THE APPLE II MAGAZINE

inCider

AN IDG COMMUNICATIONS PUBLICATION

inCider *On Line:*
Discover Public-Domain Treasures On Line,
p. 110

March 1988
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A New Look!

GEOS

Software Options For the IIe/IIc

IT'S TAX TIME AGAIN
You Can't Avoid It—But a Tax Program Can Ease the Pain

REVIEWS:
The Print Shop IIGS
Ticket To Spain
GraphicWriter 2.0
ThunderChopper
TML Pascal
HardBall!



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0 74470 12066

WRO

For everyone who ever wished their Apple II could turn into a Mac-Intosh, we've got some great news.

It's called GEOS. And it turns any Apple IIe, IIc or compatible into a ProDOS-compatible, mouse-driven, icon-loaded, graphical operating powerhouse that packs all this power into one package: A desktop file manager, four applications, three utility programs, five desk accessories, six fonts and an interrupt management card.

GEOS (Graphic Environment Operating System) opens your Apple to an infinite number of graphically-oriented applications. Like writing, painting, desktop publishing, calculating —in fact, GEOS can do just about anything a Mac can do.

The kernel at the core of your Apple.

What changes your Apple at its very core is the herculean GEOS kernel, which supports printer drivers, input drivers and proportionally-spaced fonts. It also supports pull-down-menus. Icons. Dialogue boxes. Cutting and pasting data within and between applications. And switching directly from one application to another.

It supports peripherals, desk accessories—in short, it supports just about everything you'd ever want to do with a computer.

And all this without missing a beat. That's because the interrupt management card makes sure you never miss a key stroke, no matter how fast your fingers fly.

Everything's controlled from the deskTop.

The GEOS deskTop lets you control and manipulate virtually everything from icons to RAM disks. And the way you control everything is very simple:

Point and click.

When GEOS offers you options, you just point to your answers and click your mouse or joystick.

You want to copy a file? Point and click.

You want to print a file? Point and click.

You want to fill delete a file? Point and click, and drop it in the waste basket.

The deskTop also keeps you organized. Art, documents—everything is stored and filed on the GEOS deskTop. View files as icons or text. Even sort files by type, name, date or size.

And you can keep yourself organized on up to four different disk devices: 5¼", 3½" hard disks and RAM disks. All at the same time or in any combination.

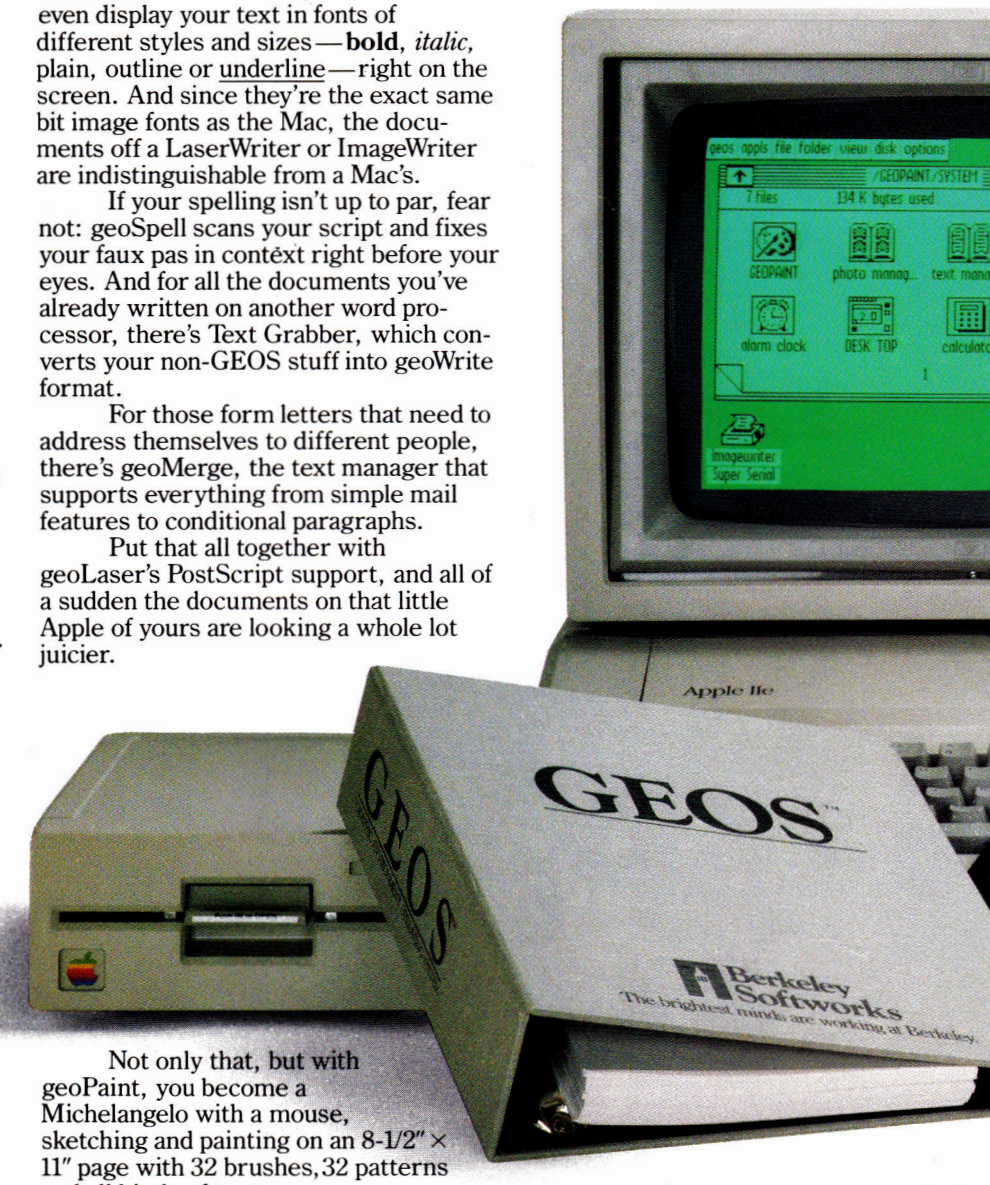
A few bits off the old Mac.

But if you really want to see Mac-like stuff, open up geoWrite 2.1. The "What You See Is What You Get" word processor that lets you center, justify, search and replace text. You can move blocks of copy. Cut and paste. Use headers and footers and even display your text in fonts of different styles and sizes—**bold**, *italic*, plain, outline or underline—right on the screen. And since they're the exact same bit image fonts as the Mac, the documents off a LaserWriter or ImageWriter are indistinguishable from a Mac's.

If your spelling isn't up to par, fear not: geoSpell scans your script and fixes your faux pas in context right before your eyes. And for all the documents you've already written on another word processor, there's Text Grabber, which converts your non-GEOS stuff into geoWrite format.

For those form letters that need to address themselves to different people, there's geoMerge, the text manager that supports everything from simple mail features to conditional paragraphs.

Put that all together with geoLaser's PostScript support, and all of a sudden the documents on that little Apple of yours are looking a whole lot juicier.



Not only that, but with geoPaint, you become a Michelangelo with a mouse, sketching and painting on an 8-1/2" × 11" page with 32 brushes, 32 patterns and all kinds of textures.

So you can fill in that obtuse rhomboid with an air-brushed geometric pattern in a lighter shade of grey. And in case you ever make a mistake, the "undo" feature undoes the very last command you entered.

You can invert, mirror and rotate images. Zoom in to edit pixel by pixel, or preview the entire page. Insert pictures into your geoWrite documents. Or save them in your GEOS Photo Album for use later.

There's even a set of pop-up desk accessories for that helping hand in any application. There's an alarm clock that keeps you punctual. A notepad that keeps your memos. And a calculator that keeps your accountant honest.

Polish up your Apple with GEOS.

There are even more GEOS applications on the way. Spreadsheets,

Be
So

The brightest minds

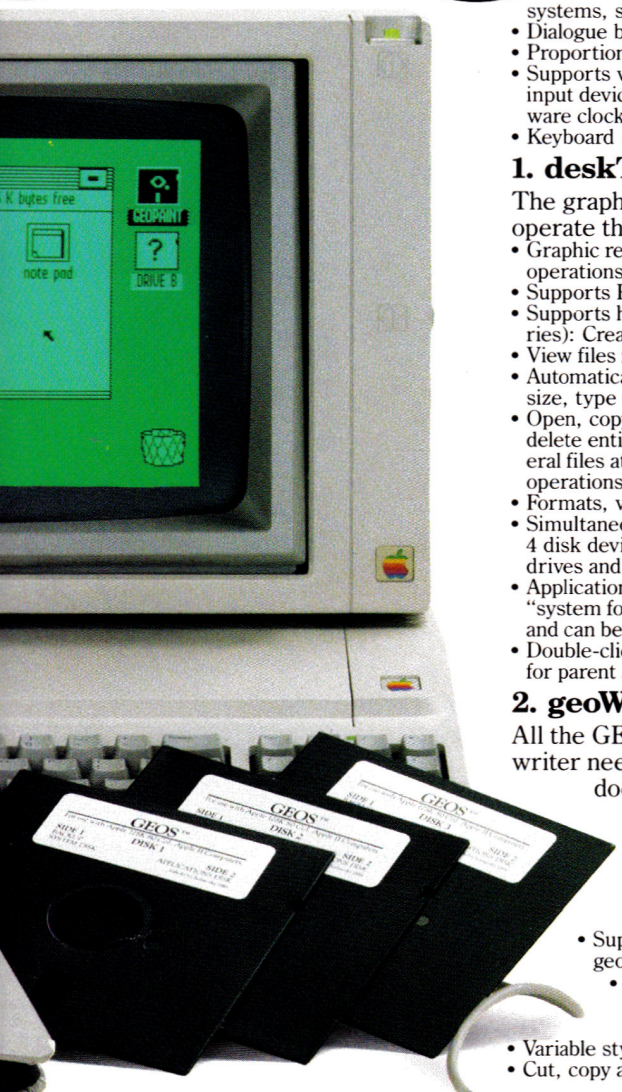
Apple IIc, IIe, IIgs are trademarks of Apple, Inc. GEOS, geoWrite, geoPaint, geoLaser, Text Grabber, geoSpell, geoMerge and Berkeley Softworks are tradenames of Berkeley Softworks. AppleWorks, WordPerfect and MultiScribe are tradenames of companies other than Berkeley Softworks.

ONG.

Just load up your Apple II with GEOS, look them straight in the eye, and say, "Mine."

GEOS™ for 128K, 80 column Apple II computers.

- True graphical operating system.
- Data file compatibility with GEOS applications for other systems, such as Commodore C64 and C128.
- Dialogue boxes.
- Proportional fonts in 5 styles.
- Supports variety of printer interface cards, input devices (such as mouse or joystick), hardware clock cards, printers and disk drives.
- Keyboard shortcuts.



With GEOS, any Apple IIe, IIc or compatible becomes a menu/icon driven powerhouse.*

1. deskTop™

The graphic interface from which you operate the powerful GEOS system.

- Graphic representation of disk catalog & GEOS operations.
- Supports ProDOS files (list, copy, run, etc.).
- Supports hierarchical file structure (directories): Create, copy and move directories.
- View files in either icon or text mode.
- Automatically sorts files alphabetically or by size, type or date.
- Open, copy or delete files in seconds: Copy or delete entire directories in one step. Select several files at once to perform multi-file operations.
- Formats, verifies and erases disks.
- Simultaneously supports combinations of up to 4 disk devices: 5¼" drives, 3½" drives, hard drives and RAM drives.
- Applications and desk accessories stored in the "system folder" are listed in drop down menus, and can be run from any directory.
- Double-clicking data file automatically searches for parent application on each disk.

2. geoWrite 2.1™

All the GEOS-compatible tools that a writer needs to make professional documents.

- "What You See Is What You Get" orientation.
- Point and click text selection: Perform moves, copies, deletions and changes on blocks of text.
- Supports LaserWriter through geoLaser.
- Multiple proportional fonts in a variety of point sizes same bit images as the Mac.
- Variable styles (**bold**, *italic*, outline, underline).
- Cut, copy and paste text or graphics from other programs, like geoPaint.
- Left, right and full justification.
- Adjustable margins from 0.25" to 8.25".
- Single, 1½" and double spacing.
- Search and replace text.
- Text and decimal tabs.
- Headers and footers, auto page numbering, date stamping.
- Create page breaks.
- Keyboard shortcuts.
- Set initial page number.

3. geoSpell™

- Find and correct misspelled words in any geoWrite document.
- Misspelled words are displayed in context in the document window.
- Displays words in dictionary closest to misspelled word and prompts user for action.
- Over 28,000 word geoDictionary.
- Create personal dictionaries for specialized vocabularies.
- Automatically scans geoDictionary and personal dictionary.
- Single or all occurrence replace options.
- Edit and update personal dictionaries at any time.
- Ability to scan the geoDictionary and the personal dictionary independent of the geoWrite document.

4. Text Grabber™

- Convert existing word processing documents to the GEOS environment from other word processing programs, such as AppleWorks, WordPerfect and MultiScribe.
- Reformat new files with ease.
- Files from other word processors are ported with formatting commands intact.
- After converting files into geoWrite documents, you can change fonts, formats, styles and paste in graphics.

5. geoMerge™

- Create personalized form letters, merge names and addresses or conditionally include whole paragraphs.
- Print merged documents directly to the printer or create geoWrite files.
- Merge data can be entered manually, typed into a geoWrite file, or be created by other GEOS applications, such as geoDex and geoFile.

6. geoPaint™

- Create charts, diagrams or full page images up to 8½" × 11".
- Zoom in for detail work.
- Cut, copy and paste images to and from other GEOS applications/documents.
- Preview entire page.
- Keyboard shortcuts.
- 14 separate graphic tools:
  Scroll to an adjacent area in your picture, or use window tool. Select any area of the page and: Move, Copy, Clear, Invert, Rotate, Mirror (horizontally and vertically). Pattern Fill: 32 distinctive painting patterns. Stop pattern fill at any time. Spray Paint: Gradually paints the current pattern for shading effects. Ruler: Measure in inches or pixels. Line: Create separate or connected lines. Brush: 32 different brushes to choose from, each brush paints in the current pattern. Pencil Eraser: Erase a small section or the whole screen. Text: Display text in a variety of GEOS fonts (bold, underline, italics, outline, inverted). Edit text before pasting into picture. Rectangles: Draw rectangles open or filled with the current pattern. Ability to constrain rectangle to a square. Ellipses: Draw ellipses open or filled with the current pattern. Ability to constrain ellipse to a circle.
  Undo the last command.

7. Desk Accessories

- Available from within any application.
- Notepad.
- Calculator.
- Alarm Clock.
- Photo Manager (scrapbook for collecting pictures).
- Text Manager (scrapbook for collecting text).

8. geoLaser™

- Produce near-typeset quality output on an Apple LaserWriter.
- Create multi-column and windowed pages with the overlay print option.

databases, desktop publishers — you name it. All of them importing and exporting to and from each other, so that you can manage everything with one integrated system.

So the next time someone asks you which Apple is the one that's famous for its mouse, icons and desktop publishing, don't stammer. Don't hesitate. Don't even blink.

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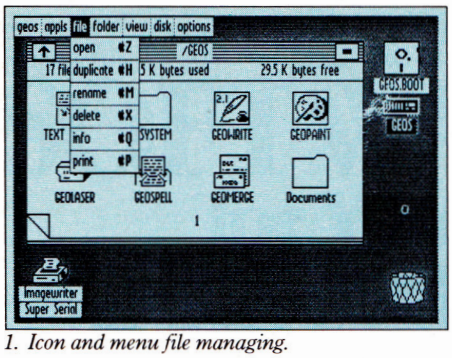
GEOS $129.95

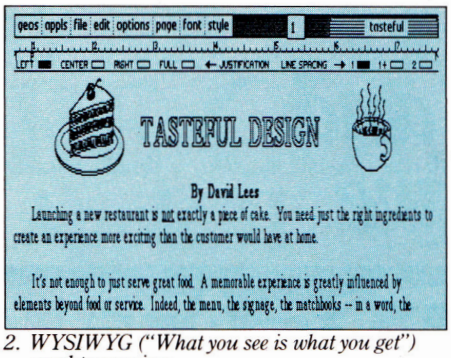
(California residents add 7% sales tax.)
$2.50 US/$5.50 Foreign for shipping and handling.
Allow six weeks for delivery.

*GEOS requires 128K and 80 column card.

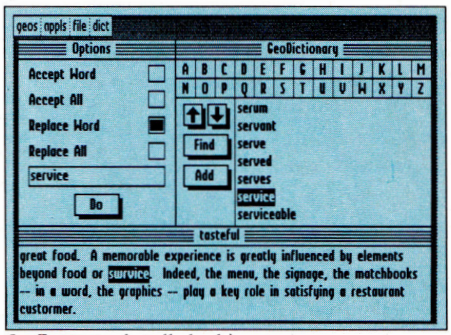
NAME AN APPLE THAT'S FAMOUS FOR ITS MOUSE, ICONS, GRAPHIC APPLICATIONS AND DESKTOP PUBLISHING.



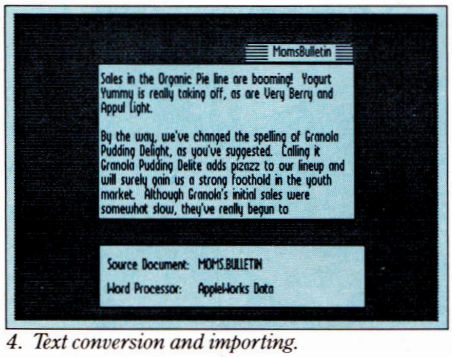
1. Icon and menu file managing.



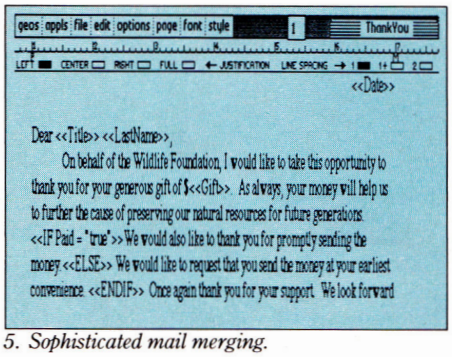
2. WYSIWYG ("What you see is what you get") word processing.



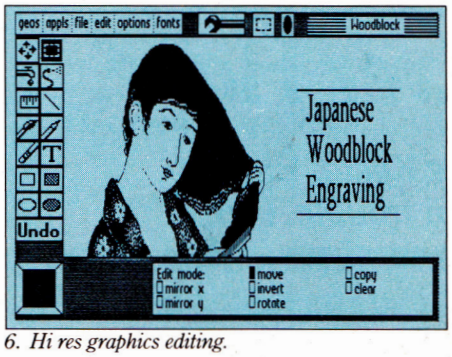
3. Contextual spell checking.



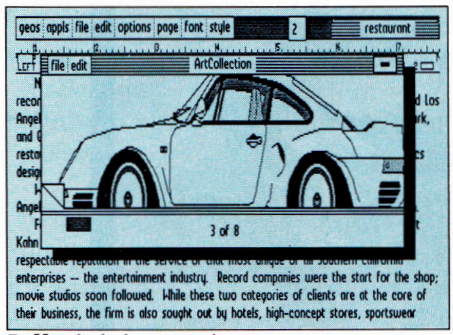
4. Text conversion and importing.



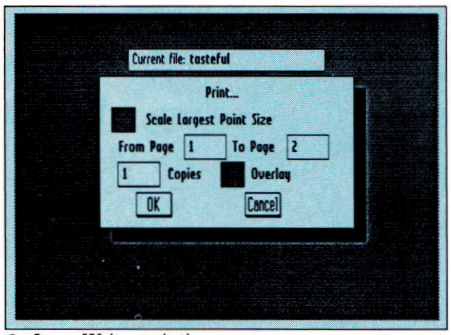
5. Sophisticated mail merging.



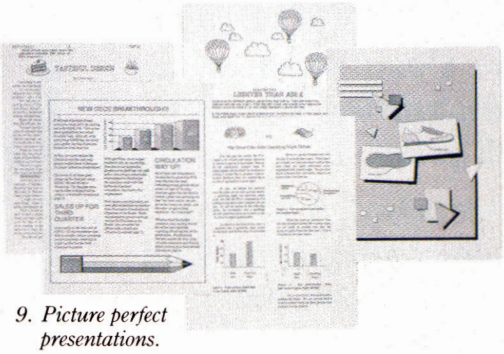
6. Hi res graphics editing.



7. Handy desk accessories.



8. LaserWriter printing.



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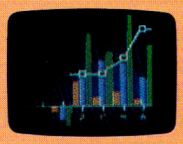
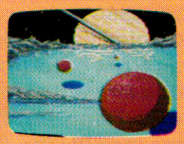
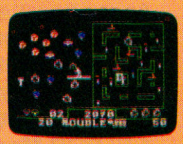

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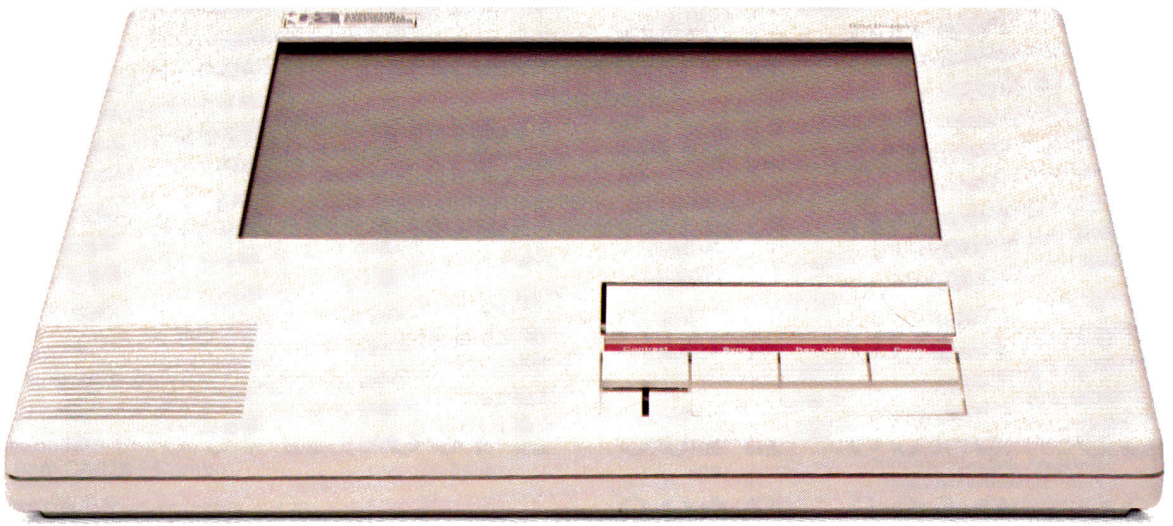

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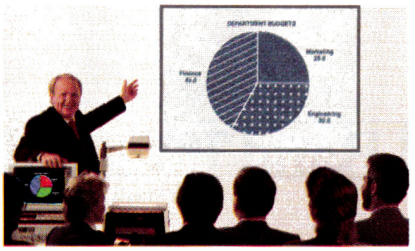

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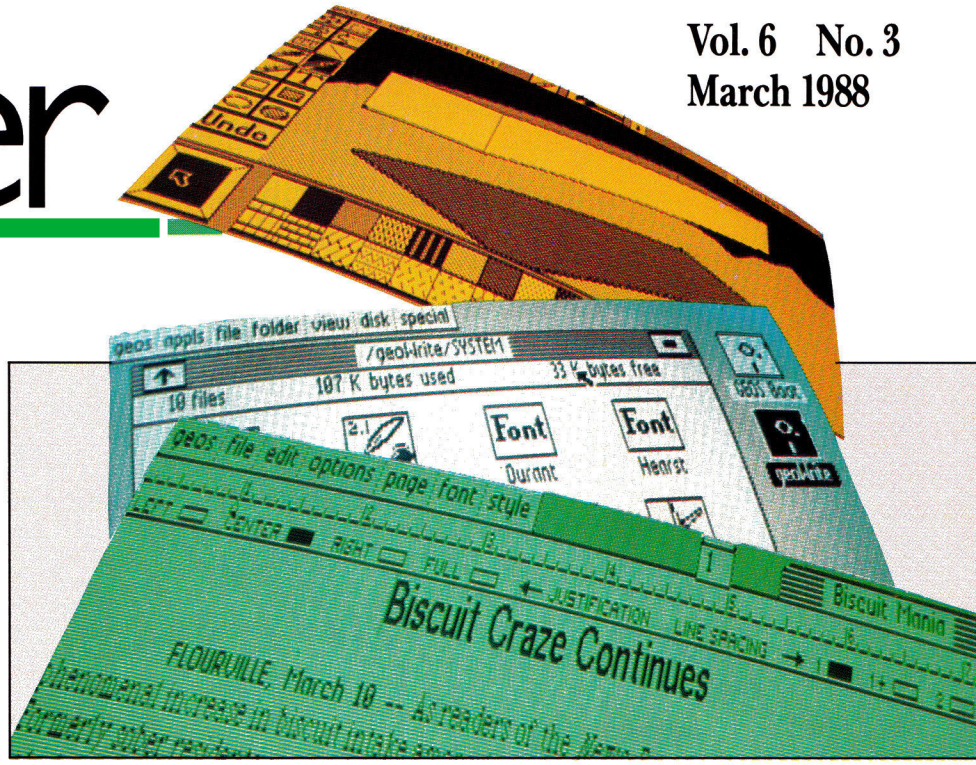
March 1988



ON THE COVER

54 GEOS

Introducing the Graphic Environment Operating System and an array of exciting new applications and utilities for your Apple IIe or IIc.

ARTICLES

68 Uncle Sam Wants Yours

It's that painful time of year again—but your Apple II and a good tax package can help you sort your data and organize your records as you prepare your 1987 return.

78 CD-ROM for the Apple II?

One Compact Disc can replace more than a thousand floppies—but is laser technology the wave of the future in Apple II storage?

Field Trip will return in April with a look at puzzle games for kids.

TUTORIALS

AppleWorks in Action 90
From My Mailbag
by Ruth K. Witkin

Applesoft Adviser 98
Tax-Info Organizer
by Dan Bishop

***inCider* On Line** 110
On-Line Treasures
by Tom Sherman

DEPARTMENTS

***inCider*'s View** 8
Eight-Bit Excitement
by Dan Muse

Letters 12

News Line 18
Spotlight on . . . Into Africa • Zip Chips: Just the Facts • Stickybear Speaks • Apple Music • Apple Bits

Stattus Report 20
What's So Hard About Telecommunicating?
by Paul Statt

Apple Clinic 22
Applesoft Program Proofer • Print Shop Upload • Uprooted • IIe Mousetext • GS Clock Update • 80-Column Screen POKEs • Quickies
by William Kennedy, Ph.D.

Reviews 30
Print Shop IIGS • GraphicWriter 2.0 • TML Standalone Pascal, Source Code Library, Speech Toolkit • First Letters and Words • Games Editors Play

New Products 114

Mace on Games 121
Graphics Adventures: Merging Words and Pictures
by Scott Mace

Hints/Techniques 126
Renewing the II Plus Keyboard • Free Sectors • Circles • Improved Unnew

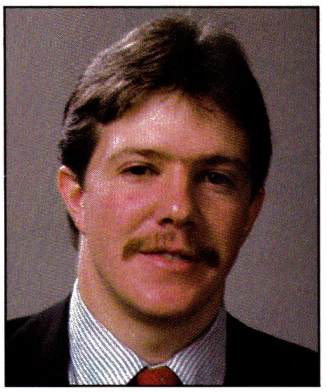
Reader Services 133

Coming Attractions 135

Editors' Choice 136
System Saver IIGS: Clean, Cool Power

Eight-Bit Excitement

by Dan Muse, Editor in Chief



"Apple IIe and IIc owners will soon be able to buy—at a very reasonable price—a new operating system and several integrated programs."

It's ironic that as the Apple world awaits 16-bit AppleWorks, the biggest software story in the last year or so is a new operating system and integrated programs for 8-bit Apples from a company that cut its teeth in the Commodore 64/128 market.

We didn't make GEOS (the Graphic Environment Operating System), geoWrite, and geoPaint our cover story (see "GEOS," p. 54) just because we love irony, though. These products are significant for the Apple II market in general and the IIe/IIc market in particular.

With all the excitement about the potential of the Apple IIGS combined with speculation on the future of the IIe and IIc (we're guilty, too), this announcement has got to be good news for owners of 8-bit Apple IIs who are sick and tired of hearing about music and graphics programs.

The second reason GEOS is exciting news is the software company itself. In many ways, Berkeley Softworks, the developer of GEOS, embodies the Apple II spirit and enthusiasm we enjoyed a few years ago. The company is young, energetic, and doesn't appear to need or expect the support of Apple Computer, Inc. That's good, because 8-bit productivity software isn't high on Apple's list of priorities.

Apple II owners have always believed their machines could do anything. Berkeley Softworks shares this philosophy, and they're proving it to be true, not only for Apple IIs but for other 8-bit systems as well. The company grew up in the Commodore market: It developed an operating system that makes the Commodore 64/128 work like a Mac.

Products such as GEOS remind us that technology doesn't always mean bigger, faster, more. Often it means accomplishing with an older system things you thought you needed a new system to do.

Berkeley, with its advanced Unix development system, concentrates on bringing the features of 16-bit and 32-bit software to "less powerful" machines. A company as technically sophisticated as Berkeley Softworks could spend its resources developing 80386 or Macintosh programs, but it recognizes the potential of the Apple II market.

That's refreshing for us, but more importantly, it means that you Apple IIe and IIc owners will soon be able to buy—at a very reasonable price—a new operating system and integrated software that includes a word processor, a spelling checker, a painting program, a desktop-publishing program, a database manager, and a spreadsheet.

Now, saying that GEOS will replace AppleWorks is premature, to say the least. GEOS will have to overcome several obstacles. First, AppleWorks is a very capable program, and many of you are perfectly content with it. That's why it's second only to Lotus 1-2-3 as the most popular software sold for any computer. (If you count stolen copies, it's probably the most *used* program.)

More difficult to overcome is the attitude of Apple dealers. Not many Apple II buyers walk out of a dealership without a copy of AppleWorks. Dealers love to sell an Apple II, an ImageWriter II, and AppleWorks. It's the easiest system to sell. Getting dealers to recognize a new operating system and new 8-bit integrated software will be like getting Ford to sell Chevies. So Berkeley Softworks has its work cut out for it.

GEOS has still other drawbacks. First, IIe owners will need a mouse. Other products that have depended on sales of the Apple Mouse haven't fared well. But if Berkeley Softworks decides to bundle a mouse for an additional $50, it could go a long way toward curing mouse drought.

Second, you'll *need* a mouse, but you'll *want* memory expansion. GEOS relies heavily on disk access; if you've used AppleWorks to any extent, you know the benefits of a RAM disk.

We're not suggesting these programs will—or should—force ProDOS and AppleWorks into retirement. It's just good to see new options for millions of Apple II owners, and it's fun to see a company that says anything is possible and proves it.

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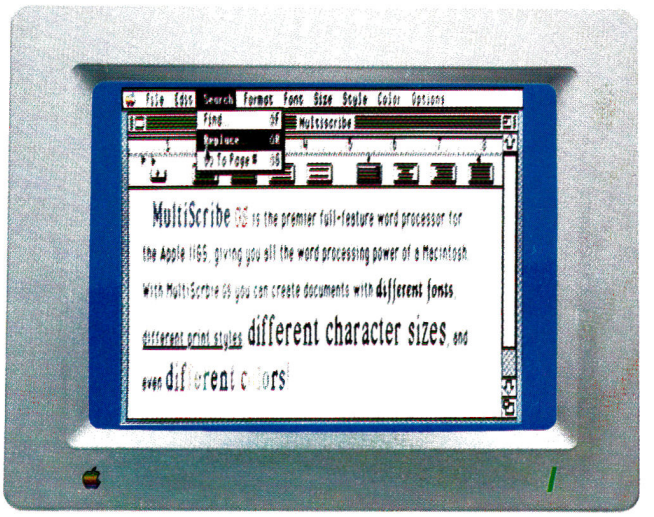
MultiScribe GS even includes power user features like direct AppleWorks™ word processing, file compatibility and keyboard commands for scrolling, selecting, and deleting text.



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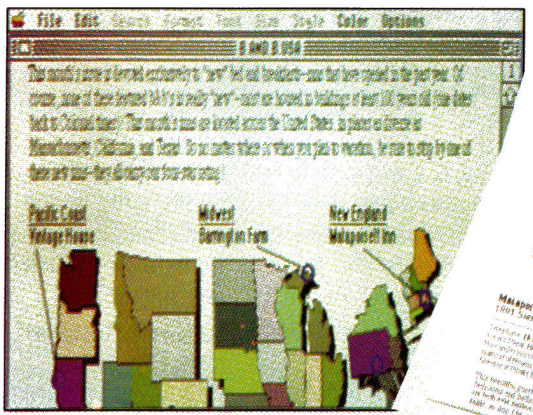

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MultiScribe GS wasn't created for another computer first. It's written entirely in Apple IIGS machine language. According to Apple Interface guidelines. So the same pull-down menus and cut-and-paste editing that made the Macintosh™ revolutionary make MultiScribe GS much easier to learn and use than those old-fashioned word processors.

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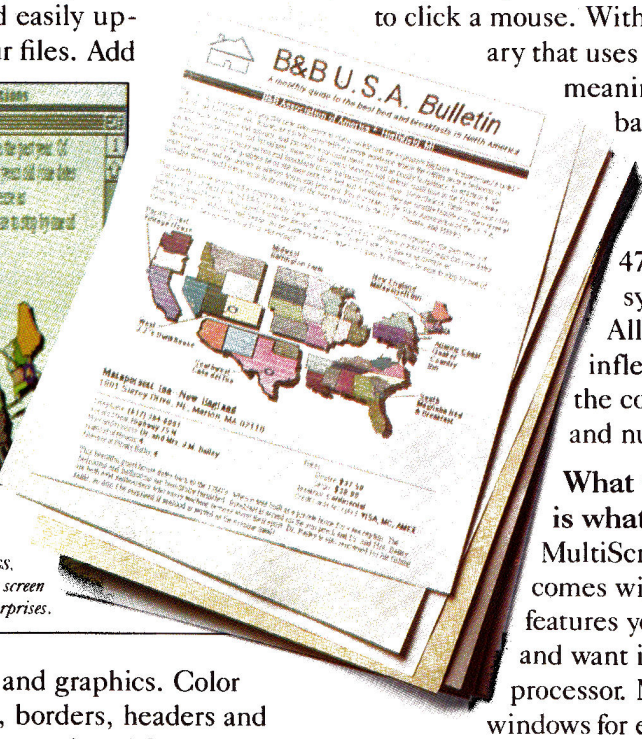
Give your AppleWorks files a facelift. MultiScribe GS can read AppleWorks word processing files directly, so you can quickly and easily update all your files. Add fancy fonts and graphics. Color text. Rules, borders, headers and footers. Superscripted footnotes and subscripted math symbols.



With MultiScribe GS, your ideas go from screen to page–without surprises.

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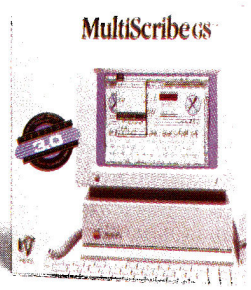

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*A+, December, 1987, **inCider, November, 1987.

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LETTERS

A Portable Apple IIc?

It seems odd that a magazine dedicated to Apple computers and compatibles would print an entire article without once mentioning the Apple IIc's portability ("The Portable-to-Apple Connection," November 1987, p. 94). I guess Michael T. Mikovsky's November letter suggesting you've forgotten about the IIc was correct. One of my reasons for purchasing a IIc was the possibility of "going portable" at some point.

Now that time has come. Can you suggest any articles describing the procedure for achieving an LCD screen and a power supply suitable for a portable IIc?

Steven Tustin
319 Linden Street
Moorestown, NJ 08057

James Munro covers the making of a portable Apple IIc in "The IIc—From Here to Hong Kong" (August 1986, p. 38). Also turn to page 34 in our June 1987 issue for reviews of power supplies: Quarterback QB-2C (Powersine Products, P.O. Box 16887, San Diego, CA 92116, 619-280-1646) and Juice (Orbic Controls, 7853 Balboa Avenue, San Diego, CA 92111, 619-268-0064). —eds.

Expanding the IIc's Memory

We're consultants to the Rural Electrification program in Bangladesh, and last summer we both upgraded our Apple IIc motherboards. We wanted to get the latest firmware for Apple Talk, support for 3½-inch drives, and so on. We were both surprised and a little upset upon learning that in addition to surrendering our old boards, we had to buy an Apple memory card. Our friends with IIc machines have older no-slot boards, so we couldn't sell them. An intriguing idea came to us—why not use both memory cards, since one used slot 3 and the other slot 4? And so, we created a 2-megabyte IIc! We're wondering how many other people have been in the same situation and whether or not anyone else has thought of this?

Using both cards turns out to be quite easy: Keep the AE UltraRam card (we used the Ultra 3) in its normal place. Then carefully solder new connectors onto the opposite side of the existing ones on the motherboard and the Apple memory card. The card now plugs into the bottom of the motherboard. Cut an opening in the bottom of the IIc case to let the connector protrude; the Apple card now mounts outside the original case, but inside a special custom-made enclosure.

We've noticed no software problems with this setup. AppleWorks can be configured for the AE card but stored on the Apple card. This way the entire 1-megabyte Apple card serves as a stable RAM disk for programs and data, while the AE card allows use of the entire 755K desktop.

Ed Wheeler
Myk Manon
c/o NRECA/GC (C) Dhaka
USAID
Washington, DC 20520-6120

It's a neat idea, but please be careful when you start soldering and cutting into your IIc. —eds.

Meal Planning and Monitoring

My 3½-year-old son was diagnosed recently as a diabetic and I'm looking for a program to help plan his meals. I own an Apple IIGS with 768K and 3½- and 5¼-inch disk drives. I want to use a database program to enter everything he's allowed to eat in the following categories: starch, meat, vegetable, fruit, fat, and milk. I also need to identify the food item, serving size, and calorie count.

Since he's allowed three meals and two snacks daily, I want to code entries as follows: breakfast—starch, meat, fruit, milk, fat; lunch—starch, meat, fruit, fat; and so on. For example, a pancake is a starch for breakfast only, but a fruit can be eaten for breakfast, lunch, or dinner. So, if I list breakfast as one starch, one meat, and one fruit, the computer will select randomly the corresponding food items. The same holds true for lunch, dinner, and snacks.

Possible additional features include saving daily menus for future reference and changing the program's suggested items if not satisfactory. We appreciate any suggestions.

Robert E. Vittetoe
5918 Etta Drive
Anniston, AL 36206

N-Squared Computing (5318 Forest Ridge Road, Silverton, OR 97381, 503-873-5906) offers Nutritionist III and a special version, The Right Byte, which includes a food-frequency program and food-frequency database. Only recently available to the general public, these programs were created originally for professionals. Make sure you identify yourself as a home user. We'd like to hear what other readers have set up for similar uses. —eds.

Interface-Card Problems

Earlier this year I purchased a Serial Pro interface card. I chose this brand for two reasons; it was advertised as being fully Super Serial Card compatible and it had a clock interface.

After many hours of troubleshooting, and several trips to my local dealer, I concluded that the Serial Pro card was causing the loss of the first several characters from each line when I tried using my modem at 1200 baud.

When I called Applied Engineering, its technical representative informed me that it knew about the problem but had no intention of fixing it. I inquired about its claim of being fully Super Serial compatible, but perceived an indifferent attitude from the representative.

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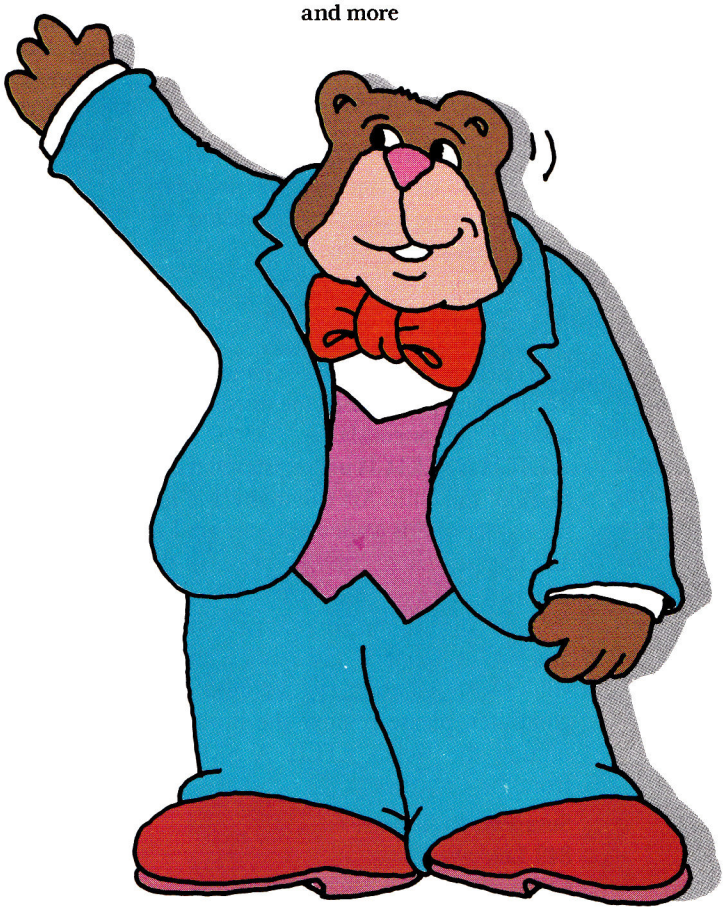

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Although the local dealer went out of his way to supply me with a replacement configuration, I'm disappointed with Applied Engineering's support.

Robert R. Ringel
4460 Bekinshire NW
Comstock Park, MI 49321

AE Replies

We've sold several thousand Serial Pro cards, and to date we know of no device that works with the Apple Super Serial card and not with Serial Pro. We conformed to all of the Super Serial's protocols and the existence of such incompatibilities borders on being impossible. The best explanation we can offer is that perhaps Mr. Ringel is using an older, unenchanced IIe. We've found this can cause that exact problem when used at 1200 baud with any serial device.

When the computer dealer tested the card, he may have used an enhanced IIe, where the problem doesn't occur. Even in an enhanced IIe or Apple IIGS a poorly written program can create this problem. This situation occurs because the Apple (not the serial card) is scrolling while text is coming in, thereby losing some characters. As many programs were written when only 300-baud modems were available, these programs were caught off guard when 1200-baud modems came out.

Each product Applied Engineering makes is designed, marketed, and supported as though it's our only product. We strive to have the most courteous and knowledgeable technical support in the industry, but it's a difficult job considering the wide variety of products and applications in use today. I'm not sure whether the technical representative knew of the problem in the unenhanced IIes.

Dan Pote
President
Applied Engineering Research Corp.
P.O. Box 798
Carrollton, TX 75006

Printing Options

I'm mad at the software developers who are currently writing programs for the IIGS. I think it unfair that software such as GraphicWriter, MultiScribe GS, Notes 'n' Files, Music Construction Set, and some others don't include print options for Epson or other brands of printers.

Why are these programs set up only for printing on the ImageWriter or LaserWriter? I have an Epson FX-80, and I don't think I should have to buy a new printer. I'm not impressed with the color printers currently on the market and don't plan to buy one. It isn't that difficult to have these programs dump in black-and-white. Software developers could increase their market by including these printers.

John Demarco
PO Box 773
Shrub Oak, NY 10588

We agree that not everybody has an ImageWriter and that software developers should always include routines for adding custom printers. —*eds.*

An Apology

My article in the October issue (Hints/Techniques, p. 133) used the words "Etch-a-Sketch" erroneously.

ETCH A SKETCH is a registered trademark of the Ohio Art Company. I'm not the owner of this trademark, nor am I in any way affiliated with the owner of the ETCH A SKETCH trademark.

I apologize to the Ohio Art Company and *inCider* readers, and request that if you've entered the program into your computer, please remove the lines containing the words ETCH A SKETCH from the program.

Susan W. Rollinson
849 Lou Avenue
Clifton Forge, VA 24422

Quality Computers Responds

We appreciate the favorable review of RamUp in your January 1988 issue (p. 31). We feel it necessary, however, to respond to some parts of the review that may mislead or misinform your readers.

RamUp comes ready to work with at least 95 percent of today's ProDOS software—without any modification.

We agree that the more memory you have in your system, the more you'll be able to do with your system; 1 megabyte is naturally preferable to 512K. RamUp works great with a 512K RAM card, allowing you to load both AppleWorks and a spelling checker, which appears to be the most popular combination among RamUp customers.

Your review states that RamUp requires users to expand AppleWorks before working with the system. It's not necessary to *expand* AppleWorks, although expanding it will increase desktop size greatly and gain additional features.

As for manual versus disk documentation, we apologize for the typographical errors in our manual; we've rectified that situation by providing superior disk documentation.

The reviewer refers to a file on disk containing mysterious print codes. This problem occurred because he loaded the file incorrectly, actually *creating* the scrambled text, which he mistook for confusing documentation. Had he loaded the file correctly, or called our technical-support line for help, the disk file would have read perfectly. In view of this oversight, we feel the reviewer's comments on RamUp's documentation are inappropriate.

We realize that putting some software packages on a RAM card can be difficult. Our disk documentation provides the user with the necessary information to simplify this process; RamUp's installation utility offers step-by-step instructions based on the user's particular configuration of hardware and software. We also enclose a note inside the RamUp package suggesting users refer to our continually updated disk documentation.

We agree with the gist of your review: to summarize, "If you use several programs during the day, RamUp is an excellent package that will save you time

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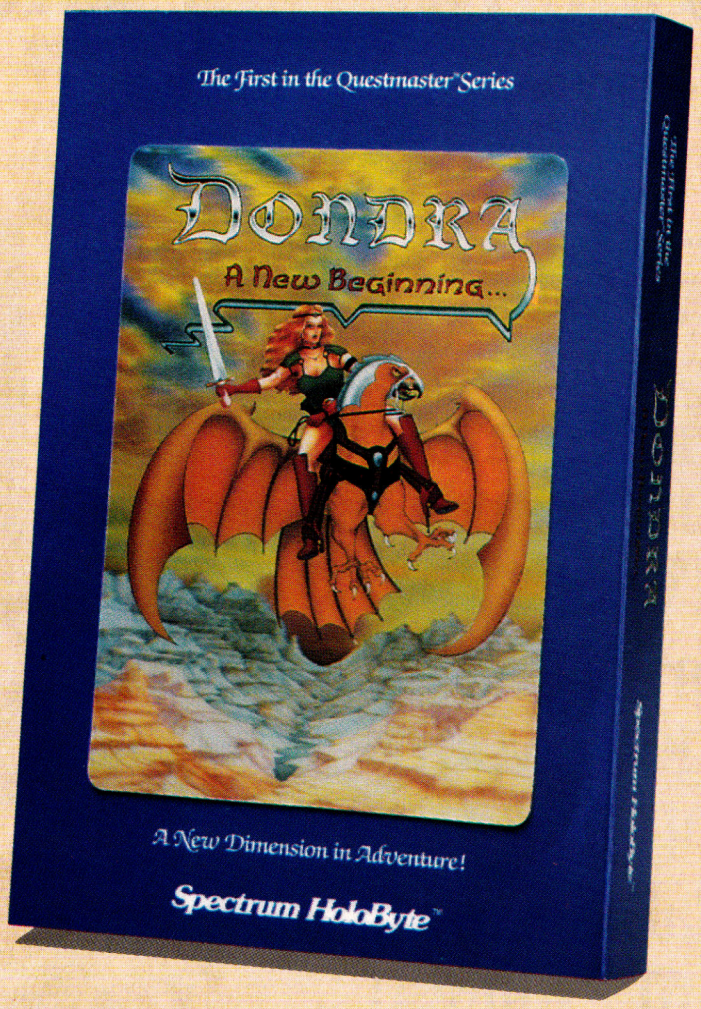

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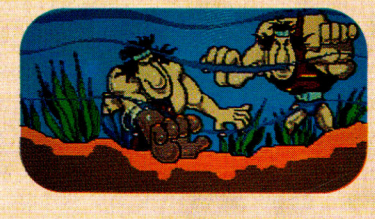


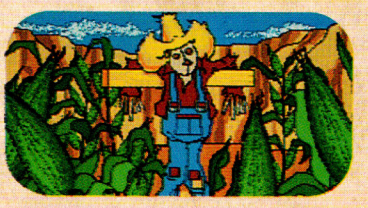



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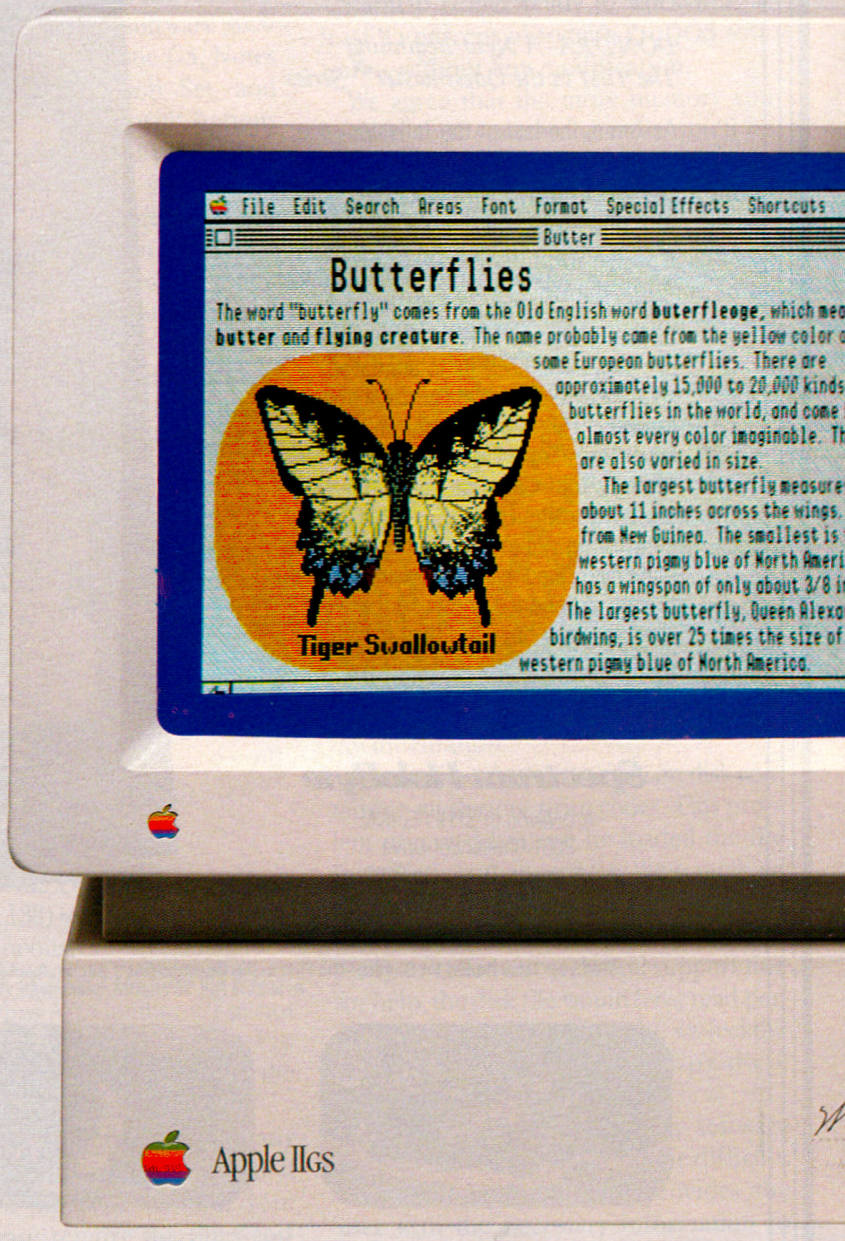

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and effort." We simply want to clarify these points for your readers.

