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**A journal and exchange of Apple II discoveries**

## Miscellanea

The spring 1990 AppleFest is moving from its previous Boston location to the New York metropolitan area. The show will take place on May 4-6 at the new Garden State Conference Center in Somerset, N.J., within an hour's drive of Manhattan. The date was advanced one week to avoid a clash with the Apple Developer's Conference scheduled for May 7-11.

Cambridge Marketing, the company that organizes AppleFest, expects to attract a larger number of attendees at the new location and also hopes to reach a new audience. The new site is also expected to be less expensive than the Boston location; for example, hotel rooms are anticipated to be 25-35% less than comparable rooms in Boston.

ComputerFest, a new event, will be run in conjunction with AppleFest to also allow reaching the increasing number of educational and home users of MS-DOS machines. Apparently, just adding Macintosh users to AppleFest didn't satisfy some exhibitors' goals. Attendees will be able to participate in both events. AppleFest is expected to be the larger of the two events.

The incorporation of an MS-DOS "adjunct" to AppleFest will no doubt concern Apple Computer, Inc., but it certainly responds as well to the attendee's desires as does the decision to incorporate Macintosh products into what users perceive as the major Apple II trade show. We will see how (and if) Apple responds to this challenge.

The First International Computer Forum, sponsored by the International Computer Club, is being held June 14-17, 1990 at the World Trade Center in Moscow, U.S.S.R. Complete details are available by writing to the address International Computer Club, Serova, 4, Proyezd, Moscow, 101813, USSR, telephone 921-09-02. You'll want to contact the ICC early, as the membership rates will increase stepwise on March 1, April 1, and April 15.

Those who fondly remember the AST VisionPlus digitizer for the IIGs may be happy to know that the product is returning to the market under the auspices of Silicon and Software, 18004 Sky Park Circle, Suite 240, Irvine, Calif. 92714, (714) 250-8101. Not only that, the price has been lowered to \$299 from the original price of \$395. Also available from the new company is a IIGs RAM memory expansion card expandable to 4 megabytes of RAM, and up to 640K of ROM in the optional ROM card. Special pricing exists on these products until March 31, 1990.

Ariel Publishing is consolidating its publications into 8/16, a new monthly technical journal for Apple II programmers. The new publication will be source code intensive. Monthly columns include coverage of Orca/C, Micol Advanced Basic GS, Merlin 8 and 16 bit assembly, Applesoft, and ZBasic. Other environments such as Pascal, Orca/M, TML BASIC, etc., will also be examined frequently. A one-year subscription (12 issues) will be \$29.95. A companion disk will also be offered which will contain the issue's articles and source code along with additional articles, code, utilities, and product demos. The diskette will be \$69.95 per year, \$39.95 for six months, and \$21 for three months. The first issue is expected in March 1990. For further information, contact Ariel Publishing, P.O. Box 398, Pateros, Wash. 98846, 509-923-2249.

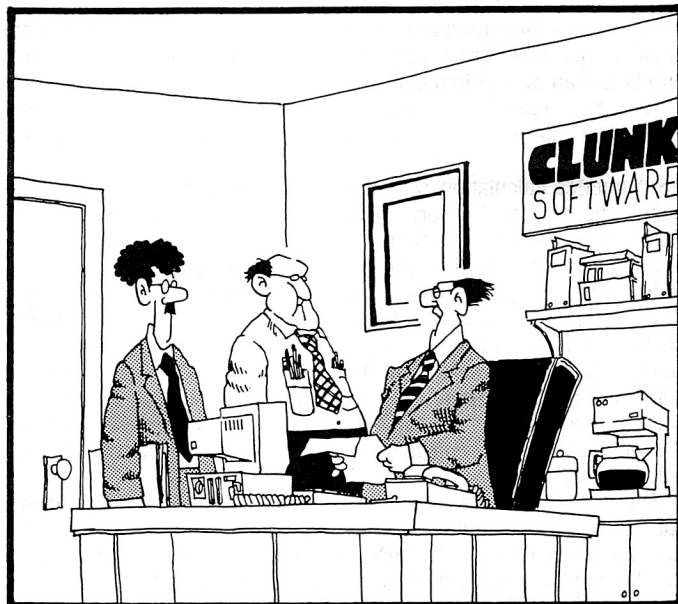
Apple itself has announced a new quarterly technical journal, *develop*. The journal will go out to Apple Certified Developers, Part-

ners, and Associates, and is also available on a subscription basis. It will consist of technical information and examples down to actual code examples.

The journal is not Apple II specific, but will include Apple II articles. For information on *develop*, contact the editor, Louella Pizzuti, at Apple Computer, Inc., 20525 Mariani Avenue, M/S 75-3B, Cupertino, Calif. 95014 (AppleLink Pizzuti1).

The first issue of *develop* will contain an article on the Apple II Development Dynamo by Eric Soldan. Eric described this system at the A2-Central Summer Conference in July 1989; it consists of a run-time library and macro interfaces to allow using the (Macintosh) MPW IIGs cross-development system (and, we hope, eventually the APW development environment on the IIGs) to develop applications for the older Apple II systems. The *Dynamo* supplies many standardized routines as part of the library, including manipulation of strings, variables, arrays, and integer math. By using these routines, each programmer is freed from having to write these common utilities for himself. The *Dynamo* also includes a "builder" to create the application from the programmer's modular code and data segments, and a "loader" which takes care of the task of loading and relocating these modules (even into extended memory on a 128K IIe or IIc) at run time.

While the *Dynamo* is primarily an assembly language tool which is currently limited to Apple's Macintosh-based MPW development environment, it does provide a development functionality that has not been present for the 8-bit Apple II systems and should ease the task of writing large applications for these systems.—DJJ



"THE MANUFACTURES OF A DATA ENCRYPTION PROGRAM THAT SCRAMBLES MESSAGES INTO A BRAINLESS MORASS OF INDECIPHERABLE CODE, HAS JUST FILED A 'LOOK AND FEEL' COPYRIGHT SUIT AGAINST OUR LANGUAGE ARTS SOFTWARE."

## GS Numerics: graphic math

In the movie "Peggy Sue Got Married", the title character responded to an algebra instructor by explaining that she knew for a fact that she would never have any reason to know algebra in the future. That is probably somewhat true for most people, and the program about to be described is not going to be of use to them.

For those people who never have, or will have, a use for algebra, consider the program in the following light: a good deal of our future depends on people who will have those skills, and the existence of a program that can help the "algebra technicians" of the future learn their trade well is an important step. And, in the broader sense, such a program may indicate the type of use that computers should be put to in education; as tools to make concepts more easily and quickly understandable. The fact that this particular tool is aimed at a specific segment of education should, if it is a good tool, make us long for and seek to find similar tools in other areas.

In 1972, when I graduated high school, the state-of-the-art tool for doing the very complex calculations of "higher" math and science was the slide rule. What I originally found fascinating about a slide rule was that I could see the way that logarithms worked. Though I had worked with logarithms since junior high school, they were always somewhat "magic". Having the slide rule's graphic representation of the logarithmic "spacing" between the numbers used in the calculation gave me a concept of how an addition could become a multiplication. I finally understood how logarithms mattered in mathematics, rather than just blindly using them as a tool.

