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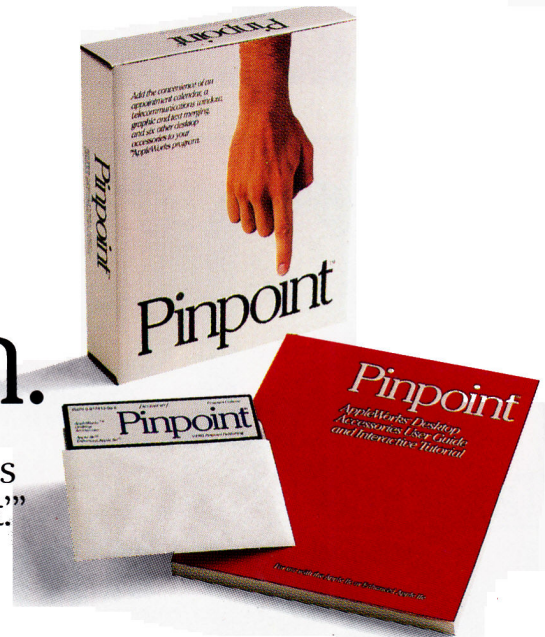
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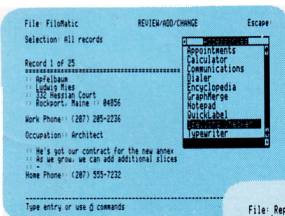
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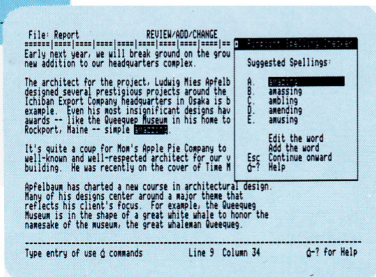
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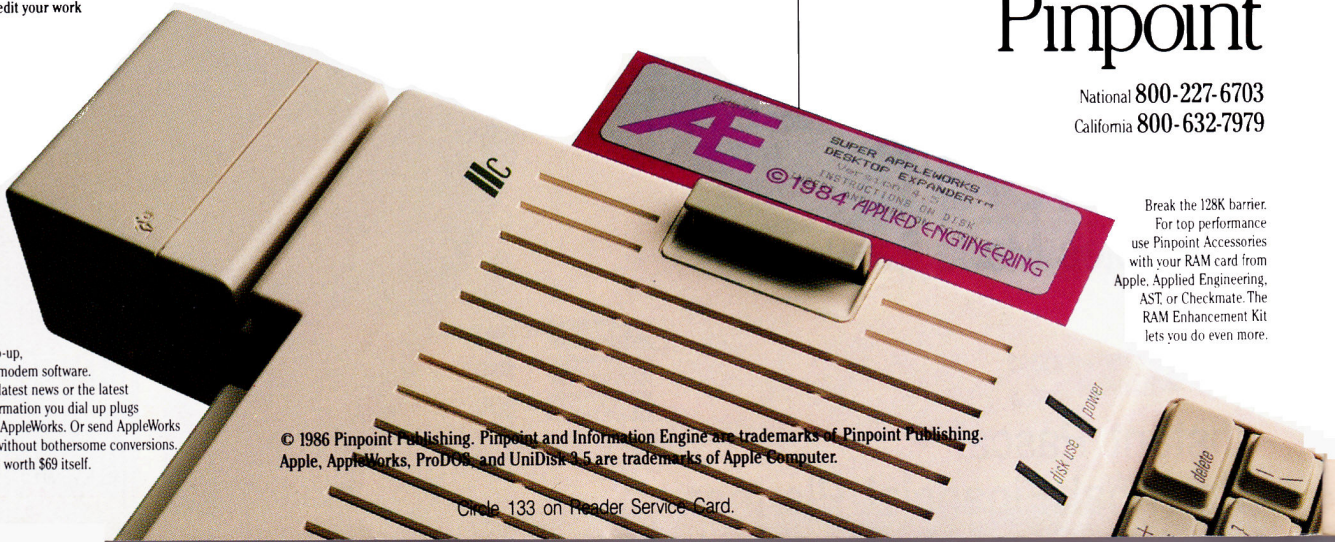
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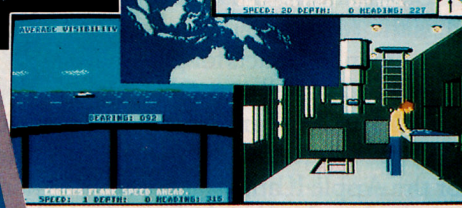
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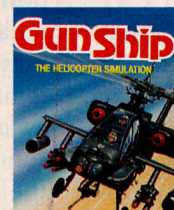
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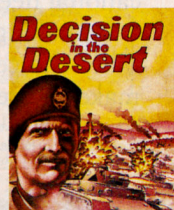
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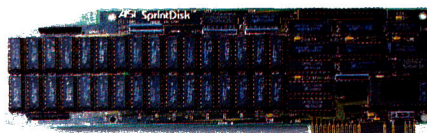
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INCIDER'S VIEW

Apple Sees the Light



“Apple is once again returning to its Apple II roots with a fervor perhaps never seen before. It has been reborn.”

by Deborah de Peyster

Let's talk about being born again. It happens in religion—people leave their faith, see the error of their ways, and return to their faith with renewed vigor. But we've just discovered that it happens in business, too. Actually, it happened to Apple Computer Inc., and we're glad.

During the past two years Apple lost faith in the power of the Apple II. While there was always a hard-core group of people at the company who believed in the Apple II (sort of like priests shouting their messages to the straying masses), no one listened. Under the dominance of Steve Jobs, who loved the Macintosh, the Apple II people became excommunicants. It seemed that the only thing anyone at Apple wanted to talk about was the Macintosh.

New Apple II development suffered—in fact, new products were cancelled; Steve Wozniak, the key Apple II engineer and evangelist, left the group; and one might say a general sense of **Apple II despair** was felt by all.

But things have changed. Apple has seen the error of its ways. The leader of the new Macintosh sect, Steve Jobs, was ousted. **Macintosh fervor has subsided**; the company has undergone a major reorganization; and Apple realized that the Apple II—particularly in education—is one of its greatest strengths. Apple is once again returning to its Apple II roots with a fervor perhaps never seen before. It has been reborn, and with new zeal is intent on *showing* its new commitment rather than just stating it.

And what this means to the masses Apple serves, particularly those in education, is a **better future**. A new policy to return old Apple and other brand-name computers for credit toward new Apple IIs, dedicated retailers who understand educators' needs, a promise of networks for the classroom before the end of the year, and new, more powerful computers are among Apple's programs this year that show its commitment to the II in education.

Another priority this year will be developing **programs for special education**. Apple president John Sculley says, “There

may be no other group in society for whom our computers promise more potential for independence and increased participation than the disabled community.” Apple plans to increase the awareness of, access to, and third-party development of disability-specific solutions in 1986.

And if Del Yocam, Apple's executive vice president of product operations, has his way, educators will be seeing some good **curriculum-based software** either from Apple or from independent companies.

Says Sculley, “Let us be clear in our commitment to education: We will always provide ways to enhance the Apple technology you have. We are serious about keeping your loyalty and partnership. . . . Education is our foundation. Our commitment to education will remain as solid as it is today.”

Interestingly, what often prompts a **rebirth** of such large proportions is an all-too-close view of hell. In the case of Apple Computer, the same is true. Last year Apple caught a glimpse of its own type of hell—the possibility of failure. Its last several major product introductions—Apple Lisa, a revised Lisa called the Macintosh XL, and the Macintosh itself—were startling disappointments. In the case of the Lisa and the XL, they were failures. Apple also lives constantly in the shadow of IBM, and lives every day with the knowledge that IBM is gunning for the education market that Apple holds so dearly.

Couple the possibility of failure with the knowledge that IBM is lurking in the shadows to take advantage of its slightest weakness, and you have real fear—possibly a glance at what we'll call **business hell**. Apple has roughly 60 percent of the education market, and that figure reflects only about one computer per classroom. Apple's stated goal is a computer on every desk. So the potential for growth is tremendous and success is inevitable, *if* Apple keeps or improves on its market share.

Thus Apple took decisive action—it finally saw the light—and we think none too soon. We're looking forward to more signs of commitment from Apple toward the Apple II, and we welcome its newfound faith in the product. ■

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*Steve Wozniak
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You can choose versions of RamWorks II ranging in power from 64K all the way up to a whopping 5 megabytes. Even a 256K RamWorks II gives you over 200K of additional usable AppleWorks desktop.

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Only RamWorks II eliminates AppleWorks' internal memory limits, increasing the maximum number of records available from 1,350 to over 15,000. Only RamWorks II increases the number of lines permitted in the word processing mode. And only RamWorks II (256K or larger) offers a built-in printer buffer, so you won't have to wait for your printer to stop before returning to AppleWorks. RamWorks II even expands the clipboard. And auto segments large files so they can be saved on two or more disks.

The most compatible, most expandable card available.

RamWorks II is compatible with more off-the-shelf software than any other RAM card, as well as *all* software written for Apple cards, and software written for most other RAM cards too! It's also compatible with all hardware add-ons like Profile and Sider hard disks.

As your needs grow, so does RamWorks II. It's designed to accommodate future advances in 16 and 32 bit microprocessors. A connector allows coprocessor cards to access up to 5 MEG of memory. RamWorks II is expandable to 1 MEG on the main card (more than most will ever need) ... but if you do ever need more, a low-profile (no slot 1 interference) memory expansion connector allows you to add 512K, 2 MEG or 4 MEG of extra memory without wasting another slot.

And now, in living color ...

For only \$129, you can add RGB color for unsurpassed, super high-resolution color graphics and sharp 80 column text. *Without* wasting another slot — because our RGB option plugs right into RamWorks II (or original RamWorks) without slot 1 interference, and attaches to any Apple compatible RGB monitor (RGB option not necessary with a composite monitor). Order it now — or add it later.

Even corrects mistakes.

If you bought some other RAM card that's not being recognized by your programs, and you want RamWorks II, you're in for a nice surprise. Because all you have to do is plug the memory chips on your current card into the expansion sockets on RamWorks II to recapture most of your investment!

RamWorks II Prices:

with 64K (\$179), with 256K (\$219), with 512K (\$269), with 1 MEG (\$369), with 1.5 MEG (\$539), with 3 MEG (CALL), with 5 MEG (CALL), RGB option (\$129) (can be added later), 16 bit option (\$89) (can be added later).

It's time you let *your* Apple handle a lot of big appetites. Order RamWorks II today ... with 15-day money back guarantee *and* our "no hassle" five-year warranty. Call 9 a.m. to 11 p.m. 7 days, or send check or money order to Applied Engineering.

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MultiRam™ RGB provides full-color RGB Apple video output.

100% Apple compatible

This card doesn't even take up an expansion slot! It takes the place of the standard 80 column card in the auxiliary slot.

Built-in 65C816 CPU Port

The MultiRam™ RGB Card has a 65C816 CPU Port allowing the //e to run all existing Apple programs as well as incredibly powerful 16-bit software such as the Lotus 1-2-3 workalike, VIP Professional. This CPU can directly address up to 16 Megabytes of RAM.

AppleWorks power!

Imagine a desktop measured in Megabytes allowing huge databases and spreadsheets. Load AppleWorks completely into RAM for instant response.

ProDOS memory partitioning

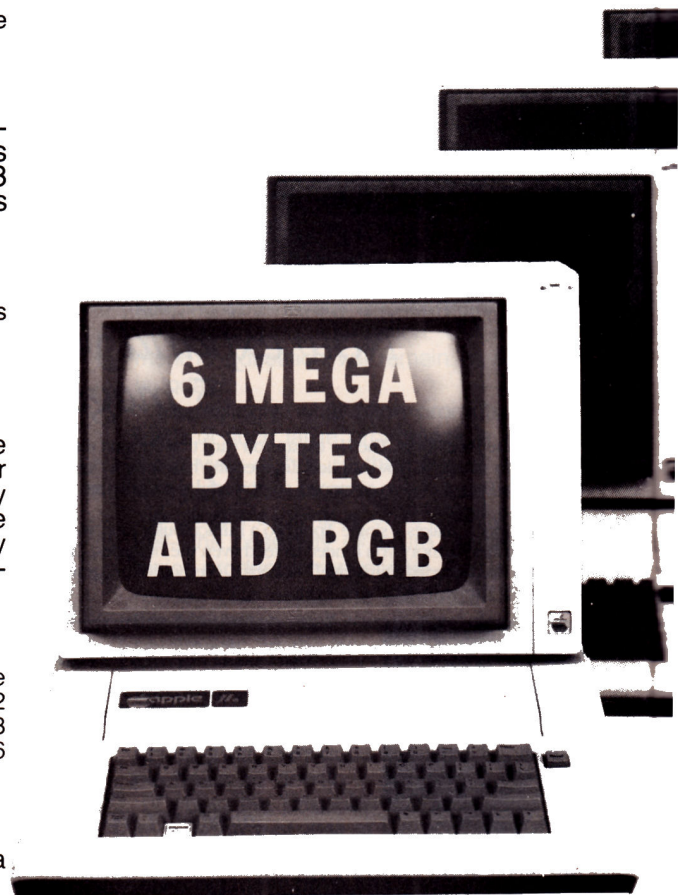
The MultiRam™ RGB's memory can be partitioned to create directories and subdirectories, thereby eliminating the need for a second disk drive for many programs. The optional battery RAM can be used as extra memory or as a super fast disk drive that is reliable even if the power is interrupted. The battery backup allows you to keep the most commonly needed programs and files in memory, ready for instant use.

Memory Capacity

The MultiRam™ RGB Card comes with 64K of DRAM and can be expanded up to 1 megabyte. Optional Static RAM can add up to 2 megabytes. Optional MultiRam + Card can add an additional 3 megabytes. A fully expanded MultiRam RGB Card provides 6 megabytes of memory.

5-Year Warranty

The MultiRam™ RGB is made in the U.S.A. and backed by a 5-year warranty.



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Dazzling Service

I must take exception to Robert Jackson's comments about Dazzle Draw from Broderbund Software (October 1985, Letters, p. 8). He complained about the incompatibility of the program with RGB monitors.

There are, in fact, two versions of Dazzle Draw. The first is designed for the majority of users, people who have monochrome or composite monitors, and it states that on the label on the front of the box. The other version is designed for RGB use and is available directly from Broderbund.

I purchased the program last June and ran into the same problems Mr. Jackson described. I also have the AppleColor card and the Apple Color 100 monitor. I wrote to Broderbund's customer-support people to advise them of my problem and received a response in less than five days. Following their instructions, I returned my original disk and requested the RGB version. The new disk arrived in less than a week. Service this fast is rare these days.

There are some compensations made in the RGB version in order to fully utilize the RGB capabilities, but not enough to really notice when using the program. I agree that Dazzle Draw is an outstanding program, and I'm more than pleased by the outstanding support Broderbund provides its customers.

CW2 Robert L. Arms
302 Hayes Circle
Fort Ord, CA 93941

Better for Education

Spinnaker Software's BetterWorking spreadsheet received a negative review in your September 1985 issue (p. 75), but much can be said on the positive side.

Business users with traditional spreadsheet involvement may well find the BetterWorking spreadsheet doesn't measure up to VisiCalc or others of that genre. But for educa-

tional applications, BetterWorking is a gem! Kids don't particularly care if the program is partially incompatible with VisiCalc files, or if you name a cell 3A or A3. And if they want word-processing power, they know enough to use a word processor.

The most exciting aspect of BetterWorking for classroom use is a built-in random-number generator. Teachers and students can model dice throwing or coin-flipping experiments, and many other simple or compound probability problems.

I've worked with many fifth- and sixth-graders using BetterWorking, and they love it!

John C. Russell
Natrona County School District, No. 1
970 North Glenn Road
Casper, WY 82601

Right On, Assembly

First of all, let me begin by saying that my once-a-month "fix" of *inCider* is truly not enough for an Apple fanatic like myself. I was frustrated with other Apple-oriented publications. They all seemed to assume that each reader has the benefit of ten years of computer experience.

It's maddening to start reading a piece and then have to play catch-up once you get beyond the introductory paragraph. Well, *inCider*, you've found a gem in Roger Wagner.

This gentleman has hit a responsive chord with his empathy and understanding for slower, but sincerely interested, beginners like myself. For example, after reading all the how-to's for program listings, tutorials, and so on, I found that only Roger Wagner was able to explain in one sentence the difference between machine language and assembly language.

I used to go crazy looking at assembly-language listings and wondering how I could make my computer generate them with proper mnemonics and format.

Mr. Wagner, *you* are a teacher! Your style is a breath of fresh air in

the inadequate, confusing, and overly technical climate of other computer-language tutorials. I'll be avidly looking forward to your future tutorials.

Stan Rivera

FORTH Is Here

In the December 1985 issue (Letters, p. 8), a reader inquired about FORTH for the Apple. FORTH is available in the public domain for the staggering price of only \$2.50 (plus an extra \$2.50 for the tutorial disk). Anyone interested should contact The Big Red Apple Club, 1105 South 13th, #103, Norfolk, NE 68701.

Bill Watson
430 Ridge Road
Wilmette, IL 60091

More User Groups

The Dubai Apple Tree Association is an Apple computer user group located in the Arabian Gulf. Although the club is based in Dubai, members come from all over the United Arab Emirates. The D.A.T.A. currently has 120 members and features Macintosh, CP/M, BASIC programming, and adventure-gaming special-interest groups.

David L. Rodrick
Dubai Petroleum Company
P.O. Box 2222
Dubai
United Arab Emirates

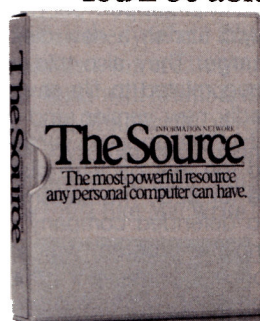
The Orange Apple Computer Club would like to thank you for your excellent series of articles on user groups in the September 1985 issue. We feel it's very important to become actively involved in your local user group to get the most out of your computer.

We have more than 1000 members from all over Southern California. The computer knowledge of our members varies from that of certified Apple developers to beginners who may not yet have purchased a computer system.

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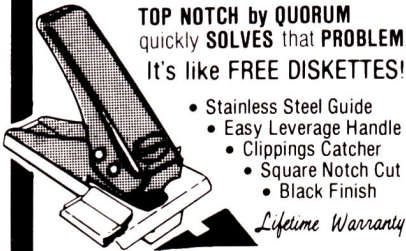
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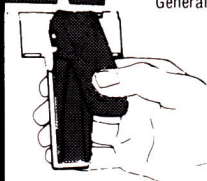
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LETTERS

Unfortunately, you printed our old address. Our new address is Orange Apple Computer Club, 24522 Trabuco Road, Building 105, Suite 251, El Toro, CA 92630.

Thank you for continuing to publish an excellent magazine.

Linda Kay Butterworth
OACC Secretary

Fest Frustration

I've had a most aggravating experience, to the point that I feel it needs airing beyond the one it got at the last meeting of my user group, The Original Apple Corps.

I recently attended what was touted as an Applefest at the Long Beach Convention Center. Once inside, I found I had not come to an Applefest as such, but a Macfest instead. I was only able to find three or four Apple IIe's and about a dozen or less IIc's among those who had set up booths. All the remaining booths in that vast hall were occupied by Macs and only Macs.

There are only two possible conclusions I can draw from this experience. First, the Apple II family, which has been from year one, and in fact still is, the bread-and-butter of Apple Computer is now considered an embarrassment to that firm, and is to be frozen out by the firm's directing its resources nearly exclusively to the Mac, in hopes that Apple II owners will abandon their units and purchase Macs in their place.

The other is that maybe Apple had nothing to do with the "Macfest" (although I was given to understand it was sponsored by Apple), and the near total predominance of the Mac at the expense of all other Apple products was the work of local organizers. If this is the case, then where was the "truth in advertising" that would have saved me (and many others) the price of two admissions, a tank of gas, and, most importantly, an irreplaceable day of my time? All that would have been necessary was a simple statement in the promotional material such as "featuring Macintosh," or something similar. The word Applefest means *all* Apple products.

Please understand I have nothing against the Mac or those who use it. I do object to its being pushed to the exclusion of all other Apple products. When I brought this up at the user group meeting, I found that nearly everybody agreed with me. This sentiment seems to be representative of

Apple owners as a whole. I hope this reaches someone with the interest or authority to do something about the sort of situation allowed to take place at Long Beach.

Lee F. Bishop, Jr.
533 20th Street
Santa Monica, CA 90402

Cold War

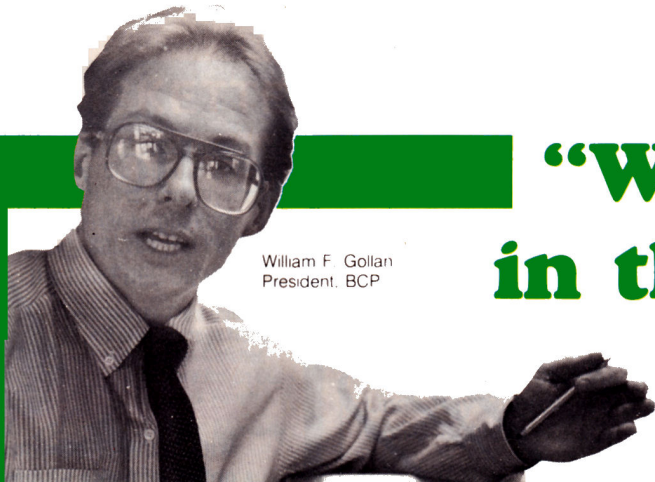
Yesterday I purchased a copy of SpellWorks, newly arrived at a local dealer, for \$49.95. Although no back-up or mention thereof is included, it turns out to have a sophisticated copy scheme. When I attempted to make a routine back-up copy, one side of the original disk refused to boot. The problem with complicated copy-protection schemes like that is that they are fragile.

I called the Advanced Logic Systems customer-support people, who said they'd furnish a new disk at no extra charge. They also told me there was a bug related to file saving in my supposedly new version and they would ship the updated version. They informed me that back-up disks are available for \$25! The salesman I talked to defended company policy by saying the program was a "steal" at the price. I agree, but I think the end user is the victim. I suggest users avoid this software like the plague—or at least until someone discovers how to deprotect it and passes the information along. Obviously, I have no idea whether or not the program is a good one.

I have absolutely no sympathy for software publishers who moan and groan about piracy. It's interesting that we don't hear the same sanctimonious complaints from companies who sell unprotected software. Maybe they're too busy hauling their profits to the bank. Piracy, indeed—cold war is more like it.

Donald L. Schubert, Ph.D.
4926 La Cuenta Drive
Suite 103B
San Diego, CA 92124

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, 80 Pine Street, Peterborough, NH 03458.



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Tune In to Mindscape's Latest

By now you may have heard it on radio's Top Ten. "What's that?" you ask. It's *Win Back the Cup*, a song from Mindscape's latest adventure game, *The American Challenge: A Sailing Simulation*. The tune is on the flip side of a 45-rpm record that comes with the software. On the main side of the record an "old salt" explains the game and the fundamentals of sailing. But the flip side is purely for rock 'n' roll buffs. Tom Snyder, the same talented guy who wrote the software, composed and recorded *Win Back the Cup*. Snyder

has already had success in the music business with the song *Run for the Money*. His achievements in educational-software development are well documented, with hit titles such as *The Halley Project* and *The Other Side*.

One or two people can play *The American Challenge*. A match competition pits the top eight sailors against each other to win a trip to Perth, Australia, where the next America's Cup race will be held in 1987. The challenge is to regain American honor by beating the Aussies' best time.

But if the challenge of sailing is too much for you,

just kick back, and turn the record over. And who knows, if the music hits the top of the charts, Mindscape might appear next with a video on MTV.

A Fair Shake for Women and Minorities

Apple Computer plans to announce in April the recipients of its innovative "Next Steps" corporate grants. The program is designed to give students who have been dubbed "underserved" equal access to technology.

Specifically, this group consists of elementary- and high-school students who are economically disadvantaged or who represent ethnic or linguistic minorities. Also included in this classification are girls in math and science classes.

The Next Steps program

the substantive learning that takes place," Dr. Bowen says. "Too often this group of students experience only low-level applications of the computer, instead of having more creative learning opportunities."

According to Apple, fewer than 10 percent of the 500 applicants will receive equipment under the terms of the project.

Trade In and Upgrade

A new policy from Apple Computer may offer schools the incentive to upgrade old Apple II equipment.

Beginning last month, and running through December 31, 1986, schools can trade in Apple II, Apple II Plus, Apple III, IBM PCjr, TRS-80 Models II, III, and IV, and selected Commodore computer systems (monitor, CPU, and disk drive), as well as additional disk drives, certain IBM typewriters, and selected computer systems from other manufacturers. For each model returned, the school will receive credit toward the purchase of an Apple computer system. Depending on the make and model, credits on trade-ins can run up to \$200 for each system. To take advantage of the program, schools must order a minimum of five new Apple computers through Apple's Education Purchase Program, according to the company.

"We recognize the need for schools to upgrade the quality and functionality of their computers," says Jim Buckley, Apple's educational-channel manager. "Schools are making major, long-term investments in



is the brainchild of Apple's Dr. Barbara Bowen, whose earlier teaching career included several stints in inner-city schools. She has also noted with concern some recent surveys pointing to less-than-equal access to technology for many women and minorities. "Our interest is not just in the number of systems put into a school, but in

Courtesy of Comstock Inc./Mike & Carol Werner

computer equipment, and those investments must be protected. Apple intends to provide schools with that kind of security."

Apple will refurbish returned systems and sell them as used equipment through the Microcomputer Inventory Exchange, a Santa Barbara, California-based firm specializing in marketing renovated computers.

Actions Speak Louder Than Words

When it comes to proving your commitment to something, actions speak louder than words. Such was the case at the Apple World/Macintosh World Expo conference in January. Steve Wozniak, father of the Apple II, co-founder of Apple Computer, and now a consultant to the company, was supposed to represent Apple on a panel discussing the future of the Apple II. At the last minute the Woz apparently was sick, and his empty seat put a damper on the audience—but only briefly.

As the panel moderator was still apologizing for Wozniak's absence, in walked Apple president John Sculley. He came alone, unescorted by the usual coterie of public-relations people, and marched up to the podium. He said he was filling in for Steve. Apparently Sculley had learned that no one would be representing Apple Computer at the Apple II panel discussion, and he took it upon himself to show Apple's commitment to the product line.

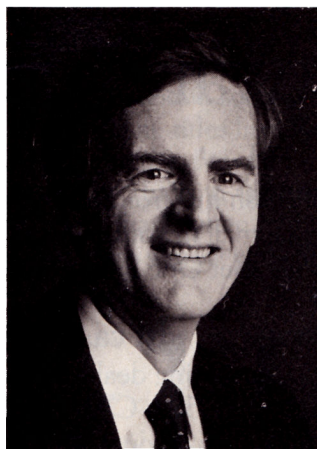
Not even conference promoters knew of Sculley's plans. When he arrived at the door to the conference inCider

room, the show official refused to let him in because he wasn't wearing the proper badge. The holdup was only temporary, though. Once introductions were made, Sculley joined the panel to answer the question posed by the moderator: "If you were John Sculley, what changes would be made with the Apple II?"

Evidently no one expected the real John Sculley to be there.

A Strategic Alliance?

Apple Computer president John Sculley recently told attendees at the annual Minnesota Educational Computing Corporation



Courtesy of Apple Computer, Inc.

Apple Computer president John Sculley.

(MECC) consortium in Minneapolis, Minnesota, that Apple had made a "strategic alliance" between the II and the Macintosh.

Sculley discussed the problems caused by having two products with different architectures and no common data format. He then said, "We have a tremendous opportunity to bring the look and feel of the Macintosh to the Apple II." According to a company spokesperson, Sculley was referring to opportunities available to third-party developers to build the "human" or Mac-like interface into more II programs.

Sculley hinted that the Apple II and Macintosh would eventually share common peripherals, and that the II would continue to grow and "take advantage of many of the innovations of the Macintosh." He also said that users could look forward to an "exciting growth path" for more powerful Apple II workstations that would be fully compatible with existing IIe and IIc systems.

We're always looking for news of the Apple world. If you're making news, send your press releases and photographs to News Line, inCider, 1060 Marsh Road, Suite C-200, Menlo Park, CA 94025.

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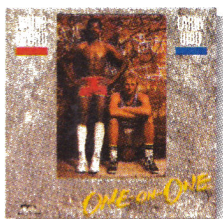
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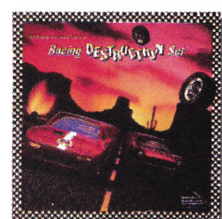
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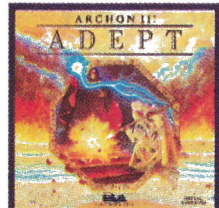
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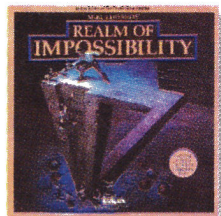
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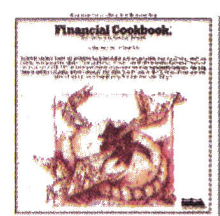
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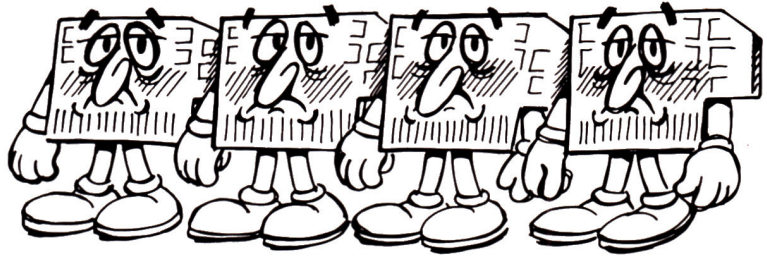
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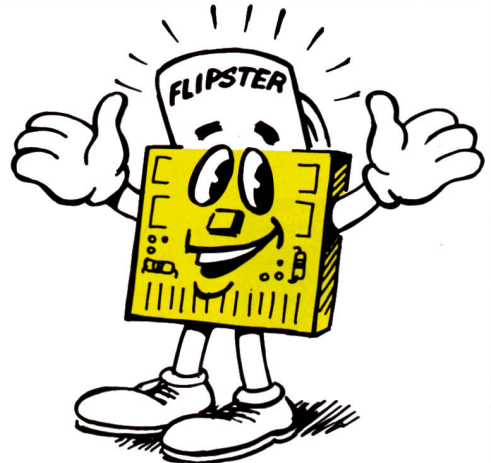
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APPLE CLINIC

by Jim Sather

The Apple Clinic is a forum for discussing Apple II hardware and related subjects. If you have questions or answers, or want to make a statement, write to Jim Sather, Apple Clinic, inCider, 80 Pine Street, Peterborough, NH 03458.

Patch Central

I sure need help! I'm having problems using the full 652K capacity of my Rana Elite Three disk drive with my programs. I was told I need to patch the Rana DOS onto my program disks, but I've had little success in my attempts to do so. Since Rana is now out of business, I'm unable to get help anywhere. I use Apple Writer IIe, the PFS programs, Dow Jones Market Analyzer, Fund Master-TC, and VisiCalc.

Tom Cioch
Dearborn Heights, MI

Yours is an example of many letters I get asking how to make software work with hardware it wasn't designed to support, Tom. These requests cover a great variety of hardware and software, the majority of which I don't own or use. In most instances, including yours, it's probably possible to patch the software to make it work with the hardware, but I cannot realistically spend the required days or weeks developing and documenting the modifications.

Still, I regret being unable to help correspondents like you who have legitimate needs and have turned to Apple Clinic for assistance. In response to those needs, I'm establishing Patch Central, a service in which Apple Clinic disseminates information about patches and software modifications inCider readers have developed.

My idea is for readers to send documentation for patches and modifications they know of or have developed to Apple Clinic. I'll briefly

inCider

describe each patch in Apple Clinic and identify its sender. I'll include any patch that seems to improve software performance, but it's my experience that the patches people want are those that provide hardware capabilities or support the original programmer overlooked.

My plan for distributing the patch information is to charge a fee of about \$2 to readers requesting documentation for a patch. This fee will cover my costs and time, plus a \$1 honorarium I'll send to the patch provider. Nobody is getting rich here, but contributors should at least get ice-cream money for their efforts. I'll also print documentation for selected (read: brief, but helpful) patches in Apple Clinic.

Patch Central is a chance for readers to share their hard work with the community of Apple II users. I know many of you normally don't have the time to write letters to magazines, but I hope that a significant number of you will contribute information for the benefit of others faced with the same problems you overcame. Needless to say, Patch Central will succeed only if readers contribute. If you have a patch, send a copy of its documentation to me at Apple Clinic, attention Patch Central.