Joseph Gleason, President
Quality Computers
15102 Charlevoix Avenue
Grosse Pointe Park, MI 48230

Hardball

I was slightly disturbed to read in "Apple Bits" (October 1987, p. 20) that Broderbund is allegedly "aggressively promoting" an affiliated-label program to induce smaller software companies now working with Electronic Arts to jump ship. Although Origin Systems now works with Broderbund and not through Electronic Arts, we didn't in this or any other instance encourage smaller publishers or developers to terminate their existing relationships.

Nevertheless, movement of creative talent among companies is fairly general, as people seek out sympathetic working partners or aim to get on a better softball team. Indeed, last time we played EA, its outfield appeared considerably strengthened by a chap who used to run the bases on our behalf.

Gary Carlston, Chairman
Broderbund Software Inc.
17 Paul Drive
San Rafael, CA 94903-2101

We're sorry we gave the wrong impression that Broderbund is actively recruiting "ringers" for its software team—and sorry that Broderbund's softball team lost a good outfielder in an off-season deal.

The inCider *nine has made some profitable trades, too: Look at our new masthead. In fact, we challenge any Apple II magazine in the Western Division to meet us on the diamond in Boston at AppleFest in May. Any takers, Fred?* —eds.

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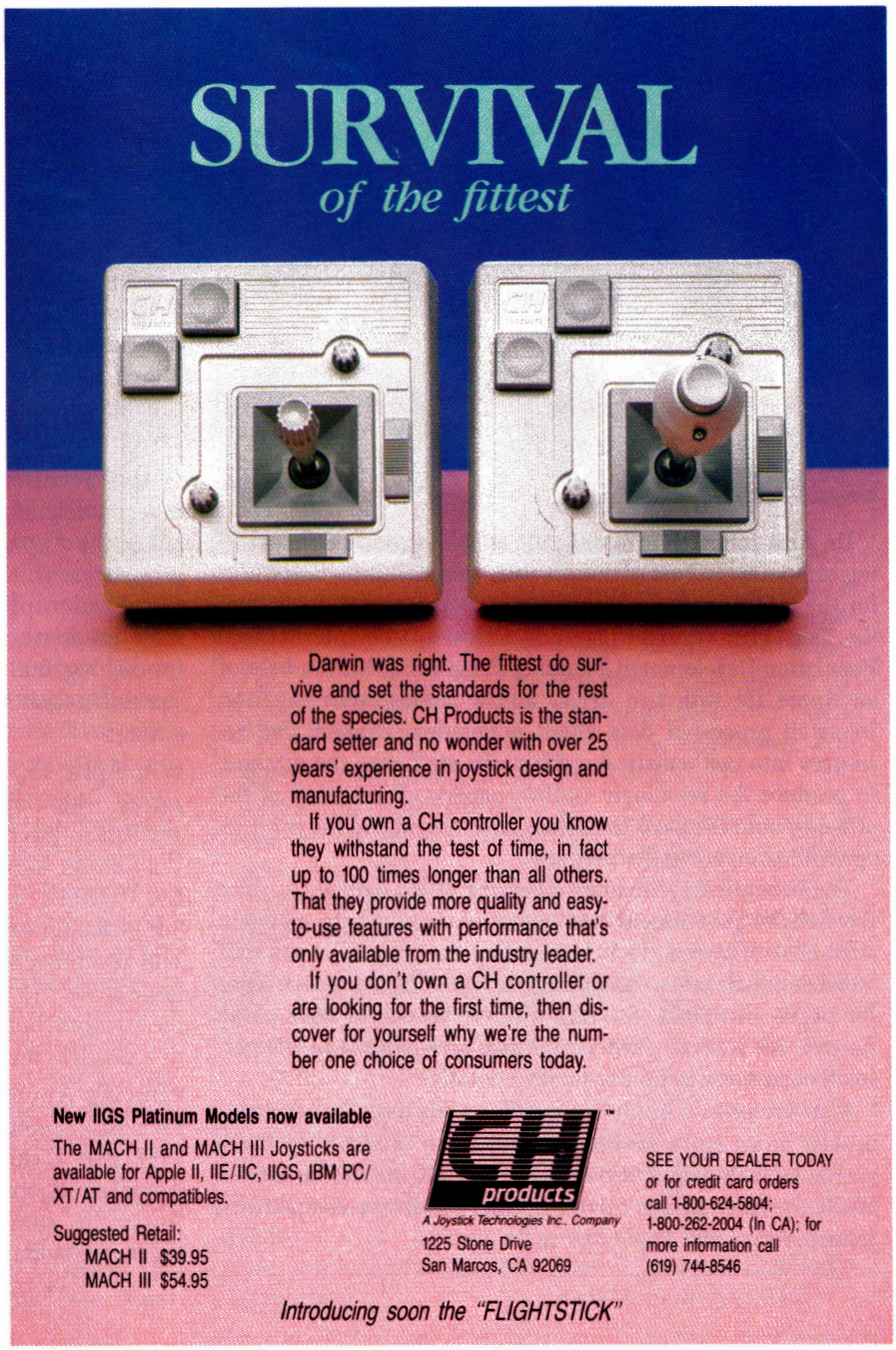
inCider *welcomes readers' comments regarding articles, letters, or other topics of interest. We reserve the right to edit letters for clarity, style, and space. Please address your correspondence to Letters,* inCider, *Elm Street, Peterborough, NH 03458.*

Checks for On Balance

Literature included with On Balance advises the buyer that NEBS Computer Forms supplies printed checks to use with the program. However, NEBS Customer Service advises me that it doesn't offer this item currently. Do you know of a company that supplies checks that will work with the program?

Russell E. Jenter
316 West Michigan #149
Clinton, MI 49236

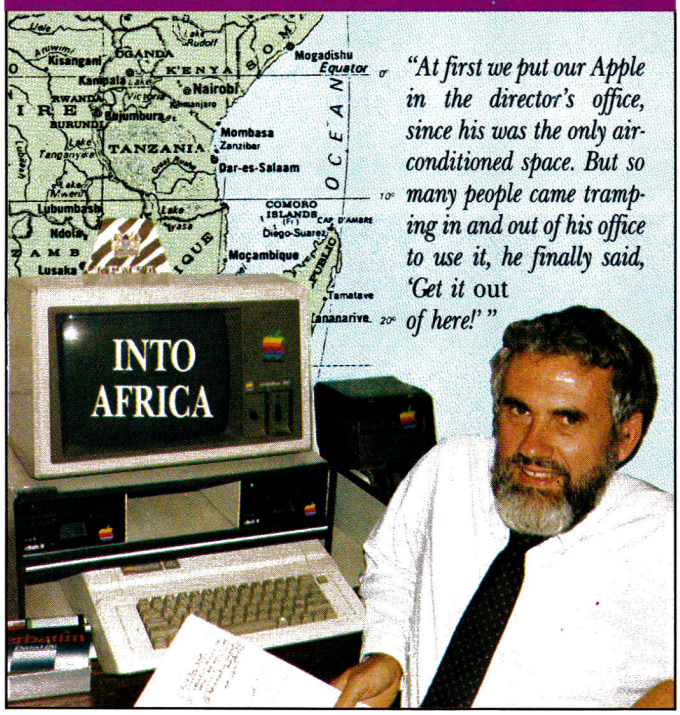
NEBS advises us that the company does supply checks for On Balance. They're available in two choices: with multiple carbons (#9022) or without carbons (#9025). Contact NEBS Computer Forms, 500 Main Street, Groton, MA 01471, (800) 225-9550. —eds.



NEWS LINE

by *inCider* staff

SPOTLIGHT ON....



"At first we put our Apple in the director's office, since his was the only air-conditioned space. But so many people came tramping in and out of his office to use it, he finally said, 'Get it out of here!'"

Dr. Alan Johnston is one of the people responsible for bringing computers to East Africa. In 1982, Johnston, who now works for the U.S. Agency for International Development, ran one of the Tanzanian regional planning offices of the International Population-Development Planning Program. With the help of an Apple IIe with two drives and a monochrome monitor, Johnston processed data about population, climate, and resources into mathematical models. His staff used the machine to produce the seemingly endless paperwork required of the office by both the local Tanzanian government and the two U.S. agencies overseeing the program.

The example of Johnston's planning office helped convince the Kenyan government that computers could help maintain strict control over budgets by avoiding the types of errors staff members made when calculating strings of figures—as long as 100 pages—manually. Starting with ten machines donated by Kaypro, the Kenyan government now uses more than 400 personal computers in its day-to-day operation.

Alan Johnston's Apple IIe is still on his desk. It has never broken down since he bought it, despite exposure to harsh elements, including a strong sea breeze off the Indian Ocean. While the salty air has corroded other electronic components, Johnston says, his Apple has never quit. ***—P. O'D.***

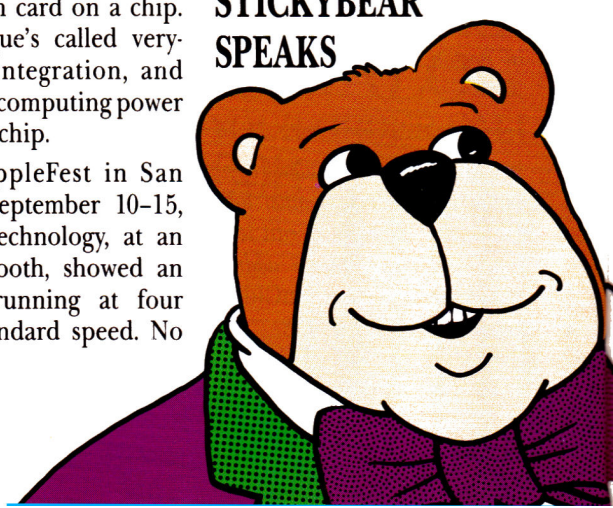
ZIP CHIPS: JUST THE FACTS

The saga of the Zip Chip, an accelerator card on a chip introduced at AppleFest in September 1987, continues. Here are the facts as we see them in December 1987:

- Zip Technology, 11340 West Olympic Boulevard, Los Angeles, CA 90064, used to be known as M.C.T.
- M.C.T, 1745 21st Street, Santa Monica, CA 90404, also known as Micro Computer Technologies and "McToy," last advertised in *inCider* in March 1985. The product was the SpeedDemon accelerator card.
- The SpeedDemon, unlike other accelerator cards, replaces the Apple's 65C02 microprocessor with a faster 65C02 microprocessor and some random-access memory for caching. But it was, and is, a peripheral card that requires a slot.
- On April 15, 1985, M.C.T. agreed with David Hewitson and Ronan Electronics, 31300 Via Colinas, Westlake Village, CA 91362, to put the SpeedDemon card on a chip. The technique's called very-large-scale integration, and means more computing power in a smaller chip.
- During AppleFest in San Francisco, September 10–15, 1987, Zip Technology, at an AppleFest booth, showed an Apple IIc running at four times its standard speed. No Zip Chips were seen, but many orders were taken. A Zip spokesman told *inCider* that the Zip Chip would be available in "two or three days."
- On September 12, David Hewitson, now representing Bits and Pieces Technology, 31332 Via Colinas, Westlake Village, CA 91362, showed *inCider*, in private, the Rocket Chip. What we actually saw was a board four times the size of an Apple IIc, connected to an Apple IIc, that made it run at four times its regular speed. Hewitson said he had formerly been involved with Zip Technology, but that the Rocket Chip was his own design.

In December 1987, neither Zip nor Rocket Chips were available. Shipment is expected by the time you read this (March 1988), but we strongly enourage you to call and ask about availability first. The number for Bits and Pieces is (818) 706-2978; Zip's number is (213) 473-7662. While both companies proved to be cooperative with *inCider*, neither wanted to speak on the record. **—P.S.**

STICKYBEAR SPEAKS



"We're looking at a talking bear down the road," says Richard Hetfer, president of Optimum Resource, creator of the award-winning Stickybear line of programs. The folks in the old granite train station in the center of Norwalk, Connecticut, are currently involved in a research project involving speech-technology programs.

Optimum Resource isn't sure whether or not this new series of programs will feature the Stickybear character, but the company's research will influence future Stickybear software, according to Hetfer.

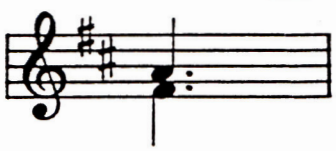
Optimum Resource has been awarded a $48,000 federal grant to research speech programs that would teach reading to dyslexic children. The programs under development use "letter clusters" to teach children how letters sound when combined with other letters.

Instead of teaching the sounds of the letters *I* and *N*, for example, letter clusters teach how they sound together as *IN*. The computer reads these letter clusters, or "bigraphs," to the student and waits for a spoken response.

Optimum Resource will use phase one of the grant, which came through the Small Business Innovation Research program of the U.S. Department of Health and Human Services, for research into the feasibility of creating voice-recognition programs for dyslexic students. Phase two of the grant, for which Optimum Resource can apply when it completes the initial research, would be in the neighborhood of $300,000–$400,000. "That should be just about enough to bring the products to fruition," Hetfer says.

There's a "tremendous future for voice recognition" at this level of elementary education, he continues. After seeing so many Stickybear programs, we can't wait to hear Bedford Stickybear's voice.

—L.L.



APPLE MUSIC

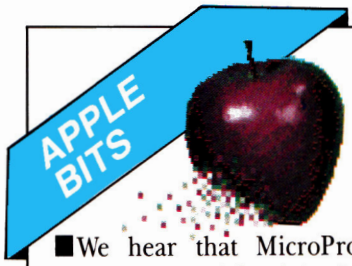
Apple computers now have built-in ports for printers and modems, video output for monitors and videocassette recorders, and input/output ports for disk drives and even data tapes. But music? If you want to get a song into or out of your Apple, you have to rely on a tiny three-inch speaker or an add-in card.

MIDI, the musical-instrument digital interface, is an industry standard for communication between musical instruments and computers. Apple's new MIDI interface for the Apple IIGS and Macintosh is pocket sized and uses a serial port, making it easy to install and easy to remove and install in a different computer.

"Ninety percent of the people in the United States say they'd like to play an instrument," claims Elizabeth Gebhardt of Apple's music department. "The Apple IIGS is especially important in education—among families at home and with students in schools." The Mac, Apple says, is better suited to professional musicians and "serious amateurs."

Schools using the Apple IIe with a MIDI interface card from Passport Design (Half Moon Bay, California) will have a powerful incentive to purchase the Apple IIGS now.

Representatives from Passport Design say that "what's good for the electronic-music industry is good for Passport." Passport also implied that it will introduce a new MIDI product in 1988. **—P.S.**



■We hear that MicroPro (San Rafael, California) sold 11,000 copies of **WordStar 4.0** for Apple CP/M before announcing it was available.

■Taito, a big Japanese software-design firm that creates games for the giant **Nintendo**, is apparently watching the American computer-game market. Let's hope Taito's got a hungry eye on the Apple IIGS.

■RamUp—RAM-disk utility software that runs more than one program almost at once—may become a full-fledged **hard-disk-drive controller** soon.

■Apple now sells 8-bit, 16-bit, and 32-bit computers, and has added three laser printers to its line: the LaserWriter IINTX, the LaserWriter IINT, and the LaserWriter IISC. But the cheapest **LaserWriter** won't work with the cheapest Apple—even the GS requires AppleTalk.

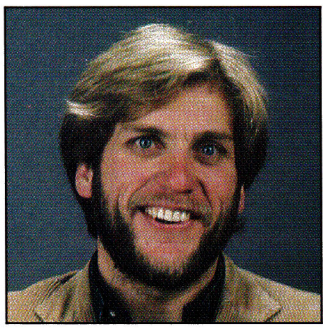
■Epyx has won an Olympic gold medal. The **United States Olympic Committee** granted the Redwood City, California, maker of Summer Games, Winter Games, and Summer Games II an exclusive license to use Olympic symbols on computer games. Will we see a new collection of games every four years?

■The bear wins again: Stickybear Parts of Speech has brought home a ***Parents' Choice*** award. That makes ten *Parents' Choice* awards for Optimum Resource, creators of the well-known, well-loved bear.

■Jim Hammond's (Palos Verdes, California) **FastData Pro**, a "free-form database manager," does quietly for the Apple II what HyperCard does for the Mac, without the pictures. It's so powerful, in fact, that Congress' Export Administration Act apparently prohibits its shipment to Warsaw Pact countries. Now for a geographic leap: The newest ads boast that Hammonds' program **FastFind** is **banned in the U.S.S.R.**

What's So Hard About Telecommunicating?

by Paul Statt, Senior Editor



"Apple could buy—and own—the telecommunications market very cheaply."

If you happen to own an Apple Macintosh, and if you're one of Apple's most important customers, and if you use a 1200-baud modem and a touch-tone telephone—well then, telecommunications is easy: Use AppleLink.

That's a lot if "ifs," but accessing AppleLink—Apple Computer's on-line service, limited to providing information on Apple products—is probably easier than dialing your telephone. It's easy because everybody's using the same equipment and the same mouse-driven Apple interface.

In France, the national telephone company runs an information service it calls MiniTel. It's wildly popular. I've never used it, but I hear that, in France as in America, sex sells: The French favor the romance of E-mail over home shopping.

But MiniTel terminals are in some 10 percent of French households. You can access MiniTel from a personal computer with a modem, but the telephone company makes it easy to acquire a standard MiniTel terminal—dedicated to witty repartée on line and whatever else MiniTel offers.

Remember when the phone company gave away telephones? It wasn't actually a gift; it was "leased equipment." Call it a hidden lease: You never noticed it because it was so cheap. Ma Bell could keep the rent low because she was cleaning up on service. AT&T had a monopoly (according to Judge Greene, who busted it) on long-distance telephone calls, which made for a tidy annual profit.

What telecommunications needs is a monopoly—a single provider willing to run the risk of antitrust suits or red ink on the balance sheet. First build some simple telecommunications software into a modem. I mean *simple*: easier than Applied Engineering's DataLink (Editors' Choice, November 1987, p. 152), which is the closest any modem has come to being transparent. Then lease the modem and software to anybody with a computer at a dollar a month.

I'm throwing away money, you protest, giving away modems. But AT&T didn't get rich peddling telephones. AT&T sold telephone *service*. So redesign your favorite information service. Keep all the information it already offers—the airline guide, the games, the databases, the E-mail—but make it work only with your brand of modem and software. Charge $50 a month for the telecommunications service, and you'll be making so much money you'll soon forget all about the cost of buying and distributing all those modems.

This scheme cries for Apple Computer to carry it out: Millions of Apple IIs and Macs are waiting in homes and offices all over the country. Apple has the information technology—AppleLink—and needs only to write software that would enable the IIe, IIc, and IIGS to use AppleLink as easily as Macs do. Most important for an innovator, Apple has money in the bank, begging for investment in the future.

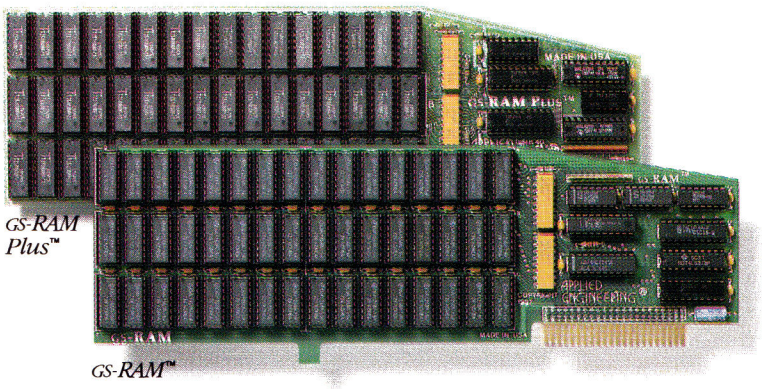
ISDN, you say? I knew someone would argue that the infamous Integrated Services Digital Network will make modems obsolete. It will: Computers need modems only because they send information digitally, while telephone wires are analog. A digital telephone network will mean, theoretically, that you'll be able to send information directly from the serial port of your Apple II over phone lines.

ISDN is the last word in vaporware. It's a great product, it will revolutionize the industry, it comes from trustworthy companies such as AT&T, and it hasn't been shipped yet. ISDN, in fact, will be a boon to any company that gave away modems in the '80s. That farsighted firm will have taken the lead in the on-line-service business by the time ISDN finally arrives in the 1990s.

AT&T captured 100 percent of the telephone-service market by "giving away" phones. I don't hope to receive a modem from CompuServe, GEnie, or The Source any day soon. But Apple could buy—and own—the telecommunications market very cheaply. Apple gets richer; you and I get easy telecommunications. Everybody wins.

For Those Who Want the Most. From Those Who Make the Best. GS-RAM.™

Now expand the IIGS' RAM and ROM with up to 8 MEG of "Instant On" memory with the all new GS-RAM!



GS-RAM has an all new design. A design that delivers higher performance including increased speed, greater expandability, and improved software.

More Sophisticated, Yet Easier to Use

GS-RAM works with all IIGS software. In fact *any* program that runs on Apple's smaller memory card runs on the GS-RAM. But with GS-RAM you can have more memory, improved performance, and almost unlimited expansion capabilities. We've designed the new GS-RAM to be easier to use too—you don't have to adjust the size of your RAM disk every time you use a DMA device. No other RAM card with more than 4 banks of memory installed can make the same claim.

More than Just Hardware

Each GS-RAM and GS-RAM Plus includes the most powerful set of IIGS software enhancements available anywhere. In fact, our nearest competitor offers only a fraction of the invaluable programs that we include with each GS-RAM card. This software includes the most powerful disk-caching program available, the GS-RAM Cache. The Cache will make most of your applications run up to 7 *times faster.* Also included is a diagnostic utility that lets you test your GS-RAM by graphically showing the location of any bad or improperly installed RAM chips. And for AppleWorks users, we give you our exclusive Expander program that dramatically enhances both the capabilities and speed of AppleWorks.

Making AppleWorks Even Better

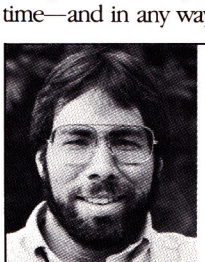
Applied Engineering's Expander program eliminates AppleWorks internal memory limits allowing it to recognize up to 8 megabytes of desktop workspace. You can increase the limits from only 7,250 lines to 22,600 lines in the word processor and from 6,350 records to 22,600 records in the database. The Expander allows all of AppleWorks, including print functions, to automatically load into RAM. The clipboard size will increase from 255 to 2,042 lines maximum. GS-RAM will automatically segment larger files so you can save them onto multiple floppies. And GS-RAM provides a built-in print buffer that allows you to continue working in AppleWorks while your printer is still processing text. You can even load Pinpoint or MacroWorks and your favorite spelling checker into RAM for instant response.

Grow by Kilobytes or Megabytes

We offer GS-RAM in two configurations so you can increase your memory 256K at a time (GS-RAM) or a megabyte at a time (GS-RAM Plus). Both are IIGS compatible and both come with our powerful enhancement software. GS-RAM can hold up to 1.5 MEG of 256K chips and GS-RAM Plus can hold up to 6 MEG using 1 MEG chips. And since both use standard RAM chips (not high-priced SIMM's), you'll find expanding your GS-RAM or GS-RAM Plus easy, convenient, and very economical. For further expansion, you can plug a 2 MEG "piggyback" card into the GS-RAM's expansion port for up to 3.5 MEG of total capacity. Or up to a whopping 8 MEG on GS-RAM Plus. If a GS-RAM owner outgrows 3.5 MEG, he can easily upgrade to GS-RAM Plus for a nominal charge.

Permanent Storage for an "Instant On" Apple

With our RamKeeper™ back-up option, your GS-RAM or GS-RAM Plus will retain both programs and data while your IIGS is turned off! Now when you turn your IIGS back on, your favorite software is on your screen in under 4 seconds! With RamKeeper you can divide your IIGS memory into part "electronic hard disk," and part extended RAM. Even change the memory boundaries at any time—and in any way—you want. Because Applied Engineering has the most experience in the industry with battery-backed memory for the Apple, you are assured of the most reliable memory back-up system available. And in the world of battery-backed memory, *Reliability* is everything. That's why Applied Engineering uses state-of-the-art "GEL-CELL's" instead of Ni-Cad batteries (if Ni-Cads aren't discharged periodically, they lose much of their capacity). RamKeeper has about 6 hours of "total power failure" back-up time. That's 6 times the amount of other systems. But with power from your wall outlet, RamKeeper will back-up GS-RAM, GS-RAM Plus, or most other IIGS memory cards indefinitely. Should you ever have a "total power failure," RamKeeper switches to its 6-hour battery. When power returns, RamKeeper will automatically recharge the battery to full power. RamKeeper incorporates a dual-rate charger, status L.E.D.'s, and advanced power reducing circuitry. RamKeeper comes *complete* with battery, software, and documentation.



"In quality, performance, compatibility, expandability and support, Applied Engineering's GSRAM and GSRAM Plus are number one."

Steve Wozniak, the creator of Apple Computer

GS-RAM's Got it ALL!

- 5-year warranty — parts & labor
- 6 RAM banks (most cards have 4)
- Memory expansion port
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APPLE CLINIC

by William Kennnedy, Ph.D.,
Technical Editor

Apple Clinic is a forum for discussing Apple II hardware, software, and related subjects. If you have questions or answers, or want to make a statement, write to Apple Clinic, inCider, *Elm Street, Peterborough, NH 03458.*

Applesoft Program Proofer

For years I've typed in the BASIC programs published in *inCider* and have greatly enjoyed the "freeware." My problem, though, is I've yet to type one in correctly the first time. Sometimes I spend hours in frustration hunting down all my typing mistakes. Isn't there a better way?

And all along I've been under the impression that half the fun of "freeware" was debugging!

Seriously, I share your frustrations—it's my job to make sure all the programs we publish are correct and work as claimed. A misspelled word can go undetected in an article without affecting its content. But a mistyped BASIC statement can, and often does, render the program completely unusable. And then my phone starts ringing furiously . . . .

Besides being extra careful to ensure the published programs are correct, we're taking the following measures to eradicate bugs from inCider *Applesoft programs: First, most, if not all, published software will be posted monthly on the* inCider *BBS. (Log on directly by dialing 1-603-924-9801 with your modem, or see "Bulletin-Board Log-On," Apple Clinic, November 1987, p. 20, for more information.) Using the "download" feature, our published programs can be yours, on disk, untouched by human hands.*

Although the inCider *BBS and downloaded software are free, the concept of "freeware" may begin to wane when you consider the investment in a modem, communications software, and phone charges; an alternative is purchasing a disk from* inCider *with the software ready to run. The details haven't been worked out yet, but I promise the disks will contain several programs of similar interest for a nominal fee. Drop me a line and I'll send you the information if you can't wait for an upcoming issue of* inCider *for details.*

Last, but certainly not least, is the Applesoft Program Proofer. Beginning with this issue, each line of every Applesoft program published will have a "proof" number attached. Using the short program described below, your LISTed programs will also generate "proof" numbers. By comparing the published and LISTed proof values, you can determine quickly whether you typed the program line correctly. Simple enough?

Type in and SAVE to disk the ASOFT PROGRAM CODER shown in Clinic's **Listing 1.** *DO NOT type the bracketed numbers that appear at the end of each line; they're the proof values you'll use later. The program proofer won't work with its maker, so be sure you type the listing correctly!*

When RUN, the CODER program lines 20–40 POKE the ASOFT.PROOFER program into memory beginning at location 768 (hex $300) through 975 (hex $3CF). Line 50 of the CODER then installs the utility.

Go ahead now and LIST the CODER program—if the proofer program is working, you'll see a boldface number appear at the end of each of the CODER's program lines. Those proof numbers should match the highlighted ones you didn't type in **Listing 1.** *If they don't match, go back and edit the CODER.*

If the proof numbers match, save the machine-language program the CODER created: Type BSAVE ASOFT.PROOFER,A$300, L$CC. Then, when you want to use the proofer in later programming sessions, under DOS 3.3 or ProDOS, simply BRUN ASOFT .PROOFER.

The proofer becomes disconnected whenever you change the output vectors (with the PR#0 command, for example). To re-install the proofer, just CALL 768. So, to list your program on a printer including the proofer numbers: redirect output to your printer (PR#1 if the printer is in slot 1), CALL 768, then LIST.

You already know how to use the proofer. If the highlighted number at the end of a LISTed line matches the published one, you can be fairly well assured you typed the Applesoft line correctly. Otherwise, edit or retype it until the numbers match.

This proofer won't kill all your Applesoft bugs—it's not a big help if you leave lines out of a program, or if you don't have published proof numbers for comparison. And the proofer isn't intended to supplant, and may not even work with, the variety of Applesoft program editors that are commercially available. But it will take a lot of sweat out of typing inCider *freeware. Guaranteed.*

***Listing 1.** Program Proofer.*

```
10  REM ASOFT PROOFER CODER      [1539]
20  FOR I = 0 TO 207: READ N     [1095]
30  POKE 768 + I,N: REM  PROGRAM AT [1792]
40  NEXT I: REM          HEX $300 - $3CC    [1477]
50  CALL 768: END : REM      PROOFER
    INSTALLED!  [2067]
100 DATA 162,60,160,3,173,0,191,201,76,208 [1852]
110 DATA 20,173,48,190,141,206,3,173,49,190 [1923]
120 DATA 141,207,3,142,48,190,140,49,190,208 [1980]
130 DATA 18,173,83,170,141,206,3,173,84,170 [1944]
140 DATA 141,207,3,142,83,170,140,84,170,169 [2000]
150 DATA 0,141,58,3,141,59,3,96,0,0      [1553]
160 DATA 201,141,240,3,76,202,3,134,70,132 [1898]
170 DATA 71,186,138,105,7,170,189,0,1,201 [1879]
180 DATA 214,208,7,189,255,0,201,229,240,30 [1986]
190 DATA 189,253,0,201,40,208,6,169,152,201 [1995]
200 DATA 141,208,17,189,255,0,201,13,240,86 [2008]
210 DATA 169,0,141,58,3,141,59,3,240,76      [1825]
220 DATA 173,58,3,13,59,3,240,25,32,87       [1788]
230 DATA 219,32,87,219,165,50,72,41,63,133 [2000]
240 DATA 50,174,58,3,173,59,3,32,36,237      [1862]
250 DATA 104,133,50,160,0,140,58,3,140,59 [1945]
260 DATA 3,177,155,200,17,155,240,28,200,177 [1863]
270 DATA 155,200,24,113,155,208,9,200,177,155 [1920]
280 DATA 240,14,24,109,58,3,141,58,3,144     [1682]
290 DATA 242,238,59,3,176,237,166,70,164,71 [1865]
300 DATA 169,141,141,98,3,76,240,253         [1521]
```

Print Shop Upload

After days of sorting and converting, I've managed to move my 1300-plus IIe Print Shop graphics from a dozen or more DOS 3.3 5¼-inch disks onto three 3½-inch disks and group them into ProDOS subdirectories. Then I decided to see how they'd look using my new Print Shop IIGS. It didn't work! Print Shop recognized the subdirectories, but told me there weren't any graphics on disk.

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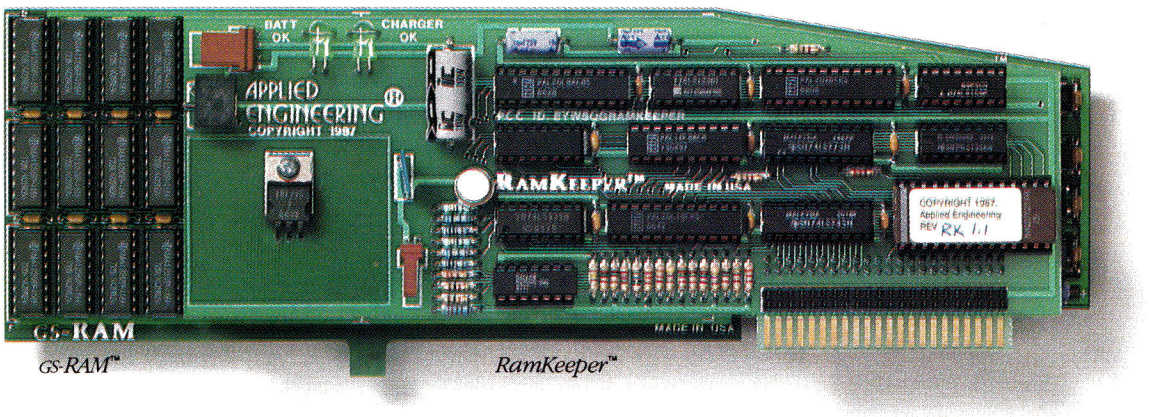

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Is there a way to put my graphics on 3½-inch disks?

Jeff Whitman
Tewksbury, MA

There's a lesson here somewhere—something like, "Do a feasibility study before making a significant investment . . . ."

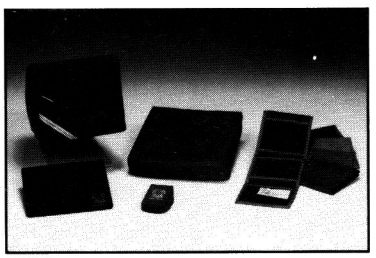
According to the folks at Broderbund (technical support, 415-492-3500), the problem is you converted the files from DOS 3.3 to ProDOS. ProDOS appends a file-type attribute to the converted file—one that IIGS Print Shop doesn't recognize as a valid graphics file.

They also wondered why you went to such great bother, since IIGS Print Shop can load IIe and IIc Print Shop graphics directly from your DOS 3.3 disks. Just use the graphics editor to load a graphic from the DOS 3.3 disk, add colors, and save the updated picture to a 3½-inch disk under ProDOS.

What to do with all your work? If you're technically inclined, you could write a machine-language program that'll interface with ProDOS to change the file-type and auxiliary values for each of your graphics files. Use the GET.INFO and SET.INFO commands ($C4 and $C3, respectively) to change the file type to $F8 and the two auxiliary bytes to $23 and $C3.

Or, use the ProDOS Exerciser utility that comes with the ProDOS 8 Technical Reference Manual *(Addison-Wesley Publishing, 6 Jacob Way, Reading, MA 01867) to change those attributes manually.*

Neither solution is very satisfying, since the time and effort required are probably equal to just going back to your original DOS 3.3 disks. Sorry.



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Uprooted

In "Gnarled Roots" (Apple Clinic, December 1987, p. 34) you showed a program that purports to find perfect squares. However, if you INPUT the number 26569, which is 163 squared, the numerical outcome isn't a perfect square. Moreover, if you enter a value that isn't an integer, such as 4.0000001, the program identifies it incorrectly as a perfect square. Here's a program that'll work correctly:

```
10 INPUT X
20 Y = INT (SQR (X) + .5)
30 PRINT X; "IS";
40 IF X = Y * Y THEN GOTO 60
50 PRINT "NOT";
60 PRINT "A PERFECT SQUARE."
70 GOTO 10
```

Robert Strong
Charlottesville, VA

Thanks for your fix—and for keeping me honest. This does indeed work much better than the original solution.

IIe Mousetext

My Apple IIe has an extended 80-column text card with an Applied Engineering TransWarp card in slot 3. I've been trying to use the mousetext character set in my BASIC programs, but without success:

```
10 PRINT CHR$(4); "PR#3"
20 INVERSE
30 A$ = "ABCDEFGHIJKLMNOP"
40 PRINT CHR$(27); A$
```

Line 30 of this program prints A$ as inverse uppercase letters, not mousetext, as it should. What am I doing wrong?

Ric McNulty
Longview, TX

Nothing's wrong with your BASIC program. Rather, you apparently don't have a mouse nest in your IIe video ROM.

Apple has produced three different versions of its Apple IIe over the years. The original IIe, probably the one you have, contained a 6502 microprocessor and 64K of RAM, expandable to 128K with an extended 80-column card.

About four years ago, around the time the Apple IIc was introduced, Apple produced the "enhanced" IIe. It too came standard 64K, expandable to 128K with the extended 80-column card. But the enhanced IIe also contained the next generation 65C02 microprocessor, new monitor ROMs, and, more importantly in your case, a new video ROM. That new video ROM included the mousetext character set that replaced the alternate uppercase inverse characters found in the original ROM.

More recent models of the Apple IIe include simply the extended 80-column card, but also have an extended keyboard with, among other enhancements, a numeric keypad.

You can distinguish between the original and the later IIe models by simply PEEKing memory location – 1088 ($FBC0). If its value is 234 ($EA), you've got an original. The value for later models is 224 ($E0).

If you have an original and still want mousetext, don't worry. Any authorized Apple dealer can sell and install an upgrade kit containing the appropriate ROMs and microprocessor.

GS Clock Update

I'm using a BASIC program that will track satellites in real time. The original version used an Apple II and got its real-time information from a Thunderclock. When I bought my Apple IIGS, I thought I could use its built-in clock and free up a slot used by the Thunderclock. Unfortunately, your program in Listing 2 of the August 1987 Apple Clinic ("GS Clock," p. 20) gives the correct time only on bootup. Is there some other way to read the GS' real-time clock from BASIC?

Perry Yantis
Obetz, OH

The memory locations that short program PEEKs are the ProDOS clock. ProDOS updates those locations to the current date and time whenever it needs to date- and time-stamp a file, not just on bootup. In fact, the CATALOG command updates the ProDOS clock.

CATALOGing a disk continuously to make ProDOS update its clock isn't a realistic fix, though. Fortunately, ProDOS has a specific command code that'll force it to update the clock. The BASIC program in ***Listing 2*** *demonstrates its use.* ***Listing 3*** *shows the monitor listing of the machine-language program POKEd into memory in line 20.*

For convenience, I put the machine-language

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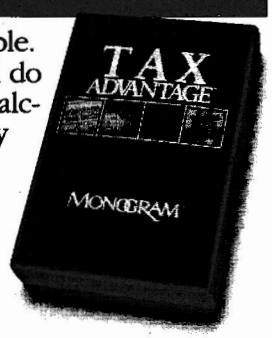

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program that calls ProDOS at memory locations 768–774 ($300–$306), but you can POKE it into memory virtually anywhere. Just remember to also change the CALL address in line 40. Happy tracking.

Listing 2. Retrieve and print the GS ProDOS clock in real time.

```
1000    REM     This routine POKES a character directly into the correct [5720]
1010    REM     memory location on the Apple II 80 – column screen. [4908]
1020    REM     Set the variable C = character before GOSUBing here. [5076]
1030    CH =INT ( PEEK (1403) / 2):CB =PEEK (40) +PEEK (41) * 256 +CH [3521]
1040    IF CH * 2 <>PEEK (1403) THENPOKE – 16383,0: POKE – 16299,0 [3245]
1050    POKE CB,C       [459]
1060    POKE – 16300,0: POKE – 16384,0      [1566]
1070    RETURN          [227]
```

Listing 3. Monitor listing of a program that forces ProDOS to update its clock.

```
00/0300: 20 00 BF     JSR BF00      ;Call ProDOS MLI
00/0303: 82               82        ;Read clock command
00/0304: 00 00            0000      ;No parameters
00/0306: 60           RTS           ;or errors.
```

Listing 4. Access auxiliary RAM to POKE characters into the odd columns of your 80-column screen.

```
10      REM     Set up the ProDOS MLI command:      [2816]
20      FOR I = 0 TO 6: READ N: POKE 768 + I,N: NEXT I      [2060]
30      REM     Read and display the time:      [2655]
40      CALL 768        [345]
50      VTAB 10: HTAB 15: PRINT "The time is: ";        [2084]
60      PRINT   PEEK (49043);":"; PEEK (49042);"    "       [1814]
70      GOTO 40         [341]
100     DATA    32,0,191,130,0,0,96     [1218]
```

80-Column Screen POKEs

I've been trying for some time now to figure out how to POKE characters directly onto the Apple IIe or IIGS screen in 80-column mode. I've used the following formula to successfully place characters onto the 40-column screen:

video address = 256 * PEEK(41) + PEEK(40) + PEEK(36)

Is there a similar formula for the 80-column screen?

Paul Hogan
Bonn, Germany

You've probably already noticed that your 40-column formula POKEs characters only into the even columns of the 80-column-mode screen. That's because the memory locations associated with the odd columns on screen are in an auxiliary bank of RAM not normally accessed by BASIC POKEs. The BASIC subroutine in ***Listing 4*** *illustrates how to get at that auxiliary bank and put characters into the odd columns of your 80-column screen.*

Program lines 1000–1020 explain the subroutine's purpose and REMind you to preset variable C to the character value you want to put into screen memory. Line 1030 first calculates the horizontal offset to the current cur-

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sor position (CH). The routine then calculates the screen-memory address for that position (CB), similar to the way your 40-column-mode formula does.

Line 1040 then tests whether your cursor is in an even or odd column. If odd, the subsequent POKEs enable auxiliary-RAM screen memory. Notice that the even and odd columns share identical memory addresses. Line 1050 puts your character (C) into screen memory. Line 1060 restores screen memory to its standard state; line 1070 RETURNs to the source of the GOSUB.

For more information about auxiliary memory and how to access it, get ahold of an Apple IIe *or* IIc Technical Reference Manual *(Addison-Wesley, 6 Jacob Way, Reading, MA 01867). Or pick up any one of several other books on the Apple IIc or IIe that discuss auxiliary memory.*■

Quickies

From monitor mode on a GS that has been upgraded with the new ROM 2.0, type #, then press Return, to add two new memory-display options to the desk accessories. **—Jamie Avins**

It seems some programs change the slot assignments in the IIGS Control Panel. So it's best to check them before you're fully convinced you've had a hardware "breakdown."

Bill Neef
Grass Lake, MI

Use the ProDOS BYE command to return to the BASIC LAUNCHER or the DESKTOP. Simply type BYE at the BASIC prompt, or, in a program, use the statement PRINT CHR$(4);"BYE".

Anthony Brown
Columbus, MS

Print Shop for the IIGS may not load the second of two similarly named graphics saved under DOS 3.3 because of ProDOS naming conventions. Simply RENAME the second graphic.

Thomas Morrissey
Springfield, PA

TML BASIC for the APPLE IIGS

New for the IIGS

Introducing TML BASIC, a modern, 16-bit BASIC stand-alone compiler designed specifically for the Apple IIGS. TML BASIC is an integrated, full-screen programming environment which uses the mouse, pull-down menus, windows and more. TML BASIC allows you to create stand-alone ProDOS16 applications, and provides complete access to every IIGS Toolbox routine, including Super Hi-Res Graphics, Menus, Dialogs, Windows, and Sound using TML BASIC's predefined libraries.

- Creates stand-alone applications in seconds without leaving TML BASIC's environment.
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- Incredible compilation speed retains the interactiveness of an interpreter.
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- Compiles GS BASIC programs.
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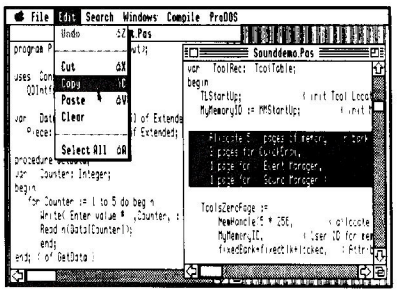

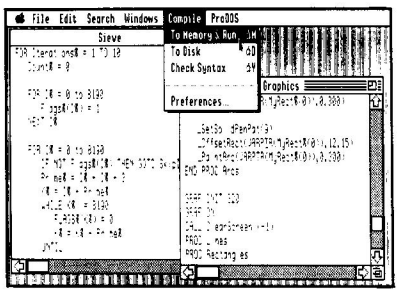

TML Pascal for the APPLE IIGS

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REVIEWS

Print Shop IIGS; GraphicWriter 2.0; TML Standalone Pascal, Source Code Library, Speech Toolkit; First Letters and Words; Games Editors Play

Greetings

THE PRINT SHOP IIGS

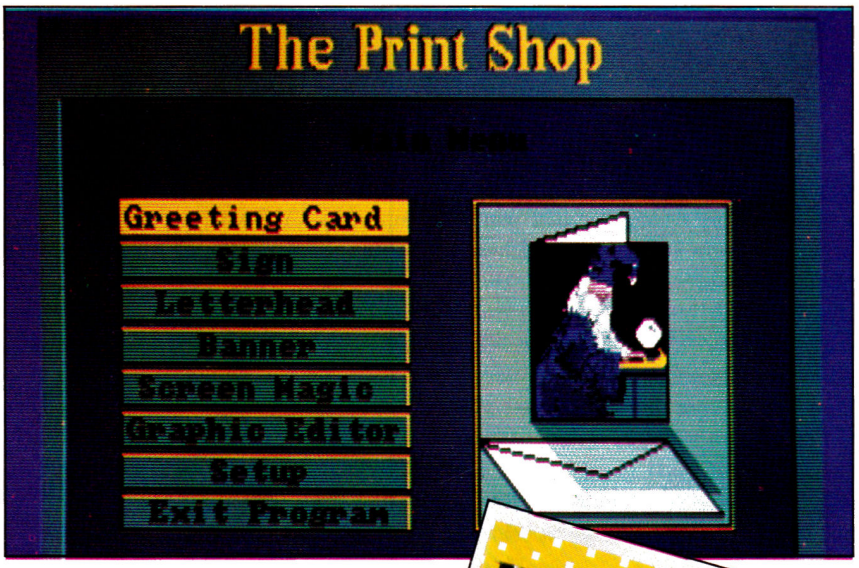
Broderbund Software, 17 Paul Drive, San Rafael, CA 94903-2101, (415) 492-3200
Printing program; 512K Apple IIGS
$59.95 (backup disk $10)
Rating: ■■■■■

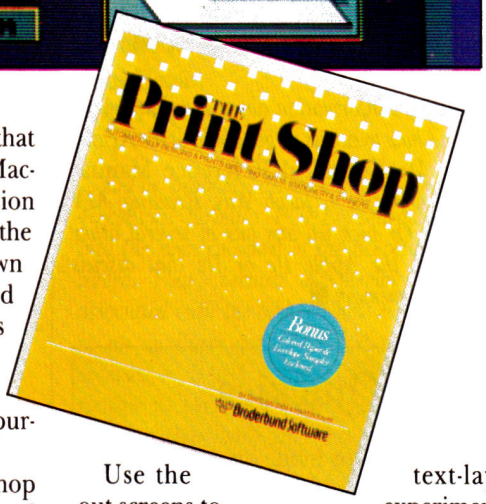
Have you ever been in a quandary about what greeting card to send your cousin to congratulate him on winning the lottery—or to wish your mother-in-law "Many Happy Returns" on her birthday? Predicaments like these are exacerbated when you like a card's artwork but not its verse, or the other way around.

Ever since Broderbund first introduced The Print Shop for the Apple II in 1984, users have been giving Hallmark and other traditional publishers a run for their money—and not just in the greeting-card aisle. Even the earliest versions of The Print Shop let you create signs, banners, and letterheads, as well as greeting cards and note cards. With the program's Graphic Editor, you could even draw your own graphics or modify ones provided with the program.

As time passed, The Print Shop grew in popularity (according to Broderbund, nearly a million packages have been sold) and in capability. Add-on libraries—even a Print Shop Companion that prints calendars and other goodies—have been created. You can easily find disks with Print Shop graphics for free or nearly free in the public domain (and inexpensively from sources like Steele Publishing, P.O. Box 5493, Concord, CA 94524, 415-685-7265).