The battle didn't stop there. With college came courses in engineering physics and calculus. Physics was so math-intensive that, even using a slide rule to "assist" in working problems, a set of problems could take hours to solve. I was lucky in that hand-held calculators had appeared by that time, and quickly had dropped to a price of "only" a few hundred dollars. The purchase of one of the leading models at that time, a Hewlett-Packard HP-45 scientific model, cut working physics problems from literally hours to minutes.

Calculus was more of a problem. Calculus involves many concepts that are more visible when viewed graphically, rather than as cold numbers on a page. But there was no equivalent of the pocket calculator to cut out the drudgery of producing those graphical representations. You created a graph by calculating a large set of points, plotting them on graph paper, and connecting the dots.

GS Numerics (\$130 from Spring Branch Software, Inc., R.R. 2, Box 268A, Manchester, Iowa 52057, 319-927-6537) is a program that fills that gap. It combines the features of a scientific calculator with an integrated graphing program. In addition, several other types of mathematical quantities (matrices, systems of linear equations, complex numbers) can be manipulated.

**As a pure calculator**, GS Numerics resembles the classic Hewlett-Packard calculators, down to the use of the Lukasiewicz ("reverse Polish") notation for entering data without the use of parentheses. The GS Numerics calculation screen is divided into three major components: the Register-Memory section, the Function section, and the Conversions/Elements section.

In Lukasiewicz notation, the data is first placed into an ordered set of four storage registers called the "stack"; when a data item is keyed in, it is copied into the lowest register in the stack. Any items already on the stack are "raised" to the next higher register position in the stack, with the highest (fourth) item being crowded off the top of the stack and lost. GS Numerics keeps the stack visible at all times, so you can not only see the value of the last number entered, but also the values of all data on the stack and the changes that occur during calculations.

The Hewlett-Packard calculators lack an "equals" ("=") key to indicate that a calculation is to be performed, and instead use the function key itself ("+", "/", "SIN", and so on) to perform the operation on the required number of items at the bottom of the stack. For example, if you wish to calculate the value of the expression:

$$1 + (2.35 * \text{SIN}(3.14))$$

you can use the sequence:

```
1 ENTER 2.35 ENTER 3.14 SIN * +
```

which tells the computer to "input 1, then push it up a level on the

stack, input 2.35, push it, input 3.14, take the SIN of the last entry, multiply the lowest two numbers on the stack, and then add that value to the next number on the stack (1)". It looks awkward compared to the description we might use for the first expression: "find the SIN of 3.14, multiply it by 2.35, then add 1". Reverse Polish Notation was designed to eliminate the need for entering parentheses as part of the expression; whether it is an improvement has been a matter of debate among scientific calculator users for years.

If you don't care for RPN, you can enter the first equation above directly into the Input Register and GS Numerics will evaluate the expression for you and put the result in the (stack's) x-register.

The Register-Memory section also contains a set of 26 memory registers labelled A-Z, each of which can store one value. The basic four algebraic operations (addition, subtraction, multiplication, and division) can be performed directly between the "x" and "y" registers of the stack and the corresponding data in a selected memory register. A two-value (X-Y) "CSTORE" register is also provided. This gives GS Numerics' calculator the ability to do (two-dimensional) vector arithmetic directly, working with rectangular coordinates (and complex numbers) or polar coordinates (using angular data in radians, degrees, or grads).

The Functions section includes 48 "buttons", each labelled with a mnemonic form of the corresponding function (e.g. "SIN(x)\*", "CADD"). Function labels that end with an asterisk can be used when entering expressions into the Input Register, as with the example above. Labels that are not marked with an asterisk, such as the "CADD" ("complex number addition") cannot be entered in this manner.

The Conversions/Elements section contains tables marked "Area", "Length", "Mass", "Power", "Volume", and "Temp", each with a selection of buttons marked with various units for the section. Selecting first one button within a table and then a second button in the same table causes the contents of the x register to be converted according to the relation between the two unit measurements. For example, with "2.000000" in the x register, pressing the "Length" button "inch" followed by "meter" converts the value in the x register to "0.050800" (2 inches equals 0.050800 meters).

A key marked "Elements" in the lower right-hand corner of the Conversions section toggles that section's display to an alphabetical list of elements. Pressing one of the element keys places a number representing the atomic mass of that element in the x register; for example, pressing "C" causes the atomic mass of carbon (12.011000) to appear in the Input Window and in the x register. When finished with the elements list, pressing a "Conversions" key returns to the Conversions display.

Among the menu items are more complex entry and calculation operations to work with systems of linear equations, matrices, polynomials, and regressions. The scope of GS Numerics goes beyond what can be described in detail here, but the general thrust of the operations is to allow the user to enter and edit the expressions, to solve them, and (if appropriate) to send the results of the solution to the calculator for further manipulation. In most cases you can also save prepared data to a disk for reference in another session. You can even record and save the operations performed during a session to a disk file so they can be re-created later.

One item sorely lacking in the linear system and matrix dialogs is an extended display of the current linear equation and matrix data. The value at a specific column and row can be displayed by manipulating "Col" and "Row" scroll bars, but a way of viewing the actual equations would be welcome.

**A major class of features in GS Numerics** involves graphing the results of your manipulations. This is a wonderful tool for seeing the "physical" entities that the mathematical expressions of calculus represent. It would be impossible to explain all the features here, but a brief tour of a specific example follows. We'll explain a little of the concept of the math as we go.

One classification type of mathematical functions is the polynomial. A polynomial consists of a series of terms of the form "a\*x^n", where "x" is a variable value, "n" is an (integral) power applied to the value of x, and "a" is a coefficient value that "x^n" is multiplied by. Let's arbitrarily construct a polynomial function f(x):

$$f(x) = x^4 - 3x^3 - 8x^2 + 12x + 16$$

*GS Numerics* allows you to enter the coefficients for the polynomial and, as in most portions of *GS Numerics*, save the data for future reference. You can then ask *GS Numerics* to calculate and display the graph of the function for a range of values for  $x$ .

Among the operations that *GS Numerics* can apply to a polynomial is "taking the derivative". Without explaining the mechanics of this operation, we'll just say that the operation results in another polynomial function of  $x$  which we'll call " $f'(x)$ ", in this case:

$$f'(x) = 4x^3 - 9x^2 - 16x + 12$$

One of the qualities of the derivative is that, for any value of  $x$ ,  $f'(x)$  will evaluate to the slope (the rate of "ascent" or "descent", when viewed graphically) of a line that only touches the curve at a 90 degree angle ("tangent to the curve") at the location of  $x$  on the graph of the original function  $f(x)$ . Notice that most of the terms end up being described in relation to a graph of the polynomial.

Confused? That's what the first few weeks of calculus are like. In order to get a better grasp of the quantities being described, usually calculus students are encouraged to actually sit down and calculate a series of values for the original function at various values of  $x$ , and then graph the results. Then the student may be asked to calculate the derivative function  $f'(x)$  and also calculate and graph a similar set of values for the derivative. As you can imagine, this can take hours, especially if your initial guess as to an appropriate range of values for " $x$ " doesn't happen to generate a particularly useful graph.