Printer Buffer Schematic

I've had my Apple IIe for a little more than a year and have been delving into electronics recently. I'd like very much to build a printer buffer, but can't find schematics to help me. Do you know where I can find schematics for a simple printer buffer? I have an ImageWriter printer and Apple Super Serial interface card.

Leslie S. Newman
Richmond, VA

Bill Green presented a 64K in-line printer buffer in the August and September 1985 issues of Radio Electronics. This buffer is actually a Z80-

based microcomputer with 64K RAM and 2K EPROM that's capable of accepting Centronics parallel or RS-232 serial print data. The setup can also program EPROMs and run Z80 programs downloaded from the host computer.

The hardware description in the Radio Electronics article is excellent, but gives no EPROM firmware listings or descriptions. You can purchase the controlling EPROM for \$26. If you don't want to build the buffer from scratch, you can purchase the complete kit for \$139. For more details, see the issues mentioned.

A novel idea for a printer buffer appeared in the August 1985 Apple Assembly Line. David C. Johnson connected the output of the Super Serial card in his IIe to serial port 2 on his IIc, and an ImageWriter to port 1 of the IIc. This setup routed all IIe print output to the printer via the IIc, which David beefed up to 640K via an Applied Engineering Z-RAM assembly. David presented software that used the IIc as a 576K printer buffer for the IIe.

This scheme works great if you don't normally need your IIc for other things while the IIe is generating printouts: The IIe never waits for printouts, and one printer serves two computers. Those with technical skills could devise similar schemes for using other light-duty computers (an old Apple II Plus, for instance) as printer buffers for heavy-duty computers.

Scribe Information

This letter is in response to Brian Symonds' letter about jammed Scribe ribbon cartridges ("Jammed Scribe Cartridges," Apple Clinic, September 1985, p. 58). I've had this difficulty many times, especially early in 1985. It's definitely a problem with the cartridges. It's nearly impossible to move a stuck ribbon with the ribbon-advance knob on the cartridge. Sometimes, removing the cartridge and

slapping it solidly against the palm of your hand helps.

My dealer has always replaced these cartridges—no questions asked—upon return of the defective ones. In fact, I had so much trouble that I used "free" ribbons for about two months. Examination of lot numbers stamped on the cartridges showed that the problem is common to many different lots.

Brian's dealer is apparently charging him for color ribbons at \$9.95. I found I could improve on the \$6.25

price by purchasing them in lots of six or 12.

I use an inexpensive impact-type dot-matrix printer, except when I want exceptional print quality. My accounting clients like the Scribe's letter-quality printing. One likes it even more than the print from his \$1500 daisy-wheel printer. I also find that graphics printed on the Scribe come out very dark and glossy. This makes them excellent originals for photocopying and offset printing.

I have a few hints for living with the Scribe:

- Use thermal paper such as that for the Silentype (roll) or the IBM thermal printer (fanfold). Or use the thicker thermal paper used on the Brother line of typewriters; the thinner paper some Brother dealers sell jams. Thermal paper is adequate for most draft work, and you don't need a ribbon.

- For best-quality print with a ribbon, use thermal-transfer paper. Hammermill sells one type, as does Shanin Graphics (ByteWrite thermal-transfer paper). Radio Shack catalog no. 26-1427, 20-pound white paper produces nearly equal quality. With any of these, be sure to print on the smoother side; even regular paper may have one side that's smoother.

- Use only the normal print-density setting on the DIP switches unless you absolutely need higher density.

- Clean the platen frequently. This is most important. I clean mine every two weeks.

- The head is user serviceable. If you get a wax buildup (I never have), remove the head and clean it off.

John R. Murphy
Downey, CA

As an Apple dealer tech-support person, I've encountered this problem several times, and it can be traced to the DIP-switch settings for paper thickness; it's not a manual adjustment at all. To clear up the ribbon meltdown, follow the printer-manual instructions for setting switches 3 and 4 to low-density paper.

Wax buildup on the print head occurs after the ribbon has peeled back on itself. The wax doesn't normally come into contact with the print head, since the wax is only on the paper side of the ribbon. [*But what if a hole is burned in the ribbon?* —J.F.S.]

The price difference (\$6.25 versus \$9.95) on the Scribe ribbons can be attributed to the Canadian dollar and the federal sales tax in Canada, although our price is \$7.95 for original Apple Scribe ribbons.

The Apple Scribe is economical up to about 75 pages per month, and the near-letter-quality mode is excellent for quality output. For more than 100 pages per month, I consider the ImageWriter the most economical buy.

Jeff Shields
Thunder Bay, Ontario

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I discovered the problem was a burned print head, which you can replace for about \$6, or which a service technician can replace for an additional \$65 labor. My printer was only three months old when the problem occurred. Apple people couldn't tell me what to do, so I figured it out myself. Since identifying and correcting the problem, I've had no problems with jammed ribbons. Scribe owners should note that the cartridges last for only about 35 pages of near-letter-quality printing. [Sixty-five dollars to replace a user-replaceable part??? —J.F.S.]

Joseph F. Laino
Springfield, MA

I was getting quite mad at my jammed ribbon cartridges until I took out my frustration in a letter to Apple. The company sent me a free cartridge and asked me to try it out. It worked. Later, I was happily surprised to receive a follow-up call from a young man at Apple. He said they had difficulties with some ribbons that had come out of Dallas and Chicago, and they suspected cold weather

caused the problems. He suggested that I check the print head for wax buildup (there wasn't any) and that perhaps the tape was spiralling as it wound up and I should attempt to realign it (I smack them on the table and they work fine). He also told me that the suggested price of a cartridge is now \$5, and that I should expect 40 full pages of print per ribbon as the Scribe prints in test mode, edge to edge and top to bottom. [If anyone ever publishes a phone book of helpful Apple employees, I'll be first in line. —J.F.S.]

Pat Hathaway
Topeka, KS

I have the same problem as Brian Symonds, but with only about one out of ten ribbons. He must have some other hardware problem. I'm a writer and get up to 70 double-spaced pages per ribbon. This works out to about seven cents per page, since my dealer carries the ribbons for \$4.99 (and replaces bad ones free). The color ribbon produces about 10-12 pages from Dazzle Draw for \$6.99.

The versatility, performance, and

low cost of the Scribe outweigh the disadvantages of the disposable ribbon. The Scribe is everything Apple says. The company just doesn't tell you about the ribbons.

Mike Holloway
Baton Rouge, LA

The Scribe performs satisfactorily except for cost per printed page. My solution is to print rough drafts on thermal paper with no ribbon, then install a ribbon cartridge and 20-pound bond paper for a high-quality final draft. I use IBM PC compact printer paper, p/n 1503924, 250 fanfold pages per pack. The cost is about seven cents per sheet. I wish someone produced fanfold, tractor-feed thermal paper. [The thermal paper printout sample is adequate for rough draft. —J.F.S.]

Terry B. Forester
Grandview, MO

Brian Symonds' letter generated the greatest volume of knowledge-packed correspondence I've yet received in my first year of presiding over Apple Clinic. I could have devoted this entire

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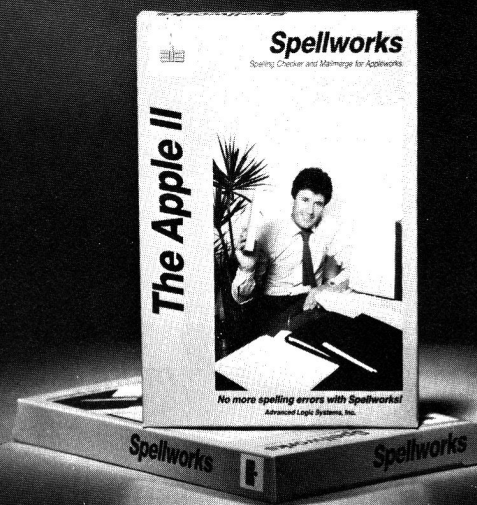
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column to these letters. Instead, I've printed a selected few and have sent copies of all letters to Brian, the other Scribe correspondents, and Apple.

The letters I received provided a fair sample of Scribe printout. The Scribe prints some nice images, but I was disappointed to see fading (as if a ribbon had been used too long) in the majority of the letters. The printouts looked almost as if someone had made photocopies of daisy-wheel output.

From all this correspondence, I also discovered a second negative aspect of Scribe printouts. All the letters I received were folded to one-third size and mailed in legal-sized envelopes. Where the surfaces were pressed together, the printed images were transferred from one surface to the other. The transferred text ranged from barely discernible to quite readable, and the overall effect made the letters appear dirty or ink-smeared.

Most correspondents expressed satisfaction with the Scribe, but I have serious reservations about it. My opinion

of the text quality is not as high as some of theirs, and their hassles with ribbon cartridges seem daunting.

Apple //c Modem Problems

I own an Apple //c and Apple 300 modem and get hundreds of garbage characters when my computer is connected to local bulletin boards. This seems to happen most often with Apple //e boards using Hayes modems. I'm also unsuccessful at downloading programs with Hayes, Apple Cat, and several other modems. I've tried every terminal program on the market with no success.

My dealer checked out my modem and told me it was fine. He claims he successfully called Tymnet and accessed Dow Jones. He said he couldn't be responsible for every little modem.

Can it be that my motherboard is bad? I've heard that there was a crystal problem, but my dealer assures me that isn't it.

Scott Segura
Jacksonville, FL

Apple //c's manufactured prior to January 1985 do have a problem: Apple modems will communicate with each other, but not with modems of other manufacturers. The problem is indeed associated with crystal frequencies, but has been corrected in all //c's with serial numbers greater than D51000.

If your serial number is less than D51001, you have the modem-frequency problem, and authorized Apple dealers will correct it free of charge. All authorized Apple dealers have the guidelines for doing this in the Apple //c section of Apple publication 072-0062, p. 0.3. Point this out to your dealer if he continues to maintain that there isn't a problem.

Blooming Monitor

One day, while I was programming in 80-column mode, the display on my Apple green-screen monitor started to wave and distort. Soon, the screen started to "grow," in the sense that the letters became larger and distorted. The problem was still there in 40-column mode, but it went away when I tried my color monitor. I've noticed that the problem goes away when the monitor cools down, but comes back when the monitor heats up again.

I'd like to know why this happens and if I can get it fixed without replacing my monitor. I really need the 80-column display. The warranty on the monitor has expired.

Ivan Samuelson
Yorktown, IN

You are describing a classic CRT symptom called "blooming," which is normally caused by a faulty high-voltage power supply in a monitor or television. It's the kind of thing a competent technician can repair, but not the sort of thing you can handle yourself. Take the monitor to a full-service computer dealer, and tell the repair people not to fix it if the cost exceeds a limit you've set.

The limit should be what your old monitor is worth to you, probably \$50-\$80. I personally wouldn't spend more than about \$50 to repair an old monochrome monitor, since you can buy a pretty snazzy new one for \$100-\$150 if you shop around. It's just a guess from where I sit, but I suspect you can get your monitor repaired for less than \$50.








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Another Clobbered Disk

I'm unable to load one of my AppleWorks data disks. When I check for bad blocks with the ProDOS utility disk, it tells me that block 3 is bad. Is there anything I can do to retrieve the data on this disk or have I lost this information forever?

James A. Barker
Saint Cloud, FL

It's possible to retrieve all of your data except for those on the clobbered sector. Here is a method using Copy II Plus from Central Point Software:

- 1) Format a blank disk using the **FORMAT** command.
- 2) Copy tracks \$1-\$22 from your damaged disk to the blank disk using the bit copier.
- 3) Copy each sector of track zero from the damaged disk to the new disk using the sector editor: First read the sector, then switch disks and write the sector.

You'll be unable to read sector 8 or 9, or both, since these sectors make up ProDOS block 3. Just transfer the track-zero sectors that can be read. Data on the unreadable sector are lost and replaced by a sector filled with zeros, since you formatted the new disk as a first step.

If you have a thorough knowledge of disk formats, you might be able to partially recover the data in the damaged sector using a nibble editor like that in Copy II Plus or Locksmith 5.0. With such knowledge, you should be able to spot an address-field checksum error or other correctable error.

You might also consider buying Life-saver from MicroLab. Joseph G. Lossick of Columbus, Ohio, emphatically recommends this program for repair of disk-I/O problems. He says that Life-saver is powerful, but suited for novices. Lossick also recommends Ultradisk Test from Computer Advanced Ideas for detecting benign read/write errors before they are bad enough to cause I/O errors.

Apple //c Keypad

I just purchased an Apple //c and would like to have a numeric keypad for it. Do you know if anyone makes such an accessory for the //c?

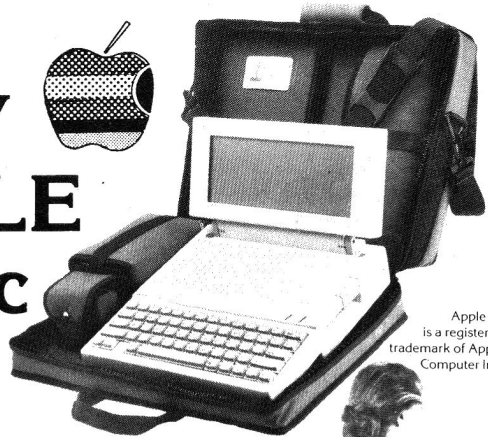
Ed Heinen
Bison, KS

I don't think anyone is marketing an external keypad or keyboard for the Apple //c, simply because the computer lacks an external key jack in the back. As a result, any commercial keypad would require you or your dealer to open the cabinet, install the keypad connector between the internal keyboard connector and motherboard keyboard jack, and route a connecting cable through the cabinet to the external keypad. The result would be electrically simple, but mechanically clumsy and completely

out of line with the concept of a closed-lid portable computer.

If, despite the negative aspects, you want an external keypad for your //c, you can connect a //e keypad to the //c through an adapter I've devised (see the accompanying **Figure** and **Photo**). The heart of this adapter is a 34-pin break-out connector that lets you tap into the //c keyboard-matrix signals while leaving the keyboard connected. Matrix lines X4-X7 and Y0-Y5 of the //c are connected to the same lines on the

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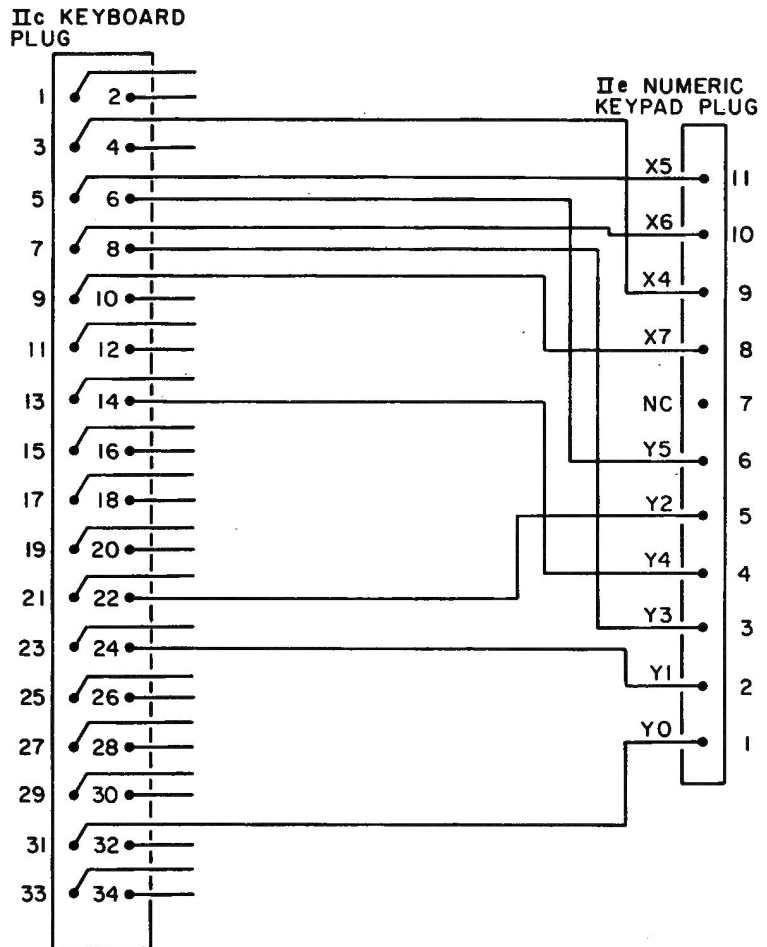
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Figure. Schematic showing connections between the //c keyboard plug and the //e numeric-keypad plug.



//e keypad. The //e keypad operates correctly since the //e and //c keyboard ROMs are identical.

You need an 11-pin single-row male jack, a 34-pin single-ended header/ribbon-cable assembly, and a 34-pin AP Products intra connector to build the adapter (see the **Table**). I purchased the parts from Digi-Key Corporation (approximately \$18), but you can probably find them from other sources.

Break off an 11-pin section from a 36-pin male header to form the 11-pin

male jack. Cut back the unused wires and solder the X4-X7 and Y0-Y5 wires to the 11-pin jack as shown in the schematic and photograph. Join the cable assembly and intra connector as shown, and install the adapter between the keyboard cable and keyboard jack inside the //c.

Table. Digi-Key adapter parts.

Part	Part Number	Price
Intra-Connector	922576-34	\$11.00
Cable assembly	R314G-36-ND	4.12
36-pin male header	929834-01-36	1.60

Digi-Key Corporation, P.O. Box 677, Thief River Falls, MN 56701, (800) 344-4539.

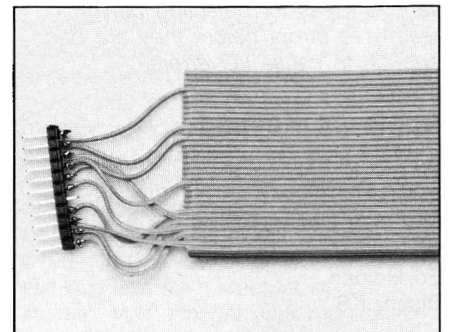


Photo. Adapter for connecting an Apple //e keypad to an Apple //c.

What every Apple II+ and IIe user should ask before buying the "Sider" 10 MB hard disk:

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For starters, the Sider lets you boot your *Apple II+* or *IIe* directly off the hard disk—unlike some other Winchester subsystems. Rebooting is also trouble-free. And the disk is partitionable, allowing you to allocate space to four operating systems on the same disk. The Sider supports: Apple DOS 3.3; Pro DOS™; Apple Pascal; and CP/M®.

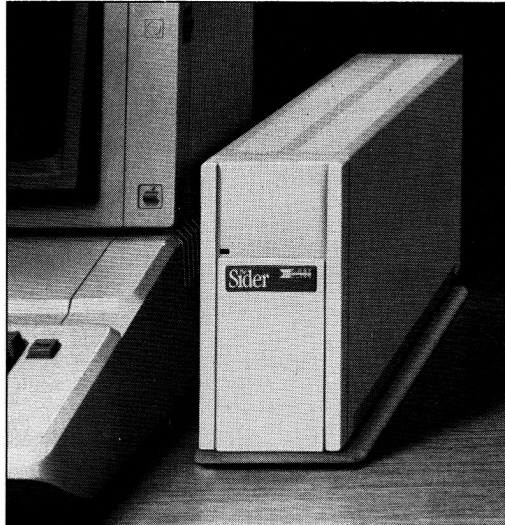
What's more, a small "footprint" lets you incorporate the compact Sider into your existing computer set-up with ease.

In addition, with the Sider, you not only pay far less for the subsystem, you also save money on installation. Because, unlike other 10 MB systems that require the purchase of expensive "extras," the Sider is *plug and play*. Everything you need is provided, including cables, host adaptor, installation software and manual.

What makes it so reliable?

To start, the Sider is manufactured, and sold exclusively, by First Class Peripherals, an innovative computer company which is backed by Xebec. The computer industry's leading manufacturer of disk controllers, Xebec has over a decade of experience serving customers like IBM, Toshiba, Texas Instruments and Hewlett Packard. It's this kind of expertise that helps assure the Sider's performance.

Special design features further enhance reliability. The Sider's controller is the field-proven, industry standard Xebec SI410A. And Xebec's 3200 drive tester, the



tribution expenses, and pay only for the product.

What about a guarantee?

Like many experienced Apple users, you may be reluctant to buy a hard disk priced at only \$595 without first seeing for yourself how it performs. That's why First Class Peripherals offers you a reassuring, money-back guarantee that eliminates any risk on your part. Simply order the Sider and use it for 15 days. Then, if you're not entirely satisfied, return it and receive a full refund—no questions asked.

The Sider also comes with a full one-year limited warranty. Plus, there's a convenient, toll-free hotline you can call anytime you have a technical or service question, or need help.

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To receive the Sider 10 megabyte Winchester hard disk subsystem for only \$595, simply order using the coupon below. For faster service, order by phone and charge to your VISA, MasterCard or American Express. (You can also call us if you have any questions or technical concerns about the Sider. We'll see you get the help you need.) Call toll-free:

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Product Information

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EPROM burner PC board
Complete buffer kit
Complete EPROM burner kit
Buffer EPROM

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Merritt Island, FL 32952
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\$15 (EPROM burner PC board)
\$139 (complete buffer kit)
\$49 (complete EPROM burner kit)
\$26 (buffer EPROM)

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Reader Service Number 323

Lifesaver

MicroLab
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Highland Park, IL 60035
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\$25

Reader Service Number 324

//c Keypad kit

Southern California Research Group
P.O. Box 593
Moorpark, CA 93020
(800) 635-8310 (CA)
(800) 821-0774
\$29.95

Reader Service Number 325

Ultradisk Test

Computer-Advanced Ideas
1442A Walnut Street
Suite 341
Berkeley, CA 94709
(415) 526-9100
\$29.95

Reader Service Number 326

Now comes the part you don't want to hear. There is no good way to route a 34-wire ribbon cable out of the //c. Perhaps the best way is to cut out several of the separators from the cooling slots in the back, creating a 2-inch horizontal slot through which you can route a cable. It looks as if you can get a cable out near the video-output and external-disk connectors.

Largely because of the difficulties in cable routing, I don't recommend connecting an external keypad to the //c. Neither inCider nor I will bear re-

sponsibility for any negative consequences of your decision to install the adapter.

You could take the keypad adapter a step further and wire it to a 26-pin double-row male jack: The wiring should be identical to that of the //e keyboard connector. The adapter would then let you connect to the //c external keyboards designed for the //e. (Editor's note: The January 1986 issue of *inCider* featured another approach. See "The Keys to a Better //c" [p. 49].)

One commercial product embeds a numeric-keypad layout into the standard keys of the //c. The Southern California Research Group //c Keypad kit consists of a new keyboard PROM and keypad decals. The Dvorak switch lets you select the numeric-keypad layout. Unfortunately, the //c keyboard ROM is not socketed, so you must desolder the keyboard ROM and install a socket in its place before the Keypad kit PROM.

256K RAM Chips

Can I plug 256K RAM chips into the RAM sockets on my Apple //e motherboard and access 256K of motherboard RAM instead of the standard 64K?

Gino Fortunato
San Mateo, CA

No, you can't. The sockets are wired strictly for 64K chips, and Apple //e memory management supports only 64K of motherboard RAM. The same goes for a standard 64K extended 80-column card. Only auxiliary cards designed to accept 256K chips let you expand memory by installing the bigger chips. The big auxiliary-slot RAM cards (those greater than 64K) have on-board circuitry that divides auxiliary memory into banks of 64K.

A hacker could kludge up a 64K/256K adapter to let you use 256K chips on the motherboard. This should contain extra ICs for bank selection via a jumper to the C07X' signal at auxiliary-slot pin 6, or C10-8 or A10-3,6,11,14. Bank selection should be similar to the RamWorks/MultiRam/Legend E' auxiliary bank-selection protocol: The computer should select motherboard bank zero when you turn it on, and select one of four motherboard banks by storing the bank number at \$C07X. The computer should enable only bank zero during 6502 phase 1, so only motherboard bank zero is used for video-display mapping. ■

What the Experts are Saying About RamWorks II!®

"In an informal competition called '640K vs. 640K' AppleWorks running on a RamWorks equipped Apple IIe outperformed Symphony running on an IBM PC."

—*InfoWorld*

"AppleWorks wiped out Symphony. . . The competition was set up partly to show off another of Wozniak's favorite things, the RamWorks II memory expansion board from Applied Engineering . . ."

—*San Jose Business Journal*

"There are huge differences among the AppleWorks modifying programs sold with the cards. Without doubt, RamWorks II is the most powerful."

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—*A+ Magazine*

"RamWorks II is the most powerful auxiliary slot memory card available for your IIe, and I rate it four stars. . . For my money, Applied Engineering's RamWorks II is king of the hill."

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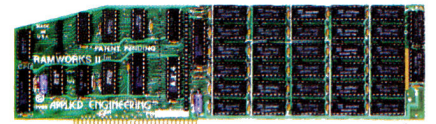
As you can see, it's easy to tell who sets the pace in Apple memory expansion. In fact, if you read the competition's ads, you'll notice that many even claim to be as good as RamWorks. Some say they're "RamWorks compatible".

At least they agree on one thing. RamWorks is the one they have to measure up to. But the truth is there aren't any substitutes for RamWorks.

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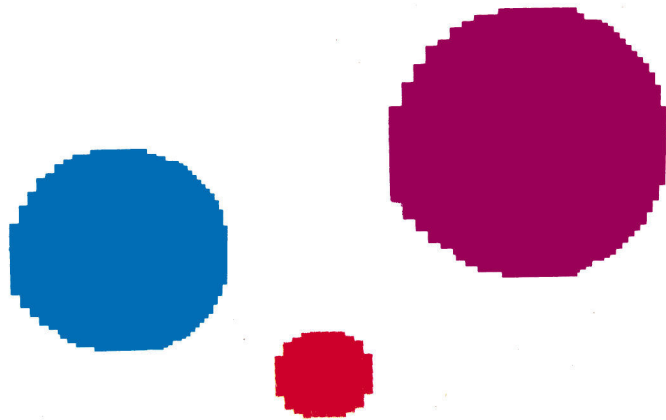
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REVIEWS

Instant Pascal, Kid Pro Quo,
Your Personal Financial Planner,
Transet 1000, LiveWire



Pascal for the Masses

INSTANT PASCAL

Apple Computer, 20525 Mariani Avenue,
Cupertino, CA 95014

Programming-language learning aid; Apple IIc,
or IIe with 128K, rev B circuit board,
Extended 80-Column Text Card, and jumper
block; mouse recommended

\$140

Ease of learning	■ ■ ■ ■
Ease of use	■ ■ ■ ■
Documentation	■ ■ ■ ■
Support	■ ■ ■ ■
Overall	■ ■ ■ ■

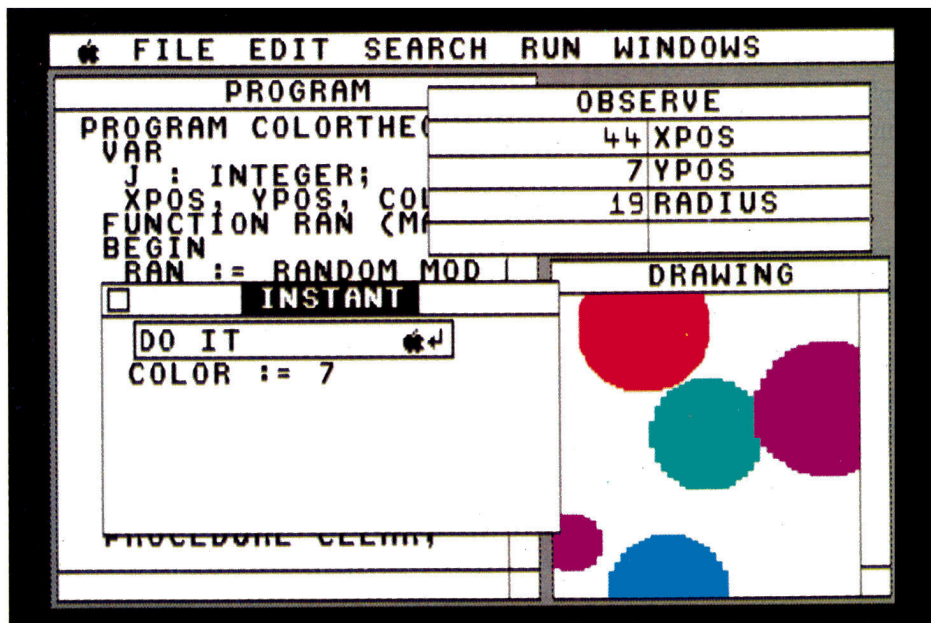
Computer programming is nothing like it was in the good old days. You used to be able to spot programmers by the beepers hanging from their belts, the printouts stuffed under their arms, and that unmistakable haze in their eyes from long hours spent staring at a terminal. Everyone used assembly language, or BASIC if you were still in grade school.

When Pascal came into vogue, there was still hope for old-fashioned programmers, because the language was difficult to use and even harder to learn. Now Apple has introduced a product that brings Pascal within reach of the average citizen. The programmers of yesterday may soon share the fate of the punchcard.

Not for Hackers Only

Instant Pascal is a new instructional Pascal system designed by the people at Think Technologies, who also developed Macintosh Pascal. In fact, Instant Pascal is virtually identical to its Mac counterpart. Both systems have a multiple-window format (program, text, drawing, and so on) and make heavy use of the mouse.

Even more importantly, though, both systems are interpreted rather than compiled. By nature, Pascal is a compiled language: Before you can run a program, you must first tell the



Apple to translate your Pascal code into the machine language computers understand. Unfortunately, even a slight error in syntax will make this compilation run incorrectly or fail altogether. This makes the entire process of learning Pascal difficult and frustrating.

An interpreted language, on the other hand, translates the program as it's running. Although interpreted programs run more slowly than their compiled brethren, they're more flexible and easier to learn. In short, interpreted languages such as Instant Pascal are ideal for instruction.

And for those unfamiliar with mice and windows, the Instant Pascal package includes an excellent tutorial disk, which provides a guided tour of the software's special functions and a brief introduction to Pascal. It's interesting, but the real fun begins when you run the program itself. It's not just for "techies," either—the great joy of Instant Pascal comes from the fact that anyone can use it.

As with Mac software, you perform all Instant Pascal functions within win-

dows and control most of them with a mouse. (Although Instant Pascal will run without one, a mouse lets you work more comfortably.) Each window has a specific use and can be enlarged, reduced, overlapped, moved, or removed. You write the actual Pascal code within the Program window, for instance. A special print feature, which helps locate errors, formats all text you type into this window. The greatest problem most people face in learning Pascal is mastering use of the semicolon, which controls statement separation in the language. Because the special formatter interprets semicolons and arranges program

inCider's Ratings

Excellent	■ ■ ■ ■
Above average	■ ■ ■ ■
Good enough	■ ■ ■ ■
Not up to standards	■ ■ ■ ■
The empty set	□

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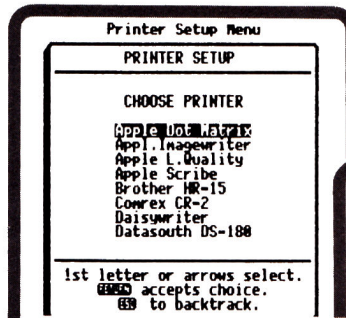
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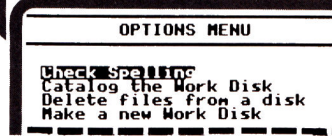
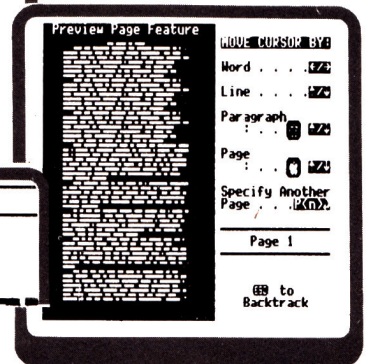


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code to reflect their (apparent) meaning, it's easy to see when something's wrong.

Most program output is then routed to either the Text or the Drawing window (depending on the type of program you've written). Both windows may operate during a single program run, and you can size them according to need. You can also direct output to text or random-access files, or even a speaker.

Two auxiliary windows help you debug your programs. The first is the Instant window, similar to the Program window in that it accepts Pascal code. The Instant window lets you execute individual statements without requiring an entire program as superstructure. This is useful if you want to see the effect of a statement before placing it in your program.

Once the program is running, the Observe window displays the current values of the variables you request.

A Flexible Tool for Learning

These fancy manipulations are possible because Instant Pascal is interpreted, rather than compiled. Interpreted languages execute program statements one at a time. Although they're slower than compiled languages, which translate the program as a whole, interpreted languages are more flexible. For instance, Instant Pascal lets you halt a program halfway through, examine some variables, then restart it.