Broderbund's latest version of The Print Shop for the Apple IIGS represents another step in the evolution of this universally popular program.





BOUNTIFUL COLOR

Some people entertain the notion that "true" GS software should have a Mac-style interface. Not so—the GS version of The Print Shop does support the mouse, but it doesn't have pull-down menus. And, to be frank, it doesn't need them. The program has retained its familiar listed-menu setup—only now it's dressed up in living color. Grays look gray; yellows, yellow; and purples, purple.

When you boot up The Print Shop IIGS the first time, you'll be impressed with its remarkable title screen. It looks identical to the colorful box in which the program is packaged. From there, graphics surprises abound. Choose from the program's 24 built-in single- or multicolored borders, its 64 color graphics, and its 12 stylish fonts to create your own desktop publications. Each choice is displayed colorfully on screen.

To speed up the graphics-selection process, you can choose a design by number. The six-panel foldout reference card included in the package depicts all objects and fonts, and lists graphics by name and number. Instead of clicking through choices until the Easter Egg comes up on screen, for example, just type the number 53.

You can modify any graphic in nearly any way. Use the Graphic Editor to edit, draw, or repaint a canned picture (even one from a DOS 3.3 public-domain software disk) or create your own from scratch. How about your club emblem or company logo?

Use the text-layout screens to experiment with various type styles. You can print a greeting in large letters and the recipient's name in italics, emphasize a message with underlined text, and print your signature in outline style. You can view each line of text and print in any of the eight colors supported by The Print Shop IIGS: black, purple, blue, green, yellow, orange, red, and "rainbow."

To make the letterhead, card, and sign-creation process as easy as possible, The Print Shop disk includes eight vibrantly colored, ready-made letterhead panels and eight full-panel designs with sparkling visual appeal. Real-estate barons will love the panel of Victorian houses (complete with picket fence and window

inCider's Ratings

Excellent—remarkable, a must buy	■■■■■
Very good—impressive and recommended	■■■■
Good—average, solid performance	■■■
Fair—flawed but adequate	■■
Poor—unacceptable or unusable	■

Continued on p. 32

The best-selling Apple software just got the ultimate upgrade.

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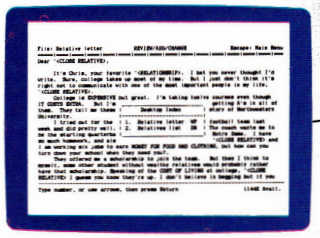

AppleWorks' powerful word processor has headers, footers and on-screen page breaks. Now, mail merge integrates database information with text.



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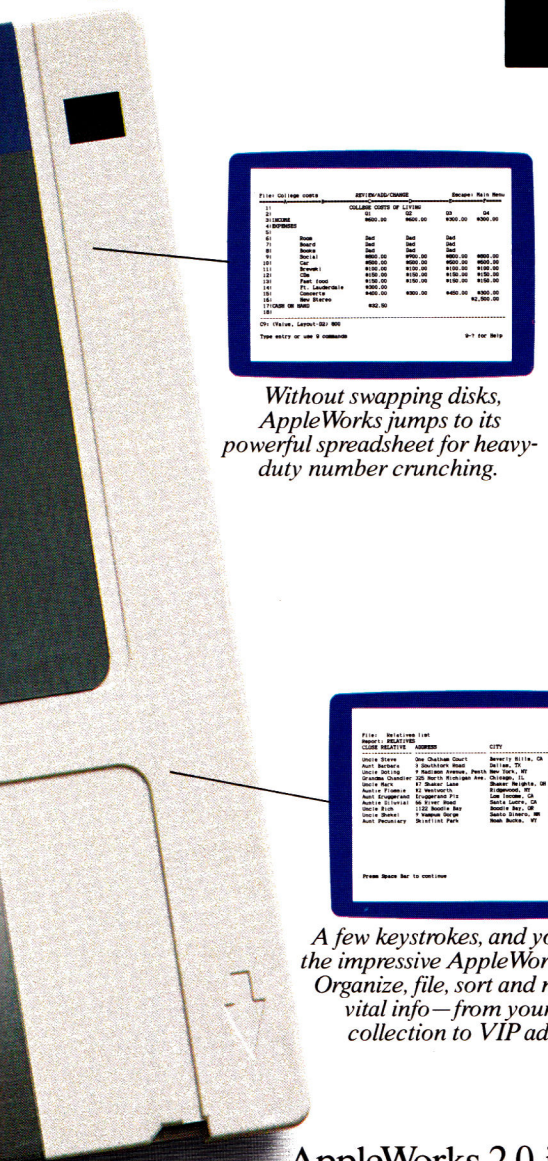

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boxes). Teachers will go for the Chalkboard panel, and restaurant owners should take a look at the predrawn Menu panel.

With these and other "ready-made" items (stock birthday and thank-you cards, party and garage-sale signs), all you need to do is add your own message or change a border, a layout, or a font. It's as easy as pointing and clicking with the mouse.

If you want to modify a previous selection, just return to the appropriate place by clicking the mouse on the Go Back button. If your design looks good so far, click on the Go Forward button. There's even a Preview function, which draws the graphics and text you've chosen and builds the page. The result is a screen likeness of your creation.

THINK PRINTING

Printing your design is as easy as ever. Instead of the blinking "Thinking" and "Printing" messages displayed in previous versions of The Print Shop, the GS version has a moving square cursor that indicates the program's printing process. You can interrupt or cancel by clicking on the appropriate button.

The Print Shop IIGS also includes a print-reduction feature that lets you shrink your printout's size (handy for making labels, bookmarks, or gift tags) and a multiple-copy function, so you can sit back while your printer churns out your custom-made stationery.

The Print Shop supports color printing on the ImageWriter II and Scribe (both from Apple, though the Scribe has been discontinued), the C. Itoh 8510 SCP, the Okidata Microline 292 and Okimate 20, the Juki 5510, the Epson JX-80, and both the Epson EX-80 and LQ-2500 with color option installed. The program also supports single-color printing on a wide range of popular dot-matrix printers.

I've saved what may be the best graphics surprise for last. Color printouts from The Print Shop IIGS are among the best I've seen. Fresh ribbons are important, and a reinking unit can help you economize on these rather expensive desktop-publishing necessities.

PAPER PERFECT

With or without a color printer, you'll want to try different kinds of paper for printing the cards. banners, and signs you've made with The Print Shop. Good-quality white paper works fine for many applications, but try color parchment or bond for those with which you really want to make an impression.

Broderbund includes some continuous-form paper and card-sized envelopes in The Print Shop package, but you'll soon run out. I've seen some high-priced "rainbow packs" of continuous-form color paper offered in various catalogues. If your printer has a friction-feed mechanism, you can use single sheets of parchment or color paper purchased at office-supply stores or even your local copy center. (I recently purchased an assortment of 100 sheets of color paper—bond and parchment—for less than $3 at a nearby "print shop." I'm having difficulty locating envelopes of the correct size—greeting-card size—like the ones in The Print Shop package, however.

To its credit, Broderbund has removed copy protection from its productivity line, which includes what may be the best home-finance program around—On Balance. But its creative Workshop Series programs, including The Print Shop IIGS, remain locked. As Alan Martin, a seasoned Apple user and loyal reader from Portland, Oregon, has confided, "I never rank copy-protected software very highly, [much less buy it], but The Print Shop [for the IIGS] is the exception." I couldn't agree more.■

Cynthia E. Field, Ph.D.
Wakefield, RI

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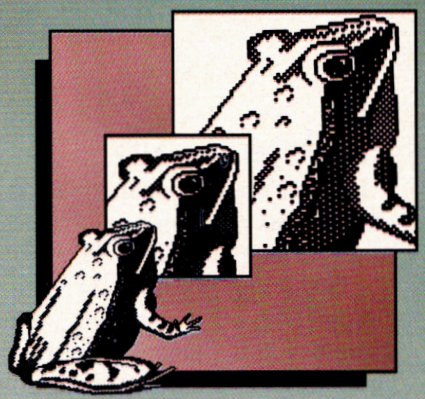

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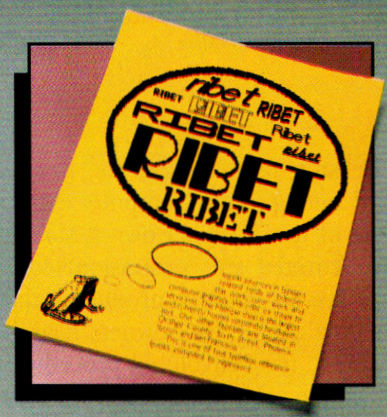

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Desktop-publishing program; 512K Apple IIGS
$149.95
Rating: ■■■■

Desktop publishing is the new buzzword among serious computer users, and those of us who don't own a Macintosh have coveted the professional-looking page layouts you can produce with that machine. Apple IIGS owners have been forced to use convoluted procedures to get simple column layouts from existing word processors, forgetting about graphics altogether or resorting to a pair of scissors and Elmer's glue to do true "cutting and pasting."

Now you can relax. DataPak Software has placed the world of desktop publishing in your hands with GraphicWriter 2.0. This program offers automatic multicolumn formatting, more than 1100 type-style variations, define-your-own point sizing, graphics/text integration with automatic word wrap, and a number of other features.

WHAT'S IN A NAME?

Datapak's only major error, at first glance, is its decision not to change the name of the package. The original GraphicWriter is about as similar to GraphicWriter 2.0 as midget football is to the New York Giants (before the strike). GraphicWriter 2.0 isn't just a simple upgrade—it's a new composition around what amounted to just an outline.

The main screen shows a ruler, top and bottom menus, color palette, drawing tools, and scroll bars—everything but a helper to take dictation. These options only hint at the power of the program. Without ever leaving the screen (or page) you're working on, you can type, create, or import graphics, and autoset the number of columns. That's part of the beauty and the simplicity of GraphicWriter 2.0. You always see the results of your efforts and changes as you make them.

The word-processing portion of GraphicWriter 2.0 includes all the characteristics you associate with a good word processor. Advanced formatting commands such as justification, tab setting, variable lines per inch, running headers and footers, and free-form page numbering are available throughout a document. You can use any combination of formatting commands on a paragraph-by-paragraph basis, so you have plenty of flexibility.

You can rearrange text easily with the Hand Tool. By activating the hand icon, you can drag entire segments of text to new locations. If you change your mind, select the Undo command and the text will return to its original position. This may seem like a minor feature, but it's more useful than you can imagine.

The power of GraphicWriter 2.0 is also evident in the way it handles headers, footers, and page numbers. When working with headers and footers (in which you position your page numbers, if you want them), just click on the appropriate button in the dialog box to limit printing the header or footer to the front page, odd pages, or even pages.

GraphicWriter 2.0 also lets you vary the font, point size, style, even the color

IIGS Programmers, Developers,

and IIGS owners wanting to get closer to your computers and find out how to program them in C, Assembly, and Basic, HERE IT IS!

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Features
- resolution: 320 X 200, 640 X 200 solid, 640 X 200 dithered (interchangeable)
- 4096 colors, with blend, replace, exchange, dither, editing, custom palatte
- color printing
- zoom editing with up to 7 magnifications
- animation
- clipboard lets you keep up to 15 images in memory at once
- pull-down menu or icon control of functions
- sketch, paint, spray, vertically controlled color-fill, line, arc, box, oval, erase, paste, undo
- save one or all clipboard images to a disk file
- explicit manual about the program AND the IIGS

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Requires Apple IIGS with 512K (more recommended), color or RGB monitor, mouse; Imagewriter or Laserwriter optional.
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*If for any reason, during the **30 DAY** trial period, you wish to return ZIP CHIP, your money will be promptly refunded; you keep the $40.00 diskette; our gift for trying ZIP CHIP.*

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of your text from paragraph to paragraph, line to line, or word to word. The program offers 48 colors, 15 fonts, six styles (including outline and shadow), and sizes from 1 to 72 points. As far as text is concerned, its appearance on the page is limited only by your imagination. Of course, text is only one consideration when you're using a program like this one.

PREPARE YOUR PALETTE

The draw and paint segments of GraphicWriter 2.0 allow for considerable versatility when designing a page. You can merge fully functional shapes such as lines, rectangles, triangles, ovals, rounded rectangles, and half-rectangles with painting tools such as watercolors, dyes, and fills to create graphics as simple or as intricate as you like. You can also use these tools to "frame" portions of your text, create attention-getting sidebars, or highlight titles.

Once you've created your graphics, you can manipulate them in a number of ways. Select the object you want to work on, then change its color, resize it, move it anywhere on screen, turn it into an equilateral (turn an oval into a circle or a rectangle into a square), or rotate it in 90-degree increments.

GraphicWriter 2.0 even lets you work with more than one object at a time if you need to. You can select several objects and make them all the same size, or you can align objects in a grid vertically or horizontally. And by selecting the "mouse = ruler" command, you can examine the exact coordinates of your graphic and see that location in inches. By using the grid, the alignment command, and the "mouse = ruler" command, you can be extremely accurate as you lay out a page.

If you're less than artistic or simply don't have the time to create your own art work, GraphicWriter 2.0 can import clip art from various paint and graphics programs, as long as those graphics can be saved as bit-mapped files. This means, for example, that graphics created from or for Paintworks Plus must be saved in screen format rather than paint format. Once you've imported the graphic, you can use it almost exactly as you would one created within GraphicWriter 2.0.

You can import text as well as graphics, which means you can import and format AppleWorks files with any or all of GraphicWriter 2.0's advanced features.

TYPE OR PAINT

GraphicWriter 2.0's most powerful feature is its ability to create regions. Regions are rectangular areas you can place anywhere in a document and manipulate in various ways. Each region is independent of the others. Each one can be a different size and shape, contain a different number of columns, and be moved without disturbing other regions.

You can create two kinds of regions—object or canvas. An object region can include text and objects (shapes created from drawing tools—squares, ovals, and so on), but it can't contain graphics. Canvas regions, on the other hand, can contain objects and graphics, but no text. You can overcome this apparent limitation (no text within a canvas region) easily by creating a small object region, typing your text into it, and positioning it on top of the canvas region.

You can also assign various other properties to regions. Their length can be fixed or bottomless, the background can be white or black, and their borders can be framed or unframed. Furthermore, you can resize or delete regions easily. A good technique to use when working with regions is to select the Show Regions option from the layout menu. This lets you identify the parameters of each region you've created. When your composition is complete, you can select Hide Regions to get a clearer picture of what your page will look like when you print it.

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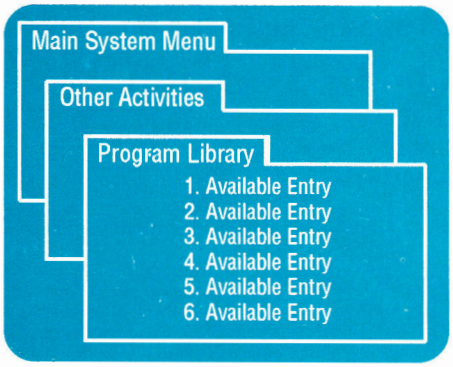

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COLUMNS AND CONTINUATIONS

Two features that also deserve mention are automatic columns and continuation marks. Automatic columns are exactly what they sound like: You can pick up to four columns from the layout menu, dividing the page or region into the number of columns selected. You can choose the number of columns before or after you begin typing; it makes no difference to the program.

One of the most convenient facets of automatic columns is that when you reach the bottom of one column, the cursor wraps to the top line of the next. You no longer have to click back and forth between columns as you did in the original GraphicWriter.

Continuation marks are powerful tools that let text flow around illustrations. To understand their necessity, you must first understand this: The blank page with which you begin your document is one large, bottomless object region.

Now let's assume you create and position a four-inch square-canvas region in the center of the page and import a hi-res graphic. This canvas region is literally sitting on top of the object region; it doesn't replace it. That means your text, when it reaches any portion of the canvas region, won't stop. It will instead disappear under the graphic. If you keep typing, it will eventually emerge on the other side of the graphic.

Continuation marks keep this from happening. Place them where you want your text to end and where you want it to continue. By setting these pointers, you can direct your text around a picture. You can place continuation marks anytime, so if you decide to move a picture after you've typed and set all your text, you won't have to make major revisions. Simply place new marks around the relocated picture and GraphicWriter 2.0 will reformat the text.

A MODE OR TWO

GraphicWriter 2.0 uses both a graphics mode and a text mode, with one or the other "kicking in" depending on whether you're typing or drawing. Because of this, the graphics image is quite distorted when you're typing; when you're working with graphics, the text shrinks (at times to an unreadable size), but the graphics shapes are perfect. The page's appearance can be disquieting and certainly takes some getting used to when working with text and graphics at the same time. Nevertheless, the bottom line is that when printed, the page looks perfect.

A similar problem occurs with th "show full page" command. This function presents a miniature representation of the current page on screen. It's a functional screen: You can move text and regions around in the window or even move objects within regions. The problem of graphics, text, and objects comes up again, though. Graphics may appear

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to overlap text, and frames may no longer contain the text over which you placed them originally.

This is frightening if you've invested any amount of time in creating your page. Rest assured that all these "problems" will correct themselves when you print the page. The "show full page" screen is a broad overview, giving you a general idea of margins, length of columns, and so on. Just remember it isn't a literal depiction of the page you're previewing.

THE FINAL RESULT

GraphicWriter 2.0 supports both the ImageWriter II and the LaserWriter. You can use either printer with various paper sizes, either horizontally or vertically. If you're using an ImageWriter, you can reduce the size of your page 50 percent. You can also choose different print-quality modes with an ImageWriter. The results are impressive in high-quality mode.

The LaserWriter allows you much greater freedom in print size, accepting reductions and enlargements ranging from four to 14 times the original size of the document. GraphicWriter 2.0 also supports a technique known as "smoothing" when using a LaserWriter, which produces a less ragged edge by adding extra dots between points.

The program is easy to use despite its power. You can start composing simple page layouts in less than an hour. The surprisingly small manual is clear and well referenced. The manual also gives excellent suggestions for creating reusable templates—called custom stationery—and it points out the advantages and disadvantages of both on-line text pasteup (typing text in directly) and off-line text pasteup (importing text typed with a different program).

A last feature, and an important one, is the program's speed. Whether you're manipulating text, graphics, or regions or printing copy, GraphicWriter 2.0 manages to do it quickly.

Some of GraphicWriter 2.0's limitations may be important to you, depending on your needs. The program doesn't allow for automatic hyphenation in its word-processing segment, nor does it contain some of the finer features of more powerful desktop-publishing programs—such as kerning, the process of removing the extra space between certain letter combinations to create a better appearance; leading, the process of controlling the amount of space between lines; and automatic setting of gutter widths, used when binding facing pages together. GraphicWriter 2.0 also doesn't offer any style sheets, as many IBM and Macintosh desktop-publishing programs do.

Overall, GraphicWriter 2.0 is a giant step forward for the Apple IIGS. It's a powerful way to produce exciting page layouts, and it's easy to do. The sophistication of your layout depends almost entirely on you. If you're creative and willing to put time into the design,

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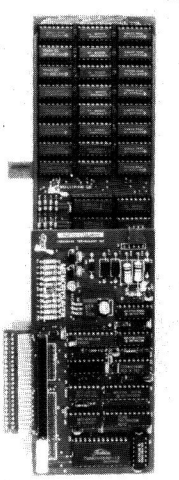

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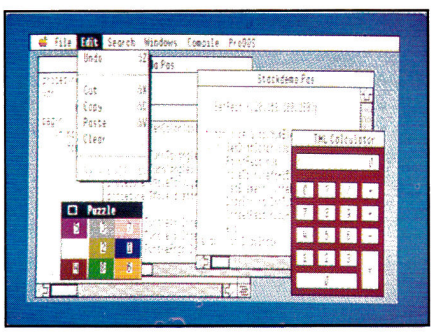
GraphicWriter 2.0 will let you manufacture truly impressive page designs.

A final note: Those of you who own the original GraphicWriter can order an upgrade at no extra charge. Simply contact Datapak for instructions. The company's customer support is among the best I've encountered. While GraphicWriter 2.0 is copy-protected, Datapak includes a backup with every package sold and offers you two more backup copies for $20 each.■

James Trunzo
Leechburg, PA



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You went ahead and did it—you're the proud owner of an Apple IIGS. You've gotten up to speed with the Finder and all those great word-processing, music, painting, and drawing programs. Now all you need are the right tools to make your GS really take advantage of the Apple interface. TML Systems has just what you need: TML Pascal.

If you're like "the rest of us," you're not a prime candidate to dive headfirst into the deep waters of programming environments such as GS 16-bit assembler shells. What can you do? There's Applesoft—good old gray, 8-bit BASIC—but programming on your GS in BASIC is sort of like buying a brand-new turbo Porsche, then replacing the motor with an old VW Beetle engine and trying to steer it with a sailboat tiller.

APPROACHING THE TOOLBOX

TML Pascal comes to the rescue—a fully integrated mouse-and-window editing system and compiler/linker. It doesn't exactly write the code for you, but at least it gives you a leg up on programming with a complete set of built-in goodies to access the GS toolbox routines. The "stand-alone" tag simply differentiates this package from the initial (and still available) version, which runs as a language tool under the Apple Programmer's Workshop assembler or the ORCA/GS assembler from ByteWorks.

There are arguments for and against approaching toolbox programming without a theoretical and practical background in machine code and assembler.

One of the strongest in favor of having some programming experience originated when Apple first introduced the toolbox concept with the Macintosh. A cautionary note to experienced programmers warned them that they needed to "unlearn" most of what they knew. Inexperienced programmers may have a conceptual advantage: a fresh viewpoint that will let you attempt and succeed in a programming project a veteran programmer would deem impossible without even a second look.

That's not to say there aren't any dues to pay, but knuckling down with the excellent documentation and examples the TML Standalone package provides will take you through the necessary apprenticeship. Having done that, you'll have well in hand an environment in which

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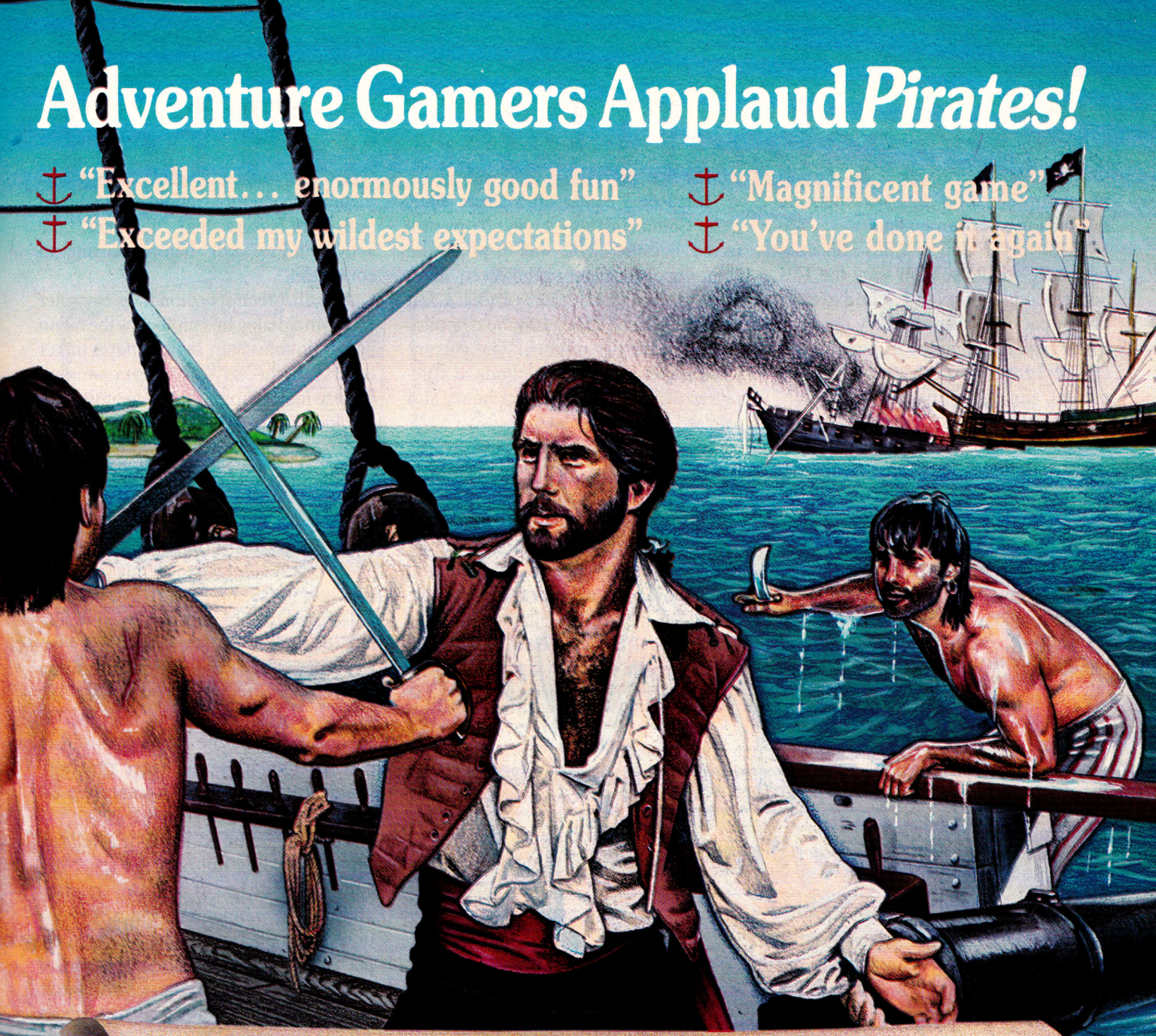

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To further round out this education on the fly, you'll probably want the TML Source Code Library disk. The extra cost of this package is worth every penny, as it gives you the complete coding for dozens of programs (with extensive comments), including the "HodgePodge" from Apple's initial GS developer demo disk.

Samples show you how to do your own NDAs (new desk accessories); the package also includes a functional clock and a calculator that may be described best as whimsical but instructive. Other samples demonstrate nearly the entire gamut of the GS toolbox, from QuickDraw graphics to text, menu, dialog, and box handling.

COMPILE AWAY

TML Pascal comes on a single 800K disk. Commendably, it isn't copy-protected. Because of the way in which the compiler uses memory, however, don't move it to a RAM disk. (And it's fast enough already: TML rates the compiler at 6000 lines per minute.) The current version includes three methods of compiling code: syntax check, to memory, and to disk.

Selecting "compile to memory" runs a temporary version of your application if the program has compiled it successfully. Quitting the test program returns you automatically to TML. If the test program is an NDA, desk-accessory installation and removal options appear in the Apple pull-down menu. Compilation progress is shown as a "thermometer," or horizontal bar graph filled in left to right. A "preferences" dialog, accessed from the Compile menu, lets you select tab spaces, memory space for symbol tables, and an auto-save feature that "fail-safes" the active-window code before starting to compile it.

A small, green scorpion flags compiler errors in a dialog box just below the menu bar. A double-chain symbol notes linker errors. In the active program window, inverse highlighting simultaneously flags the location of syntax and semantic errors. The programmer is still responsible for the logical integrity of the code.

As both the GS operating system and TML Pascal mature, we can expect the company to incorporate the Macintosh TML Pascal interactive debugging window into its GS cousin. It's a sort of smart automated clipboard, which opens to isolate the section of code that halted compilation to let you repair it and test it on the fly, usually without recompiling. TML says it plans to implement it in the GS version, but that the effort required to add the interactive debugger isn't warranted until ProDOS 16 is in version 2.0 or later.

The TML Standalone editor is full-featured, providing not only the usual cut, copy, and paste trio by mouse or standard apple-key combinations, but also functions like shift clicking, which you'd expect, but often don't find, in GS word processors. A powerful group of search-and-replace commands makes program editing far easier. You can open up to four windows at one time; you can stack them or zoom in according to your preferences.

Since Pascal was originally an academic language, it's rigorous in its demands for structure. One of the most onerous of these demands is for line indentation; the TML editor very helpfully automates the process completely.

PLAIN AND SIMPLE

At a bare-bones level, you can use what TML dubs the "plain vanilla" programming mode, a relatively static 79-column by 20-line window in which you can run academic Pascal code—the sort of stuff you find in programming textbooks. Typ-



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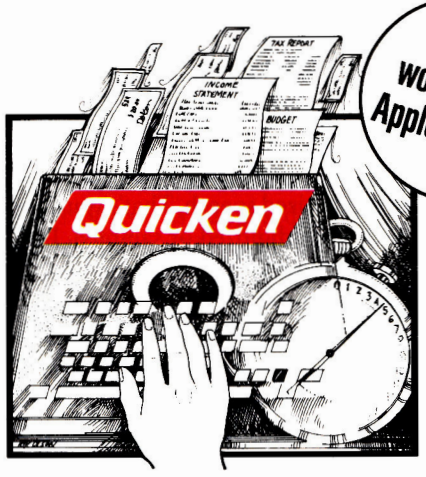

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ically in the Plain Vanilla window, you've left the GS mouse behind, though some handsome and interesting programs, using both color QuickDraw and the GS' sound capabilities from Plain Vanilla mode, have appeared in the public domain.

Assuming you're not a new programmer, but an old-timer in the Pascal persuasion, you can easily use Plain Vanilla to port over many of your old (8-bit) Apple Pascal programs. There's no magic here, but 8-bit Pascal caterpillars aren't going to become 16-bit butterflies. Plain is plain.

To date, TML Standalone Pascal is one of the better GS implementations of Apple's Human Interface guidelines, owing no doubt to Tom Leonard's depth of experience as a Macintosh programmer. (Macintosh TML Pascal is a mature and widely used package.)

A minor complaint with the editor may already be fixed by the time you read this—a File menu that displays only TML source files. TML assures us this will be changed in the very next release, either by inclusion of a catalog function in the ProDOS utilities menu, or more conventionally by displaying all files in the File menu, dimming out those that aren't pertinent. To its credit, TML Systems seems to be a user-sensitive, user-responsive company—more than willing to take time to listen to your problems and suggestions.

What else will you need, aside from perseverance, to really get up to speed with GS programming in TML Pascal? Probably a membership in APDA (the Apple Programmers and Developers Association), to gain access to its hefty library of official Apple notebooks on the GS toolbox, firmware, *Programmer's Introduction*, and so on. You may also just get by with a copy of Michael Fisher's volume, *Apple IIGS Technical Reference* (Osborne/McGraw-Hill).

On the hardware side, the minimum configuration would be 768K of RAM and a single 3½-inch disk drive. If you intend to do some serious development work, though, a full megabyte of RAM and a second 3½-inch disk drive would be a good starting place. More RAM and a hard-disk drive will make operations all the more convenient and efficient.

SPEAK UP

There's yet another add-on for TML Pascal—the TML Speech Toolkit. It does a pretty fair job of turning typed-in text into synthesized speech. That's *synthesized* speech—not digitized or sampled. Don't expect the crystal clarity of the sampled voices on the GS dealer demo disk, which amazed so many users with its perfect enunciation of "Introducing the Apple IIGS," "buon giorno," and the like.

The Toolkit's speech is closer to that of HAL, the loquacious on-board computer in the film *2001: A Space Odyssey*. Given its somewhat robotic quality, it's still far less tinny sounding and far easier to implement than that produced by any of the Apple II speech-hardware/software combinations you may have tried in the past.

You can program the Toolkit in TML Pascal to your own taste, or simply play the PlainTalker and TextTalker programs that come with the package. You control functions such as speed, pitch, and tone easily; with a few exceptions, you can choose between male and female voices.

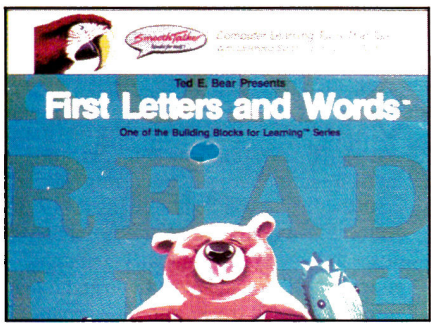
The TML Speech Toolkit employs sound tool sets developed by First Byte Software and licensed to TML for this application. That arrangement is perhaps the only bad news about TML's speech package.

TML gives you a fairly open-ended license to commercially use the code you develop with its compiler without owing additional royalties—but in the case of the Speech Toolkit, you're at the mercy of First Byte. Let's hope the company will amend that, especially in the case of educators who might find the Toolkit just the vehicle they need to write some intriguing classroom software, were it not for First Byte's deep bite.

The license quibble aside, the TML Speech Toolkit is, to borrow a phrase from a widely known late-night-TV host, "More fun than human beings should be allowed to have. . . ."

TML's Standalone Pascal system is certainly robust enough to perform professional software development and more than powerful enough for the hobbyist. It may be a matter of personal style or preference, but there's something very reassuring in TML Standalone's mouse-and-window approach to programming that's lacking in competing products. To date, other Pascal programming aids have kicked you out the window and left you scrambling, mouseless, on a steep learning curve. TML Standalone Pascal has everything to recommend it, especially if you're not a programming veteran.■

Peter Zarti
Fort Collins, CO



First Things First

FIRST LETTERS AND WORDS

First Byte, 45 Temple Avenue, Long Beach, CA 90806, (213) 595-7006
Talking educational games;
768K Apple IIGS
$49.95
Rating: ■■■

At first glance, First Letters and Words looks as if it capitalizes on the sound and graphics capabilities of the Apple IIGS pretty well. To the instant delight of children and adults alike, an animated talking teddy bear (appropriately named Ted E. Bear) calls out the names of letters on screen.

Graphics and sound consume plenty of memory, however. Don't try running this program if you have only 256K or

even 512K. You'll need at least 768K to run First Letters and Words; a note to that effect appears only in very small type on the front of the box.

A second point to consider is the program's educational goals, which are hazy at best. Kids will enjoy using this program, but how much they learn in the process will be tough to tell.

Three of the program's activities—Magic Letter Machine, Who Am I, and Card Circus—attempt to expand reading-readiness skills with varied amounts of success. A fourth activity called Dinosaur Surprise teaches body parts and names of colors.

Beginning with the most elementary module, the child presses a letter on the keyboard and the program draws the letter (in upper- or lowercase) on screen and pronounces it. It then goes into Ted E. Bear's magic-letter machine. The data wheels begin to spin when the child activates a lever.

A picture of an object with a name that begins with that letter appears on screen, along with a large chalk-colored letter. Finally, a sentence prints on screen and is produced in digitized words—such as "V is for *vulture*" or "I is for *ice cream*." This process is supposed to help your child increase his or her knowledge of letter names and sounds while becoming familiar with 76 words, from "apple" to "xylophone." As a teacher, I'm skeptical.

The idea of using pictures to demonstrate the sounds associated with words is logical for kids to whom these concepts are new. But this part of the program ignores the vital steps that teachers using flashcards would perform.

To teach letter names and sounds, a program must follow a sequence that first asks the child to identify a letter sound, then relates that sound to a letter name and finally reproduces it on paper. This program might have done the same thing in a more exciting way, but it doesn't. By failing to force the child to select a specific letter on the keyboard, the program misses its chance to help the child think for himself or herself.

Video and audio combine in Card Circus to reinforce your child's knowledge of upper- and lowercase pairs of letters. At the top of the screen an uppercase letter appears. Below it, the child sees four choices for its lowercase match.

By aiming an arrow and clicking the mouse, the child picks a letter. Wrong choices simply disappear from screen. When your child picks the correct letter, Ted E. Bear will say the letter's name. This activity helps beginning readers master upper- and lowercase combinations.

Here's a problem for you: "I am very long. I do not have any arms or legs. I



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move quietly in the grass. Who am I?" If you answered "snake," congratulations. If you didn't, don't worry, the answers to this and 39 similar "problems" are found at the back of the documentation.

In Who Am I, riddles are printed on screen, then spoken. The voice is a reasonably good, but not perfect, reproduction of a human voice. Because they see the words as they're enunciated, adults will understand each word. Nonreaders, including children at the reading-readiness level, won't. Their first problem, then, is determining the problem. The second problem is spelling the words.

Heading into the fourth module, an outline of one of six dinosaurs (including brontosaurus and triceratops) appears on screen. Below the outline is a row of colors, each with its name printed across it. The child can color in the beast's various body parts by clicking on his or her color choice.

First, the child listens to the name of the body part (head, for example). When he or she selects a color, the program pronounces the name of that color, colors the head in, and speaks the name of the dinosaur. This part of First Letters is very slow.

My criticism of this type of instruction is more severe. The module's stated object is to teach children the names of both words and body parts. Printing the name of the color with the color itself eliminates the chance for a child to learn; he or she can simply pick the color and ignore its name. I don't see any instructional value in this activity.

New and exciting computer hardware always precedes good software to utilize it. Owners of the GS may spend their money hastily on educational products that attempt to cash in on a void, but fail to take advantage of the GS' considerable teaching potential. First Letters and Words does some interesting things, but falls short of its stated objectives.

One more criticism: Most of the First Letters documentation seems to be an attempt to remove responsibility for achieving the program's objectives from the program itself. Instead, it tries to place that responsibility on supplementary activities provided by parents and teachers. It tells us to engage our children in "extra learning activities" such as "pencils, crayons, sticks, and finger paints."■

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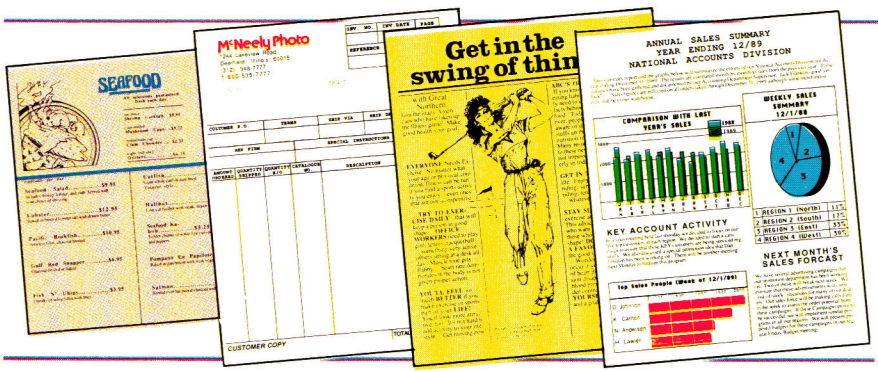

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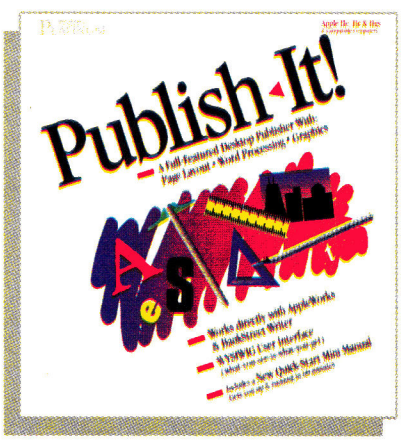

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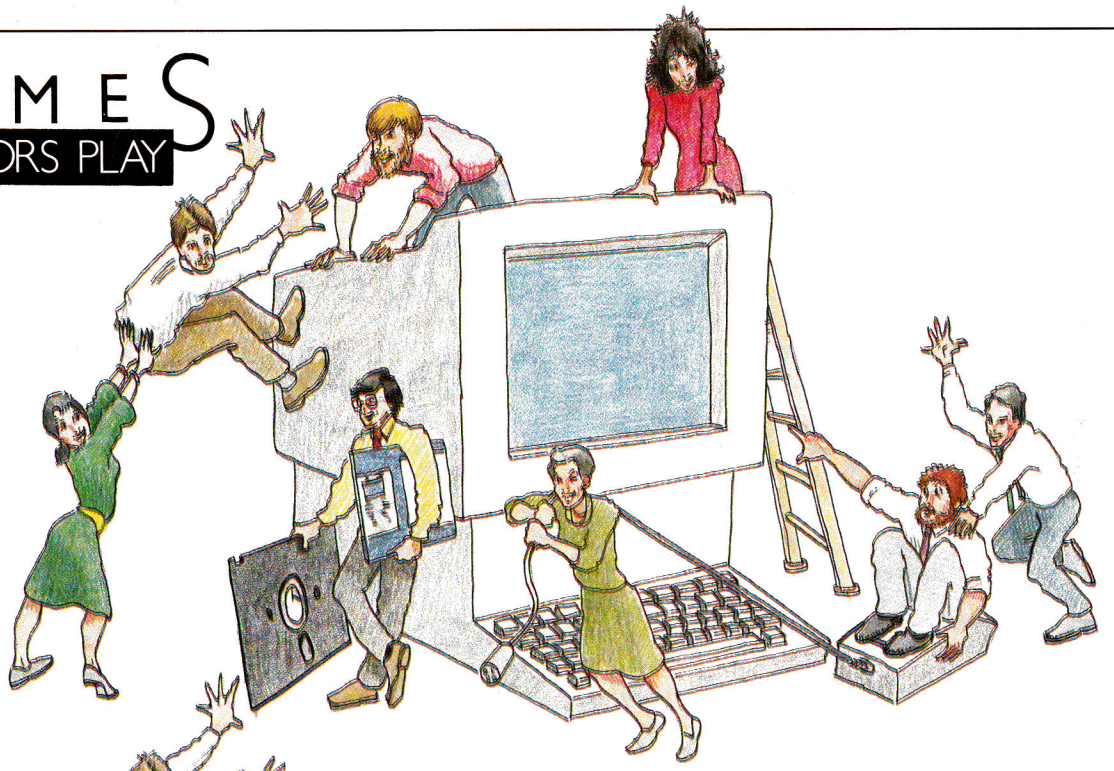
GAMES EDITORS PLAY



Dan Muse plays...

GS HardBall!, *Accolade, 20863 Stevens Creek Boulevard, Cupertino, CA 95014. $44.95.*

GBA Championship Basketball, *Gamestar/Activision, 2350 Bayshore Parkway, Mountain View, CA 94043. $44.95.*

I'm as impressed as the next guy when it comes to powerful music or painting programs for the Apple IIGS, but when I saw two of my favorite games adapted to take advantage of the GS' sound and graphics capabilities, I caught on to the "real" power of the GS: It's a great game machine.

The GS versions of the 8-bit hits Hardball! (Accolade) and GBA Championship Basketball (Activision's Gamestar series) feature crisp super-hi-res graphics and realistic sound. The way you play the games hasn't changed, they just look and sound better.

GBA Championship Basketball (see August 1987, p. 90, for a review of the 8-bit game) has undergone a thorough face lift. You play before a packed house of cheering fans, you hear every dribble off the realistic-looking parquet floor, you watch the net swish as you make your three-point shots, and you listen for the whistle as you hope to escape being called for a foul.

The GS edition of GBA Basketball seems a little more difficult than the 8-bit version; in fact, I still haven't beaten the computer. Maybe I'm too overwhelmed by the sounds and pictures.

Activision has added a few features to GBA Basketball. For example, in the 8-bit version, statistics were listed only for the leading scorer. In the GS version, all four players are accounted for. It also offers an interesting option: You must choose whether you want to be white or black. I'm not sure why the developers added this option, but the game could do without it.

Accolade's Hardball!, a classic among sports games, is subtler in its changes to 16-bit form. The graphics screens are far superior, as you would expect, to those of the 8-bit version, but not that much is different. (See April 1987, p. 95, for a review of the 8-bit version.) That's not a fault in GS Hardball!; it's just that there isn't that much to improve upon.

As with GBA Championship Basketball, sound makes Hardball! more realistic and more fun. You'll love the the thrill (or the agony) of hearing the umpire scream "STRIKE," the satisfaction of hearing your sinking line drive hit the grass before the charging outfielder can make the catch, and the relief of hearing your runner slide under the tag.

Hardball! on the GS seems a little easier than on the IIe or IIc. The graphics screens have something to do with this. As with any arcade game, Hardball!'s sharp display makes it easier to see and react to the ball.

The Apple IIGS is designed for greater things than baseball and basketball games. But HardBall! and GBA Championship Basketball will make you forget about DeluxePaint II and The Music Studio, at least for a little while.

Peg Brown plays...



Nord and Bert Couldn't Make Head or Tail of It, *Infocom, 125 Cambridge Park Drive, Cambridge, MA 02140. $39.95.*

Confidence and perseverance are required—don't let the clever illustrations by Kevin Pope on the packaging lure you into thinking this is just fun and games. Serious punsters will revel in Infocom's Nord and Bert Couldn't Make Head or Tail of It by Jeff O'Neill.

This clever interactive fiction is a series of eight independent short stories. Solving seven scenarios through

Continued on p. 50

"You're pond scum, McGibbits!"

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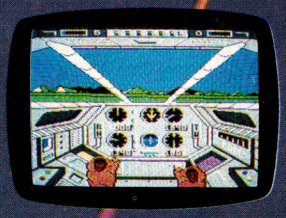

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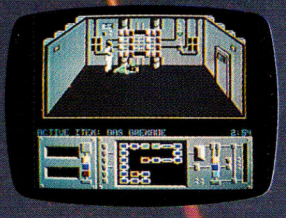

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the use of homonyms, clichés, and other forms of word play, you discover the passwords needed to "Meet the Mayor," the grand finale.

You quickly realize that puns, spoonerisms, and verbal tricks aren't child's play. This is a mental challenge. There are no flashing pictures to distract your sharply honed mind, no bells or whistles when you solve a piece of the puzzle—just the statement "6 out of 22" changing to "7 out of 22" in the upper corner of the screen, and that text staring at you, daring you to ask for a hint.

When you finally succumb to your baser instincts and type in HINT, a challenge appears, asking whether you truly want to give up so easily—implying you don't really need that hint. You type in HINT, looking over your shoulder to see whether anyone saw this flaw in your character. The computer screen also offers occasional judgmental comments: A gallant attempt to solve a puzzle by cutting an object is answered with "The knife is not sharp and neither are you." Who needs this kind of abuse?

Hints help you hurdle the difficult spots, and the ability to save your game helps the novice tackle it—of course, it could become the Project of the Month. Being able to switch from one short story to another without losing your place cuts down on the impulse to give up when the going gets tough. This highly entertaining program is best played by a group, an ideal change from *Trivial Pursuit* for a Sunday afternoon.

Do you regularly do the *New York Times* crossword puzzle—and finish it? Anxious to test the sharpness of your mind? Looking for the perfect game for that person who always has the quick answer, while your best retort pops into your mind a mere two hours later? If you can reply yes to any of the above, here's the game for you. It's perfect for those who are clever, intelligent, and quick-witted. On the other hand, it could be a most humbling experience.

Ellen Otis plays . . .



Ticket to Spain, *Blue Lion Software, 90 Sherman Street, Cambridge, MA 02140. $39.95.*

Imagine yourself traveling through Spain during the month of June as you search for the same heirloom your cousin is hoping to find.

That's the scenario in Ticket to Spain. To find the heirloom, you must complete eight tasks, each described only by a clue, with every new game. In addition to figuring out the task at hand, you must travel wisely, budgeting your money and time, all the while avoiding your cousin. Senoras y Senores, the race is on!

To make your way around a country, you must travel its roads and speak with its people—and that's the main premise behind Ticket to Spain. There's constant dialogue to strengthen your vocabulary (you can play in either Spanish or English) along with a phrasebook for reference. I'm proud to say that after five years of Spanish, I had to look up only two words.

You'll answer questions about Spanish history, architecture, culture, and geography; different scenarios teach you how to order in a Spanish restaurant or check into a hotel. Each correct answer earns you points. As you visit eight different cities and tour their famous landmarks, such as el Prado in Madrid, la Mezquita in Cordoba, or el Barrio de Sta-Cruz in Sevilla, the country begins to reveal itself to you.

Your game character may walk away with an heirloom, but every player will come away with a greater knowledge of Spain. To that, I say *Bravo*.

Paul Statt plays . . .



ThunderChopper, *ActionSoft, 201 West Springfield Avenue, Suite 711, Champaign, IL 61820. $29.95.*

A ThunderChopper has the "ability to fly backward." That's the first lesson I learned when I read the ThunderChopper *Helicopter Operations Manual*. The second lesson was "read the manual first."

Documentation is the last resort for macho game players, but ThunderChopper demands heavy homework before it leaves the ground. I backed my ThunderChopper into the dirt countless times for one dreary hour before I figured out I was going backward.

A ThunderChopper, if you care to know, is an enhanced Hughes 530 MG Defender. Flying one is no picnic, but that made me all the prouder when I finally got airborne. The game's author, Colonel John B. Rosenow, USAF (Ret), has been a helicopter pilot and flight instructor for 30 years. His experience shows. And Rosenow's 12-page memoir, a *Personal History of Helicopters*, was entertaining and informative reading while I was resting between missions.

Even wimps like me, who read somewhere that war is hell, can enjoy the search-and-rescue missions. Three of five ThunderChopper missions involve no destruction; Rosenow stresses in his *Personal History* that military helicopters search and rescue more often than they seek and destroy.

But ThunderChopper's as good a flight and battle simulator as you'll experience: The machine sounds like the business end of a chain saw, although I wish firing the guns made a louder "pop." Good graphics, good sound, good instruments, good maps, good book: I had a good time flying ThunderChopper.□

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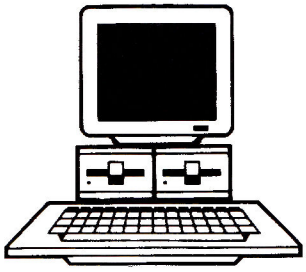

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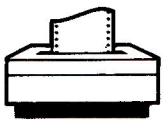

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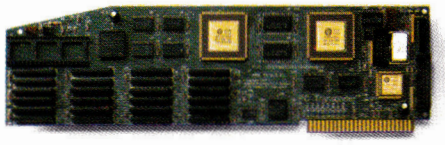

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GRAPHIC ENVIRONMENT OPERATING SYSTEM

GEOS

Introducing GEOS, a new operating system, desktop, and applications package that promises to revitalize 8-bit Apples with innovative software technology.

by Eric Grevstad

Do you feel that your 8-bit Apple has been neglected lately? That software developers are focusing on the IIGS when they're not chasing after the Mac and MS-DOS?