With *GS Numerics*, you can generate the visual graph by entering the coefficient terms for the polynomial and selecting "Polynomial" from the "Graph" menu. The program will ask you to enter the lower and upper boundary values for  $x$ , and then spend a few moments calculating a series of values for  $f(x)$ . Then *GS Numerics* draws the graph on the IIgs screen.

As part of the options available before the function is graphed, you have the opportunity to "overlay" the graph of the derivative of the function by selecting an appropriate check box while entering information for the graph request.

**There is much revelation here.** You can see the graph of the original function. If you need to see detail, you can select a portion of the graph and *GS Numerics* will re-draw that portion to a full-screen scale. With the derivative overlaid, you can click on a single point in the graph and see the value of  $f(x)$  at that point automatically calculated and displayed (though I found positioning the mouse to exactly the correct point was tricky). You can also exchange the original function and the derivative as the "active" curve; selecting the derivative allows you to look at the value of  $f'(x)$  and see how it relates to the equivalent point in  $f(x)$ .

I used the options in the Polynomial menu to calculate the slope of  $f(x)$  at a specific point. One of the options allows the entry of a second polynomial, so (with a little algebra) I supplied the equation needed to draw the tangent line representing the slope. Selecting "Polynomial" on the graph menu allowed me to graph the function, and this time I selected to overlay the graph of the second polynomial. Selecting "Print" from the "File" menu gives me the hardcopy of the graph in a fraction of the time that it would have taken me to produce by hand.

I wish this tool, and equivalents for other subjects, had been available when I was in school. It probably would not have reduced the amount of time spent in education, but it would have greatly increased the productivity of that time.—DJJ

## The AppleCD SC drive

In their most practical sense, computers are meant to be information manipulators. They are used as tools in other ways, but information manipulation is their most unique skill among machines. We attempt to use computers to amplify the quality and quantity of our decisions by having them remember and manipulate more information than we can easily handle ourselves.

Three limits we run into with computers are limitations in time (the speed of the actual CPU system), limitations in their ability to duplicate our thought processes (the suitability of their programming to a task), and the amount of data they can access (mass storage).

We seem to always run up against these limits no matter how fast, "smart", or large the system we are currently using is. The \$1199 *AppleCD SC* is a product from Apple that is intended to address one of these problems.

**The AppleCD SC is a mass storage device** using CD-ROM technology. "CD-ROM" splices together the two acronyms "CD" (compact disc) and "ROM" (read-only memory). Physically, the CD-ROM media exactly resembles the popular audio compact discs (CD). Like the current audio discs, a CD-ROM disc can be read ("played") but not written to ("recorded"); hence the application of the term "read-only". CD-ROM media uses an optical format, rather than magnetic fields, to store information, and is read with a beam of laser light.

Why would anyone use a read-only disk when a normal hard drive allows you to both read and write data? CD-ROM gives you the ability to store over 550 megabytes (dependent upon the storage mode) of data on a plastic disc 12 centimeters (about 4.7 inches) in diameter and slightly over one millimeter (0.05 inches) thick. That translates to the equivalent of 14 40 megabyte hard disks, 688 800K (ProDOS 3.5 format) disks, or 3929 140K (ProDOS 5.25 format) disks, or 270,000 pages of single-spaced text all on one light-weight transportable disc.

Since a CD-ROM disc is designed as "read only", the data on the disc cannot be accidentally or intentionally altered by a user. This is an advantage when there is no need to revise the data, or the producer of the data does not want the information altered. The disc itself is physically less volatile than the magnetic diskettes commonly in use; stray magnetic fields won't damage the data, the disc surface is not as prone to damage by abrasion (though it isn't indestructible), and since the disc is only accessed by a beam of laser light there the only significant point of wear is the (dataless) disk hub.

Since the CD-ROM disk is physically identical to an audio CD, tracks of audio information (distinct from the computer data sections) can also be included on the diskette. Newer laser video disk players also accept video information on CD-sized disks. A CD-ROM can indeed be multi-media, with computer, audio, and video data components.

The large amount of storage makes CD-ROM ideal for holding space-eating audio and graphics information, whether in computer-readable form or on a multi-media disc designed to be used with ancillary video and audio equipment. For example, a computer could read and display data from the CD-ROM's "computer data" area while commanding the CD-ROM drive to play a short video section and soundtrack through an external video monitor and speakers. Computer data, video, and audio information can be accessed under control of the computer or someone operating the computer. This is the concept of "interactive media"; a user can use the computer to select a function and the computer can access many types of data to carry out the function.

The cost of mastering and mass-producing CD-ROM discs is higher than for diskettes, but the large amount of available storage makes the cost per megabyte much lower. The cost of making the CD-ROM master for duplication is much higher than duplicating a diskette (which only requires the computer used to create the disk and a blank diskette), so the cost of starting production is several thousand dollars rather than the few dollars it takes to start producing diskettes. Yet it may be feasible to make 1000 CD-ROM discs for a few dollars each though, as for diskettes, the retail cost of a CD-ROM will be largely affected by other factors: marketing, licensing fees, perceived value, and so on. Eventually, a larger market for the discs should drive the costs of physical production down (the more disks you can create and sell from a single master, the less you have to make per disc), but currently CD-ROM suffers from the "chicken and egg" syndrome: in order to sell more discs, enough CD-ROM drives have to be sold to provide a market, and in order to sell drives you have to have software to convince consumers the drives are valuable.

CD-ROM is then best suited for products where a large amount of data is involved, where it is acceptable (or desired) for the data to not be altered on the distributed disk, and where the demand for the data justifies the production cost.

**Since the CD-ROM can store so much data**, it is feasible for it to contain data for several different computers. For example, it's reasonable to imagine a disk containing an encyclopedia and also a program to access the encyclopedia's information from *MS-DOS*, *Apple II*,

Macintosh, and other systems. There is plenty of room on the CD-ROM disc for the multiple formats.

But what if the encyclopedia itself takes up 90 percent of the disc? Does that force us to have only one computer supported per disc, since there is not room to duplicate the encyclopedia's information separately for each computer type?

Obviously, the sane solution is to put the encyclopedia's information in a format that every computer can read, and then to use the remaining space for any computer specific areas that are needed. Then all that's left to decide is what format should be used for the "common" area containing the encyclopedia.

One of the formats Apple has chosen to recognize is defined as ISO 9660/High Sierra, intended to be a computer-independent specification. The programs that run on an Apple II, IIgs, Macintosh, or non-Apple system to access the CD-ROM drive will have to be specific for each model of computer, but the High Sierra data file itself should be accessible to all of those systems. It would be possible to create a CD-ROM with the encyclopedia in the High Sierra format taking up the bulk of the disc storage, and then have specific ProDOS, GS/OS, Macintosh, or other sections on the disk (each "invisible" to the other computers' sections) to contain software to read the High Sierra portion. You can obtain a document describing the ISO 9660 standard by writing NISO, National Bureau of Standards, Administration 101, Library E-106, Gaithersburg Maryland, 20899. Unfortunately, like many "standards", all High Sierra formats may not be equal. Apple's *AppleCD SC Reference* manual defines Apple extensions to the ISO standard that Apple considers necessary to allow its computers to interact with the "generic" CD-ROM format. Apple explains the method of applying these rules to the creation of ISO 9660 files that can be accessed by their computers' operating systems, without conflicting with the ISO definitions. Files that do not contain these extensions may be problematical for Apple systems, however.