All these goodies are simply add-on functions that don't change the inherent structure of the language, however. Despite the additions, Instant Pascal conforms to most of the rules set for standard Pascal. The only exception is that Instant Pascal doesn't support pointers, an advanced feature of Pascal. Because pointers are complex and confusing, they're often omitted from introductory material on Pascal. But pointers are an integral part of the language, and as long as Apple has provided such an excellent learning environment, it should allow for learning pointers as well.

Accompanying this impressive software is an equally impressive book. And it is a book, not simply "documentation" or a reference. It's similar to a number of "How to Program in Pascal" books on the market, but it's much easier to understand than most of these others, which read like doctoral dissertations run amok. This Pascal book is written for the beginner, and is meant to be a self-teaching guide.

Even compared to the best texts, the Instant Pascal book still has an advantage because it's matched exactly with the software. Much of the instruction is in the form of "hands-on" exercises that ask you to put down the book and boot up the system. In short, it's just a well-written, well-designed work, right down to its spiral binding, so you don't have to wedge it under your machine to use both simultaneously. And for quick reference, there's a separate pocket guide to most of Instant Pascal's features.

Whether or not you should spend the money on Instant Pascal depends on your needs. It's certainly the best instructive Pascal system, but it's not the only one. For instance, Visible Pascal (reviewed in the December 1985 *inCider*, p. 118) is less expensive, but more difficult. You could also just buy a tutorial book. Whatever your choice, remember that Instant Pascal is simply a learning aid—to do any real Pascal programming, you'll eventually have to buy a compiler. ■

James McKelvey
London, England



The Creative Edge

KID PRO QUO

Softsync, 162 Madison Avenue,
New York, NY 10016

Multifunction word processor; Apple IIe, IIc,
or II Plus with 64K
\$39.95

Ease of setup	■ ■
Ease of use	■ ■ ■
Documentation	■ ■ ■ ■
Support	■ ■ ■ ■
Overall	■ ■ ■ ■ ■

A play on the Latin phrase *quid pro quo* (what you put in is what you

get back), Kid Pro Quo coaxes a budding young raconteur's talents to the fore. This multifunction word-processing program adds color, sound, graphics, and animation to the storytelling process, and receives high marks as a tool to promote creativity in kids—and even in grown-ups.

The program's three input modes—write, draw, and compose, for creating text, illustrating it, and setting it to music—cast you as writer, director, and producer of a small-scale audio-visual presentation. You can create your own drawings and music or use shapes and tunes contained in the library on the back of the program disk, and you can animate either stock illustrations or original designs. Although you can execute commands from the keyboard and produce crude sketches by manipulating the cursor in standard directions, Softsync strongly suggests you use a joystick, mouse, or Koala-Pad with the program to speed up drawing and selecting commands.

Getting Started

When you first boot Kid Pro Quo, you can change the set-up specifications, but the program then defaults to draw mode. This is a peculiarity of Kid Pro Quo, because draw is not the place to start. Instead, you must first create work space in the file mode. You can select the NEW PAGE command to open a blank "book," or you can load an existing file into the computer.

If you overlook this important first step, you can save your work in the default file called "Kid Pro Quo." This is not advisable, however, if you plan to transfer the page to a new location, because Kid Pro Quo lets you load or transfer a page only in piecemeal fashion. Thus, you must load and move music, shapes, and text individually—a clumsy procedure at best.

The Modes

Once you have prepared a new page, you are free to write, draw, or compose in any order. A good place to start is with the creation of text, in either write or draw mode. Write mode is preferable for long entries because it provides standard word-processing features such as word wrap and insert. If you begin in draw mode, your illustrations will temporarily disappear from the screen when you move to write mode, but will reappear when you return to draw mode or when you play the book you created.

Draw mode has nine subset commands represented by icons in a special pop-on menu: animate, pick-up, copy, magnify, sketch, delete, inverse, rotate, and flip. Sketch lets you create original pictures with six crayon colors—green, orange, violet, navy, white, and black. When you choose this option, the screen opens up to create a blackboard with a new set of icons to the left. Besides the crayons, other icons include arrows to expand the blackboard, an eye to see a minia-

turized version of the design, a Yin-Yang and an apple to change the screen back and forth from black-and-white to color, and a hand to bring the design back to the main screen.

Once you have pulled the design to the main screen, you can move it into place with the magnet icon, copy it with the camera icon, or delete it with the trash can. A mirror icon flips a shape on its side, the spiral rotates it, the mask creates an inverse of the

shape, and the magnifying glass enlarges it.

With the movie-camera icon, you can create animation with up to 96 steps per page. By a somewhat complicated process of clicking, moving, and erasing, you can move a shape across the screen or create the effect of a bouncing ball, and you can even set the action to music. The animation will show up when you play back the page or book.

Composing is a relatively simple process with Kid Pro Quo. A five-line musical staff appears on screen with a menu of musical symbols and notes. You can create melodies of up to 250 notes per page in either treble or bass clef. If you want to coordinate music and animation, you must place a "go" symbol on the staff for every movement. So, if a rabbit hops across the screen in ten steps, ten go symbols must accompany the music to synchronize the rabbit's movements with the sound. Otherwise, Kid Pro Quo plays the music first, then the animation.

The library on the back of the program disk contains six melodies you can use in lieu of original compositions. The tunes are *Jingle Bells*, *Frère Jacques*, *This Old Man*, *Yankee Doodle*, *Happy Birthday*, and *Dixie*. The library also contains almost 100 choices of shapes, including airplanes, boats, trees, automobiles, toys, buildings, animals, icons, electronics symbols, and flowcharts. In addition, you can use six text fonts to vary the appearance of a page.

The Good and the Bad

Kid Pro Quo has a number of redeeming qualities, chief of which is its multimedia approach to the storytelling process. A tale comes alive for a young person when sound, color, and animation are added to the text.

But if this word processor is innovative, it is also cumbersome. You must treat each page of a book as a separate file, for example, and save it after you've used up the available display space. (For straight text, the display area amounts to 22 lines of 40 characters each.) To continue the story, you must open a new page by going back to file mode. And, as mentioned earlier, you cannot load a page as is, but must do it piece by piece, handling music, shapes, and text separately.

I found it difficult to create original designs. I would barely touch my KoalaPad, and the design would sprawl across the page. Moreover,

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For the Apple IIe and IIc

MouseWrite: File Edit Find Move Style Page Windows Help
Open Second Window Cut
Close
Page
Page #2
Print Documents
Quit

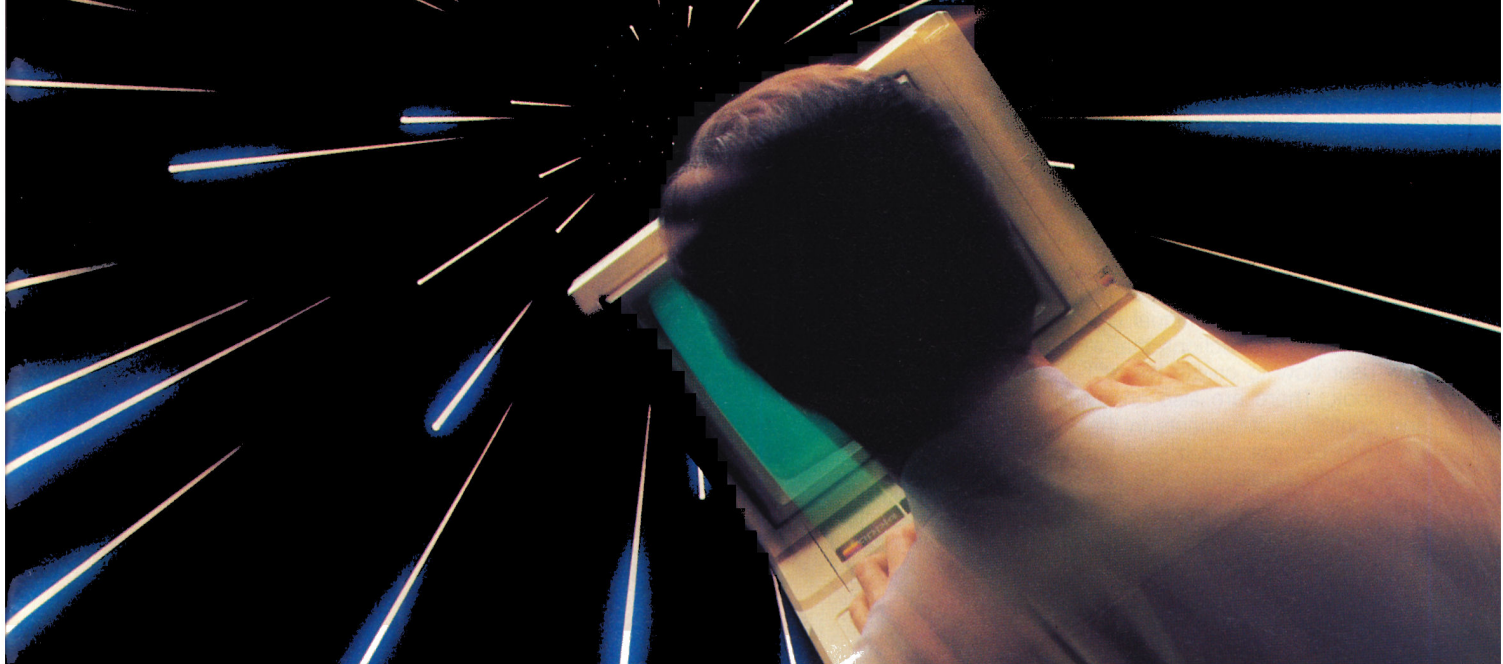
Dear Matt,
Just a quick note to say thanks for all your help in selecting a new word processor. Frankly, Matt, the one you recommended was just too complicated for me. I got to this time to learn that you got me a whole lot better dealer should be a package called MouseWrite from Roger Wagner Publishing. It does everything yours does and more, plus it operates just like a Macintosh! A desktop, pull down menus, multiple windows, dialog boxes, and it even has its own clock. Everything I need is on the screen and the mouse does it. Use what you want and at the choice, and the words are just on the screen.

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*Steve Wozniak, the creator
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the sketch lines were thick and bulky and could move only up, down, left, or right, instead of in circles.

Creating music was a laborious process because the notes were hard to control and put into place. A note I tried to put on the treble clef as an F, for example, slid up and down to E and G before I could click it into place. I would have preferred a keyboard-entry method to quickly duplicate tunes I wanted to play.

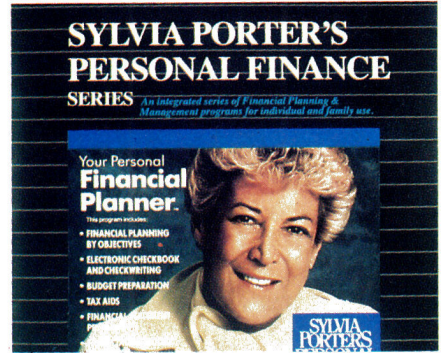
Perhaps the most glaring deficiency of Kid Pro Quo is its lack of proper documentation. The manual contains no sequential instructions that tell the new user how to create his or her first book. There are also annoying and confusing statements in the *Kid Pro Quo Companion*: It says to "load shapes and music from the library to any place you choose," but omits explaining how. If you go to file mode and load shapes or music from the library,

however, nothing changes on screen—you still see the file menu. It isn't until you go to draw or compose that you realize you've been successful.

I employed a teenager of average intelligence and minimal computer literacy to test Kid Pro Quo's ease of use. One hour later, he still had not figured out how to complete a book using all of the program's features. This is not an encouraging statement about the documentation, since Kid Pro Quo is supposed to be for grade-school children and teenagers.

In summary, this word processor brings some fresh ideas to the writing arena, but it lacks refinement and proper instructional materials. A re-vamping of the documentation would yield a dramatic improvement in its ease of use. Despite its problems, Kid Pro Quo is a lot of fun. ■

Wendy Lea McKibbin
inCider staff



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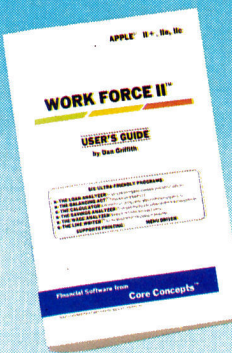
Ease of learning	■ ■ ■ ■
Ease of use	■ ■ ■ ■
Documentation	■ ■ ■ ■
Support	■ ■ ■ ■
Overall	■ ■ ■ ■

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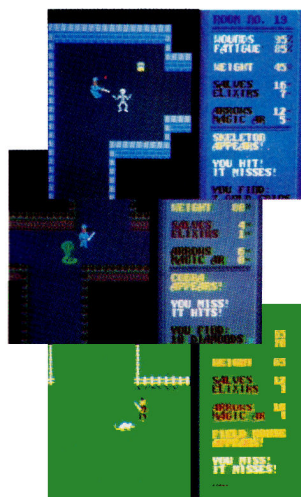
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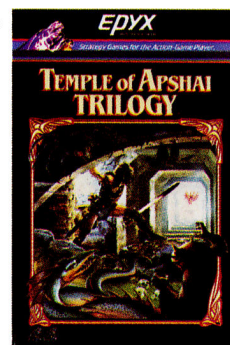


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Temple of Apshai Trilogy	✓	✓	✓	✓	✓	✓	✓



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The Transaction Manager is your personal accountant. You type your income and expenses into any of approximately 140 categories. (Time-works apparently hasn't overlooked any details. Even cable TV and pet expenses have their own categories.) Like professional accounting programs, each category in Sylvia Porter's has its own identification number. There are enough "open" categories for you to customize the program or tag tax-deductible expenses.

For any bill you pay, you can distribute the expense to as many as six different categories. You may have paid for your latest shopping spree at

Sears with one check, but purchases may have included jeans for your son (#0703, Clothing), new blades for your circular saw (#0502, Residence), and a VCR for the family (#1002, Entertainment).

Your Personal Financial Planner can handle up to 900 transactions on one data disk. Up to 24 of them can be automatic. If your health club collects membership fees each month through an electronic funds-transfer arrangement with your bank, you type this information into Your Personal Financial Planner only once, and the program automatically accounts for the payment each month.

The program helps you keep track of up to ten credit cards and five checking accounts. Using tractor-fed forms from NEBS, a business and computer stationery supplier, Your Personal Financial Planner prints checks and stubs and maintains a check register.

The Budget Manager, like the Transaction Manager, consists of pre-programmed, but modifiable, cate-

gories and subcategories. You type in budget amounts for any or all months of the year for any categories that apply to your lifestyle. The program automatically compares budgeted amounts to actual amounts by month or by category. Your progress is colorfully charted in bar graphs or cross-referenced charts (which look like horizontal bar graphs). Unfortunately, you can't print any graphs.

The Asset/Liability Manager keeps account of your growing financial resources and debts. When you purchase stock in a company or buy a certificate of deposit at your bank, type the information into an asset category with the corresponding identifying number (for example, #2004, Certificates of Deposit). Like the Transaction Manager and the Budget Manager, category numbers used by the Asset/Liability Manager are in the manual.

All three "managers" work together, so when you increase an asset or decrease a liability (such as making a mortgage payment), Your Personal Fi-

COLOSSUS is the most complete chess program available for the **CBM™ 64/128** and **APPLE™ 2 Series**, written using the very latest techniques by a computer chess programmer of eight years experience. It has the widest range of true features available, including some never before implemented on *any* home computer chess program.

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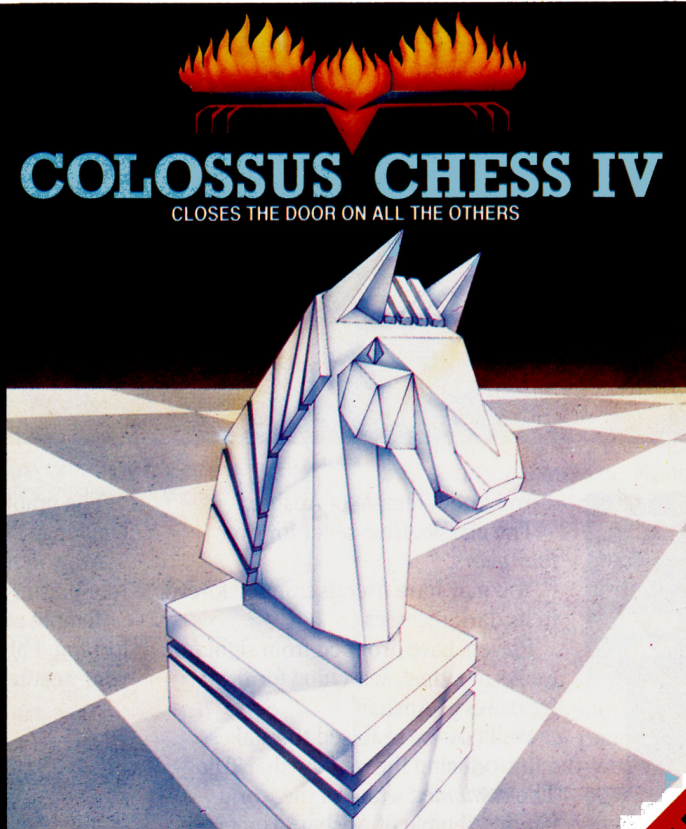
COLOSSUS also offers the choice between the usual two dimensional flat board display or the new three dimensional real life board which allied to optional joystick control makes it clear and easy to use. It comes with a comprehensive instruction manual and is easily the best chess program for casual and serious players alike.



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financial Planner automatically computes the results.

The Financial Planner lets you play "what if" with your financial future. Preprogrammed worksheets let you easily determine how much money you need to pay for college or a new home, to start your own business, or to ensure a comfortable retirement. A fifth worksheet, called "Other," lets you tailor financial-planning mathematics to your dreams of a sailboat or vacation.

A separate Insurance Worksheet holds information about your policies, and a Family Information section stores names, birthdays, and Social Security numbers.

A program like Your Personal Financial Planner offers so many features, it would be easy to lose sight of your overall financial picture, were it not for one all-encompassing function. The program takes all the information you patiently entered—your family size, income and expenses, budgetary goals, assets and liabilities, and dreams—and organizes it into a professional, ten-page Personal Financial Plan.

This document, suitable for discussion with your banker or spouse, is complete with title page, table of contents, and a complete profile of your current status, your objectives, and the steps necessary to reach your financial goals. The report is dated and pages are numbered.

Comments Pro and Con

Your Personal Financial Planner offers a couple of desktop accessories—a memo pad and calculator—you might find useful as you chart the course of your financial future. Program messages are informative and polite. All module offerings look like Macintosh menu bars. You select each menu and pull it down via the arrow and return keys, and on-screen prompting and dialogue boxes are available.

While the program is thorough and easy to use, the disk swapping involved is sometimes annoying. Each Manager requires a separate data disk. Together with the other four sides, that's seven disk sides. Even with two drives, you may sometimes become impatient.

Another annoyance is the time required for some modules to load. I

tend to become fidgety if loading isn't complete in less than ten seconds. My impatience would be nullified somewhat if the program could be installed on a hard disk. Unfortunately, program disk Side 1 is copy-protected. I queried Timeworks about the possibility of offering the complete program in 3½-inch format; the company is taking a "wait and see" attitude, pending Apple users' acceptance of the UniDisk 3.5 drive.

Despite annoying disk swaps and wait times, the program is well worth its price. It's doubtful that even an in-the-flesh financial adviser could do so much for so little. ■

Cynthia E. Field
Wakefield, RI

Editor's note: Jessica Chipkin of Timeworks reports that the company is considering producing a copyable version of Your Personal Financial Planner, in addition to the 3½-inch format.

RESCUE RAIDERS

THE FINAL WAR

The date is 1944, a week after D-day. The place is Cherbourg, France, a few miles from the Normandy beaches. The commotion is Rescue Raiders, an amazing new game that combines fast arcade action with strategy and tactics.

As commander of the Allied forces, you must marshal troops, deploy weapons and mastermind a military campaign.

RESCUE RAIDERS has the subtle Sir-tech touches that keep you coming back for more. Vehicles, aircraft and missiles move realistically and conform to the laws of physics. And the computer-command enemy is intelligent . . . and cunning. Quick reflexes are important and so is the ability to plan long-range strategies.

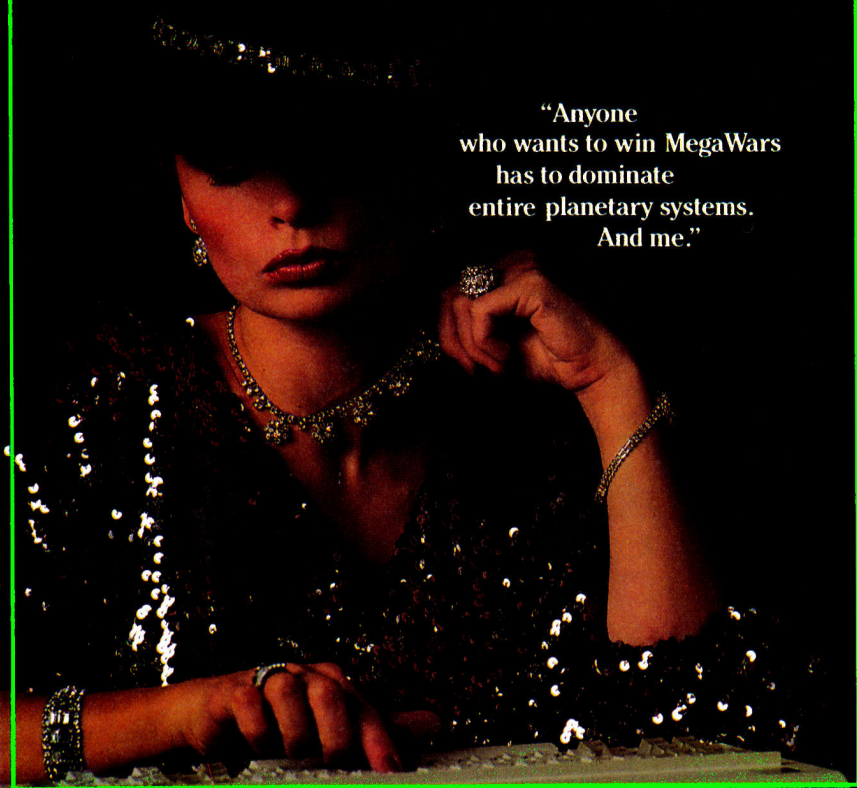
Every battle you fight, every time you play this epic is refreshingly new and different. And, win or lose, you'll get a history lesson.

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Communications buffering system; any Apple II
\$399

- Ease of setup ■
- Ease of use ■■
- Documentation ■■■
- Support ■■
- Overall ■■■

A long time ago, someone said, "Give me a fulcrum, a long enough lever, and a place to stand, and I can move the world." The Hayes Transet 1000 is certainly worthy of earth-moving attention, but it might be on shaky footing with Apple owners.

The Transet is a total communications buffering system, with 128K of RAM, 32K of ROM, and a 68008 microprocessor. It comes with two bidirectional serial ports and a parallel/serial port for output only. You can use it to link two computers to a single printer (and queue your printing when either computer tries to access the printer while the other is using it). It makes communication between two computers a snap, and, connected to a modem, it can act as a mini-bulletin board/mail system with your computer turned off. To maximize the effectiveness of its 128K memory, it uses an algorithm that compresses information into the buffer and decodes it during output. Obviously, we're talking major-league hardware here.

My Transet arrived with IBM PC-AT-compatible connecting cables and installation software. It was obviously a shipping error, so I called the Hayes service people. They were quite willing to send the correct cables for ei-

ther my //e or //c, but the software was another matter. There isn't any installation software for the Apple. It's not that the Apple doesn't need the software, there just isn't any.

Configuring the Transet involves the possible setting of 31 general-purpose commands, 27 document-formatting commands, 24 mailbox commands, 34 communications commands, and 29 system commands. Not that anyone would need to set them all at once, but 145 command possibilities can become a bit involved. I'm flattered by Hayes' estimation of my Apple-bred ability to forge ahead despite obstacles. Eventually, I'll write my own installation software for the Transet, but I'd rather have it now—weekends tend to be a bit hectic.

The Transet Message Center

Incredibly, that's the only thing I've found wrong with the Transet. It's phenomenal. Its memory is divided into three partitions: the Immediate, Replay, and Mailbox buffers. Data entering the Transet are passed through the Immediate buffer to their destination—whether it's a printer, computer, or modem. Then the information is stored in the Replay buffer in case you need to send copies of the document to another device. If you want, you can lock information into the Replay buffer so that new data don't erase it.

The Mailbox buffer stores incoming messages from your modem, formatting them with the sender's name, the topic, and the message itself (it asks for that information when someone dials in). You can read messages back or scan through them by topic. To receive a message, only the Transet and the modem need to be turned on—you can leave your computer off. If you've connected a printer to the Transet and leave it on, you can instruct it to print the oldest message in the system and continue recording new arrivals, should the Mailbox buffer become filled. And you can password-control the Mailbox for security.

If you don't have a full-function word processor, you can define the page set-up parameters for Transet's printed output, including page numbering and a date/time stamp. There's a built-in, lithium-battery-powered clock that can save you a slot in your Apple (though software will be needed to read the Apple's serial port to determine the time or date—see Editor's note below). Of course, you could

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use these features for raw data you receive from your modem.

You can also send all the command parameters you've issued to nonvolatile memory, so you won't need to reenter them each time you power up the Transet. Nonvolatile-memory devices like EEPROMs (electrically erasable programmable read-only memory) have a limited lifespan when they're continually erased and rewritten. Given the average number of times you might change the Transet's working parame-

ters and write them to nonvolatile memory, the EEPROM will have quite a long life. (Were I to make "permanent" changes every day for a few months, I'd soon need a new EEPROM.)

The Transet manual is one of the most intense, yet easily decipherable, pieces of computer literature I've yet seen (aside from the original Apple manuals by Raskin). Fifteen pages are dedicated to describing the correct cable configurations for various computers and peripherals.

Installing the Transet in a multiple-computer setting is as close as you can come to network capabilities without physically putting in a network. With a modem, it makes an excellent light-load message center. Add a printer to that and you can create a full-fledged message center without a computer at all. And with two printers, the Transet can simultaneously print to both of them (because of its buffering capability), doubling your rate of printed output. I use accolades sparingly these days, but even considering the lack of appropriate installation software, the Transet may well be one of the most significant Apple add-ons of the year. ■

Bill O'Brien
Fort Lee, NJ

Editor's note: At press time, Daniel Reardon of Hayes promised to deliver "installation software for the Apple //c and enhanced //e, which will support the built-in clock" by March 1986. Readers are also reminded that configuration software for the Macintosh is available.

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Ease of setup	■ ■ ■ ■
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Documentation	■ ■ ■ ■
Support	■ ■ ■ ■
Overall	■ ■ ■ ■

Attention, Apple //c owners! Do you envy your friends who own Apple

//e's because they seem to have an unlimited choice of dot-matrix printers? With nary a care, it seems, they can plug serial or parallel interfaces into slot 1, while you cannot. Take heart. Street Electronics has come up with a way around the problem.

LiveWire is a compact device that translates the serial output from the Apple //c's printer port into a form acceptable to dot-matrix printers that usually require a standard Centronics-type parallel interface. With the LiveWire hardware and software, you can smoothly use many popular, low-cost printers, such as those Epson and Okidata manufacture.

LiveWire gives Apple //c owners the option of purchasing a parallel printer instead of a serial one. And in addition to the converter, you also receive a clock/calendar and a versatile screen-dump program.

Hardware

The Apple-beige LiveWire hardware consists of a 6-foot round cable with a connector at each end. The serial connector at one end plugs directly into the printer port on the back of the //c. The parallel connector at the other end mates with, and is held securely in place by, the input port and V-shaped clips on the printer. A converter box, which is a little smaller than a pack of regular cigarettes, is located near the "parallel" end, between the printer and the //c.

In addition to the serial/parallel converter inside the box, LiveWire has a built-in clock/calendar, which runs on the power supplied by a nearly 1-inch diameter, 3V lithium battery. The manufacturer claims the battery will last more than a year. Street Electronics will sell you a replacement battery for \$5, or you can use Panasonic, Eveready, or Radio Shack batteries.

Software

The software accompanying the LiveWire hardware comes in the form of a copyable utility-program disk (version 1.0). Mimicking the Macintosh desktop, this disk offers a menu bar and menus you can select and pull down with a mouse or with the arrow and escape keys. The Apple, File, Format, Size, Style, Graphics, and Clock menus offer you the various LiveWire utilities options.

The Apple menu contains the standard information about software version number, copyright, and developers' names. The File menu lets you specify your printer from a list of approximately a half-dozen brands and models. If your printer is not among them, you can select the Other option or experiment to find a close match. My Epson RX-80 was not listed, so I clicked on Epson MX-80.

From the Size and Style menus, you can alter print appearance in a snap. If your printer supports all these options, you can change pitch (10, 12, or 17) and style (bold, headline, and proportional). Combinations (10 pitch and bold, or bold and headline) are possible—just click on the features you want. From the File menu, you can perform a quick print test: The alphabet spews from your printer in your chosen format.

Continued on p. 92.

THE HANDLERS

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TAX TIME CAN MEAN RETURNS

by Martin A. Blumenthal

*Make tax time easy.
Find out which
of these
seven tax packages
suits you.*

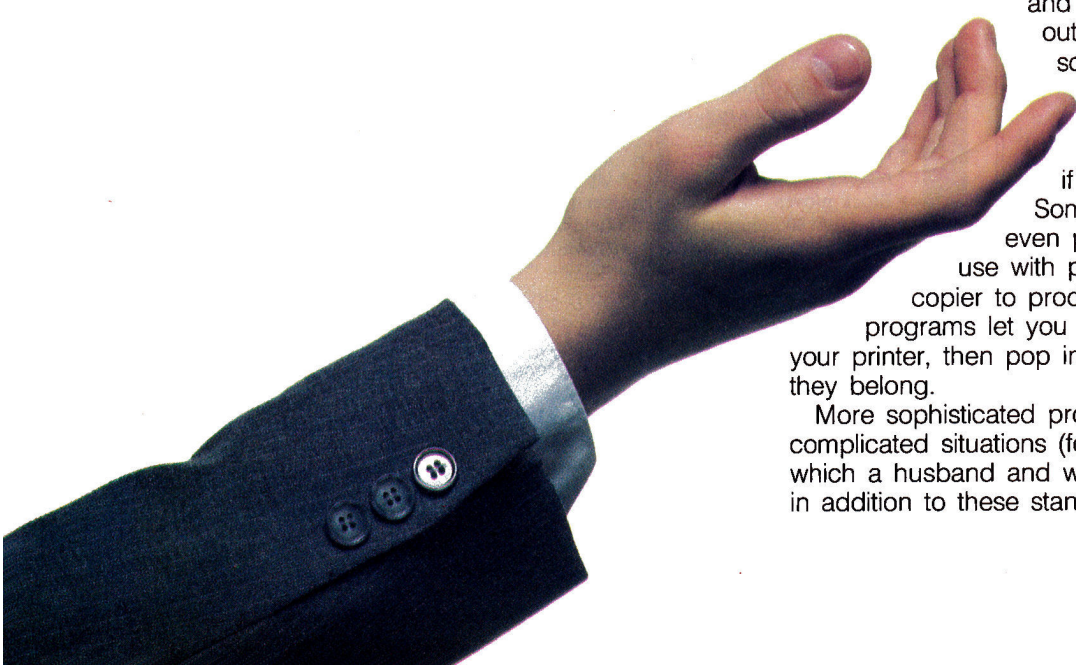
It's tax time again—and your Apple can take some of the pain out of preparing your returns.