One software company—not an unknown startup, but an established firm claiming half a million sales so far—is making new Apple II programs. Not one or two programs, either, but a new ProDOS-compatible operating system (see the accompanying sidebar), a Macintosh-style desktop with desk accessories, a paint program, a word processor, a database, a spreadsheet, a desktop publisher, a powerful programming environment, a whiz-bang menu- and icon-based BASIC, and maybe more down the road.

All promise easy mouse or joystick control, cut-and-paste integration among applications, and all the menus, graphics, and proportionally spaced fonts you could want. GEOS, the Graphic Environment Operating System that's revitalized the Commodore 64 and 128, is coming to the Apple II.

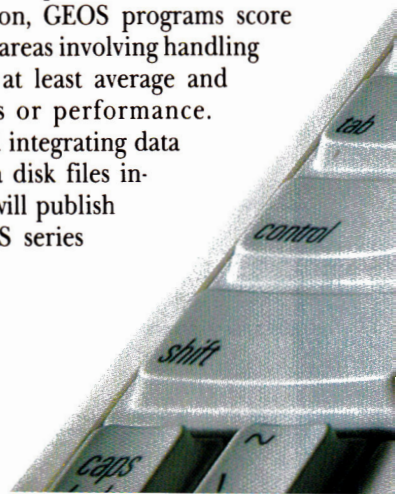
The creators of GEOS, Berkeley Softworks (see the accompanying sidebar), have combined impressive technical resources with a zeal for bringing the latest 16- and 32-bit software trends to 8-bit systems. Even so, few would predict that GEOS will replace AppleWorks overnight. The word processor's fonts are fancy, but also slow in scrolling. The programs are inexpensive, but beg for a RAM card to minimize disk access.

Nevertheless, GEOS is the biggest Apple II software news in years. There's an empty space on the software shelf for home or beginner's programs that are easier to use than AppleWorks, but the only challenges to AppleWorks have come from brave one-man outfits like those behind Foundation and Do-Re-Me. GEOS and Berkeley Softworks are serious, innovative contenders in both areas.

THE GEOS LINEUP

This article is based on two days' exclusive testing of preliminary disks and interviews with developers at Berkeley Softworks' California headquarters in early December. Only early, not fully functional versions of Apple GEOS' deskTop, geoWrite, and geoPaint were available by deadline, along with time to try Commodore versions of the other products.

In our preliminary evaluation, GEOS programs score high in ease of use, low in some areas involving handling and moving within files, and at least average and often impressive in features or performance. They're terrific at merging and integrating data because they cut and paste via disk files instead of RAM buffers. *inCider* will publish complete reviews of the GEOS series

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LINE SPACING
Biscuit Craze Continues
FLOURVILLE, March 10 -- As readers of the Metro-Tree Inquirer know by now, the phenomenal increase in biscuit intake among local citizens has attracted national attention. Formerly sober residents are stuffing themselves with buns, wafers, tea cakes, ginger snaps, and baked goods of all kinds. Reporters from publications such as American Medical Review and People Magazine have swarmed to our city.
Bridegrooms Not Involved
Surprisingly, some popular snacks have not shared the insatiable demand of
biscuit-crazed citizens. French potato chips, pancakes, and
disk use

and more technical details about the operating system and programming environment when production copies are available, starting with the base GEOS package scheduled for release in February.

That bundle, expected to cost less than $100, will consist of three applications and the operating-system kernel: the GEOS deskTop, a program selector and file manager similar to the Mac or IIGS Finder; geoPaint, a drawing program; and geoWrite, a bit-mapped word processor. Apple GEOS will also include some word-processing extras sold separately in the Commodore version: geoSpell, a spelling checker; geoMerge, a mail-merge facility; geoLaser for LaserWriter printing; and Text Grabber, which imports files from other word processors such as AppleWorks, MultiScribe, and Bank Street Writer.

A second wave of programs, due this summer, will include the geoFile database; geoCalc, a spreadsheet with built-in charting; geoPublish, the desktop-publishing program; the geoBASIC interpreter; and geoProgrammer, a 65C02 development system for writing and debugging assembly-language GEOS applications.

Each of these programs should cost about as much as the base package. They'll work under the deskTop for those who've bought GEOS and need cut-and-paste integration, but they'll also run by themselves for those who haven't. There's also talk of bundling the GEOS package, geoCalc, and geoFile into an AppleWorks assault weapon that would not only read and write AppleWorks files, but offer keyboard and mouse command equivalents to ease the transition.

HARDWARE FOR SOFTWARE

GEOS programs will work on a 128K, one-drive IIc, IIe, or Laser 128, though a second drive cuts disk swapping when copying files or reloading the deskTop after leaving a program. Apple GEOS will support up to four disk devices, each with ProDOS-style subdirectories or folders. Since GEOS swaps everything from program code to data pages in and out of memory, you'll want a RAM drive; the applications aren't too bulky, so a RAM disk of 512K or more should let you run the deskTop and several programs with an immense increase in speed and convenience.

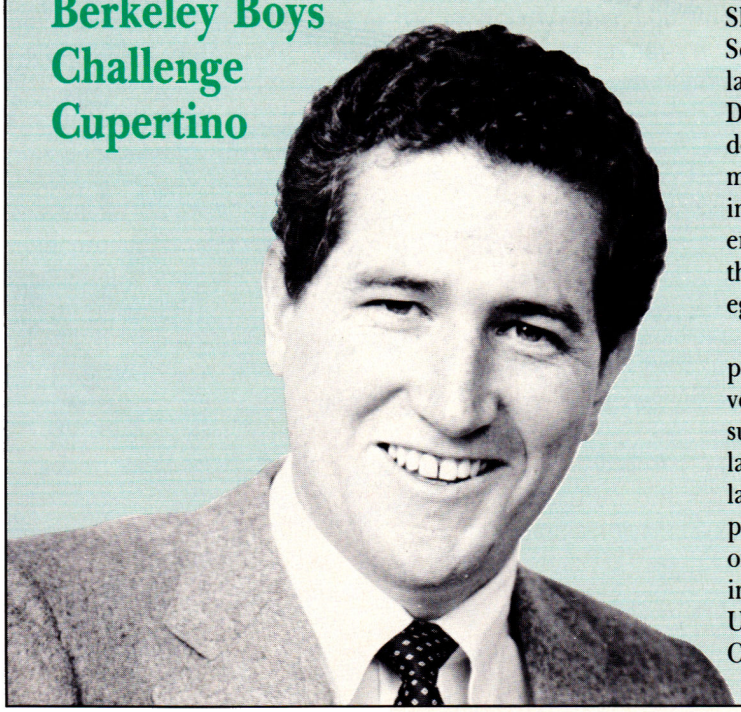
While some commands have solid apple-key shortcuts, you can't run GEOS from the keyboard. The system works on a IIc with a mouse or joystick or a IIe with a mouse. (A IIe with joystick may require an additional card.) Well aware that Apple's steep mouse prices created problems for products such as Catalyst and Mouse Desk, Berkeley Softworks may bundle GEOS with a mouse for about $50 over the price of the base package.

A disappointment for fans of Apple II color graphics: GEOS consists of double-hi-res monochrome programs, with no colorful icons like the GS Finder's, and MacPaint-like patterns instead of colors for geoPaint. A disappointment for everyone: GEOS will probably be copy-protected in some way, most likely following the Commodore practice of a protected boot or operating-system disk (with one backup disk included) and copyable applications. Spokesmen did promise a way to install GEOS on a hard disk. For users of battery-backed RAM disks, there may be an equivalent of Commodore GEOS' Rboot, which lets users exit to BASIC, then reboot the deskTop from a RAM disk.

SAME DESKTOP, ONLY DIFFERENT

The GEOS deskTop is the program that launches other programs and manages their files. It's instantly recognizable to fans of the Mac or GS Finder, with pull-down menus at the top left,

Berkeley Boys Challenge Cupertino



The University of California's Berkeley campus is across Shattuck Avenue and two blocks uphill from the Berkeley Softworks (BSW) offices. Company President Dennis Rowland is a Harvard MBA, but Chief Executive Officer Brian Dougherty went to school across the street. So did—or do—most of Softworks' engineering staff, who hang heavy-metal and Monty Python posters on their walls and who inspired a local newspaperman to write that they look young enough to be picked up by truant officers. The reaction to that story, according to one programmer, was "Yeah, let's egg his house."

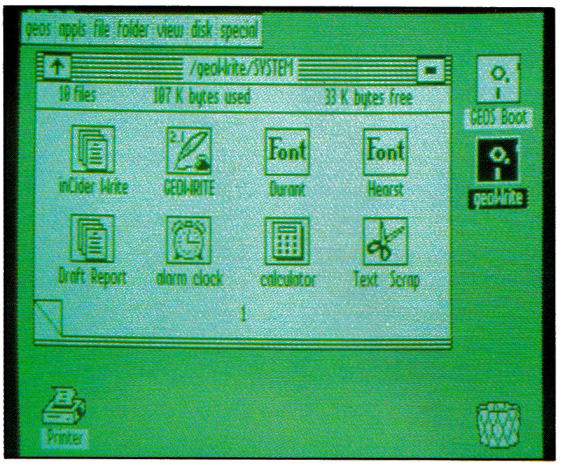
Dougherty, a founder of Imagic, left the video-game company to start BSW in 1983. Rather than yield control to venture capitalists, the firm took on various technical consulting jobs—GEOS grew out of work on a 65C02-based laptop meant to be built into airline tray tables—before launching its C64 operating system and imitation Mac applications in mid-1986. Today, BSW may look like a bunch of college kids who name fonts after Berkeley campus buildings, but they're college kids plugged into two 68020-based Unix cross-development systems controlling Apples and Commodores via proprietary 6500 circuit emulator units.

a trash basket at the bottom right, and disk icons down the right side. The menus offer familiar functions such as copying or renaming files or disks and viewing filenames sorted by name, size, type, or date instead of as graphics icons (although you can work with files only when filenames are displayed as icons). But the deskTop differs from Apple's original in several ways.

One nice touch is GEOS' support of joystick as well as mouse control (a "Select Input" function sets your preference), and its use of menus that stay pulled down when you open them, until you click on a menu choice or move the pointer off the menu. You can double-click to open a disk or folder or launch a program or data file, but GEOS doesn't make you hold down the mouse or joystick button (except for marking a block of geoWrite text or geoCalc cells). To drag an icon around the deskTop, you click on it, pause (to avoid double-clicking), then click again, producing a highlighted image you can maneuver as you like. Another click puts the icon in the trash basket or wherever you've moved it.

You can't move or resize the screen area in which icons appear. GEOS calls it a *note pad*, not a window, as with the Mac or GS. (A confusing choice of words: The one-word *Notepad* is a pop-up text jotter, a desk accessory such as the GEOS Calculator or Alarm Clock.) A note pad holds up to seven page icons, each showing up to eight files or subdirectory folders. You turn pages by clicking on the "dog ear" at the bottom left or by typing a number.

You can click on a close box to clear the pad before swapping disks or logging onto another drive, or an "up level" box to leave a subdirectory. You'll miss Apple's scroll bars or elevators: You can't tell quickly where you are in a directory, whether a file you want is four pages away or not on that disk at all.



Like other GEOS applications, geoWrite sports the icon-based Apple (Mac-style) interface.

You can't overlap note pads, either; only one drive or directory is open on the deskTop at a time. The GEOS menu shows the desk accessories, as the Appls menu does applications, in the current or any deeper directories. You can copy files by dragging them to a disk icon or (for one-drive systems) moving them off one note pad to the lower border, closing that pad, then opening another and moving the icons to it, but GEOS' housekeeping is clumsy if you have many files or directories. On the other hand, GEOS avoids the mess of nested folders found on the IIGS System Disk; most applications have just one /SYSTEM folder below the root directory for essentials such as fonts and desk accessories.

"We've been building a technological engine," declares Dougherty. "That's what differentiates us from other software companies. We've developed the technology that can bring the functionality of 16-bit or 32-bit software and almost comparable performance to 8-bit computers."

From a financial standpoint, Dougherty has golden visions of programmers slashing conversion or porting time while reaching the huge combined market base of Commodores and Apples: "What we're really hoping is to establish GEOS as a de facto 8-bit operating-system standard."

From a philosophical standpoint, old computers will never die if BSW can help it: "Look at other software companies saying you need a 286 or a Mac II. There is no computer program that cannot run on a 1-bit Turing machine [a theoretical, 'pure' computer] that can read and write one bit at a time. That's a theory of computer science that's been proven true, although of course programs won't run as quickly. These 8-bit machines can do anything a Cray can do.

"In the Apple we have only a 32K application space; I remember when we did a 4K football game for Intellivision with nine players and a scrolling field. There's almost no limit to how much you can compact code, and if you've got a disk drive that can work as a memory overlay you can do anything. You have to make the best compromises you can about disk access and speed and so forth, but you can do anything."

How does Dougherty see BSW's move from the Commodore into the Apple arena? "Apple's walking away from the IIs. In some ways, the GEOS system on the II is better than on a Commodore—you've got a hierarchical filing system, the monochrome monitors are sharper, there are more available hard disks. With the Commodore we're giving you 80 percent of [the functionality of] the Mac; now with the II we're giving you 90 percent of the Mac. Clearly, Apple would like to sell you a Mac.

"With the Commodore, we came along with a product they wanted to keep alive and keep vitality in [the C64]; with Apple, I don't know if they're particularly interested [in maintaining the II]. Even though they're selling IIes and IIcs, they'd just as soon be selling that many GSs.

"I don't know what our relationship's going to be with Apple. I don't really expect them to be too crazy about it."□ **—E.G.**

A Different DOS

Except for games, Apple program disks traditionally contain licensed copies of standard or patched ProDOS or DOS 3.3, perhaps with a program selector or shell (like the GS Finder) on top of that. GEOS, however, is GEOS from the ground up. According to Berkeley Softworks' chief executive officer Brian Dougherty, "We're compatible with ProDOS, but we don't use any ProDOS code. Basically, ProDOS files become a subset of the files we support under our operating system."

Besides conventional sequential files, read from disk into RAM in one chunk and entirely memory-resident during use, GEOS is built around elaborately segmented variable-length index-record (VLIR) files, containing modules designed to be swapped in and out of the same area of memory, replacing routines or data used earlier.

Instead of an index block with pointers directing the CPU to various parts of a file, VLIR files have an index block with pointers to other index blocks (up to 254 pointers times 512 blocks). In return for more disk access, then, GEOS programs can hold more machine code than will fit into the computer—the secret to imitating PageMaker or Microsoft Excel in 8 bits.

Berkeley Softworks is excited about the prospects for easy home-to-school connections between Commodore and Apple GEOS, transferring data files with a simple serial-cable hookup. (The file formats, if not disk formats, are identical.) Apple hackers will be more interested in testing the coexistence of GEOS and ProDOS. The deskTop recognized all the ProDOS disks we tried, though ProDOS files, lacking the 256-byte header block where GEOS stores an icon image and other information, all appear as generic "Apple" icons. (Double-click on one to start a ProDOS program, and the production version of the deskTop will present an "Insert disk with ProDOS" message.)

Moving in the other direction, Copy II Plus couldn't analyze our prototype geoWrite or boot disks, but catalogued others, listing currently unused ProDOS file types such as hexadecimal $81 for desk accessories, $83 for geoPaint files, and $84 for fonts. Any bets that Apple will decide to play hardball and use those file types for the next AppleWorks or whatever?□

—E.G.

INTEGRATED APPLICATIONS

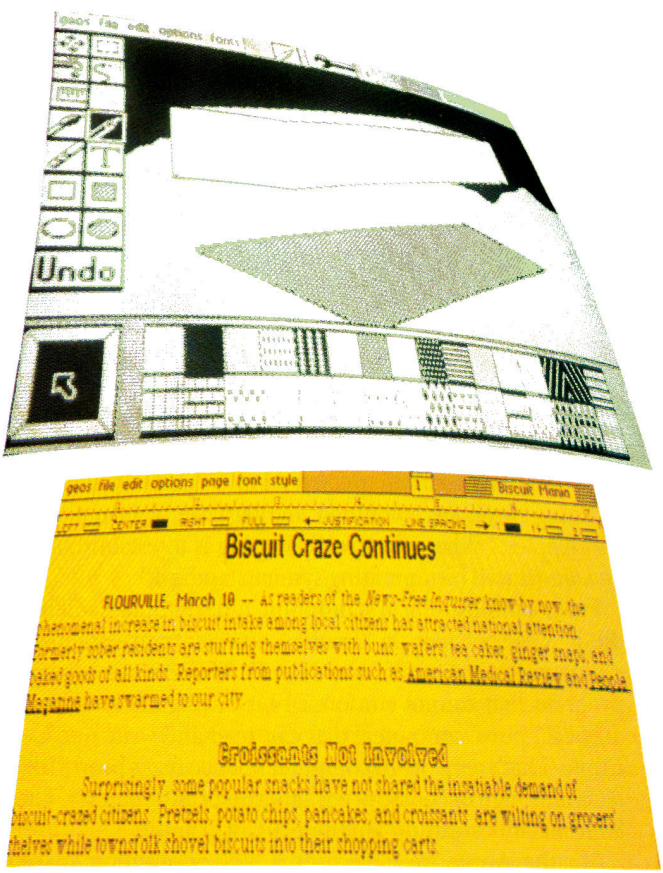
One of GEOS' key attributes is that it's even more disk based than AppleWorks. When you cut or copy geoWrite text, GEOS saves it to a disk file called the *text scrap*. The *photo scrap*, similarly, holds all or part of a geoPaint picture; geoCalc uses *calc scraps*, which hold formulas as well as values, to copy cells within worksheets. GeoCalc and geoFile can also make text scraps—columns of values or fields separated by tabs. Two desk accessories, the Text Manager and the Photo Manager, let you keep albums or libraries of multiple scraps in addition to the most recent one cut or copied.

Give geoWrite's Paste command, and the mouse pointer moves to a submenu. Choose "Text" and GEOS copies the text scrap into your document; choose "Photo" and the photo scrap appears, centered between the current margins. (You can change margins and tabs within geoWrite by moving markers along a ruler; the tiny markers make adjusting tabs before pasting spreadsheet columns rather painstaking.)

A Hide Pictures command changes embedded graphics to gray blocks, which speed scrolling or screen redrawing. While putting geoPaint pictures into geoWrite is the most fun, swapping data among geoWrite, geoCalc, and geoFile is equally easy.

WRITE, PAINT, AND COMPLAINTS

By itself, geoWrite won't surprise anyone used to MultiScribe or IIGS word processors; it's a WYSIWYG (what you see is what you get) program whose Font and Style menus let you choose a font, size, and type style such as bold, italic, or subscript for new or selected text. Buttons above the ruler let you click on



Top, geoPaint resembles MacPaint in its selection of drawing tools and graphics features. Bottom, the graphics-based word processor geoWrite lets you mix fonts and type styles.

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left, right, center, or full justification or single, one-and-a-half, or double line spacing. The cut-and-paste editing worked smoothly, though the page-preview feature wasn't ready yet.

Like other graphics-based word processors, geoWrite can't keep up with fast typists; in our toughest test, selecting an 18-point outline Old English font and typing at top speed, it dropped eight words while wrapping one line. Against that, it was three times as fast as AppleWorks (17 seconds versus 50) when replacing 100 *e*s, despite going to disk and redrawing the display.

"The base GEOS package is pretty good, but future GEOS programs look even better."

GeoSpell and geoMerge look like simple, efficient spelling and mail-merge add-ons. The geoLaser driver offers a splendid "overlay" feature that can create a page inside the LaserWriter by printing pages on top of each other. If you're careful with rulers, you can make page one a headline on the top of an otherwise blank page, with pages two through four as three columns with different fonts and photo scraps. It's a laborious but free alternative to geoPublish.

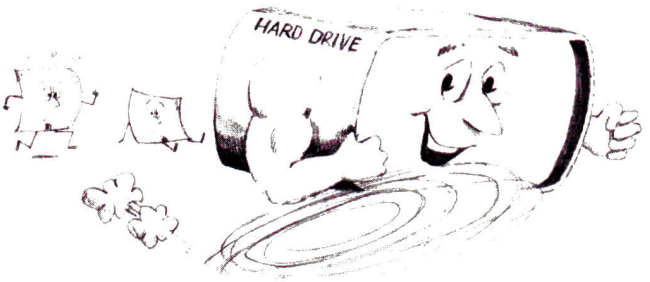
Owners of Deluxe Paint II won't be tempted by geoPaint, but less-demanding artists should find it a competent clone of MacPaint, with the usual features and drawing tools. A helpful "ruler" tool shows your X/Y position and measures distances in inches or pixels as you drag the pointer, while the text function lets you create a box you can resize or relocate later and within which text will wrap and format itself.

Drawbacks to using geoWrite and geoPaint involve some awkward file handling, summarized in one minor and one major complaint: respectively, the inability to quit a file without saving changes and a lack of Mac- or GS-style scroll bars.

When you start a GEOS application, a first-class dialog box guides you through creating a new file or opening an existing file on any drive or directory, swapping disks if necessary. But if you're not sure of your editing plans, it's best to make a duplicate file from the deskTop before starting work. GEOS, squeezed into scant memory and dependent on disk instead of RAM buffers, never asks, "Are you sure you want to quit without saving?" A Quit command always saves the file before returning to the deskTop. If you start a new file and decide to abandon it, it'll still be saved and take up disk space.

Only part of a GEOS file—one page of your geoWrite document, say, or a 16-by-16 grid of geoCalc cells—is actually in memory at a time. GEOS swaps the rest continually from disk as you need it. This feature allows large files—geoCalc, for instance, unlike most spreadsheets, won't run out of RAM before you fill all its rows and columns—but slows down cursor movement or navigation. Clicking on a "position indicator" icon, a tool loaded from disk like other functions, lets you drag a marker to jump to an approximate place in the overall frame of a

HARD DRIVES



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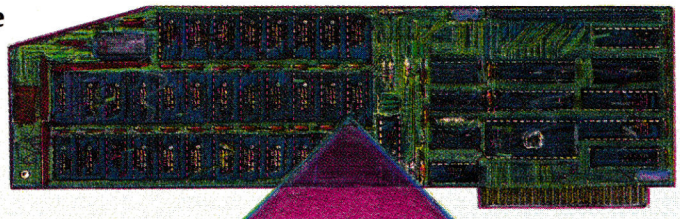

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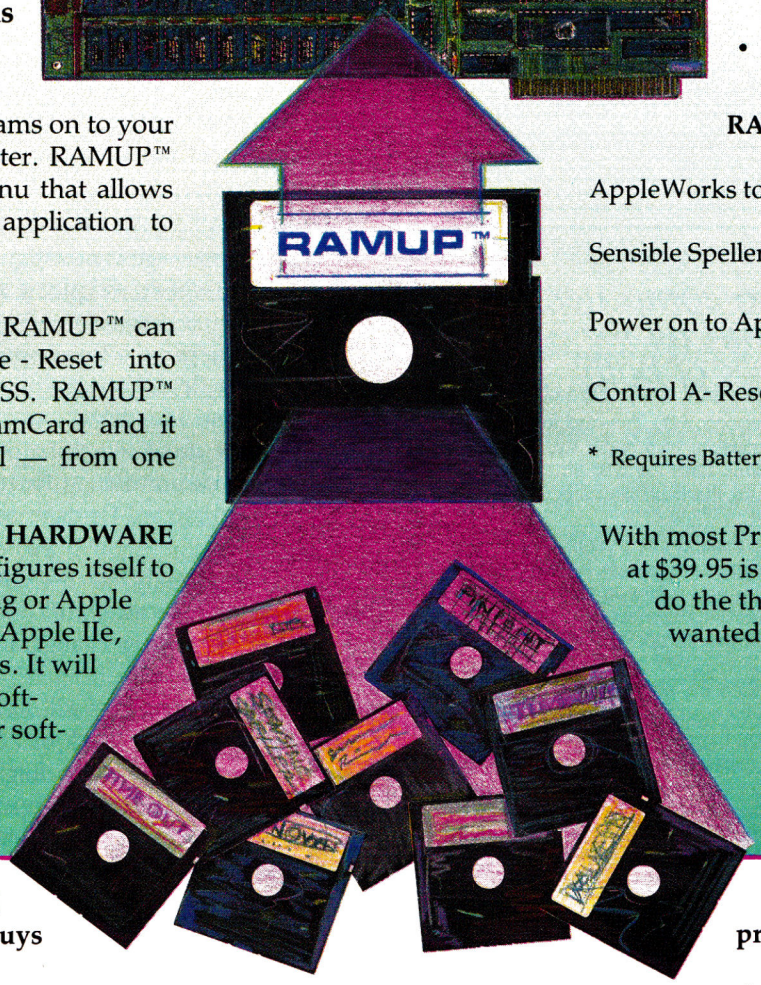

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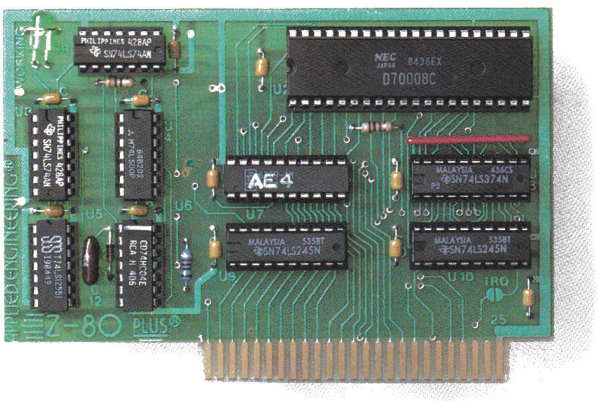

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spreadsheet or, less usefully, a vertical position on a numbered geoWrite page.

But scrolling a geoPaint picture, or pushing the mouse pointer off the top or bottom of the screen to scroll one line at a time, is painfully slow. In one test, I scrolled until only the last lines of a geoWrite file appeared at the top of the screen, then rapidly hit the up arrow five times to scroll backward. It took 20 seconds to get the cursor back.

Things may improve, though; Berkeley Softworks is considering adding a conventional "page up, page down" (scroll by screen, not by printed page) into the final version of geoWrite. The company should also consider confirmation for deskTop file deletions; you can miss Rename and hit Delete instead if your mousework's sloppy. Still, bad scrolling can detract from the pleasure of pull-down menus and easy integration.

COMING ATTRACTIONS

The base package is pretty good, but future GEOS programs look better. GeoFile will please anyone who thinks all databases look like AppleWorks spreadsheets; it lets you size and place boxes anywhere on a form, specifying each as a text, number, or comment field. You can move or resize them like geoPaint text areas, and add, delete, or rearrange fields any time. Besides applying the usual search or print functions to the entire database, you can create up to 16 "change layout" views of the file, putting selected fields in selected places to design reports or text scraps.

GeoCalc not only has the "graphics" look of Microsoft Excel, but its minimal-recalc ability. Instead of recalculating the whole worksheet with every change, it works faster by adjusting only those cells affected.

AppleWorks veterans will have to adjust to a few things like clicking on a check mark or "enter" icon instead of pressing Return to enter a formula. Beginners will appreciate the Paste Function command, which opens a scrolling dialog box from which you click on SUM, say, instead of typing it. And everyone will like the convenience of point-and-click cell references, changing column widths by dragging their borders, and the promised built-in business charts (not found in the current Commodore version, set to debut in Apple geoCalc).

GeoPublish, which will include a deluxe LaserWriter driver, uses on-screen rulers and an X/Y position gauge to help you position guidelines for headlines or columns. A "snap" toggle aligns the cursor on those guidelines, so you don't need ultra-precise mouse control when drawing boxes to hold text or graphics. Desktop-publishing documents can be up to 16 pages long.

Whether creating a specific page or a master layout for boilerplate columns, headers, or footers, you can insert up to 32 geoWrite files, complete with fonts and justification, into text areas that flow around graphics regions. You can center a photo scrap within a region or scale it to fit. When you zoom in from the overall view of shaded squares and rectangles to edit specific areas, geoPublish offers its own object-oriented

drawing program and simple text editor. The "smoothed" text option eases the "jaggies" that can occur when fonts are blown up to headline size.

WRITE YOUR OWN GEOS

The GEOS gang has high hopes of winning the educational market with its geoBASIC interpreter. Besides BASIC functions that implement GEOS calls for tasks such as drawing lines and loading fonts, geoBASIC offers tools that help build GEOS dialog boxes and menus, prompting for the number of menu items and the line number or named routine each item calls.

"GEOS may bring a lot of satisfied beginners to the hale and hearty Apple world."

You can program screens with supplied icons (such as CANCEL and OK buttons), icons you've designed with a bit-map editor, or items from your photo scrap. Your geoBASIC programs call such routines later with DO MENU or DO DIALOG statements. You can package whole sections of code and reuse them, as you can with Logo. If you'd rather just write a program, geoBASIC offers not only automatic line numbering, but a graphics editor with dialog boxes that prompt you for things like FOR/NEXT start and end values and increments. The editor uses icons and arrows to draw a flowchart of your program as you write it.

Assembly-language authors can graduate to geoProgrammer, an adaptation of Berkeley Softworks' own Unix development environment for writing GEOS applications. GeoAssembler accepts graphics or icons in the middle of geoWrite source code, creating binary object files joined by geoLinker. GeoDebugger offers both graphics and text screens for running and debugging the application and supports symbolic assembly and disassembly, eight conditional breakpoints, a macro programming language, and other heavy-duty features.

LOOKING AHEAD

This is exciting stuff. It's not perfect; compared to today's souped-up, accessorized AppleWorks or the slick GS Finder, GEOS bears signs of its birth in the cramped world of the Commodore 64. But the promise of remarkable programs like geoPublish and geoBASIC, along with the reasonable price, ease of use, and across-the-board integration of the whole GEOS universe, opens up a wide range of possibilities.

GEOS may not become the dominant Apple software standard, but it could bring a lot of satisfied beginners, lively debate, tips, discoveries, bulletin boards, shareware and third-party programs, exploration, and innovation to the hale and hearty world of the IIe and IIc. It's a shot in the arm that won't hurt a bit.■

Eric Grevstad, inCider's former review editor, is now a free-lance journalist. Write to him c/o inCider, 80 Elm Street, Peterborough, NH 03458.

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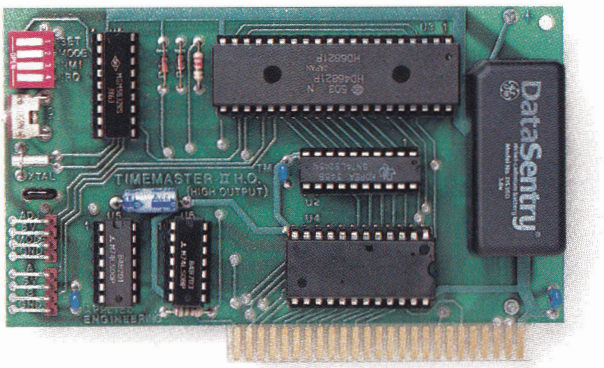

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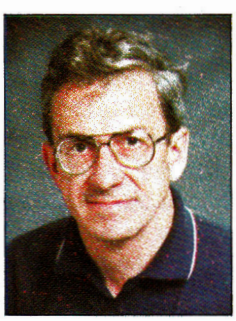

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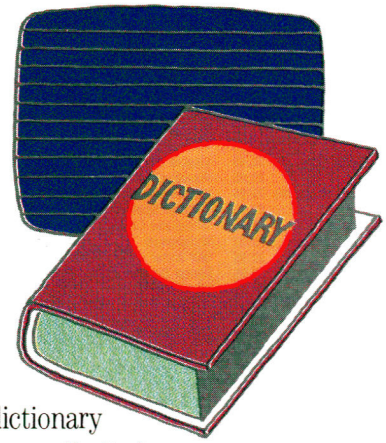

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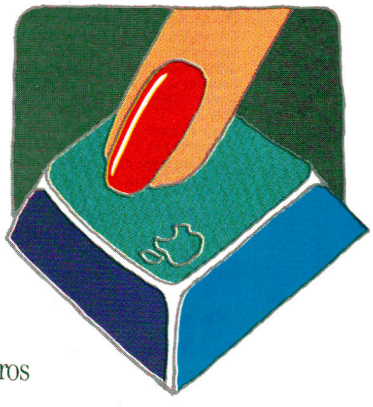

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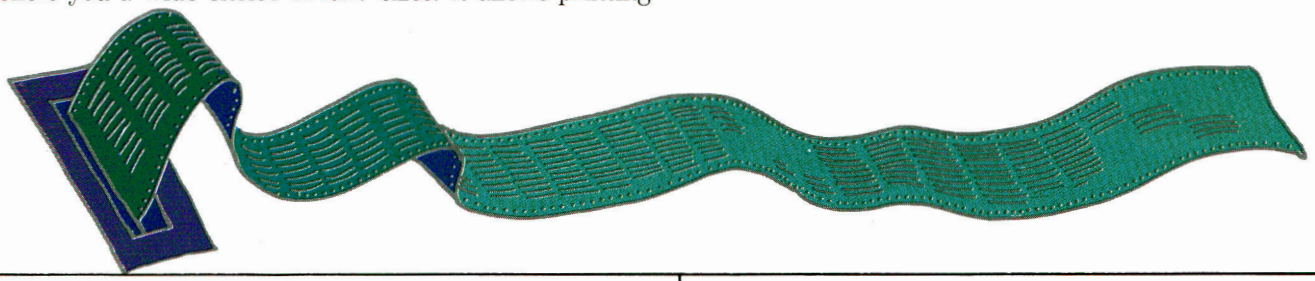

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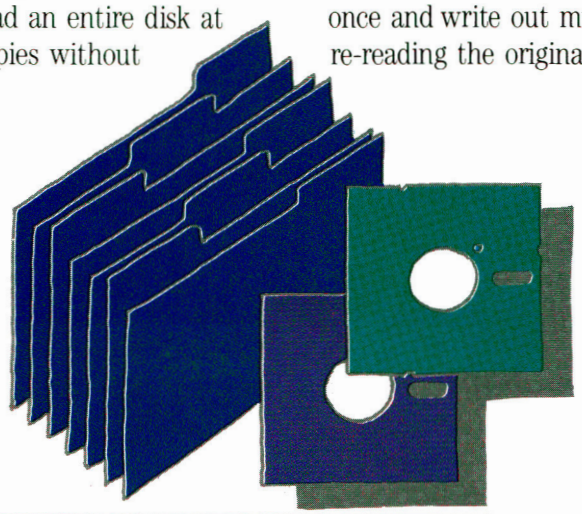

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We hate to be the ones to remind you, but it's time to sit down and prepare your 1987 tax return. But it could be worse. Let your Apple II and one of these software packages help you do the dirty work.

by Martin A. Blumenthal

Spring has a lot going for it—sunshine, baseball, budding flowers—but there's also rain, mud, and, worst of all, taxes.

Your Apple II and a tax-preparation program won't make tax season pleasant, but they can make it quicker and less painful. (That is, the preparation will be painless; signing the check will still hurt.) When selecting a tax program there are certain things you need to consider.

First of all, the program should have a well-documented manual—or its operation and features should be so self-explanatory you won't need a manual. In the same vein, the program should let you correct your errors. It should also let you stop what you're doing and go back to something else without punishment (such as having to reboot and lose data).

If you're a professional tax preparer, speed is a major concern. If a program takes forever to save, recalculate, and finish other housekeeping chores, using it for clients' returns isn't economically feasible.

You'll be happy to hear that none of the packages reviewed here is copy-protected, and all offer free customer support. None of them can teach you the intricacies of tax law, though, or advise you on what to do as you prepare your return. Their sole purpose is to calculate and prepare the necessary forms and schedules to comply with the law. You take final responsibility for all information contained in your return.

As *inCider* goes to press, many of the packages reviewed here are programs for preparing 1986 returns. In most cases, though,

the 1987 versions will be similar except where noted. (See the accompanying **Table** for specific differences among the programs.)

SWIFTAX

Timeworks' Sylvia Porter's Swiftax comes with *Sylvia Porter's Income Tax Guide*, a well-indexed volume that presents tax issues in a question-and-answer format as well as in standard paragraph form.

The manual explaining the program's operation isn't as informative as it could be. It explains setup and function keys briefly, but not much more, leaving you to rely on trial and error and experience with other programs to learn how to use Swiftax.

Swiftax can prepare forms 1040A and 1040EZ as well as the standard 1040. (See the accompanying sidebar for a glossary of tax terms.) This feature is practically useless, however, since you can prepare these forms manually in the time it takes to boot up the program.

The program's box mentions a built-in memo pad and calculator. According to Nick Alexander, vice president of Timeworks, the company has eliminated these features from the latest version of Swiftax because of lack of space on the program disk. Since the packaging had been printed before the company made that decision, however, it still advertises these features.

I had trouble printing the final product on my Epson RX-80. A call to Timeworks' congenial customer-service people brought a later version to my door; that didn't solve the problem, though.

Swiftax's interface consists of a series of menus arranged in a logical progression. Be aware, though, that at certain points in the program a prompt to "press any key to continue" appears. Once you press a key, you won't be able to stop until whatever

	PROGRAMS						
FEATURES	1040Works	Tax Command	Swiftax	EZTax-Prep	Tax Advantage	Federal Tax Forms	Tax Preparer
1040	●	●	●	●	●	●	●
2106	●	●		●	●	●	●
2119	●	●		●			●
2210				●			●
2441	●	●	●	●	●	●	●
3903	●	●	●	●		●	●
4562	●		●	●	●	●	●
4684				●			
4797				●			●
4952				●			
4972		●					
6251	●		●	●	●		●
8582	●			●			●
8598	●			●			●
8606	●						
8615	●	●	●	●			●
A	●	●	●	●	●	●	●
B	●	●	●	●	●	●	●
C	●	●	●	●	●	●	●
D	●	●	●	●	●	●	●
E	●	●	●	●	●	●	●
F	●	●	●	●	●	●	●
R	●	●	●	●	●	●	●
SE	●	●	●	●	●	●	●
RAM-card option	●						●
requires AppleWorks	●					●	
requires Multiplan				●			
batch processing							●
64K required		●					●
128K required	●						
IIc, IIe, IIGS only	●		●			● (II + w/ 55K desktop)	
3.5" disk available	●						●
interactive forms	●		●	●	●		●

Key

Forms

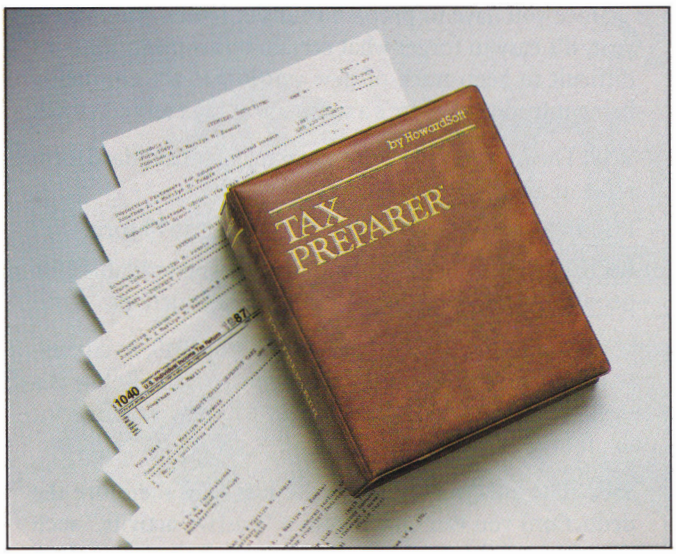
1040 "Long" Form
2106 Employee Business Expenses
2119 Sale or Exchange of Principal Residence
2210 Underpayment of Estimated Tax by Individuals
2441 Credit for Child- and Dependent-Care Expenses
3903 Moving-Expense Adjustment
4562 Depreciation and Amortization
4684 Gains and Losses from Casualty and Theft
4797 Gains and Losses from Sale or Loss of Assets Used in Trade or Business
4952 Investment-Interest Expenses
4972 Lump-Sum Distributions
6251 Alternative Minimum-Tax Computation
8582 Passive-Activity Loss Limitations
8598 Home-Mortgage Interest
8606 Taxable IRA Contributions
8615 "Kiddie Tax"

Schedules

A Itemized Deductions
B Interest and Dividend Income
C Profit or Loss from Business or Profession
D Capital Gains and Losses
E Supplemental-Income Schedule
F Farm Income and Expenses
R Credit for the Elderly and the Totally and Permanently Disabled
SE Computation of Social Security Tax for the Self-Employed

Table. *Comparison chart listing seven tax-preparation programs and their features.*

operation you just started is completed; you can't do a thing to go back a step, correct an error, or try something else short of rebooting and losing all unsaved data.



Sophisticated features and attention to detail make HowardSoft's Tax Preparer easy to run.

TAX PREPARER

Tax Preparer, from HowardSoft, isn't just sophisticated; it's also fast and easy to use. The manual comes in a three-ring binder with a detailed, easy-to-read index. A multichapter tutorial makes it easy for first-time users to learn the program.

Automatic compatibility with popular memory-expansion cards, such as RamWorks, MultiRam, and Apple's RAM board, is a pleasant surprise. The program looks for them by itself and takes advantage of the extra random-access memory without further prompting. This feature makes the current program run much more quickly than earlier versions.

Tax Preparer is well-suited for tax professionals with the time to enter data rather than submit data sheets to an outside preparation service. A high-volume data-entry option lets you prepare up to 15 returns at once. You can also produce client letters, billing, and preprinted data organizers with this program.

An early-warning system in the upper right-hand corner of your screen alerts you to the amount of room remaining on disk. The software saves data automatically whenever you exit a particular section, but you can also save data yourself periodically and before exiting to guard against accidental loss from power failures and other mishaps.

Transferring related data among forms and schedules is fully automated, making it much easier to calculate complicated returns.

1040WORKS

1040Works (formerly known as Taxworks) is a set of templates for **AppleWorks**. If you know how to use AppleWorks, that's half the battle. A memory-expansion card will speed it up and keep you from falling asleep between entries. In fact, the author anticipated the needs of RAM-card users by supplying a version of the templates called 1040WorksX, which facilitates the loading process.

TaxView Preview

SoftView, the company that developed the popular Macintosh tax-preparation program MacInTax, has designed a similar program for the Apple IIGS. **TaxView Federal** was introduced in January 1988—too late to be included in the accompanying review of tax software.

TaxView Federal requires 512K to operate and betrays its Macintosh heritage by running only on the Apple IIGS. It uses the GS graphics interface to its advantage, especially in displaying and printing forms.

TaxView can produce every form discussed in the accompanying article, except 4972 and 8606. (See the **Table** to compare the forms and schedules each package offers.) The program displays forms and schedules on screen; enter your data on the appropriate lines and the program calculates and checks for errors. All forms and schedules are linked, so the program updates all of them whenever you make a change in any one of them.

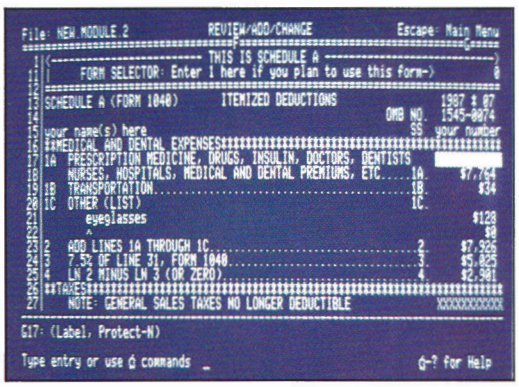
The IRS has approved for submission all the forms and schedules TaxView produces; you don't have to worry about lining up a preprinted form. You can print your return on any of the dot-matrix or laser printers the program supports, then just sign it and mail it. The package includes the IRS instruction booklet with the program, and the same IRS instructions for each line appear on screen.

For more information about this program, contact SoftView, Inc., 4820 Adohr Lane, Suite F, Camarillo, CA 93010, (805) 388-2626. For orders only, call (800) 388-2626. The suggested retail price is $119.□

—Pat O'Dell, Associate Editor

For some reason, the author seems to believe that schedule C is used less frequently than other forms: He didn't include it on the main disk. This makes data entry inconvenient, requiring you to transfer data manually from schedule C to the main templates.

Protected cells in odd spots make data entry difficult; to enter a label you must "unprotect" the cell first. Only preproduction copies of the program were available at press time, however, and "proofreading" the finished product should eliminate this



Veteran AppleWorks users will find 1040Works' templates handy for tax preparation.



EZTax-Prep: Multiplan spreadsheet templates, with unique "audit alert" feature for Schedule A deductions.

problem. The program's author says the 1988 version will include a fold-out map of the locations of all forms and schedules on the main template to make them easier to find.

One particularly handy feature of 1040Works is its ability to incorporate data from Intuit's personal-finance program **Quicken**. One part of the template already contains the necessary coding to make the data transfer simple—the categories are already set up for you. If you have additional categories in your Quicken data files, or if you call your categories something different from 1040Works' names, you can also make changes directly on the template as needed.

The manual is simple and well organized, but doesn't include an index. That shouldn't be a major obstacle, though, if you're a veteran AppleWorks user.

EZTAX-PREP

This spreadsheet-template program uses Microsoft's **Multiplan**. If you're already familiar with Multiplan, you'll have no trouble learning to use this set of templates.

One advantage Multiplan has over AppleWorks as far as tax-preparation templates go is its "next unlocked cell" function, one of several control-key combinations Multiplan uses to execute commands. Let's say you've just typed in your interest income and want to go on to the next entry. Instead of scrolling through the template, just type Control-F to jump to the next cell where you need to enter data.

The documentation is well written and illustrated and includes a tutorial. Although there's no index, you can look up the particular form you intend to use in the table of contents.

"Audit alert" is a particularly interesting feature of the Schedule A template. If you enter an itemized deduction in excess of the average deductions claimed on returns with the same gross income, the program tells you by highlighting that amount in the "alert" column.

You can print your return in draft form for review purposes or on blank paper for use with an overlay. The overlay is a transparency of the tax form, which fits over your printed data sheet. The package includes the 1040 overlay, along with green-bar paper. The IRS will accept a photocopy combining the overlay and data sheet as a reasonable copy of the 1040 form. Or with a little experimentation you can print directly on the form.

The program's only drawback is its execution speed: It runs only as fast as Multiplan does. The people at EZ Ware say that as far as they know Microsoft hasn't made Multiplan RAM-card loadable, although they know a few customers who have found a way to do it. For professional preparers, Multiplan is probably too slow to be efficient.

FEDERAL TAX FORMS

Federal Tax Forms is another set of AppleWorks templates, but it isn't a tax-preparation program in the same sense as the other programs reviewed here: It simply prepares your tax return with your precalculated numbers and prints it. It also ensures the accuracy of all your numeric totals.

Federal Tax Forms is ideal for "what if" calculation and

Tax Terms

Since you have to prepare your tax return only once a year, it's easy to forget what certain terms mean. And it's difficult to keep track of new words that are constantly being introduced. Here's a summary of the most common:

1040. The individual income-tax return, the standard form most of us will file.

1040A. A short, simplified version of the 1040 form.

1040EZ. The shortest, simplest tax form available, for people who aren't going to claim any deductions.

The following forms are filed with the 1040, as circumstances and your claimed deductions require. Below is a description of the four new forms you may be filing for the first time this year:

8582. The government limits the loss (and therefore the deduction) you can claim from a "passive activity," such as owning real estate.

8598. Helps you calculate the amount of home-mortgage interest you can deduct if you own more than two homes or if you have refinanced your home (through, for example, a home-equity loan) for more than you originally paid for it. You need to use the 8598 form only if you've purchased or refinanced during the last year. (See your accountant for the exact cut-off date.)

8606. Lists IRA contributions exceeding the IRS' allowed deductible amount. They are, therefore, taxable.

8615. The "Kiddie Tax." If your child has more than $1000 in unearned income (such as stock dividends), it's taxed at the same rate as your own income.

For more information about how these new forms will affect your 1987 tax return, contact your accountant.□

—Pat O'Dell, Associate Editor

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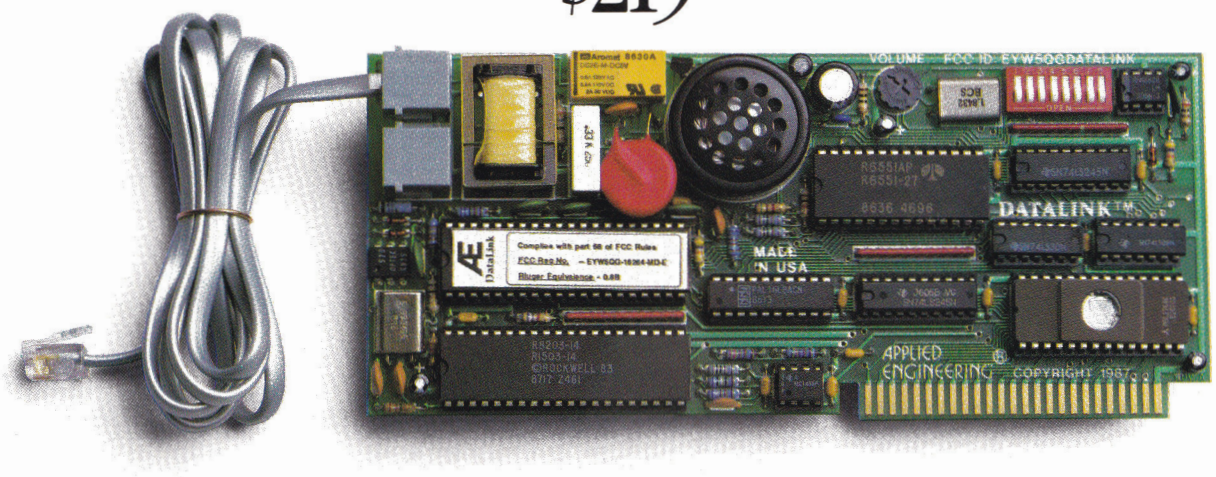

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planning. It's also helpful for professionals who want to prepare summary pages for outside tax services. If a professional using an outside service has to rerun a return for any reason, he or she may find it cheaper and more efficient to make changes with this program than to send it back to the service.

