. I'm out the cost of the program plus the cost of the mouse, which I don't need for any other purpose. Repeated calls to both Timeworks and Orange Micro haven't solved the problem.

Donald W. Rath
Manasquan Park, N.J.

Timeworks' ads for *Publish It!* say you get a money back guarantee with the program. I'm sure that if you call and calmly tell them you want to take advantage of the guarantee because the program won't work with your system that they'll take care of you.

Your letter points out the kind of hassles one buys when trying to save money by not getting one of Apple's printers.

Incidentally, *Sideways and Publish It!* were actually written by the same people (Turning Point Software), so it's highly likely that *Publish It!* can be made to work with your system.

Copy protection medicine

I read your decision about copy protection with interest (February, page 4.4). I agree not only that software should be unprotected, but also that there is a great deal of good software available that is copy protected. *Computist* is a partial solution to this dilemma.

This magazine's sole purpose is to supply legitimate users with the information necessary to completely remove copy protection from software. This information, called 'softkeys', is supplied for all sorts of Apple II software—business, educational, games, utilities—on both 5.25 and 3.5 disks. After using a softkey on a program, the program can usually be copied to and from hard disks, RAMdisks, and so on; can be backed up with any standard copying program; can be modified by the user; and can be used without annoying access to key disks. I recommend the magazine highly. It's available from \$32 per year from *Computist*, P.O. Box 110846-T, Tacoma, WA 98441 206-474-5750.

Kevin Lepard
Sturgis, Mich.

We subscribe. I've even mentioned it before, but it's listed in our index under its previous name, *Hardcore Computist*.

No game strobe on IIGs

I have had a problem with a homebrew laboratory interface that I thought you might be interested in. The device works perfectly well on a II-Plus or IIe. The interface is via the 16-pin game port on the motherboard. I use the game port's strobe output to clock in serial data on one of the single-bit inputs. The problem is that on the IIGs the strobe does not strobe. My local dealer called Apple and they told him there was no difference between the IIGs and earlier models with respect to the game port. But I have tickled \$C040 in every way imaginable and the strobe output will just not budge from high. This isn't a fatal blow since I can fake a strobe with an annunciator output, but I'd prefer to use the strobe.

Allan K. Seidel
Olivette, Mo.

We can understand why Apple's experts were confused. According to Apple's *Technical Introduction to the Apple IIGs*, the IIGs game I/O connector is exactly the same as earlier connectors on the II-Plus and IIe. It even mentions the presence of the strobe (page 41). Apple's *Apple IIGs Hardware Reference*, on the other hand, clearly labels what was once the strobe output as +5 volts and doesn't mention the strobe output at all. To get an 'A' in manual writing, however, Apple's hardware writers would have had to specifically point out that this is different from the II-Plus and IIe.

IIGs internal drive

It looked to me like I'd never be using the big empty space between the memory card and the power supply inside my IIGs. That realization,

coupled with the desire for a more compact arrangement, generated the idea of inserting one 3.5 disk drive into the case of the IIGs.

I checked the placement possibilities and found there was enough room for the drive to fit and still allow for air circulation. I borrowed a router and cut a hole in the front of the IIGs cover just a bit larger than the front dimension of the drive.

Next, I formed a 'W' shaped piece of tin, drilled a hole in the tall center upright, and placed it in the 'security ear' on the back of the drive. A machine screw goes through the hole and into a piece of aluminum channelling that hooks onto the vent slots in the cover.

I didn't want to punch any holes in the back case, so I made two jumper cables. One extends the drive's cable through a spare hole and into the drive outlet. The other connects the outlet on the drive to the back of the machine. That way I can plug in additional drives without having to open the case. I bought two sets of male and female DB-19 pin plugs along with a length of 20-wire cable. It took a few hours to solder all the connections.

Mark A. Petersen
Portland, Ore.

Flushing out the time

In your February issue, page 4.7, you use the ProDOS Machine Language Interface GET_TIME call to update the ProDOS time bytes. I use the Basic.system FLUSH command (without a filename) to update these bytes without using assembly language.

I had been using the command CLOSE, but then was introduced to FLUSH in your book *ProDOS Inside and Out*. Both commands write any remaining buffer contents to the disk, but the former then releases the file buffer, while the latter maintains it and keeps the file OPEN. It therefore seemed to me that FLUSH would be completely safe to use for updating the ProDOS time locations. Here's my version of your get-time program:

```
100 PRINT CHR$(4);"FLUSH"
110 PRINT "Time is ";PEEK(49043);";";PEEK(49042)
```

Myron L. Kerney
Rochester, N.Y.