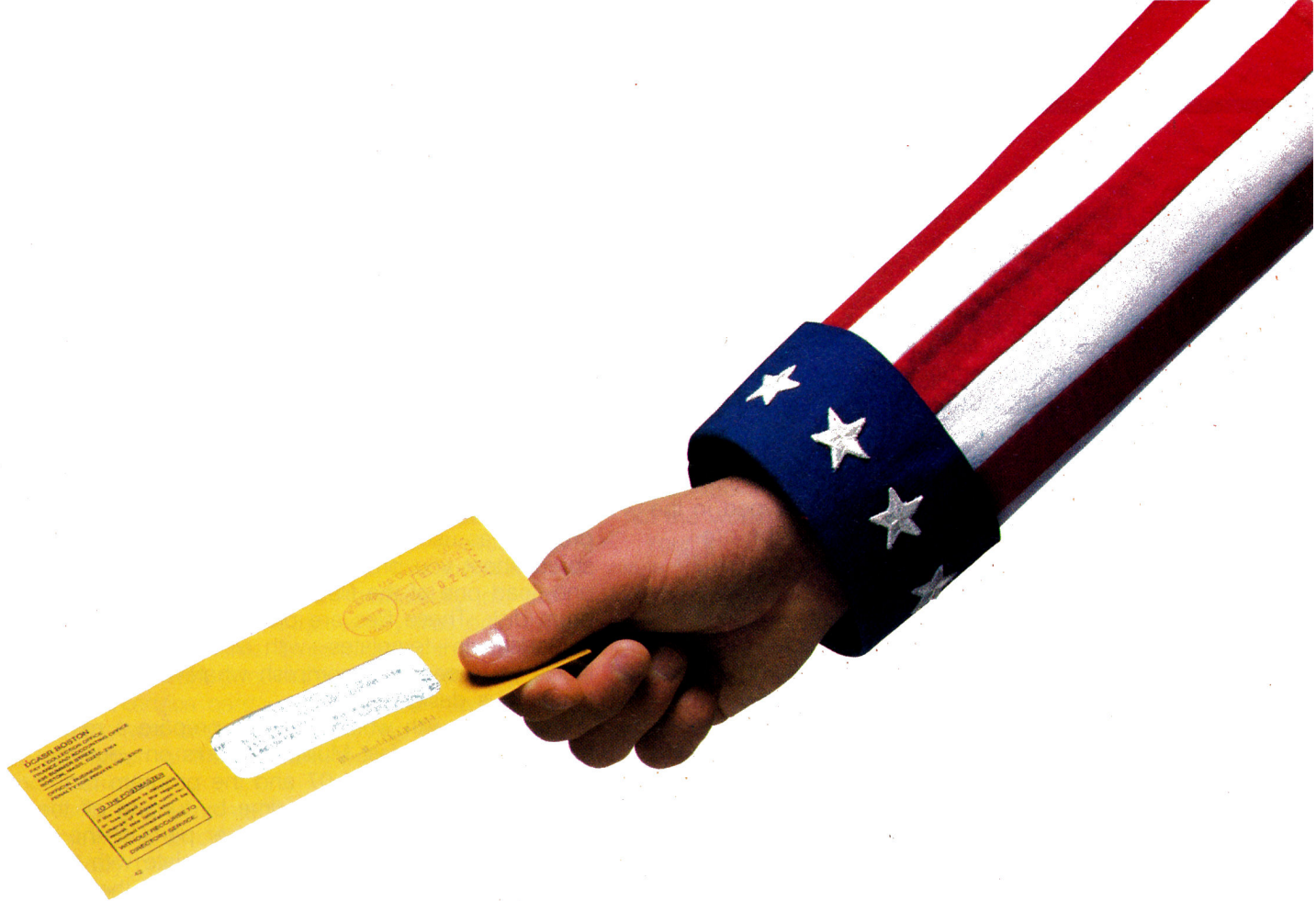
Apple programs designed to help you fill out your income-tax forms can eliminate many of the common errors that delay processing of the return. None of the seven programs I put through their paces (see the accompanying **Table** and Product Information sidebar) signed the return, though, so you won't be able to blame any errors or omissions on your software or hardware.

Some programs require you to do detailed calculations, such as depreciation or capital gains, then type them in as you would on a tax form. The software performs the arithmetic, computes the tax due, and provides a line-by-line print-out of the tax form and any schedules you need. This feature ensures mathematical accuracy and provides you with on-screen "what-if" calculations.

Some of the simpler programs even print a document you can use with plastic overlays and a photocopier to produce a fileable return. Other programs let you align a regular IRS form in your printer, then pop in the numbers right where they belong.

More sophisticated programs provide for more complicated situations (for example, a family in which a husband and wife are both self-employed) in addition to these standard functions. One program





I tested even provides for future tax planning and keeps track of daily tax events.

Updates for most of these programs are available at a reduced rate, so the software is not outdated after one year.

None of the programs can provide legal or tax advice. All of them assume that you're familiar with basic tax law and its ramifications. For complex tax problems, always seek the advice of your certified public accountant or attorney.

I tested each program reviewed here on two of my clients, a married couple. The husband is self-employed; the wife derives some income from self-employment in partnership with her husband, in addition to salary from a full-time job. They have joint income from two rental properties, take the two-wage-earner adjustment, claim the child-care credit, and itemize their deductions.

Tax Command Professional

Practical Programs' Tax Command Professional is a handy package for preparing a simple return and getting instant feedback from changing information. It can either print directly on IRS forms or use the overlays provided by the publisher at an extra charge. (You need a photocopier for the latter option.)

The software contains a built-in calculator, and uses results without requiring further entries.

You have to make subsidiary calculations yourself before you type them into the appropriate form. If you have to calculate depreciation, for example, you must grab your own Form 4562 and fill it out manually, then enter your total on Schedule C (self-em-

ployed income), Schedule E (supplemental income), or Form 2106 (employee expenses).

Aside from several misspellings on screen, Tax Command Professional's format is friendly and easy to figure out. The child-care form (2441) automatically limits your credit, though, depending on the number of children cared for and earned income. On the version I tested, there was no obvious way to change the percentage factor, and the program does not do it for you. In addition, I was confused by one particular notation in line 5 of the child-care form, and the documentation provided no help. You should keep the actual IRS form nearby and continue to compare the screen with the hard copy.

Tax Command Professional's Schedule W (deduction for married taxpayers, both having earned income) is also confusing: When you type in your earned income and your spouse's, negative amounts appear. If both spouses have income from self-employment in addition to wages, you must type in the extra amount specially. Once I typed in the correct numbers, the program calculated the appropriate adjustment. (Again, don't rely on the software alone.)

Even if both spouses have self-employment income, Tax Command Professional can prepare only one Schedule SE. This is a distinct disadvantage: The wife in my test had earned income on which FICA taxes had already been paid, and she can therefore limit the amount paid on her self-employment income.

My //e has a DuoDisk, so I put the program into drive 1 and the data disk into drive 2. Through a menu option, Tax Command Professional lets you utilize two drives to obviate disk swapping. Despite this feature, I couldn't read from or write to the data disk in drive 2 without first running the "catalog" choice on the menu. Fortunately, the program doesn't hang if it tries to read from or write to the program disk.

My clients qualified for income averaging, Schedule G. Tax Command Professional prepared the schedule neatly and automatically after I typed in the prior year's amounts of taxable income. The program then automatically integrated with Form 1040 the tax it calculated.

Tax Preparer

Tax Preparer, from HowardSoft, is a sophisticated tax-preparation program more suited to the taxpayer with a complicated return. Tax Preparer fills out forms and schedules on screen with automatic posting of the results to other forms and schedules. Professional tax preparers can use a high-volume batch method of data entry with hash totals for error checking.

Tax Preparer can print directly on IRS forms or in an IRS-approved format. Itemized details are also available for any particular line (for example, a list of all doctors and hospitals for Schedule A), which the program can also print on a supporting schedule.

The program is menu driven, minimizing the amount of recalculation necessary. It's also useful for year-round tax planning and general recordkeeping for one or more taxpayers.

The program's on-screen preparation of returns is very slow, with numerous writes and reads to and from both program disk and data disk every time it needs to access a new form or schedule. The actual internal calculations also account in part for the program's sluggishness.

A serious limitation of the software is that there is no way to indicate self-employment income from partnerships on Schedule E, or to separate husband's self-employment income from that of the wife. Thus, when you calculate self-employment tax on Schedule SE, you have to type in this information.

The problem arose again on Schedule W (the income from the partnerships is "earned" in this case), but Schedule W can't automatically pick it up, since the two-earner deduction is based on earned income. A similar difficulty comes up in Form 2441 (child-care credit).

I also experienced problems with integrating the amount calculated on Schedules W and G (income averaging) and Form 2441 on Form 1040. After I typed in the information about the partnership income and the corrected adjustment or income tax

calculated, it "disappeared" when I went to Form 1040 to see if the program had correctly picked up the amounts on the schedules and forms.

Tax-Prep

If you're familiar with Multiplan, you'll find EZWare's Tax-Prep fairly easy to use. As a further convenience, the templates are arranged so that you can use the "next free cell" command (control-F) to quickly arrive at the next cell requiring data entry.

If you've never used a template before, a quick explanation is in order. First, boot the spreadsheet program as usual. Then, instead of loading a spreadsheet you prepared yourself or starting a new one, load one of the files from the Tax-Prep program disk. These files are previously arranged spreadsheets—templates—with all the formulas and labels you need to accomplish whatever purpose the template is designed for.

The speed with which you can prepare a return depends on how fast Multiplan works on your machine. I used Version 1.07 and the program ran rather slowly. You can save time by turning off the automatic-recalculation mode. Other parts of the program automatically update each template with the external-copy feature. Since both sides of the disk contain templates, you have to do some flipping during update operations.

One feature I liked very much was the inclusion of template worksheets for calculating things like state and local tax refunds and the charitable deduction for nonitemizers. Another feature of the template is a "window" at the bottom of the screen that cross-references the current template with others, so that you can verify that the program is picking them up properly. The window also displays the "bottom line" of the form or schedule so that you can see the results without leaving the cell you're working on.

The Schedule E template includes provisions to distinguish the husband's partnership income from the wife's, and to show differentiated earned income and self-employment income. The schedules or forms that use these values—Form 2441, Schedule W, and so on—then pick up these amounts. I was able to prepare separate Schedules SE for husband's and wife's self-employment income.

The Form 4562 template includes worksheets for figuring depreciation, but this template is not integrated with the other forms and schedules using Form 4562. You must figure the depreciation, then type in those numbers on Schedule C or E, or wherever you need the depreciation figures.

Most cells are named according to their respective line numbers on the actual tax form. This lets you use the "goto" function to speed travel around the template. Tax-Prep locks cells not requiring entries and cells that pick up their values from other cells, to prevent ruining the template's logic or entering data in the wrong cell.

A tractor-fed Form 1040 came with the software package I reviewed, along with transparency overlays to print the final return. I tried both formats, and each worked well. You can order additional tractor-fed forms from the publisher as well as from certain mail-order computer-supply houses.

TaxWorks

Because of publishing deadlines, I received only a preproduction version of TaxWorks from Personal Financial Services. It's worthy of mention, though, since it could well be the fastest tax-preparation package available for the Apple. My //e is equipped with a RamWorks II card with 512K. I've modified my AppleWorks program to load completely into the card, letting me load all the necessary files onto the desktop at the same time. Unfortunately, the RamWorks card's current print buffer works with only one printer-interface card—not the type I have—so my machine was tied up while printing forms. This isn't a limitation of the software, but of the RamWorks II card.

TaxWorks is a template-based operation that uses the AppleWorks spreadsheet. AppleWorks lacks the external-copy command and next-available-cell option Multiplan has. TaxWorks does include a "transfer port," however: You retype data needed by the other templates, and the information is then transferred, via the clipboard, to another template. A fold-out roadmap of each template would be a handy reference, since it's easy to get lost in large spreadsheets.

TaxWorks is also set up to take into account two incomes derived from self-employment, a feature not found in some programs costing ten times as much.

Since the production version of TaxWorks wasn't complete, I couldn't run through the whole test model—but for \$21.95 you can't go wrong trying this one out.

J. K. Lasser's Your Income Tax

Simon & Schuster's tax package is a computerized version of the familiar yellow-and-red paperback *Your Income Tax*, by J.K. Lasser, that you see on all the newsstands during tax season. In fact, the book is included with the documentation and disk so that you can look up specific tax questions as you progress through the program. Each part of the program includes automatic, on-screen references.

I liked the program's use of windowing to show prompts and a list of commands at the bottom of the screen. In fact, the only commands listed are ones that will work when the cursor is at its current position. The program also includes a convenient built-in calculator.

The program begins with an "interview" that asks questions such as names (even spouses with different last names), address, dependents, and so on. The program even selects the forms you need by asking several optional questions. (You can also select your forms directly.)

The manual instructs you to prepare a working copy of the program, but doesn't mention the blank, formatted disk you'll need. Don't get caught—when the program prompts you after the interview to insert a disk into the drive, it's referring to the blank disk, not the working copy.

Your Income Tax runs fairly fast and produces results immediately. You can therefore play many "what-if" games without wasting a lot of time (it's designed for moderately complex returns). Of all the nonspreadsheet-based programs I tested, this was the fastest. Once I typed in a number and pressed the return key, the cursor jumped immediately to the next place an entry was required.

Form 4562 didn't compute depreciation; I had to fill in the blanks with precalculated amounts.

I started the program with Form 1040. When I came to a line that required another form, such as Schedule E, I used the "go-to" command, which took me automatically to that schedule, then returned me to Form 1040 at the spot where I had left off.

The program doesn't include itemizing capabilities. Your Income Tax can prepare worksheets, but they're of a *proforma* nature; you must print them immediately or the program will erase them if you prepare another worksheet.

Schedule E can't differentiate husband's income from wife's or earned from nonearned. I had to type in these amounts on Schedule W and Form 2441 myself. A more serious limitation is the program's inability to prepare a separate Schedule SE for a spouse. I was a little confused when I reached line 38 to figure the tax, since I used Schedule G. The go-to command didn't work as I expected. I finally figured out that I had to save and exit Form 1040 first, then choose Schedule G from the menu.

I found the printing sequence confusing. The menu should have been in two stages—first, a choice of form, then whether you want to print on a



computer form or a government form. As it's set up, you have to guess at the steps required to print a form. And, although the program is supposed to work with most popular printers, I couldn't get an intelligible printout from my Epson RX-80 FT, which is as ubiquitous as an Apple II.

The Tax Advantage

Arrays' Tax Advantage is for the average taxpayer whose return doesn't require very much detail. The forms and schedules performed flawlessly, and I had no trouble getting correct feedback. The program can produce form printouts acceptable to the IRS, but it can't print a 1040. You have to copy the numbers the program generates onto a regular Form 1040.

The Tax Advantage cannot prepare a separate Schedule SE for the taxpayer's spouse. At the level to which this program seems to be geared, that feature would probably not be used anyway. You must calculate depreciation manually before you type it in on Form 4562. The program cannot differentiate husband's and wife's partnership income, or whether or not it's earned or self-employment income. To get the correct results, though, you can easily type in these numbers on the forms or schedules requiring this information.

I found the program extremely slow, both in execution and in data entry. All the other programs I reviewed make use of the arrow keys, and require you to put the cursor on the point where you want to type in data. The Tax Advantage requires you to press various letter keys to move an on-screen arrow (D for down, U for up, and so on). When the arrow hits the correct line you then have to press E to finally enter the number—a big waste of time.

The preparation sequence is logical. I started with Form 1040, and when I got to a point where I needed another schedule, pressing I brought me (after a minute or so) to the required form. For example, when I came to line 18 for Schedule E's rents, royalties, and so on, I typed I and filled out the schedule. When I quit the schedule the program returned me to the place where I had left off on Form 1040.

The Tax Advantage is useful for tax planning during the year, as you can type in checkbook data at any time to get an idea of what to expect at the end of the year. You may see, for example, that a contribution to your IRA would be advantageous now instead of waiting until next April 15th.

TaxCalc

TaxCalc isn't a tax-preparation program, per se. This nifty software is actually a tax-planning package, but is certainly worthy of mention here. It requires a spreadsheet, and many of the popular programs are compatible with it. I tried the AppleWorks version. TaxCalc's files are actually VisiCalc files, and you must load them as such with the AppleWorks load-files option.

The template I looked at was for a married couple, filing jointly. It shows three columns side by side, labeled alternative 1, alternative 2, and alternative 3, respectively. The extreme left-hand columns correspond to the lines in various tax forms and schedules. You then type in corresponding numbers under the appropriate alternative.

Let's say you wanted to see what your tax situation would be if you had fewer medical deductions but more sales tax compared to your original set of data. You would put those new numbers under alternative 2 and compare results side by side with your original plan (alternative 1). You can prepare a third alternative the same way. And, although TaxCalc doesn't print tax forms, you can print the template for study with the usual spreadsheet print options.

TaxCalc works fast, and is invaluable for professionals who want to quickly check their calculations after preparing a return in the conventional manner, or to fill out a summary sheet for a commercial tax-processing service.

Product Information

AppleWorks

Apple Computer
20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010
\$250

Reader Service Number 336

J. K. Lasser's

Your Income Tax
Simon & Schuster Computer
Software
1230 Avenue of the Americas
New York, NY 10020
(212) 245-6400
\$69.95

Reader Service Number 337

Multiplan

Microsoft
10700 Northup Way
Bellevue, WA 98009
(206) 828-8080
(800) 426-9400
\$195

Reader Service Number 338

The Tax Advantage

Arrays/Continental Software
6711 Valjean Avenue
Van Nuys, CA 91406
(818) 994-1899

Reader Service Number 339

TaxCalc

TaxCalc Software
4210 West Vickery Boulevard
Fort Worth, TX 76017
(817) 738-3122
\$150

Reader Service Number 340

Tax Command Professional

Practical Programs
P.O. Box 93104
Milwaukee, WI 53203
(414) 278-0829
\$59.95

Reader Service Number 341

Tax-Prep

EZWare Corporation
29 Bala Avenue
Bala-Cynwyd, PA 19004
(215) 667-4064
\$95

Reader Service Number 342

Tax Preparer

HowardSoft
1224 Prospect Street
Suite 150
La Jolla, CA 92037
\$250

Reader Service Number 343

TaxWorks

Personal Financial Services
P.O. Box 1401
Melville, NY 11747
(516) 261-8652
\$19.95 (plus \$2 postage)

Reader Service Number 344

Table. Comparison chart for seven tax-preparation packages: ratings, system requirements, and forms produced.



Product Ratings	Ease of setup	Ease of use	Documentation	Support	Overall
Tax Command	■■■	■■■	■■■	■■■	■■■
Tax Preparer	■■■	■■■	■■■■	■■■	■■■
Tax-Prep	■■■■	■■■	■■■■	■■■	■■■
TaxWorks	■■■■	■■■■	N/A	N/A	N/A
Your Income Tax	■■■	■■■	■■	■■■	■■■
Tax Advantage	■■■	■■	■■■■	■■■	■■
TaxCalc	■■■■	■■	■	■■■	■■■

N/A = not applicable (preproduction version reviewed)

See Reviews (p. 30) for ratings key.

Product	System requirements	Forms and schedules produced
Tax Command	Any 64K Apple II, one disk drive; two drives and printer recommended	1040, 2106, 2119, 2441, 3903, A, B, C, D, E, G, R, SE
Tax Preparer	Any 64K Apple II, Applesoft; extended 80-column card and two drives recommended	1040, 2106, 2119, 2210, 2441, 3468, 3903, 4562, 4797, 5695, 6251, A, B, C, D, E, F, G, R, SE, W
Tax-Prep	Any 64K Apple II, one disk drive, Multiplan; 128K, printer, and two drives recommended	1040, 2106, 2119, 2210, 2441, 3468, 3903, 4562, 4684, 4797, 5695, 6251, 6252, A, B, C, D, E, F, G, R, SE, W
TaxWorks	Apple //c, 128K //e, one disk drive, AppleWorks; two drives and printer recommended	1040, 2441, 3468, 5695, 6251, A, B, C, D, E, G, SE, W
Your Income Tax	Any 64K Apple II, one disk drive, 80-column card; printer and two drives recommended	1040, 1040A, 1040EZ, 2106, 2119, 2210, 2441, 3468, 3903, 4137, 4562, 4684, 4797, 4835, 5329, 5695, 6251, 6252, A, B, C, D, E, F, G, R, SE, W
Tax Advantage	Any 48K Apple II, one disk drive, Applesoft; two drives and printer recommended	1040, 2106, 2441, 4562, 6251, A, B, C, D, E, G, SE, W
TaxCalc	Any 64K Apple II or III, spreadsheet program	not applicable

The Bottom Line

Now that you've read all this, you're probably wondering which package is the one for you. If you have a simple return, any of the programs will do, although the more sophisticated ones would be overkill. If you own Multiplan or AppleWorks, the tax programs that work with them are excellent. (I prefer AppleWorks, since it runs much faster than Multiplan on my machine.)

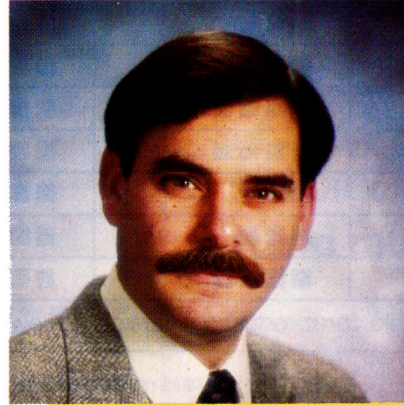
If you're a professional preparer, printing capability as well as complexity is a factor. Be aware that preparing two Schedules SE is rather common, so watch for the availability of that feature. If you use a commercial tax-preparation service, either Tax Command Professional or TaxCalc would be ideal for calculating the summary-sheet numbers that compare your computations with those of the mainframe.

These two programs can also compute tax very quickly, and figure medical deductions and sales-tax base. Of course, price is an important factor you should consider. And, by the way, if you do use a particular program to prepare your taxes, it's a deductible expense if you itemize. ■

Martin Blumenthal is an attorney and certified public accountant. Write to him at 105 West Madison, Chicago, IL 60602.

Editor's note: Income-tax software we received too late for editorial review in this article includes Andrew Tobias' Managing Your Money (MECA, 285 Riverside Avenue, Westport, CT 06880, 203-222-1000, \$69.95). Watch for our review in May.

DO YOU KNOW WHERE YOUR MONEY IS ?



If tax time has left you in the poorhouse, Jack Moore's tips for finding the right financial-planning software might put you in better shape next year.

by Deborah de Peyster, Editor

It's tax time. Do you know where your money is? People often don't really know what their financial situation is until they've completed Form 1040 and find the government gets it all. Meeting the bill might even require taking out a fast loan. And that's when you hear people say, "Next year I'm going to do this better. I'm not going to pay so much."

Knowing where your money is—that's what financial planning is all about. It makes your money work for you by anticipating your needs and wants. And we can't think of a more appropriate time to get you thinking about better financial planning than right now.

inCider recently interviewed Jack Moore, chief executive officer of Manzanita Software Systems, for his advice on what to look for in financial-planning software. For 13 years Moore was a CPA in his own firm, which emphasized financial planning for individuals. He now heads the Roseville, California-based Manzanita Software, which produces a full accounting system for business.

Our focus in this interview is on what individuals should look for in financial-planning packages. While individuals' planning needs vary widely, certain key items should be considered by all. Moore reviews six important factors to keep in mind when shopping for your software. We hope his insight will help you avoid what he describes as an all-too-frequent occurrence at tax

time: "Your accountant calls on April 14 just when you're sitting down to dinner, and he says, 'I've completed your taxes and you owe another \$5,000.' "

1. Does the software reflect the sort of person you are?

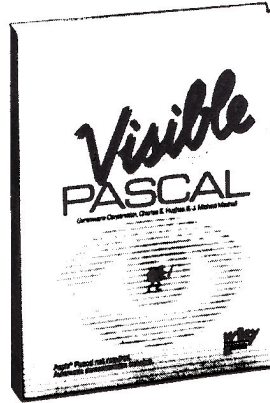
If you don't like taking the time to even balance your checkbook, then financial-planning software that requires you to enter information weekly isn't going to help you. A program that operates around specifically defined categories may also not be for you. In fact, something as free-form as the spreadsheet in AppleWorks might be all you need. You could design your own categories and use them to keep track of expenses and income at your own pace.

On the other hand, if you're not terribly organized, yet want some structure, you might do well with a highly systematized financial-planning package. But the key element here, Moore urges, is to "sit down and determine what kind of person you are."

2. How much time will operating the software take?

You can buy the most sophisticated financial-planning package available, with personal-asset management, property management, portfolio management, and communications, but if you're not willing to sit down and make those features work, it's worthless. "You have to assess the package's requirements versus your own. If the package is going to require time to make it work, you have to be willing to give it that time," Moore points out.

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3. Do the program's features meet your needs?

“Look ahead three or four years, try to see where you're going to be, and make sure the package fits you,” Moore says. Don't make the mistake of buying a planning package that reflects only what your expenses, income, and investments are today.

For example, ask yourself, “Will I, in the next few years, frequently trade stocks and bonds, own property, collect antiques, art, or automobiles, want to set up a trust fund, or increase my savings?” The list can be long, and it's different for everyone. But it's important to make a list of the things you think you might want to do and find a package that will grow with you.

Some basic features you might want to consider include the ability to manage your checking account, prepare an income statement, create financial statements, track items that are important for income-tax return, plan and budget, and set up a balance sheet. A more sophisticated system might contain more than one program to handle communications, high-level management of property and assets, and perhaps certain aspects of a full accounting system, such as general ledger and payables to maintain billing.

4. Does the package offer the ability to ask “what if” questions?

You need to be able to juggle your finances to get the best solution to your needs. For example, you might want to analyze borrowing, saving, and investment decisions, or create an amortization table to display principal and interest payments on a loan. The questions might be as simple as “If I save 10 percent of my salary each month, will I still be able to afford a two-week vacation?” Or the questions may involve very complex investment decisions. But at whatever level you manage your finances, the ability to easily do a “what if” scenario is key.

5. How does the package's terminology compare with the language on your Form 1040?

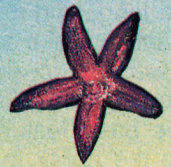
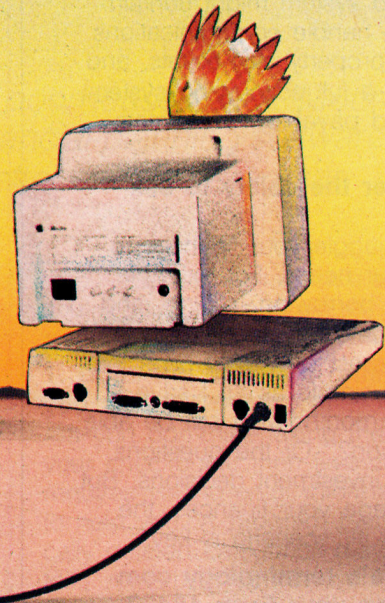
A concise breakdown of income and expense items that more or less corresponds to your income-tax return is a convenience to look for. “What I envision people doing at home is pulling figures from last year's income tax and using them for planning the current year's finances,” Moore says. Corresponding words and categories make that transfer of information easier.

6. Do you enjoy using the program?

You'll be using this software for the next couple of years. And using it requires some work, so it's important that you feel comfortable with it. “The biggest mistake you can make is to do nothing,” Moore advises. “A little bit of planning is better than none at all.” ■

If a train leaves New York for C

inCider examines the newest controversy in education, as teachers and developers debate the value of drill-and-practice vs. critical-thinking software.





DO DRILLS MAKE DRONES?

by Wendy Lea McKibbin, *inCider* staff

Our children may not be developing the skills they need to cope with the ever-changing world around them. They use computers in school to help enhance their learning skills, but the software they use may not be teaching them to think. We're happy when they receive an A after successfully completing a test that requires memorization of facts. But are such drills really teaching them to reason?

Some educators say no. They say that teachers too often rely on only one type of software—"drill and practice"—which teaches memorization and response, not how to think. But if those educators have anything to say about it, changes are on the way.

The Electronic Workbook

Drill-and-practice software, once a *de facto* standard in the computer-equipped classroom, is losing ground to more innovative uses of the microcomputer, according to developers and researchers who follow the educational-software industry. The change comes in response to a growing number of educators promoting the development of higher-order thinking skills. (See the accompanying sidebar for a list of current programs designed to encourage these abilities.)

Even Apple Computer Inc. president John Sculley challenged the value of using only drill-and-practice programs in the classroom at a conference in San Francisco in January: "Are the students who will be hired in the year 2000—the students in school right now—learning the kinds of skills that will allow them to succeed?"



“There must be renewed emphasis on teaching students how to think.”

“The answer, I believe, is ‘only partially’. . . schools are only beginning to teach students how to use computers to obtain information, to think, and to make decisions. There’s real value in using computers for drill and practice, or learning how to program, but we think students would be better served by learning how to use computers as lifelong tools to get work done.”

One person who has closely watched the educational market is software developer Joyce Hakansson, formerly of Children’s Television Workshop. She explains that drill-and-practice software originally functioned as a replacement for the workbook. It was the easiest way to use a computer in the classroom, and it made demands on the teacher more tolerable. But, she notes, it’s “not where the power of the medium lies.” She adds, “Educators are becoming less and less satisfied with rote learning because it’s now much more important for people to find information, evaluate it, and use it to solve problems than it is to simply store data in their minds.”

To be sure, some areas of learning, such as arithmetic and foreign languages, are best served by rote memorization of facts, but no one says education should stop there, Hakansson concludes. (For related discussions of computer use in U.S. schools, see “Apples in Class: The Latest in Team Teaching,” p. 101; “Guidelines for Buying Educational Software,” p. 109; and “Community Consensus: Computers in Education,” p. 122, all in the November 1985 *inCider*; and “BackTalk Response: Computers in the Classroom,” January 1986, p. 44.)

A Society of Thinkers

The National School Board Association (NSBA) is among those organizations that agree that students need more than a passive, rote-directed approach to learning if they’re to survive in tomorrow’s society. The Alexandria, Virginia-based group recently urged schools to adopt new curricula to promote the development of critical-thinking skills.

Philip A. Smith, director of communications for the association, says that the NSBA’s recommendation is based on studies indicating the need for reform and for a higher quality of learning. “The board’s suggestions are a reaction to a new view of reality in the world, a vision of what tomorrow’s generation will have to cope with and the skills it will need for survival,” Smith explains. “Above all, there is a feeling that there must be a renewed emphasis on teaching students how to think in order to improve the quality of education.”

Software that teaches higher-order thinking skills is designed to prepare kids for a world that today’s adults do not anticipate, according to Marge Kosel, vice president of Sunburst Communications’ software division in Pleasantville, New York. “We’re switching from a factory-driven society to a society of think-

ers,” Kosel observes. “The jobs of the future will require thinking skills, synthesis, and problem-solving abilities.”

What exactly are these problem-solving skills some educators prize so highly? Kosel says that one of them is the facility for recognizing patterns: “There are patterns in nature as well as in math and language, and a child can learn to recognize these relationships.”

Other skills are the ability to break a problem down into smaller components, the know-how to solve a problem through trial and error, and the ability to work backward from a desired conclusion to the correct premise. A software package aimed at developing these skills challenges a child to put together assorted information to solve a problem, while drill-and-practice programs seek a predetermined answer.

Innovation vs. Reality

Although many educators laud the appearance of computer-based courseware that encourages creative and abstract thinking, not all classroom teachers have jumped on the bandwagon. In fact, according to Bodie Marx, vice president of Mindscape Inc., of Northbrook, Illinois, something like a battle line has been drawn between computer coordinators, who have been assigned to schools to assess software needs, and classroom teachers, who are faced with actually executing the new programs. Marx, a former teacher of high-school French, notes the growth of “tension” between the two camps and suggests that those products aimed strictly at development of higher-order thinking are likely to be rejected at the classroom level.

The computer coordinator is interested in innovation—the “latest and greatest” in problem-solving and critical-thinking programs—and tends to have an idealistic view of the classroom, Marx says. The teacher, on the other hand, is concerned primarily with ease of use, integration, and accountability—that is, the teacher’s views are usually rooted in day-to-day reality. Marx says that coordinators who push too hard for innovation are likely to experience a backlash from teachers, with the result that computers in the classroom are either used inefficiently or not used at all.

“In order for the medium to survive and to be used to its fullest potential, it must be integrated into the existing classroom environment,” Marx comments. He adds that teachers are challenged because they are held accountable for the time children spend at the terminal, and in many schools, this amounts to only about 20 minutes per student per week. It’s also difficult for teachers to follow the individual progress of students in a group setting like the computer lab. Thus, Marx says, most teachers are still more comfortable with drill-and-practice software, given the existing classroom structure, than

with any other type of program—it's the easiest to track and manage.

The Challenge of Integration

To the concerns some teachers have about integrating critical-thinking skills software into the curriculum, Dr. Alfred Bork of the University of California at Irvine adds another: namely, that some problem-solving programs are so sophisticated that only 1 percent of the population can use them. Dr. Bork, who is developing software to teach junior-high students how to think like scientists, suspects that the students who can use the most advanced programs would probably be good critical thinkers anyway—even without the software.

The real issue for computers in education, according to Dr. Bork, is the need for new curricula that take advantage of computers in classrooms. Doing this requires courseware that includes both drill-and-practice and problem-solving material, yet goes far

beyond the scope of today's software.

"It's as if someone were turning out two kinds of two-page books, and people were debating about which type is better," Dr. Bork says. "The software being used right now in the classroom—be it drill-and-practice or problem-solving—is like a two-page book. What we need is a whole book, or in this case, a whole-course approach to classroom teaching that makes better use of the computer than we're now doing."