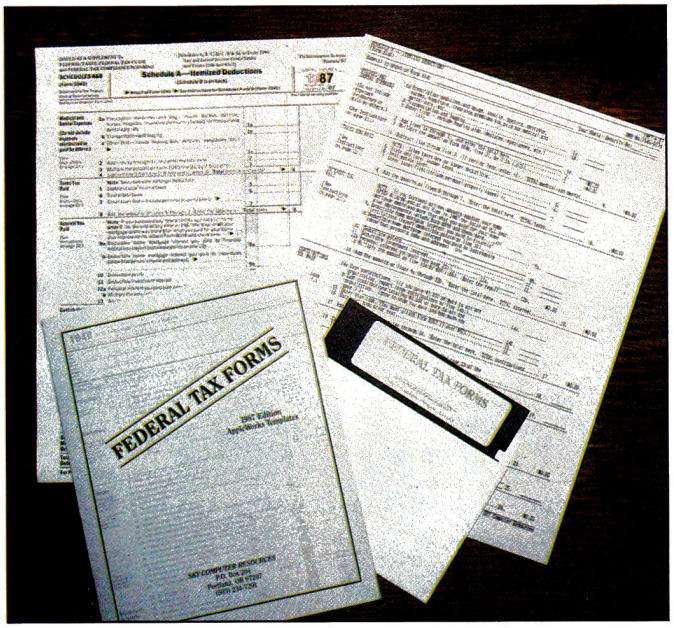
If time is important, you may want to add a memory-expansion card to your Apple II—it will dramatically boost AppleWorks' speed loading files and performing other such tasks.

The manual is short but to the point. It explains the program's operation adequately, since the software isn't complicated.

THE TAX ADVANTAGE

The Tax Advantage comes with a well-written manual, plus a self-running demonstration program on disk. The author claims you can load the program onto a RAM-expansion card, but the manual contains no instructions for this maneuver. According to Henry Hilton, president of Double Eagle Software, this information was omitted in the rush to get the manual printed. Upcoming versions should explain the procedure.

Program operation is rather sluggish, and the software can't



Federal Tax Forms prepares your return with precalculated figures.

Product Information

AppleWorks
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94043
(415) 960-2790
$249

Reader Service Number 318

EZTax-Prep 1040
EZ Ware Corporation
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Bala Cynwyd, PA 19004
(215) 667-4064
(800) 543-1040
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Reader Service Number 319

Federal Tax Forms
Sky Computer Resources
P.O. Box 204
Department I
Portland, OR 97207
(503) 234-7291
(800) 338-9861
$39.95 plus $3 shipping
Additional forms:
$5 each
Update: $29.95
Requires 128K, Apple-Works, 17-cpi printer

Reader Service Number 320

Multiplan
Microsoft
10700 Northup Way
Box 97200
Bellevue, WA 98009
(206) 882-8080
$95

Reader Service Number 321

Quicken
Intuit
540 University Ave.
Palo Alto, CA 94301
(415) 322-0573
$49

Reader Service Number 322

Sylvia Porter's Swiftax
Timeworks, Inc.
444 Lake Cook Road
Deerfield, IL 60015
(312) 948-9200
$69.95
Update: $34.98
Requires 128K,
80-column card

Reader Service Number 323

The Tax Advantage
Double Eagle Software
2210 Wilshire Blvd.
Suite 875
Santa Monica, CA 90403
(213) 459-9748
(800) 443-0100
x315 (orders)
$59.95
Update: $35.95
Requires 48K

Reader Service Number 324

Tax Command Professional
Practical Programs, Inc.
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Milwaukee, WI 53203
(414) 272-7227
$49.95 plus $2 shipping
Update: $24.97
Requires 64K

Reader Service Number 325

Tax Preparer
HowardSoft
1224 Prospect Street
Suite 150
La Jolla, CA 92037
(619) 454-0121
$250
Update: $75
Requires 64K

Reader Service Number 326

1040Works, $21.95
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keep pace with even a slow rate of typing—it drops characters constantly. Error handling is good; you don't have to reboot or switch to another part of the program to correct mistakes. Using the arrow keys would be simpler than typing U for up and D for down, though.

Tax Advantage's Form 4562—depreciation—doesn't calculate that figure for you. You must take care of that elsewhere and enter your results into the program. You can prepare separate Schedules SE (self-employment), but you must enter the data manually from the appropriate Schedule C. (I couldn't test the printing in IRS format, as the preproduction disk I used didn't yet include it, but draft mode worked fine.)

TAX COMMAND PROFESSIONAL

Tax Command Professional's documentation is plain and short, but informative. The manual also contains an index of the program's main features. The boot-up sequence is cute, with three seconds of a simulated voice coming from the II's speaker.

The program is easy to use and menu-driven, with its various command choices displayed continuously at the bottom of your screen. A new feature in the current version is the ability to enter text descriptions, such as sources of interest and dividends. Although lines for these notes are available, some of them seemed to be protected, allowing no entries. A further limitation is that you can prepare only one schedule C and one SE for each return: Your first draft is the final draft.

Two other problems make this program cumbersome. First, data from forms and schedules that other forms and schedules must use aren't transferred automatically; you must do it manually. Tax Command is slow, too.

KNOW YOUR NEEDS

Before you select any tax program, figure out exactly what your needs are. If you're preparing only a simple individual return, any of the programs reviewed here will do the job. If you already own a spreadsheet program such as AppleWorks or Multiplan, you're halfway home.

If you have a complicated return or prepare multiple returns, though, you'll probably find HowardSoft's Tax Preparer the best candidate. Federal Tax forms can also be a boon for tax professionals who use an outside service for summary purposes and who need to make changes on returns already processed without rerunning them.

Whatever program you decide on, your Apple II can help you get tax preparation over with more quickly. Then you can focus on the good things the month of April has to offer.■

Martin A. Blumenthal is an attorney and certified public accountant. He is also on the part-time staff at Northeastern Illinois University, where he teaches accounting and tax and business law. Write to him at 105 West Madison, Chicago, IL 60602. Enclose a self-addressed, stamped envelope if you'd like a personal reply.

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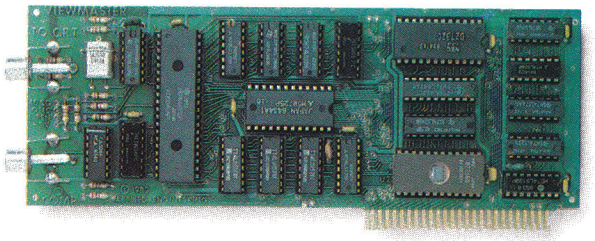

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List Plus *(Merges w/Writer's Choice IIGS)* 62.
Advanced Logic Systems SpellWorks 16.
Apple Apple Works *(IIe, IIc, IIGS)* 215.
Apple Writer *II* 2.0 ProDos *(IIe, IIc)* 125.
Beagle Brothers Timeout Graph 55.
Timeout SuperFonts 49.
Timeout QuickSpell 45.
Timeout UltraMacros 37.
Timeout SideSpread, FileMaster, or DeskTools 32.
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BPI General Accounting ProDos 139.
BPI AR/AP or Inventory ProDos *(ea.)* 139.
BPI Payroll ProDos 139.
Broderbund On Balance 42.
Bank Street Writer *Plus* 54.
Dac Software Dac-Easy Accounting 54.
Datapak Graphicwriter 2.0 *(IIGS)* 79.
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DHA Systems Software FastPak Mail 42.
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Megahaus MegaWorks, ReportWorks or ThinkWorks 38.
Monogram Dollars and Sense *(II+, IIe or IIc)* 75.
Nolo Press Will Writer *(Version 2.0)* 36.
Peachtree Back To Basics Accounting System: *GL/AR/AP* 135.
Pinpoint Publishing Pinpoint IIGS Starter Kit 89.
Pinpoint 49.
PinPoint Spelling Checker 42.
PinPoint Document Checker 42.
PinPoint Speller/Document Checker Combo 59.
PinPoint Toolkit 42.
Infomerge 48.
Key Player 30.
RunRun 30.
Command.Com 42.
Graphics Edge 54.
Pinpoint IIe Upgrade Kit 19.
PinPoint Ram Enhancement 19.
PinPoint Modem Enhancement 19.
ProFILER 3.0 74.
Random House *II* Write *(IIe, IIc, IIGS)* 54.
II File *(IIe, IIc, IIGS)* 54.
Roger Wagner Publishing
Mouse Write *(IIe, IIc, IIGS)* 89.
Scholastic Talking Text Writer *(IIGS)* 149.
Sensible Software
Sensible Grammar ProDos *(3.5" & 5.25")* 59.
Sensible Speller-Dos or ProDos w/3.5 & 5.25" 69.
Sensible Writer *(3.5" & 5.25")* 59.
Sierra On-Line Smart Money 54.
Simon & Schuster
Webster's Spelling Checker *(ProDos)* 39.
Sir-Tech Software, Inc.
The Clan Practical Accountant 42.
SoftView TaxView Federal 1987 *(IIGS)* 72.
TaxView Planner Supplement 1987-1991 *(IIGS)* 49.
California or New York Supplement 1987 *(IIGS)* 39.
Software Publishing
All Programs for IIe with 128K or IIc
PFS: Workmates *(File/Report/Plan/Write)* 119.
PFS: Graph 69.
PFS: File/Report Bundle 69.
PFS: Write w/Speller 69.
Softsync Personal Newsletter 39.
Softwood GS File 61.
StyleWare, Inc.
Multiscribe 3.0 w/Speller *(128K IIe or IIc)* 52.
Multiscribe GS 3.0 *(Apple IIGS)* 65.
DeskWorks 39.
Picture Manager or Desk Accessories 27.
Multiscribe Fontpaks 1-8 *(each)* 15.
Timeworks Publish-It 69.
VIP Software
VIP Professional *(Apple IIc or Enhanced IIe)* 149.
VIP Professional *(IIGS Version)* 169.
Word Perfect Corporation
WordPerfect V1.1 w/Speller *(IIe & IIc)* 89.
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Accolade Mean 18 *(IIGS)* or Hardball *(IIGS)* 27.
Famous Course Disk Vol. 2 12.
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Activision Aliens 24.
Blackjack Academy 28.
Firepower 18.
GBA Championship Basketball *(IIGS)* 31.
GFL Championship Football 27.
Hacker II or Hacker II *(IIGS)* 27.
Might & Magic 32.
Portal or Shanghai *(IIGS)* 30.
Star Rank Boxing II 28.
Tass Times In Tonetown *(IIGS)* or Maniac Mansion 24.
Top Fuel Eliminator 21.
Artworx Bridge 5.0 21.
Baudville Dream Zone *(IIGS)* 31.
Ski Crazed or Video Vegas 19.
Broderbund 2400 A.D. 27.
Airheart or Wings of Fury *(IIe, IIC, IIGS)* 24.
Championship Lode Runner or Karateka 24.
Ultima IV or Ultima V 42.
Autoduel 34.
Moebius 42.
Data East Karate Champ or Kung Fu Master 15.
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Bards Tale *(IIGS)*, Instant Music *(IIGS)*, or Music Construction Set *(IIGS) (each)* 39.
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Rad Warrior 18.
The Movie Monster Game 15.
World's Greatest Baseball Game or Football Game 15.
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Infocom
Border Zone, Bureaucracy, Hollywood Hyjinx, Leather Goddesses Of Phobos, Moon Mist, Nord & Bert, Plundered Hearts, Stationfall, The Lurking Horror, or Zork I *(each)* 27.
Hitchhiker's Guide to The Galaxy 21.
Beyond Zork *(II+, IIe, IIc)* 34.
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Silent Service *(IIGS)* 28.
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Defender of the Crown *(Apple IIGS)* 34.
Balance of Power 34.
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Indoor Sports, Uridium, or Xevious 21.
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Golf's Best Pinehurst or St. Andrews 15.
PBI Software The Tower Of Myraglen *(IIGS)* 34.
Strategic Conquest II or Cavern Cobra *(IIGS)* 31.
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Random House APBA Major League Baseball 41.
Sierra On-Line
Space Quest or Space Quest *(IIGS)* 34.
Championship Boxing 24.
Kings Quest I, II, or III *(APII or IIGS Ver.)* 34.
Leisure Suit Larry *(APII or IIGS Ver.)* 27.
Thexder *(IIGS)* 24.
The Black Cauldron 27.
3-D Helicopter Simulation *(IIGS)* 34.
Simon & Schuster
Star Trek *(Kobayashi Alternative)* 21.
Star Trek *(The Promethean Prophesy)* 27.
Sir-Tech Wizardry 32.
Knight of Diamonds 32.
Legacy of Llylgamyn 32.
Return of Werdna 39.
Deep Space-Operation Copernicus 27.
Software Simulations
Pure Stat College Basketball *(IIe, IIc, IIGS)* 28.
Baseball *(IIe, IIc, IIGS)* 28.
Football *(IIe, IIc, IIGS)* 21.
Spectrum Holobyte Gato 12.
Gato *(IIGS)* 25.
Intrigue or Lunar Explorer 18.
Orbiter *(IIGS)*, Wilderness or Dondra 31.
Strategic Simulations
Battle For Normandy, Broadsides, Colonial Conquest, Gemstone Warrior, Geopolitique 1990, Imperium Galactum, NAM, Phantasie II, Phantasie III, Rails West, Ring's of Zilfin, Roadwar 2000, Realms of Darkness, Roadwar Europa, Shard of Spring, The Eternal Dagger, or Wizard's Crown *(each)* 28.
Battle Cruiser, Battle Group, Kampfgruppe, Mech Brigade, North Atlantic '86, Sons of Liberty, Warship, or War in the South Pacific *(each)* 40.
Battle of Antientam or Chickamunga 34.
Gemstone Healer 21.
War in Russia 55.
Sublogic Flight Simulator II 36.
Jet 30.
Scenery Disks 1-3 *(ea)* 16.

Utilities & Languages

Absoft
AC/Basic *(16-bit BASIC Compiler for IIGS)* 99.
Apple Computer Apple II Instant Pascal 119.
Apple Pascal V1.3 215.
Beagle Brothers
Beagle Screens, Big U, MacroWorks, or Pro-Byter *(each)* 21.
Beagle Compiler 46.
Beagle G.P.L.E. or Super MacroWorks 31.
D-Code, Extra K, Power Print or Triple Dump *(each)* 25.
Borland Turbo Pascal 3.0 *(Req. CP/M)* 48.
Funk Software Sideways Prodos & Dos 3.3 47.
Roger Wagner SoftSwitch *(IIGS)* 39.
Merlin 8/16 *(II+, IIe, IIc, IIGS)* 79.
The Byte Works ORCA/Pascal *(IIGS)* 89.
ORCA/Pascal Desktop Debugger 99.
ORCA/M 4.1 72.
ORCA/M GS 49.
APW DeskTop 42.
TML Systems TML Basic for the GS 89.
TML Pascal for the GS 89.
TML Source Code Library for the GS 35.
TML Speech Toolkit 49.
TML Pascal APW 89.
Zedcor ZBasic 4.0 39.

Accelerators/Ramcards/Z-80/80 Column Cards

Apple Computer
Apple IIe Extended 80 Col. Card 89.
Apple IIe Enhancement Kit 49.
Applied Engineering
RamWorks III *(64K to 3 MB)* Call
RamWorks Expander *(512K or 2MB Ver.)* Call
2 Meg Plus RamWorks Expander *(1 or 2MB)* Call
PC Transporter *(384K to 768K)* Call
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GS-RAM *(256K to 1.5Meg)* Call
GS-Ram Plus *(1MB to 6MB)* Call
RamWorks Basic *(256K or 512K)* Call
Phasor *(II+, IIe, and IIGS)* 139.
Pocket Rocket *(16K Ram II & II+)* 69.
TransWarp Accelerator *(II+ and IIe)* 169.
ViewMaster 80 *(II+)* 129.
Z-80 Plus *(II+, IIe, IIGS)* 129.
AST Research
Ramstack Plus IIGS *(256K Exp. to 1MB)* 105.
Checkmate Technology
MemorySaver *(IIGS)* 129.
Orange Micro
RamPak 4GS *(512k Exp. to 4MB w/Utilities)* 149.

Printer Interface Cards

Apple
Apple Super Serial Card 119.
Applied Engineering
Serial Pro *(II+, IIe, IIGS)* 119.
Parallel Pro *(II+, IIe, IIGS)* 79.
Orange Micro
ProGrappler *(Apple IIe or IIGS)* 79.
Serial Grappler Plus 61.
Grappler C/Mac/GS 65.
Hot Link 54.
Thirdware
Finger Print GSi *(Includes Desktop Accessories - IIGS)* 69.
Finger Print Plus *(Specify Cables: Parallel, Serial or ImageWriter II-II+ & IIe)* 89.
Fingerprint IIc *(Specify Internal or External Version)* 74.
Finger Print G+ *(With Parallel Cable II+, IIe, IIGS)* 55.

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Activision
Draw Plus *(Not Protected IIGS)* 59.
Paint/Write/Draw *(Not Protected IIGS)* 115.
Clip Art Gallery
(Req. PaintWorks Plus IIGS) 21.
GameMaker Maker Bundle 34.
PaintWorks Plus *(Not Protected IIGS)* 59.
Postcards *(IIGS)* 21.
Postcards *(IIe & IIc)* 18.
Music Studio *(IIGS)* 59.
Greeting Card Maker 28.
Bantam Software
Walt Disney Card & Party Shop 27.
Walt Disney Comic Strip Maker 27.
Baudville
816/Paint *(Works On All Apples)* 46.
Award Maker Plus 24.
Take 1 Deluxe 36.
Beagle Brothers Beagle Graphics 36.
Minipix Disk #1, #2 or #3 *(each)* 19.
Shape Mechanic 25.
Broderbund Toy Shop 34.
Animate 45.
Dazzle Draw 39.
Drawing Table *(IIGS)* 62.
Print Shop Enhanced or Fantavision 32.
Print Shop *(IIGS)* or Fantavision *(IIGS)* 42.
Print Shop School Edition 48.
Dazzle Draw School Edition 48.
Print Shop Companion 25.
Print Shop Graphics Library I, II, III or Holiday Ed. 16.
Print Shop Graphics Library Sampler Edition 24.
Show Off *(IIGS)* 42.
Data Transforms Printrix 1.1 46.
Electronic Arts
DeluxePaint II *(IIGS)* 79.
DeluxePrint II *(IIGS)* 37.
Art Parts I, Art Parts II or Seasons & Holidays *(IIGS)* 26.
EPYX Printmagic 41.
Graphics Scrapbook Chapter #1, #2, or #3 17.
Create-A-Calendar 21.
Intracorp
Bumper Sticker Maker 34.
Business Card Maker 36.
The Video Wizard 42.
PBI Software Visualizer IIGS 59.
Visualizer IIe 55.
Scholastic SuperPrint *(IIGS)* 31.
Spinnaker T-Shirt Shop 34.
T-Shirt Shop Graphics 15.
Springboard
Springboard Publisher *(IIe, IIc, IIGS)* 79.
Newsroom 35.
Certificate Maker 26.
Certificate Maker Library #1 20.
Fonts For Springboard Publisher 26.
Newsroom Clip Art Collection Vol. 1 or 3 18.
Newsroom Clip Art Collection Vol. 2 25.
Graphics Expander Vol. 1 or Laser Drivers 25.
Style Sheets/Newletters 19.
Works of Art Education, Holidays or Assortment *(each)* 26.
StyleWare, Inc. TopDraw *(IIGS)* 59.
Unison World
Printmaster Plus 31.
Art Gallery I or Art Gallery II 19.

Educational Software

Activision Term Paper Writer 34.
Barron's Computer SAT Revised Version 28.
Baudville Guitar Wizard 19.
Ted Bear Discovers...Rainy Day Games 19.
Broderbund
Science Tool Kit Master Module 46.
Science Tool Kit Module I or II 27.
Type! 31.
Variable Feasts 35.
Where in the World is Carmen Sandiego? 26.
Where in the USA is Carmen Sandiego? 29.
Compu-Teach Once Upon A Time 25.
Stepping Stones Level I 25.
Stepping Stones Level II 25.
See the U.S.A. 36.
Davidson & Associates
Apple II and IIGS Versions Available:
Alge-Blaster, Classmate or Math Blaster Plus 30.
Grammar Gremlins or Read 'N' Roll 30.
Homeworker 55.
Speed Reader II 41.
Spell-It or Word Attack! 30.
Math & Me 25.
Designware Grammar Examiner 25.
Remember/SAT Bundle or W.O.R.K. At Home 31.
Spellicopter or Math Maze 25.
States & Traits or Mission Algebra 25.
First Byte/Electronic Arts
Mathtalk, Kidtalk, First Shapes, Speller Bee, or Smoothtalker *(IIGS) (each)* 36.
Mathtalk Fractions or First Letters & Words *(IIGS)* 36.
Great Wave Kidstime II *(IIGS)* 24.
SpaceLace 21.
Harcourt, Brace, Jovanovich Computer SAT 27.
Learning Company Reader Rabbit *(IIGS)* 41.
Think Quick *(IIGS)* or Writer Rabbit 32.
Bumble Plot, Reader Rabbit or Magic Spells 26.
Gertrude's Puzzles or Secrets 30.
Word Spinner 23.
Math Rabbit 26.
Moptown Hotel or Moptown Parade 26.
Robot Odyssey I or Rocky's Boots 32.
Mindscape Crossword Magic, Drug Alert, or Brainstorms 34.
Perfect Score SAT 48.
Principal's Assistant 42.
Peachtree/Eduware Algebra 1, 2, 3, or 4 25.
Algebra 5 & 6 31.
SAT Word Attack Skills 19.
PinPoint Micro Cookbook *(IIe or IIc)* 31.
Bon Appetit 37.
Simon & Schuster
Speed Reading Tutor IV *(IIe or IIGS Ver.)* 27.
Typing Tutor IV *(IIe, IIc, or IIGS)* 34.
Spinnaker Kindercomp Gold 29.
Homework Helpers Writing or Math *(IIGS)* 32.
Typing Made Easy 32.
Facemaker: Golden Edition 27.
Kidwriter 27.
Terrapin Enhanced Terrapin Logo V3.0 69.
Weekly Reader
Stickybear Series: Sticky Bear ABC, Car Builder, Codes & Cyphers, Basic, Drawing, Math I, Math II, Math Word Problems, Music, Music Library, Numbers, Opposites, Parts of Speech, Pic. Builder, Picture Printer Library I, Printer, Reading, Reading Comprehension, Shapes, Spellgrabber, Typing, Townbuilder, Word Problems or Writer *(each)* 25.

Modems

Anchor Automation Signalman Express 1200 185.
Signalman Lightning 2400 299.
Applied Engineering
DataLink Modem *(300/1200 Baud Internal Modem II+, IIe, IIGS)* 169.
Hayes Hayes Micromodem IIe *(Internal)* 159.
Hayes Smartmodem 1200A *(Internal)* 275.
Hayes 300 Baud Smartmodem IIc w/Smartcom I 189.
Hayes 300 Baud Smartmodem 159.
Hayes 1200 Baud Smartmodem 299.
Hayes 2400 Baud Smartmodem 449.
Practical Peripherals
Practical Modem 1200 SA 129.
Practical Modem 2400 SA 199.
Prometheus Pro Modem 1200 *(External)* 239.
ProModem 1200G *(Non Expandable)* 149.
Pro Modem 2400 *(External)* 309.
Pro Modem 2400G *(Non Expandable)* 179.
Pro Modem 1200A *(Single Card)* 189.
Pro Modem 300c 89.
Communications Buffer *(2K Exp. to 512K)* 105.
U.S. Robotics
U.S. Robotics Sportster 1200 119.
U.S. Robotics Courier 1200 199.
U.S. Robotics Courier 2400 349.
U.S. Robotics Courier 2400E 379.
U.S. Robotics Courier HST 9600 689.

Disk Drives & Hard Disk SubSystems

American Micro Research ***(Micro Sci)***
A5 D Half Height 5¼" Drive *(IIGS Daisychain)* 149.
A2 Full Height *(II+ & IIe)* 149.
A.5 Half Height *(II+ & IIe)* 139.
A.5C Half Height *(IIc)* 139.
Micro Sci C2 Controller 52.
Central Point Software
Mix and Match 5¼" & 3½" Drives:
Universal Disk Controller 79.
Central Point 800KB Drive 185.
Universal Disk Controller/800KB Drive Bundle 259.
First Class Peripherals
Sider 20MB Hard Drive 549.
Sider 40MB Hard Drive 839.
B-Sider 60MB Tape Backup 839.
Blank Tape 5 Pack 65.
Revision D *(Chip/Software for CP/M)* 52.
Hi-Tech Peripherals
Full Height 5¼" Drive for Apple IIe *(Beige)* 139.
Half Height 5¼" Drive for Apple IIe or IIc *(Beige)* 139.
Half Height 5¼" Drive for Apple IIe or IIc *(Platinum)* 149.
Half Height 5¼" Drive Platinum for IIGS 169.
Apple IIc Drive Adaptor 15.
Mitac
AD-3C Slimline IIc 129.

Accessories

Apple Computer
Apple Mouse IIe 125.
Apple Mouse IIc 89.
Applied Engineering
TimeMaster H.O. 85.
IIc System Clock 55.
AST Research
AST-VisionPlus Digitizer *(IIGS)* 219.
CH Products
Hayes Mach II Joystick *(Beige or Platinum)* 29.
Hayes Mach III Joystick *(Beige or Platinum)* 38.
Hayes Flight Stick 52.
Curtis
Curtis Diamond 29.
Curtis Emerald 36.
Curtis Ruby 54.
Curtis Sapphire 47.
DataDesk
DataDesk ADB-101 Enhanced Keyboard *(IIGS)* 159.
Kensington
Mouse Pocket *(Reg. or ADB)* 8.
Mouseway *(Mousepad)* 8.
Apple IIGS Dust Cover 10.
Mouse Cleaning Kit w/Pocket 17.
Disk Drive Cleaning Kit *(3.5" Drives Only)* 20.
Apple Security System 34.
Printer Muffler 80 38.
Printer Muffler 132 51.
A/B Box *(IIGS)* 63.
System Saver *(Platinum or Beige)* 69.
System Saver IIGS 79.
Turbo Mouse *(Reg. or ADB)* 82.
Kraft
Kraft Universal 3 Button Joystick *(II+ IIe, IIc)* 34.
Koala Technologies
Koala Pad Plus w/Graphics Exhibitor 84.
MDideas
Conserver *(IIGS Switched Surge Suppressor w/Fan)* 119.
SuperSonic *(Stereo Card for IIGS)* 52.
SuperSonic Digitizer *(IIGS)* 52.
Mouse Systems
A+ Mouse *(IIc)* 69.
A+ ADB Mouse *(IIGS)* 89.
MousTrak
MousePad 7"x9" Size 8.
MousePad 9"x11" Size 9.
MousePad L/F *(Low Friction)* 9.
Orange Micro
Juice Box *(IIGS Switched Surge Suppressor w/Fan)* 69.
SMT
No Slot Clock *(II+ & IIe)* 42.
Street Electronics
Echo IIb Speech Synthesizer *(II+, IIe, IIGS)* 109.
Cricket IIc 129.
Ribbons Unlimited
ImageWriter Ribbon-Black 4.50
ImageWriter Ribbon-Color 5.
ImageWriter II - 4 Color Ribbon 11.
ImageWriter Rainbow Pk. (6 Colors) 25.
Thunderware
Thunderscan Apple *(IIGS, IIe, and IIc)* 179.

Blank Media

5¼" Blank Diskettes
BASF 5.25" SS/DD *(box of 10)* 8.
Verbatim 5.25" SS/DD *(box of 10)* 10.
Sony 5.25" SS/DD *(box of 10)* 9.
Maxell 5.25" SS/DD *(box of 10)* 10.
3M 5.25" SS/DD *(box of 10)* 11.
3½" Blank Diskettes
BASF 3.5" DS/DD *(box of 5)* 9.
Bulk *(Sony)* 3½" DS/DD *(box of 10)* 16.
Centech 3½" DS/DD Color Disks *(box of 10)* 19.
Sony 3.5" DS/DD *(box of 10)* 18.
Fuji 3.5" DS/DD *(box of 10)* 20.
Maxell 3.5" DS/DD *(box of 10)* 20.
Verbatim DS/DD *(box of 10)* 20.
3M 3.5" DS/DD *(box of 10)* 20.
C. Itoh 3.5" DS/DD Color Disks *(box of 10)* 25.

Printers

Brother M-1109AP *ImageWriter Comp.* 269.
Epson LX-800 Call
FX-86e Call
FX-286e Call
EX-800 or EX-1000 Call
LQ-800 or LQ-850 Call
LQ-1050 or LQ-2500 Call
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Microline 182P *(120cps Dot Matrix 10")* 249.
Microline 192*Plus (200cps Dot Matrix 10")* 339.
Microline 193*Plus (200cps Dot Matrix 15")* 489.
Microline 292P *(240cps Dot Matrix 10")* 539.
Microline 293P *(240cps Dot Matrix 15")* 639.
Panasonic
KXP-10801/M2 *(144 cps)* NLQ Mode 199.
KXP-10911/M2 *(192 cps)* NLQ Mode 209.
KXP-10921 *(240 cps)* NLQ Mode 329.

Communication Software

Checkmate Technology
ProTERM *(IIGS, IIe, IIc)* 79.
Compuserve
Compuserve Starter Kit 24.
Pinpoint Point-To-Point 79.
United Software Industries
ASCII: Express Pro: Prodos or Dos 3.3 75.
ASCII: Express Mousetalk 59.

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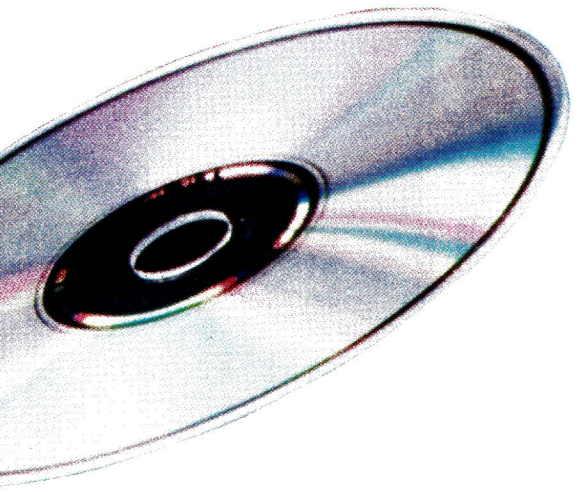

CD-ROM FOR THE APPLE II?

With one Compact Disc replacing 1000-plus floppies, is laser technology the wave of the future in Apple II storage?

by Cynthia E. Field, Ph.D.

Any sound ever made, any picture ever created, any word ever written . . . " That's how John L. O'Brien envisions the communications possibilities of high technology's latest brainchild—the Compact Disc (CD), a 5-inch reflective plastic platter that can hold as much information as *1000 or more* floppy disks.

O'Brien, founder of LaserLand, a Colorado-based laser-hardware and -software retailer, has other visions of CD, too: "Over the next decade, we can provide a medium for huge databases, standardize the level of education of children throughout the world, even teach piano and foreign languages interactively." And all with a personal computer.

REVOLUTIONARY RUMBLINGS

Wouldn't you know it? Just as we're getting comfortable with *magnetic* media—including floppy and hard disks—along come *optical* media, which promise to revolutionize the way we access information. (See our comparison of magnetic-disk and optical-disc features in the accompanying **Table**.)

But laser-disc technology with its many promising computer applications didn't erupt overnight. More than ten years ago, Philips, the large Dutch electronics firm, began researching ways to use the laser (*l*ight *a*mplification by *s*timulated *e*mission of *r*adiation), a fine-tuned, *coherent* beam of light—waves of one frequency and traveling in one direction—to encode data.

By early 1982, Philips and Sony had jointly developed the technology for storing digital audio data on CDs. By the end of that year, the first Compact Disc-Audio (CD-A) players were introduced. (To learn more about CD-A, see the accompanying sidebar, "A Little Heresy?")

By 1986, Philips/Sony and other high-tech industry leaders (including Apple Computer) had begun to recognize the unprecedented power of the Compact Disc for data storage and retrieval, interactive learning, and entertainment. (For a description of the CD manufacturing process, see the accompanying sidebar, "From Data to CD.")

Table. *Disks and discs: a comparison of features.*

	Compact Disc	Floppy Disk
Size	12 cm. (4.72 in.)	5.25 in.
Composition	polycarbonate	mylar
Sturdiness	excellent	fair
Environmental Sensitivity	negligible	considerable: fingerprints, dust, static, bending, X-rays
Life Span	limitless	40 hr. use
Cost (blank)	dollars	cents
Encryption Method	optical	magnetic
Encryption Agent	light (laser)	magnetic force
Data-Storage Capacity	550MB	144K
Read?	yes	yes
Write?	no	yes
Cost of Typical Application	$250-thousands	$2-few hundred
Cost of Drive	$1000-plus	<$100-$500

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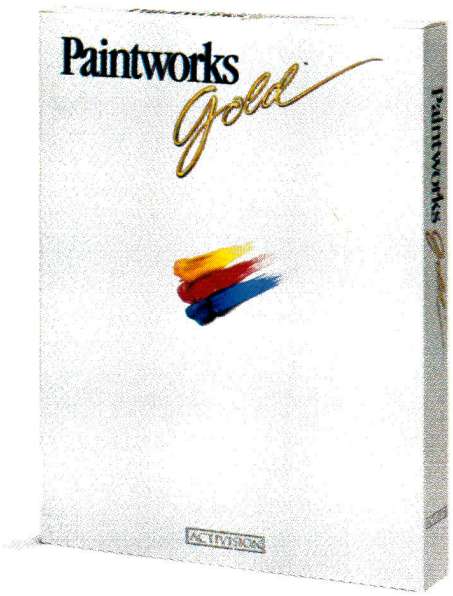
Automatic 3-D	✔	✔
Copy an image from a file	✔	
Automatic gradient color palette	✔	
Rotate objects in 1° increments	✔	✔
2 canvases to paint on	✔	✔
Mask objects	✔	
Mask colors	✔	✔
Slippy colors for lasso	✔	
Variable-zoom FatBits	✔	✔
Built-in patterns	✔	
Independent gradient fills	✔	
Resize & bend objects	✔	✔
Distort objects	✔	
Anything can be a brush	✔	✔
Variable speed animation	✔	
Color cycling (simulated animation)	✔	✔
Smear, shade, & smooth	✔	✔
Smooth edges	✔	
Lasso and constrained lasso	✔	
On-line Help	✔	
Total	**21**	**9**



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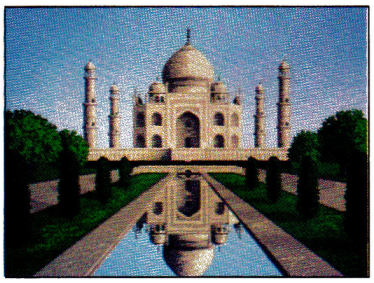
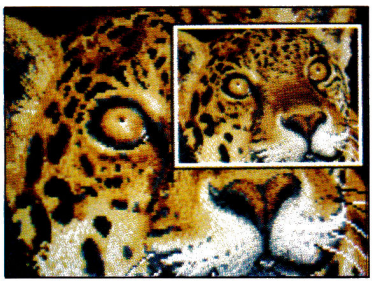
Paintworks *Gold* requires an Apple IIGS with minimum 1.25 Mb RAM.

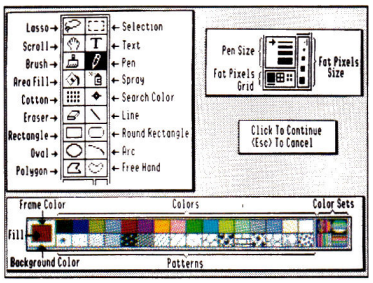
Circle 250 on Reader Service card.



Two styles of 3-D put your pictures in perspective. To create the reflection, just rotate the Taj Mahal, mask all but the water, and use the palace itself as your brush. Fill the skies with gradient color for a setting fit for a king.



The variable-zoom FatBits editor lets you magnify up to 4X, then use any tool in either window. Here you can see the smoothing effects used to create the subtleties in the leopard's face.



Over 80 new features, including on-screen gradient fill tools and variable FatBits controls. And if you forget the commands, three help screens like this one are just a click away.

ACTIVISION®

During this time, at least three new forms of Compact Discs were christened: Compact Disc-Video (CD-V), Compact Disc-Interactive (CD-I), and Compact Disc-Read-Only Memory (CD-ROM). The first two types of discs are played on stand-alone home-entertainment equipment. (See the sidebar, "CD-V and CD-I: The VCRs of the 1990s?") Only CD-ROM and its progeny require a personal-computer system.

THE HERE AND NOW

As 1988 progresses, CD-ROM (a catch phrase that includes CD-ROM discs, drives, and technology) is just beginning to make its impact on the world of personal-computer data storage. (See the accompanying sidebar, "Are Your Hard Drive and Modem Obsolete?" for more on the effect of this new medium on older technology.)

CD-ROM applications (data files on Compact Disc) for IBM PC-based systems number just over 160 discs, according to ***CD-ROM Review***. But at least that many more have been produced for companies' internal purposes and aren't available for sale to the public. Many commercial discs are so narrowly focused and expensive that they appeal mainly to what are known as *vertical markets*—specialized industries such as finance, law, or medicine. For example, Standard & Poor's Compustat Services publishes versions of Compustat PC Plus (a database of financial information on publicly traded companies) on CDs for $12,000–$45,000 per year.

At the other end of the spectrum, however, are less-expensive CD-ROMs like MicroSoft Bookshelf ($295)—an electronic library composed of ten reference books, including the *American Heritage Dictionary*, *Roget's Thesaurus*, and *The World Almanac and Book of Facts*. Ten volumes on a single Compact Disc!

The most popular uses of CD-ROM to date are in the field of publishing. Bowker Electronic Publishing of New York offers *Books in Print* and other compendia for users of IBM PCs. *The Washington Post* has created a CD-ROM disc of the contents of its 1985 issues for in-house use.

Currently under development are CD-ROM databases such

Are Your Hard Drive and Modem Obsolete?

Don't take your hard drive or modem to a flea market yet. It's unlikely that Compact Disc technology will render either of these popular peripherals obsolete—at least for a few years.

The ROM in CD-ROM stands for *r*ead-only *m*emory. Therein lies the crux of an issue that makes hard drives and modems both more flexible and more cost-efficient for the average Apple owner.

Both hard drives and CD-ROMs can provide megabyte-level storage for programs, utilities, templates, and "off-the-shelf" databases. But for now, the only practical way to create, save, and manage your own large databases (mailing lists or bibliographies, for example) is with a hard-disk drive.

Two offspring of CD-ROM—CD-EPROM and CD-WORM—have yet to mature. These variants will require a different (and costly) type of disc drive, because the drive's innards must be capable of "burning" information onto the disc—in addition to simply reading reflected light levels.

CD-EPROM will let you *e*rase and re*prog*ram your laser disc in house—as you can do with floppy disks now. With CD-WORM, you'll be able to *w*rite to the laser disc *o*nce, but *r*ead back the information *m*any times.

CD-WORM drives are expected to be popular for text documents that don't require frequent updating. Examples might include legal records (criminal and real-estate-title information), medical histories, or scientific databases such as NOAA (National Oceanographic and Atmospheric Administration) weather data.

Compact Disc drives, whether CD-ROM, -EPROM, or -WORM, have distinct advantages over hard-disk drives, however—a situation that portends well for the future of laser technology. These nonmagnetic discs are less sensitive to data loss and are removable—an important feature where security is concerned. Because their optical heads are positioned much farther from the disc than magnetic heads are in hard drives, damaging head crashes can't occur. For this reason, CD drives may someday be included in portable computers.

On-line databases probably won't suffer much loss as a result of CD-ROM, either. The issue here is timeliness. When you purchase a CD-ROM subscription to a database service, you ordinarily receive updates quarterly or perhaps monthly at best. For investors or information gatherers, stale news may be of little value. With a modem, you have instant access to the very latest stock and commodities prices or news events.

Going on line can cost a bundle, though. Not only must you pay the on-line service's subscription fee (often thousands of dollars per year), but you must pay for telephone time as well. And learning the sometimes arcane language of communications software can be daunting.

CD-ROM databases offer the greatest benefit to users of information that's relatively unchanging: annual reports or quarterly financial data from companies listed on the stock exchange, for instance, or *Books in Print*, or databases of software information.

If you're an office manager or self-employed Apple II user, you'll want to monitor advances in Compact Disc technology over the next few years. For now, though, it's probably business as usual.□ **—C.F.**

as telephone directories, catalogues of manufacturing parts, movie indices, and museum-collection archives. Some industry analysts predict that CD-ROM will come to replace microfilm, microfiche, and printed publications. Indeed, library applications are among the initial and most widespread uses of CD-ROM. Good-bye, card catalogues!

CD-ROM AND THE APPLE II

A number of problems—some hardware-based, some software-based, some market-based—have slowed the growth of CD-ROM for the Apple II. That trend is only now beginning to change.

Compact Disc drives transfer information at 1.41 megabits per second, a speed that gags an Apple II Plus or IIe. According to Jim Solomon of MicroTRENDS, a hardware developer, these earlier Apple IIs can take in only 1 megabit of information per second. The IIGS, a 16-bit microcomputer, is inherently more voracious and theoretically more CD-ROM-compatible.

To beef up older Apple II models to work with CD-ROM, Solomon's company has developed an Apple II coprocessor board—a circuit board containing a 16-bit Motorola 68000-series microprocessor chip that operates at the necessary speed and represents the standard recommended by Philips/Sony for CD-I applications. MicroTRENDS' coprocessor, named **Jonathan**, creates an intelligent environment inside your Apple II, so that the computer can distinguish programs using the 6502 chip (Apple's microprocessor) from 68000-based applications,

CD-V and CD-I: The VCRs of the 1990s?

In the next few years, you'll be able to walk into any department store or consumer-electronics retailer and buy one or more new "toys" for your home-entertainment center—devices that will play variations on the Compact Disc-Audio theme.

Compact Disc-Video (CD-V) brings record singles to a new level of achievement. Each disc contains up to five minutes of video and as much as 20 minutes of audio entertainment. You can play the audio portion of CD-V on a regular CD-Audio (CD-A) device, but enjoying the video sequence too requires a special Combi Player, a hybrid from Philips/Magnavox that can play CD-V and CD-A as well as 8-inch and 12-inch LaserVision discs.

Of even broader application than CD-V is CD-Interactive (CD-I), a technology that not only entertains, but educates, too. CD-I devices, by definition, must contain their own computer microprocessors (a 68000-series chip), 1 megabyte of memory, and a derivative of the OS-9 operating system. This worldwide standard, promulgated by Philips/Sony, means that all CD-I players will work with all CD-I application discs. Apparently, we won't see a repeat of the Beta/VHS confusion that slowed the VCR market at the outset.

CD-I players will be priced for the home market (although they may be expensive when introduced, probably about $1500), and will connect to your existing home-entertainment system, including TVs and stereo equipment, among other items.

Applications for CD-I now under study or development include a street tour of London from Roman times to the present, talking books, audiovisual dictionaries that "sing and dance," and navigational tools that give directions for car drivers. While CD-ROM applications can cost thousands of dollars, CD-I discs are expected to be priced like home software: $35-$99.

Personal-computer owners may be able to connect their Apples to CD-I and enjoy the best of both worlds. It's expected that CD-I drives will offer ports so that you can attach disk drives, printers, and input devices such as keyboards, joysticks, and mice.

A pioneer in the CD-I industry is Video Interactive Computing, Inc. (VICI, pronounced *Vicky*), of Houston, Texas. According to Mark E. Wilson, VICI has developed its own proprietary language for information transfer via hardware-independent systems.

Wilson says, "We take hardware, like the Apple IIe, off the shelf, and depending on the environment we're operating in, it may or may not require an additional interface."

You'll be able to use VICI systems with a keyboard, mouse, joystick, or touch screen, for instance. According to Wilson, kiosks equipped with VICI systems have been placed in visitor-information centers and hotel lobbies around the country. These interactive information centers provide listings of "restaurants, museums, transportation modes . . . even casinos. In the Philadelphia environment, we had a telephone on an automatic dialer. All the visitor had to do to make a reservation at Bookbinder's [a local restaurant] was press the three-number code that appeared on the system screen."

VICI recognizes the changing nature of our nation's ethnic mix, too. According to Wilson, "In Corpus Christi and in Florida, we gave the systems the capability to switch languages from English to Spanish in two-tenths of a second."

In CD-ROM, you start with a database. But in CD-I, applications must be developed from scratch. For this reason, the availability of CD-I will lag behind that of CD-ROM. No full-fledged CD-I applications have yet been produced, because CD-I players don't yet exist—and the technical specifications for CD-I aren't finished yet. But when the time comes, CD-I's multimedia approach to entertainment and education should appeal to computerphiles and computerphobes alike.□ **—C.F.**

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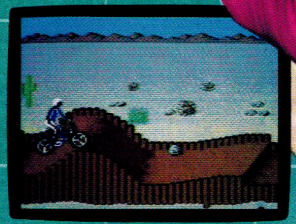

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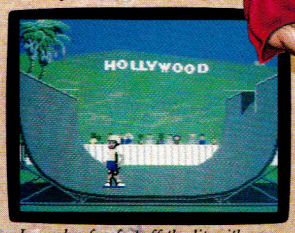

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such as CD-I applications that work under an OS-9-type operating system.

Jonathan brings the Apple II up to speed, and a daughter board (a second circuit card that piggybacks onto Jonathan) provides the interface needed to attach a stand-alone, top-loading, Philips **CM100 Compact Disc Drive** (or player), a device that looks like some telephone-answering machines.

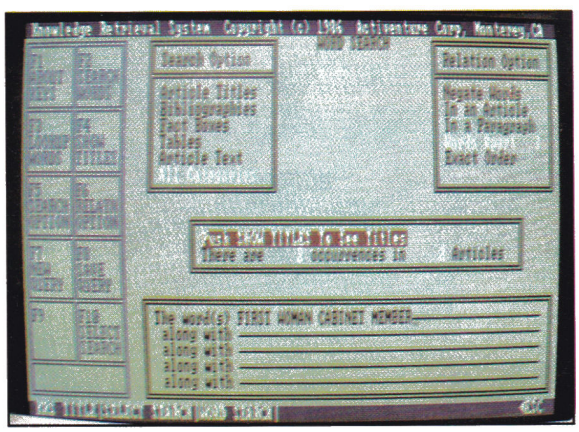
MicroTRENDS bundles its Jonathan system with a copy of the **Grolier Electronic Encyclopedia**, a single CD-ROM priced separately at $299. (Grolier reports that the price may increase somewhat by the time you read this.) The CD version contains all text entries found in the 21-volume printed edition (which costs between $650 and $750) *and* about 2000 additional reference articles. A floppy disk containing specific search/retrieval software for Grolier's encyclopedia is also included in the Jonathan setup.

According to Solomon, Jonathan systems are "scattered around the world," and MicroTRENDS is "finalizing agreements with Philips Australia" to be the exclusive Jonathan distributor Down Under.

MicroTRENDS plans to offer a second CD-ROM application, **The Visual Dictionary**, an electronic version of a French/English dictionary featuring photos and drawings of objects and activities labeled in both languages.

Once you've interfaced your Apple II hardware and you've placed the Compact Disc in its player, using CD-ROM is no more difficult than booting up the accompanying search/retrieval floppy disk and working with it as you would any other piece of software. You can find, view, save to disk (but not to Compact Disc), and print any research information you need.

Without a doubt, efficient search/retrieval software is critical to the CD-ROM working environment. The 500-plus megabytes of data encrypted on CDs are arranged in one three-mile-long spiral—as opposed to the concentric circular tracks on magnetic media. Magnetic storage devices such as hard drives are inherently quicker at finding random bits of information. While CD-ROM has a longer seek time, well-indexed search/retrieval software that fosters split-second access can overcome this deficiency.



The CD-ROM Grolier Encyclopedia (software interface by KnowledgeSet) permits searching by key phrase through its entire contents.

As you might expect, John Cole at Grolier Electronic Publishing is bullish on CD-ROM. According to Cole, the electronic version of his company's encyclopedia has been well accepted by educators and students alike, because of the system's strong indexing capabilities, which make researching by computer fun as well as functional.

"Say you want to prepare a report on first women [women who were the first of their gender to accomplish various feats]," Cole explains. "With a printed encyclopedia, where would you look? It would be very difficult and time-consuming. With CD-ROM, all you do is type in *first woman* and the software will search the CD index for all occurrences where this phrase appears—some 73 articles in all."