**The AppleCD SC drive communicates using a SCSI interface.** It can be attached to an Apple II through an Apple II SCSI interface, or to a Macintosh Plus, SE, or II model through the built-in SCSI interface supplied on those systems. Apple's manual, advising that "removable media like CD-ROM disks can cause identity problems for other devices in a SCSI chain under ProDOS", recommends that the drive be assigned the lowest priority SCSI device identification number (0) and that only one removable media device be connected in the SCSI chain. This precludes booting from the *AppleCD SC* if you also have a hard disk (or other disk device) attached to the SCSI chain, since Apple mentions that the system will attempt to boot from the highest-numbered device.

The *AppleCD SC* also includes audio outputs consisting of a stereo pair of RCA phono connectors on the back of the unit that can be connected to an external amplifier, and a miniature stereo headphone jack and volume control on the front of the unit.

To place a disc in the drive, the disc to be used is first inserted into a (provided) cartridge, and the cartridge is inserted into the drive. The only control for the disc drive (other than the power switch) is an eject button.

For the IIgs, the GS/OS System Software supplies an Installer script to add the *AppleCD SC* support files to your boot disk. The necessary files include an FST (file system translator) for the High Sierra/ISO 9660 data format, and a "CD Remote" desk accessory that lets you control the *AppleCD SC* as an audio CD player when it is not being used as a data drive. The Apple IIe software supplied also includes a "CD Remote" application, but access to the ISO 9660 format requires that the disc supplier include a IIe application that can explicitly read the information.

**Apple provides the CD-ROM Explorer demonstration disc** with the drive. The disc includes a ProDOS partition with distinct demonstration programs for the Apple IIe and the IIgs, a Mac partition, and some audio tracks used by the demonstrations for both computers.

For the Apple IIgs, Apple recommends booting the *Explorer* disc since the demonstration is incompatible with the GS/OS System Software now commonly in use (the provided system on the disc is an older version of ProDOS 16). This is a bit problematical if the CD-ROM is not the only disk drive on the SCSI chain; one of the easier solutions appears to be to boot ProDOS 8 from another device, then set the prefix to the *Explorer* volume and "-PRODOS". When the disc boots, it will detect the machine (IIe or IIgs) it is running on and load

the appropriate version of the demonstration program.

The demonstrations are remarkably similar among the three systems, though there is some variation among the types of demonstration programs provided. In keeping with the graphics-intensive theme in Apple's approach to hypermedia, the basic demonstration consists largely of a series of graphics "pages" which have active "buttons" that can be selected by the user. Selecting a button can take you to a new page for further information and possibly a further selection, or carry out another action (such as playing an audio track). The interface program used for the Macintosh is *HyperCard*; the IIe and IIgs screens mimic the Mac demonstration in functionality though their interface appears to be custom made for the demonstration.

The core of the *Explorer* disk is a tour and demonstration of the features of CD-ROM, much like a computerized "slide show" with all of the available enhancements such as sound, animation, and so on. Two special demonstration menus are included; a set of musical audio samples, and a suite of demonstration programs.

The audio samples (also playable on a standard audio CD unit) show both the quality and the utility of the CD-ROM drive as a sound source; when not being used as a data drive, the *AppleCD SC* is a competent (though costly) audio CD component. The inclusion of the CD Remote utilities allows you to use the *AppleCD SC* as if it were a low-end audio CD player; the features of the "remote" are sparse (but necessary, the drive itself has no controls!) but adequate, including controls to skip to various tracks, a time/track display, a "scan" feature, an "Eject" button, and some rudimentary track programming. One irritating problem we had on the IIgs "CD Remote" accessory was that the scan function always jumped to the first audio track on the disc; it wasn't actually possible to "scan" within a selection other than the first one on the disc. Also, pressing the "Eject" occasionally resulted in the "CD Remote" reporting "No Disc", but not ejecting the cartridge.

The number of demonstration applications increased as you went from Apple II to IIgs to Mac. For the IIe, the applications were *BookBrain*, *HouseCall*, and *Public Domain Software*.

*BookBrain* (The Oryx Press, 2214 North Central, Phoenix, Ariz. 85004, 602-254-6156) helps a young reader (grades 4-6) select possible reading material by asking what type of book the reader is interested in and recovering a title with the requested criteria from a database. The program also supplies a brief description of the suggested book's topic. *Housecall* (Rocky Mountain Medical Corporation, 5680 Greenwood Plaza Blvd., Greenwood Village, Colo. 80111, 303-773-1237 and 800-233-3556) is a database containing medical information on a wide variety of subjects in text format. *Public Domain Software* (Facts on File Publications, 460 Park Avenue South, New York, N. Y. 10016, 212-683-3344) is a selected set of Apple II programs. Though intriguing, these programs did not seem to illustrate anything startling about the capabilities of CD-ROM other than the ability to work with large amounts of on-line data.

The IIgs application menu added *Visual Dictionary* (also from Facts on File), which allows a user to search for a keyword and displays an image on the computer which includes the word of interest among the item labels. Using the mouse to click on an item generates an audio pronunciation of the item's name (through the IIgs sound circuitry), in multiple languages if you prefer. The heavy use of graphics and sound necessitate the use of CD-ROM's massive storage capacity.

But the IIgs application that most clearly demanded the features of CD-ROM was *Stardate* (The University of Texas, RLM 15.308, Austin, Texas 78712), a visual database of the solar system produced by the University of Texas McDonald Observatory. Beginning with a map of the solar system, the user is asked to select a planet. After the selection is made, *Stardate* presents a series of illustrative slides with information about the selected planet, accompanied by audio descriptions played through the *AppleCD SC* drive's audio circuitry.

*Stardate* was also present on the Macintosh partition, with the Mac version using the same audio soundtracks. We briefly experimented with the Mac side of things to see how the other half lives; the technology doesn't seem to be particularly better suited to the Mac than the IIgs. The IIe doesn't seem far behind; it lacks some of the detail in the graphics display and sound of the IIgs, but "general" applications

such as the encyclopedic databases may not require a graphics interface, and the use of the *AppleCD SC* audio output allows the IIe to duplicate function without an equivalent to the IIgs's sound circuitry.

**Our other test disc was *Phil and Dave's Excellent CD*** (named after Phil Williams and Dave Szetela at Apple Developer Services), a disc distributed to Apple developers containing ProDOS and Macintosh partitions with extensive technical documentation, system software, tools, sample code, and other goodies. The disc is essentially an on-line reference resource for developers. The remaining portion of the disk is fluffed out with audio tracks of advertising samples and musical segments.