Better computer-based courseware solutions could come from educators, developers, hardware manufacturers, private industry, or the federal government, Dr. Bork notes. The important thing to remember, he concludes, is that we must come up with new solutions if we're to prevent further decline in the quality of education in the U.S. in the next decade. ■

Write to Wendy Lea McKibbin c/o inCider, Suite C-200, 1060 Marsh Road, Menlo Park, CA 94025.



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Reader Service Number 300

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Broderbund Software
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San Rafael, CA 94903
(415) 479-1170

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Spinnaker Software
One Kendall Square
Cambridge, MA 02139
(617) 494-1200

Reader Service Number 302

Logo

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Apple Computer
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THE *Magic* OF THE VISUAL INTERFACE

Apple II users can now have the best of both worlds with a new breed of Mac-like software.

by Cynthia E. Field

Be honest, now. Have you had that uneasy feeling lately that maybe—just maybe—you own the wrong computer?

Some of your friends may have jumped on the Commodore Amiga bandwagon this past Christmas. Others rave about the Atari 520 ST. You may even know one of "the rest of them"—the Macintosh owners. Then there's you, the Apple II loyalist. Should you carry your tail between your legs?

Unlike users of those other machines, you've never had to worry about good software being available, and lots of it. Whether you purchased a //e or //c, you were confident that some expansion would be possible.

Well, that time has come. With just a hardware enhancement or two, you can enjoy the newest breed of software, a genre that's only beginning to exploit what Cary Lu in *The Apple Macintosh Book* dubs "the visual interface."

Best of all, we don't have to give up anything. We can still enjoy thousands of traditional, keyboard-driven programs along with the new Mac-style packages—the best of both worlds.

A Little History

The prototype for what we call the Macintosh interface was actually developed by a team working at



Xerox Corporation's Palo Alto Research Center (PARC) in California. In the 1970's, the PARC group created a software working environment capable of utilizing the hardware mouse. Apple incorporated this interface into its Lisa and Macintosh computers in the early 1980's.

The Mac's graphic interface, with its pull-down menus, icons, windows, and mouse input, has since served as a model for easy-to-use but powerful software for other computers, including the Amiga, the 520 ST, and now the Apple //e and //c.

Hardware Considerations

If you want to run truly Mac-like software on your Apple II, there are three prerequisites. (See the **Table** for a quick comparison of system requirements for nine programs discussed in this article.) First, your computer has to be able to display menu bars, window frames, check marks, and other graphics. Older //e's were shipped without this "mouse text," an alternate character set. But for less than \$100, your dealer should be able to add the ROM (read-only memory) upgrade required for mouse-text display.

Second, most Macintosh-like programs for the Apple II require 128K of RAM (random-access memory). Many Apple //e's now being sold come with 128K. If you didn't purchase your //e within the last six months, you may need to buy an extended-memory

circuit card. You should be able to add 64K to your Apple //e for about \$100. The //c comes with mouse text and 128K as standard features.

The third enhancement you need is a mouse. If you're using a //e, the mouse requires an interface card in slot 4. An **AppleMouse //e** with interface costs about \$150.

The mouse interface is built into the //c, and owners have a choice of mice. The **AppleMouse** (\$100 for the //c) is a mechanical mouse, with a hard rubber ball in its base. As you glide the mouse over the surface of your table or desk, the ball rotates, and the mouse's relative position is translated into a particular cursor position on the monitor screen. Moving the mouse left moves the cursor left, and so on.

The second type of mouse available for the //c is the optical **A+ Mouse** (reviewed in the July 1985 *inCider*, p. 77) from Mouse Systems. Instead of a rolling ball, the optical mouse's infrared light-emitting diodes and photosensor track the device's position on a mouse pad. This metal-based, skidproof pad is about 9 inches by 8 inches in size; its upper surface is composed of a grid of thin horizontal and vertical lines. The A+ Mouse lists for \$99.

Whether you prefer a mechanical or an optical mouse will depend more on how each feels in your hand rather than how it functions. With either variety, you glide the mouse along and press the button on



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top to select choices from on-screen menus. Some users say the optical mouse is lighter to the touch, but others find the mouse pad too restrictive.

Mac Savoir Faire

In the technical sense, the ideal Mac-like program for the Apple II would offer everything available on the Mac: icons, pull-down menus, dialog boxes, windows, scroll bars, and, of course, mouse input. To date, few programs for the Apple II have all these embellishments. The availability of Mac-like software for the Apple II has been a step-by-step, evolutionary process. I like to think of these programs as reaching Level 1, 2, or 3 in their attainment of Mac emulation.

Level 1 software takes the first step toward embracing the Mac interface—mouse support or pull-down menus.

Level 2 software moves a step closer by mimicking Macintosh applications software, with dialog boxes, windows, close boxes, and scroll bars, in addition to mouse support and pull-down menus.

Level 3 programs have it all—Level 2 features plus icons. The graphics and text in these programs make your Apple II screen look like the Macintosh's.

Table. Comparison chart showing prices and system requirements for nine Mac-emulating packages.

Program, Price	Requirements		
	Mouse	128K	Enhanced ROM
MouseWrite, \$125		•	•
Mouse Word, \$129.95	•	•	
Mouse Calc, \$149.95	•	•	
Dazzle Draw, \$59.95		•	
Fantavision, \$49.95			
Mouse Budget, \$69.95	•	•	•
Person-to-Person, \$100/\$150*	•	•	
Mouse Desk, \$39.95/\$69.95*		•	
Catalyst 3.0, \$99		•	•

*The second price is for the noncopy-protected version.

Mice and Menus

Certain Level 1 programs—Broderbund's **Bank Street Writer** and **Print Shop Companion**, and **ProCom-A Communications Software**, published by modem manufacturer Prometheus Products—support the mouse as a menu selector only.

Other publishers have designed their programs to

support the mouse as a substitute for the joystick. In DesignWare's **European Nations and Locations**, you use the mouse to drag a country and click it into place on your on-screen map of Europe. In Mindplay's **Cat 'n' Mouse**, children learn word and picture associations by using a hardware mouse to help a software mouse through a maze. In Weekly Reader Family Software's **StickyBear SpellGrabber**, moving the mouse moves StickyBear around the screen, where he picks up letters to complete a word.

These programs are not truly Mac-like, nor were they intended to be. They're significant, though, because they bring mouse-driven software to the unenhanced Apple II and represent transitional stages in Mac emulation.

Pull-Down Menus

Some Level 1 programs offer pull-down menus in place of standard (key-selected) menu listings. In the Mac environment, menu titles are presented banner-like across the top of the screen. Mac aficionados call this array of choices the *menu bar*.

In a word-processing program, for example, the menu bar might contain the words File, Edit, Print, and so forth. If you want to save your document, you simply use the mouse to move the on-screen pointer to the word File. When you press the button on top of the mouse, the File menu pulls down like a window shade to display a list of file-management options such as New, Open, and Save.

Release the button when the highlighting cursor lands on the option you want. Sometimes submenus open up when you select from a pull-down menu.

At least two programs offer pull-down menus, but don't support the mouse. In Timeworks' Sylvia Porter's **Your Personal Financial Planner** (reviewed on p. 36 in this issue) and in **Pinpoint** (see "Desktop Power," March 1986, p. 34), you use the directional and return keys to move from menu to menu and select program features.

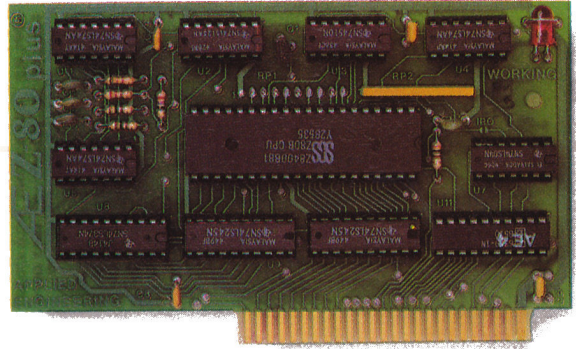
The II Does Windows

To date, Level 2 programs dominate the Mac-like Apple II scene and clearly establish the trend toward visual-interface software. Depending on the extent to which a program mimics the Mac, dialog boxes may appear on screen when the program needs more input.

A word-processing program may ask which drive contains your data disk, for instance. If the program can't proceed without further input, it may beep you, open a dialog box, and ask you if it's all right to go on. The program may require you to click on the word OK; if it's not, you click on the word CANCEL.

Some Mac-like programs do windows. These rectangular boxes can help you partition your work area. A word processor, for example, may let you open a second window so that you have two "pages"

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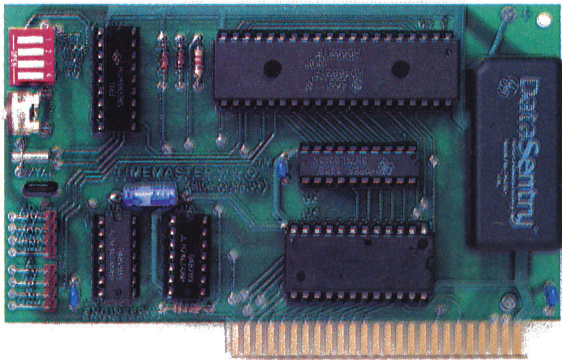
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on screen. In one you might type a draft; in another, you might work on a later version.

You can usually enlarge or reduce windows by clicking on and dragging grow boxes. You can shut a window—remove it from the screen—by clicking on a designated area or a special box called a *close box*, which appears in the upper left-hand corner of the window.

Scrolling through long documents or spreadsheets is a joy with a Mac-like program. Instead of executing control- or apple-key sequences to make quantum leaps through your prose or data, you move up and down (or left and right) by dragging the mouse along a vertical (or horizontal) scroll bar. Some programs call the vertical scroll bars *elevators*, an apt metaphor.

Icons

Few Mac-like programs for the Apple II have achieved Level 3 status by offering icons. (On the Macintosh, for example, clicking on a trash can means "Dump this one in the circular file"; the wrist-watch icon means "Please wait.") I'm aware of only three programs—**Mouse Desk** (see Editors' Choice, March 1986, p. 120), **Person-to-Person**, and **Catalyst 3.0**—that have fully met the challenge of simulating the Mac environment. (*Editor's note: Instant Pascal is one Apple product whose Mac and II versions are more than similar. See Jim McKelvey's review on p. 30 for more information on this interesting adaptation of the Macintosh interface.*)

Easier Said Than Done?

One of the hallmarks of the visual interface is its ease of use. In fact, its originators at PARC were trying to design a computer that worked in a more human-like fashion. The result was, if not more human-like, certainly more humane.

Some keyboard-oriented folks (and I was one of them before I converted) may wonder how a mouse can make computing easier. The truth is sometimes it does, sometimes it doesn't.

Take word processing, for example. By its very nature, it requires that you use the keyboard most of the time. If you write first and edit later, you may take to a mouse-driven word processor like a kid to a mud puddle. If you edit as you go along, though, you might find it awkward to move back and forth interminably from keyboard to mouse.

Whether you're processing words or data, the visual interface can simplify your work. It's a cinch to highlight a piece of text you need to move or a section of a spreadsheet you'd like to calculate. In either case, there are no commands to memorize. Instead, once you've highlighted the targeted area by dragging the mouse over it, you move to the appropriate pull-down menu and click on the menu option you want.

One of the nicest features of Mac-like software is

the ease with which it handles disk-housekeeping chores. Saving, loading, formatting, and cataloging are all accomplished with a point and a click.

At one level or another, more and more software is mimicking the Macintosh way of doing things. Although they're untraditional both in appearance and use, these programs nevertheless may be classified according to traditional categories: word processors, spreadsheets, data-base managers, graphics, personal finance, communications, desktop organization, and accessories.

Two Word Processors

Two publishers have taken up the challenge of bringing the Macintosh model to Apple II word processors. MouseWrite from Roger Wagner Publishing (see Editors' Choice, July 1985, p. 112, and March 1986 Reviews, p. 70) and Mouse Word from International Solutions (see Editors' Choice, March 1986, p. 120) are worthy competitors in this field.

MouseWrite works with or without a mouse. If you don't have a mouse, you use the escape, cursor, and return keys to pull down and select from menus. With an apple-key sequence, you can make a mouse pointer appear on screen. Not all features of MouseWrite are available to mouseless users, though, so you're probably better off if you run the program with a mouse. Besides, MouseWrite is more fun that way.

Although it doesn't offer icons, MouseWrite comes very close to being truly Macintosh-like. When you finish typing within the document window, you save your file, then use the close box to wipe the slate clean for a new memo, letter, or report.

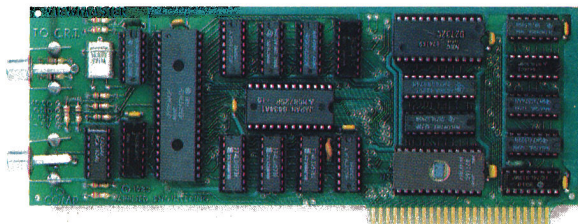
Roger Wagner Publishing followed Apple's written guidelines for implementing the Macintosh user interface. These guidelines dictate that a program show all its options on screen. Some users find MouseWrite confusing at first, but that judgment is based solely on appearance. The program is indeed easy to operate.

Mouse Word, created for Version Soft in France and distributed in the U.S. by International Solutions, requires a mouse and 128K. You can run it on an Apple IIe without mouse text, but the result is visually less pleasant. The menu bar mimics most users' writing sequence: From left to right across the screen you find the File, Edit, Format, and Print menus.

Though dissimilar in screen appearance and menu setup, MouseWrite and Mouse Word have similar text-formatting features, such as boldface and underlining. Both programs use embedded commands for page- and print-formatting features.

Each program offers a few extras. MouseWrite includes a clock/calendar for time- and date-stamping documents, and an alarm-clock feature. Mouse Word provides an advanced-function calculator and mail

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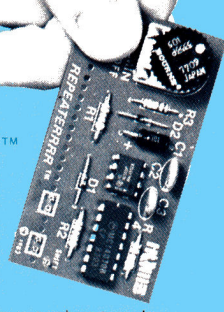
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merging, as well as built-in communications utilities for going on line.

Both programs work with a wide variety of popular dot-matrix and letter-quality printers. Both support Apple's high-capacity microfloppy drive, the UniDisk 3.5.

MouseWrite is noncopy-protected and is easily installed on a hard-disk drive. Mouse Word is not copyable.

A Mac-Style Spreadsheet

At this writing, only **Mouse Calc** from International Solutions (see Editors' Choice, March 1986, p. 120) is available to those ready to take one giant step toward Mac-like spreadsheeting. Pull-down menus with myriad filing, formatting, and calculation options replace the slash commands VisiCalc users could count instead of sheep.

With Mouse Calc there's no need to memorize commands or designate cell ranges by their coordinates. Instead of typing @SUM(A34..A56), for instance, all you have to do is drag the mouse over that range to highlight it. Then you move the mouse up and select Sum from the Function menu.

Mouse Calc's printing capabilities are notable. Not only can you print the spreadsheet in VisiCalc style, but you can also print it as it appears on screen, complete with grid lines.

A real bonus—one I hope becomes standard for Mac-like spreadsheets to come—is Mouse Calc's built-in graphics feature. Having defined a range of cells to be charted, you open a window. With a click of the mouse button, a graph appears on screen in double hi-res color. Graphs can take a variety of forms—standard, three-dimensional, bar, or line. All are easy to print.

Mouse Calc is compatible with VisiCalc and AppleWorks spreadsheet files, and you can incorporate Mouse Calc spreadsheets into Mouse Word word-processed documents.

A Data-Base Program to Come

At press time, International Solutions was working on **Mouse File**, a page-oriented data-base program offering some graphics features. The publisher claims that Mouse File resembles FileMaker, a Macintosh data-base program. Mouse File is expected to be released during the first half of 1986.

Dazzling Graphics

In the Mac-style graphics realm, no name stands out better than that of Broderbund Software. Both Dazzle Draw (see *inCider's* review on p. 87 in the June 1985 issue) and Fantavision (see Editors' Choice, February 1986, p. 120) are revolutionary, as well as evolutionary, programs.

Dazzle Draw is an easy-to-use, easy-to-lose-yourself-in double hi-res drawing program. You can use a joystick instead of a mouse, but I think the mouse

is easier to control—not to mention more fun.

There are so many colors, patterns, brushes, and other “tools” to work with that even the least creative individual will soon find Dazzle Draw enchanting.

You might think a mouse would be cumbersome for fine drawing, that a pen of one kind or another would be more precise. That would be the case were it not for Dazzle Draw’s Zoom feature, which zeros in for a closeup of selected areas of your drawing. Wherever you choose, you can paint pixel by pixel. When you “unzoom,” you may not recognize that detailed masterpiece as your own. You can also create self-booting slide shows to share your artistic talents with friends.

Broderbund’s newer—and no less exciting—release, **Fantavision**, brings animated color graphics to the Apple II. Like Dazzle Draw, Fantavision has pull-down menus and supports the mouse, though you can use a joystick or graphics tablet instead. Like the slide-show feature in Dazzle Draw, Fantavision lets you design self-booting movies.

Personal Finance

Timeworks’ **Your Personal Financial Planner** (volume 1 in the Sylvia Porter series) doesn’t respond to mouse input, but it does offer pull-down menus. In addition, the program provides a couple of desktop accessories—a calculator and memo pad. Thorough, detailed, and fully documented, Personal Financial Planner is much more than a household-budget maker. You can customize the program and prepare long-term financial plans, the kind for which you might pay a consultant hundreds of dollars.

Mouse Budget, from International Solutions (see Editors’ Choice, March 1986, p. 120), is mouse driven and much more Mac-like. As its name implies, Mouse Budget limits itself to budgeting, though it does prepare a variety of reports, such as income and net-worth statements. As in other International Solutions offerings, the menu bar is simple but sufficient: File, Edit, Transactions, Reports, and Set Up are the titles included.

Unfortunately, no one has come up with a way to eliminate the drudgery of typing in the many transactions in which we engage on a daily or monthly basis. Will some clever programmer soon teach a mouse to read receipts and write checks?

Communications and Desktops

Person-to-Person from Trutech Software is an integrated communications program centered around an on-screen Rolodex-type file. In addition, Person-to-Person offers word-processing and telecommunications capabilities. On-screen graphics take you through the program with pull-down menus, windows, and icons, including tabbed and alphabetized

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index-card dividers, and telephone, printer, card, notepad, and satellite-dish icons.

International Solutions’ **Mouse Desk** (which you can use without a mouse) patterns itself on the Macintosh desktop, with pull-down menus, windows, and elevators. Icons complete the metaphor and signify different file types and storage media (floppy disk, 3½-inch disk, or ProFile hard disk)—and Mouse Desk includes a trash can, of course.

In addition to desktop organization, Mouse Desk provides program selection, letting you load Mouse Calc or Mouse Word from a peripheral device.

A second program launcher is Quark’s **Catalyst 3.0**, a mouse-driven, Mac-like utility that transfers ProDOS applications to Apple’s UniDisk 3.5 or a hard-disk drive. Priced separately at \$99, Catalyst 3.0 also comes bundled with the UniDisk 3.5 (\$529 for the //c model; \$599 for the //e version, which includes an interface card).

While some of the programs described here include a desktop accessory here or there, only one program I’m aware of gives you a whole array of accessories in one place—**Pinpoint**, from Pinpoint Publishing (formerly Virtual Combinatics).

Pinpoint is a pioneer Apple II program offering such desk accessories as an appointment calendar, calculator, communications module, phone dialer,



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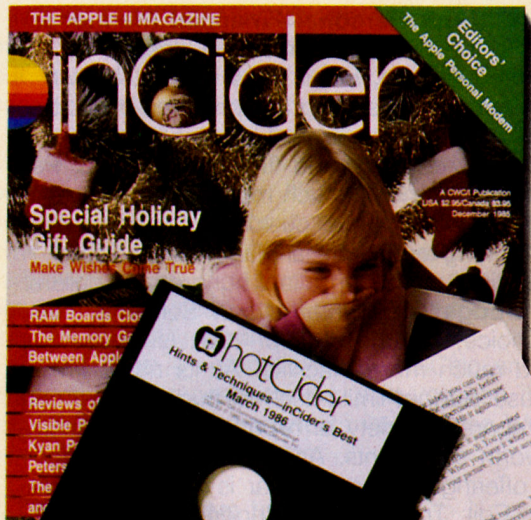
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GraphMerge (compatible with Dazzle Draw), notepad, QuickLabel, and typewriter functions.

While you can use Pinpoint as a stand-alone program, it was designed to be an AppleWorks enhancement. Pinpoint is memory resident; its features appear as pop-up windows when you call them. Its accessories respond to the same commands AppleWorks' do. Although Pinpoint has pull-down menus, it's not currently mouse driven.

Conclusion

The transition from keyboard-intensive to mouse-driven software for the Apple II has begun. The publishers discussed in this report have experimented with various aspects of the Macintosh environment. Some have stepped meekly in that direction; some more boldly. Whatever their individual styles, the programs featured here represent an evolution bringing us closer to a unique vision of the best way in which people and computers can work together. ■

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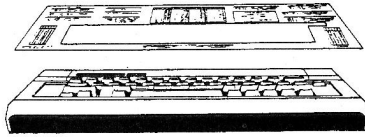
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Table. Screen-control codes.

Control Character	ASCII Code	Apple II/c Name	Result
Control-G	7	Bell	Sounds the Apple's bell for 0.1 seconds.
Control-H	8	Backspace	Moves cursor one space to the left. If that would exceed the left edge of the window, the cursor is moved to the rightmost position on the line above.
Control-J	10	Linefeed	Moves cursor down one line, and scrolls screen if necessary.
Control-K	11	Clear EOS	Clears from the cursor position to the end of the screen.
Control-L	12	Home and clear	Moves cursor to upper left-hand corner of the window and clears the window.
Control-M	13	Return	Moves cursor to the left edge of the next line in window and scrolls if necessary.
Control-N	14	Normal	Sets display format to normal.
Control-O	15	Inverse	Sets display format to inverse.
Control-Q	17	40-column	Sets display to 40-column mode.
Control-R	18	80-column	Sets display to 80-column mode.
Control-U	21	Quit	Deactivates enhanced video firmware.
Control-V	22	Scroll	Scrolls the display down one line while leaving the cursor at the same position.
Control-W	23	Scroll-up	Scrolls the display up one line while leaving the cursor at the same position.
Control-X	24	Disable mouse text	Disables mouse-text character display and uses inverse video instead.
Control-Y	25	Home	Moves cursor to upper left-hand corner of window (does not clear the screen).
Control-Z	26	Clear line	Clears entire line containing the cursor.
Control-[27	Enable mouse text	Disables inverse characters and displays mouse text instead.
Control-\	28	Fwd. space	Moves cursor one space to the right. If that move exceeds the right edge of the window, the cursor is placed on the left side of the next line.
Control-]	29	Clear EOL	Clears the line beginning at the current cursor position up to the right edge of the window.
Control-^	31	Up	Moves cursor up one line.

Note that, with the exception of the first, second, third, and fifth codes, enhanced video firmware must be activated.

Programming the Screen

Before you look at mouse text, try playing with the screen itself. Almost all Apple owners are aware of the ESC commands to move the cursor and clear the screen. The only problem is that these are keyboard-activated commands. They're helpful if you're editing a program, but you can't reach them from within the program itself.

The enhanced text-handling routines in the IIc and IIe let you activate control codes from within a program (see the **Table**). Notice the wording used to describe the results of some of those controls: They affect the Apple's window, not the screen—an important distinction.

Doing Windows

Apple screen size is malleable, but I've rarely seen that feature used to any real extent. The process is simple enough, being composed of only four POKE commands:

POKE 32, <<left>>
POKE 33, <<width>>
POKE 34, <<top>>
POKE 35, <<bottom + 1>>

Screen values must lie within some practical limits, but these are easy to live with. The minimum values for the left, width, and top parameters are zero, and for the bottom it's one. The maximum value for the top is 23, and for the bottom it's 24. (No matter what the value for the bottom line is, you always add one to it.) The maximum left and width values

are 39 or 79, depending on whether you're using a 40- or 80-column screen, respectively.

Screen dimensions also have some logical constraints, namely that the value for the left edge of the window can't be larger than its width, and the value of the top edge can't be greater than that of the bottom.

Making an EXEC File

Assembling all the control codes into a program doesn't involve much work. Ideally, you should set the codes and window instructions into subroutines you can CALL from the main body of the program (see **Listing 1**). I've selected line numbers that are unlikely to appear in a program. You can change them as needed for your work. If you need to re-type these lines over and over for each of your programs, however, the fun will quickly evaporate. It would be much better if you could CALL them to add them to the program on which you're working.

Of course, if you save this subroutine as a program, you can't CALL it to append it to a program that's already in memory. Saved in program format, this subroutine will erase an existing program when you load it. To prevent that, add these lines to

Listing 1:

```
1 PRINT CHR$(4);"OPEN CONTROL,D2"  
2 PRINT CHR$(4);"WRITE CONTROL"  
3 LIST 10000-  
4 PRINT CHR$(4);"CLOSE CONTROL"  
5 END
```

Instead of saving the program, run it. Lines 1 through 5 open a file called CONTROL on drive 2 (omit the ,D2 if you have a one-drive system), write the lines from 10000 to the end of the subroutine into CONTROL as lines of text, and close CONTROL when that's finished. After that, whenever you want to add that subroutine to a program, it's just a matter of using the following command to load those lines in *without* erasing anything already in memory: EXEC CONTROL,D2

You'll overwrite any program lines that duplicate those contained in the subroutine, however.

Listing 1. Basic screen-control codes.

```
10000 REM SCREEN CONTROL CODES  
10010 CSS = CHR$(12): REM CLEAR SCREEN  
10020 UPS = CHR$(23): REM SCROLL UP  
10040 DNS = CHR$(22): REM SCROLL DOWN  
10050 LFS = CHR$(10): REM LINEFEED  
10060 BS$ = CHR$(8): REM BACKSPACE  
10070 ELS = CHR$(29): REM CLEAR TO END OF LINE  
10080 ESS = CHR$(11): REM CLEAR TO END OF SCREEN  
10090 M1$ = CHR$(27): REM ENABLE MOUSE TEXT  
10100 M0$ = CHR$(24): REM DISABLE MOUSE TEXT  
10110 RETURN  
11000 REM WINDOW CONTROL  
11010 POKE 32,L  
11020 POKE 33,W  
11030 POKE 34,T  
11040 POKE 35,(B + 1)  
11050 RETURN
```

Creating Pull-Down Menus

Now that you've learned some screen-control basics, what can you do with them? You can create pull-down menus—a major reason for the Macintosh environment's ease of use. At the top of the screen, a menu bar contains choices the mouse can drag out. That's simple to duplicate for enhanced video firmware.

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Listing 2 supplies you with a menu bar for six pull-down menus (lines 9020–9065). The actual menu box for each menu title comes from lines 8000–8060. Notice that I've left the menus blank: You can fill them in with your own choices.

Before you send the program off to create a menu box, you must supply values for the variables H (the horizontal starting position of the box on the menu bar), ML (the menu-box length), and MW (the menu-box width). The value for the top of the menu box is always two, since that's where the menu bar at the top of the screen ends. You pull down menus directly from this location.



The actual menu initialization occurs in lines 500, 600, 700, 800, 900, and 1000 for the six menu choices I've included. (You can change the titles for any of the menus from within those lines.) The menu selection—either by mouse or by keyboard—occurs in the routines you create between lines 100 and 599.

The program in **Listing 2** is both a template and a free-running demonstration. It sequentially displays empty menu boxes for every option until you've seen what each looks like. Whenever the program creates a menu box, it reduces the size of the active window to the size of the box. When you use the program for your own code, remove the FOR X = 1 TO 800 timing loops that keep the display moving and replace them with individual menu options appropriate for your program.

In several lines of the demo, I've set inverse on, initialized mouse text, and printed uppercase A's or L's. Turning on inverse and enabling mouse text transforms these letters into mouse characters. The program below will display all the mouse characters:

```
10 PRINT CHR$(4);"PR#3":REM ACTIVATE ENHANCED FIRMWARE
20 INVERSE:PRINT CHR$(27):: ENABLE MOUSE TEXT
30 PRINT "@ABCDEFGHIJKLMNQRSTUWXYZ\`~";
49 PRINT CHR$(24):: NORMAL:REM DISABLE MOUSE TEXT
```

Reading the Mouse

All that remains now is an explanation of the routines that handle the mouse and the keyboard. Basic mouse control requires four simple lines of code:

```
PRINT CHR$(4);"PR#4":PRINT CHR$(1)
PRINT CHR$(4);PR#0
PRINT CHR$(4);"IN#4"
INPUT "X,Y,C"
```

I'm assuming your mouse interface card is in slot 4, the default slot number for the Apple //c. The first line opens the slot for printing and initializes the card with CHR\$(1). Line 2 brings things back to the Apple screen, and line 3 initializes the slot for reading. The fourth line reads in the actual values from the card.

X and Y are the respective horizontal and vertical positions relative to the mouse's position on the screen. Each has a range of zero to 1023, with the home or starting position being the upper left-hand corner. Since the Apple text screen is either 40 by 24 or 80 by 24, this range immediately causes a problem—but only a momentary one.

Calculating the X,Y Position

The Apple uses a 7-by-8 matrix for each character. (The characters themselves are composed of a 5-by-7-dot matrix; the additional space is used to insert blank space between characters.) Some multiplication shows that on a 40-by-24 screen, the total number of dots possible for all characters is 40 × 7, or 280, horizontal dots and 24 × 8, or 192, vertical dots. On an 80-column screen, it's 80 × 7, or 560,

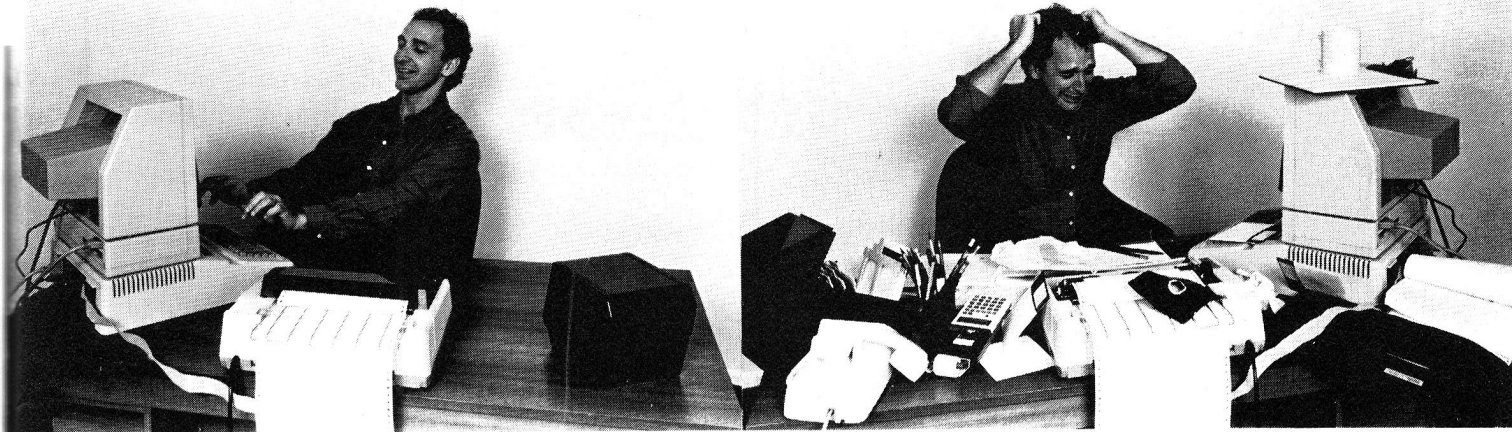
horizontal dots and 24 × 8, or 192, vertical dots. (Those are the respective resolutions for the hi-res and double hi-res screens.)