While Cole is enthusiastic about CD-ROM in general and Grolier's Electronic Encyclopedia in particular, he's not so enthralled by MicroTRENDS' Jonathan system. Cole calls the Jonathan system "a warmed-over IBM version [of the encyclopedia] that has not met with universal appeal and will not be updated by Grolier." Until other alternatives exist, though, Jonathan may be the only game in town for owners of the Apple II Plus and IIe who want to get into CD-ROM.

Suggested Reading

CD-Interactive Designer's Guide
Philips International B.V.
U.S. Liaison
and Information Office
Corporate Group
Home Interactive
Systems
1111 Northshore Drive
Knoxville, TN 37919
(615) 558-5110
$250 plus $10 postage
(includes three quarterly
updates)

Reader Service Number 332

CD-ROM Review:
The Magazine of
Compact-Disc Data
Storage
IDG Communications/
Peterborough
Subscription Department
P.O. Box 921
Farmingdale, NY 11737-
9621
$19.97 bimonthly

Reader Service Number 333

CD ROM:
The New Papyrus
$21.95
CD ROM 2:
Optical Publishing
$22.95
MicroSoft Press
Box 97017
Redmond, WA 98073-
9717
(206) 882-8080

Reader Service Number 334

CD-ROM and
Optical Publishing Systems,
$39.50
Essential Guide
to CD-ROM, $29.95
Publishing with CD-ROM,
$19.95
The Guide to CD-ROMs
in Print, 1987-88, $29.95
Meckler Publishing Corp.
11 Ferry Lane West
Westport, CT 06880
(203) 226-6967

Reader Service Number 335

CD-ROM AND THE GS

Jonathan works with the GS, but in Apple IIe mode. Cole, at Grolier, notes that his company intends to provide generous trade-in discounts to Apple owners who use the Jonathan system now and who want to purchase the actual Apple IIGS version of the encyclopedia when it's released later this year.

One current disadvantage of CD-ROM is that neither the Jonathan version nor the GS version of the Grolier encyclopedia contains graphics. The GS version, however, is expected to offer color-text capabilities consistent with the GS' enhanced graphics features.

Any successful marriage between CD-ROM and the GS hinges on connecting a CD-ROM drive to the GS' SCSI (small-computer-systems interface, pronounced "scuzzy") port. (For more information on this interface, see "Are You Ready for SCSI?" March 1987, p. 55.) At press time, a number of Compact Disc drive manufacturers, including Denon, JVC, Philips, Panasonic, Sony, and Toshiba, were reportedly developing or offering drives with SCSI communications capability.

Notably absent from this list of drive makers is Apple itself. Calls to proponents of CD-ROM at Apple weren't returned, but one source within the publishing grapevine claimed at press time that Apple was expected to announce a CD-ROM drive for the Macintosh at Comdex last November. When I telephoned Apple this past October, Kathleen Dixon, a spokeswoman for the company, would tell me only that "we have not announced CD-ROM for the Apple II." Period.

Still, Apple's commitment to CD-ROM seems clear. Apple

Product Information

CM100 CD-ROM Drive
Laser Magnetic Storage International (LMS)
4425 ArrowsWest Drive
Colorado Springs, CO 80907
(303) 593-4269
(303) 593-4270
$950

Reader Service Number 328

Grolier Electronic Encyclopedia
Grolier Electronic Publishing
95 Madison Avenue
Suite 1100
New York, NY 10016
(212) 696-9750
$299

Reader Service Number 329

Jonathan Apple II Coprocessor Board
Jonathan CD-ROM Drive Interface
Search/Retrieval Software
Philips CM100 CD-ROM Drive
Grolier's Electronic Encyclopedia
MicroTRENDS, Inc.
650 Woodfield Drive
Suite 730
Schaumburg, IL 60173
(312) 310-8928
$1995 complete

Reader Service Number 330

The Visual Dictionary
Facts on File
460 Park Avenue South
New York, NY 10016
(212) 683-2244
price unavailable at press time

Reader Service Number 331

A Little Heresy?

It may seem like heresy for a writer in a computer magazine to suggest that your first encounter with Compact Disc technology be with Compact Disc-Audio (CD-A). But CD-ROM is still in the incubator, so to speak, while CD-A is here to stay. According to industry estimates, 18 million players and 130 million CDs had been sold by the end of 1986.

You've probably never heard music with such high fidelity as you experience with digital audio. On CD, crooning by your favorite rocker or works by your favorite classical composer sound even better than they do in a concert hall. For one thing, you don't have to contend with audience commotion, such as coughs and sneezes. Best of all, you can enjoy this quality anytime.

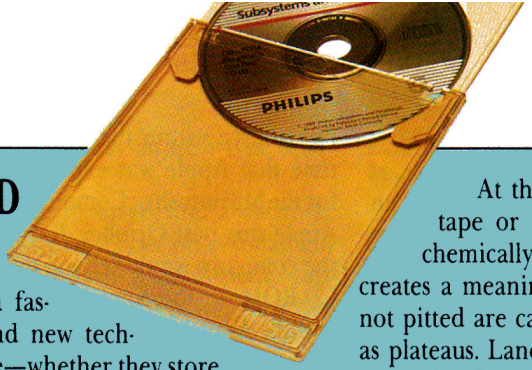
Portable CD players have been introduced for the high-tech "boom box" set and are even finding their way into some new car models as optional extras. Prices continue to drop—from the near-$1000 levels of a few years ago to just a few hundred dollars today. If you shop around, you can find department and electronics stores that offer name-brand CD-A players for about $150.

In the home, CD-Audio players hook up as easily as conventional turntables do via common RCA-type cables to standard equipment such as receivers or tuners. These in turn connect to stereo speakers via 18-gauge speaker wire. You can hook up a Fisher Compact Disc Player, for example, to a Technics AM/FM Stereo Receiver and a pair of Infinity speakers.

CD players offer a number of features similar to cassette players, including fast forward, fast back, play, and stop. Because of their random-access nature (as opposed to a cassette's sequential-access programming), CD players can search a program index and repeat any or all tracks automatically.

The discs themselves (the "records") can set you back $15 or more apiece, but prices are dropping steadily. Stores frequently offer CDs on sale, and at least one Compact Disc Club features discounts and half-price savings on the CDs in its catalogue.

Whether your musical taste leans toward Bon Jovi, Led Zeppelin, Mozart, or Mahler, you'll experience great music as you've never heard it before. Quite simply, you won't believe your ears. Digital audio is a no-lose way to introduce Compact Disc technology into your home.□ **—C.F.**



From Data to CD

The creation of a Compact Disc involves a fascinating blend of old and new technologies. The CDs you use—whether they store digital data or digital sound—are manufactured from a rigid polycarbonate plastic through an injection-molding process like the one that came into wide use after World War II.

Would you have thought that the industry that gave us costume jewelry, Mr. Potato Head, and Tupperware would someday go high-tech and enable us to store 550 million characters of database information on a single 5-inch disc? Of course, there's a lot more to creating CD-ROM than making Mr. Potato Head eyes!

The process of converting data to CD begins long before any plastic beads are poured into a hopper. The computer data must first be organized, indexed, and stored on a specially formatted magnetic tape or disk. These steps can be performed in house, but they're costly, so many CD publishers contract with service bureaus who have the equipment and know-how to prepare data properly.

At the CD manufacturing plant, the data on tape or disk are burned by laser beam into a chemically treated glass master disc. This process creates a meaningful pattern of pits in the glass. Areas not pitted are called *lands*, but you might think of them as plateaus. Lands reflect more light back to a photodetector (in the player's reading head) than pits do. The read head can decipher a reflective pattern by picking up transitions from pits to lands and lands to pits.

The light pattern the head detects is translated into *channel bits*, which your CD system can further translate into binary bits. Binary bit patterns are the kinds of patterns that computers, through their operating-system software, can recognize as bytes and translate into the letters, numbers, and symbols we humans understand.

At the CD factory, the glass master disc is used to create "negatives." These discs are used in "stamping," the process whereby the plastic CDs you purchase are made. One negative can produce about 6000 CDs.

CDs are then aluminized to enhance their reflectivity, lacquered to protect their microscopically pitted surface, and labeled by a silk-screening process to identify their contents.□ **—C.F.**

maintains membership in the High Sierra Group, a committee of industry leaders working to develop standards for CD-ROM, and the company has at least one staff member pursuing this area—a quest Apple refers to as "evangelism." Whether Apple's commitment extends only to the Mac, or to the GS as well—or to the whole Apple II family—remains to be seen.

THE FUTURE

The future of CD-ROM for the Apple II, though theoretically promising, is uncertain. A number of circumstances must come together if we're to enjoy the benefits of this new technology.

Apple-compatible CD-ROM drives—and perhaps alternative-coprocessor/CD-interface boards—must be made widely available to Apple II owners. Right now, even IBM users experience difficulty buying individual CD-ROM drives and, for the most part, get them only when they purchase specific CD-ROM applications. That's almost like having to buy a record album before you can own a turntable.

CD-ROM search/retrieval software must not only be able to find information quickly, but must offer one or more of the Apple II's traditional "friendly" interfaces. Stacking-file-card menus, à la AppleWorks, and mouse-selected pull-down menus, à la Dazzle Draw, have helped popularize the Apple II in business, at home, and in school. Straying from these interfaces would be like turning back the personal-computing clock.

But in addition to "inventing the future" and devising new applications we haven't even imagined yet, CD-ROM developers should be encouraged to creatively repackage tried-and-true applications that have met success in the marketplace. How about a single CD-ROM disc containing all Apple II public-domain software?

Or a single Compact Disc containing AppleWorks, Pinpoint's Desk Accessories and Spelling Checker, a macro generator, a grammar checker, and maybe Quicken, FontWorks, and Sideways, as well? Packaging like-minded programs this way would not only increase their convenience, but reduce piracy, too. (Most Compact Disc drives aren't expected to have recording functions.)

Will *your* family room, home office, or media center adopt CD-ROM? John L. O'Brien at LaserLand thinks it's inevitable and is staking his company's future on it. And, despite industry-wide obstacles the new technology must overcome, "Disk/Trend Reports" in *InfoWorld* (September 28, 1987) estimates that sales of CD drives are expected to increase sixfold within the next few years. Is an Apple II CD-ROM drive in your future? Only time will tell.■

Cynthia E. Field is the author of Field Trip, inCider's *column on educational software. She teaches botany at the University of Rhode Island and is a free-lance journalist specializing in computer-related topics. Write to her at 60 Border Drive, Wakefield, RI 02879. Enclose a self-addressed, stamped envelope if you'd like a personal reply.*

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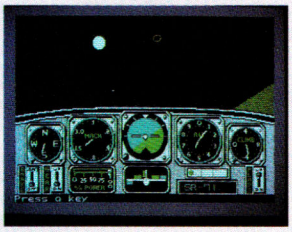

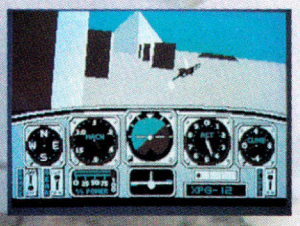

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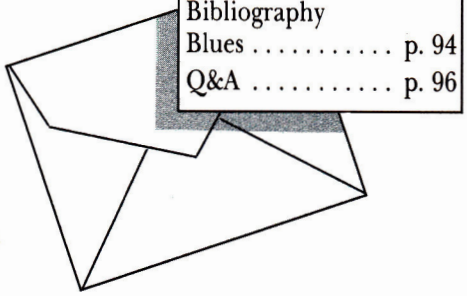

From My Mailbag

The postman always delivers, and your letters, questions, and comments comprise a column unto themselves this month.

by Ruth K. Witkin

This month marks the start of my third year writing this column. As your interest and AppleWorks expertise have expanded during this time, I'm pleased to launch an intermittent feature called "From My Mailbag," in which my entire column's devoted to your questions and comments.

Many of you have written to me over the years; there've been funny letters, charming letters, friendly letters, letters of frustration, and helpful letters. Hoping that my response to those letters may help more of you, I've culled my files for topics of general interest, edited questions as needed, polished my answers a bit, and present them to you now. I've selected only those questions that deal with AppleWorks problems, not hardware or printer problems, which *inCider* addresses in other parts of the magazine.

In the breakheads, WP is word processor, DB is database, and SS is spreadsheet. One more thing: This is a wide-open forum, so feel free to join in the dialogue. We can learn from each other.

WP: PROPORTIONAL SPACING AND COLUMNS

I use AppleWorks' word-processor section most often. I'm comfortable with it and get good, clear mimeograph masters from its near-letter-quality print when I use the proportional options. However, I'm frustrated when I try to use the tabular functions with proportional spacing. The columns are never straight, nor are they positioned on the page the way they should be. The columns work out correctly if I'm not using proportional spacing.

The very nature of proportional spacing means that you'll be unable to line up columnar matter perfectly, because the width of each character in the preceding column is counted in proportional increments, which throws off the lineup of each succeeding column. You can do some manual manipulation by inserting spaces between the columns, then printing to see the result. It'll look weird on screen and often takes a bit of tinkering to achieve an acceptable result on paper, but it can be worth the extra effort.

DB: ENTERING DATA IN MULTIPLE-RECORD LAYOUT

I've set up a database and report format to (easily?) track the value of my small investment portfolio on any given day, simply by inputting stock and mutual-fund quotations from *The Wall Street Journal*. I can't figure out an easy method to input these quotations without having to go back to each record in a single-record layout. As my portfolio grows, it won't be worth the trouble of flipping through screens. Is there some way to input the prices in the multiple-record screen? My printout is enclosed.

I can see from your printout that the Current P/S (current price per share) category is the eleventh category in your database, which places it off screen. Since this is the category that needs attention on a regular basis, shift its position (temporarily or permanently) so that you can see and update the information easily.

Let's say you want the Current P/S category to appear to the left of the Broker category. In multiple-record layout, press OA-L to bring up the Change Record Layout screen. Move your cursor to the Current P/S category and press the OA-< keys as many times as needed to skip it to the left into the third column position. Press Escape twice. That's all there is to it.

DB: SELECTING A RECORD TO CUT-AND-PASTE

When I zoom in on one database record, how can I cut and paste that detailed record to my word processor for editing? Inputting "Open apple-Copy" or any other command doesn't achieve this.

The answer to your question may sound a bit complicated, but once you get started, you should have no trouble at all. Here's the key: If you want to work with one record only, you must first use the Record Select command (OA-R) to isolate that record from the others. Then, since you want the record to look like single-record layout, create a labels report format. If you want the category names, place the cursor on each category in the Report Format screen and press OA-V. My guess is that you won't want a header, so bring up the Printer Options screen and type **PH** to toggle the header setting to *No*.

Then to get back to the Report Format screen, press OA-P to bring up the Print the Report screen. Type the number that selects *The clipboard* (for the word processor) and press Return. AppleWorks now tells you that the information is on the clipboard and you can move or copy it into word-processor documents.

Now bring up your word-processor document. Press OA-C again. This time, type **F** to copy *From clipboard*, and your record will pop into the document.

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SS: KEEPING BOWLING-LEAGUE SCORES

I've been elected bowling-league secretary and would like to use AppleWorks to maintain all the necessary scores, records, and sheets. What AppleWorks applications would you recommend?

I suggest you use the AppleWorks spreadsheet, not the database, to keep track of bowling scores. Things are easier to see on a spreadsheet and you get more mathematical capability. First, create a master spreadsheet that contains the team names, bowler names, and formulas that calculate cumulative totals, weekly individual and team totals, averages, and any other data you need.

Then use OA-N to give the master a new name—for example, Week1 or July1. After each bowling session, rename the prior week's spreadsheet (Week 2 or July 8, and so on) and overtype the prior week's scores with the current week's scores. The formulas do the rest. It may take some playing around with the master to get an attractive, easy-to-read layout with all the information you need, which is why it makes sense to leave the master intact. I hope this helps, and here's to some happy 300s this season.

DB: PRINTING MAILING LABELS

I recently found a way to print return-address labels that I thought might interest you. During the last couple of months I was involved in a project for my civic club requiring hundreds of letters created with the mail-merge program in AppleWorks version 2.0. I wanted to use window envelopes and small return-address labels and found that I could print four three-line addresses on each 15/16-by-3½-inch label, using an ImageWriter printer.

Ingenious. Truly ingenious. Your printer setup makes sense and scoring the labels shows lots of creative imagination. See **Figures 1**, **2**, and **3** for the labels and screens.

```
Ruth K. Witkin          | Ruth K. Witkin
5 Patricia Street       | 5 Patricia Street
Plainview NY 11803      | Plainview NY 11803
- - - - - - - - - - - - - - - - - - - - - - -
Ruth K. Witkin          | Ruth K. Witkin
5 Patricia Street       | 5 Patricia Street
Plainview NY 11803      | Plainview NY 11803

Ruth K. Witkin          | Ruth K. Witkin
5 Patricia Street       | 5 Patricia Street
Plainview NY 11803      | Plainview NY 11803
- - - - - - - - - - - - - - - - - - - - - - -
Ruth K. Witkin          | Ruth K. Witkin
5 Patricia Street       | 5 Patricia Street
Plainview NY 11803      | Plainview NY 11803

Ruth K. Witkin          | Ruth K. Witkin
5 Patricia Street       | 5 Patricia Street
Plainview NY 11803      | Plainview NY 11803
- - - - - - - - - - - - - - - - - - - - - - -
Ruth K. Witkin          | Ruth K. Witkin
5 Patricia Street       | 5 Patricia Street
Plainview NY 11803      | Plainview NY 11803
```

Figure 1. Four addresses printed on one 15/16-by-3½-inch mailing label.

```
File: Label.RKW                INSERT NEW RECORDS     Escape: Review/Add/Change


Record 1 of 2
================================================================================
Name: -
Address: -
City, State ZIP: -
Name: -
Address: -
City, State ZIP: -
Name: -
Address: -
City, State ZIP: -
Name: -
Address: -
City, State ZIP: -


--------------------------------------------------------------------------------
Type entry or use @ commands                                        51K Avail.

File: Label.RKW                REVIEW/ADD/CHANGE              Escape: Main Menu

Selection: All records


Record 1 of 1
================================================================================
Name: Ruth K. Witkin
Address: 5 Patricia Street
City, State ZIP: Plainview NY 11803
Name: Ruth K. Witkin
Address: 5 Patricia Street
City, State ZIP: Plainview NY 11803
Name: Ruth K. Witkin
Address: 5 Patricia Street
City, State ZIP: Plainview NY 11803
Name: Ruth K. Witkin
Address: 5 Patricia Street
City, State ZIP: Plainview NY 11803


--------------------------------------------------------------------------------
Type entry or use @ commands                                        @-? for Help
```

Figure 2. The categories and one record in the 4-on-1 mailing-labels database.



Figure 3. The report format screen and printer settings for 4-on-1 mailing labels.

WP: GETTING RID OF AN END-OF-PAGE INDICATOR

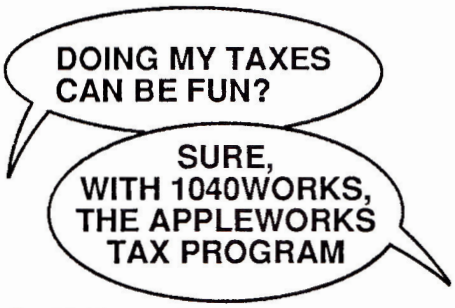
Having been introduced recently to AppleWorks on my new Apple IIc (with a second drive and hooked up to a Brother HR-15XL printer), "A Car-Loan Comparison Spreadsheet" (AppleWorks in Action, March 1987, p. 62) was a great help. I bumbled along reasonably well with the word processor and spreadsheet, the two applications I'd use most frequently anyhow, but I had so much trouble with the database, I found myself avoiding it. But now, I'm back experimenting with the database with increasing success—and if I can only get a proper code book to direct my printer to do what I want it to do, I'll be in business! How do I delete the line coding "End of Page" that appears on screen after a trial printing of a letter or document? I know I can move it lower and type above it by pressing Return, but can I delete it?

Just ignore that End of Page indicator, which AppleWorks throws in each time you print and erases when you change anything in the document. If, for your own peace of mind, you must get rid of it, simply overtype any character in the document and the indicator will disappear—but only temporarily. When you print again, it will return. That's how it's meant to work.

WP: DELETING A PRINTER OPTION

I discovered, when working with the option menu for my word processor, that I couldn't remove a "New Page" command once entered. Is there a way to do that?

All you need to do is delete it. Place your cursor on the indicator, press OA-D, and press Return. That should do it.



Don't let the new tax laws befuddle you. For a fraction of the cost of conventional tax software, **1040Works** and **1040Works-X** templates convert AppleWorks to a comprehensive, low-cost tax-preparation program that calculates Form 1040, prints Schedules A,B, C,D,E,F,SE; computes depreciation, employee expenses, childcare credit, alternative minimum tax, much more. Includes manual, financial organizer, utilities, and optional time-saving custom macros (for those of you with a macro program). Accepts data from financial management software.

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1040Works and **1040Works-X** modules are data files that set up AppleWorks' spreadsheet as tax schedules and forms. Modules load like any other data file; no hardware or software modifications are needed. You just fill out the on-screen tax form. Both programs calculate each form, advance totals to later forms, compute your income and your tax and print out most schedules in IRS-approved format. Uses standard AppleWorks commands. Users tell us it's simple to set up and use, saves them time — yes, it's even fun. Friendly support, too. *inCider* magazine compared it to $250 tax software. *A+* magazine called it a bargain.

WHICH VERSION IS FOR ME?

It depends on your equipment. **1040Works** requires an Apple II or compatible with at least 128K RAM and any version of AppleWorks. A printer is recommended. If you have a IIGS or other Apple or compatible with at least 256K RAM, you can use **1040Works-X**, which takes advantage of the larger AppleWorks Desktop to do job even quicker and more conveniently. (Runs with an Apple III and Three Easy Pieces software, too.)

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AppleWorks Tip: Beating the Bibliography Blues

You've done the research and written the paper, but there's still that dread bibliography to organize—selecting, assembling, and alphabetizing your paper's referenced articles, typing long titles and bylines. But help is just a few keystrokes away. AppleWorks' database, with its superior search capabilities, offers a convenient way to manage your reference library and produce a bibliography to boot.

First, start an organized list of references as you research your paper or delve into some broader area of study. Use the AppleWorks database to create a file listing each article and its author, date, title, and publisher—the standard bibliographic information. Then update it faithfully: Enter each new article into the file, so that a current list is always available. Sample categories are listed below:

LAST NAME	JOURNAL
FIRST NAME	VOLUME
DATE	NUMBER
TITLE	PAGES
TITLE II	KEYWORDS
TITLE III	PRINT? (Y OR BLANK)

Using three lines for the title lets you enter longer names in their entirety. (See the accompanying **Figures**.)

To create a keyword index, type a few words describing the article's topic and enter them under the KEYWORDS category.

Now use AppleWorks' search function to isolate articles pertaining to a particular subject: Press Open apple-R (OA-R) and select *KEYWORD, contains*, and a specific word. AppleWorks then lists the titles of all articles on that topic.

The final category generates your bibliography. When you examine your list of articles for a particular paper, just type Y in this field for each article you'll include in the bibliography. When you're ready to list them, press OA-R to search and select the category *PRINT? (Y OR BLANK)*. Choose *equals* and *Y* as comparison information. AppleWorks provides a list of all selected articles.

If you carry out this selection process as a print option, you can arrange a label format and print the article list to the clipboard. From the clipboard, copy the information into a word-processing document for further editing. If you tell AppleWorks to arrange your articles alphabetically and chronologically, your bibliography should be virtually "camera ready."□

—Jeffrey C. Carrier, Ph.D.

```
File: REPRINTS                    REVIEW/ADD/CHANGE                Escape: Main Menu

Selection: All records


Record 209 of 209
==============================================================================
LAST NAME: -
FIRST NAME: -
DATE: -
TITLE: -
TITLE (CON'T): -
TITLE (CON'T II): -
JOURNAL: -
VOL.: -
NO.: -
PAGES: -
KEY WORDS: -
PRINT ? (Y OR BLANK): -



------------------------------------------------------------------------------
Type entry or use @ commands                                      @-? for Help
```

Figure 1. *Database record setup for bibliography.*

```
File: REPRINTS                    REVIEW/ADD/CHANGE                Escape: Main Menu

Selection: All records


Record 35 of 209
==============================================================================
LAST NAME: CARRIER
FIRST NAME: JEFFREY C.
DATE: 1985
TITLE: NURSE SHARKS OF BIG PINE KEY: COMPARATIVE SUCCESS OF 3 TYPES OF EXTERNAL
TITLE (CON'T): TAGS
TITLE (CON'T II): -
JOURNAL: FLA. SCI.
VOL.: 48
NO.: 3
PAGES: 146-154
KEY WORDS: TAGGING; NURSE SHARK;
PRINT ? (Y OR BLANK): -



------------------------------------------------------------------------------
Type entry or use @ commands                                      @-? for Help
```

Figure 2. *Record entry in bibliography database.*

```
File: REPRINTS                      REPORT FORMAT                Escape: Report Menu
Report: TRIAL BIB
Selection: All records


==============================================================================
LAST NAME                         FIRST NAME
DATE
TITLE
TITLE (CON'T)
TITLE (CON'T II)
JOURNAL                           VOL.      NO.        PAGES

------------------------Each record will print  7 lines------------------------




------------------------------------------------------------------------------
Use options shown on Help Screen                                  @-? for Help
```

Figure 3. *Report format for trial bibliography.*

2400 A.D.

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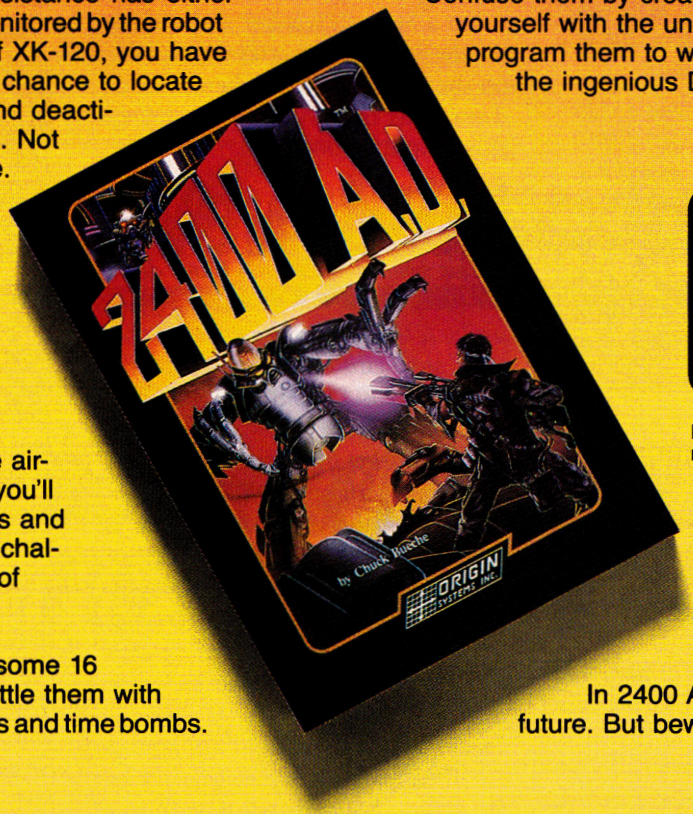

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AppleWorks Q and A

Just Go On

I have an Apple IIc with a 512K Applied Engineering Z-RAM and an Apple 3½-inch disk drive. I've enhanced my favorite program, AppleWorks (v. 1.3), with a variety of commercially available patch programs—none of which bypasses the "press the space bar to continue" prompt that appears just after bootup. Can you recommend a patch to skip the prompt?

Roy Burton
Merritt Island, FL

Your question is a common one we've discussed in earlier issues of inCider *(see "AppleWorks in One," Apple Clinic, July 1987, p. 22). Nonetheless, it bears repeating here.*

From ProDOS BASIC, BLOAD /APPLEWORKS/APLWORKS.SYSTEM,TSYS, A$2000 from a backup of your AppleWorks Program disk. Then, for your version of AppleWorks selected from the table below, POKE 44 into the first location, 208 into the second, and 19 into the third.

Version 1.1: 13138, 13522, and 13523
Version 1.2: 13135, 13518, and 13519
Version 1.3: 13193, 13855, and 13856
Version 2.0: 14468, 14148, and 14149

Finally, save your changes by typing BSAVE /APPLEWORKS/APLWORKS.SYSTEM,TSYS,A$2000. Special thanks, again, to Alan Bird at The Software Touch for the information.

IIGS Date/Time Stamp

I thought AppleWorks 2.0 was supposed to read the IIGS built-in clock, but it doesn't. What's the matter?

David Meyers
Concord, MA

Your letter is just one of a flurry I've received in the last few weeks. Lots of folks buying IIGSs recently?

At first I thought you mistook an earlier version of AppleWorks for the latest version, 2.0. I tried three different copies distributed on 3½-inch disks (yes, they were originals) on three different IIGSs and they all worked fine—the date and time were stamped automatically onto the files.

Then I tried AppleWorks version 2.0 distributed on a 5¼-inch disk. Lo and behold, it's not the same! No date/time stamp.

Upon comparing the various AppleWorks program files, I found that SEG.PR was the culprit—the 3½-inch version was different from the 5¼-inch one.

Modifying the 5¼-inch version of the SEG.PR file is rather extensive, so if you don't have a 3½-inch disk drive, find someone, possibly a dealer, who does. Then, using a file-copy program, replace the SEG.PR file on your 5¼-inch version of AppleWorks 2.0 (it's on the program or back side of the disk) with the one found on the 3½-inch disk. Both disks are distributed with your original AppleWorks 2.0 package.

Foreign Accents

I'm a Spanish teacher and want to use the Spanish character set available on the ImageWriter II when printing documents from AppleWorks on my IIGS. Can it be done?

Sally Mundt
Watertown, WI

This month's AppleWorks Clinic clearly has mass, indeed international, appeal—similar to the earlier questions, yours is just one of several with a common request. Fortunately, I've had the help of a good translator, Dr. Cynthia Field.

You can select from nine different "languages" and their respective character sets, including Spanish, on your ImageWriter II. Other printers offer similar options. Your Apple keyboard and screen normally display the American-language character set, but certain characters will print as an alternative language character when selected on your printer. For instance, the American number or pound symbol (#) will print as the British pound symbol (£) when you select the British, Spanish, Italian, or French character set on an ImageWriter II.

For most printers, the language option is just one of several special selections you can enable. There are two ways you can alter the default, "factory"-selected settings: Set the printer's hardware DIP switches so that the special option is implemented automatically when the printer is first turned on, or send specific control characters to the printer from your software.

For example, the Spanish character set is hardware selected on the ImageWriter II by closing DIP switches SW1-1 through SW1-3. Alternatively, that same character set can be software selected by sending the control code: ESC D Control-G Control-@. From AppleWorks, insert that control sequence as part of the interface-card specification for your particular printer. Or, set up a custom printer that'll make the control-code sequences switch character sets, such as the one above for Spanish. The character set will now replace those for the printer codes pertaining to boldface, underline, super- and/or subscript commands.

Incidentally, for those way ahead of me already, an AppleWorks patch exists so that it'll recognize the Control-@ character. (Read "Zero In," Apple Clinic, December 1987, p. 26, for details.)

There's one final wrinkle in the works for those wanting to accent their international character sets. For an authentic-looking printout, "backspace" over the accented character before printing: Send the backspace control character, Control-H, to the ImageWriter II (or most other printers). Unfortunately, AppleWorks won't let you insert control characters, such as Control-H, directly into your text. So again, you'll have to create a custom printer and replace one of the printer codes with the backspace command character.

There are a variety of control commands you can send to your printer to make it do a lot of exciting things. Most user's manuals contain the appropriate information. If yours doesn't, obtain a technical manual for your printer from a dealer or directly from the manufacturer.□

—William Kennedy, Ph.D.,
Technical Editor

over	but not over	the tax is	of the amount over
$ 0	$ 3000	11%	$ 0
3000	28,000	330 + 15%	3000
28,000	45,000	4080 + 28%	28,000
45,000	90,000	8840 + 35%	45,000
90,000	.....	24,590 + 38.5%	90,000

Table. Schedule Y.

WP: GOOD OLD 80N

When using AppleWorks with my Apple DMP, 80N is printed in the upper-left-hand corner of the printout. How can I get rid of it?

It seems you have an early version of AppleWorks with a bug in it. That 80N at the beginning of a document is a command code that tells the printer to print 80 columns across instead of 40 columns. The code is embedded somewhere in AppleWorks. The only way I know to get rid of it is to talk to your AppleWorks dealer about rewriting the disk, or get in touch with Apple and find out what they can do about rewriting.

SS: FIGURING OUT INCOME TAXES

I enjoyed your discussion of the IF function in September ("Using Your Electronic Checkbook," p. 91). But you and AppleWorks stopped short of explaining how to handle more complicated situations, such as tax-rate schedules for the Federal 1040-ES Estimated Tax Calculations. For example, for Schedule Y: Married Taxpayers for 1987, see the accompanying Table.

I don't mean to discourage you, but the task you set is indeed formidable with AppleWorks. Coincidentally, I did exactly what you're trying to do with a new program called Microsoft Works for the PC. It involves using one lookup table for each taxpayer group (that is, married filing jointly, single, head of household, and so on) and complicated IF/LOOKUP formulas, but it's do-able. While you can construct a lookup table easily in AppleWorks, the length of the formulas is likely to trip you up because you're limited to the number of characters that can fit on the AppleWorks entry line. The formula in Microsoft Works is miles long, but the entry line allows it. You may be able to split the formula into entry-line-size pieces, then add the pieces together in another cell.

If readers have already tried this and gotten it to work, please send me details so that I can share it with others. Also, several of you have asked about passwords to prevent unwelcome access to AppleWorks files. I'd like to hear about that, too.

HEAR YE! HEAR YE!

To all of you looking for printer codes, have I got a find for you! Actually, I didn't find it. It found me. I received a truly glorious wall chart in my mail loaded with AppleWorks commands and printer codes for 75 printers, including Apple, Brother, C. Itoh, Epson, NEC, Okidata, Radio Shack, Star, and TI models. It's sold by NAUG (The National AppleWorks Users Group). For more information, contact NAUG at Box 87453, Canton, MI 48187, (313) 397-1594.

Thanks to E. Ken Jacks of Pryor, Oklahoma, for sending me the printer codes for the Star Dot Matrix and Star Daisy Wheel printers. Just as with the C. Itoh codes I offered a few months ago (to vast response), mention which one you want (dot-matrix or daisywheel) and include a stamped, self-addressed envelope with your request. Incidentally, these codes are on the NAUG chart.

Next month, we're back on track with another how-to session, this time creating a database that lets you keep track of people in your computer user group. Comments on this Mailbag column—pro or con—are welcome!■

My thanks to all those readers who contributed to this month's column: Russ Olson, Bountiful, UT; Eric Volcheff, Lilburn, GA; Norman Fidelman, Freeport, NY; Ted Pauck, Troy, MI; Thomas B. Fitzpatrick, Hopkinton, MA; Allan Shaffer, Orange, CA; William T. Johnson, Jr., Rayle, GA; Dale R. Barrows, Overland Park, KS; and Lois Schneyer, Homer, AK.

Write to Ruth Witkin at 5 Patricia Street, Plainview, NY 11803. Enclose a stamped, self-addressed envelope if you'd like a personal reply.



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Tax-Info Organizer

A speedy search index tracks and organizes random data, so grouping information is a less taxing effort.



by Dan Bishop

Does tax time inevitably mean spring cleaning—cleaning out closets filled with shoe boxes containing all your 1987 receipts? Will you again be scrambling to organize your collection of notes and check stubs into meaningful IRS data, while the dog and cat tear through the stacks of paper piled so neatly on your living-room floor?

Make this year different with Tax-Info Organizer (TIO). This **Program listing** sorts and organizes any random set of data to be grouped into two major categories (income and expense), each containing numerous subgroups. The program lets you enter each receipt's data, description, and amount as you remove it from the shoe box, while the screen displays all subgroups with identifying numbers. Before proceeding to the next receipt, enter the appropriate number, and your Apple stores the information on disk. At any time, you can print the entire data file with the entries grouped and subtotaled appropriately or just those receipts belonging to a selected subgroup. Since the subgroups in the program correspond to the line items on the 1040, when you've finally reached the bottom of your shoe box and waded through your check registers, you'll have also completed most of your tax-preparation work.

With the complete printout at hand, you can detect easily any duplicate entries. Did you include a particular deductible item? A quick check of the printout answers the question. A few years down the line, descriptive entries will help you remember the rationale behind certain deductions.

Tax-Info Organizer uses a simple search index to sort through the data and organize it for printout. It stores each receipt entry in a random-access disk file with an associated record number. The first receipt is record 1, the second is record 2, and so on. The index, SI%, is an array of integers containing each receipt's subgroup members. So, if you enter the first receipt for subgroup 22, SI%(1)'s value is 22.

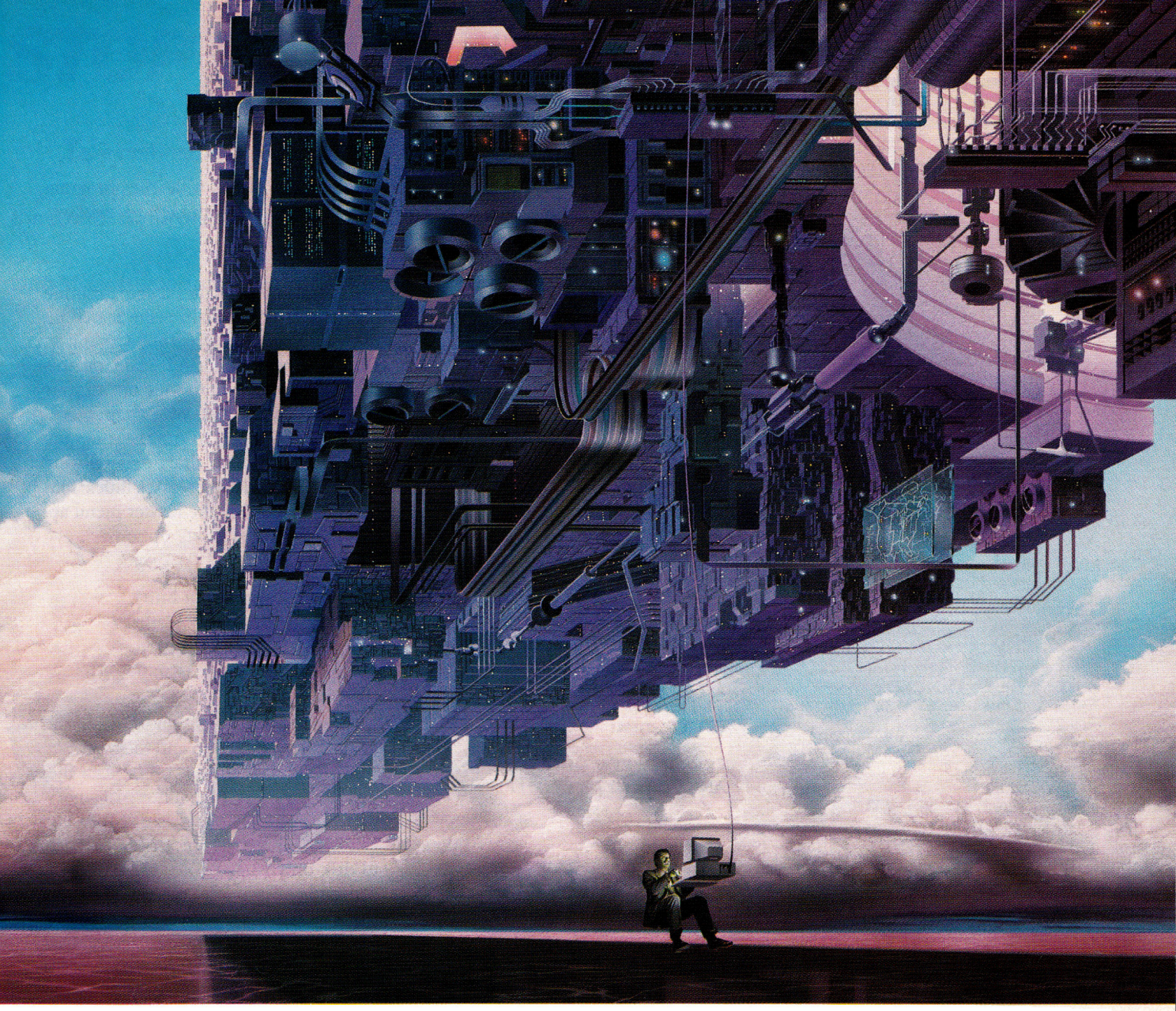
The advantage of maintaining such an index is speed. Without an index, if you print all entries in, say, subgroup 18, the computer has to retrieve each record from disk sequentially, and check to see if it belongs to the desired subgroup. The disk-I/O process is relatively slow and completing the task would take hours.

The search index, which loads into memory at the start of the program, brings the process up to computer speed. To print all entries in subgroup 18, your Apple scans rapidly through the index array for 18s. If it finds an 18 at SI%(37), it knows that record 37 in the data file belongs to subgroup 18 and retrieves it for printing. The search index, then, prevents unnecessary disk access.

USING THE PROGRAM

To use this program successfully, be sure to follow a few very important procedures. First, read through the list of DATA elements (lines 5005—5080). Decide if you want to change or delete items in the list, and if you have group labels to add to the list. Use lines 5024—5048 for additional income-group entries and lines 5081—5099 for additional expense-group entries. If you add or delete any items, change lines 5002 and 5003, which keep count of the number of DATA items in each list. You can also change line 5000 to give your program file a unique filename. As you make these entries, remember to place the DATA item in quotes if it begins with a number or if it contains a comma.

Next, save the program on a freshly initialized disk you'll use solely for this



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Program Listing. *Tax-Info Organizer.*

```
1    REM          TAX INFO ORGANIZER     [1565]
2    REM          USING A SEARCH INDEX   [1641]
3    REM        [181]
4    REM          BY DAN BISHOP          [1161]
5    REM          APPLESOFT ADVISOR, 3/88    [1819]
6    REM        [184]
10    GOSUB 100     [331]
15    GOSUB 200     [337]
20    ON J GOSUB 300,340,400,700,835     [1383]
25    IF J = 6 THEN     GOTO 50     [1002]
30    GOTO 15     [303]
50    GOSUB 2050     [425]
55    INVERSE : PRINT "** END OF PROGRAM **": NORMAL          [1936]
60    END          [188]
94    REM          [272]
95    REM      ********************     [1103]
96    REM      INITIALIZE PROG. DATA     [1764]
97    REM      ********************     [1105]
98    REM          [308]
99    END          [227]
100    DIM SI%(1001),I$(40),E$(40)     [1366]
105    READ F$,NI,NE     [732]
115    FOR I = 1 TO NI: READ I$(I): NEXT I     [1635]
120    FOR I = 1 TO NE: READ E$(I): NEXT I     [1632]
125    D$ =      CHR$ (4)     [801]
130    BK$ = "                ": REM   39 BLANKS BETWEEN QUOTES     [3749]
135    BT$ = "                ": REM      10 BLANKS BETWEEN QUOTES     [2824]
140    GOSUB 2000     [510]
145    RETURN          [322]
194    REM          [372]
195    REM      **********************     [1287]
196    REM       MASTER MENU DISPLAY     [1805]
197    REM      **********************     [1289]
198    REM          [376]
200    HOME          [351]
205    POKE 32,10: POKE 33,25: POKE 34,5: POKE 35,20     [2056]
210    HOME          [361]
215    INVERSE : PRINT      SPC( 20): PRINT          [1195]
220    PRINT "TAX INFO ORGANIZER"     [1764]
225    PRINT   SPC( 20): NORMAL : PRINT : PRINT          [1448]
230    PRINT "I - INCOME ITEM ENTRY"     [1878]
235    PRINT "E - EXPENSE ITEM ENTRY"     [1972]
240    PRINT "D - DELETE ITEM"     [1441]
245    PRINT "A - PRINT ALL GROUPS"     [1831]
250    PRINT "S - PRINT SINGLE GROUP"     [2004]
255    PRINT "Q - QUIT PROGRAM"     [1590]
260    PRINT : PRINT "       CHOICE...";     [1223]
270    INPUT M$:J = 0     [648]
275    FOR I = 1 TO 6     [726]
280    IF M$ =   MID$ ("IEDASQ",I,1) THEN J = I     [2102]
285    NEXT I     [233]
290    IF J = 0 THEN      GOTO 200     [1051]
295    POKE 32,0: POKE 34,0: POKE 33,40: POKE 35,24: RETURN     [2073]
296    REM          [219]
297    REM      ********************     [1092]
298    REM      INCOME ITEM ENTRY     [1465]
299    REM      ********************     [1094]
300    HOME          [196]
305    FOR I = 1 TO 20     [800]
310    X1$ = I$(I):X2$ = I$(I + 20):IX = 0:X = NI: GOSUB 380     [3069]
```

Listing continued.

application. Then, with the program loaded (but not running) in memory, enter:

```
RUN 9000
```

This command executes a short routine that creates and initializes the search index at the end of Tax-Info Organizer. Don't use this command again on this disk unless you want to wipe out all your entered data and start over again fresh.

Now you're ready to run the program: Enter RUN. After a short delay during which TIO loads the search index into memory from disk, the master menu appears with the following options:

I	Income
E	Expense Item Entry
D	Delete Item
A	Print All Groups
S	Print Single Group
Q	Quit

No matter what selections you make, always use option Q to end the program. When you make entries to the data file, TIO updates the search index in memory, but not the copy on disk. Tax-Info Organizer copies the correct memory index to disk only when you've selected Q. If you end the program abnormally or if you lose power during an entry session, you'll lose all entries since you last started up the program. For this reason, it's a good idea to select Q every 20 to 30 minutes just to avoid losing hours of work. (If the program is still in memory after a "crash," try entering GOTO 15 and then selecting Q to get TIO going again.)

When you select option I, the program displays up to 40 income groups. The DATA statements in this **Program listing** include federal, state, local, and Social Security taxes in this list. (All of this information is on your W2 form, which you'll now have to refer to only once.) Selecting option *E* displays up to 40 expense groups corresponding to Form 1040 credits and itemized deduction lines.

In either case, the bottom of the list prompts you to enter a date (optional). When you press Return, TIO then asks for a description (also optional). The program saves up to 29 characters to disk.