The disc is a great idea, in theory. Having such items as *Apple II Technical Notes*, sample code, *APW* interfaces, and system software on-line in a single volume puts a large number of important resources in a single place. But after playing with the disc a few days, it became obvious that the data just wasn't useful in such a unique way that we could justify buying an *AppleCD SC* to access it. The total amount of data in the ProDOS partition added up to about 15 megabytes, which would fit on a standard hard disk drive with room to spare.

So the question arises: why distribute this on a CD? Well, it is less costly than sending out twenty 3.5 disks with the same information. But a further justification is apparent when you look at the Mac partition, which shows over 180 megabytes worth of data. Obviously, mailing out that many floppies to all developers would be infeasible.

There is a lot of Apple II information on the Mac partition, including many "compressed" Apple II disk images, but accessing it requires

adding the price of a Mac to the price of the CD-ROM drive (and developer's fees). That's a very expensive peripheral; again, Apple compromises the utility of Apple II information by supplying it in a "foreign" format.

It is just as bad on an AppleShare network. The Mac-specific files are only accessible by another Macintosh on the network which is able to run the applications needed to access them. The "foreign" ProDOS partition does not appear. For a CD-ROM to be useful in the current AppleShare environment, the Apple II (ProDOS) partition information would have to be duplicated in the Macintosh partition in the form accessible by the AppleShare server.

The Developer Services CD-ROM is still evolving though, and we can hope that this "failure to communicate" will be resolved.

One unknown quantity is just how many other CD-ROM discs are available that are usable for prospective Apple II *AppleCD SC* purchasers. Apple publishes multimedia guides for the Macintosh, but have not been as visible in disseminating information for the Apple II. Apple Developer Services does produce The CD-ROM Development Resource Guide, a directory of companies providing services to aid in CD-ROM production.

The utility of the *AppleCD SC* (or any CD-ROM drive) is determined by Apple's commitment to support it for the Apple II customer. We find the technology's potential impressive, though at this point we do not see sufficient utility to justify Apple's premium price for the technology for individual Apple II owners.—DJJ



## Ask (or tell) Uncle DOS

with your newsletter. We do have a few new items, though, taken from requests from past letters. For those who work with *AppleWorks*, we have **SuperPatch 6.1** (#QC-001; \$39.95) and **The UltraMacros Primer** (#NA-001; \$19.95). We also have the **Nite Owl Slide-On Battery** (#N0-001; \$14.95), Don Elton's popular **Talk Is Cheap** communications software (#CS-001; \$40, which includes Tom Hoover's **GEnie Master** program to simplify use of GEnie) and, for those who don't want to spend the time downloading fonts from GEnie, an 8-disk **Font Collection** (#FC-001) assembled by Mark Collins, keeper of the **A2-Central Font Clearinghouse**.—DJJ

### GS/OS Resources

Ahhh, System 5.0, what an operating system! We like it!

Is there a good IIgs version of the Macintosh *ResEdit* program? Is Apple going to do one or has some mind-manglingly clever hacker beaten them to it in the shareware or public domain arena?

Phil Tyler  
Manchester, England

Originally, ProDOS 8 supported three storage types for files: seedling, sapling, and tree. The difference between the formats essentially lies in their use of indexing blocks to locate the portions of the file containing data: seedling files (the smallest, 512 bytes or less) have no index blocks (the file consists of one data block), sapling files (intermediate) have a single index block which contains pointers to all the data blocks of the file, and tree files (the largest, up to 16 megabytes) contain index blocks which point to other index blocks which point to the actual data blocks.

GS/OS introduced a new "extended" storage type, which contains an "index" block that actually points to two different "forks" for the file, a data fork and a resource fork. "Resources" are special forms of information in the file that can be accessed by a single manipulation tool, the Resource Manager supplied starting with IIgs System Software 5.0.

Manipulations of extended files are not supported under ProDOS 8, which was not designed to recognize their structure, so most ProDOS 8 utilities will refuse to work correctly with this type of file.

We are a little thin on our comprehension of resources, but we understand that the intent of their use is to allow a program to access these particular items of information (requesting it via the Resource Manager) without having to know the exact form that the data is stored in on disk. This facilitates allowing a utility to edit the item (resource) without having to alter the way that the program accesses it.

Imagine a program that has several items of text defined within data tables for the program. If the data tables are changed, the program itself would have to be reconstructed to accommodate the change. If the same data could be stored externally in a resource, then the information could be easily changed without the program having to be altered as long as the number and type of data items conforms to the information the program expects. This gives a user more control over customizing some aspects of a program, because it is not necessary to delve into the program itself to make the change. Instead, a resource editor can be used.

Apple has not released a IIgs equivalent of the Mac *ResEdit* utility. A resource compiler (**REZ**) and de-compiler (**DEREZ**) for the *APW* and *ORCA* environments is available in the new **Programming Tools and Interfaces** package (\$50) from:

APDA  
Apple Computer, Inc.  
20525 Mariani Avenue, M/S 33-G  
Cupertino Calif. 95014  
(408) 562-3953  
(800) 282-2732

The following companies have announced products that will allow editing resources:

### Corrections and amplifications

The "file count correction" in line 2120 of "directory reader" program in last month's issue is incorrect. Deleting the incorrect line corrects the problem.

**RepairWorks** author Gary Morrison saw the comment about using **AppleWorks GS** to recover damaged *AppleWorks* database files ("Data Transfer Revisited" on page 5.95 of last month's issue). Although **RepairWorks** was mentioned, Gary knows of no reason why his program would not be able to recover such a file under the same situation that **AppleWorks GS** would be able to read the file. We assume Jim Hirsch was being a bit poetic in his introduction.

Regarding the use of Finder to copy large files such as **AppleWorks.GS** ("Miscellanea" in last month's issue), it appears that the problem is not universal. Further testing indicates my hard drive (interfaced through an Apple II SCSI interface and using System 5.0.2) is the only target device to exhibit the problem consistently. Copying the file to other types of drives (such as a RAM disk, or an *AppleShare* volume) with Finder consistently resulted in a working copy of the program.

Since this is the February issue, there is no catalog this month; instead, you'll find an index for Volume 5 of **A2-Central** enclosed

Byte Works, Inc.  
4700 Irving Blvd. NW  
Suite 207  
Albuquerque N.M. 87114  
(505) 898-8183  
Designmaster (\$95)

Simple Software Systems International  
4612 North Landing Drive  
Marietta Ga. 30066  
(404) 928-4388  
Genesys (\$125)

So What Software  
10221 Slater Avenue  
Suite 103  
Fountain Valley Calif. 92708  
(714) 964-4298  
(714) 963-3392  
Call Box (\$99)

**Call Box** is the only one of these products that we have seen in a release version, and its implementation of resources was neither complete or totally consistent with those of **REZ** and **DEREZ**.

The new **TML Pascal II** compiler (\$125) also contains a resource editor as part of their desk-top development environment:

TML Systems, Inc.  
8837-B Goodbys Executive Drive  
Jacksonville Fla. 32217  
(904) 636-8592

Resources on the IIgs are still evolving, so we expect the editors will also be improving some in the coming months.—DJJ

## Hard decision

I'm buying a hard drive; any good books on them?