E stands for Exponent

Softdisk's author guidelines include a list of 33 debugging rules. Rule 23 says 'Don't try to evaluate strings as numbers if the strings have the letter 'E' in them. You may get an overflow error.' What's so special about 'E'?

Mike Mazan
Irvine, Calif.

The problem is that 'E' is a legitimate numerical digit, according to Applesoft. It indicates an exponential expression. The maximum value for Applesoft exponents is 38, so if the number after the E is 39 or more you will get an overflow error. For example, try:

```
A$="1E39" : PRINT A$, VAL(A$)
```

Next replace the 'E' with an 'e' and you'll see how Applesoft evaluates strings with other letters in them.

SCSI share, 65802

I'm looking for a hard drive that runs with Apple's SCSI card and can work with both my IIe and MacPlus simultaneously. Do you have any suggestions?

I would also like to know what the differences are between Western Design's 65C816, used in the IIGs, and 65C802 microprocessors. I know the 65802 is both hardware and software compatible with the 6502. However, I'm specifically interested in knowing if the 65802 offers the same features as the 65816 because I'm really tempted to pop one into my IIe and begin hacking away.

Richard Cheng
Cambridge, Mass.

The difficulty with SCSI drive sharing, using an Apple SCSI card on the Apple II side, is that Apple has provided us with no hard-disk partitioning software. This software is available for the Mac, which would keep the Mac from overwriting the Apple II's part of the disk, but not for the II, which means your Apple II would overwrite your Mac files. Granted, the Apple II files are probably more important, but...

If you're willing to use a SCSI card from CMS instead of Apple, this problem is solved. The CMS card controls which parts of the hard disk the Apple II can access by means of electronic connectors, or jumpers, on the card. Using the CMS card with a Mac and an Apple II, all the two computers can share is the hard disk. Each gets its own half (or whatever proportion you decide). If you used two or more CMS cards with two or more Apple IIs, each would have its own separate partition for writing files, but you can also allow one computer to read another's partition. (CMS Enhancements Inc, 1372 Valencia Ave, Tustin, CA 92680 714-259-9555.)

The 65802 has exactly the same command set as the 65816, but can only access one 64K bank of memory instead of 256 banks. Jameco Electronics (1355 Shoreway Rd, Belmont CA 94002 415-592-8121) will sell you a 65802 that you can pop into your IIe for about \$20. For more about the 65802/65816 command set and the differences between the two chips, see our August 1986 issue.

SCSI from scratch

I have sufficient information on SCSI hard drives to build one from parts, using a SCSI hard drive from any of the hard drive manufacturers and setting it up with an Apple SCSI card. I know how to make the cables and where to get the power supply, and I even have a suitable housing in which to enclose it.

My problem is not a hardware problem, but software. ProDOS is limited to 32 megabytes per volume, but I intend to build at least a 60 meg drive. It's only slightly more costly to build a 60 meg drive than it is to build a 40 meg drive. Basically my question is, how do I partition a SCSI hard drive into two ProDOS volumes? Can I buy the software to do it?

Larry Beyer
Chicago, Ill.

The *Apple II SCSI Card Technical Reference Manual* gets very hazy when it comes to drive partitioning. Apple provided for partitioning, but the manual stops well short of actually explaining how to do it. It would make sense for Apple to develop and release SCSI partitioning software, but then sense also insists that such software should have been released 18 months ago. Independent developers are reluctant to invest much in this kind of software because their investment can easily be devastated when Apple finally gets around to releasing its own.

Cleaning up the desktop

When I boot the ligs *Finder*, it opens a lot of windows and clutters my desktop. I've tried closing them all, quitting, and rebooting, with all combinations of settings for the Save function, all to no avail. How do I customize this disk so the *Finder* boots up without opening any windows?

D.JONES21
GEnie

Obviously, D.JONES21, you don't have any kids or you'd realize that clean desktops, kitchens, and bedrooms can't be saved.

Either that or your disk is write-protected. The little barn door on the corner of your 3.5 disks should be closed for normal operations. And make sure you've clicked an X into the box called 'Save Finder information onto disk' under the 'Preferences' item in the *Finder's* 'Special' menu.

Printer hangups

We use the Apple IIe to collect time and frequency data (we have over 50 Iles at various locations around the country). Over the years we have become quite proficient at Applesoft, but there is one question we have never been able to answer. How can you tell if the printer is off-line?

Our Apples all run unattended 24 hours a day. Every 24 hours they print out a plot of the data collected in the last 24 hours. If the printer is off, off-line, or not connected the system will hang when it tries to print the data. We partially got around this problem a few years ago by designing a special clock card with a built-in alarm interrupt. If the clock card has not been

accessed for one hour, it reboots the system. The system then runs until the next time it needs to access the printer, and then it hangs again for an hour. This goes on until the user in the field realizes the system has not been plotting and puts the printer back on line.