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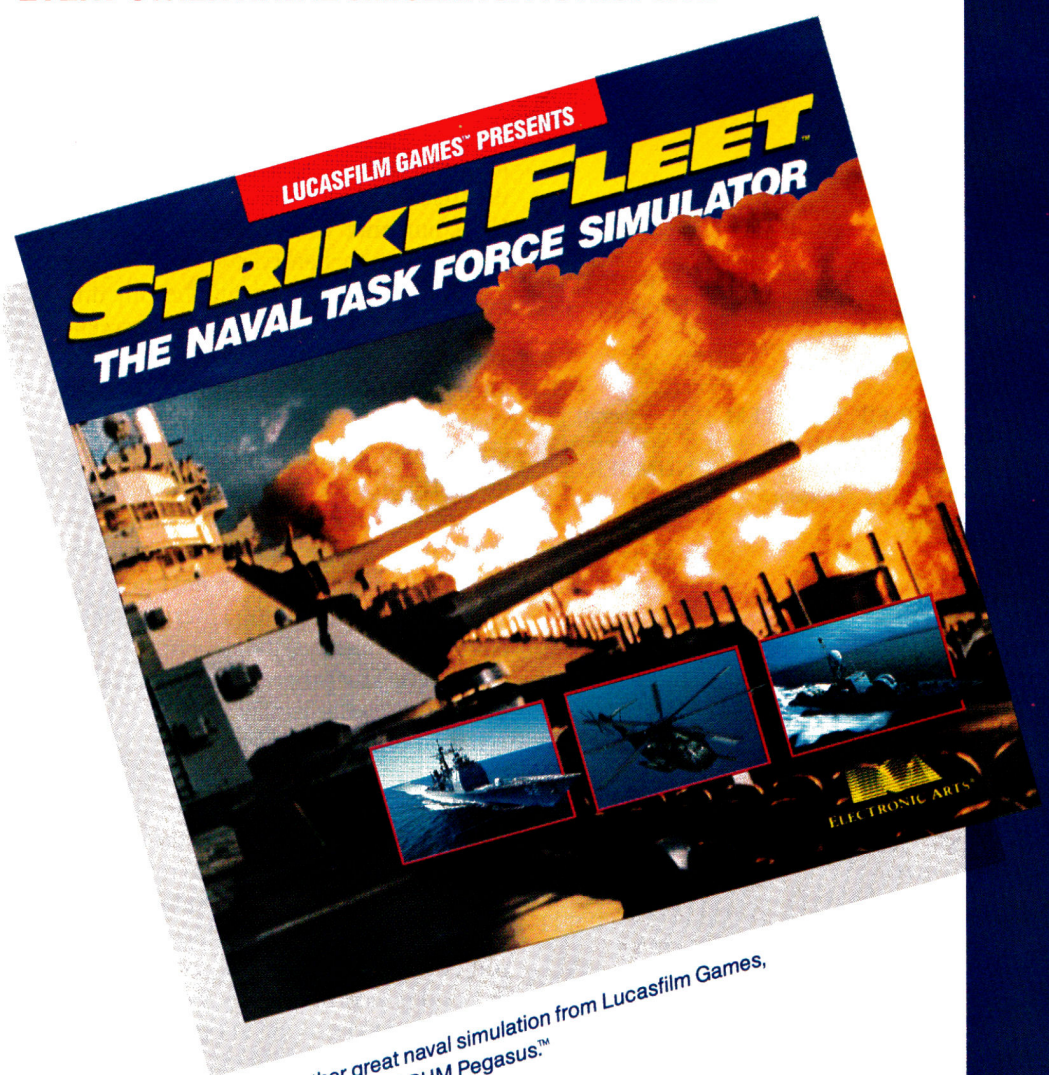

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Listing continued.

```
315   NEXT I: HTAB 1: VTAB 21: INVERSE : PRINT "- - - - - - IN
      COME ITEM ENTRY - - - - - - - - - - - - - - - -"   [3543]
320   Q = 0: GOSUB 500   [785]
325   ON Q GOTO 375,300   [852]
330   NA = 1:NB = NI: GOSUB 600: GOTO 320   [1798]
336   REM   [259]
337   REM   ********************   [1132]
338   REM   EXPENSE ENTRY   [1295]
339   REM   ********************   [1134]
340   HOME   [236]
345   FOR I = 1 TO 20   [840]
350   X1$ = E$(I):X2$ = E$(I + 20):IX = 40:X = NE: GOSUB 380   [3149]
355   NEXT I: HTAB 1: VTAB 21: INVERSE : PRINT "- - - - - -EX
      PENSE ITEM ENTRY - - - - - - - - - - - - - - - -"   [3644]
360   Q = 0: GOSUB 500   [825]
365   ON Q GOTO 375,340   [896]
370   NA = 41:NB = 40 + NE: GOSUB 600: GOTO 360   [2190]
375   RETURN   [297]
376   REM   [299]
377   REM   ********************   [1172]
378   REM   GROUP LIST DISPLAY   [1644]
379   REM   ********************   [1174]
380   HTAB 1: VTAB I: PRINT I + IX". "X1$   [1614]
385   IF I = X THEN I = 20   [1247]
390   IF X > 20 AND (I + 20) <   = X THEN   HTAB 20: VTAB I:
      PRINT " ";IX + 20 + I". "; LEFT$ (X2$,24);   [4632]
395   RETURN   [317]
396   REM   [319]
397   REM   ********************   [1234]
398   REM   ITEM DELETION   [1316]
399   REM   ********************   [1236]
400   HOME   [296]
405   PRINT "ENTER THE RECORD NUMBER OF THE ITEM TO"   [2979]
410   INPUT "BE DELETED (0 TO ABORT)...";RN   [2146]
415   IF RN > SI%(0) THEN   PRINT : PRINT "SORRY, THAT NUMBER
      DOES NOT EXIST YET.": PRINT : GOTO 405   [4980]
420   IF RN = 0 THEN   GOTO 435   [1277]
425   SI%(RN) = 0   [860]
430   SI%(SI%(0) + 1) = SI%(SI%(0) + 1) + 1   [2322]
435   RETURN   [357]
496   REM   [419]
497   REM   ********************   [1292]
498   REM   DATE AND DESCR. ENTRY   [1863]
499   REM   ********************   [1294]
500   INVERSE : HTAB 1: VTAB 22: PRINT "..DATE.....(ENTER QUIT
      TO END)..": NORMAL   [3789]
505   HTAB 1: VTAB 23: INPUT "";DT$   [1275]
510   IF DT$ = "QUIT" THEN 545   [1569]
515   HTAB 12: VTAB 22: INVERSE : PRINT "DESCR";: NORMAL   [1745]
520   HTAB 10: VTAB 23: INPUT "";DS$   [1082]
525   IF DS$ = "QUIT" THEN 545   [1328]
530   IF   LEN (DS$) <   = 29 THEN 550   [1562]
535   HOME : HTAB 1: VTAB 12: PRINT "ITEM DESCR. MUST NOT EX
      CEED ENTRY LINE."   [3718]
540   PRINT : PRINT "PRESS <RETURN> TO CONTINUE...";: INPUT
      OK$:Q = 2: RETURN   [3608]
545   Q = 1: RETURN   [608]
550   DS$ =   LEFT$ (DS$ + BK$,29)   [1463]
555   DT$ =   LEFT$ (DT$ + BT$,8)   [1428]
560   HTAB 1: VTAB 23: PRINT BK$   [991]
565   PRINT DT$" "DS$;: RETURN   [1010]
596   REM   [264]
597   REM   ********************   [1233]
```

Listing continued.

Since entering more than 29 characters scrolls to the next line, the computer displays an error message and refreshes the screen; you must then start your entry over again from the date. Following the description, the program prompts you to enter a dollar amount for this item. (Don't enter the $ sign.)

Next TIO asks you to enter a tag (optional); just press Return if you don't tag the item. A tag, which may be a single keyboard character, adds a mark beside the item on the printout. This is useful in a number of ways. Say you're entering receipts and come across one you aren't sure you can use as a deduction. Enter it with a ? for a tag. (You can always delete the item later after checking with an accountant.) Or suppose you have two jobs. Tagging *Salaries* and each of the tax-withholding entries with *A* or *B* labels each item clearly. Since the tag uses BASIC's Get command, you don't need to press Return after this entry.

Now enter the group number for this item from the list at the top of the screen. Your Apple ignores any attempts to enter an invalid number. Finally, TIO asks if your entries are okay. If you press N, TIO erases them and recycles to the date inquiry. If you press Y, the program stores entries to disk and updates the search index in memory. TIO then cycles back to the date inquiry for the next item.

When you want to stop entering items, type QUIT in either the date or description fields. The program then returns to the master-menu display.

If you spot an incorrect entry when checking your printouts, select option D from the master menu to delete that record. TIO asks you to enter the record number for the record you're removing. The record number, in parentheses, precedes each item on the printout. When you enter the number, the computer removes the record, updates the search index, and returns to the master menu. To re-enter the corrected item, select either I or E. Editing such short entries in this manner keeps the program as simple as possible. Clean interactive editing procedures can consume hundreds of lines of BASIC code.

Listing continued.

```
598   REM      AMOUNT & CODE ENTRY          [1649]
599   REM      ********************         [1171]
600   HTAB 1: VTAB 22: INVERSE : PRINT "$ AMOUNT .....":
      NORMAL          [3300]
605   HTAB 1: VTAB 23: INPUT "";AM$:AM =   VAL (AM$)     [2006]
610   HTAB 1: VTAB 23: PRINT BK$;     [1100]
615   HTAB 1: VTAB 23: PRINT AM;      [1070]
620   HTAB 14: VTAB 22: INVERSE : PRINT "TAG";: NORMAL          [1703]
625   HTAB 15: VTAB 23: GET FG$: PRINT FG$;     [1593]
630   HTAB 22: VTAB 22: INVERSE : PRINT "GROUP #";: NORMAL [1956]
635   HTAB 25: VTAB 23: INPUT "";IC$:IC% =   VAL (IC$)     [2121]
640   IF IC% < NA OR IC% > NB THEN 635     [1920]
645   HTAB 33: VTAB 22: INVERSE          [923]
650   PRINT "OK(Y/N)";: NORMAL          [1117]
655   HTAB 38: VTAB 23: GET OK$     [1161]
660   IF OK$ <     > "Y" AND OK$ <     > "N" THEN 655     [2399]
665   PRINT OK$;: IF OK$ = "Y" THEN     GOSUB 1100     [1942]
670   HTAB 1: VTAB 23: PRINT BK$: PRINT BK$;     [1581]
675   FG$ =     LEFT$ (FG$ + " ",1)     [1433]
680   RETURN          [347]
696   REM      *********************     [1278]
697   REM      PRINT LISTS     [1225]
698   REM      *********************     [1280]
699   REM          [367]
700   HOME          [341]
705   PRINT "BE SURE PRINTER IS ON AND"     [2135]
710   PRINT "READY FOR PRINTING."     [1787]
715   PRINT : PRINT "PRESS <Y> TO PRINT; <N> TO ABORT...";     [3058]
720   GET OK$     [590]
725   IF OK$ <     > "Y" AND OK$ <     > "N" THEN     GOTO 700 [2626]
730   IF OK$ = "N" THEN     RETURN          [1310]
735   PRINT OK$: PRINT D$;"PR#1"     [1322]
740   PRINT F$: PRINT "= = = = = = = = = = = = = = = = = = = ="     [1993]
745   PRINT "INCOME CATEGORIES:"     [1764]
750   PRINT "= = = = = = = = = = = = = = = = = = = ="     [1653]
755   FOR I = 1 TO NI     [1048]
760   PRINT : PRINT "      "I". "I$(I)     [1326]
765   S = I: GOSUB 900     [1006]
770   PRINT : NEXT I     [452]
775   PRINT "= = = = = = = = = = = = = = = = = = = ="     [1423]
780   PRINT "EXPENSE CATEGORIES:"     [1637]
785   PRINT "= = = = = = = = = = = = = = = = = = = ="     [1433]
790   FOR I = 1 TO NE     [824]
795   PRINT : PRINT "      "I + 40". "E$(I)     [1402]
800   S = I + 40: GOSUB 900     [1086]
805   NEXT I: PRINT D$;"PR#0": RETURN          [1198]
831   REM          [244]
832   REM      *********************     [1201]
833   REM      SINGLE GROUP PRINTOUT     [1834]
834   REM      *********************     [1203]
835   HOME : VTAB 10: PRINT "ENTER THE GROUP NUMBER YOU
      WANT TO"     [3233]
840   PRINT "HAVE PRINTED...(0 TO END)";     [1955]
845   INPUT N: IF N < 1 OR N > 40 + NE OR (N > NI AND N < 41)
      THEN     RETURN          [3484]
850   S = N: IF N <     = NI THEN X$ = "INCOME ":FX$ = I$(N) [3130]
855   IF N > 40 AND N < 40 + NE THEN X$ = "EXPENSE":FX$ = E$(N
      - 40)     [3744]
860   PRINT D$;"PR#1"     [758]
865   PRINT "= = = = = = = = = = = = = = = = = = = ="     [1391]
870   PRINT X$;" CATEGORY:"     [1238]
```

Listing continued.

Select option A to print all items in your data file, properly grouped and subtotaled; choose option S to print only a single subgroup. TIO asks for that subgroup's code number. If you don't know it, check the printout, or select option I or E from the master menu to display these lists, then type in QUIT to return to the menu.

Of course, if it's April 14 and you're in a hurry, just press Return to skip the date, description, and flag fields. The process then becomes one of pressing the return key twice, typing in an amount, pressing Return twice, entering a group number, and pressing Y. This is faster than using a calculator, since you don't have to presort the receipts. In a couple of hours, you'll be ready to transfer subtotals to the 1040!

THE SEARCH INDEX

The displayed **Program listing** can handle up to 999 entries. To increase this, simply change the dimension statement in lines 100, 2015, 2065, and 9065. When you first initialize the index array (lines 9000—9075), TIO sets all elements to zero. SI%(0) keeps track of the current number of items entered into the data file. The program uses this element to determine where to add a new entry, and how far to search through the index looking for matching group numbers. There's no need to search through 1000 elements if you're using only 35 records.

SI%(SI%(0)) may look strange at first, but it has a very important function. Since SI%(0) is the total number of records, SI%(SI%(0)) is a reference to the last nonzero element in this array. For instance, if there are 35 records in the data file, then SI%(0) = 35. So SI%(SI%(0)) is the same as SI%(35), the 35th index element in the array.

Tax-Info Organizer uses the element following this last record-related entry as a vacancy counter. This element's reference is SI%(SI%(0) + 1)—SI%(35 + 1), or SI%(36), for the previous example. Normally, the value in this element is zero, since you haven't assigned the 36th record yet. But if you've made any deletions from the database, leaving record

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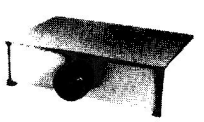

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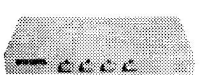

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Listing continued.

```
875   PRINT "= = = = = = = = = = = = = = = = = = = = "      [1401]
880   PRINT "      "FX$: GOSUB 900      [1046]
885   PRINT D$;"PR#0"      [782]
890   RETURN      [302]
896   REM      [309]
897   REM      ********************      [1182]
898   REM      PRINT OUTPUT FORMATING      [1980]
899   REM      ********************      [1184]
900   ST = 0: FOR R = 1 TO SI%(0)      [1599]
905   IF SI%(R) <  > S THEN  GOTO 930      [1691]
910   GOSUB 2100      [516]
915   FG$ =  LEFT$ (FG$ + " ",1):DT$ =  LEFT$ (DT$ +
      BT$,10):DS$ =  LEFT$ (DS$ + BK$,30)      [4373]
920   X = AM: GOSUB 955:R$ =  RIGHT$ ("  " +  STR$
      (R),4)      [2571]
925   PRINT FG$"  ("R$") "DT$"  "DS$" $"X$      [1849]
930   NEXT R      [377]
940   X = ST: GOSUB 955      [1035]
945   PRINT "  SUBTOTAL:";: REM  38 SPACES      [3275]
950   PRINT "  $"X$: RETURN : REM  20 SPACES      [2319]
955   X =  INT (X * 100 + 0.501) / 100      [2005]
960   L$ =  CHR$ (32 + 13 * (X < 0)) +  STR$ ( INT ( ABS (X)))      [3038]
965   X =  ABS (X) -  INT ( ABS (X)) + 10  - 3      [2504]
970   X =  - (X < 0) + (X > 0) + X      [2040]
975   X$ =  MID$ ( STR$ ( ABS (X)) + "000",2,3)      [2148]
980   R$ = "." +  RIGHT$ (X$,2)      [1387]
985   X$ = L$ + R$      [982]
990   X$ =  RIGHT$ (BK$ + X$,10)      [1513]
995   RETURN      [407]
1096  REM      [254]
1097  REM      ********************      [1085]
1098  REM      SAVE RECORD TO DISK      [1596]
1099  REM      ********************      [1087]
1100  IF SI%(SI%(0) + 1) <  > 0 THEN  GOTO 1150      [2128]
1105  SI%(0) = SI%(0) + 1      [1186]
1110  SI%(SI%(0)) = IC%      [1071]
1115  R = SI%(0): GOSUB 2150      [1141]
1120  RETURN      [277]
1150  KK = 0: FOR K = 1 TO SI%(0)      [1570]
1155  IF SI%(K) = 0 THEN KK = K:K = SI%(0)      [2205]
1160  NEXT K      [345]
1165  IF KK = 0 THEN  GOTO 1105      [1290]
1170  SI%(KK) = IC%      [959]
1175  R = KK: GOSUB 2150      [1029]
1180  SI%(SI%(0) + 1) = SI%(SI%(0) + 1) - 1      [2308]
1185  RETURN      [342]
1996  REM      [389]
1997  REM      ********************      [1262]
1998  REM      GET INDEX FROM DISK      [1726]
1999  REM      ********************      [1264]
2000  HOME : PRINT "LOADING DATA INDEX"      [1910]
2005  PRINT D$;"OPEN ";F$;" INDEX"      [1675]
2010  PRINT D$;"READ ";F$;" INDEX"      [1658]
2015  FOR R = 0 TO 1000: INPUT SI%(R): NEXT R      [1899]
2020  PRINT D$;"CLOSE ";F$;" INDEX"      [1758]
2025  PRINT : RETURN      [661]
2046  REM      [439]
2047  REM      ********************      [1312]
2048  REM      SAVE INDEX TO DISK      [1455]
2049  REM      ********************      [1059]
2050  HOME : PRINT "SAVING DATA INDEX"      [1651]
2055  PRINT D$;"OPEN ";F$;" INDEX"      [1470]
```

Listing continued.

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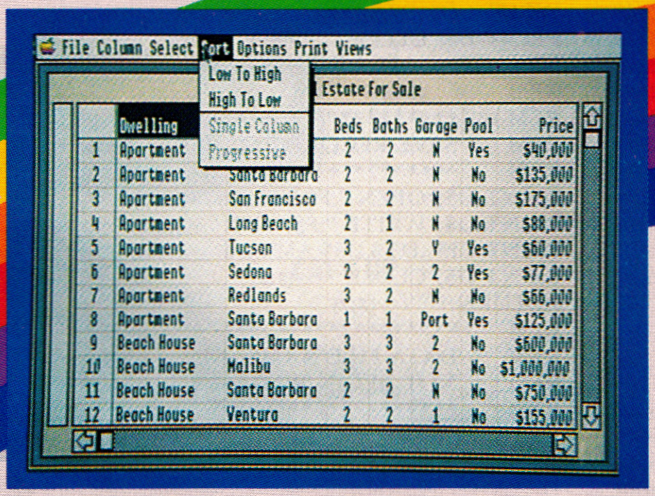

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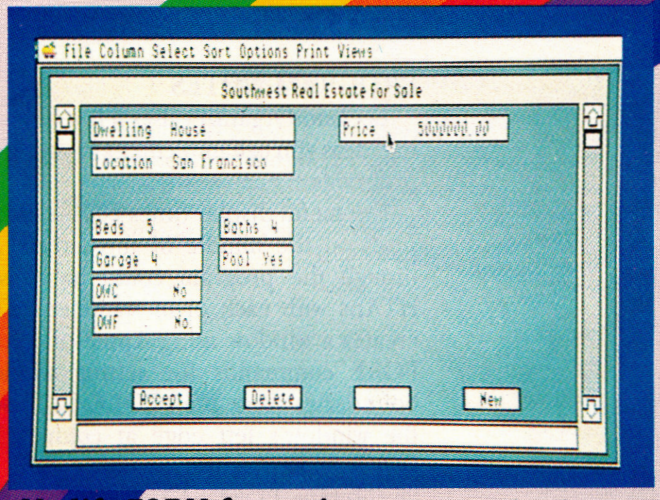

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Listing continued.

```
2060    PRINT D$;"WRITE ";F$;" INDEX"     [1564]
2065    FOR R = 0 TO 1000: PRINT SI%(R): NEXT R     [1748]
2070    PRINT D$;"CLOSE ";F$;" INDEX"     [1553]
2075    PRINT : RETURN     [456]
2096    REM     [234]
2097    REM     ********************     [1065]
2098    REM     GET RECORD FROM DISK     [1642]
2099    REM     ********************     [1067]
2100    PRINT D$;"OPEN ";F$;",L48"     [1335]
2105    PRINT D$;"READ ";F$;",R"R     [1298]
2110    INPUT CI%,DT$,DS$,AM,FG$     [1249]
2115    PRINT D$;"CLOSE"     [866]
2120    ST = ST + AM: RETURN     [1199]
2146    REM     [284]
2147    REM     ********************     [1115]
2148    REM     SAVE RECORD TO DISK     [1626]
2149    REM     ********************     [1117]
2150    PRINT D$;"OPEN ";F$;",L48"     [1385]
2155    PRINT D$;"WRITE ";F$;",R"R     [1459]
2160    PRINT CI%,DT$,DS$,AM,FG$     [1353]
2165    PRINT D$;"CLOSE"     [916]
2175    RETURN     [312]
4996    REM     ********************     [1159]
4997    REM     DATA FILE NAME...DO     [1570]
4998    REM     NOT BEGIN WITH A #     [1505]
4999    REM     ********************     [1120]
5000    DATA     PERS. TAXES 1987     [1348]
5001    REM     ********************     [1206]
5002    DATA     19: REM     * OF INCOME DATA ITEMS     [2124]
5003    DATA     30: REM     # OF EXPENSE DATA ITEMS     [2204]
5004    REM     ***INCOME DATA ITEMS***     [1796]
5005    DATA     WAGES - SALARIES - TIPS     [1704]
5006    DATA     INTEREST INCOME     [1421]
5007    DATA     DIVIDENDS     [991]
5008    DATA     TAXABLE REFUNDS     [1406]
5009    DATA     ALIMONY INCOME     [1339]
5010    DATA     BUSINESS INCOME     [1423]
5011    DATA     LONG TERM CAP. GAINS     [1669]
5012    DATA     SHORT TERM CAP. GAINS     [1766]
5013    DATA     OTHER GAINS     [1119]
5014    DATA     TAXABLE PENSIONS - ETC.     [1811]
5015    DATA     OTHER PENSIONS - ROLLOVERS     [2131]
5016    DATA     RENTS - ROYALTIES - PARTNERSHIPS     [2451]
5017    DATA     FARM INCOME     [1104]
5018    DATA     UNEMPLOYMENT COMPENSATION     [2221]
5019    DATA     MISC. INCOME     [1158]
5020    DATA     SOC.SEC.WITHHOLDING     [1711]
5021    DATA     FED. TAXES WITHHELD     [1646]
5022    DATA     STATE TAXES WITHHELD     [1779]
5023    DATA     LOCAL TAXES WITHHELD     [1758]
5049    REM     **** EXPENSE ITEMS ***     [1726]
5050    DATA     MOVING EXPENSES     [1483]
5051    DATA     EMP. BUS. EXPENSE     [1521]
5052    DATA     IRA DEDUCTION     [1293]
5053    DATA     KEOGH & SEP     [1071]
5054    DATA     SVGS. PENALTIES     [1450]
5055    DATA     ALIMONY PAID     [1228]
5056    DATA     DEP. CARE CREDIT     [1427]
5057    DATA     ELDERLY/DISABLED     [1519]
5058    DATA     POLITICAL CONTRIB.     [1656]
5059    DATA     FOREIGN TAX CREDIT     [1643]
5060    DATA     GEN. BUS. CREDIT     [1429]
5061    DATA     MEDICINES/DRUGS     [1472]
```

Listing continued.

vacancies unfilled, this element maintains a count on those vacancies.

When you've deleted a record from the database, TIO sets its search-index element to zero (line 425) and increments the vacancy counter by one (line 430). All index elements, then, from one to SI%(SI%(0)) have subgroup-identifying numbers, except those representing record vacancies.

Whenever you've added a new record to the database, the program checks the vacancy counter, SI%(SI%(0)+1), first (line 1100). If it's zero, TIO adds the new record to the end of the data file (lines 1105—1120). If the vacancy counter is *not* zero, the program scans the index between elements one and SI%(0) for a zero, indicating a vacated record (lines 1150—1165). When TIO finds this record number, it adds the new record there rather than at the end (line 1170—1175), and reduces the vacancy counter by one (line 1180).

PROGRAM NOTES

Tax-Info Organizer uses a few interesting ideas you can implement in your own programs.

The menu display (lines 200—270) appears in the middle of the screen. Although the program could have used HTABs with each print statement, TIO creates a window using Applesoft's four POKE commands for setting window boundaries (line 205). POKE 32,10 sets the window's left edge at column 11, POKE 33,25 sets the window's width to 25 columns, POKE 34,5 sets the top edge on row 6, and POKE 35,20 sets the bottom edge on row 21. The print statements now make the text line up with the window's left edge rather than the video screen's edge. Of course, before leaving the subroutine, you must change the window parameters back to full-screen size (line 295).

The menu uses alphabetic response for menu selection. You must convert this entry to a numeric value for the ON J GOSUB command (line 20) to work. Lines 275—290 place a MID$ function in the middle of a loop to handle this

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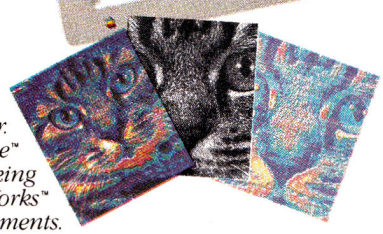

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conversion. The program sets the value of J to zero before entering the loop. Then a six-cycle loop lets your Apple compare the letter entered, in M$, to each of the six letters in the string "IEDASQ" in succession. If it finds a match, the program assigns the cycle counter's value, in I, to J. If the value of J is still zero when the loop ends, the program didn't find a match, indicating a selection error. This reinitiates the whole menu process (line 290). Otherwise, J has a value between one and six, corresponding to one of the alphabetic menu selections.

The print-output formatting routine (lines 900—995) includes a number-to-string conversion (lines 955—995), so numeric output prints with decimal points aligned. It also makes extensive use of LEFT$ and RIGHT$ functions to force each item on a line to have a prespecified number of characters. This gives you complete control of the printed report.

Listing continued.

```
5062    DATA    DOCTORS/HOSPITALS    [1664]
5063    DATA    HEALTH INSURANCE    [1531]
5064    DATA    MED.TRANSP/LODGING    [1677]
5065    DATA    OTHER MEDICAL    [1296]
5066    DATA    ST/LOCAL INCOME TAX    [1705]
5067    DATA    REAL ESTATE TAXES    [1584]
5069    DATA    OTHER TAXES    [1194]
5070    DATA    HOME MORTG.INT.    [1437]
5071    DATA    CHARGE ACCT.INT.    [1457]
5072    DATA    OTHER INTEREST    [1430]
5073    DATA    CASH CONTRIB.    [1285]
5074    DATA    NON - CASH CONTRIB.    [1566]
5075    DATA    CONTRIB. CARRYOVER    [1701]
5076    DATA    CASUALTY/THEFT LOSS    [1787]
5077    DATA    UNION/PROF. DUES    [1529]
5078    DATA    TAX PREP. FEES    [1345]
5079    DATA    MISC. DEDUCTS.    [1345]
5080    DATA    DEFERRED DEDUCTS.    [1577]
8997    REM    [250]
8998    REM    **********    [1165]
8999    REM    **********    [1166]
9000    REM    THIS ROUTINE INITIALIZES    [2048]
9001    REM    YOUR DISK FOR DATA ENTRY    [1963]
9002    REM    [255]
9003    REM    RUN ONLY ONCE FOR A GIVEN    [1981]
9004    REM    DISK.    ACTIVATE BY LOADING    [2020]
9005    REM    THE PROGRAM AND ENTERING    [1962]
9006    REM    RUN 9000    [929]
9007    REM    WHEN THE PROGRAM ENDS,    [1829]
9008    REM    ENTER    RUN    TO BEGIN    [1728]
9009    REM    NORMAL OPERATION.    [1518]
9010    REM    **********    [1135]
9011    REM    **********    [1136]
9012    REM    [265]
9013    REM    [266]
9020    HOME : READ F$    [545]
9025    F$ = F$ + " INDEX"    [1196]
9030    D$ =    CHR$ (4)    [781]
9035    PRINT "CREATING NEW INDEX FILE"    [1947]
9040    PRINT "    ";F$    [694]
9045    PRINT D$;"OPEN ";F$    [1040]
9050    PRINT D$;"DELETE ";F$    [1174]
9055    PRINT D$;"OPEN ";F$    [1050]
9060    PRINT D$;"WRITE ";F$    [1144]
9065    FOR R = 0 TO 1000: PRINT    INT (0.001): NEXT R    [2038]
9070    PRINT D$;"CLOSE"    [936]
9075    END    [278]
```

End of listing.

ADDITIONAL USES

This program is a great asset if your receipt-filing system resembles mine. Although it corresponds to the 1040, you can use it easily for schedules E (rent and royalty income) and C (business income). Merely change the DATA statements to correspond to the line items in these forms and you're all set.

With a few other very minor alterations, Tax-Info Organizer adapts easily to many other uses. By using this general program format, you can handle any situation requiring random entry of short data items you have to list and sort according to some predetermined grouping. For example, say you're organizing your collection of 35mm slides by topic. Use the "amount" field for slide-identification numbers. For slides that fall into several groups, simply make duplicate entries, each with a different group-identification number.

Any time you're dealing with disk data files, see if your application can benefit from some form of "in-memory" index to reduce the number of required disk-I/O operations. Your programs will usually improve noticeably in both speed and efficiency.

You can purchase an Apple IIe disk copy of Tax-Info Organizer directly from the author for $6.■

Dan Bishop owns and operates a microcomputer consulting business. Write to him at 4124 Beaver Creek Drive, Fort Collins, CO 80526.

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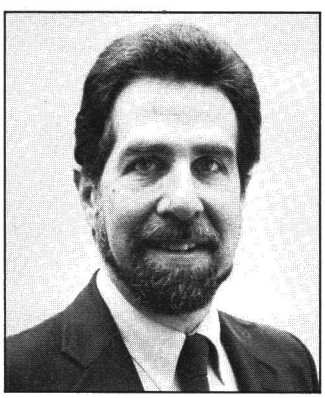

by Tom Sherman

Leonard Jozefiak, a retired electrical designer in Greendale, Wisconsin, says he bought his Apple IIe to teach his grandson how to use a computer. Intrigued by an *inCider* article on telecommunications, he recently bought a modem and took advantage of two free information-service subscriptions that came with it.

Jozefiak says he quickly discovered the extraordinary selection of free and inexpensive Apple II files available on local bulletin-board systems (BBSs) and national information services. In fact, the number of files is immense—thousands in the libraries of **CompuServe** and **GEnie** alone—so we'll just take a quick tour of the most prominent categories.

But first, a little background. Apple II communications programs let you send (upload) and receive (download) files of all kinds. Many people who have developed programs, templates, and macros for their own use decide to upload them to BBSs and information services so that others may download and use them. The files are stored on the host computer, sometimes listed in databases you can search by author, name, date, and keywords (e.g., *game* or *graphics*). Most of these files are "freeware," costing you nothing except telephone and connect-time charges. (Many of these public-domain programs are also available on disk through Apple user groups.) Some files are "shareware," uploaded by their authors with the understanding that if you use their programs, you'll send them payment, usually less than $50. A few programs are encrypted so that only registered owners can use them. Although this month's column surveys Apple special-interest groups (SIGs), there are other specialized SIGs where you can get more information about topics such as telecommunication, games, graphics, music, business, and education.

ENTERTAINMENT

Cecil Fretwell, Apple sysop (system operator) on **Delphi**, confirms that games, music, and graphics are among the most popular files available on line. Although few public-domain games feature all the bells and whistles of commercial programs, they satisfy a wide range of interests. You'll find text-adventure games (such as Eamon), card games (Yahtzee, blackjack, acey deucy), word games (hangman), arcade games (Star Wars, Meteor), logic puzzles (MasterMind, Connect Four, Towers of Hanoi), board games (checkers, chess, Monopoly), and more. If your own disk library includes music, you'll enjoy discovering many tuneful additions—from Bach and Ravel to the Beatles and Van Halen—created with programs such as Music Construction Set and Music Studio. You won't be left out if you want to add graphics to your collection. Hi-res and double-hi-res pictures include everything from Brooke Shields and Humphrey Bogart to a spotter's guide to Russian aircraft. Many images are formatted for popular programs such as The Print Shop, The Newsroom, Dazzle Draw, and Beagle Graphics.

On-line libraries also include utilities to convert graphics formats and "viewers" that let GS owners look at super-hi-res graphics even without a paint program. You'll find programs that combine sound and graphics—a talking picture of Max Headroom, for example. Not all graphics programs on line are simply for entertainment, of course. Joe Kohn, Applesig sysop on **The Source**, points to AKRO.CAD, a complete computer-aided-design system, as one of the more powerful on-line programs.

UTILITIES

Utilities are among the most useful files found on line; they include menu programs, label makers, disk editors, archive programs that compress files, disk-cata-

log programs, printer drivers, screen savers, even programs to convert file types and check disk-drive speeds. One utility program, TEX, combines the features of many similar programs; it appends, renames, and deletes text files, as well as removes unnecessary linefeeds and carriage returns. Some offerings work with specific programs (for example, macros for Super MacroWorks and KeyPlayer), others with specific hardware (for example, desk accessories and icons for the IIGS).

Hard-disk users especially will appreciate program selectors such as Squirt and the shareware Extended Command Processor, which also serves as an operating-system shell for ProDOS 8 and a program launcher for ProDOS 16 on the IIGS. ProSel, perhaps the best buy today for the Apple II, incorporates all the most useful file and disk utilities, including a file finder and a program to repair damaged hard-disk directories. Merry Perry, GS vice president of the Maryland Apple Core user group, points out that frequent improvements to ProSel are available to registered users on CompuServe.

TELECOMMUNICATIONS

If you don't already own a telecommunications program, you might begin by asking a friend to download one of those posted on line. **Talk Is Cheap** (TIC) is an excellent shareware program that runs on the Apple IIe, IIc, and IIGS with a Super Serial Card; FreeTermGS is designed specifically for the IIGS (with 512K and the original ROMs). **Apple Conference Terminal** (ACT) is available for registered users on GEnie, where you can use it to play interactive games. No matter which communications program you use, you're likely to find that others have already posted macros that work with your program to help automate your on-line connections.

On-line libraries also feature many utilities to simplify file transfer by compressing files (for example, Apple Library Utility and Propacker), translating programs to text files (The Executive), ensuring error-free transfer (Kermit), and maintaining file formats (Binary II, Binary II Library Utility). Gary Little's Binary II currently sets the standard for file transfer and is now incorporated into a number of communications programs. Several ProDOS communications utilities, together with Talk Is Cheap, are available on disk with a downloading guide through Applesig on The Source. CompuServe subscribers can benefit from the Message Board Editor (MBE), which uses Super MacroWorks to manipulate messages, and the MAUG Message Manager (MMM) Version 4, which works with many communications programs to

PROGRAMMER

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Carrollton, TX 75011
Attn: Personnel

WANTED

reduce on-line time. (See "Download," November 1987, p. 69, for more information about file transfer.)

PROGRAMS AND TEMPLATES

Home finance, education, business, and hobbies are among the subjects best served by programs and templates on line. How about home accounting and budgeting programs? Maybe your children could use language or math flash cards. If you're a teacher, you'll welcome gradebooks, test formats, and a word processor for students. Your business might profit from a personal scheduling program or from a finance program that calculates loans and depreciation. Or perhaps you need a ready-made database to catalog a stamp collection, identify the causes of car problems, track baseball statistics? Tom Spitz, program manager at television station KBHK in San Francisco and a private pilot, has special praise for astronomy programs on The Source (and elsewhere) that prompt for information about your location, then help identify objects in your night sky. (For more information on astronomy software, see "On-Screen Celestial Navigation," June 1987, p. 40.)

These examples illustrate the variety of thousands of programs and AppleWorks database and spreadsheet templates you can download. In addition to files created by individuals, there are disks full of materials produced by organizations such as the **Teachers' Idea and Information Exchange** and **The Apple Two Information Exchange** (see News Line, July 1987, p. 16). You'll also find demonstration programs (among them ZBASIC and Fantavision) available on line; and, for the technically inclined, Apple Technical Notes and source code for various programs and routines.

Sanford Friedman, president of the Apple Computer Club at Northrop Electronics in Hawthorne, California, reminds us that you don't have to speak assembly language to learn by examining programs posted on line. Friedman, who uses many of the services on Delphi and The Source, especially enjoys downloading "music and graphics programs and trying to figure out how they work." One of the benefits of being on line is exchanging messages with software authors to improve your own programs (and sometimes theirs).

PRACTICE MAKES PERFECT

In his guide to downloading from GEnie, Apple RoundTable librarian Doug Acker notes, "In any form of communication, there is noise between the two points of communication (background

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noise on the telephone, slurred speech). Given the variety of modems, communication programs, file types, BBSs, and information services that work with the Apple II, it's not surprising that the most common message posted on line is 'Help! I'm new to this and I have trouble downloading.' "

"Downloading scared me," admits Gano Haine, a CompuServe subscriber in Mobile, Alabama. "Maneuvering through the Apple libraries is like wandering through silent rooms in an adventure game, trying to discover the commands that will unlock the treasures." Impressed by the generous help of others on line, Haine is now enthusiastic about the information, games, and other programs she has successfully and inexpensively acquired. "What other industry," she asks, "puts you in touch with the inventors of the technology you're using?"

The people who shared their experiences with us this month agree with the following words of advice: Read the instructions that come with your modem, communications software, and information-service subscriptions. Use the help files on line. Practice your skills on local bulletin-board systems, and, if you can, find someone on line or in a local user group who will lend a hand. Patience is rewarded. Treasures await.■

Tom Sherman can be reached on line: GEnie (SHERMAN), CompuServe (72010,12), The Source (CPA177), Delphi (Sherm), MCI Mail (Tom Sherman), DCMeta (tsherman) and in PARTI on NWI, Unison and The Source (Tom Sherman).

Product Information

ACT
Apple Conference Terminal
GEnie Apple II RoundTable
$5 per hour user time
GEnie membership required

GEnie
General Electric Information Services
401 North Washington Street
Rockville, MD 20850
(800) 638-9636
(800) 638-8369 modem
$29.95 (manual, monthly newsletter, $10 user credit)

Reader Service No. 311

Apple Two Information Exchange
1728 Galewood Court
San Jose, CA 95133
(408) 251-2127
$25 per year

Reader Service No. 312

CompuServe
CompuServe Information Services
5000 Arlington Centre Blvd.
Columbus, OH 43220
(800) 848-8199
(614) 457-0802 (OH)
$39.95 (guide, magazine, $25 user credit)

Reader Service No. 313

Delphi
General Videotex Corp.
3 Blackstone Street
Cambridge, MA 02139
(800) 544-4005
(617) 491-3393 (MA)
(617) 576-0862 (300 and 1200 baud)
(617) 576-2981 (2400 baud)
$49.95 (handbook, quick-reference command card, two evening hours free of charge)

Reader Service No. 314

The Source
Source Telecomputing
1616 Anderson Road
McLean, VA 22102
(800) 336-3366
(703) 821-6666 (VA)
$49.95 plus $3.50 shipping (manual, monthly newsletter)

Reader Service No. 315

Teachers' Idea and Information Exchange
P.O. Box 6229
Lincoln, NE 68506
(402) 483-6987
$29.95 (6-disk subscription)

Reader Service No. 316

TIC
Talk Is Cheap (Telecommunications 1)
Apple/Boston
Boston Computer Society
One Center Plaza
Boston, MA 02108
(617) 332-8415
$5
$39.95 Best of Telecommunications, 10 disks
$1 catalog available
call for information on discounts for *inCider* readers

Reader Service No. 317

BBS Update

We're making some changes in *inCider*'s electronic bulletin-board system (BBS). The BBS has six system operators (sysops) now; if you can't find one, try sending E-mail to another. (The command is <S>.) The <F>eedback to Sysop command will reach only Pat O'Dell (#1596). You can also try Dan Muse, editor in chief (#76); Paul Statt, senior editor (#1); Lafe Low, review editor (#2); Bill Kennedy, technical editor (#918); or Peg Brown, editorial assistant (#1601). One of us will reply. Dial (603) 924-9801: eight data bits, one stop bit, no parity, 300 or 1200 baud, 24 hours a day.□

NEW PRODUCTS

edited by Pat O'Dell

Software

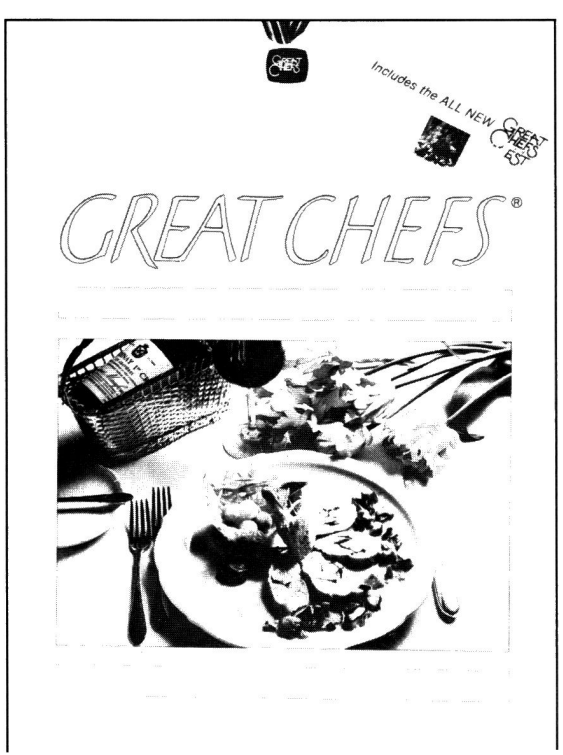
BIGGER BYTES

Hard Byte Editor, from Sensible Solutions, lets you read, edit, write, and print every sector on your hard disk, including those that are normally inaccessible (such as blank and alternate sectors and those devoted to the Sider operating system). Hard Byte Editor is DOS 3.3 based and menu-driven. It can examine CP/M, Apple Pascal, and ProDOS data, as well as DOS 3.3. Retailing for $29.95 (plus $3 shipping and handling), Hard Byte Editor is available from Sensible Solutions Inc., 314 South Red Lion Terrace, Bear, Delaware 19701. For more information, circle Reader Service number 353.

ELECTRONIC SEARCH FOR CHEFS

Fans of PBS' television show *Great Chefs* can now use their computers to search for their favorite **recipes**. A new program, also called Great Chefs, has a cross-indexed database of six floppy disks' worth of recipes. Describe the kind of recipe you need, and the program will list your choices for you. Great Chefs is $65 for the set or $25 per volume from Concept Development Associates Inc., 45 Cordova Street, St. Augustine, FL 32084, (904) 825-0220. Circle Reader Service number 354 for more information.

Search for the perfect recipe with Great Chefs.



STRAIGHT FROM THE HEART

Stumped about a gift for your favorite nurse? For a new twist, give him or her Cardiac Arrest from Mad Scientist Software. This program simulates a patient's **heart attack** to train medical personnel—doctors, paramedics, and nurses. But according to the developers, some people are playing it as an interactive-fiction game. While you play, you can give medical orders as if you're the doctor in charge of an emergency-care team by simply typing them in standard English. At the end of the game, the program tells you whether or not the patient survived and his or her prognosis. Cardiac Arrest is available for $69 from Mad Scientist Software, 2063 North 820 West, Pleasant Grove, UT 84062, (801) 785-3028. For more information, circle Reader Service number 350.

LARGER THAN LIFE

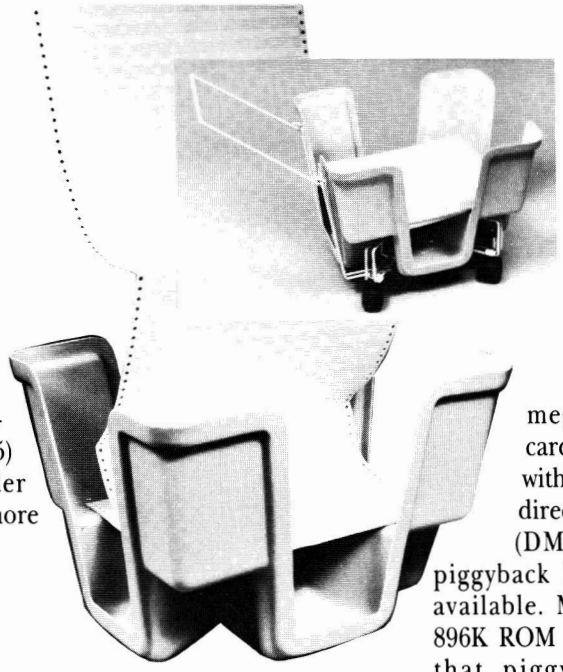
Posters, signs, calendars, and **banners**—Superprint, from Scholastic Software, can give you graphics large enough to fill anything from a bulletin board to a living-room wall. You can pick images and borders from the program's library and use them again and again. Superprint requires 128K of memory and is compatible with most dot-matrix printers. The home edition is available for $49.95; the school edition (backup disk, tutorials, and paper) is $59.95. For more information, contact Scholastic, Inc., 730 Broadway, New York, NY 10003, (215) 505-3000, or circle Reader Service number 357.

CHEAP SHOTS

Kids young and old love to play **video games**. For those who aren't even old enough to remember when video games first appeared in local arcades, Mindscape's Thunder Mountain division is releasing more of the old favorites for personal computers. You'll be able to play Pac Man and Ms. Pac Man, Dig Dug, Pole Position, and Galaxian on your home computer. Best of all, they cost less then $10 each, which can save dedicated players quite a bit in quarters! For more information, contact Thunder Mountain, 3444 Dundee Road, Northbrook, IL 60062, (612) 452-4730 or circle Reader Service number 355.

REVOLUTIONARY STRATEGY

Sons of Liberty recreates three **major battles of the American Revolution**: Bunker Hill, Saratoga, and Monmouth. The Battle of Bunker Hill, the first in the series, uses simplified rules and joystick control to help the beginning player. Sons of Liberty uses the Gettysburg: The Turning Point game system, with slight modifications. Sons of Liberty sells for $39.95 from Strategic Simulations Inc., 1046 N.



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Rengstorff Avenue, Mountain View, CA 94043, (415) 964-1353. Circle Reader Service number 352 for more information.

CARNIVALS ARE FOR KIDS

Language Carnivals 1 and 2 use humor to teach kids how to **think, speak, and write**. Students learn how to explain jokes whose key words have double meanings and to solve riddles by thinking of objects in new ways. Both Language Carnival 1 and Language Carnival 2 require 64K and are available for $19.95 from DLM Teaching Resources, One DLM Park, Allen, TX 75002, (214) 248-6300. For more information, circle Reader Service number 351.

MAC ATTACK

Southeastern Software has released a new version of Mac.Transfer. Version 1.3 supports all models of the Apple II family, including the IIGS. This utility lets you **transfer data from an Apple II** to an IBM or Apple Macintosh. It also provides a file-conversion utility to convert database files from label format to the Macintosh's table format. The program sells for $60 (the interface cables are an additional $22) from Southeastern Software, 7743 Briarwood Drive, New Orleans, LA 70128, (504) 246-8438. Circle Reader Service number 356 for more information.

Hardware

A PLACE FOR EVERYTHING

The Paper Place holds and neatly **stacks your printer forms** so that they feed smoothly into your printer. This polyethylene plastic container is designed to hold forms of varying sizes. You can order it with a dolly to make transporting boxes of printer paper and forms easy. The Paper Place is priced at $16.95, or $44.95 with the dolly. For more information, contact Grand Union Micro Systems, 2222 Gum Tree Lane, Fallbrook, CA 92028, (800) 344-6934. In California call (619) 723-0882, or circle Reader Service number 361.

ON A LOW BUDGET

TopRAM and MegaROM are **low-cost memory options** for IIGS users. TopRAM, a one-megabyte memory card, is compatible with products using direct memory access (DMA). Additional piggyback boards are also available. MegaROM is an 896K ROM expansion board that piggybacks on the TopRAM card. You can then expand your ROM by plugging in 64K EPROMS, for up to 1 megabyte of total ROM. (An EPROM programmer is required.) The TopRAM card sells for $199.95, and the MegaROM (unpopulated) for $89.95 from Parallax Inc., 5249 Locust Avenue, Carmichael, CA 95608, (916) 721-5451. For more information, circle Reader Service number 362.

ELECTRONICALLY SPEAKING

The SupraModem 2400 is a **low-cost Hayes-compatible 2400-baud modem**. Priced at $179.95, this stand-alone unit can operate at 300, 1200, or 2400 bps. It requires an RS-232C interface and serial cable to operate. For more information, contact Supra Corporation, 1133 Commercial Way, Albany, OR 97321, (503) 967-9075 or circle Reader Service number 358.

CHEAP TALK

Covox is now offering a junior version of its Voice Master **speech digitizer** for only $39.95. This device, which is also capable of voice recognition, plugs into your computer's joystick port. Record speech or other sounds into memory, save them on disk, and then incorporate them into BASIC programs; the system lets you insert new command statements into BASIC to make Voice Master easier to use.

The accompanying software includes the Covox Composer, which lets you create music simply by whistling a tune. Voice Master Junior for the Apple II, with manual, is available for DOS 3.3 only from Covox, Inc., 675 Conger Street, Eugene, OR 97402, (503) 342-1271. For more information, circle Reader Service number 359.

Supra Modem 2400 operates at 300, 1200, or 2400 bits per second.



FOR KEEPS

Apple 2GS Armor, from Omni Tech, helps you hold onto your Apple (IIGS, that is). The 2GS Armor **security cabinet** lets you lock both the computer and the monitor, and secure the keyboard and mouse so that no one else can use them—a lifesaver for publicly accessible computers in schools and libraries. Apple 2GS retails for $165.95 from Omni Tech Corporation, 21850 West Watertown Road, Waukesha, WI 53186, (414) 784-4112. Quantity discounts are available. Circle Reader Service number 370 for more information.

QUICK BYTES

Epic is making a new line of **2400-baud internal modems**. The Apple II version, which sells for $175, operates on the II Plus, IIe, and IIGS. Contact Epic Technology, Inc., 46733 Fremont Boulevard, Fremont, CA 94538, (800) 634-9992, or in California, call (415) 683-0932. For more information, circle Reader Service number 371.

KEEPING CALM

Kalglo Electronics is making a **surge suppressor** that protects data transferred specifically through an RS-232 serial port. It plugs directly into the serial port and protects both incoming and outgoing information, and at $39.95, it won't break the bank. Contact Kalglo Electronics Co., Inc., Colony Drive Industrial Park, 6584 Ruch Road, Bethlehem, PA 18017-9359, (800) 524-0400, (215) 837-0700. Circle Reader Service number 372 for more information.

DESKTOP CHIC

Now you can buy your **floppy disks** in your favorite colors—Fuji Photo Film is making 3½-inch disks in blue, green, gray, ivory, and pink. You'll be able to carry your color scheme all the way to your desk. For more information about these disks, contact Jeff Ash, Fuji Photo Film USA, Inc., 555 Taxter Road, Elmsford, NY 10523, (914) 789-8351, (800) 367-3854, or circle Reader Service number 373.

Product Updates

•Electronic Arts has released the IIGS version of **World Tour Golf** for $39.95. **Marble Madness** is also available for the IIGS. The new version features a new secret level that's bound to be a challenge to find and is certainly a challenge to play. For more information, contact Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404, 415-571-7171.

•Humanities Software is offering Multiple Site Licensing Plans for its **Write On! language-arts programs**. Write On! consists of more than 500 writing activities in five separate collections. Under the new plan, school districts can purchase the collection with a first year payment of 25 percent of the catalog price. Included in this price is a subscription to the journal *The Writing Notebook* for every licensed school. For more information, contact Humanities Software, P.O. Box 590727, San Francisco, CA 94159, (415) 759-9324.