Paul Christianson  
Lancaster, Calif.

Buying a hard disk is a major purchase decision; unfortunately, we do not have a wide variety of makes and models from which to make absolute recommendations. You should consult with dealers that sell a variety of drives, and also obtain specific information on any drives that interest you from the respective manufacturers.

Quality Computers, 15102 Charlevoix, Grosse Pointe, Mich. 48230, (313) 331-0700, sells **The Hard Disk Buyer's Guide** for \$6 which describes several hard disk features users should evaluate when buying a drive. If you buy the drive from Quality Computers later the cost of the guide is refundable; if not, it still is an inexpensive way to get general information before a purchase.—DJJ

## Kudos for Interactive

Concerning a letter in your Jan. 1990 issue (page 5.93), about using analog to digital cards (ADCs), you recommended several companies, including Interactive Microware. I've used two products from Interactive Microware and can vouch for the quality and usefulness of both.

The **AI-13** card is a very fast, 12-bit, 16 channel ADC that I use to digitize physiologic data in medical research. The company supplies an excellent manual and examples on disk to demonstrate how to access the card from assembly language, Pascal or BASIC. The card uses the memory space allocated to the slot in which it resides: to activate the card in BASIC, you POKE in a value that sets both the channel and gain, and then PEEK the result in two bytes.

The **AMADATA** card is a single channel, 12-bit ADC that I use to digitize data from a liquid chromatograph UV detector. Interactive Microware supplies software to digitize and manipulate chromatographic data. That software will run on a 48K II-Plus or higher under DOS 3.3. We have found the software to be both friendly and robust.

Interactive Microware also supplies digital to analog cards and a host of other special input cards, and supplies some specialized scientific software for data acquisition and analysis. We have found IM to be very helpful with tech support, though they don't know much about the IIgs, and haven't upgraded their Apple II software to use either ProDOS or the IIgs. They do have software to allow the Apple II to drive a number of scientific instruments, such as chromatographs, spectrophotometers, etc.

Thanks for continuing to answer questions and produce a super resource for the Apple II.

Steven R. White  
LaGrange Park, Ill.

## TransWarp with more byte?

Can the **TransWarp** with the 65C802 option work with 16-bit programs on a IIe?

Nono Porcu  
Brossard, Quebec

The 65802 is a processor that recognizes the same instructions as the 65816 used in the Apple IIgs, but is compatible with the 6502 used in the older Apple II models (Apple II, IIe, and IIc) and clones (see "A 65802/65816 pre-boot" and "Introduction to the 65802/65816", **Open-Apple**, August 1986). If you have a 65802 that can operate at the 3.6 megahertz clock speed of the **TransWarp** (most 65802's we've seen are rated for at least 4 megahertz operation), the socketed 65C02 in the **TransWarp** can be replaced with the 65802. You could also replace the slower 6502 on the motherboard in the same manner.

What you gain is somewhat nebulous unless you have software that specifically uses the extended command set of the 65802. One example is the **Merlin 8/16** assembler version for the IIe/IIc, which is specifically written to take advantage of the extra commands. But overall, such software is rare.

If by "16-bit programs" you mean IIgs software, the answer is no. One of the concessions for the 65802's hardware compatibility with the 6502 is the limitation of the 65802 to access only 64K of linear memory as opposed to 16 megabytes for the 65816. But the larger problem is that the IIgs hardware has been expanded beyond the features of the older models, and the IIgs System Software environment (and programs that operate with it) depend upon those extended hardware features.—DJJ

## Time for Business Card

I have a Street Electronics **Business Card** installed in my Apple IIe. It is a multifunction card, supporting serial output for a printer and modem, along with a clock. Because all my slots are used, I use a specially patched version of ProDOS 1.1.1 which came with the hardware that recognizes the clock in slot 1. Standard ProDOS does not look for a clock in slot 1. When time ended for ProDOS 1.1.1, I patched this version of ProDOS to go beyond the time limitation.

Because Street Electronics no longer manu-

factures this card, they have no plans for a patched version of ProDOS 8 which would recognize the clock in slot 1. My most recent call to the company about two weeks ago confirmed this. While it might not be financially sound to go through the cost of developing such a patched ProDOS 8, it may make good sense to develop such a patch to foster customer good will and loyalty. While Street Electronics does continue to manufacture Apple peripherals, I would find it hard to recommend a company which does not offer continued support.

Is there anyone who has patched ProDOS 8 to recognize a clock in slot 1? While I continue to use ProDOS 1.1.1, I know that its time will come to an end. I believe the date patch allowed ProDOS 1.1.1 to recognize another five years.

Dennis A. Ziomek  
Chicago, Ill.

Apple's standard ProDOS clock driver will recognize a **Thunderclock-compatible** clock card in any standard slot (1-7). The problem is more likely that the clock driver required for the **Business Card** needs to be transferred from the patched ProDOS 1.1.1 to the newer version. Perhaps a reader has a suggested fix.—DJJ

## More hypermedia

In the last issue of **APDALog**, there are two hypermedia products listed for the Apple II family of computers with the following characteristics:

<b>HyperStudio</b>	IIgs only	\$115	4	3.5	disks
<b>Tutor-Tech (v2.6)</b>	any Apple II	\$195	3	5.25	disks

Since I have an Apple IIc, I am interested to know about the **Tutor-Tech** product. According to the description which appears in **APDALog**, both products do more or less the same. But the following questions come to me:

Four 3.5 disks contain a lot more code than three 5.25 disks. But 195 bucks is more than 115. Why?

**HyperStudio** has received a lot of praise in the press in the last three months because they say that "It adds hypertext capabilities to the Apple IIgs, which are new to it", but I have not seen any comments about **Tutor-Tech**, which seems to be an older product than **HyperStudio**. If **Tutor-Tech** is the original hypermedia product for the Apple II family, why has it not been reviewed in that way?

Is **Tutor-Tech** ProDOS based and can it use 3.5, hard drives, or RAM disks, or is it copy protected?

Can you help me solve this puzzle? Can you give me some advice about this?

Juan I. Cahis  
Santiago, Chile

To answer the latter questions first: **Tutor-Tech** not only predates **HyperStudio**, it predates **HyperCard** for the Macintosh. We mentioned the product ourselves back in March 1988 ("A month of firsts", page 4.10); it is an authoring system that uses the basic "card and button" application interface popularized by **HyperCard**, but lacks the extended features of **HyperCard** and **HyperStudio**. The product is ProDOS based and not copy protected, and a recent revision has been released. **Tutor-Tech** is available from **Techware Inc.**, P.O. Box 1085, Altamont Springs, Fla. 32715, 305-834-3431.

As for why **Tutor-Tech** is not getting recent acknowledgement in the press, it probably relates to the way the product is marketed. We've seen **Tutor-Tech** being primarily promoted for the educational market; you don't see ads for the product in end-user magazines like **inCider** and **Nibble**, for example. **HyperStudio** is being pitched to a much wider audience as a user application.