Listing 2. Menu-control demonstration.

```
8 PRINT CHR$(4);"PR#3
9 GOSUB 10000
10 FOR X = 1 TO 79
20 LI$ = LI$ + "L": REM PRODUCES A STRAIGHT LINE
30 NEXT X
40 PRINT CSS;
50 GOSUB 9020
60 :
100 REM --- ROUTINES TO DETERMINE MOUSE OR KEYSTROKE
500 REM SELECT APPLE MENU
510 VTAB 1: HTAB 1: INVERSE : PRINT " ";M1$;"A";M0$;" " ;
: NORMAL : PRINT
520 ML = 12:H = 1:MW = 15: GOSUB 8000
530 T = 2:B = ML - 2:W = MW - 2:L = H: GOSUB 11000
540 PRINT CHR$(25);
550 FOR X = 1 TO 800: NEXT
590 GOSUB 9020
600 REM SELECT FILE MENU
610 VTAB 1: HTAB 10: INVERSE : PRINT "FILE " ;: NORMAL
620 H = 10: GOSUB 8000
630 T = 2:B = ML - 2:W = MW - 2:L = H: GOSUB 11000
640 PRINT CHR$(25);
650 FOR X = 1 TO 800: NEXT
690 GOSUB 9020
700 REM SELECT EDIT MENU
710 VTAB 1: HTAB 20: INVERSE : PRINT "EDIT " ;: NORMAL
720 H = 20: GOSUB 8000
730 T = 2:B = ML - 2:W = MW - 2:L = H: GOSUB 11000
740 PRINT CHR$(25);
750 FOR X = 1 TO 800: NEXT
790 GOSUB 9020
800 REM SELECT COMMAND MENU
810 VTAB 1: HTAB 30: INVERSE : PRINT "COMMAND " ;: NORMAL
820 H = 30: GOSUB 8000
830 T = 2:B = ML - 2:W = MW - 2:L = H: GOSUB 11000
840 PRINT CHR$(25);
850 FOR X = 1 TO 800: NEXT
890 GOSUB 9020
900 REM SELECT OPTIONS MENU
910 VTAB 1: HTAB 45: INVERSE : PRINT "OPTIONS " ;: NORMAL
920 H = 45: GOSUB 8000
930 T = 2:B = ML - 2:W = MW - 2:L = H: GOSUB 11000
940 PRINT CHR$(25);
950 FOR X = 1 TO 800: NEXT
990 GOSUB 9020
1000 REM SELECT SPECIAL MENU
1010 VTAB 1: HTAB 60: INVERSE : PRINT "SPECIAL " ;: NORMAL
1020 H = 60: GOSUB 8000
1030 T = 2:B = ML - 2:W = MW - 2:L = H: GOSUB 11000
1040 PRINT CHR$(25);
1050 FOR X = 1 TO 800: NEXT
1090 GOSUB 9020
1100 END
8000 REM MAKE MENU BOX
FOR X = 2 TO ML
8030 VTAB X: HTAB H: GOSUB 9000: HTAB H + MW: GOSUB 9010: PRINT
8040 NEXT X
8050 HTAB H: INVERSE : FOR X = 1 TO MW + 1: PRINT M1$;"L";M0
$: NEXT X: NORMAL
8060 RETURN
9000 INVERSE : PRINT M1$;" ";M0$:: NORMAL : RETURN
9010 INVERSE : PRINT M1$;"Z";M0$:: NORMAL : RETURN
9020 T = 0:B = 23:L = 0:W = 79: GOSUB 11000
9030 PRINT CSS
9050 VTAB 1: HTAB 2: INVERSE : PRINT M1$;"@";M0$:: NORMAL : HTAB
10: PRINT "FILE": HTAB 20: PRINT "EDIT": HTAB 30: PRINT
"COMMAND": HTAB 45: PRINT "OPTIONS": HTAB 60: PRINT "S
PECIAL": VTAB 2: HTAB 1: INVERSE : PRINT M1$;LI$;M0$:: NORMAL
9055 T = 2:W = 79:B = 23:L = 0: GOSUB 11000
9060 PRINT CSS;
9065 RETURN
10000 REM SCREEN CONTROL CODES
10010 CSS = CHR$(12): REM CLEAR SCREEN
10020 UP$ = CHR$(23): REM SCROLL UP
10040 DN$ = CHR$(22): REM SCROLL DOWN
10050 LF$ = CHR$(10): REM LINEFEED
10060 BS$ = CHR$(8): REM BACKSPACE
10070 EL$ = CHR$(29): REM CLEAR TO END OF LINE
10080 ES$ = CHR$(11): REM CLEAR TO END OF SCREEN
10090 M1$ = CHR$(27): REM ENABLE MOUSE TEXT
10100 M0$ = CHR$(24): REM DISABLE MOUSE TEXT
10110 RETURN
11000 REM WINDOW CONTROL
11010 POKE 32,L
11020 POKE 33,W
11030 POKE 34,T
11040 POKE 35,(B + 1)
11050 RETURN
```


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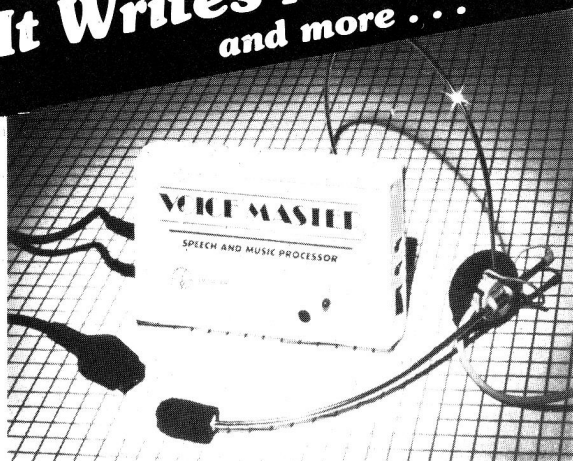


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Resorting to mathematics again, on a 40-column screen, the horizontal position of the mouse in terms of each text character is the integer that results when you multiply the X value you input by 280/1024, then divide that result by 7, and finally add one to your answer:

$$\text{INT}((X*(280/1024))/7) + 1$$

On an 80-column screen, that formula is:

$$\text{INT}((X*(560/1024))/7) + 1$$

For both screen sizes, the vertical character position is:

$$\text{INT}((Y*(192/1024))/8) + 1$$

Without the one added at the end, the readings would be in the range of zero to 39 or zero to 79 and zero to 23. If that's logical to you, you can leave off the one to make the formula shorter.

Pushing the Button

The C parameter used in the INPUT statement reads the condition of the mouse's button. It can appear with any value between one and four, indicating the condition of the button during the current reading and during the last reading. A value of one shows that you haven't pressed the button during the last two readings. A two results if you pressed the button the last time the C parameter read the button's status, but not this time. A three indicates the reverse: You didn't press the button before, but you are now. A value of four indicates that you pressed the button during the last two readings.

Reading the Keyboard

Not to leave the keyboard out, you can monitor key pressing two ways. If you PEEK at memory location -16368, you'll find that the value there is zero if no key is pressed. As soon as you press a key, the Apple places a nonzero value in that location.

Also, the value of the mouse's C parameter becomes negative—a dead giveaway even if you're not looking at location -16368. If you find that either of these conditions has been met, you can make your program branch to a character-input routine to read the value of the key pressed.

Reset the C value to positive by using POKE to place a zero in location -16368 (which resets the key-down status at the same time).

Rounding It All Up

If you apply what you've read and try the examples I've supplied, you can master the Apple's screen without resorting to machine language. With a little care, you can substitute these Applesoft routines in your own programs in place of existing menu routines—and have Mac-like pull-down menus whether or not you really have a mouse. ■

Bill O'Brien is author of The Apple IIc Book (among others) and can be reached at P.O. Box 1010A, Fort Lee, NJ 07024, or via CompuServe account 74216,1215.

Why Are Apple Owners So Loyal?

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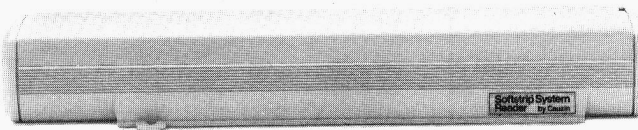
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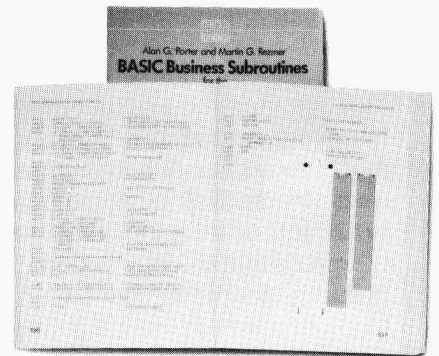
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The data strips on the right contains the program FLASHCARDS by Peter and Jerry Lachenbruch, which appeared in the May, 1984 issue of inCider. You'll find the program useful whether you're trying to learn French or brush up on some basics.

There is a collection of 30 word pairs, for studying conjugations of selected verbs. The program also contains a list of 20 word pairs for the advanced French linguist.

Read the two strips (near right) into your computer and RUN the program. You can also run it from the Cauzin communications disk. Exit any time by pressing CONTROL-RESET.

SOLVING GRAPH EQUATIONS

FUNCTION PLOTTER, a program by Don Fudge, appeared in the April, 1984 issue of inCider. A function plotter is a utility that solves and graphs equations (functions) that represent mathematical relationships between variables.

The equation might be something simple like $Y = X - 3$. It can be more complex like $Y = \sin(X)$ or $Y = 3(\sin(1/3(X - n/3)))$. A bell curve in statistics, a parabolic curve in physics and astronomy, a cosine curve in trigonometry, or a square wave curve in psychology are all examples of graphed functions.

Read the two strips (far right) into your computer and RUN the program. You can also run it from the Cauzin communications disk. Exit any time by pressing CONTROL-RESET.

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1 |

2 |

1 |

Softstrip 2 |

Softstrip

APPLEWORKS IN ACTION

Preparing a Price Quote with an AppleWorks Spreadsheet

by Ruth K. Witkin

Like any other consumers of goods and services, businesses shop around for the best prices. If your business sells something to other businesses, you're likely to get your fair share of RFQs (requests for quotation). AppleWorks makes it easy to prepare clear, consistent, and competitive quotes that can help your business become more successful.

In this session, the second of three parts, you'll create a spreadsheet with a lookup table of hardware supplies and wholesale prices for your company, Rocky Hill Hardware Supply. When you enter an item number, the formulas find the unit price in the lookup table, enter it in the quote, calculate the extension (unit price times quantity), and produce the subtotal, discount, and total quote. **Figure 1** shows the completed spreadsheet.

You won't need the mailing list you created last month to do the quote spreadsheet, but you will have to create this spreadsheet to do next month's example, which integrates the quote section with a letter.

How a Lookup Table Works

A lookup table consists of two rows or two columns of cells you indicate on a spreadsheet. One row or column contains scan numbers and the other contains corresponding numbers. A formula with the LOOKUP function searches the scan cells for a number you designate and retrieves the corresponding number, saving you the time of looking it up and typing it in.

If the scan cells are in a row, the formula searches the table from left to right until it finds the largest number less than or equal to your number, and retrieves the number from the cell immediately below. If the scan cells are in a column, the formula searches the table from top to bottom

AppleWorks helps you prepare professional-looking request-for-quotation spreadsheets.

and retrieves the number from the cell to the immediate right.

Keystrokes and Other Matters

When you see such key combinations as OA-L, hold down the open apple key and type L. With repeated combinations, such as OA-left arrow (4 times), hold down the open apple key and press the left arrow key four times. If you make a typo, the delete key backs up the cursor and erases the character before it.

At several stages of the creation process, you'll have to save the spreadsheet. If you have a one-drive system, watch the screen for prompts

that tell you when to swap the program disk for the data disk.

Creating the Spreadsheet from Scratch

Use the AppleWorks Startup and Program disks to bring up a new spreadsheet screen. Name this file **QUOTE**. You should now see the Review/Add/Change screen. Assuming you're familiar with AppleWorks, use the following summary to set up the spreadsheet so it looks like the one in **Figure 2**.

Dashed Lines—Each column is now nine characters wide. Use an equal sign to enter the line in A2 through F2 and in A16 through D16. Use a minus sign to enter the line in A5 through F5, A10 through F10, and A18 through D18. In each case, type quotation marks before typing the sign.

Column Widths—Use the Layout command (OA-L) to reduce the width of column A by four characters, reduce

Figure 1. AppleWorks spreadsheet used for price quotations to customers.

Quote to Bob Nissen, Nissen Brothers	RFQ 23451			
Qty	Item #	Description	Unit Price	Extended Price
48	259	Phillips Screwdrivers	\$2.50	\$120.00
24	250	Crescent Wrenches	\$6.75	\$162.00
24	210	Harris Drill Sets	\$32.55	\$781.20
12	283	Cartons 20d Common Nails	\$65.00	\$780.00
Subtotal				\$1,843.20
Discount				\$92.16
Total				\$1,751.04
PRICE LOOKUP TABLE				
Item	Price	Description		
210	32.55	Harris Drill Set		
250	6.75	Crescent Wrench		
259	2.50	Phillips Screwdriver		
276	15.75	Wood Chisel Set		
283	65.00	Carton 20d Common Nails		
287	72.50	Handing Belt Sander		
291	125.00	Romex 3x#12 Cable (1000')		
292	NA			

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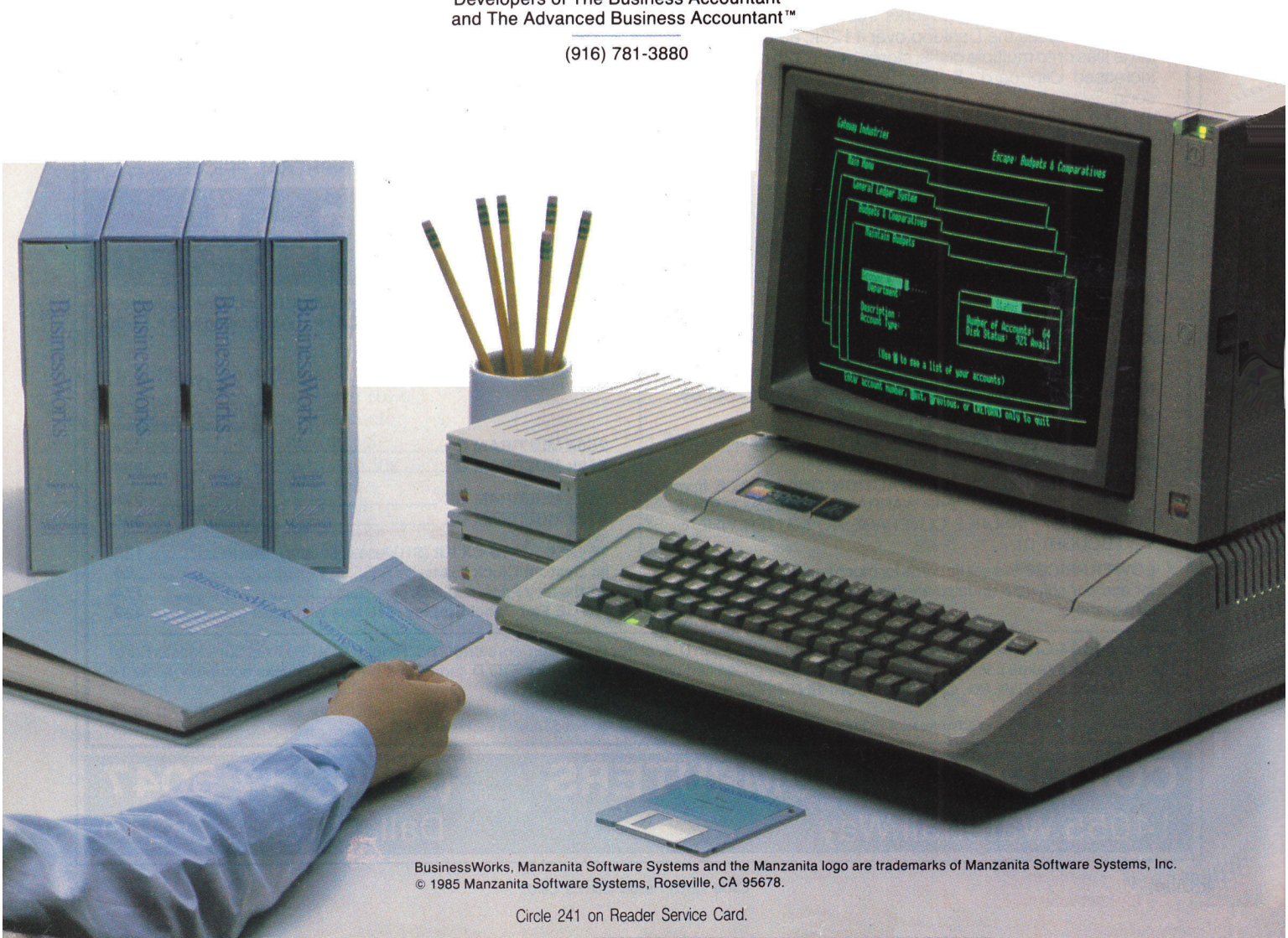
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APPLEWORKS IN ACTION

column C by six characters, increase column D by 17 characters, and increase column F by three characters.

Labels and Lookup Table—Enter the labels in rows 3, 4, and 17, in E11, E12, and E13, and in rows 15 through 26 (columns A, B, and D). Cell B26, which is empty now, will soon contain the NA function to “cap” the table.

The following formats make the labels and numbers look like those in **Figure 3**. For labels, use the Layout command (OA-L) to right-justify A4, B4, and F1, then center E3 through F4 and B17.

I often use the Commas format for numbers, even if the numbers will never be large enough to need commas. This format places the number one character shy of the right edge of the cell, producing a better alignment with headings. Use the Value command (OA-V) to set a standard value of Commas with zero decimal places. Use the Layout command (OA-L) to put the prices in the lookup table (B19 through B25) into a Commas format with two decimal places, and the unit and extended prices (E6 through F9 and F11 through F13) into a Dollars format with two decimal places. Now press OA-S to store the spreadsheet on disk.

Entering the Formulas

Figure 3 shows the locations of the formulas that perform the calculations. First, read how the formula works. Then place the cursor on the cell location. Move the cursor to the cell locations that belong in the formula and type everything else. When the formula is complete, press the return key. If you run into a snag, simply press the escape key and start again.

Formula 1: Unit Price

Formula 1, which contains the LOOKUP function, looks at the item number in B6, scans the item numbers in the price lookup table (A19 to A26), retrieves the price from the corresponding cell (B19 to B25), and enters this amount into E6. Type only one period when your cursor is on A19; AppleWorks automatically converts it to three periods.

Cell location: E6

Description:

@LOOKUP(B6,A19...A26)

Formula 1 has no item number with which to work, so NA appears.

Formula 2: Extended Price

Formula 2 multiplies the quantity (A6) by the unit price (E6) and enters the extended price into F6.

Cell location: F6

Description: +A6*E6

Formula 2 refers to E6, which contains NA, so it too displays NA.

Formulas 1 and 2 can calculate the unit price and extended price for other items. Place your cursor on E6.

Now follow these steps to start the Copy command, confirm *Within worksheet*, highlight the cells to copy from (E6 and F6), and tell AppleWorks the cells to copy into (E7 to E9). Type OA-C, press Return, press right arrow, press Return again, then press the down arrow key. Type a period, press down arrow (2 times), and press Return.

AppleWorks now highlights B6 and asks if it is a *No change* or *Relative* cell reference. To select *No change*, press Return. To select *Relative*, type

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APPLEWORKS IN ACTION

Figure 2. Labels, lines, and lookup table in an AppleWorks quotation spreadsheet.

Qty	Item #	Description	Unit Price	Extended Price
61				
71				
81				
91				
101				
111			Subtotal	
121			Discount	
131			Total	

Item Price	Description
210	32.55 Harris Drill Set
250	6.75 Crescent Wrench
259	2.5 Phillips Screwdriver
276	15.75 Wood Chisel Set
283	65 Carton 20d Common Nails
287	72.5 Harding Belt Sander
291	125 Romex 3x#12 Cable (1000')
292	

Figure 3. Formula locations in an AppleWorks quotation spreadsheet.

Qty	Item #	Description	Unit Price	Extended Price
61			NA (1)	NA (2)
71			NA	NA
81			NA	NA
91			NA	NA
101				
111			Subtotal	NA (3)
121			Discount	NA (4)
131			Total	NA (5)

Item Price	Description
210	32.55 Harris Drill Set
250	6.75 Crescent Wrench
259	2.50 Phillips Screwdriver
276	15.75 Wood Chisel Set
283	65.00 Carton 20d Common Nails
287	72.50 Harding Belt Sander
291	125.00 Romex 3x#12 Cable (1000')
292	NA (6)

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• COUNT WORD	• 1 WORK
• 10 A	• 1 WRITING
• 1 ADDRESS	• 9 YOU
• 1 ADDRESSES	• 1 YOU'VE
• 6 ALL	• 8 YOUR
• 1 ALMOST	• TOTAL WORDS: 402
• 1 ALWAYS	• CHARACTERS: 2013
	• CHARS/WORD: 5.0

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Auto Segments Files	YES	NO
Built-in Printer Buffer	YES	NO
Compatible With All Versions of AppleWorks	YES	NO
Displays Time & Date on AppleWorks Screen with Clock	YES	NO
Saves Slots	YES	NO
RGB Option	YES	NO
16 Bit Co-Processor Port	YES	NO
Memory Expansion Ports	YES	NO
Patent Pending Power-Saving Circuit	YES	NO
80 Columns Built-in	YES	NO
Maximum Memory per Slot	5120 K	1024 K
Compatible with Franklin 2000 Software	YES	NO
Compatible with Auxiliary Slot	YES	NO
Software Standard	YES	YES
Manufactured in	USA	England/ Singapore
Warranty	5 Yrs.	1 Yr./ 90 Days
Price	LESS	MORE

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APPLEWORKS IN ACTION

R. Identify which is which by typing **R**, pressing Return (2 times), and typing **R** (2 times).

Formula 3: Subtotal

Formula 3 adds the entries in F6 to F9 to produce the subtotal in F11. The formula includes the lines in F5 and F10. In this way, when you later insert rows into the quote area, AppleWorks will adjust the formula to add the new entries. Type only one

period when your cursor is on F10.

Cell location: F11

Description: @SUM(F10..F5)

Formula 4: Discount

Formula 4 uses the IF function to return one of two possible answers. Rocky Hill Hardware gives a 5 percent discount on purchases of \$1500 or more, no discount on anything less. The Test statement looks at the number in F11. If the number is

greater than or equal to 1500, the Then statement calculates 5 percent of the amount and enters the result into F12. If the number is less than 1500, the Else statement enters a zero.

Cell location: F12

Description:

@IF(F11 >= 1500, F11*.05, 0)

Formula 5: Total

Formula 5 subtracts the discount (F12) from the subtotal (F11) and enters the total into F13.

Cell location: F13

Description: +F11 - F12

Formula 6: Lookup Table "Cap"

Formula 6 prevents misleading results if you happen to type an item number larger than 291. Formula 1 (the lookup formula) will signal that something is amiss by entering NA (not available) into its cell instead of \$125.00, the largest corresponding number. Since AppleWorks can't retrieve text, having NA or any other text in a corresponding cell will only produce an ERROR message.

Cell location: B26

Description: @NA

This completes formula entry. Leave your cursor on B26 and press OA-S to store all the formulas on disk.

Entering Practice Numbers and Text

The practice entries are shown in **Figure 4**. Press OA-1 to jump the cursor to row 1. Enter the text in A1 and the RFQ number in F1. Then enter the quantities, items, and descriptions in rows 6 through 9. Your spreadsheet should now look like the one in **Figure 1**.

It's always a good idea to protect formulas from accidental change. Let's start with the unit and extended price formulas in columns E and F. Place your cursor on E6 and press OA-L. Now type **B**, press down arrow (3 times), press right arrow, Return, and type **PN**.

In the same way, protect the formulas that calculate the subtotal, discount, and total. Place the cursor on F11 and press OA-L. Now type **B** and press down arrow twice. Press Return and type **PN**.

The next step is to prepare for printing. Leave your cursor on F11 and press OA-O to bring up the Printer Options screen. Now set the left and top margins to position the spreadsheet on the printed page. Type **LM**, press Return, type **.8**, and

Figure 4. Practice entries in an AppleWorks quotation.

Qty	Item #	Description	Unit Price	Extended Price
48	259	Phillips Screwdrivers		
24	250	Crescent Wrenches		
24	210	Harris Drill Sets		
12	263	Cartons 20d Common Nails		
			Subtotal	
			Discount	
			Total	

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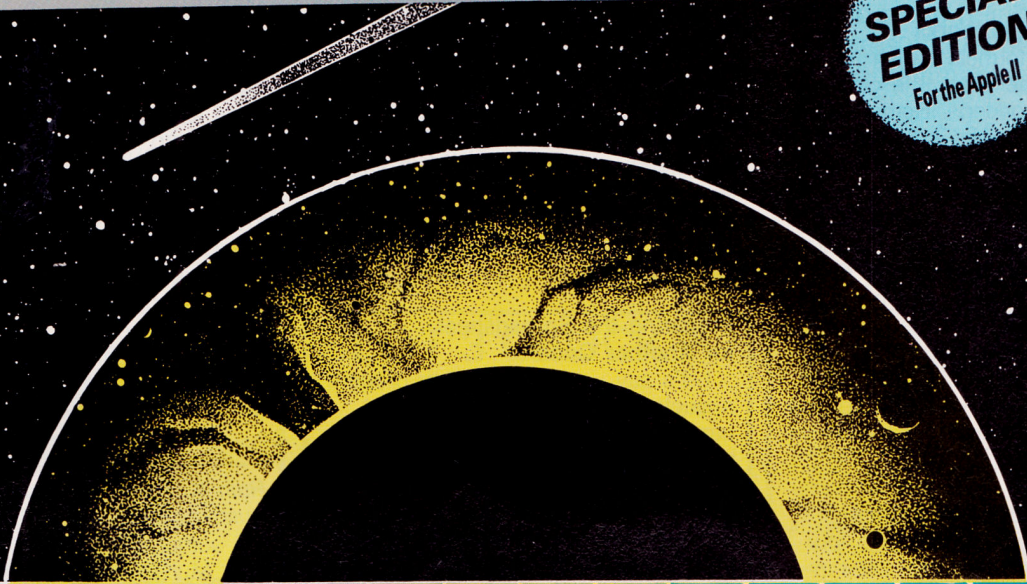
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press Return. Next, type **TM**, press Return, type **1**, and press Return again. Now press OA-S. AppleWorks saves the spreadsheet, then returns you to the Review/Add/Change screen.

Turn on your printer and follow these steps to start the Print command, confirm *All*, select the printer, enter a date, and confirm one copy. Press OA-P and Return. Then press Return (or type a printer number, then Return), type today's date, and press Return (2 times). Here's your copy of the Quote spreadsheet.

How an IF Formula Works

Making an IF formula switch from one answer to the other is a good way to test its workings. Remember, your customer receives a 5 percent discount on purchases of \$1500 or more, no discount for anything less. What if Nissen Brothers asked for a quote on six cartons of nails instead of 12? Place the cursor on A9, keep an eye on F12, type **6**, and press Return. Presto! Because the subtotal is now under \$1500, the number \$92.16 that was in F12 is now \$0.00. Leave the cursor on A9 and enter the original number by typing **12** and pressing Return.

Inserting Rows for More Entries

Clearly, you'll need more than four entry rows for some quotes. Let's insert three rows between rows 9 and 10. Place your cursor on A10 and press OA-I. Press Return, type **3**, and press Return again. Remember when you included the lines in Formula 3? It was just for times like this. Move the cursor to F14 and look at the

contents line. AppleWorks adjusted the subtotal formula to add the entries in F13 to F5.

The next step is to copy the price formulas into the new rows. Place the cursor on E9. Press OA-C, Return, press right arrow, Return, down arrow, type a period, press down arrow (2 times), and press Return. As you did before, tell AppleWorks which cells are *No change* and which are *Relative*. Type **R**, press Return (2 times), and type **R** (2 times). The formulas in the new cells have no numbers to work with, so NA appears. The subtotal, discount, and total formulas, because they are referring to cells containing NA, display NA too. To see the cells come to life, enter your quantities in A10 to A12 and item numbers in B10 to B12. If an item number is less than 210 or greater than 292, NA will remain in the cell. Try that, then replace them with legitimate item numbers.

Preparing the Spreadsheet for Another Quote

Let's say you are about to prepare a quote for another customer. It's easy to just blank out the existing entries and leave the labels, formats, and formulas intact. Start with the customer and RFQ number. Press OA-1 to jump the cursor to row 1 and press OA-B. Type **R** and press Return.

Now blank out the quantities, item numbers, and descriptions. Place your cursor on A6 and press OA-B. Type **B**, press right arrow (3 times), press OA-4, then press down arrow, and Return. Now you have a clean

spreadsheet awaiting the entries for the next customer.

This blanked spreadsheet is ideal to keep as a master to copy under a different file name each time you prepare a new quote. Name it QUOTE-MASTER and store it on disk. Leave your cursor on A6 and press OA-N. Press right arrow (5 times), type MASTER, press Return, and press OA-S. Now you have both versions on disk, giving you a choice of blanking out QUOTE each time or renaming and using the already blanked QUOTE-MASTER.

Lookup tables really make spreadsheet life simpler. They're easy to update, versatile (prices, freight charges, sales tax percentages, and discount rates), and can contain as many items as computer memory allows.

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Ruth K. Witkin is a consultant in computer applications for business. She is the author of Managing Your Business With Multiplan (Microsoft Press), Managing With AppleWorks (Howard W. Sams & Co.), Personal Money Management With Multiplan (Hayden Books), and Personal Money Management With AppleWorks (Hayden Books). Write to her at 5 Patricia Street, Plainview, NY 11803.

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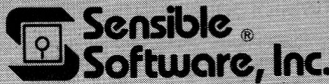
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Branching Out

by Roger Wagner

Last month I started to explain various techniques for creating and using counters and loops in assembly language. To accomplish the loop, you use the value in one of the registers as a counter; the branch instruction (which tests for the presence of a nonzero number in the register) actually does the "looping." Recall that the zero bit or "flag" of the 6502's status register does this zero/nonzero evaluation.

Branching

The complement of the BNE instruction is something called BEQ, which obscurely enough stands for Branch Equal. It's the opposite of BNE in operation—branching only when the register or memory location reaches a value of zero. Consider

Listing 1. BASIC looping program.

```

10 HOME
20 X=255
30 PRINT X
40 X=X-1
50 IF X=0 THEN 70
60 GOTO 30
70 END

```

Listing 2. Assembly-language looping program.

```

1 *****
2 *      LOOP PROGRAM #2      *
3 *****
4 *
5          ORG   $300
6 *
7 HOME    EQU  $FC58
8 SCREEN  EQU  $05BC
9 WAIT    EQU  $FCAB
10 *
0300: 20 58 FC 11 START JSR HOME      ; CLEAR SCREEN
0303: A2 FF   12        LDX #$FF     ; START COUNTER AT 255
0305: 8E BC 05 13 LOOP  STX SCREEN   ; PUT CHAR ON SCREEN
0308: A9 80   14        LDA #$80     ; TIME DELAY VALUE
030A: 20 A8 FC 15        JSR WAIT
030D: CA     16        DEX           ; X = X - 1
030E: F0 03  17        BEQ DONE     ; DONE IF X = 0
0310: 4C 05 03 18        JMP LOOP    ; NEXT CYCLE
0313: 60     19 DONE   RTS          ; ALL DONE!

```

Branch instructions let you put loops into your assembly-language programs.

Listing 1 (a BASIC looping program), for example. The loop continues as long as X is not equal to zero. If it is, the program carries out the branch instruction and ends.

Listing 2 is the assembly-language equivalent of **Listing 1**. Notice that this program requires the JMP command, which causes program execution to jump to the routine starting at LOOP each time. Only when the X register reaches zero does the BEQ instruction take effect and make the program skip to the RTS instruction at the end.

Listing 3 is the way **Listing 2** appears when you put it into memory and list it with the L command from the Monitor (type 300L after the Monitor's asterisk prompt). When the assembler assembles the code, it automatically translates the positions of LOOP and END into the appropriate addresses the BEQ and JMP instructions will use. (Remember that the ad-

Listing 3. Listing 2 assembled.

```

0300- 20 58 FC JSR $FC58
0303- A2 FF   LDX #$FF
0305- 8E BC 05 STX $05BC
0308- A9 80   LDA #$80
030A- 20 A8 FC JSR $FCAB
030D- CA     DEX
030E- F0 03   BEQ $0313
0310- 4C 05 03 JMP $0305
0313- 60     RTS

```

dresses and the values for each opcode are to the left and the Apple's interpretation of these data is to the right.)

Notice that the JMPs and JSRs immediately precede the address (reversed) to which they are to jump, such as in the first JSR at \$300. The assembler handles branch instructions a little differently, however. At \$30E, \$F0 is the opcode for BEQ. The \$03 that follows is an offset that tells the 6502 to branch down through the code 3 bytes from the address of the next instruction (\$310). Adding \$03 to \$310 produces \$313, the address of the desired RTS.

Branching in the reverse direction ("up" through the listing) is also possible; operands greater than \$80 indicate this type of branching. I don't need to provide you with any great detail on this, though, since your assembler will determine the proper values for you when it assembles code, and Apple's disassembler gives the destination address when it reads other code.

This is a good time to stress the importance of working through each of these examples on your own, step by step. If the steps are confusing, go back over them until that proverbial light comes on!