We use a Printmax parallel interface card. I believe that Printmax is out of business now, but the card seems to be a straight clone of the Apple parallel interface.

Mike Lombardi
National Bureau of Standards
Boulder, Colo.

Modern parallel cards include Advanced Interface firmware (also known as Pascal 1.1 firmware) that supports a Status call. This call will tell you whether the printer is ready or not. For complete details on how to make a Status call from Applesoft, see 'Using the Advanced Interface' in our January issue, pages 3.92-94.



Older interface cards don't include the Advanced Interface. With most of these cards, however, you can usually detect whether your printer is ready by scanning the softswitches associated with the card. For more on this, see 'Detecting NOT SELECTED' in our February 1985 issue, page 1.14.

Apple's old parallel card, however, doesn't even support this trick. This card was designed by Steve Wozniak himself back in 1977. With his usual efficiency, Wozniak made the card work with as few chips as possible. As a consequence, it does nearly nothing but what it's supposed to do, link an Apple II to a parallel printer. We don't have one of these cards to play with, but we do have a manual with a firmware listing. It appears that if you look at byte \$Cn80, where 'n' is the number of the slot the card is in, you can tell whether the printer is ready or not.

You'll have to do some experimenting to see what value appears there when the printer is ready and what value appears when it's not. If this byte doesn't change, try some of the other bytes in the \$Cn00-FF area. It appears from the firmware listing that Wozniak designed the card to have one set of firmware when the printer was ready and another, slightly different set, when it wasn't. This is the ultimate in self-modifying code and is incredibly difficult to decipher from the firmware listing in the manual.

GENIE's other RoundTables

You stated in your February issue that there are two active Apple II RoundTables on GENIE. That is a very popular but untrue belief. In reality, there are three. The PROTREE RoundTable supports not only PROTREE's BBS and communications software, but anyone interested in II computing. The RoundTable went public last spring, but very few people seem to know about it.

David D. Ely
Barco, N.C.

PROTREE is run by Bob Garth, author of the ProLine Bulletin Board System and the A.C.T. telecommunications package. Both are available in his RoundTable. To get to Garth's RoundTable, simply type PROTREE at any menu-page prompt.

Other RoundTables that might be of interest to Apple II users are the CP/M RoundTable, the Genealogy RoundTable, the Games RoundTable, the Apple User Group RoundTable, and, of course, the Scuba RoundTable, run by Apple Iigs power user Tracy Kornfeld.

Iigs graphic file formats

I can't tell the difference between Deluxe Paint II and Paintworks Plus graphics file formats. I don't know \$C0 from \$C1 or any of the rest. Can you explain?

Gary Edwards
GEnie

Guy Rice, one of the leaders of GEnie's Apple II Programmers RoundTable, answered this question like this:

Apple Iigs Technical Note #27 (file #337 in the A2Pro library) explains the Super High Resolution file formats completely. However, it is aimed at the programmer and I think all you want to be able to do is tell the difference between the files by looking at them, right? Well, here's how.

There are four types of SHR graphic files you have to be concerned with:

Type	Subtype	format
\$C0	0	Paintworks format
\$C0	1	PackBytes (Eagle) format
\$C0	2	Apple Preferred Format (DPII)
\$C1	0	unpacked screen image

The \$C0 types are 'packed' so that they take up less space on your disk. The \$C1 type is an unpacked 32K file that contains a snapshot of the image. From Applesoft, a simple CATALOG will show you which files are \$C0 and \$C1. If you catalog a disk with a program such as ProSEL's *Cat Doctor* or the *Binary II Library Utility*, the unpacked \$C1 files are labeled 'PIC' and the packed \$C0 files are labeled 'PNT.'

Basic.system's CATALOG will not show you the subtypes for these files. *Cat Doctor* and the *Binary II Library Utility*, however, show them in the last column with something like '\$0002.' That would mean Apple Preferred, subtype 2.

There are other subtypes, but these are the ones you're most likely to encounter. For a more technical description, see Tech Note #27.

Always just one more bug

Can I add one tiny change to my Basic.system patch that you published last month ('CHAIN, STORE bug fix,' page 4.16)? Have you ever noticed that when Basic.system is executed, an inverse character momentarily appears on the screen? It turns out that Basic.system turns off 80-column mode by printing a control-U (\$15). If you're already in 40-column mode, though, this is printed as an inverse U. A high-ASCII control-U works just as well and is also invisible on the 40-column screen. To perform this minor cosmetic surgery, add this to last month's patches:

2065:95

Voila, no more inverse U's.

Jerry Kindall
Grove City, Ohio

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