We wouldn't presume to judge the relative costs of the products. As a practical matter, we believe **HyperStudio** is a more powerful package for IIgs owners, and the fact that it costs slightly less (the suggested retail price on **HyperStudio** has escalated to \$150) should set the pointer firmly in its favor for IIgs owners. But creating an application designed to run on a 128K IIe/IIc with much of the functionality of programs which have the resources of a more powerful IIgs or Macintosh system is no easy feat, and the cost of software is affected by its perceived value. Apparently Techware believes the price to be reasonable, and is receiving enough sales to keep it there.—DJD

## More keyboard options

Thanks to the lead given by Steve Harker in the November issue of **A2-Central**, after installing System 5.0 I experimented with pressing the option key and each of the other keys in turn. Option-a gave me å, option-e gave é, option-i gave ì, option-o gave ø, and option-u the umlaut as stated. I also obtained ç by pressing option-c, but please, what do I press to get the grave accent ` , which is so frequent in French?

Many thanks for the wonderful service provided by **A2-Central**.

Bob Symonds  
Bromley, Kent  
England

The IIgs manuals still don't supply the information, but the Mac SE manual had some clues (on page 139), as did the **AppleWorks GS v1.1** manual addendum. You've found all of the "prefix" codes except the more obvious Option-` , which gives the grave accent à , and Option-n , which add the "tilde" ñ .

Notice that the characters produced by the option-key combinations may vary among character sets, so use the above as a guide, not a set of hard rules.—DJD

## Catalog to text

Do you know a way I can print the contents of my disk directories to text files so I can use them with **AppleWorks** or **Publish-It!**? I have **Copy II Plus**, but that seems to only let me print the directories out.

Dan Goldblatt  
Highland Park, N.J.

For ProDOS directories there are several alternatives, including writing your own program to read and print the directory information to a text file (see "Reading /RAM from BASIC" in the last issue for an example of how to read a directory). One problem you will run into is that you must READ the complete directory before you try to OPEN and READ another directory (even a subdirectory on the same disk); BASIC.SYSTEM uses a special routine to READ the directory information that doesn't retain its position within the directory information if you try to suspend reading the information in order to READ another file.

There are also commercial utilities that will

create a file from directory information for use by another program. The **Information Desk** utility from Glen Bredon's **ProSel** package can direct its output to a disk file, for example.

If you specifically want to create an **AppleWorks** database from the information, **Beagle Bros TimeOut PowerPack** has a utility named **File Librarian** that will load the directory information (including all files in subdirectories) into an **AppleWorks** database.

Another useful utility is **LastCat** from Living Legends Software, P.O. Box 4313, La Mesa, Calif. 92044, 714-676-1940, which can read standard ProDOS, **Apple Pascal**, **CP/M** (5.25 formats only), and **DOS 3.3** (5.25 format only) directories and create a text file or **AppleWorks** database form of the information.—DJD

## Clock timed out

I would like to tell **A2-Central** about a software problem I had, and the solution, in the event that others are having it too. The problem was that whenever I tried downloading files with **AppleWorks GS** on **GEInie**, I was getting about 30-50% errors in XMODEM (about 30 blocks out of 100 transmitted). This was happening all the time, every time I called. It also started happening while calling **CompuServe**. I found out through elimination that the problem is the new **Beagle Bros** desk accessory called **Menu Clock** from their **GS Desk Accessories** disk. When deleted from my system, everything works fine. Please let anyone else out there know. It took me quite a while and cost a considerable amount of on-line time to figure this out.

Tim Crossman  
Nanamio, B.C.

## PaintWorks Gold fix

Is there any hope of anyone getting **PaintWorks Gold** to work with System 5.0? Activision has stated that they are not working at updating any of their productivity software. Is there anything we can do?

C. S. Buback  
St. Charles, Mo.

Graphics guru Jason Harper has been circulating a patch to allow **PaintWorks Gold** to work on a IIgs with at least 1.5 megabytes of memory. From BASIC, try applying this patch to a backup of your **PaintWorks Gold** program:

```
POKE 768,127
```

```
BSAVE PAINTWORKS.GOLD,T$B3,A$300,L1,B$1FFEO
```

As far as encouraging **Mediagenics** (Activision) to re-enter the **Apple II** market, about all we can suggest is to write a letter to the company letting them know you regret their decision.—DJD

## No Slot Clock fix

Here is some information on the **No Slot Clock** (NSC) which your readers will appreciate. I have been disassembling and commenting the NSC utilities mentioned below. A friend was unsuccessful in trying to get the NSC to work with ProDOS 8 v1.8. This is the fix I came up with for him. By the way, you have a terrific newsletter.

Systems Manufacturing Technology's (SMT) **No Slot Clock** (NSC) utility diskette is successful in patching ProDOS versions 1.1-1.7 to poll the NSC upon request. However, my version of the utilities, dated 4/27/87 and supplied with ProDOS 8 v1.2, fails to patch Version 1.8 correctly, although the utility "thinks" it has been success-

ful. The problem comes about because the utilities, by necessity, have to patch ProDOS code that Apple has not guaranteed to remain at fixed locations for all ProDOS version. With the creation of v1.8 around August of 1989, these location changed. Since my utilities were created about 2.5 years prior to v1.8, the patch was not successful on this latest version.

To fix the problem type the following patch into **INSTALL**, located on your backup copy of SMT's **No Slot Clock Utilities** diskette. This will result in a utility that successfully patches ProDOS versions 1.1-1.8.

```
UNLOCK INSTALL
```

```
LOAD INSTALL
```

```
157 IF PEEK(X) <> 76 AND PEEK(X) <> 96 THEN  
X=20742: R=10294: IF PEEK(X) <> 76 AND  
PEEK(X) <> 96 THEN PRINT CHR$(7) "DON'T  
RECOGNIZE PRODOS - UPDATE ABORTED": END:  
REM ProDOS v1.8
```

```
158 HOME
```

```
SAVE INSTALL
```

```
LOCK INSTALL
```

Now reboot the SMT NSC utilities and select "PATCH A PRODOS DISK" and follow the instructions. The utility now will successfully patch disks with ProDOS versions 1.1-1.8, however it will also notify you if it does not recognize the version of ProDOS you are asking it to patch and abort the update to ProDOS.

Frank Shirk  
Florissant, Mo.

## No ROM 02?

I have an **Apple IIgs**, with ROM v1.0. I've read that the new IIgs's have ROM v3.0. When did I miss v2.0? Am I entitled to an upgrade? What changes were made?

Rami Levy  
Brooklyn, N. Y.

To our knowledge, there was no "ROM 02" released. The changes between ROM 00, ROM 01, and ROM 03 are documented in **Apple IIgs Technical Note #26, "ROM Revision Summary"**. Apple has not provided a "ROM only" upgrade for previous IIgs models because some features of the ROM are tied to features of the new IIgs hardware. We have models of both the old (ROM 02) and new (ROM 03) IIgs's here and we agree with the assessment that, for most users, the improvements are not significant. Almost all the functionality of the "new" IIgs can be created on the older IIgs's by upgrading the memory to at least one megabyte and using System 5.0.2. Given the cost of Apple's original IIe to IIgs motherboard upgrade, the cost of a motherboard exchange to get the "new" IIgs probably would not be competitive with selling your older IIgs CPU and putting the money toward the new CPU box.