Printing Text

As the assembly-language looping program increments the X register, it stuffs the value into the screen loca-

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RIGHT OF ASSEMBLY

Listing 4. Revised looping program.

```

1 *****
2 *          LOOP PROGRAM #2B          *
3 *****
4 *
5             ORG   $300
6 *
7     CTR     EQU   $06
8     HOME    EQU   $FC58
9     COUT    EQU   $FDED
10 *
11 START     JSR   HOME      ; CLEAR SCREEN
12          LDX   #$FF      ; START COUNTER AT 255
13          STA   CTR       ; STORE IN 'CTR'
14 *
15 LOOP      LDA   CTR      ; GET CURRENT VALUE
16          JSR   COUT      ; PRINT CHARACTER
17          DEC   CTR      ; CTR = CTR - 1
18          BEQ   DONE      ; DONE IF CTR = 0
19          JMP   LOOP      ; GO AGAIN IF NOT
20 DONE     RTS
0300: 20 58 FC 11
0303: A2 FF 12
0305: 85 06 13
0307: A5 06 15
0309: 20 ED FD 16
030C: C6 06 17
030E: F0 03 18
0310: 4C 07 03 19
0313: 60 20

```

tion, so you can see something on the screen as the counter advances, but it prints text and numbers in a very limited way. Wouldn't it be nice to have a general text-printing routine available? Such a routine already exists within the Monitor routines at location \$FDED, and is labeled "COUT" (pronounced C-OUT for Character Output). You use COUT by loading the accumulator with the value for the character you want to print, then CALLING the routine.

The neat thing about using COUT is that you don't have to write your own routines to handle screen control—the line length, when to scroll, and so on. Better still, you can use COUT to send characters to a disk file or printer—more on that later.

Now comes a programming technique. You'd like to have the counter value in the accumulator so that you could print it via COUT, but, unfortunately, the increment/decrement commands work only for the X and Y registers and given memory locations. To solve this, you'll have to expand your listing a little. This time, you'll use a memory location as the counter, then load the accumulator on each pass through to print a visible sign of the counter's activity (Listing 4). It's important to avoid conflicts with the Apple's normal activities while running your own programs; \$06 to \$09 are good locations to use for experimenting because Integer, Applesoft, DOS, and the Monitor don't use them.

A call to this routine via the usual 300G from the Monitor or a CALL 768 from BASIC should clear the

screen, then print all your Apple's available characters, in all three display modes (normal, flashing, and inverse). You'll hear a beep when COUT "prints" control-G (bell) to the screen. The invisible control characters account for the blank region between the two main segments of output characters. If you have an Apple II or II Plus, you'll also see some characters that an Apple IIe or IIc doesn't normally generate, such as underscore, reverse slash, and the right square bracket (—, \,]).

The alphabet is backwards because the program started at the highest value and worked its way down. From last month, though, you'll remember that when a byte is incremented by one from \$FF, the result "wraps around" back to \$00. This produces an action BEQ can test. Using this wrap-around effect of the increment command, you can rewrite the program to be a little more conventional (Listing 5).

A CALL to this routine should print the characters in a more familiar manner. At last the programs are starting to do something interesting. It gets better!

Reading Game Paddles

Listing 6 lets you read a game paddle and use what you get back to print something to the screen. Granted, I'm not any more sure than you are of what benefit this might be, but it's guaranteed to be a new program in your library!

The Monitor contains the paddle-read routine Applesoft uses. You can use the routine by loading the X reg-

Listing 5. Completed looping program.

```

1 *****
2 *          LOOP PROGRAM #3          *
3 *****
4 *
5          ORG    $300
6 *
7 CTR      EQU    $06
8 HOME    EQU    $FC58
9 COUT     EQU    $FDED
10 *
0300: 20 58 FC 11  START   JSR   HOME    ; CLEAR SCREEN
0303: A9 00    12          LDA   #$00    ; START COUNTER AT '0'
0305: 85 06    13          STA   CTR     ; STORE VALUE
0307: A5 06    14  LOOP    LDA   CTR     ; GET CURRENT VALUE
0309: 20 ED FD 15          JSR   COUT    ; PRINT CHARACTER
030C: E6 06    16          INC   CTR     ; CTR = CTR + 1
030E: F0 03    17          BEQ   DONE    ; DONE IF BACK TO '0'
0310: 4C 07 03 18          JMP   LOOP    ; GO AGAIN IF NOT
0313: 60      19  DONE    RTS          ; ALL DONE!

```

ister with the value for the paddle you want to read, followed by a JSR \$FB1E. When the routine returns, the value of the paddle will be in the Y register. All you have to do then is grab it, stuff it in the accumulator, and do a JSR COUT.

When you CALL this routine, it quickly fills up the screen, then changes the stream of characters as you turn paddle zero. Depending on your propensity to be hypnotized, you may lose touch with the world for indefinite periods of time. At the inverse and flashing end, the program is remarkably good at stimulating migraine headaches in record time. Since the program has no test for an end, pressing control-reset is the only way to stop its infinite loop.

By carefully controlling the paddle, you can observe some interesting bits of character-output trivia. After the inverse and flashing range, for example, you should be able to stop the flow by moving into the control-character range. With sufficient dexterity, you should be able to lock onto the persistent beep of the bell (control-G). Shortly after this point, the screen will zip into motion when you hit the line-feed character (control-J) and, of course, also at the carriage-return character (control-M). What fun, eh! As normal character output returns when you pass the halfway point, you can delight in various patterns of screen filling. Why, you may even want to try writing your name by deft control of the paddle—child's play!

Returning quickly to reality here, it's worth mentioning that some problems in accuracy can arise from repeatedly reading the paddle so quickly. The analog circuits involved don't have

time to return to zero, and various problems creep in.

Also, you should be careful to look for conflicting use of the registers by the various routines you're CALLing. There's often no assurance that the Monitor routine you use won't clobber the register you're using for your own routine. In the case of the paddle and output routines, the content of the accumulator changes when it returns from the routine.

For the record, Listing 7 is a reasonable Applesoft facsimile of Listing 6. It's worth mentioning that the machine-language version takes 18 bytes, while the Applesoft one takes 38, not counting space the variable T uses. Execution speed may seem to be similar, but this is largely because of printing the characters to the screen. In most cases, machine execution is orders-of-magnitude faster.

Methods of Transfer

Before I end, I'd like to toss just a few more commands your way. In Listing 6, you have to go through a rather inelegant way of transferring the value from the Y register to the accumulator, using a temporary storage byte. Fortunately, an easier way exists. The four commands below transfer the content of the X and Y registers to and from the accumulator. There is no command to transfer directly between the X and Y registers themselves, however.

- TXA: Transfers the content of the X register to the accumulator
- TYA: Transfers the content of the Y register to the accumulator
- TAX: Transfers the content of the accumulator to the X register
- TAY: Transfers the content of the accumulator to the Y register

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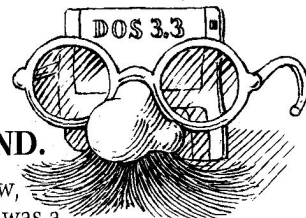
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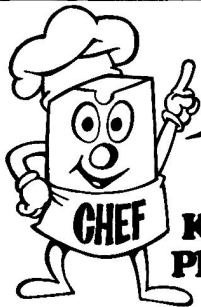
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RIGHT OF ASSEMBLY

Listing 6. Game-paddle program.

```

1 *****
2 * PADDLE PROGRAM #1 *
3 *****
4 *
5 ORG $300
6 *
7 TEMP EQU $06
8 PREAD EQU $FB1E
9 HOME EQU $FC58
10 COUT EQU $FDED
11 *
12 START JSR HOME ; CLEAR SCREEN
13 LDX #$00 ; PADDLE = #0
14 LOOP JSR PREAD ; READ PADDLE
15 STY TEMP ; STORE RETURNED VALUE
16 LDA TEMP ; RETRIEVE VALUE
17 JSR COUT ; PRINT ASCII CHARACTER
18 JMP LOOP ; DO IT AGAIN
19 * INFINITE LOOP

```

Each of these actions conditions the zero flag upon execution, so it's possible to test what's been transferred.

You can use these commands to make Listing 6 even shorter (see Listing 8).

BRUNning from DOS

If you try to BRUN this month's programs using DOS 3.3, rather than using a CALL 768 from BASIC or a 300G from the Monitor, strange things will happen. DOS 3.3 interferes with any binary program that uses input or output routines when such a program is BRUN because DOS is always "watching" COUT for DOS commands, such as PRINT D\$; "CATALOG". When you BRUN a file, you're essentially in a DOS subroutine; further use of COUT makes DOS more or less forget where to return when everything is completed. This problem has two solutions. The first is trivial—don't BRUN files that use COUT. Instead, BLOAD the file, then CALL the routine in the usual way.

If you insist on BRUNning a file, however, the other choice is to exit

Listing 7. BASIC game-paddle program.

```

10 HOME
20 T = PDL(0)
30 PRINT CHR$(T);
40 GOTO 20

```

via a DOS reentry vector at \$3D0. A jump to this address replaces the final RTS in any program you want to BRUN. Replacing line 20 in Listing 4 with a JMP \$3D0, for example, lets you BRUN the file from DOS 3.3 with no problems. Please keep this in mind when running any other listing throughout this series.

See you in June! ■

Roger Wagner is the author of Assembly Lines: the Book and is president of Roger Wagner Publishing, the publisher of Merlin and MerlinPro assemblers. Write to Roger at Roger Wagner Publishing, 10761 Woodside Avenue, Suite E, P.O. Box 582, San- tee, CA 92071.

Listing 8. Revised game-paddle program.

```

1 *****
2 * PADDLE PROGRAM #1A *
3 *****
4 *
5 ORG $300
6 *
7 PREAD EQU $FB1E
8 HOME EQU $FC58
9 COUT EQU $FDED
10 *
11 START JSR HOME ; CLEAR SCREEN
12 LDX #$00 ; PADDLE = #0
13 LOOP JSR PREAD ; READ PADDLE
14 TYA ; PUT VALUE IN ACC.
15 JSR COUT ; PRINT ASCII CHARACTER
16 JMP LOOP ; DO IT AGAIN
17 * INFINITE LOOP

```


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Continued from p. 43.

I used the LiveWire/Epson pair with a number of text programs, specifically Bank Street Filer and three different word processors: Magic Slate, MouseWrite, and WordPerfect. An option contained in the File menu lets you patch ProDOS on your word-processing or other application program disk, so files saved will be automatically time- and date-stamped. Since I did not want to alter my program disks, I did not test this feature.

Using LiveWire with graphics programs is a simple matter, as well. I worked with Dazzle Draw, The Print Shop, and Crossword Magic—all without incident. Other LiveWire options in the File and Graphics menus let you load a previously saved picture and print it in hi-res, double hi-res, inverted, rotated, centered, or magnified form. I used the many screen-dump features with pictures a friend had created and saved from Dazzle Draw.

As your picture is printed, you can see the progress on screen.

Documentation

The manual accompanying LiveWire seems adequate. Its 11 or so pages treat the installation and use of the product in a straightforward fashion. It contains no index, but the table of contents should suffice for reference purposes. Because serial-to-parallel conversion is likely to be a new concept for many users, a troubleshooting section would be a welcome addition to the documentation.

Support

Street Electronics' strong suit may be support. My first encounter with LiveWire was a frustrating one. Every time I tried to set the clock, the screen froze. I was unable to print anything from graphics programs. The Load Picture option was forever disabled. In short, the product had at least one bug.

Conversations with product developer Milo Street prompted him to

send me a newly corrected version of the software—by Federal Express. (After all, I was working under a deadline.) While the company probably could not afford the expense of using an overnight delivery service for the average user, I'm confident that the people at Street Electronics would answer customers' pleas for help with as much courtesy and concern as they did my entreaties. ■

*Cynthia E. Field
Wakefield, RI*

CORRECTION

In our January 1986 issue, the manufacturer of LockSmith is listed incorrectly (p. 29). LockSmith is now published by Alpha Logic Business Systems, 4119 North Union Road, Woodstock, IL 60098, (815) 568-5166.



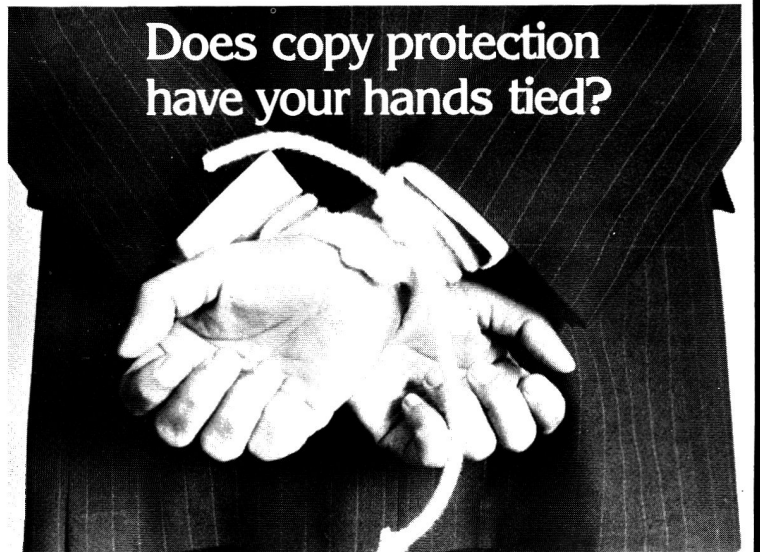
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EXTRACT

A reprise of the reviews that have appeared in inCider in the last four months. Prices subject to change without notice.

inCider's Ratings

- ★★★★★ Excellent
- ★★★★ Above average
- ★★★ Good enough
- ★★ Not up to standard
- ★ The empty set

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GAME ROOM

by Brian J. Murphy

In *Game Room*, Brian Murphy tells us what's new in the world of Apple games. Look here for inCider's scoop on the latest fun.

inCider's Ratings

- ★★★★ Excellent
- ★★★ Above average
- ★★ Good enough
- ★ Not up to standards
- ☆ The empty set

Perry Mason

★★★★

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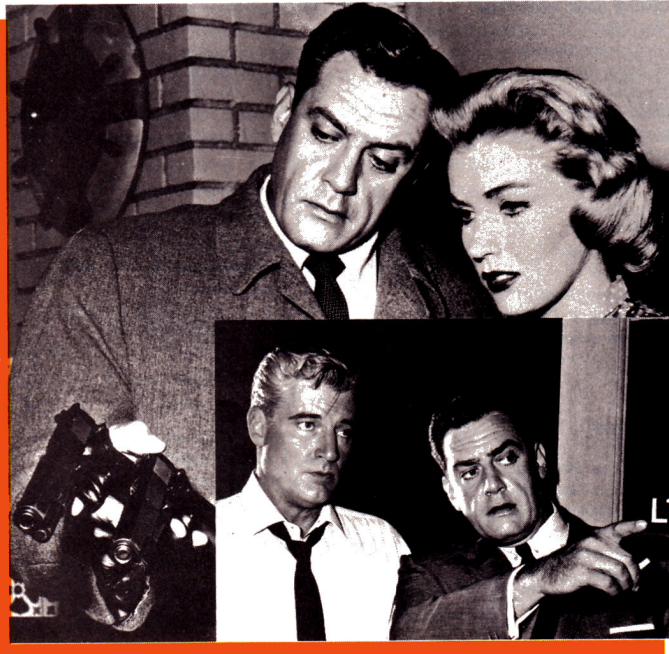
Adventure

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From another era of TV history comes a fine game re-creating the Perry Mason series in high style. Who hasn't fantasized about being a heroic attorney standing in a courtroom, facing some weasely liar on the witness stand, and making him crack? In Telarium's **Perry Mason**, this is just what you can do.

The adventure begins with the murder of a prominent restaurateur, Victor Kapp, and the arrest of his wife Laura for the crime. The prosecuting attorney, the usually hapless Hamilton Burger, has a very strong circumstantial case against Laura and is about



to embarrass you in court—unless you can bring all your skill as a detective and trial advocate to bear on the problem of finding the real killer.

Among your most important chores will be collecting clues at the murder scene and checking out every nook and cranny without provoking the police into tossing you out. You must also direct the investigations of your able secretary/assistant Della Street and detective Paul Drake into the behavior and motives of Victor Kapp's many friends and enemies—quite a few of whom were on the scene the night of the murder.

It was hard to quit playing the game long enough to write a review of it. The challenge of collecting clues is fun, and the trial sequence is absolutely fascinating. Early in my first try, I realized I didn't have nearly enough physical evidence from Paul's and Della's inquiries to win my case. Even though I was losing, I was having so

much fun I never wanted to stop. Getting the hang of courtroom procedure is fascinating. In the trial sequence, Perry Mason rises above the level of a top adventure game and becomes a totally entertaining courtroom simulation. This game deserves to become a best seller.

Star Trek: The Kobayashi Alternative

★★

Simon & Schuster

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Text adventure

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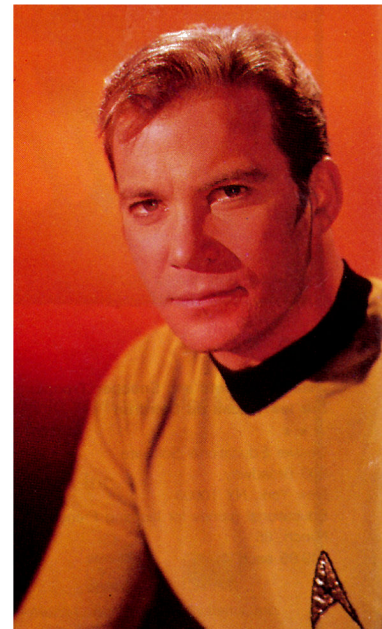
If anyone were to come up with a truly exciting Star Trek game or simulation, I think the shock would kill me. For some reason, Star Trek seems to resist all attempts to translate it into really entertaining software.

Simon & Schuster's **Star Trek: The Kobayashi Alternative** is a case in point.

Wouldn't it have been really exciting if instead of an adventure game, Simon & Schuster (or anyone else) had compiled a simulation that integrated the visual elements of the Kobayashi game seen in the movie *Wrath of Khan*? No such luck—in fact, this Star Trek isn't illustrated, it isn't really about the Kobayashi game (hence the title), and it isn't much more fun than any of several other average-quality adventures I could name.

All that sets Star Trek apart from other science-fiction adventure games is the use of the Trek characters. This is one reason why *The Kobayashi Alternative*

Continued on p. 97.



AD #242

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Your program runs up here.

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FUNCTION KEYS: Define your own—For example, ESC-1 can Catalog drive 1, ESC-N can clear the screen and type your name or anything... Customize your Apple!

All Beagle Bros disks are unlocked & copyable. Don't settle for less.

1 HOME INVERSE PRINT CHR\$(21)
 2 X=RDND(1)*24+1:VTAB X:HTAB X:
 PRINT X:HTAB 26-X:PRINT X:GOTO 2

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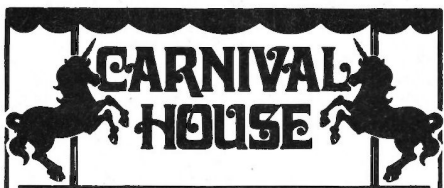
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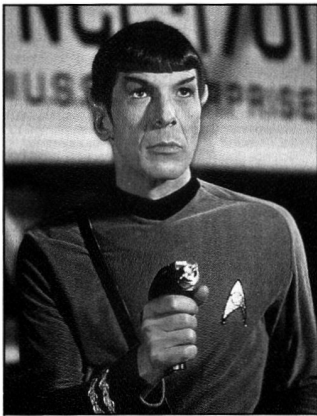


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Continued from p. 94.

seems so disappointing—it fails to capture the essence of the characters. It's just an average sci-fi adventure with Trek characters grafted onto it.

It's a challenge to complete Star Trek's complex scenario, but not a pleasure. Its puzzles and obstacles are not so much inventive as petty and annoying. You're not impressed with the cleverness of the program as much as the many ways it stops you from really enjoying command of the *Enterprise*.

Star Trek didn't pass my most important test: It wasn't fun.

I'd advise waiting until someone comes out with a 128K Star Trek game that combines adventure (à la Infocom) and exciting tactical simulation (à la Sub-Logic's Flight Simulator II). That's the game we Trekkies are waiting for.

Temple of Apshai Trilogy

★★★

Epyx Computer Software
1043 Kiel Court
Sunnyvale, CA 94089
Fantasy/role-playing adventure
Any 64K Apple II with
Applesoft, one drive, DOS 3.3
\$40

Anyone who likes fantasy/role playing will have a soft

spot in his or her heart for Epyx' Temple of Apshai games—Temple of Apshai, The Upper Reaches of Apshai, and Curse of Ra. Though not as complex as Wizardry or Ultima, they offer a pleasurable combination of arcade action and strategy. These qualities kept the Apshai series at the top of the heap for a long time.

Even if you own one or two of the Apshai games, recommend you seriously consider getting the new, very much improved **Temple of Apshai Trilogy**, in which all three Apshai games are now on one disk.

Among the biggest enhancements are redesigned graphics. In fact, there are two complete sets. One group of pictures is in regular hi-res and is many times more attractive than the original set of Apshai stick figures. The optional pictures in double hi-res are strikingly handsome. Both sets of graphics offer much more color and better animation than the originals.

One advantage of consolidating these three adventures is that you can take your character on quests at any level of any of the three games. In effect, Epyx has built one mammoth game with 12 levels and nearly 600 different rooms—that's variety and challenge to spare. Apshai's back and I hope you get it.

What more could anyone ask? Next month we'll have a look at some new games and answer that question. Till then, aloha. ■

Brian Murphy is anxious to learn what you think of the current state of computer games. Write him at inCider, 80 Pine Street, Peterborough, NH 03458, and let him know your opinion.

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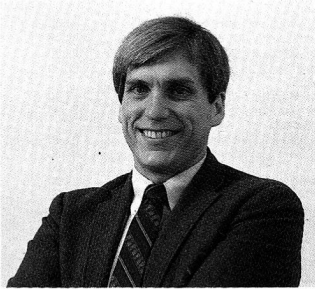
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STATUS REPORT



Interfaces

“A computer that complements the working of your mind represents truly radical ease of use. Does the Mac-style interface measure up?”

by Paul Statt, *inCider* staff

Once you understand the idea of a user interface, they seem to be staring at you everywhere. A *user interface* is the way you use a machine. Automobiles, for example, share a fairly standard interface: ignition key, steering wheel, mirrors and windshields, clutch pedal, and so on. You can drive a strange car because the way you drive—the user interface—is common to most cars.

If you've ever stood in a chilly shower in a hotel bathroom in a foreign city and wondered how to get hot water from a bizarre fixture resembling a nuclear submarine's periscope, you know the attraction of a standard interface.

A Macintosh-style interface—pull-down menus, icons, windows, and a cursor controlled by a mouse—will confront your Apple II screen this year. Apple has promised. The future of the II, we learned at the AppleWorld Expo in January, is a common interface and shared peripherals for all Apple products.

The Mac's great promise was “radical ease of use.” But don't get confused. Just because something is very easy to operate doesn't mean it will be useful or comprehensible.

A standard interface—of whatever type—would make every program written for the Apple IIe, Mac Plus, and any innovative machine Apple may offer this year easier to operate. But you might as well say that *Decline and Fall of the Roman Empire* is easy to read: It's a book written in English, and so is *Dick and Jane*. A standard interface makes things easy to operate, but not necessarily easy to understand.

Debbie de Peyster, *inCider's* editor in chief, has used a Macintosh (in the privacy of her home, of course) for years. She knows the Mac interface. Is Instant Pascal (see our review in this issue, p. 30) instantly easy for Debbie? Think Technologies, which created MacPascal, designed Instant Pascal to work just like its companion program. (It's the first official Apple software whose II and Mac versions have the same interface.)

Debbie knows how to operate Instant Pascal—but she doesn't understand Pascal

any better just because she can put the cursor where she wants it, find command menus, open and shut windows, and recognize the trash can.

A standard software interface, or any standard interface, is easy to operate by virtue of being common—if you know the standard. To a Chinese peasant, *Decline and Fall* is not only meaningless; he can't even read it—it's written in the wrong language and the wrong direction.

Uselessness is another problem. Mouse Budget, a fine personal-finance program from International Solutions, is easy for me to operate. But I do my taxes on the 1040EZ form—the one with “Send me back everything you withheld or tell my boss to give me a raise” on the bottom line. My finances are simple. No “radical ease of use” will make Mouse Budget meaningful—that is, useful—to me.

But the Mac interface purports to be fundamentally, philosophically, easy to use. That familiar screen with pictures and windows was developed by Xerox's Palo Alto Research Center. Its design is not arbitrary, but patterned after the way your mind works, especially your short-term memory and the right hemisphere of your brain. You can keep up to about seven unrelated items—say, a phone number or zip code—in your head at one time. The Xerox interface compensates for your weakness by keeping all possible commands on screen at the same time. Some of us favor our right brain, which likes pictures and shapes. The Xerox interface lets you see ideas graphically, in icons or on the desktop.

A computer, or hardware or software, that complements the working of your mind represents truly radical ease of use. You may find, for instance, as I do, that Information Appliance's SwyftCard (see Editors' Choice, January 1986, p. 128) is simple in operation and useful in doing its job, and fits your mind.

Does the Mac-style interface measure up? That answer is up to you. It will be the Apple standard, and as a standard will be easy to operate. It may even work like your mind. But before you buy a particular software package—or a new computer—don't forget to ask, “Will it do the job?” ■

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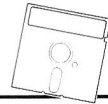
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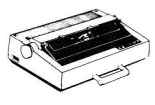
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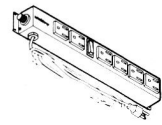
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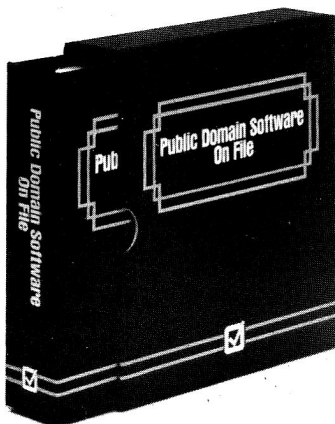
NEW PRODUCTS

edited by Paul Statt

Software

Facts Are Simple

Public Domain Software on File is an organized **collection of software in the public domain** for Apple II users. Twenty ready-to-boot disks with 250 programs for beginners and experts cover a range of applications from business and personal finance to speed reading, word processing, and home management. Public Domain Software on File was developed for Public Domain Research especially for libraries. All programs are menu driven and accompanied by user's guides. You can copy or modify code at will—legally. Two hundred fifty programs for \$195, from Facts on File, 460 Park Avenue, New York, NY 10016, (800) 322-8755. For more information circle number 365 on the Reader Service card.



Two hundred fifty programs in Public Domain Software on File.

102



MultiScribe is a word processor with Macintosh style.

Mouse Words

MultiScribe is the first **word processor** for the Apple II series to offer all the features of the Macintosh interface, in conjunction with the double hi-res screen and proportional character spacing. MultiScribe features pull-down menus for command selection, scroll bars for moving quickly through text, and dialog boxes for extended functions and alert messages. If you don't have a mouse, you can use the "keyboard mouse," with the help of cursor-control keys and the escape key. You can choose from a variety of fonts and type sizes, or you can create your own with the font editor. What you see is what you get: Boldface, underlining, italics, outlining, shadow, subscripts, and superscripts appear on paper as they do on your display. MultiScribe sells for \$39.95, from StyleWare, 6427 Hillcroft, Suite 201, Houston, TX 77081, (713) 771-4627. For more information circle number 350 on the Reader Service card.

Screen Pass

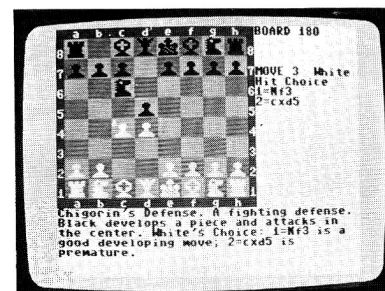
The Video-7 Enhancer Series is a collection of **graphics and text adapters** that allow high-resolution color with your Apple II. Your Apple can now power an IBM-compatible RGB monitor. The Color Enhancer provides 16 distinct levels of color and 16 shades of gray to the //e and //c. It also lets you display readable 80-column text and 16-color graphics on the same monitor. Video-7 will include an enhanced version of Broderbund's popular Dazzle Draw with purchase of the Apple //e Color Enhancer at \$179.95, or the //c model at \$129.95. The Screen Enhancer, available for both Apple II machines, brings 16 shades of gray to the monochrome interface, 80-column text, and, for the //e, an extra 64K of internal memory. The //e version costs \$129.95, the //c \$79.95, from Video-7, 550 Sycamore Drive, Milpitas, CA 95035, (408) 943-0101. For more information circle number 353 on the Reader Service card.

Money Talks

MoneyWorks lets AppleWorks users pick from eight ready-made programs to help **plan personal finances**. You can project college expenses, real-estate purchases, stock sales, loans, life insurance, and your home budget, and decide whether to buy, rent, or lease your home or car. MoneyWorks captures the expertise of a personal banker in AppleWorks, for \$69.95, from Apropos Software, 64 Hillview Avenue, Los Altos, CA 94022, (415) 948-7227. For more information circle number 366 on the Reader Service card.

GrandMaster

Paul Whitehead Teaches Chess **teaches more than chess**: According to the publisher, the program contains the beginnings of a whole new way of representing logically related material, which will be developed in future packages. For now, champion chess master Paul Whitehead has created an expert system



Paul Whitehead Teaches Chess—and more.

April 1986

to teach rank beginners almost everything about the game. And experts can take on the Coffeehouse Chess Master, which allows them to play from any position in the tutorial. More than 40 hours of instructional material for \$49.95, from Enlightenment, 1240 Sanchez Street, San Francisco, CA 94114. For more information circle number 354 on the Reader Service card.

Another I

Alter Ego may be the last word in **simulation games**. This one lets you be anyone you want—you establish a personality by answering a number of questions about the simulated world of Alter Ego. Your answers can be truthful, or you can make them up, and you can start any time between childhood and old age. The program tracks and processes every response, to create a profile of you in your social world, as well as in emotional, physical, familial, and vocational spheres.

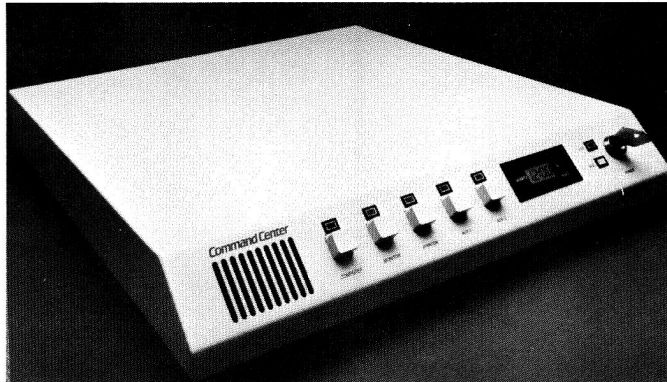
Alter Ego was written by Peter Favaro, a practicing child psychologist who based the game on his research with more than 300 people of all ages and backgrounds. The game is available in male and female versions for \$49.95, from Activision, 2350 Bayshore Frontage Road, Mountain View, CA 94043, (415) 960-0410. For more information circle number 351 on the Reader Service card.

inCider

Hardware

Commando

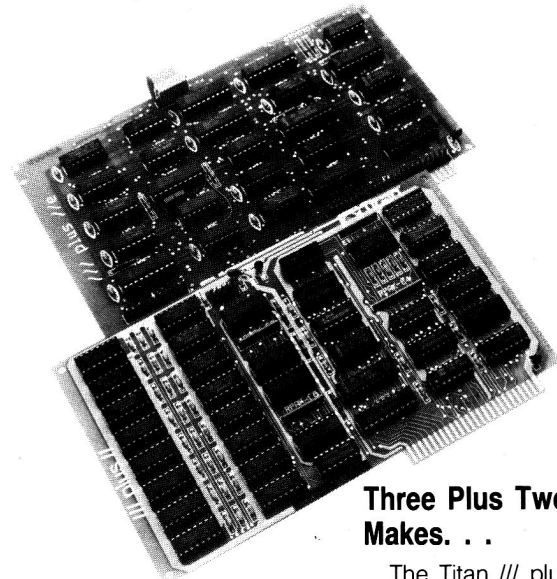
The Command Center gives you **fingertip control of up to five surge-protected power outlets**. The unit is completely EMI- and RFI-proof, and features both a locking on/off switch and an LCD clock/calendar. The Command Center is available for \$179.95 from Curtis Manufacturing Company, 305 Union Street, Peterborough, NH 03458, (603) 924-7803. For more information circle number 360 on the Reader Service card.



Command Center keeps your power clean.