•**Mindplay/Methods & Solutions** has moved to new offices. Its new address is 100 Conifer Hill Drive, Building 3, Suite 301, Danvers, MA 01923. Contact Mindplay at (617) 774-1760 or (800) 221-7911 (outside Massachusetts).

•Versacad's **CADApple** version 3.5 drafting program now supports the GS. It can display up to 15 colors, depending on resolution mode. In addition, the company has dropped the price to $995. For more information, contact Versacad Corporation, 7372 Prince Drive, Huntington Beach, CA 92647, (714) 847-9960.

•Central Point Software has announced **version 8.0 of Copy II Plus**. The new version includes a 3½-inch BitCopy program that supports the IIGS, as well as all the features of the 5¼-inch Bit-Copy program. It also offers a new memory manager. Copy II Plus version 8.0 requires at least 64K (3½-inch Bit Copy requires 128K) to operate. The new version is available for $39.95 from Central Point Software, 9700 S.W. Capitol Highway, Portland, OR 97219, (503) 244-5782.

•Thirdware Computer Products has released a new version of its FingerPrint Plus card. The **FingerPrint GSI** is designed to give you additional control over your IIGS' graphics by freezing any program and taking control of the computer until you press the escape key. This lets you capture text and graphics and export them to other programs or to a printer without breaking out of the original program. The new version is available for $99 (or $50 to upgrade the IIe version) from Thirdware Computer Products, 4747 N.W. 72nd Avenue, Miami, FL 33166, (305) 592-7522.

•GE Information Services has dropped the 2400-baud surcharge rate for using **GEnie** during nonprime times. The rate for Monday through Friday from 6 p.m. to 8 a.m. local time and all day on weekends and national holidays is $7.50 per hour instead of $10.

•**Alfred Publishing Company** has moved to new offices. The new address is P.O. Box 10003, 16380 Roscoe Boulevard, Van Nuys, CA 91410-0003.

Resources

FREE THOUGHTS

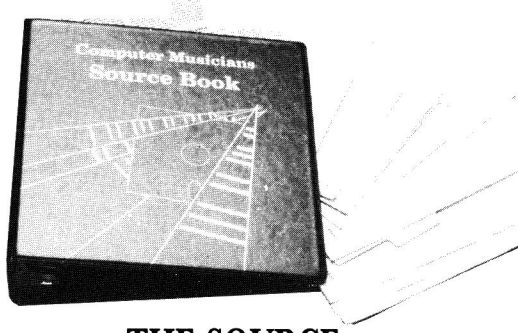
More Ideas is a **free catalog by and for teachers** containing ideas about how to involve students in their own education. There are suggestions about improving problem-solving skills and making writing an adventure. To order, call Sunburst Communications Inc. at (800) 431-1934 in the United States or (800) 247-6756 in Canada. For more information, circle Reader Service number 363.

LOW-COST LEARNING

AV Systems has a catalog full of **low-cost software** designed for home and school use. The company offers 150 disks in two separate collections, all selling for $9.95 each. The Apple Tree User Systems Library contains 87 disks, while the Apple Tree Programmer's Library contains 63 disks. Institutional site licenses are available for a one-time fee equal to the cost of the disk. The catalog is free upon request. Contact AV Systems Inc., 1445 Estrella Drive, Santa Barbara, CA 93110, (805) 569-1618. For more information, circle Reader Service number 364.

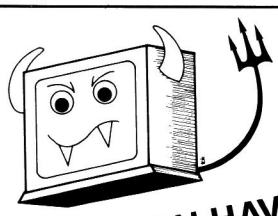
TEACHERS ON LINE

The McGraw-Hill Information Exchange (MIX) is a new **electronic information service designed for teachers**. Using MIX, teachers can participate in computer conferences and provide on-line projects for their students. A MIX subscription costs $149.95 anually, with group discounts available. Hourly rates are also available. For more information, contact EMS/McGraw-Hill, 9855 West 78th Street, Eden Prairie, MN 55344, (800) 622-6310. In Minnesota call (612) 829-8200, or circle Reader Service number 366.



THE SOURCE OF MUSIC

The ***Computer Musicians Source Book***, a new publication from the Computer Musicians Cooperative, offers detailed information about technological aids available for making music, including both MIDI and non-MIDI hardware. It's updated annually on a subscription basis for $75 per year from the Computer Musicians Cooperative, 3010 N. Sterling Avenue, Peoria, IL 61604, (309) 685-4843. For more information, circle Reader Service number 367.



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Open-Apple is Tom Weishaar's monthly newsletter for knowledgeable Apple II users. It's thin but packed tight with Apple II lore, humor, letters, tips, advice, and solutions to *your* problems. Compared to other Apple II publications, *Open-Apple* has the highest new-idea-per-issue ratio, the clearest writing, the funniest cartoons, the longest index, the *only* warranty (all your money back if you're not satisfied), and it takes up the least shelf space.

II cue #39

To get AppleWorks 1.3 or 2.0 to expand into an Apple-style slot-based memory card on the IIgs, you have to patch APLWORKS.SYSTEM so that it thinks it's running on a IIe:

```
POKE 768,44
     (V1.3)
BSAVE    APLWORKS.SYSTEM,TSYS,A768,L1,5031

     (V2.0)
BSAVE    APLWORKS.SYSTEM,TSYS,A768,L1,5408
```

From our fan mail:

There is a new and free Apple user group publication called *Tech Tidbits*. The *Tidbits* purportedly have a list of Apple II publications, but they omit *Open-Apple*, which is far and away the best and most important resource of them all.

Don Lancaster
"Ask the Guru"
Computer Shopper

Open-Apple

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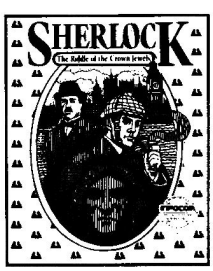

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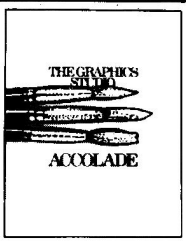

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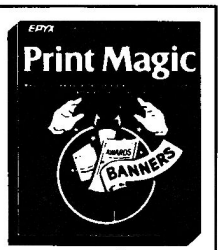

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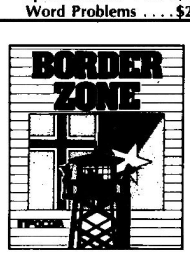

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INDEX TO ADVERTISERS

Reader Service		Page
286	Abracadata	34
*	Applied Engineering	21, 23, 52, 53, 59, 62, 63, 73, 75, 111
48	Barnum Software	131
*	Beagle Bros Inc.	66, 67
285	Berkeley Softworks	CV2,1
151	Big Red Apple Club	112
213	Brown/Wagh Publishing	105
25	Burke Software	131
166	CH Products	17
185	CDA Computer Sales	123
287	Cambridge Marketing, Inc.	88, 89
60	Central Point Software	32
227	Checkmate Technology, Inc.	37
215	Checkmate Technology, Inc.	39
282	Claris Corporation	29, 30, 31
236	CMS Enhancements, Inc.	38
79	Coit Valley Computers	4
296	Computer Cover Company	24
124	CompuServe	99
259	Computer Accessories Corp.	6
205	Computer Direct	124
206	Computer Direct	125
288	Computer Friends	104
142	Computers Plus Co.	130, 132
20	Computer Supply	131
162	Covox, Inc.	131
80	Dandam Software	130
134	Dayton Computer Co.	132
184	Digital Vision	46
148	Electronic Arts	101
138	Electronic Arts	87
256	Electronic Arts	2
196	Epic	5
201	Epyx	33
202	Epyx	83
11	FastFind Co.	46
146	Golem Computers	51
101	Hayes Company	133
216	Helpworks Soft. Corp.	133
103	Hi-Tech Distributors	40
17	Hi-Tech Distributors	130
88	HowardSoft	CV3
	inCider	
	Attn Subscribers	135
	Dealer Sell	129
	Foreign Dealer	128
	Sub Ad	64
	Success with AppleWorks	80
*	Intuit	43
117	J&S Software	133
36	JED Design, Inc.	132
226	Jacobsen Software Design	131
2	L&L Productions	131
6	Master Media Supply	131
4	Merritt Computer Prods	132
251	MGR Software	112
152	Micro Prose	41
163	Microillusions	CV4
244	Milliken Publishing	16
*	Mindscape	49
75	Monogram Software, Inc.	25
55	National AppleWorks User Group	133
98	Nexo Distribution	130
89	North-Forty Ent.	132
81	Open-Apple	117
42	Origin Systems	95
129	Pandora Software	131
57	PCR Video	130
23	PCR Software	132
59	Perfect Solutions Software	130
*	Personal Financial Services	93
77	PIE	130
*	Preferred Computing	91
27	Pre-Owned Electronics	133
49	Professor Jones	135
128	Programs Plus	76, 77
269	Public Domain Exchange	119
136	Quality Computers	60, 61
198	Redmond Cable	117
107	Scotia Information Ser.	131
143	Silicon Express	65
64	Silver Burdett & Ginn	130
59	Sky Computer Resources	132
270	Software Disc. of Am.	118
292	Softdisk	3
*	Southern Calif. Research	132
38	Spectral Graphics	122
99	Spectrum HoloByte	15
261	Star Development	36
160	Strategic Simulations	109
239	StyleWare, Inc.	10, 11
156	subLOGIC Corp.	45
8	TENFORTY.CALC	133
39	Third Wave Technology Inc.	42
68	Thunderware	107
140	Timeworks	47
243	TML Systems	27
15	Uptime	9
*	Weekly Reader Family Software	13
289	Zedcor, Inc.	97
260	Zimco	26
189	Zip Chip Inc.	35

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INDEX TO ADVERTISERS

BY PRODUCT

ACCESSORIES

Reader Service		Page
296	Computer Cover Co.	24
134	Dayton Computer Supply	132
6	Master-Media Supply	131
4	Merritt Computer Prods.	132

HARDWARE

ADD-IN BOARDS

*	Applied Engineering	21, 23, 52, 53, 59, 62, 63, 73, 75, 111
215	Checkmate Technology	39
227	Checkmate Technology	37
196	Epic	5

HARD DISK DRIVES

236	C.M.S. Enhancements	38

SOFTWARE

BUSINESS/HOME PRODUCTIVITY

285	Berkeley Softworks	CV2,1
88	HowardSoft	CV3
*	Intuit	43
244	Milliken Publishing	16
75	Monogram	25
129	Pandora Software	131
59	Perfect Solutions	130
230	Personal Financial Services	93
269	Public Domain Exchange	119
59	Sky Computer Resources	132
8	TENFORTY.CALC	131

COMMUNICATIONS

2	L&L Productions	131
251	MGR Software	112

CREATIVITY/GRAPHICS

286	Abracadata	34
148	Electronic Arts	101
138	Electronic Arts	87
256	Electronic Arts	2
38	Spectral Graphics	122
239	StyleWare	10, 11
140	Timeworks	47

DATABASE MANAGEMENT

213	Brown-Wagh Publishing	105

EDUCATIONAL

48	Barnum Software	131
117	J&S Software	133
107	Scotia Info Service	131
64	Silver Burdette & Ginn	130
*	Weekly Reader	13

ENTERTAINMENT

202	Epyx	83
201	Epyx	33
226	Jacobsen Software	131
152	Micro Prose	41
163	Microillusions	CV4
*	Mindscape	49
42	Origin Systems	95
49	Professor Jones	135
99	Spectrum Holobyte	15
160	Strategic Simulations	109
156	subLOGIC	45

MISCELLANEOUS

151	Big Red Apple Club	112
25	Burke Software	131
60	Central Point Software	32
11	FastFind	46
101	Hayes Co.	133
216	HelpWorks Soft. Corp.	133
55	National AppleWorks User Group	133
81	Open-Apple	117
23	PCR Software	132
57	PCR Video	130
292	Softdisk	3
15	Uptime	9

PROGRAMMING LANGUAGE

243	TML Systems	27
289	Zedcor	97

UTILITIES & ACCESSORIES

*	Beagle Bros.	66, 67
285	Berkeley Softworks	CV2, 1
25	Burke Software	131
136	Quality Computers	60, 61
261	Star Development	36
269	StyleWare Inc.	10, 11
39	Third Wave Tech., Inc.	42

MISCELLANEOUS

166	CH Products	17
287	Cambridge Marketing, Inc.	88, 89
259	Computer Accessories Corp.	6
162	Covox, Inc.	131
184	Digital Vision	46
57	PCR Video	130
68	Thunderware	107
189	Zip Chip, Inc.	35

ON-LINE SERVICES

124	CompuServe	99

PRINTER/ACCESSORIES

259	Computer Accessories Corp.	6
36	JED Design	132
198	Redmond Cable	117

MAIL ORDER

79	Coit Valley	4
205	Computer Direct.	124
206	Computer Direct.	125
288	Computer Friends.	104
142	Computer Plus	130, 132
20	Computer Supply	131
80	Dandam Software	130
*	Golem Computers.	51
17	Hi-Tech Distributors	130
103	Hi-Tech Distributors	40
98	Nexo Distribution	130
89	North Forty Enterprises	132
77	PIE	130
*	Preferred Computing	91
27	Pre-Owned Electronics	133
128	Programs Plus	76, 77
136	Quality Computers	60, 61
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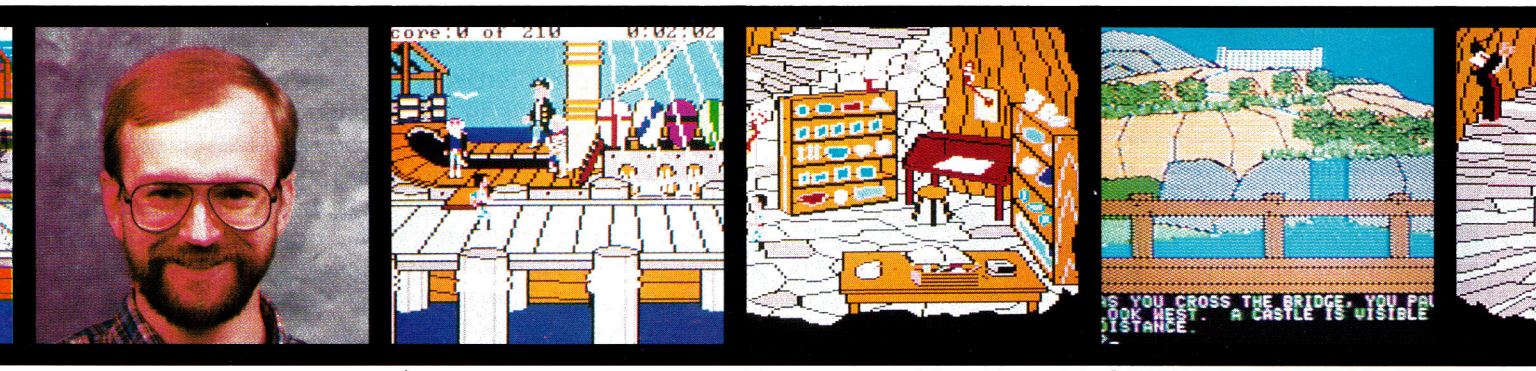
Graphics Adventures: Merging Words and Pictures



1. 2. 3.

by Scott Mace

"Don't judge a graphics adventure by its graphics alone."

In January I reported on Infocom, a company bold enough in 1987 to stick with a nongraphics user interface for its games. By concentrating on storytelling, rather than painting pretty pictures, Infocom established a durable game genre.

Now to discuss the other end of the spectrum—the graphics adventure. Don't confuse graphics adventures with fantasy/role-playing games (FRPG). Both types include pictures as well as text; the difference is that FRPGs, generally inspired by Dungeons and Dragons, usually star hearty bands of adventurers whose exploits you control. Wizardry, Ultima, Legacy of the Ancients, Questron—the list goes on.

SINGLE-ADVENTURER GAMES

Graphics adventures, on the other hand, star a single hero or heroine who toughs it out against many of the same beasts appearing in FRPGs—minus the maplike strategy and tactics needed in a game like Ultima. Whereas a band of warriors can square off in a more-or-less fair fight against opposing bands of bad guys, the lone graphics-adventure hero must take on all comers—often in twos, threes, or hundreds. It gets pretty scary.

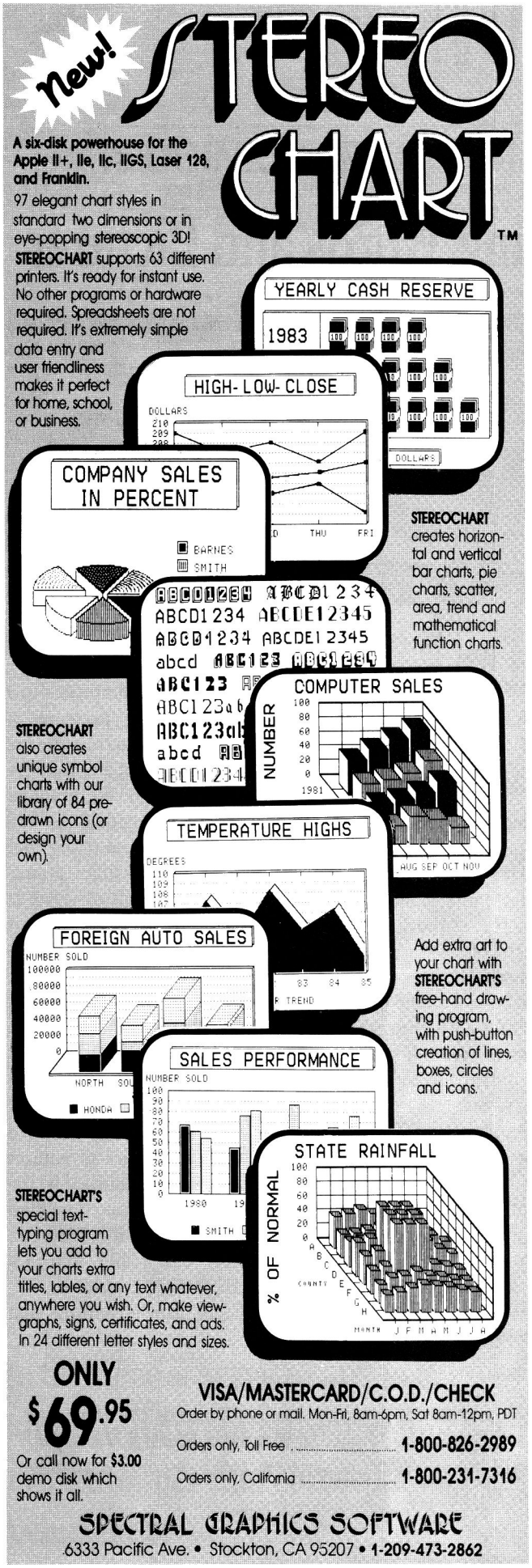
As satisfying as these distinctions sound, it's difficult for reviewers to compare and contrast every game in the genre. Some are more like movies with text, others similar to books with illustrations.

Here are some general questions to ask when considering a graphics adventure: How much does the presence of graphics free you from the unceasing typing of a text-adventure game? Are the graphics screens good enough to add texture and mood to a game? If the game includes animation, is it smooth or jerky? Is the art well done? How well is sound integrated into the adventure? And, most importantly, is the game a series of pretty cartoons, or more like an interactive movie?

THE OLD SCHOOL

An example of the old school of graphics adventures is **Dark Lord**, published by Datasoft and distributed by Electronic Arts (P.O. Box 7530, San Mateo, CA 94403, 800-245-4525, 800-562-1112 in CA, $19.95). Any adventure that

Photos 1 and 2. *The King's Quest graphics screens are cartoon-like, but the story is enchanting and the interface lets you go easily in any possible direction.* ***Photo 3.*** *Through the looking glass: Dark Lord, an old-style graphics adventure, takes you into a strange world under attack from unknown forces.*



MACE ON GAMES

lets you turn off the graphics and just type text on screen falls into this category.

The Dark Lord story line is dismal and moody. A magical mirror in the library of your grandfather's house (he has vanished mysteriously) leads you into a strange world under attack by unknown forces. A volcano sits brooding in the distance. Combing the forests, bridges, and rocky canyon passages, you look for clues to the world's troubles. Conventional north, south, east, and west commands work. Animation is used sparingly.

A NEW GENERATION

Compared to this, Datasoft's flagship games, the Alternate Reality series, are ornate. Patterned more closely after FRPGs such as Wizardry, Alternate Reality is a vast series of catacombs, trick passageways, teleportation devices, and endless monsters—and presents an intriguing morality play as well.

Beyond the initial well-lighted area, down a dank corridor off the city's encircling sewers, the gruesome terrors of **Alternate Reality: The Dungeon** ($39.95) await. The graphics screens are always in play, indicating doorways, archways, and space itself. Only by ticking off the vertical lines on the grid to measure distance can you map the realm successfully.

The *Survival Handbook* ($9.95) is highly recommended for its hints and maps. Whereas text adventures are limited to one move per grid square, Alternate Reality allows multiple moves per square, with speed one of the characteristics assigned to the warrior. This allows for more diversity and variety in the game.

These stories include one of the best graphics user interfaces I've yet seen in an Apple II game. The view window in Alternate Reality fills only the middle of the screen. The top and bottom display statistics and messages—stamina, charisma, strength, and intelligence, as well as total experience and number of hit points. You can move by clicking on a four-arrow pad to the right of the main window, or by using the Apple II cursor keys.

The story is compelling, with some tricks I haven't seen in many other FRPGs. For instance, your foes can place a curse on your character. The only way to keep that curse from sapping all your abilities is to a join a Guild, which removes all curses, offers you spell-casting abilities, and poses ways for characters to develop their powers.

But there are good and bad Guilds, and you must choose which path to follow. It appears that being a morally rotten adventurer—waylaying innocents and honorable beings—may bestow short-term power and riches; however, that's the hard way to win the game in the long run.

The developers of Alternate Reality are building a seven-part series, with portals from each game into subsequent ones. You don't have to start with the first scenario (The City), but the publisher warns that fully developed characters from earlier scenarios fare better than those started cold.

I guess you know what I think about the difficulty of sequels! (See "Sequels: Complexity and Realism," Mace on

Games, August 1987, p. 97.) If it's any consolation, many of the players' potions are confiscated when changing from game to game in an area appropriately named Customs.

INTERFACE OF THE FUTURE?

The last graphics adventure worth noting, itself a sequel, is **King's Quest III: To Heir Is Human** (Sierra On-Line, P.O. Box 485, Coarsegold, CA 93614, 800-356-5252, 800-624-9505 in CA, $49.95). Robert Williams, the heart and soul of Sierra On-Line's King's Quest series, has woven an enchanting tale of a servant boy who dreams of life beyond his evil-wizard master's walls.

As a story, it's the best of the bunch. I identified with the poor kid, and tried my best to get him as far along as I could. The Wizard is quite a scoundrel—materializing at odd hours, ordering the servant around, locking him in his room. Once he even had him hog-tied upside-down from the kitchen ceiling like that night's dinner. At least all such spells of punishment are only temporary.

What makes King's Quest particularly accessible and, I think, most representative of the future of graphics adventures is its interface. You move the servant around with mouse or keyboard; you still need to type too much, but many things are depicted in on-screen graphics.

You still describe objects in rooms with the usual "look" command, but the graphics resolution is sharp enough that many objects are recognizable without a description: candles, a moosehead, a roaming cat, books.

I think most novice players today will pick up this user interface much more quickly than those of other games. Sometimes it's a little tedious, but it lets you go in any possible direction with relative ease. King's Quest may be cartoony, but it's more human; Alternate Reality may look more realistic, but it's colder and more impersonal.

If there's a message here, it's that you shouldn't judge a graphics adventure game by its graphics alone. All graphics games pay a price in terms of storytelling: The instant you start painting elaborate pictures, you use up disk space that could contain many pages of captivating text. But that shouldn't stop you from exploring some of those thousand-word pictures Apple II game makers keep inventing.■

Scott Mace is editor and publisher of Microcosm, *a monthly newsletter on computer games. Write to him at 6510 Copper Ridge Drive #T-1, Baltimore, MD 21209.*

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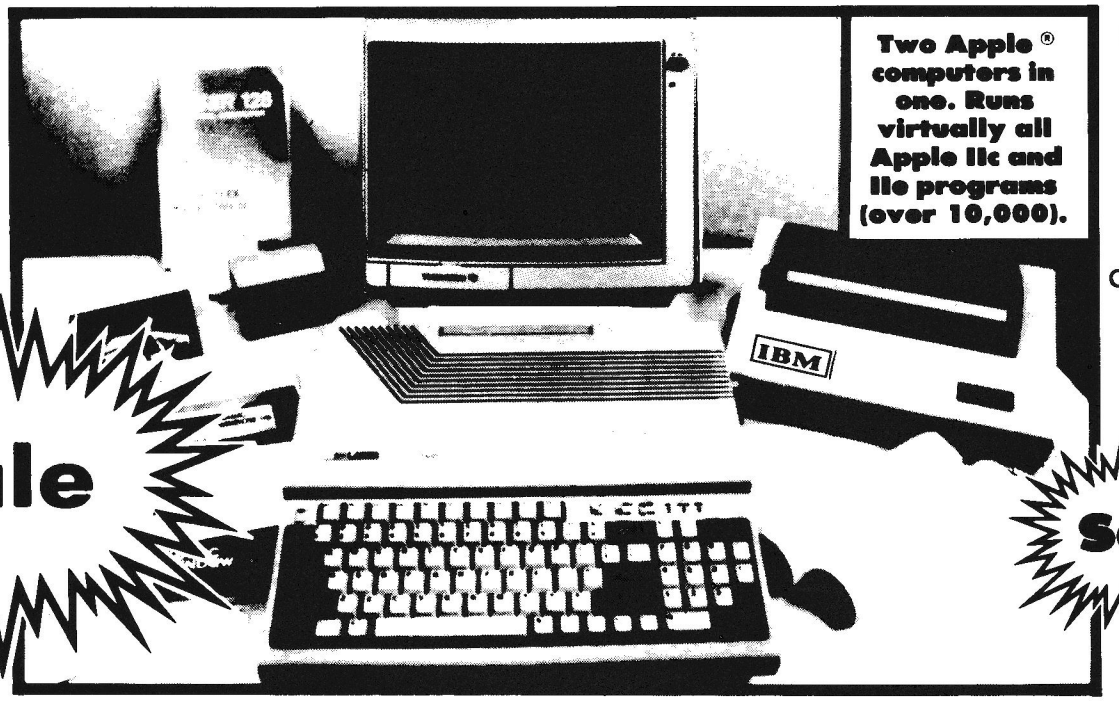

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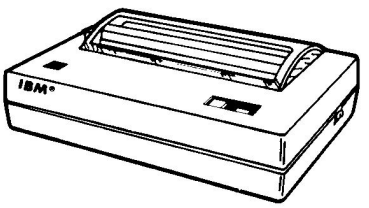

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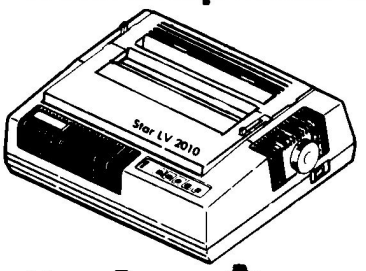

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Renewing the II Plus Keyboard

by James J. King, Ph.D.

A little maintenance goes a long way. If you're struggling with sticky or hard-to-depress keys on your Apple II Plus, don't run out and buy a new keyboard. The problem is your keyboard's aging lubricant, which you can clean up by taking the keyboard apart. I used the following procedure (this may be a little tricky for a novice) to restore the II Plus keyboards in our department.

Before you begin, be sure the system is grounded and you're static free. After removing the lid from the plastic body, loosen the four screws at the back of the motherboard; this'll let you derail the sheet-metal RF shield that's folded over the back edge. Turn the computer over, remove the ten screws holding the metal bottom to the plastic body, then turn the computer right side up again. Slowly, separate the two units, noting the keyboard cable that's connected to the motherboard. Without bending the pins, disconnect the cable carefully by extracting its connector chip.

Now that you've separated the body from the metal bottom, turn the body over and locate the two plastic pinch connectors holding the green circuit board to the back of the keyboard. Pinch each connector and maneuver the board until it's free. Being careful not to bend the 25 large pins, pull the board from the keyboard.

You're now looking at the blank side of what I term the KLCB (keyboard-logic circuit board). With a pencil, circle the brass screws so that you'll remember where they go. Then loosen all the screws, including those holding the metal angle iron. There's a slight spring to the whole assembly, so as you loosen the screws, the entire board separates. Remove the loose screws first, then the KLCB and the clear plastic sheath. (The power light bulb may hang a bit.) You now see all the mechanical switches that make contact with the KLCB.

Turn the KLCB green side up and you'll discover the problem—the original lubricant has degraded and become sticky. With a tissue, clean the KLCB and the plastic sheath, then place a drop of sewing-machine oil in each hole showing a bare copper contact. This helps hold the sheath to the board. (Mop up any excess oil.)

When reassembling the keyboard, be sure to align the KLCB and plastic sheath over the switches before tightening the screws. This can be somewhat difficult because of the little plastic alignment dowels you can't feel until the KLCB is nestled in place; I tried it several times until I got it right. Once you do that, continue putting the keyboard back together.■

Write to Dr. King at University of Wisconsin/Platteville, Department of Counselor Education, 168 Doudna Hall, Platteville, WI 53818.

Free Sectors

by Norman Franke III

If you're using DOS 3.3, here's a handy program for determining how many sectors are free on your disk without having to exit from your program or boot a utility program.

Free Sectors (see **Listing 1**) POKEs a relocatable machine-language program at location 768; to move the location, simply change ADR in line 30 to another address.

Listing 1. Free Sectors.

```
10  REM  Free Sectors  [1377]
20  REM  by Norman Franke III  [1982]
30  REM Copyright 1987, inCider  [2188]
40 ADR = 768: FOR I = ADR TO ADR +
    60: READ T: POKE I,T: NEXT   [2930]
50  POKE 10,76: POKE 11,ADR -  INT
    (ADR / 256) * 256: POKE 12,A
    DR / 256  [3473]
60  PRINT "FREE SECTORS = " USR (
    0): END   [1836]
100  DATA 32,251,230,224,3,144,3,
    76,153,225,224,0,240,3,142,2
    48,181,32,247,175,169,0,133,
    68,133,69,174,239,179,202,13
    8,10,10,170  [6042]
110  DATA 160,8,189,246,179,10,14
    4,6,230,68,208,2,230,69,136,
    208,244,202,208,236,164,68,1
    65,69,76,242,226  [4964]
```

End of listing.

The USR function, PRINT USR (dr), accesses the routine after it's installed. Note that *dr* is the drive number to use; a value of zero uses the last-used drive. Once installed, you can implement the routine anytime in a program or at the BASIC prompt.■

Write to Norman Franke at 4816 Sardis Road, Murrysville, PA 15668.

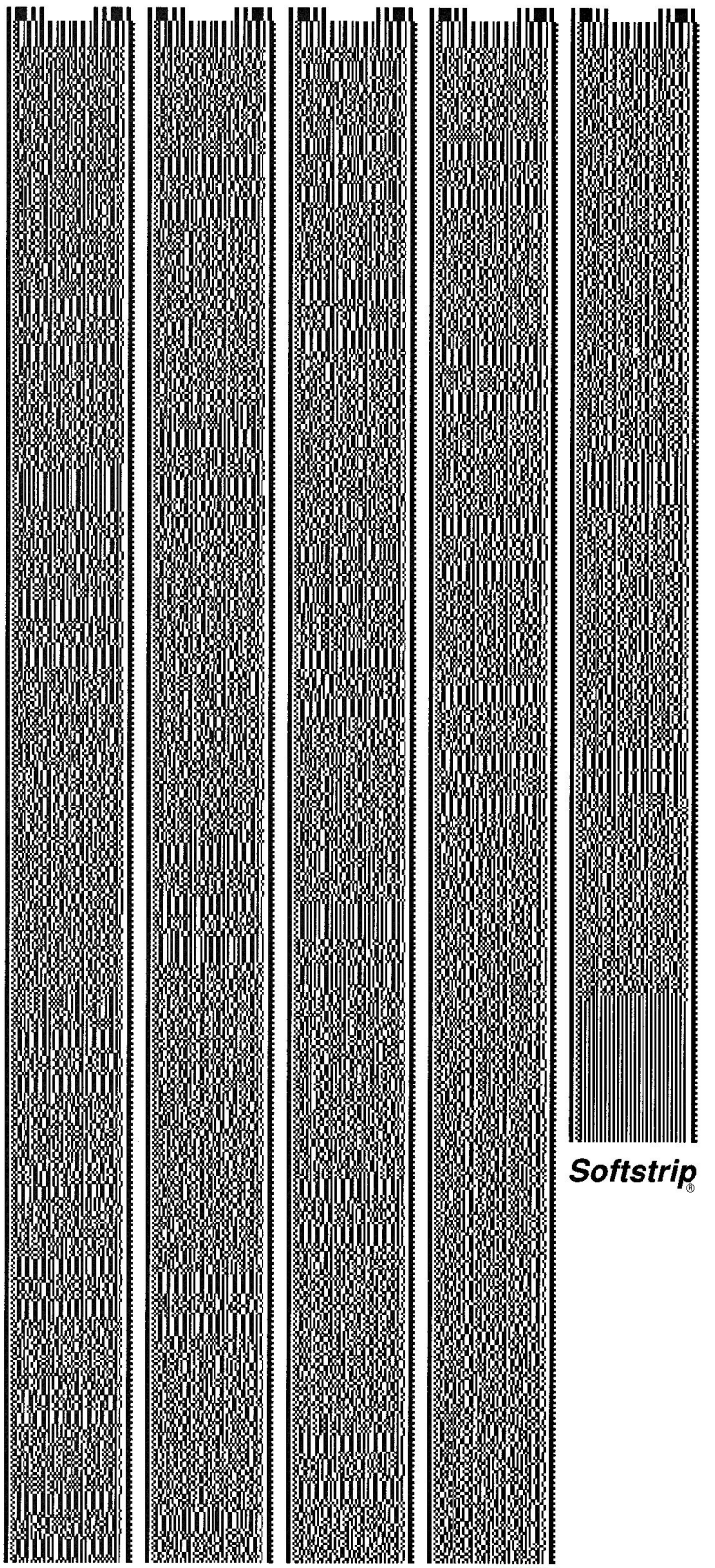
Circles

by Harold D. Portnoy

Be creative! Normally, drawing circles with BASIC commands on a hi-res screen is extremely slow. But implementing Circles (see **Listing 2**), a fast machine-language program, into your own graphics programs makes this a snap.

Although the program actually draws ellipses, you can create a circle by setting the ellipse's radii equal. On most monitor screens, a single pixel moves farther

DATA STRIPS



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Listing 2. Circles.

```
CALL -151
1000:00
1001<1000.1380M
1000:A9 2B 85 07 AE D8 BE 8E C7 03 E8 8E C8 03 E8 E8 86 08 6C 07 00 00 00 00

1200:20 BE DE 20 7B DD A2 AD A0 03 20 2B EB 20 BE DE
1210:20 7B DD A2 B2 A0 03 20 2B EB 20 BE DE 20 7B DD A2 B7 A0 03 20 2B EB 20
1228:BE DE 20 7B DD A2 BC A0 03 20 2B EB A9 32 8D C6 03 A2 00 86 06 86 07 F0
1240:25 A6 50 A4 51 20 57 F4 A9 01 85 07 D0 18 A8 A5 50 A6 51 20 3A F5 E6 06
1258:E6 06 E6 06 E6 06 E6 06 CE C6 03 10 E3 60 A5 06 AC C7 03 20 F9 EA A9 B7
1270:A0 03 20 7F E9 A9 AD A0 03 20 BE E7 18 90 04 F0 C0 D0 CB A9 A3 A0 03 20
1288:B2 EB 30 07 A9 A3 A0 03 20 F9 EA A9 A6 A0 03 20 B2 EB 10 07 A9 A6 A0 03
12A0:20 F9 EA 20 52 E7 A5 06 AC C8 03 20 F9 EA A9 BC A0 03 20 7F E9 A9 B2 A0
12B8:03 20 BE E7 A9 A8 A0 03 20 B2 EB 30 07 A9 A8 A0 03 20 F9 EA A9 AB A0 03
12D0:20 B2 EB 10 07 A9 AB A0 03 20 F9 EA 20 FB E6 8A A6 07 F0 9B D0 9B 00 00
12E8:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
1300:7E 00 AD FC B1 89 0B 80 00 00 88 3F 00 00 00 00 00 00 00 00 00 00 00 00
1318:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 A0 0F A9 00 85
1330:07 B1 07 99 9E 03 88 10 F8 A9 32 8D C6 03 A2 00 86 06 8E C1 03 A9 C1 A0
1348:03 20 F9 EA 20 EA EF A6 06 AC C7 03 20 2B EB A9 C1 A0 03 20 F9 EA 20 F1
1360:EF A6 06 AC C8 03 20 2B EB A9 C1 A0 03 20 F9 EA A9 9E A0 03 20 BE E7 A2
1378:C1 A0 03 20 2B EB E6 06 E6 06 E6 06 E6 06 E6 06 CE C6 03 10 B8 60
BSAVE CIRCLE,A$1000,L$38E
```

End of listing.

Listing 3. Draw a circle in the center of your screen.

```
10  PRINT CHR$(4)"BRUN CIRCLE,A3072":CADR =3072+512
20  HGR2 : HCOLOR = 3
30  CALL CADR,140,90,30,30
```

End of listing.

along the y-axis than the x-axis. For a truer circle, then, make the value of the y radius slightly less than for the x-axis (approximately 0.9 * X).

To use Circles, BRUN the program starting at any address evenly divisible by 256 (at a page boundary). Then, enter hi-res graphics, set the color, and make a CALL to draw a circle or ellipse to the circle program BRUN. The syntax of the call is

CALL ADR + 512,X,Y,XR,YR

where ADR is the address at which the program was BRUN, and X and Y are the coordinates for the circle's center. XR and YR are the x and y radii, respectively. Note that Circle uses a small temporary scratchpad area ($395-3CC) that can be overwritten after installation.

The sample program in **Listing 3** draws a circle in the center of the screen.■

Write to Harold Portnoy at 1431 Woodward, Bloomfield Hills, MI 48013.

Improved Unnew

by Blaine G. Gibson

Executing UNNEW (Hints/Techniques, September 1987, p. 144) after typing a NEW command inadvertently recovers and LISTs your BASIC program, but won't SAVE it to the disk or RUN it.

As Matt Britz points out, the NEW command sets the BASIC program's first two bytes to zero; his program then resets those bytes to the correct values. But NEW also changes the pointers to the start of variable storage ($69-6A), the start of array storage ($6B-6C), and the end of the program text ($AF-B0); it sets all three to point to three bytes past the beginning of the program. Unless these pointers are reset to their pre-NEW values, RUNning the program and defining the variables will overwrite the program, and both ProDOS and DOS will save only the first three bytes.

Listing 4. Improved Unnew.

```
                1   ********************************
                2   *       IMPROVED  UNNEW        *
                3   *     BY BLAINE G. GIBSON      *
                4   ********************************
                5
                6   PTR      =    $50         GENERAL PURPOSE POINTER
                7   TXTTAB   =    $67         START OF PROGRAM TEXT
                8   VARTAB   =    $69         START OF VARIABLE STORAGE
                9   ARYTAB   =    $6B         START OF ARRAY STORAGE
                10  PRGEND   =    $AF         POINTER TO END OF PROGRAM
                11
                12           ORG  $300
                13
0300: A0 03     14           LDY  #3          ;EACH APPLESOFT LINE ENDS
0302: C8        15  LOOP1    INY              ;WITH A ZERO, SO KEEP
0303: B1 67     16           LDA  (TXTTAB),Y  ;INCREMENTING Y UNTIL
0305: D0 FB     17           BNE  LOOP1       ;A ZERO IS FOUND
0307: C8        18           INY
                19
0308: 18        20           CLC              ;AFTER INCREASING
0309: 98        21           TYA              ;Y BY ONE, ADD THE
030A: A0 00     22           LDY  #0
030C: 65 67     23           ADC  TXTTAB      ;VALUE OF Y TO TXTTAB
030E: 85 50     24           STA  PTR         ;AND STORE IN PTR, SO
0310: 91 67     25           STA  (TXTTAB),Y  ;PTR WILL POINT TO
0312: C8        26           INY              ;START OF NEXT LINE.
0313: A5 68     27           LDA  TXTTAB+1    ;THEN STORE VALUE OF
0315: 69 00     28           ADC  #0          ;PTR IN FIRST 2 BYTES
0317: 85 51     29           STA  PTR+1       ;OF PROGRAM
0319: 91 67     30           STA  (TXTTAB),Y
031B: A0 01     31  LOOKEND  LDY  #1          ;CHECK THE SECOND BYTE
031D: B1 50     32           LDA  (PTR),Y     ;OF EACH LINE.  IF IT
031F: F0 0B     33           BEQ  ENDPRG      ;EQUALS ZERO, THE END
0321: 48        34           PHA              ;OF THE PROGRAM HAS
0322: 88        35           DEY              ;BEEN FOUND.
0323: B1 50     36           LDA  (PTR),Y
0325: 85 50     37           STA  PTR         ;STORE THE FIRST 2
0327: 68        38           PLA              ;BYTES OF THE NEXT
0328: 85 51     39           STA  PTR+1       ;LINE IN PTR.
032A: D0 EF     40           BNE  LOOKEND
032C: 18        41  ENDPRG   CLC
032D: A5 50     42           LDA  PTR         ;INCREASE PTR BY 2
032F: 69 02     43           ADC  #2
0331: 90 02     44           BCC  NEXT        ;AND STORE PTR
0333: E6 51     45           INC  PTR+1
0335: 85 69     46  NEXT     STA  VARTAB      ;IN VARTAB, ARYTAB,
0337: 85 6B     47           STA  ARYTAB      ;AND PRGEND
0339: 85 AF     48           STA  PRGEND
033B: A5 51     49           LDA  PTR+1
033D: 85 6A     50           STA  VARTAB+1
033F: 85 6C     51           STA  ARYTAB+1
0341: 85 B0     52           STA
0343: 60        53
```

End of listing.

Lines 14–30 in the assembly listing Improved Unnew (see **Listing 4**) perform the same function as UNNEW. In addition, lines 31–40 look for the real end of the BASIC program. Lines 41–53 reset the zero-page pointers so they again point to the end of the program. Now you can LIST, RUN, or SAVE the program.■

Write to Blaine Gibson at 615 South 23rd Avenue, Yakima, WA 98902.

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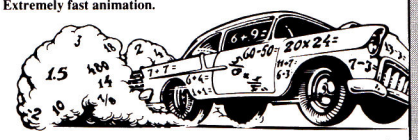

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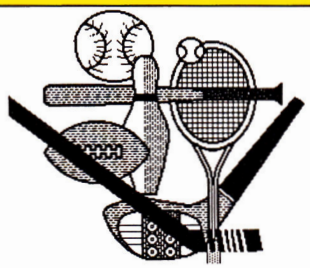

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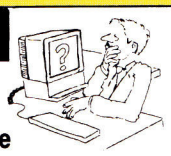

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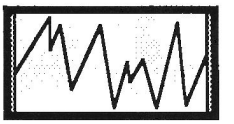

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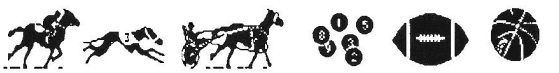

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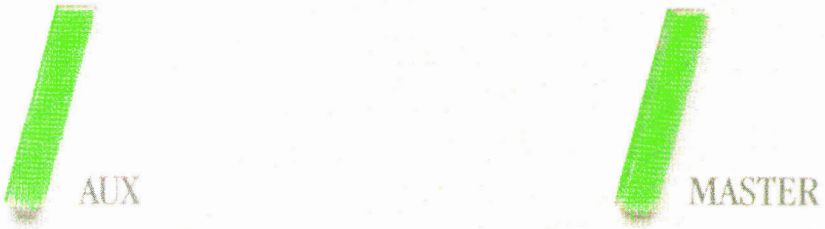

When you're talking computers, a *desktop* isn't just a piece of furniture. Tell people your desktop is full, and they'll think you don't have room for any more files in your AppleWorks work space.

But you can also run out of room on your real desktop—the area where your computer sits. Surge suppressors, multiple-outlet power strips, and cooling fans give your Apple a lot of extra protection, but they also take up a lot of extra space. Kensington Microware Ltd. (251 Park Avenue South, New York, NY 10010, 212-475-5200) has bundled all these accessories into one neat little package—and it doesn't take up a speck of "desktop."

Kensington's **System Saver IIGS** slides right in between your monitor and your CPU. It's the same color as the rest of your GS and sports the same design elements and power light; the name *System Saver* is even in the same typeface as the Apple IIGS logo. If it didn't say *Kensington* on the front, you might think it came from Cupertino.

At first, Editor in Chief Dan Muse didn't even notice the System Saver installed on his machine: "It blends right in with the GS' architecture. System Saver is a sharp-looking unit, and it doesn't clutter up your desk."

A master switch and an auxiliary switch take control of your setup when you install System Saver. The master switch on the front panel powers up your monitor and CPU—no more blind fumbling around the back. If you have a printer, an external modem, or any other peripheral with a separate power cord, hit the auxiliary switch to turn them all on together.

System Saver's cooling fan draws air up through your GS right over the power supply, the hottest part of your computer. A seal on the bottom edge of the System Saver unit ensures that the air comes up through the vents in the CPU, not just around it.

Besides keeping things cool, System Saver protects your machine and your data from electrical surges and spikes, and filters out RFI (radio-frequency interference) and EMI (electromagnetic interference) line noise.

Associate Editor Pat O'Dell appreciates the convenience System Saver provides, "especially on the GS, because it takes so long to boot up anyway. Hitting just one switch is a lot more efficient."

"Okay," shrugs Senior Editor Paul Statt, "Apple probably should have built a fan into the GS, and somebody someday should build a computer with an on/off switch in the front. But Apple didn't, so Kensington did. System Saver goes a long way toward making the computer easy to use. If I were a computer dealer, I'd want one on my demonstration GS just to show poets and househusbands that computers are for them, too."

If you don't have a GS, but you like the sound of System Saver anyway, you're still in luck: Kensington has been making System Savers for Apple IIs for six years. The newest System Saver, the GS version, sells for $99.95. The older edition is priced at $89.95.

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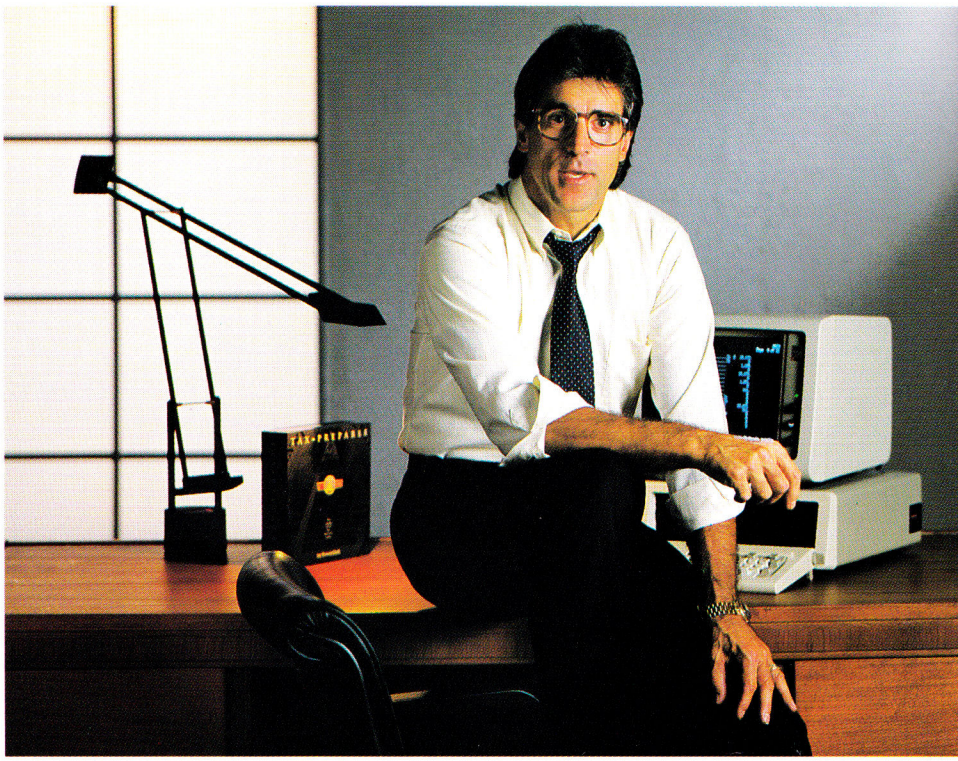

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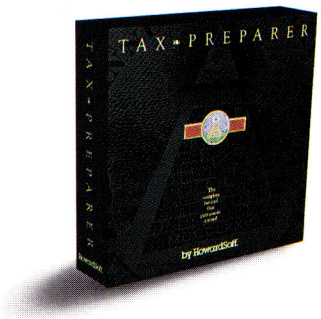

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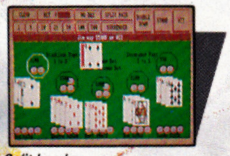
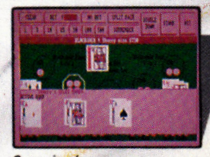

Split hands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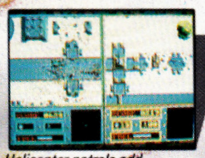
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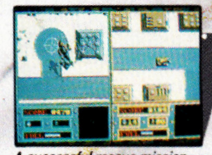
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