There is also the problem that some IIgs memory cards that use more than 4 rows of memory may not work correctly in the newer machines due to the way that the one megabyte of standard memory is accessed. Some companies have been able to provide upgrades to their memory boards to solve this.—DJD

## AAFES pro and con

Apple certainly needs a roast after pulling their products from the military base exchanges. This tiff seems to be over their (AAFES, exchanges, and catalog order) wanting to give the best possible deals to their somewhat captive and transient customers (Apple says they could deal with local dealers...what if one goes to another base?) to package systems and discount as they decide in their bulk purchasing. I have a vested interest in that, I purchased my IIGs and accessories through an exchange, and my wife was to the point of (for shame!) looking at a Mac...now??? The computer area (Scott AFB, Ill.) now offers only IBM clones (Tandy, Epson, Commodore, etc.), Ataris, and video games.

Joseph Yanko  
Webster Grove, Mo.

I have just recently returned from Korea where I had the "pleasure" of working with AAFES in the computer section of the store. The situation as I understand it is that the actual Apple dealership is, in the typically efficient military manner, held by the same company that also holds the Tandy and Commodore franchises. This company by the way is located somewhere in Texas, Dallas I think. As a result your AAFES "Apple Dealer" is in actuality only a retail re-distributor.

This is a relationship somewhat similar to a corner gas station, i.e. their attitude is "hey, we only sell the stuff". I originally got involved with AAFES in an effort to help make their computer

section a place you could go to for help. It was a totally frustrating experience. The bottom line here is this may actually be a blessing in disguise. There are Apple dealers in the economy. There is also a current, up to date source of software and hardware through the mail order houses. It will take a little effort on your part to find alternate sources but you will find as I did that the effort is well worth it.

The real reason, in my opinion, that Apple has discontinued this particular franchise is the volume of complaints about the lack of service. This is a very positive sign that at long last Apple is starting to listen to its customers.

Mark Snyder  
Pemberton, N.J.

*Apple's "dealer support" has always been a tricky issue. Apple has historically tried to limit sales to "Authorized Apple Dealers" and to specifically exclude mail order sales so that users would have a local dealer to help solve their problems. Of course, if you buy an Apple product and then move to an area where a local dealer is not available, you're on your own. The same thing can occur if the local dealer (or even Apple office) decides that a computer model is not worthy of continued support; we have received and published these types of complaints in the past.*

*But there is sometimes encouraging news...—DJJ*

## More news from overseas

Once again, I'm firing up my word processor to exchange some Apple II discoveries.

Recently, AppleWorks 3.0 did arrive here too, followed by UltraMacros 3.0. My opinion? WOW! A zillion cheers or so for the Beagle gang. It's this kind of evolution that's giving weight to the "Apple II Forever" yell.

About some lights in the darkness of the Apple II position here in The Netherlands. A bunch of persistent Apple-lovers has taken various initiatives, which has resulted in some very nice things.

The Dutch national Apple users group "Klokhuis" ("apple core") formed a Special Interest Group for AppleWorks. This SIG is offering every possible service for all AppleWorks users. The kernel of the SIG comprises experts in all territories. Interested readers should contact Theo Bakker, Vledderdiep 28, 1509 WZ Zaandam.

At last, a dealer is again providing hard- and software (Apple and others) at reasonable prices. Headed by a nice guy who knows what Apple IIs can do, this is the service all Dutch Apple users have been missing for too long a time. You might remember Kees Buys, the "boss" of SEA Software; he was at your Developer's Conference last June (address: Quade Wouwsebaan 35, 4621 JE Bergen op Zoom).

The black hole continues to fill. Another Apple II expert, Disk Kronemeyer (don't you love those Dutch names?) is not only manufacturing all kinds of interface cards (among them a IIGs color video-digitizer for PAL video!) but has taken up an Applied Engineering dealership, too. He is supplying bargain prices; address: Kronemuis ("crown mouse") Interface Technology, Pinksterbloemweide 14, 3448 TH Woerden.

A bunch of IIGs users who are also programmers has formed the GS/OG, the acronym (in Dutch) for Apple IIGs/Developers Group. This provides a platform or forum for any other IIGs

user or "weekend programmer" who is in need for assistance as far as programming is concerned. Quite some expertise is found within the GS/OG; the creator of SDE (Software Development Environment; an assembler that surpasses quite a few others), one of the beta-testers for Applied Engineering, and a guy that has written a complete bookkeeping/accounting program for the IIGs with pull-down menus, graphic desktop, mouse control and all other stuff (of course this program is made according to all of the Dutch tax rules). The GS/OG can be contacted through Kees Buys of Sea Software (address above).

Another group of Apple II fanatics, targeting mostly the II+, IIe, and IIc users, has formed an "Apple II Support" service; "support" in the widest sense of the word. Contact Frans Verschoor, Noorderhavenkade 26c, 3038 XH Rotterdam for more details.

And, as if this isn't positive enough yet, even Apple Netherlands is showing a little shifting towards the Apple II(g)s. Its existence is not neglected anymore, the managing director even committed to supporting the II-line in a recent interview, and in the Dutch headquarters a few employees are spotted who know that Apple has more IIs than the Mac II alone. The wind is not much more than a tiny breeze, but to rephrase Bob Dylan: "For the times, they are changing..."

By now you should have received the *Photonix* copier for the IIGs, as Guy Spirytus from Paris told me he would send you a copy. It is made by the same wizards that wrote *Nucleus* and is another outstanding example of what smart programmers can do with the IIGs capabilities. According to POMS, the French Apple Journal, *Nucleus* was running on a big screen at the latest Apple Expo in San Francisco and greatly impressed all visitors. Apple should put both products in the box with every IIGs! Yes, in "la douce France" nice things are going on for the Apple II.

John L. Tegelaar  
Nieuwkoop, The Netherlands

*We have indeed received Photonix. Along with Nucleus and some other demos we have seen from France, it is quite impressive for measuring the potential of the IIGs. None of these products use the IIGs tools in the GS/OS environment, however, which limits their real-world utility. The versions of Nucleus and Photonix we have seen won't even operate on the newer (ROM 03) IIGs CPU's.*

*We are very happy to hear all of the stories regarding both the efforts of Apple II enthusiasts to support and promote the machine, and that some of this enthusiasm may be swaying official Apple support in your area. Apple is not so large a company that it can drive the market solely on its own, but if Apple chooses to only support the Macintosh and there is no "grass roots" effort to combat the lack of Apple II support, then the Apple II market can languish in silence. An example is the reported slow "holiday season" sales of Apple's low-end systems (both Apple II and Macintosh!) in the US, where Apple only ran glossy television advertisements where the high-end Mac IIcx was usually featured. The media here has been criticizing Apple's wisdom in apparently ignoring lower-end markets that originally built the company.—DJJ*

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