Easy In, Easy Out

The uD-1000 I/O system **simplifies input and output** for the Apple II Plus and IIe. The board plugs into one of the Apple slots and provides eight digital outputs, eight digital inputs, and eight analog inputs. Industrial, educational, and hobby applications are easy to imagine. The uD-1000 I/O system comes with the



The Titan III plus IIe card runs IIe software on the Apple III.

Three Plus Two Makes. . .

The Titan III plus IIe board **emulates Apple IIe software on the Apple III**. The two-board set also adds an extra 128K of random-access memory to the Apple III. The IIe-emulation software supports both 40-column and 80-column video displays with upper- and lowercase characters. A ProDOS RAM disk in the IIe emulator uses the Apple III RAM. The software also supports a serial printer, the ProFile hard-disk drive, a double hi-res graphics display, and access from ProDOS to the Apple III clock. The board sells for \$175, from Titan Technologies, 310 West Ann Street, Ann Arbor, MI 48104, (313) 662-8542. For more information circle number 357 on the Reader Service card.

Hook, software for developers that lets you write Applesoft BASIC programs without bothering with PEEKs or POKEs. A 60-page manual is included, for \$169.95, from Micro-Dimensions, 4780 Beidler Road, Willoughby, OH 44094, (216) 946-8070. For more information circle number 355 on the Reader Service card.

Product descriptions contained in this section are based on information supplied to us by the respective manufacturers. These announcements are provided solely as a service to our readers and do not constitute endorsement by inCider of any given product.

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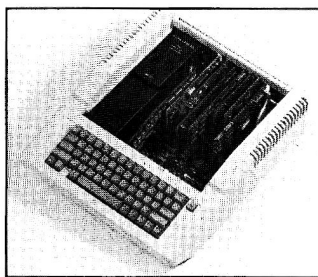
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NEW PRODUCTS



The Challenger 20-meg hard disk tucks neatly inside your II.

Hard About

Challenger provides the Apple II user with the advantage of an **internally mounted 10- or 20-megabyte hard-disk drive.**

Challenger works under a variety of operating systems, including ProDOS, DOS 3.3, CP/M, and Pascal; ProDOS volumes may be as large as 16 megabytes. The disk-drive/power-supply combination replaces the existing Apple II power supply, freeing expansion slots for other applications. Prices are \$1195 for a 10-meg Challenger, and \$1595 for the 20-meg model; contact Space Coast Systems, 301 South Washington Avenue, P.O. Drawer 2767, Titusville, FL 32781-2767, (305) 268-0872, or circle number 361 on the Reader Service card.

More Megs

RamWorks II now comes with **3 megabytes of on-board RAM**, thanks to an add-on piggyback card. A 64K printer buffer is included on the RamWorks II card. The 3-megabyte RamWorks II package sells for \$1699; RamWorks II with 1 megabyte of RAM is \$389. Contact Applied Engineering, P.O. Box 798, Carrollton, TX 75006, or circle number 362 on the Reader Service card.

Star Storage

The MicroStor family of **hard-disk/tape-backup units** has a new member—a 20-megabyte subsystem for the IIe running under ProDOS, DOS 3.3, Pascal, or CP/M. MicroStor is available for \$1995 from AST Research, 2121 Alton Avenue, Irvine, CA 92714. Circle number 364 on the Reader Service card.

Color RAM

The MultiRam RGB is a **multifunction interface card** that provides RGB color output and up to 400 megabytes of random-access memory. The MultiRam RGB card fits into the auxiliary slot on the Apple II motherboard, to replace the standard 64K 80-column card. You'll have all that the Apple 80-column card offers and a megabyte of memory, too. The card can be expanded to as much as 4 megabytes, and accepts the optional Western Design Center 65C816 16-bit coprocessor, as well. It works with ProDOS, DOS 3.3, and Apple Pascal operating systems, for less than \$200, from Checkmate Technology, 509 South Rockford Drive, Tempe, AZ 85281, (602) 966-5902. For more information circle number 356 on the Reader Service card.

Cheap Joy

The Suncom Tac-10 is a low-cost **Apple II-compatible analog joystick controller.** The one-handle top and two case-mounted action buttons provide great flexibility for cursor control. Dual cursor-centering trimmers allow precise x- and y-axis adjustment. The Tac-10 works with the IBM PC and Franklin Ace computers, too. The price is a mere \$34.95, from Suncom, 260 Holbrook Drive, Wheeling, IL 60090, (312) 459-8000. For more information circle number 352 on the Reader Service card.

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Product Updates

● Tom Weishaar and Bert Kersey were two of the most popular and talented writers at *Softalk* magazine—now their best DOS-Talk columns have been collected into **The DOS-Talk Scrapbook** (paper, \$14.95, Tab Books). Fans should also take a look at Weishaar's **Open-Apple** newsletter (\$24 per year, P.O. Box 7651, Overland Park, KS 66027).

● If Pinpoint's Desktop Accessories aren't exactly what you wanted, design your own with the **Pinpoint Toolkit** (\$49.95). Also available is the **Pinpoint Spelling Checker**, for only \$49. But the best is the **RAM Enhancement Kit** that lets you load your applications into RAM and quickly point and shoot between them with a RAM Switcher. Only \$9 from Pinpoint, 5901 Christie, Emeryville, CA 94608, (415) 654-3050.

● Infocom's latest, **Ballyhoo**, has you hanging around the big top, solving a circus mystery by unravelling riddles. Fascinating people and places, for \$39.95 from Infocom, 124 Cambridge Park Drive, Cambridge, MA 02140, (617) 492-6000.

● At the AppleWorld Expo in January, Borland demonstrated **Turbo Modula-2** on an Apple IIe running CP/M with a Z-80 coprocessor card. Will ship this summer, says Borland, 4585 Scotts Valley Drive, Scotts Valley, CA 95066, (408) 438-8400.

● At the Computer Chess Championships last fall in Denver, Colorado, David Levy and Intelligent Software (England) placed third—to mainframe super "chess machines"—with an Apple IIe. Enhancements? A mere **Accelerator IIe**, \$139, from Titan Technologies, 310 West Ann Street, Ann Arbor, MI 48104, (313) 662-8542.

● The people's choice in early education, **Elfware**, is now faster and more responsive. Still an amazing \$39.95 for three programs, from Elfware, P.O. Box 118, Pollock Pines, CA 95726, (916) 644-3300.

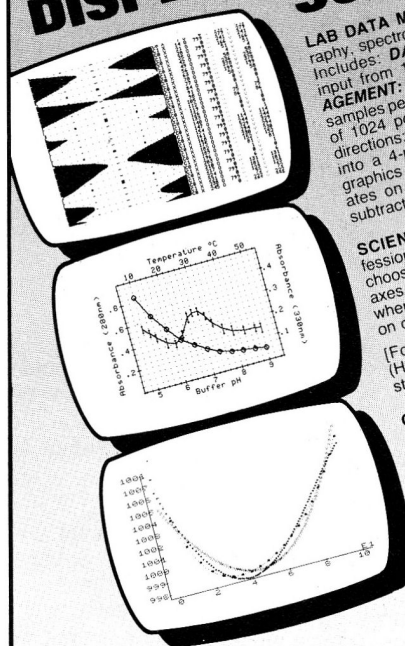
● At Winter CES, Mindscape showed us **The Luscher Profile**, which analyzed us in color with accuracy; **The American Challenge: A Sailing Simulation**, which may train nautical neophytes to keep the America's Cup in the proper hemisphere; and promised simulations of a **Dick Francis** mystery novel and a **James Bond** adventure (all \$39.95). A creative company to watch, at 3444 Dundee Road, Northbrook, IL 60062, (312) 480-7667.

● More creative endeavors: Lord British and Electronic Arts have finally released **AutoDuel**, a meld of the movie *Road Warrior* and the runaway Ultima games. "A scary view of a ravaged future in which only the most cunning automotive warriors survive": this month's best press release. \$49.95 from Electronic Arts, 2755 Campus Drive, San Mateo, CA 94403, (415) 571-7171.

● Advanced Logic Systems has bundled three programs—**Word Handler**, **List Handler**, and **Spell Handler**—into an attractive \$99.95 package for word and list processing and spelling checking. 1195 East Arques Avenue, Sunnyvale, CA 94086, (408) 730-0307.

● The **Laser 128** is a IIc lookalike and IIe workalike with built-in disk drive, numerical keypad, function keys, modem and printer interfaces, and expansion slot—all for \$395. Check that price with Central Point Software, 9700 Southwest Capitol Highway, Portland, OR 97219, (503) 244-5782.

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HINTS/TECHNIQUES

Super Startup

by Scott R. Bowers

Good old DOS 3.3 was easy to use—directories, prefixes, and so on were pretty simple. Then Apple introduced ProDOS. It was much faster and more advanced than DOS—but it's more complicated and harder to use, too.

Before ProDOS, I installed my faithful hello program on every DOS 3.3 disk I owned. The program was short and made it easy to do a variety of disk operations with just one or two key presses. I knew that was just what my new ProDOS disks needed. But after attempting to convert my old hello program to ProDOS, I soon realized I'd have to write another program to make full use of the features of Apple's new operating system. I came up with Super Startup.

Startup Operation

Super Startup is short, no-nonsense, and easy to use. After booting up your ProDOS disk with Startup installed, the first thing you see is a 40-column catalog of the disk on screen. Just as with ProDOS, you can pause the catalog with control-S or stop it with control-C. The program then successively labels all the files listed, beginning with the letter A. All subdirectories are labeled with inverse characters.

Below the catalog is a message scrolling the options available: TYPE LETTER TO RUN, OR LOAD=1 LOCK=2 UNLOCK=3 DELETE=4 CHANGE DRIVES=5 EXIT=6. You can also press the appropriate letter key to catalog a subdirectory, the backspace key to move back one directory level, or the escape key to recatalog the volume directory of any disk in the current drive. (Startup even accepts lowercase.)

If you choose any of options 1 through 4, Startup prompts you to press the letter key corresponding to the file on which you want to perform

the operation. If you change drives, Startup prompts you for the new slot and drive numbers. The exit option leaves you in the current prefix with a BASIC prompt at the bottom of the screen.

Line by Line

To use Super Startup, first type in the Applesoft program shown in the accompanying **Program listing** and save it to disk with the command **SAVE STARTUP**.

The heart of the program lies in the formula in line 480:

$$ME = 769 + (P * 128) + (KK * 128) - (769 + (P * 128) + (KK * 128) > 1921) * 948 - (769 + (P * 128) + (KK * 128) > 2945) * 984$$

Variable ME is the starting memory location on the text screen where the file name is located. Variable P is the line number of the first file; KK is the line number from P of the file on which you want to operate.

I found that the fastest way to designate a string variable equal to a file name is to read the names of the files directly from the 40-column text screen letter by letter with this formula.

Program listing. Super Startup for your ProDOS disks.

```
10 ONERR GOTO 530
20 DIM ID(26),ID$(25),I$(25)
30 D$ = CHR$(4): TEXT : PRINT CHR$(27) + CHR$(17): POKE 33,40:
PRINT D$;"PREFIX/": PRINT D$;"PREFIX": INPUT I$(0)
40 MS$ = "TYPE LETTER TO RUN, OR LOAD=1 LOCK=2 UNLOCK=3 DELETE=4
CHANGE DRIVE=5 EXIT=6...."
50 SN = 6:DN = 1
60 HOME :DI$ = "":DD = 0:BE = 1041:S = 913:P = 0:L = 64:K = 0:AA =
0:CC = 1: IF SD = 1 THEN PRINT D$;"CAT,S";SN;"D";DN:CC = 0
70 IF SD = 1 THEN 100
80 PRINT D$;"CAT":CC = 0
90 IF LE > 0 THEN 110
100 VTAB 23: PRINT D$;"PREFIX": INPUT I$(0):SD = 0:CC = 0
110 S = S + 128:P = P + 1: IF PEEK(S) = 217 OR PEEK(S) = 160 THEN
110
120 FOR I = BE TO BE + 80 STEP 40: FOR J = I TO I + 896 STEP 128:K =
K + 1:ID(K) = PEEK(J) + PEEK(J + 1): IF ID(K) = 320 AND K > P AND
AA = 0 THEN LP = K - 1:AA = 1
130 NEXT J: NEXT I
140 IF P = 9 THEN LP = 5: GOTO 170
150 FOR I = P TO LP: VTAB I: HTAB 18:L = L + 1: PRINT "["; CHR$(
L);"]": IF ID(I) = 397 THEN VTAB(I): HTAB 19: INVERSE : PRINT CHR$(
L): NORMAL
160 NEXT I
170 VTAB LP + 2: HTAB 1: PRINT LEFT$(MS$,39);MS$ = MID$(MS$,2) +
LEFT$(MS$,1):KK = PEEK(-16384): IF KK < 128 THEN FOR LL = 1 TO
75: NEXT LL:: GOTO 170
180 IF KK > 224 THEN KK = KK - 32
190 POKE -16368,0:KK = KK - 192: IF P = 9 AND KK < > - 37 AND KK
< > - 56 AND KK < > - 11 AND KK < > - 10 THEN 170
200 IF KK = - 37 THEN PRINT D$;"PREFIX/":LE = 0: GOTO 60
210 IF LE > 0 THEN IF KK = - 56 THEN LE = LE - 1:FF$ = "": FOR FF =
0 TO LE:FF$ = FF$ + I$(FF): NEXT FF: PRINT D$;"PREFIX";FF$: GOTO 60
220 IF (KK < - 15 OR KK > - 10) AND (KK < 1 OR KK > 1 + LP - P)
THEN 170
230 IF KK < - 9 THEN 290
240 GOSUB 480:II = ID(P - 1 + KK)
250 IF II = 397 THEN PRINT D$;"PREFIX";DI$:LE = LE + 1:I$(LE) = DI$
+ "/": GOTO 60
260 IF II = 395 THEN B$ = "B"
270 IF II = 387 OR II = 395 THEN OP$ = "RUN": GOSUB 520: END
280 IF II < > 397 OR II < > 395 THEN OP$ = "-": GOSUB 520: END
290 IF KK = - 15 THEN OP$ = "LOAD"
```

Listing continued.

You can modify the formula slightly to convert HTAB and VTAB coordinates to their memory locations. Knowing which memory addresses correspond to text-screen coordinates is helpful whenever you need to read characters on the text screen. You can convert the vertical line number if P is set equal to one and KK is equal to the vertical line number to be converted. Add the horizontal column number minus one to the result to find the final location.

Lines 10 through 100 set up beginning variables, record the prefix of the current disk, and print the disk catalog. Line 110 finds the line number of the first file and assigns it to the variable P.

The next line sets up an array that holds the file types of all the files on screen. It also finds the line number of the last file on screen and assigns it to the variable LP. To determine file types, I read the first two letters of the abbreviations under the TYPE column in the catalog.

Lines 150 and 160 label the files. Line 170 then scrolls the option message while waiting for a key press. All disk operations from here on are accomplished through the subroutine in line 520. In that line, the variable B\$ is set either to B or to nothing, depending on whether the file is binary or not. OP\$ is the variable that contains the disk command; DI\$ contains the name of the file on which you want to operate.

Lines 210 and 250 keep track of subdirectory levels, with variable LE as the pointer containing the current level, and array I\$(LE) as the names of the directory prefixes.

The rest of Super Startup sorts out key presses and controls disk operations performed on the files.

One reason I first hesitated to change over from DOS 3.3 to ProDOS was the lack of a hello program that would let me run programs easily without much typing. I hope Super Startup encourages you to make the switch to ProDOS. It's powerful, fast—and now it's easy. ■

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Listing continued.

```

300 IF KK = - 14 THEN OP$ = "LOCK"
310 IF KK = - 13 THEN OP$ = "UNLOCK"
320 IF KK = - 12 THEN OP$ = "DELETE"
330 IF KK = - 10 THEN VTAB 23: END
340 IF KK = - 11 THEN VTAB LP + 2: HTAB 1: PRINT "SLOT:
": VTAB LP + 2: HTAB 7: GET SN$: POKE - 16368,0
350 IF KK = - 11 THEN : HTAB 1: PRINT "DRIVE: ";: GET DN$: IF ASC
(SN$) < 49 OR ASC (SN$) > 55 OR ASC (DN$) < 49 OR ASC (DN$) > 50
THEN 170
360 IF KK = - 11 THEN SN = VAL (SN$):DN = VAL (DN$): PRINT
D$;"PREFIX/":SD = 1:LE = 1: GOTO 60
370 VTAB LP + 2: HTAB 1: PRINT "TYPE 'LETTER' YOU WISH TO ";OP$;"
": POKE - 16368,0: REM 9 SPACES
380 KK = PEEK ( - 16384): IF KK < 128 THEN 380
390 IF KK > 224 THEN KK = KK - 32
400 IF OP$ = "LOAD" THEN 410
410 POKE - 16368,0:KK = KK - 192: IF KK < 1 OR KK > 1 + LP - P THEN
170
420 GOSUB 480
430 IF OP$ = "LOAD" THEN 450
440 GOSUB 520: GOTO 60
450 II = ID(P - 1 + KK): IF II = 428 OR II = 397 THEN VTAB LP + 2:DI$
= "": GOTO 170
460 IF II = 395 THEN B$ = "B"
470 GOSUB 520: GOTO 60
480 LO = 769 + (P * 128) + (KK * 128):ME = LO - (LO > 1921) * 984 -
(LO > 2945) * 984
490 SM = ME - 1:DI$ = ""
500 SM = SM + 1:DD = DD + 1:DI$ = DI$ + CHR$ ( PEEK (SM) - 128): IF
PEEK (SM) < > 160 THEN 500
510 DI$ = LEFT$( DI$,DD - 1): RETURN
520 HTAB 1: VTAB LP + 2: POKE - 16368,0: PRINT B$:OP$;" ";DI$;"
":: PRINT D$:B$:OP$:DI$:B$ = "": RETURN : REM 33 SPACES
530 IF PEEK (222) = 255 AND CC = 1 THEN 100
540 IF PEEK (222) = 255 THEN VTAB 23: PRINT CHR$ (7): END
550 IF PEEK (222) = 3 THEN SN = 6:DN = 1: GOTO 60
560 IF PEEK (222) = 10 THEN FL = 1: HTAB 1: VTAB LP + 2: PRINT "FILE
LOCKED. CONTINUE? (Y/N)"
570 IF FL = 1 THEN Q = PEEK ( - 16384): IF Q < > 217 AND Q < > 249
AND Q < > 206 AND Q < > 238 AND Q < > 141 AND Q < > 155 THEN 570
580 POKE - 16368,0
590 IF FL = 1 AND (Q = 217 OR Q = 249) THEN OP$ = "UNLOCK": GOSUB
520:OP$ = "DELETE": GOSUB 520:FL = 0: GOTO 60
600 IF FL = 1 AND (Q = 206 OR Q = 238 OR Q = 141 OR Q = 155) THEN FL
= 0: GOTO 170
610 IF PEEK (222) > 0 THEN VTAB 23: HTAB 1: PRINT "ERR NUMBER=";
PEEK (222);" IN LINE "; PEEK (218) + PEEK (219) * 256: PRINT CHR$
(4);"PREFIX/": POKE - 16368,0: END

```

End of listing.



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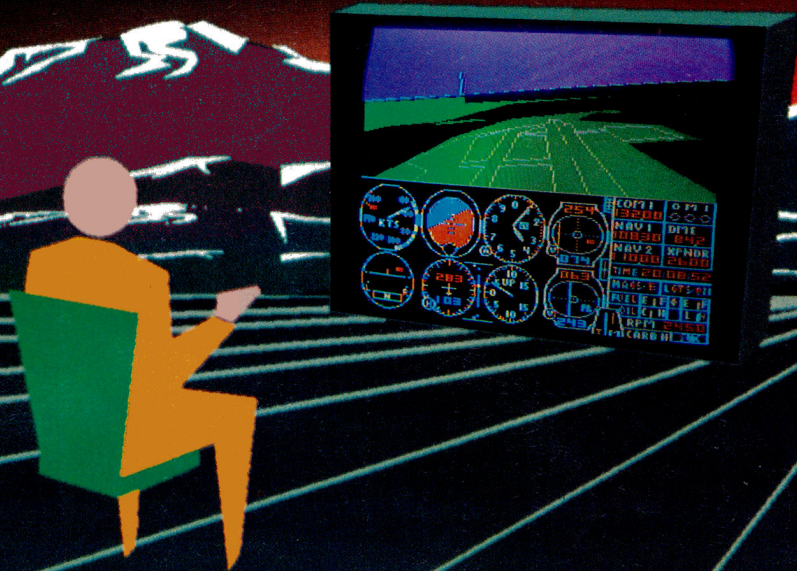
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EDITORS' CHOICE

ImageWriter II: The Poor Man's Laser Printer

Apple's newest peripheral is the sleekest-looking yet. The tilt that makes the **ImageWriter II** look like a plane taking off also makes for a neat space beneath the printer for your pinfeed paper, away from any cables. This represents an improvement over the design of the original ImageWriter. The ImageWriter II also prints faster, pouring out up to 250 characters per second in draft mode. Two additional print modes, standard quality for everyday work and near-letter-quality (NLQ) for correspondence and reports, are included.

If you need a chart or graph for presentation, the ImageWriter II prints high-resolution graphics in seven colors. It has no problem handling mailing labels, envelopes, and multipart forms, as well.

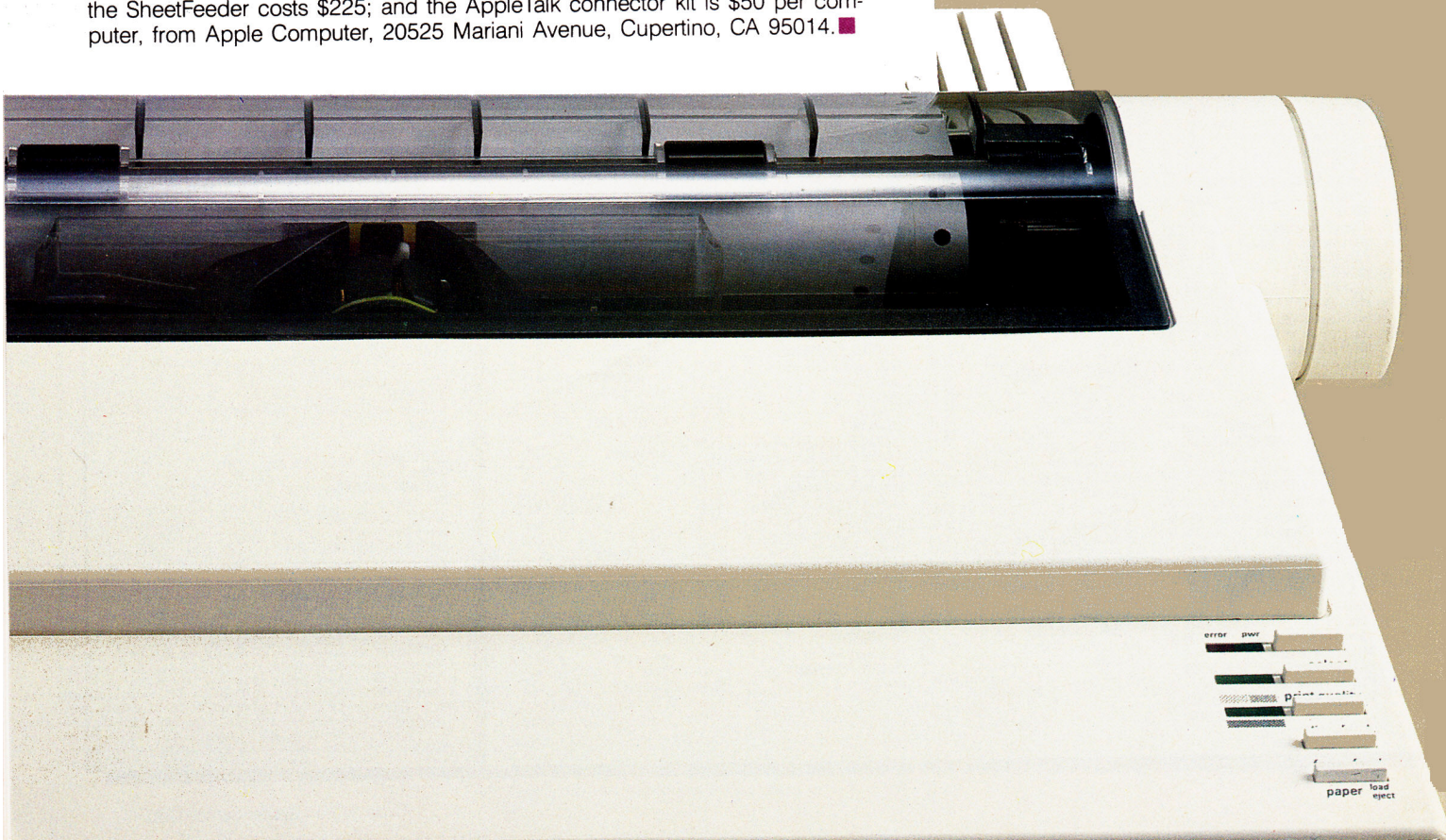
Bob Ryan, contributing editor, says, "The ImageWriter II print speed is great, and the printer is durable enough to stand up under a lot of wear and tear. It's the poor man's laser printer."

Review editor Paul Statt notes, "This is the first of many peripherals that will work with both the Apple II series and the Mac. Apple promises that all its peripherals will work with either system in the very near future."

Managing editor Dawn Matthews happily disconnected her Scribe and nabbed the new ImageWriter II as soon as it arrived at the *inCider* offices. It hooked up easily to her //c: "As usual, the manual has clear directions—Apple always has great docs. I had a good time running the test for color printing and using the accompanying DiskWare utility to print pictures of Einstein and Shakespeare. I've had a problem seeing the green print-selection and on/off lights in a brightly lit room, though."

Accessories available for the ImageWriter II include a 32K Memory Option your dealer can install in an existing expansion slot in the printer. (The printer comes with a 2K buffer.) The special SheetFeeder inserts individual pages and stacks them after printout to make large printing jobs easier. A third option is the AppleTalk hardware/software setup that lets your printer serve up to 31 computers in a local-area network. AppleTalk is currently available for the Macintosh, and an Apple II version is in the works.

The ImageWriter II lists for \$595; the 32K Memory Option is priced at \$99; the SheetFeeder costs \$225; and the AppleTalk connector kit is \$50 per computer, from Apple Computer, 20525 Mariani Avenue, Cupertino, CA 95014. ■



Let's compare ApplesTM to ApplesTM.



An Apple IIc



An Apple IIc with Z-RAM

The Apple IIc on the right works exactly the same as the Apple IIc on the left. Almost. The Apple on the right has a powerful memory expansion coprocessing card called Z-RAM. From Applied Engineering. Which means the Apple on the right can completely load AppleWorks into RAM—and then run it up to thirty times faster than the Apple on the left.

Z-RAM also acts as a solid-state disk drive. Which means the Apple on the right will load and store programs up to 30 times faster. And, our included RAM disk is compatible with Applesoft, PRO-DOS, DOS 3.3, PASCAL and CP/M.

Turbo Charged AppleWorks.

Even a 256K Z-RAM can completely load AppleWorks into RAM. With Z-RAM, the moment your fingers touch the keyboard AppleWorks responds. A 256K Z-RAM lets your IIc run AppleWorks up to 30 times faster, increases available desktop to 235K and maximum number of records from 1,350 to over 15,000, quadruples the number of lines allowed in the word processor, provides a print spooler, and auto-segments large files so they can be saved on two or more disks. A 512K Z-RAM boosts AppleWorks desktop to an incredible 425K.

Take a closer look.

There's more. Z-RAM has a built-in high speed Z-80B microprocessor that allows you to run CP/M programs. Which means you now have access to the single largest body of software in existence, including popular packages like WordStar, dBase II, Turbo PASCAL and Microsoft BASIC. A 16 bit option is also available.

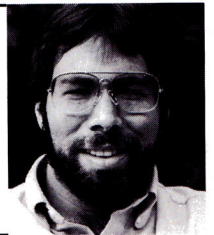
And still more. Z-RAM is compatible with all IIc software and hardware, installs easily in just ten minutes with a screwdriver (slightly longer without), is available with 256K or 512K of additional memory (a 256K Z-RAM can be upgraded to 512K at

any time). Z-RAM is easily handled by the IIc power supply with our patent pending power saving design.

The only thing better than that would be a recommendation from Steve Wozniak.

"I recommend Applied Engineering products wholeheartedly." (Of course, Steve's IIc has a Z-RAM installed.)

*Steve Wozniak, the creator
of Apple Computer*

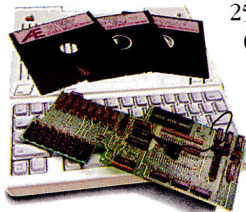


For fast response.

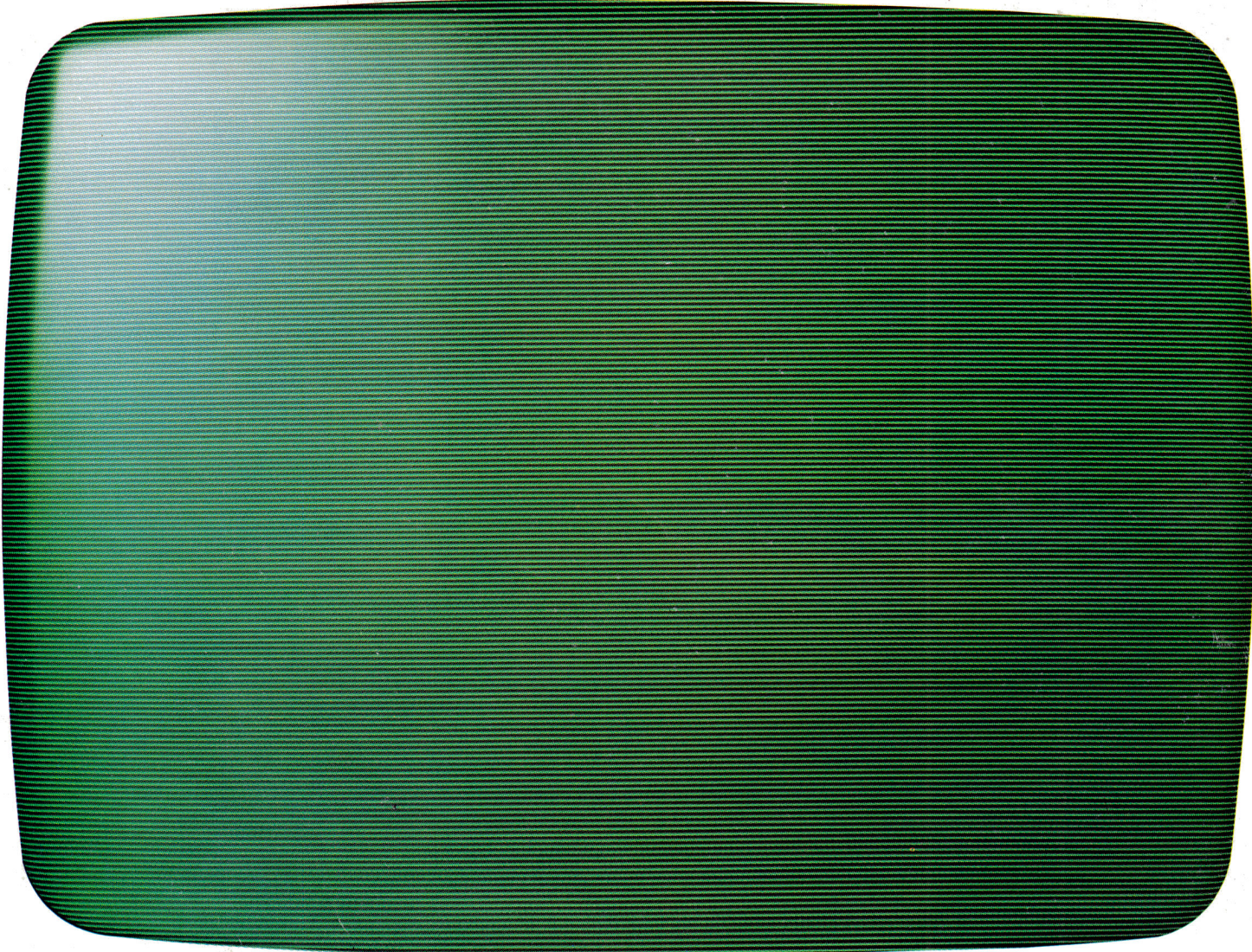
Z-RAM comes complete with simple instructions, RAM disk software, Z-80 operating system, CP/M manual. And a five year "hassle free" warranty. Make a good Apple great. With 256K Z-RAM "384K total" (\$329); with 512K "640K total" (\$389); 16 bit option may be added later (\$89).

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